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# USEFUL PLANTS OF INDIA

*ALPHABETICALLY ARRANGED*

WITH BOTANICAL DESCRIPTIONS, VERNAacular SYNONYMS,

AND

NOTICES OF THEIR ECONOMICAL VALUE

IN

Commerce, Medicine, and the Arts.

---

COMPILED FROM VARIOUS SOURCES,

BY

**Major HEBER DRURY,**

*MADRAS ARMY.*

---

*Simul et jucunda et IDONEA dicere vita.*

*HOR.*

---

**M a d r a s :**

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## INTRODUCTION.

AN increasing demand for everything relating to the Vegetable productions of India, has of late years been the means of eliciting from various quarters much useful information tending to a more extensive acquaintance with, as well as improvement of, the natural resources of the country. The idea that a collection of ascertained facts regarding the uses of Indian plants is still a desideratum, led to the compilation of the following pages. A vast quantity of miscellaneous matter is scattered throughout the pages of Rheede, Ainslie, Roxburgh, Wallich, Wight, Royle, and others, who have written on the subject of Indian Botany; and it frequently occurred to me, that were an attempt made to collect in a single volume, the various notices on the chief uses of plants as recorded in their works, it would form a somewhat useful and desirable hand-book to a knowledge of our Botanical resources. Undoubtedly, many of the so called uses of Indian plants, are now either entirely obsolete, or owing to the advancement of science and more extended investigations in the departments of Medical and Economical Botany, have been tested and corrected by recent observers; while numerous doubts and errors have been either cleared up or exploded.

The reports of the Juries on the Timber, Vegetable Oils, Drugs, &c. submitted to the Madras Exhibition in 1855, are so many evidences of the richness and variety in these important sections of the natural products of the Indian Peninsula: and further show how well that Exhibition was calculated for the attainment of the best results, the development to a great degree of resources hitherto so little known.

valuable Botanical works in his Library, an advantage, the importance of which was invaluable, and which I might in vain have sought elsewhere in any private collection in this country. My best acknowledgments are due to the Hon'ble Walter Elliot and Dr. Hugh Cleghorn who kindly undertook the labour of revising the work during its progress through the press, my distance from the Presidency not admitting of personal superintendence. I am also indebted to Surgeon Edward Balfour, of the Madras Army, who kindly placed at my disposal a list drawn up by him, of the commercial products of the Presidency, with reference to their exports and imports, to which I have made frequent reference in the following pages.

H. D.

TREVANDRUM, September 1858.

## PRINCIPAL ABBREVIATIONS

### EMPLOYED IN THIS VOLUME.

- Ainsl.*—Ainslie's *Materia Indica*. 2. vols.
- Ait.*—Aiton's *Hortus Kewensis*.
- And. Bot. Rep.*—Andrew's *Botanical Repository*.
- Aubl.*—Aublet, a French traveller and Botanist.
- Beauv.*—Beauvois, *essai d'une nouvelle Agrostographie*.
- Beng. disp.*—Bengal dispensatory by Dr. W. O'Shaughnessy.
- Benth.*—Bentham, *Labiatarum genera et species—Schrophularineæ Indicæ*.
- Bl.*—Blume, (C. L.) *Flora Javanensis*.
- Bot. Mag.*—Curtis' *Botanical Magazine*.
- Bot. Misc.*—Hooker's *Botanical Miscellany*.
- Buch.*—Dr. Francis Hamilton, formerly Buchanan, whose "Journey," MSS. and Herbarium are well known among Botanists.
- Burm. Ind.*—Burmanni *Flora Indica*.
- Burm. Zeyl.*—Burmanni *Thesaurus Zeylanicus*.
- Cav. ic.*—Cavanilles (A. J.) *Icones et descriptiones plantarum, quæ aut sponte in Hispaniâ crescunt aut in Hortis hospitantur*. 6. vols. fol. 1791—1800.
- Cav. diss.*—Cavanilles' *Monadelphicæ classis dissertationes decem*.
- Choisy.*—A Swiss botanist, who elaborated several of the Natural Orders for DeCandolle's *Prodromus*.
- Comm. prod.*—Commercial products of the Madras Presidency, as shewn by its Exports and Imports.
- Corr.*—Correa, (F.) de Serra. A Botanical writer.
- DC.*—DeCandolle, (A. P.) *Prodromus Systematis Naturalis Regni Vegetabilis*.
- Deless. icon.*—Delessert, *Icones selectæ plantarum, quas in systemate naturali descripsit DeCandolle*.

- Desrouss.*—Desrousseau. An eminent Botanick writer in Lamarck's Encyclopédie.
- Desv.*—Desvaux, (N. A.) A French Botanist, Editor of the Journal Botanique.
- Don (D.)*—Prodromus floræ Nepalensis.
- Don (G.)*—Editor of a new Edition of Miller's Gardener's Dictionary, 4 vols. 4to.
- Endl.*—Endlicher, Genera plantarum.
- Forsk.*—Forskål, (Peter). A famous Sweedish Naturalist. Author of Flora Ægyptiaco-Arabica and other works.
- Gærtn.*—Gærtner, (J.) de fructibus et seminibus plantarum, 2 vols. 4to. 1788.
- Grah. Cat.*—Graham's, (J.) Catalogue of Bombay plants.
- Ham.*—Dr. Francis Hamilton (formerly Buchanan). Author of a Journey to Mysore, and several papers in the transactions of the Linnæan Society.
- Herb. Mad.*—Herbarium Maderaspatense formed by Drs. Klein, Heyne and Rottler.
- H. B. Kth.*—Humboldt, Bonpland and Kunth. Authors of Nova genera, et species plantarum æquinoctialium orbis novi.
- Hook. bot. Misc.*—Hooker's Botanical Miscellany. Also his Journal of Botany.
- Jacq.*—Jacquini icones plantarum rariorum. 3 vols. 1781.
- Jury. Rep. Mad. Exh.*—Jury reports of the Madras Exhibition, 1855.
- Juss.*—Jussieu, (Bernard de) Genera plantarum.
- Juss.*—Jussieu, (Adrien de). A celebrated Botanist.
- Kth.*—Kunth. An eminent Prussian Botanist.
- Koen.*—Koenig, a Danish Botanist. Physician to the Tranquebar Mission in 1768.
- Lam.*—Lamarck, (J. B.) Editor to the botanical portion of the Encyclopædia Methodique (*Enc. Meth.*) Paris 1783.
- Lesch.*—Leschenault de la Tour. A French Botanist who travelled in the Moluccas, Java and Sumatra. He was director of the Botanical gardens at Pondicherry.
- L'Herit.*—L'Heritier, (C. L.) a French Botanist, author of a work entitled *Stirpes novæ aut minus cognitæ*.

- Lindl.*—Lindley, (Dr. J.) A celebrated English Botanist, author of the Vegetable Kingdom, *Flora Medica (Flor. Med.)* and other works.
- Linn.*—Linnæus. The founder of Botanical science. His principal works are *Species plantarum (Linn. sp.)* *Mantissa plantarum (Linn. Mant.)* *Flora Zeylanica (Fl. Zeyl.)* His son published a *Supplementum plantarum*.
- Lour.*—Loureiro, *Flora Cochinchinensis*, 1 vol. 1790.
- Pers.*—Persoon, (C. H.) *Synopsis plantarum*.
- Pers. obs.*—Personal observation and enquiry.
- Pluk.*—Plukenet, (L.) an Eminent Botanical writer. His works are published in four vols. 4to. Lond. 1696-1705.
- Poir.*—Poiret, (J. L. M.) A writer in Lamarck's *Encyclopédie*.
- R. Br.*—Robert Brown. The most famous of living English Botanists.
- Retz.*—*Observationes botanicæ*, 1774.
- Rheede.*—Author of the *Hortus Malabaricus*, 12 vols. fol., 1686-1703.
- Rich.*—Richard, (L. C.) and his son Achille Richard, two eminent French Botanists.
- Roem. et Schult.*—Roemer, (J. J.) and Schultes, (J. A.) authors of *Linnæi systema vegetabilium*.
- Roth.*—(A. W.) Author of *Novæ plantarum species præsertim Indiæ orientalis*.
- Rottl.*—Rottler, (Dr.) An Indian Botanist for a long time residing at Tranquebar.
- Roxb.*—Roxburgh, (Dr. W.) One of the most indefatigable of Indian Botanists. His principal works are *Flora Indica (Fl. Ind.)* 3 vols. An edition was published by Carey and N. Wallich at Serampore (*ed. Car.*) *Plants of the Coromandel Coast, (Cor.) Hortus Bengalensis*. He left behind him also drawings of plants in the East India Company's Museum, (*E. I. C. Mus.*)
- Royle fib. plants.*—Royle on the fibrous plants of India. He also wrote on the cultivation of Cotton in India.
- Rumph.*—Rumphii *Herbarium Amboinense*.
- Ruiz e Pav.*—Ruiz, (H.) and Pavon, (J.) Authors of *Flora Peruviana et Chilensis*.
- Simmonds.*—Commercial products of the Vegetable Kingdom.
- Sims. bot. Mag.*—Sim's Botanical Magazine.
- Spr. Syst.*—Sprengel, (Prof.) *Systema Vegetabilium*.
- Sw.*—Swartz, *Flora Indiæ occidentalis*, 3 vols. 1797.



## LIST OF ERRATA.

Page.	Line.	For
9	Last	<i>M. flexuosa</i> ..... <i>M. flexuosa</i> .
12	12	Trigynia Polyandria..... Polyandria Trigynia.
16	2	Decandria ..... Decandria.
17	Note	Obliterate full stop after Indian.
21	9	Put Lindley, Rheedæ at the end of the sentence.
23	19	Forest..... Forests.
26	4	Monogynnia..... Monogynia.
29	25	Scholaria..... Scholaris.
31	3	Begn..... Beng.
40	2	Gymnospermeria..... Gymnospermeria.
63	28	Sacerdotal..... Sacredotal.
86	Note	Spinora..... Spinosa.
	19	Polygania..... Polygama.
96	30	Tojurel..... Tsjurel.
98	27	Gattifera..... Guttifera.
100	5	Pootungee..... Pootrunjee.
	30	Pentandria..... Pentandria.
101	10	Shevet akun l..... Shwet akund.
130	12	Omit but.....
	15	Fruit..... Fruits.
164	25	<i>Costus speciosus (S. M.)</i> ..... <i>Costus speciosus (Sm.)</i>
165	last	Ta-krina..... Ta-krina.
189	31	Hexandla Monogyn..... Hexandria Monogynia.
191	30	Angiospermeria..... Angiospermeria.
217	7	Polygimia..... Polygynia.
221	12	Arostigma..... Urostigma.
		Miguel..... Miquel.
	16	present..... parent.
225	12	Arostigma..... Urostigma.
		Miguel..... Miquel.
264	last	buildings..... building.
268	7	Willichi obs..... N. Wallichi obs.
	8	Acuminata..... Acuminata.
273	last	expeled..... expelled.
312	4	Vella..... Vala.
	22	tree..... plant.
317	27	punctuate as follows <i>Aselepias microphylla</i> , Roxb. fl. Ind. II. 35.....
349	1	Nat. Ord. <i>Palmaceæ</i> ..... Do.
	2	<i>Diœcia Hexandria Sex : Syst. :</i> ..... Do.
363	11	<i>Velutia modelamucu</i> ..... <i>Chovannamodola mucu</i> .
378	12	<i>Diaxia</i> ..... <i>Diœcia</i> .
435	14	( <i>Schm.</i> )..... ( <i>Lehm.</i> )
442	10	<i>Pentandria Dygynia</i> ..... <i>Pentandria Digynia</i> .
	21	<i>Tylopoora pubescent</i> ..... <i>Tylophora pubescens</i> .
453	23	<i>V. rugoso</i> ..... <i>V. rugosa</i> .

## A.

### (1) **Abelmoschus esculentus** (*W. & A.*) Nat. Ord. MALVACEÆ.

**Monadelphica Polyandria.** *Sex* : *Syst* :

Esculent Okro, ENG.  
Vendah, MAL.  
Venda, TAM.

Benda, TEL.  
Bhendie, DUK.  
Ramturay or Dhenroos, BENG.

DESCR: Annual, herbaceous: stems hairy: leaves alternate, cordate, strongly toothed, 3-5 lobed, scabrous on both sides, on long petioles: calyx spathaceous, very soft: involucre of 10 leaves, deciduous: pedicels short: capsule pyramidal, furrowed, bristly: petals pale yellow. dark crimson at the base. *Fl.* All the year.—*W. & A. prod.* I. 53.—*Hibiscus esculentus*, *Linn.*—*H. longifolius*, *Roxb. fl. Ind.* III. 210.—Cultivated in gardens in the Peninsula.

USES, &c. This plant though indigenous to the West Indies, has long been naturalized in India. It produces the well-known vegetable, the Bendi-kai, which is so much esteemed in imparting a mucilaginous thickening to soups. The young pods are gathered green and pickled like capers. The seeds may be boiled like barley, and the mucilage which they contain is both emollient and demulcent. Leaves are used for poultices. The plant yields a long silky fibre, strong and pliant, and well suited for the manufacture of ropes, string, gunny-bags, and paper. The fibres are exported to a slight extent from this country, as hemp, to which they bear a considerable resemblance. A bundle of them tested by Dr. Roxburgh bore a weight of 79 lbs. when dry, and 95 lbs. when wet. *Roxb. Royle. Jury Rep. Mad. Exhib. &c.*

### (2) **Abelmoschus moschatus** (*Moench.*) Do.

*Do.*

Musk-Mallow, ENG.  
Caat-kustoorie, MAL.  
Vettilei-kustoorie, TAM.

Kalee-kustoorie, DUK.  
Mooshk-dana, HIND.

DESCR: Annual, herbaceous: stems hispid with hairs: leaves hispid, otherwise glabrous, long petioled, coarsely toothed, deeply 5-7 lobed: lobes oblong or lanceolate, acuminate: pedicels

in Jamaica the leaves are used instead of tea. *Lindl. Ainslie. Rheede.*

(5) **Abutilon Indicum** (*G. Don.*) Nat. Ord. MALVACEÆ.

**Monadelphica Polyandria.** *Scr: Syst:*

Country-Mallow, ENG.  
Payrin-toothe, MAL.  
Perin-toottie, TAM.

Nugoo-henda, TEL.  
Petaree, BENG.

DESCR: Shrub 2-3 feet: leaves cordate, somewhat lobed, soft, shortly tomentose, unequally toothed: calyx 5-cleft, without an involucre: pedicels erect, axillary, longer than the petioles, jointed near the flowers: corolla spreading: capsules truncated: carpels 11-20, acute, not awned, hairy: flowers longish, orange coloured. *Fl. July.—W. & A. prod. I. 56.—a. leaves scarcely acute.—Sida Indica, Linn.—b. leaves more or less acuminate.—S. populifolia, Lam.—S. eteromischos, Cav. diss.—Beloeren—Rheede VI. t. 45.—Wight's Icon. t. 12.—Bengal. Travancore. Common in most parts of India.*

USES, &c. The stem yields a strongish fibre fit for the manufacture of ropes. The leaves contain a great deal of mucilage, and on that account are used in the same manner here as the marsh mallows in Europe. A decoction of them is used by European and Native practitioners as an emollient fomentation, and an infusion of the roots is given as a cooling drink in fevers. The root is also used in leprosy and the seeds are reckoned laxative. Wight remarks that there is no character of any importance to separate this species from the *A. Asiaticum*. *Ainslie. Rheede.*

(6) **Abutilon polyandrum** (*W. & A*) Do.

*Do.*

DESCR: Shrub 3 feet: leaves roundish-cordate, with a sudden longish acumination, distantly repand-toothed, young ones velvety beneath: peduncles arranged in small-leaved terminal racemes: pedicels longer than the leaves: stamens united at their base into a very short column: carpels 5, twice as long as the calyx: flowers yellow. *Fl. May—June.—W. & A. prod. I. 55.—Sida polyandra, Roxb.—S. Persica, Burm. Ind.—Neilgherries. Nundidroog.*

USES, &c. This species also yields a long silky fibre, resembling hemp, fit for the manufacture of ropes, samples of which were submitted to the Madras Exhibition. *Rep. Mad. Exhib.*

(7) **Acacia Arabica** (*Willd.*) Nat. Ord. LEGUMINOSÆ.**Polygamia Monœcia.** *Sex: Syst:*

Babool tree, ENG.  
 Kurroo-vaylum, MAL.  
 Karoo-valum, TAM.  
 Nulla-tooma, TEL.

Kalee-keekur, DUK.  
 Kali-kikar, HIND.  
 Babula, GURSOONDER, BENG.

DESCR: Tree 30-40 feet, armed with stipulary thorns: leaves bipinnated, pinnæ about 5 pair; leaflets 15-20 pair, glabrous: peduncles aggregated, axillary or forming a raceme by the abortion of the leaves: heads of flowers globose: corolla 5-cleft: stamens distinct: legumes stalked, thickish, contracted on both sutures between the seeds: flowers small, bright yellow, fragrant. *Fl.* May—October.—*W. & A. prod.* I. 277.—*Mimosa Arabica*, *Lam. Roxb. fl. Ind.* II. 557, *Cor.* II. 149—Bengal. Coromandel. Deccan.

USES, &c. This tree, like several others of the same genus, yields a transparent gum which is used in India as a substitute for the real gum Arabic, the latter being the produce of the *A. Vera*. The gum is procured by making incisions in the bark, and the sap running out hardens in lumps of different sizes and figures. The bark itself is used medicinally as a tonic in infusion, and a strong decoction of it is employed as a wash for ulcers; and finely powdered and mixed with gingely oil, it is recommended externally in cancerous affections. Mixed with the seeds of the *Sesamum Orientale*, after the oil has been expressed, the gum is an article of food with the Natives. A decoction of the bark makes a good substitute for soap, and is used to a great extent for tanning leather and dyeing various shades of brown, and, according to Dr. Buchanan, is moreover, employed in Mysore in the process of distilling Arrack. The leaves burnt and mixed with coconut oil are applied externally in cases of itch. The timber is useful for various purposes, such as wheels, tent-pegs, &c. &c., and in some districts is made into charcoal for gun-powder. The seeds and pods are of great value to the shepherd in the hot season, as food for his flock when grass is scarce. The tree grows rapidly and requires no water. There is a variety or distinct species in Candeish called Ram-Kanta, a tall erect tree: and another in the Buglana districts which abounds more in gum than the common Babool, and differs from it in the form and colour of its legumes. *Roxb. Ainsl. Gibson, &c.*

(8) **Acacia catechu** (*Willd.*) Do.

Do.

Catechu tree, ENG.  
 Wothalay, TAM.  
 Podechmaun, TEL.

Khaira, HIND.  
 Khuera, BENG.

DESCR: Tree 30-40 feet: branches armed with stipulary thorns,

occasionally unarmed : leaves bipinnated : pinnæ 10-30 pair : leaflets numerous : young shoots, petioles, and peduncles more or less pubescent : petioles sometimes armed below with a row of prickles : spikes axillary, 1-4 together, shorter than the leaves : corolla 5-cleft : petals united : stamens distinct : legumes thin, flat, glabrous 4-8 seeded : flowers small, white, or pale yellow. *Fl.* June—October.—*W. & A. prod.* I. 272—*A. polyacantha*, *Willd.*—*A. Wallichiana*, *DC.*—*Mimosa catechu*, *Linn. Suppl. Roxb. Fl. Ind.* II. 562. *Cor. t.*175.—*M. catechuoides*, *Roxb.*—Malabar. Various parts of the Peninsula. Bengal. Delhi.

USES, &c. The substance, formerly known as Terra Japonica, is yielded by this tree. It is now better understood as one of the kinds of Catechu prepared in India—the word being derived from *cate* a tree, and *chu* juice. It is extracted from the unripe pods and old high-coloured wood, and the mode of preparation in some of the Northern parts of India is minutely described by Dr. Royle. The chips of the inner wood are put into an earthen pot over the fire; they are then boiled, and the clean liquor is strained off when of sufficient consistence it is poured into clay moulds. This is usually of a pale red colour, and in quadrangular pieces. Ainslie states that it is used in Berar in the process of dyeing chintz and other cloths. It is occasionally mixed with plaster to increase its adhesion, and is also, in conjunction with certain oils, applied to beams to preserve them against the white ants. The most celebrated catechu is that obtained from Pegu, and this brings £4 or 5 a ton more than other astringent extracts. Catechu contains a greater proportion of tannin than other astringent substances, and it has been found that 1 lb. of this is equal to 7 or 8 lbs. of oak bark for tanning purposes. The manufactured article is brought down in considerable quantities from Berar and Nepaul, and thence to Calcutta, from whence it is exported to Europe. In four years ending in 1856 were exported from Madras 5,419 cwt. of Catechu valued at 34,657 Rupees, chiefly to the United Kingdom, Bombay, Ceylon, France and Maldive Islands. Other kinds of Catechu are prepared in India, the commonest of which is that from the nut of the Areca palm, (*V. Areca Catechu.*) It is much used as a medicinal astringent substance. As a timber, the wood of the tree is less hard and durable than that of other species of Acacia. *Roxb. Royle. Ainslie. Simmonds. Comm. prod. Mad.*

(9) **Acacia concinna** (DC.) Do.

Do.

Chikai, TEL.

| Reeta, BENG.

DESCR: Climbing shrub : branches irregularly angled, tomentose, armed with numerous recurved prickles : leaves bipinnated :

pinnae 6-8 pair : leaflets numerous, linear, somewhat semihastate mucronate : petioles with hooked prickles below : panicles terminal and axillary, with globular heads of flowers, 3-5 together in the axils of a small leaf or bract, peduncled : corolla 5-cleft : stamens distinct : legumes large, succulent, contracted between the seeds : valves wrinkled on the surface when dry : flowers small, white. *Fl.* July—October.—*W. & A. prod.* I. 277.—*Mimosa concinna*, *Willd. Roxb. fl. Ind.* II. 565.—*M. rugata*, *Lam.*—*M. abstergens*, *Spr.*—*M. saponaria*, *Roxb. in E. I. C. Mus.*—Bengal. Assam.

USES, &c. A considerable trade is carried on in some parts of India in the pods of this shrub, the pods of which resemble the soapnut, and are used like it, for washing the head. They are also employed by the Hindoos for marking the forehead. The leaves are acid, and are used in cookery instead of tamarinds. *Roxb. Nimmo, &c.*

(10) **Acacia Farnesiana** (*Willd.*) Do.

*Do.*

Gooya-babula, BENG.  
Kustoori, Peetooma, TEL.

Vaday-vullie-marum, TAM.

DESCR: Large shrub or tree armed with stipulary thorns : calyx 5-toothed : corolla tubular, 5-toothed : stamens distinct : leaves bipinnated : pinnae 4-8 pair : leaflets linear, 10-20 pair, nearly glabrous : petioles and peduncles more or less pubescent : legumes cylindrical, filled with pulp and two rows of seeds : flowers globular, 2-3 together, each on an axillary peduncle, small, yellow, fragrant. *Fl.* December—January.—*W. & A. prod.* I. 272 (under *Vachellia*).—*A. Indica*, *Desv. journ. bot.* *Vachellia Farnesiana*, *W. & A.*—*Mimosa Farnesiana*, *Linn.*—*Roxb. fl. Ind.* II. 557,—*M. Sepiaria*, *Roxb. in E. I. C. Mus.*—*M. Indica*, *Poir.*—Bengal. Assam. Peninsula.

USES, &c. This small tree exudes a considerable quantity of useful gum. Roxburgh says it is a native of every part of India. The wood is very hard and tough, and is much used for ship-knees, tent-pegs and similar work. The flowers distilled, yield a delicious perfume. *W. & A. Roxb.*

(11) **Acacia ferruginea** (*DC.*) Do.

*Do.*

Velvaylum, TAM.

Woanee, Tella-Toomma, TEL.

DESCR: Tree 20-25 feet, armed with conical stipulary thorns,

occasionally unarmed, leaves bipinnated: glabrous: pinnæ 3-6 pair: leaflets 10-20 pair, oblong-linear: spikes of flowers axillary, usually in pairs, many-flowered: corolla 5-cleft: stamens slightly united at the base: legumes flat, lanceolate, rusty coloured, 2-6 seeded: flowers small, pale yellow.—*Fl.* April—May.—*W. & A. prod.* I. 273.—*Mimosa ferruginea*, *Roxb. fl. Ind.* II. 561.—Coromandel Coast. Courtallum. N. Circars.

USES, &c. The bark steeped in jaggy water is distilled as an intoxicating liquor. It is very astringent. A decoction of the same, in conjunction with ginger and other ingredients, is frequently employed as an astringent wash for the teeth. *Ainslie. Lindl. &c.*

(12) **Acacia leucophlæa** (*Willd.*) Do

*Do.*

Panicled Acacia, ENG.  
Kikar, HIND.

Velvaylum, TAM.  
Tella-tooma, TEL.

DESCR: Tree armed with stipulary thorns: leaves bipinnated: pinnæ 7-12 pair: leaflets numerous, oblong-linear, slightly pubescent: panicles terminal or from the upper axils: branches and peduncles shortly tomentose: corolla 5-cleft: stamens distinct: legumes narrow, long, curved, shortly tomentose when young: heads of flowers globose: flowers small, pale yellow. *Fl.* June—September.—*W. & A. prod.* I. 277.—*Mimosa leucophlæa*. *Roxb. Cor.* II. 15. *A. fl. Ind.* II. 558.—*A. alba*, *Willd.*—Sholapore. Woods and hills on Coromandel Coast.

USES, &c. The Natives distil a kind of ardent spirit from the bark, mixed with palm-wine and sugar. A fibre is also prepared from the bark by maceration after four or five days beating. It is used for large fishing nets and coarse kinds of cordage, being tough and strong. The timber of the tree is hard and dark coloured. *Lindl. Rep. Mad. Exhib. &c.*

(13) **Acacia myriophylla** (*Grak.*) Do.

*Do.*

DESCR: Small tree, 12 feet: leaves bipinnate: pinnæ 10-15 pair: leaflets 30-50 pairs, obliquely-linear: panicles terminal: legumes thin, few-seeded: heads of flowers globular, greenish-yellow. *Fl.* May—June.—*Mimosa microphylla*, *Roxb. fl. Ind.* II. 549.—Silhet.

USES, &c. With the bark of this tree the mountaineers make an intoxicating liquor, which they drink as we do beer. *Roxb.*

(14) **Acacia odoratissima** (*Willd.*) Do.

Do.

Karinthakara, MAL.  
Curroovaga, TAM.

Shinduga, TEL.

DESCR: Tree 30–40 feet, unarmed: leaves bipinnated: pinnæ 3–4 pair: leaflets 10–14 pair, narrow, oval, oblique, glabrous, pale on the underside: panicles terminal and axillary, the ultimate divisions cymose or somewhat umbellate: heads of flowers small, globose: stamens monadelphous: legume flat, thin, thick-margined, about 10-seeded: flowers pale yellow, very fragrant. *Fl.* May–June.—*W. & A. prod.* I. 275.—*A. lomatocarpa*, *D. C.*—*Mimosa odoratissima*, *Linn Suppl.* *Roxb. fl. Ind.* II. 546. *Cor.* II. 120.—*M. marginata*, *Lam.* *Rheede* VI. t. 5.—Malabar and Coromandel.

USES, &c. The timber of this large and handsome tree is particularly hard and strong, and is well suited for naves and felloes of wheels. The tree is very abundant, and grows in almost any soil. “The juice of the bark mixed with lime juice and green curcuma, and boiled in cocoanut oil is given in leprosy externally as well as applied to inveterate ulcers.” *Rheede. Roxb. Jury Rep. Mad. Exhib.*

(15) **Acacia speciosa** (*Willd.*) Do.

Do.

Sirissa tree, ENG.  
Kátuvagi, TAM.

Dirisana, TEL.  
Sirissa, BENG.

DESCR: Tree 30–40 feet, unarmed: young branches flexuose: leaves bipinnated: pinnæ 1–4 pair: leaflets 4–9 pair, obtuse, oval, glabrous, unequal: peduncles axillary, each with a globular head of flowers on short pedicels, 1–4 together: calyx long tubular: petals 5, united to beyond the calyx: stamens very long, monadelphous: legumes flat and thin, remotely 8–10 seeded: flowers small, white fragrant. *Fl.* August–September.—*W. & A. prod.* I. 275.—*A. Sirissa*, *Buch.*—*Mimosa speciosa*, *Jacq.*—*M. Sirissa*, *Roxb. fl. Ind.* II. 554. *M. flexuosa*, *Rottl. Ainsl.*—Travancore. Coromandel.



**USES, &c.** This tree yields a considerable quantity of gum, which is valuable for many ordinary purposes. It is something like gum Arabic. The timber is very durable, hard and close-grained, and is employed in making furniture, &c. It is of a light colour, and well adapted for picture frames and similar work. *Roxb. Rep. Mad. Exhib. &c.*

(16) **Acacia stipulata** (DC.) Do.

*Do.*

Amlooki, BENG.

**DESCR:** Tree 40-50 feet, unarmed: leaves bipinnated: young shoots irregularly angled: pinnae 6-20 pair: petioles tomentose: leaflets numerous, semihastate, sides very unequal: peduncles aggregated: panicles terminal and in the upper axils: heads of flowers globose: corolla tubular, 5-cleft: stamens very long, monadelphous at the base: legumes thin, flat glabrous: seeds 6-12: flowers white and rose-coloured. *Fl.* April—June—*W. & A. prod.* I. 274.—*Mimosa stipulata*, *Roxb. H. B.*—*M. stipulacea*, *Roxb. fl. Ind.* II. 549.—Travancore. Courtallum: Bengal.

**USES, &c.** This is one of the largest trees of the genus. The timber is close grained and strong, rendering it valuable for furniture and other purposes. It is a native of the mountains north of Bengal, but is to be met with in most parts of the Peninsula. *Roxb. &c.*

(17) **Acacia sundra** (DC.) Do.

*Do.*

Carungally, TAM.

| Sundra, TEL.

**DESCR:** Tree 20-30 feet: branches armed with recurved stipulary prickles, sometimes unarmed: leaves bipinnated: pinnae 15-20 pair: leaflets numerous, small, linear: spikes 1-3 together, axillary, peduncled, shorter than the leaves, many flowered: corolla 5 cleft: stamens distinct: flowers small, yellow: legumes thin, flat, lanceolate: seeds few. *Fl.* July—August—*W. & A. prod.* I. 273.—*A. chundra*, *Willd.*—*Mimosa sundra*, *Roxb. fl. Ind.* II. 562. *Cor.* III. 225.—Travancore. N. Circars.

**USES, &c.** A resin similar to that yielded by the *A. Catechu* is procured from this tree: in fact the two species are very nearly alike: this principally differs in being perfectly glabrous: the uncer-

tainty of the prickles absent or present, even on the same branch affords no distinctive character. The timber is very hard and durable, and is regarded by the Natives as the best for posts in house-building. The tree is abundant, and grows to a fair size. Owing to the unyielding nature of the wood, it is said that it is liable to split when nails are driven into it. *Wight. Rep. Mad. Exhib.*

(18) **Acalypha Indica** (*Linn.*) Nat. Ord. EUPHORBIACEÆ.

**Monœcia Monadelphica.** *Sex: Syst:*

Indian Acalyphæ, ENG.  
Koopmamaynie, MAL.  
Cupamani, TAM.

Kooppie, DUK.  
Mookto-joori, BENG.

DESCR: Annual, 1-2 feet: leaves ovate-cordate, acuminate, serrated, on long petioles: spikes axillary, as long as the leaves; male flowers above, female ones below, inclosed in a cup-shaped involucre opening on the inner side, striated, serrated: stamens 8-16: styles 3: capsules tricoccus, 3-celled, 1-seeded: flowers small, greenish. *Fl.* April—June.—*Roxb. fl. Ind.* III. 675. *Wight. Icon.* t. 877—*Rheede X. t.* 81-83.—Travancore. Peninsula. Bengal.

USES, &c. This plant is easily distinguished by the singular cup-shaped involucre which surrounds the flowers. The root bruised in hot water is employed as a cathartic, and the leaves as a laxative in decoction; mixed with common salt the latter are applied externally in scabies. A decoction of the plant mixed with oil is antarthritic, and mixed with chunam is applied externally in cutaneous diseases. A decoction of the leaves is given in ear-ache. *Roxb. Ainslie. Rheede.*

(19) **Achyranthes aspera** (*Linn.*) Nat. Ord. AMARANTACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Rough chaff flower, ENG.  
Nahi-ooroovie, TAM.  
Cadelari, MAL.  
Ooteraynie, TEL.

Agareh, DUK.  
Lalchirchiri, HIND.  
Upanga, BENG.

DESCR: Shrub about 3 feet: branches somewhat 4-sided: stem erect, pubescent: leaves on short petioles, obovate-rotund, abruptly attenuated at the base, pubescent: spikes virgate, acute, at first horizontal, afterwards reflexed: flowers purplish-green: bracts at first soft, soon becoming rigid and prickly-like: capsules 5-seeded, reddish. *Fl.* Nearly all the year.—*Wight's Icon.* t. 1777.—*Roxb. fl. Ind.* I. 672. *Ed. Car.* II. 496.—*A. obtusifolia, Lam.*—*A. Indica Roth. Rheede X. t.* 78.—Travancore. Coromandel. Bengal.

**USES, &c.** In some parts of India, the Natives use the root as a sort of tooth-brush. The seeds are given in hydrophobia, and in cases of snake-bites, as well as in ophthalmia, and cutaneous diseases. The flowering spikes rubbed with a little sugar are made into pills, and given internally to people bitten by mad dogs. The leaves taken fresh and rubbed to a pulp are considered a good remedy applied externally to the bites of scorpions. The ashes of the burnt plant mixed with conjee is a native remedy in dropsical cases.\* The *A. fruticosum* is also given in cases of dropsy. *Wight. Ainslie. Hamilton.*

(20) **Aconitum ferox** (*Wall.*) Nat. Ord. **RANUNCULACEÆ.**

**Trigynia Polyandria.** *Scr: Syst:*

Butsnab-bish, Bish, BENG. | Mahoor, HIND.

**DESCR:** Stem erect, 2-3 feet, slightly downy above: tubers 2-3, blackish, white inside: branches villous: leaves roundish-cordate, deeply 5-parted: lobes pinnatifid, cuneate at the base, hairy on the brim beneath: racemes terminal, downy: flowers large, deep blue, hoary: helmet gibbous, semi-circular, slightly acuminate in front; cucullate petals slightly incurved.—*DC. prod. I. 64.—Lindl. flor. med. 12.—A. virosum, Don.—Himalayahs. Kumaon.*

**USES, &c.** This plant is found at high elevations in the Himalayahs and Nepal, sometimes at 10,000 feet above the sea. Dr. Wight asserts, that wherever within the tropics we meet herbaceous forms of Ranunculaceæ, we may feel assured of having attained an elevation sufficient to place us beyond the influence of jungle fever. The root of this species of Aconite is highly poisonous, equally fatal whether taken internally or applied to wounds. In the northern parts of Hindoostan it is used for poisoning arrows, with which tigers are destroyed, shot from bows fixed near the tracks leading to their watering places. A tiger shot from a bow in Assam was found dead at only sixty yards from the spot, so soon did the poison take effect. By Indian practitioners, it is used in cases of chronic rheumatism. Dr. Pereira found that a drop of the spirituous infusion applied to the tongue produced numbness, which lasted eighteen hours. Its action appears to be similar to that of *A. napellus*, which is found in mountainous parts of Europe.

“Although,” says Dr. Royle, “the acrid principle existing in most of the plants of the Ranunculaceous order is very volatile, yet the effects attendant on the roots of the *A. ferox* after it has been preserved for ten years was remarkable, as showing that it is more permanent than has been supposed.” In the Taleef-shireef it is directed never to be given alone, but, mixed with several other drugs, it is recommended in a variety of diseases, as cholera, inter-

\* A decoction of the leaves is a useful diuretic.

mittent fevers, tooth-ache, snake-bites, and especially in rheumatism as an external application. The Goorkhas say that it is one of their principal securities against invasion, that they could so infect all the waters with the dreadful root that no enemy could advance into their mountain fastnesses. From experiments made by Dr. Pereira it was found that the spirituous extract was the most violent. The Natives think that its effluvia will even poison the air where the plant grows. The root is imported in considerable quantities into the plains and sold at the rate of one Rupee a seer. Besides Bish, the native names of Meetha, Doodhya, and Meetha-Telya are applied to different preparations of it. *Wall. Hamilton's Nepaul. Royle. Chever's Medical Jurisprudence, &c. &c.*

(21) **Aconitum heterophyllum** Do.

*Do.*

ATEES, HIND.

DESCR : Shrub 2-3 feet: stem obscurely-angled, smooth below, pubescent above: tubers oblong-oval; fibres numerous, spreading: lower leaves long-petioled, round or sagittate-cordate, acuminate, five-ribbed or more: inflorescence a paniced raceme: pedicels long, pubescent: helmet arched, slightly acuminate: wings equal to helmet in size, obliquely-triangular: lower sepals lanceolate, smooth: flowers blue.—*Royle.*

USES, &c. The root of this species of Aconite which is known by the name of Atees in N. India, has long been celebrated as a tonic and valuable febrifuge. It is generally sold in the bazaars as a fine white powder, but is somewhat expensive. There is a spurious substance called by the same name, which is only the root of the *Asparagus sarmeptosus*. The true Atees is intensely bitter, and slightly astringent, with abundant farina which is free from any noxious qualities. It is not so injurious a poison as the *Bish*, as it is attacked by insects, while the other is not. There are two kinds, one black and one white, both bitter and astringent, pungent and heating, aiding digestion, useful as tonic medicines and aphrodisiac. The present species is found also on the Himalayahs at elevations from 9 to 10,000 feet. *Royle. Annals of Med. Science, 1856, &c. &c.*

(22) **Acorus calamus**, (*Linn*)

**aromaticus** (*Lam*) Nat. Ord. ACORACEÆ.

**Hexandria Monogynia.** *Sex: Syst:*

Sweet-flag, ENG.  
Vassumboo, TAM.  
Vudza, TEL.

Vyamboo, or Vashampoo, MAL.  
Shwet-buch, BENG.  
Buch, DUK.

DESCR : Perennial, semi-aquatic: rhizome thick with long roots: leaves erect, 2-3 feet, deep green, sword-shaped: stalk leaf-like,

but thicker below the spadix: spadix a foot above the root, spreading, 2-3 inches long, covered with a mass of numerous, thick set, pale-green flowers, fragrant when bruised: corolla 6-petalled: capsules 3-celled. *Fl.* May—June.—*Smith's Engl. flor.* II. 157.—*Roxb. fl. Ind.* II. 169.—*A. odoratus, Lam.—Rheede XI. t. 60.*—Damp marshy places in India. Malabar.

**USES, &c.** An aromatic bitter principle exists in the rhizomes of this plant, for which reason they are regarded as useful additions to tonic and purgative medicines, being much given to children in cases of dyspepsia, especially when attended with looseness of bowels. Beneficially employed also in chronic catarrh and asthmatic complaints. The leaves of the American species are said to be noxious to insects and are never eaten by cattle. They are used for tanning leather, and perfuming various substances. Pereira has remarked that the rhizomes might be easily substituted for more expensive spices or aromatics. The flavour is greatly improved by drying. In Constantinople, they are made into a confection, which is considered a good stomachic, and is eaten freely during the prevalence of epidemic disease; they are supposed moreover to be an antidote for several poisons. The leaves contain an essential oil to which they owe their fragrance, and which in England is used by the perfumers mixed with the farina of the rhizomes in the manufacture of hair powders. As a tonic in intermittent fevers, the rhizome has been successfully given when bark has failed. It is of a pale brown colour, with whitish scars on the lower side; in taste it is pungent, and slightly bitter. Rheede states that on the Malabar Coast, a bath made of the infusion of the root is considered an efficacious remedy for epilepsy in children. *Pereira. Thomson. Ainslie, &c. &c.*

(23) **Adansonia digitata** (*Linn.*) Nat. Ord. BOMBACEÆ.

**Monadelphica Polyandria.** *Sex: Syst:*

Baobab or Monkey bread tree ENG. | Aunay Poolia Marum, TAM.

**DESCR:** Tree of moderate height; trunk enormous, 30-40 feet in circumference: leaves digitate, quinate, glabrous, petioled: leaflets elliptical, slightly acuminate: petioles and peduncles pubescent: calyx 5-partite, pubescent, silky inside: petals 5, spreading, at length deflexed: flowers axillary, solitary on long pedicels: stamen tube adhering to the base of the petals: fruit a large oblong downy pericarp 8-10-celled, cells filled with farinaceous pulp: flowers large, white, with purplish anthers. *Fl.* July—*W. & A. prod.* I. 60.—*Lindley flor. med.* 139.—*A. Baobab, Gærtn.*—Naturalized in India. Samulcottah. Negapatam. Madras.

**USES, &c.** This tree is a native of the Western Coast of Africa, about Senegal and Sierra Leone. It has, however, long been naturalized in India, and from its many uses, is deserving of a place among the more useful plants of this country. The fruit is the size of a lemon, but resembling a gourd, and contains many black seeds; in taste somewhat acid, but making a cooling and refreshing drink, especially in fevers. In Cairo, the pulp dried and powdered, is administered medicinally in dysentery and diarrhœa. In Senegal, the negroes use the bark and leaves powdered, as we do pepper and salt. Mr. Adanson found the fruit a great preservative against the epidemic fevers of the country, and of great benefit in promoting perspiration, and attempering the heat of the blood. The fruit supplies the natives of Africa with an excellent soap by boiling the ashes with rancid palm-oil. It is in the hollowed trunks of these trees that the negroes bury their dead; and it is a remarkable fact, that shut up in these, the bodies become perfectly dry, without the necessity of the process of embalment. In Guadaloupe, the planters use the bark and leaves as a febrifuge. Humboldt, in his 'Aspects of Nature,' remarks that the Baobab or Monkey bread-tree may be classed among the largest as well as the most ancient inhabitants of our planet. The oldest description of these trees is that of Aloysius Cadamosto, a Venetian, in 1454, who found one growing at the mouth of the Senegal river, whose trunk in circumference was 112 feet. Adanson himself saw them at 29 feet in diameter and 70 feet in height, and remarks that other travellers had found trunks of 32 feet diameter. If the age of these trees can be correctly estimated by the annular rings visible on a horizontal section of the trunk, the antiquity assigned to trees of the above diameters must be, according to the calculations of Adanson and Perottet, upwards of 5,000 years old. As a timber tree, it is quite useless, the wood being soft and spongy. Dr. Hooker says, "the tree is emollient and mucilaginous in all its parts. Along the sea coast of Guzerat, the fishermen use the large fruit as a float for their nets. The leaves are eaten with their food, and are considered cooling and useful in restraining excessive perspiration. Among other uses in Africa the leaves are made into fomentations and poultices for rheumatic affections of the limbs and irritable inflammatory ulcers. M. Mollien, in his travels in Africa, states that to the negroes the Baobab is perhaps the most valuable of vegetables. Its leaves are used for leaven; its bark furnishes indestructible cordage, and a coarse thread used for cloth and ropes. Ropes made from the bark are said to be very strong, and there is in Bengal a saying, "as secure as an elephant bound with a Baobab rope." *Rees' Cycl. Graham. Hooker. Humboldt, &c. &c.*

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The bark has been recommended as a febrifuge, by Duchassaing, *Pharm. Journal* 1845, page 89.

(24) **Adenanthe'ra pavonina** (Linn.) N. Ord. LEGUMI-  
NOSÆ.

**Diœandria Monogynia.** Sex: Syst :

Red wood tree, ENG.  
Aunay Coondoomany, TAM.  
Bandi Gooroovindza, TEL.

Rukta-chundun, Ranguna, BENG.  
Manjatic, MAL.  
Koochunduna, HIND.

**DESCR** Large tree, unarmed: leaves bipinnated: pinnae 4-6 pair: leaflets oval, obtuse, glabrous on both surfaces, 10-12 pair, on short petioles: calyx 5-toothed: petals 5: racemes terminal or from the upper axils, spike-like: legumes somewhat falcate, twisted, 10-12 seeded: flowers numerous, small, yellow and white mixed, fragrant. *Fl.* June—August.—*Roxb. fl. Ind.* II. 370—*W. & A prod.* I. 271. *Rheede* VI. t. 14.—Travancore. N. Circars.

**USES, &c.** This is a large tree, and is to be met with in most of the forests in India. The timber is valued for its solidity. The interior wood of the larger trees is of a deep red colour, very hard and durable. It yields a dye, which the Brahmins use after bathing in marking their foreheads. They procure it by merely rubbing the wood on a wet stone. The seeds which are of a shining scarlet colour, with a circular streak in their centre, are used as weights by the jewellers, each of them weighing four grains. A cement is made by beating them up with borax and water. The pulp of the seeds mixed with honey, is applied externally to hasten suppuration in boils and abscesses. The Natives in Travancore have an idea that taken internally they are poisonous, especially when in a powdered state. Although this tree has the name of Rukta-chundun, which means red sandal, yet the real red sandalwood is the produce of the *Pterocarpus Santalinus*. *Roxb. Ainslie, &c.*

(25) **Adhatoda Vasica** (Nees) Nat. Ord. ACANTHACEÆ.

**Diandria Monogynia.** Sex: Syst :

Malabar Nut, ENG.  
Adatoday, TAM.  
Adasara, TEL.

Bakus, Basoka, BENG.  
Arus, Asganda, Anis, HIND.

**DESCR:** Shrub 8-10 feet: leaves opposite, lanceolate: corolla monopetalous, irregular: stem much branched: flowers on short spikes terminal: corolla whitish, spotted, sulphur-coloured at the throat and at the limb with dark purple lines. *Fl.* February—April.—*Justicia adhatoda*, Linn.—*Roxb. fl. Ind.* I. 126. *Ed. Car.* I. 127.—Malabar. Common in the Peninsula. Nepal.

**Uses, &c.** The wood of this shrub is soft, and reckoned good for making charcoal for gun-powder. Flowers, leaves, root, and especially the fruit, are considered antispasmodic, and are given in cases of asthma and intermittent fever. The leaves given in conjunction with those of the *Solanum trilobatum* (Todeovallay, TAM.) and S. Jacquini (Cundunghatrie, TAM.) are employed by the Vytians internally in decoction as anthelmintic. *Ainsl. Roxb. &c.*

(26) ***Ægle marmelos*** (*Corr.*) Nat. Ord. AURANTIACEÆ.

**Polyandria Monogynia.** *Sex: Syst:*

The Bel tree, ENG.  
Vilva-marum, TAM.  
Coovalum, MAL.

Maredoo, TEL.  
Bel, BENG.

**DESCR:** Tree, middling size, armed with sharp spines: leaves pinnate: leaflets oblong, or broad-lanceolate, crenulated, unequal, middle one petiolate, lateral ones almost sessile: petals 4-5, spreading: stamens distinct: style short, thick: flowers in panicles, axillary, on long pedicels, large, greenish-white, fragrant: berry with a hard rind, smooth, many-celled, many-seeded: seeds covered with a transparent glutinous matter. *Fl. May.—W. & A. prod. I. 96.—Roxb. fl. Ind. II. 579. Cor. II. 143.—Feronia pellucida, Roth.—Cratæva marmelos, Linn. Wight's Icon. t. 16. Rheede, III. t. 37.—Coromandel. Travancore. Bengal.*

**USES, &c.** The fruit of this tree is somewhat like an orange. The cells contain, besides the seeds, a large quantity of tenacious transparent gluten, which becomes hard on drying, but continues transparent. The fruit is nutritious, and occasionally employed as an alterative. It is very palatable: and its aperient qualities, in the removal of habitual costiveness, have been well ascertained. The mucus of the seeds is used as an excellent addition to mortar, especially in well-buildings. Roots, bark and leaves are reckoned refrigerant in Malabar. The bark of the root especially is given in compound decoctions in intermittent fevers, and the leaves made into poultices in ophthalmia. When dried before it is ripe the fruit is used in decoction against diarrhœa and dysentery; and when ripe and mixed with juice of tamarinds, forms an agreeable drink. A water distilled from the flowers is reputed to be alexipharmic. A decoction of the bark of the tree is given in palpitation of the heart, and a decoction of the leaves in asthma. A yellow dye is procured from the astringent rind. The wood is light-coloured variegated with veins, but of no great value. *Roxb. Ainslie. Rheede.*



(27) **Ærua lanata** (*Juss.*) Nat. Ord. AMARANTACEÆ.**Pentandria Monogynia.** *Sex: Syst:*Sirroo-poolay, TAM.  
Pindic-Conda, TEL.  
Khul, DUK.Scheroobala, MAL.  
Chaya, BENG.

Annual, 1-2 feet: stem erect, ramos, covered with woolly pubescence: leaves alternate, orbicular: spikes crowded: flowers small, white. *Fl.* Oct.—Dec.—*Illecebrum lanatum*, *Linn.*—*Achyranthes lanata*.—*Roxb. fl. Ind.* I. 676.—*Ed. Car.* II. 503.—*Wight's Icon.* t. 723.—*A. villosa*, *Forsk.*—*Rheede*, X. t. 29.—Peninsula. Bengal.

USES, &c. The roots of this small plant are employed by the Vytians as a demulcent, and given in decoction, in cases of strangury. *Ainslie*.

(28) **Æschynomene aspera** (*Linn.*) Nat. Ord. LEGUMINOSÆ.**Diadelphia Decandria.** *Sex: Syst:*Shola, Sola, HIND.  
Phool-sola, BENG.Attukedasa, MAL.  
Attoonettee, TAM.

DESCR: Perennial, 6-8 feet, floating, erect, sometimes branched, glabrous: leaves unequally pinnated: leaflets numerous, linear, obtuse: racemes axillary, few flowered: calyx—5-cleft, bilabiate, bibracteolate: peduncles and pedicels rough with hairs: calyx and corolla slightly so: corolla papilionaceous: legumes, 4-7 jointed, long-stalked, with prickly tubercles on the middle of each joint: margins striated, crenulated: flowers brownish orange. *Fl.* June—August. *W. & A. prod.* I. 219.—*Wight's Icon.* t. 299.—*Æ. Indica*, *Wall.*—*Æ. lagenaria*, *Lour.*—*Æ. aquatica*, *Roxb.* in *E. I. C. Mus*: *Hedysarum lagenarium*, *Roxb. fl. Ind.* III. 365.—Coromandel. Bengal.

USES, &c. The pith is much used in varicus parts of India for hats, bottle cases, &c., especially the former, it being a bad conductor of heat. It is cut from the thick stems and made up into artificial flowers and various ornaments by the Natives, such as models of temples, fishing floats, &c. The larger plants are particularly light and spongy. They are gathered during April and May, being abundant in the marshy plains of Bengal, and the borders of jheels and lakes between Calcutta and Hurdwar.

(29) **Agathotes chirayta** (*Don.*) Nat. Ord. GENTIANACEÆ.**Pentandria Monogynia.** *Sex: Syst:*Chirayit GENTIAN, ENG.  
Shayraet, TAM.  
Chiraeta, DUK. and HIND.Sheelassettoo, TEL.  
Kiryayatha, MAL.

**DESCR:** Annual, 3 feet: stems single, round, jointed: branches decussated, occasionally angular at the extremities: leaves opposite, amplexicaul, lanceolate, very acute, entire, 3-5 nerved: flowers numerous, stalked, the whole upper part of the plant forming an oblong decussated panicle: calyx 4-cleft: petals spreading, 4-parted, divisions equal to those of the calyx: capsules 1-celled, 2-valved, slightly opening at the apex: seeds numerous: flowers yellow—*Roxb. fl. Ind.* II. 71.—*Gentiana chirayta*, *Wall.*—Nepaul. Kumaon. The Northern parts of India.

**USES, &c.** This is perhaps one of the most esteemed of Indian medicinal plants, especially valuable as a tonic and febrifuge. The whole plant is pulled up at the time the flowers begin to decay, and is thus dried for use. Its febrifugal properties are in high estimation with European practitioners in India, who use it instead of *Cinchona* when the latter is not to be procured, and in most cases wherein *Gentian* is prescribed, this is recommended as a good substitute. The root is the bitterest part of the plant, and the bitter principle is easily imparted to water or alcohol. According to Mr. Battley's analysis of its chemical properties, "it contains a free acid, a bitter resinous extractive with much gum, and chlorates, with sulphates, of potass and lime. No alkaloid has been detected in it; what is therefore sold as a sulphate of chiraytine is well known to be only the disulphate of quinia." It is best recommended in preparation as an infusion or watery extract, or a tincture, but not in decoction; even infusion made with warm water is denounced as producing violent headache. To form a cold infusion, a pint of water should not stand more than twenty minutes on half an ounce of the bruised plant. The following remarks are extracted from a modern writer on the subject of this useful medicine:—"Chirayta possesses the general properties of bitter tonics, but has at the same time some peculiar to itself, which fit it well for certain forms and complications of disease. Unlike most other tonics, it does not constipate the bowels, but tends to produce a regular action of the alimentary canal, even in those subject to habitual constipation. During its use the bile becomes more abundant and healthy in character. The tendency to excess of acidity in the stomach, with disengagement of flatus, is much restrained by its use. These qualities fit it in a most peculiar degree for the kind of indigestion which occurs in gouty persons. It may, when necessary, be associated with alkaline preparations or with acids; the latter are gene-

rally preferable. The same remark applies to its employment in the treatment of scrofula. As a remedy against the languor and debility which affect many persons in summer and autumn, nothing is equal to the cold infusion of this plant. It may be taken twice or even more frequently daily, for a considerable time; then discontinued, and afterwards resumed. Children take it more readily than most other bitters. It is found to be a very efficacious remedy in India against intermittents, particularly when associated with *Guilandina Bonduc* or *Caranga* nuts. The debility which is apt to end in dropsy is often speedily removed by infusion of *Chirayta*; to which is added the tincture formed of it with orange-peel and cardamoms. Its efficacy in worm-cases has procured for it the name of worm-seed plant. The extract is given with great benefit in some forms of diarrhoea and dysentery, particularly if combined with *Ipecacuan*, the emetic tendency of which it very markedly controls."—In Dr. Fleming's Notes on 'Indian Medicinal Plants,' as quoted by Wallich, it is stated, "the dried herb is to be met with in every bazaar of Hindoostan, being a medicine in the highest repute with both the Hindu and European practitioners. It possesses all the stomachic, tonic, febrifuge, and antarthritic virtues which are ascribed to the *Gentiana lutea*, and in a greater degree than they are generally found in that root in the state in which it comes to us from Europe. It may therefore on every occasion be advantageously substituted for it. The efficacy of the *Chirayta* when combined with the *Caranga* nut in curing intermittents has been already mentioned. For restoring the tone and activity of the moving fibre in general debility, and in that kind of cachexy which is liable to terminate in dropsy, the *Chirayta* will be found one of the most useful and effectual remedies which we can employ. The parts of the plant that are used in medicine are the dried stalks with pieces of root attached. A decoction of these, or which is better, an infusion of them in hot water, is the form usually administered." *Don in Lon. and Edin. Phil. Mag: Wallich Plantæ As. Rarior, &c.*

(30) **Agati grandiflora** (*Desv.*) Nat. Ord. LEGUMINOSÆ.

**Diadelphia Decandria.** *Sex: Syst:*

Agathee, TAM.  
Anisay, TEL.

Agati, MAL.  
Buko, BENG.

DESCR: Tree 30-35 feet: leaves abruptly pinnated: leaflets numerous: calyx campanulate, slightly 2-lipped: corolla papilionaceous: vexillum oval, oblong: keel large, falcate, with petals free at the base and apex: racemes axillary, 2-4 flowered: flowers large, scarlet or white: legumes pendulous, very long, many-seeded, contracted between the seeds. *Fl. March—April.—W. & A. prod. I. 215—Æschynomene coccinea, Linn.—Æ. grandiflora, Roxb. fl. Ind. III. 331. Linn. Sp.—Coronilla grandiflora, Willd.—Sesbania*

*grandiflora*, Pers. *Rheede* I. t. 51.—Travancore and elsewhere in the Peninsula in gardens.

USES, &c. This tree may be commonly met with in gardens throughout the Peninsula, and easily recognized by its large bright scarlet flowers. The wood is soft and of no use, but the bark is powerfully bitter and is used as a tonic. The tender leaves, legumes and flowers are all eaten by the Natives in their curries. *Rheede* says, an infusion of the leaves is given on the Malabar Coast in cases of catarrh. *Lindley*, *Rheede*.—An infusion of the bark is given in small-pox. The Natives put the juice of the leaves in the nostrils in bad fevers on the day of the paroxysm. The juice of the flowers is squeezed into the eyes for expelling mistiness of vision. There is a variety of the tree with white flowers.

(31) **Agave Americana** (*Linn.*) Nat. Ord. AMARYLLIDACEÆ.

**Hexandria Monogynia.** *Sex: Syst:*

American Aloe, ENG.  
Anai Kuttalay, TAM.

Sagi Mutta, TEL.  
Rakus, HIND.

DESCR: Stems cylindrical, woody: leaves about six feet long, bluish-green, ending in sharp spines: flowers greenish-yellow.—*Wight's Icon. t. 2024. Naturalized in India.*

USES, &c. The common American Aloe, although not indigenous, is now common in every part of India. It is a native of America within the tropics from the plains to elevations of 10,000 feet, and is now naturalized in the South of Europe. It is much valued as a hedge plant, but its chief importance arises from the excellent fibres which it yields. Not only are these procured from the leaves, but a ligneous fibre is contained in the root, familiarly known as the Pita thread. This is much used in the Madras Presidency. It is manufactured at a very slight expense, the mode of preparation being usually to cut the leaves and throw them into ponds for three or more days, when they are taken out, macerated and scraped with a bluntish instrument. It has been found that the leaf fibres are liable to rot owing to a milky viscid juice contained in them. This defect has however been considerably obviated by very hard crushing, or pressure between heavy cylinders which by getting rid of all the moisture renders them more pliable for weaving and other purposes. In Calcutta the fibres being submitted to experiments were found equal to the best Russian hemp. They are much used for lashing bales of calico. As log-lines for ships they are found to be very durable and far superior to ropes of hemp. In several experiments that have been made, especially by Drs. Royle and Wight, Aloe fibre rope has been found to be more powerful than either coir, country hemp, or jute. A bundle of the Agave fibre bore 270 lbs., that of Russian hemp only 160 lbs. Dr. Wight found some cord of it bore 362 lbs. In Tinnevely it sells

for from 20 to 40 Rupees the candy of 500 lbs., and at Madras for 7 Rs. a maund. In 1853-54 were exported from the Western Coast 3,650 cwt. valued at 21,506 Rupees. There is no doubt that these Aloe fibres deserve more particular notice. They are admirably suited for cordage, mats, ropes, &c., and the tow might be advantageously used in the manufacture of paper. In Madras the plant is called the Peetha-Kalabantha.—In Mexico they prepare a fermented liquor from the stem by incision, called Pulque, and from this they distil an ardent spirit. In that country too the dried flowering stems are used as impenetrable thatch. An extract of the leaves is used to make a lather, like soap, and the leaves split longitudinally are employed to sharpen razors on, performing the duties of a strop, owing to the particles of silica they contain. Lindley states that the roots are diuretic and antisyphilitic, and are brought to Europe mixed with Sarsaparilla.—*Penny Cycl. Royle's fibrous plants. Jury Rep. Mad. Exhib. &c.*

(32) **Agave vivipara** (Linn.) Do.

Do.

Bastard Aloe, ENG.  
Kathalay, TAM.

Peetha Kalabantha, TEL.

USES, &c. This species is common in the North-West Provinces. A good fibre, which is long in the staple, is procured from the leaves. The latter are allowed to rot in water for twenty days and then beat on a plank and again thoroughly washed. A strong and useful cordage is made from them, as well as mats, ropes, &c. In South Arcot, these fibres sell at 30 Rupees the candy. Generally they find a ready sale in this country and pay the expense of manufacture. *Jury Rep. M. E.*

(33) **Ailanthus excelsus** (Roxb.) N. Ord. XANTHOXYLACEÆ.

**Polygamia Monœcia.** Sex: Syst:

Peroomarum, TAM.  
Perumarum, MAL.

Peddamanoo, TEL.

DESCR: Large tree: leaves abruptly pinnated, tomentose when young, afterwards glabrous: leaflets 10-14 pair, coarsely toothed at the base: petals 5, almost glabrous in the inside: filaments glabrous, shorter than the anthers: calyx 5-cleft: samaræ linear-oblong, 3-5, one-seeded: panicles terminal: flowers fasciated, green. *Fl. Aug.—W. & A. prod. I. 150.—Roxb. fl. Ind. II. 454. Cor. I. t. 23.*—Northern Circars. Coimbatore.

USES, &c. The Wood is light and not durable, but is used for catamarans and made into sword handles and sheaths for spears in Western India. *Roxb.*

(34) **Ailanthus Malabaricus** (DC.) Do.

Do.

Peroomarum, MAL.

Perumarum, TEL.

DESCR: Leaves abruptly pinnated: leaflets quite entire, ovate-lanceolate, unequal-sided, oblique at the base: panicles large: terminal: peduncles and calyx pubescent: petals glabrous, obovate, much longer than the calyx: samaræ oval, oblong, obtuse at both ends.—*Wight's Icon. t.* 1604.—*W. & A. prod.* I. 150.—*Rheede VI. t.* 15.—Travancore. Malabar.

USES, &c. This is a large tree similar to the above with but few points of difference in its botanical character. It is common in Travancore, and has rather an ornamental appearance from its dark shining pinnate leaves. The bark has a pleasant and slightly bitter taste and is given in cases of dyspepsia, and moreover considered a valuable tonic and febrifuge. It yields a fragrant resinous juice known as *Muttee-pal*, which was first noticed by Buchanan, who found the tree in the Annamallay forests. For a long time subsequent to this the tree was lost sight of, until General Cullen found it growing in the Travancore forest, and forwarded specimens of the flowers and branches to Dr. Wight, who immediately recognised the long-lost *Ailanthus*. The resin reduced to powder mixed with milk and strained is given in small doses in dysentery, and reputed to be an excellent remedy, owing chiefly to the balsamic properties of the resin. The fruit triturated with mango and mixed with rice is reckoned useful in cases of ophthalmia. Wight states that "the bark is rough, and very thick, studded with bright garnet-looking grains apparently of a resinous nature, which do not dissolve either in spirit or water." *Ainslie. Wight. Pers. obs.*

(35) **Alangium decapetalum** (Lam) N. Ord. ALANGIACEÆ.**Icosandria Monogynia.** Sex: Syst:Sage-leaved Alangium, ENG.  
Alingie-marum, TAM.  
Angolam, MAL.Akola, Akarkanta, HIND.  
Bagh-ankra, BENG.

DESCR: Tree: leaves alternate, narrow-oblong; petals 6-10: branches occasionally spinescent: stamens twice the number of the petals: filaments hairy at the base: flowers solitary or aggregate in the axils of the leaves, whitish yellow, fragrant: drupe tomentose, 1-seeded. *Fl.* April and May.—*W. & A. prod.* I. 325.—*Rheede IV. t.* 17.—*Wight's Icon. t.* 194.—*A. tomentosum*, DC.—*A. hexapetalum*, *Roxb. fl. Ind.* II. 502.—Rocky places in Malabar. Coromandel. Assam.

**USES, &c.** The wood of this tree is very beautiful, and strong, according to Dr. Wight sustaining a weight of 310 lbs. Fruit eatable, but somewhat astringent. The juice of the root is reckoned anthelmintic and purgative. It is used in dropsy. The root pulverised is an antidote to snake-bites. The leaves boiled in oil are used as a vulnerary ointment, *Roxb. Rheede.*

(36) **Alangium hexapetalum** (*Lam*) Do.

*Do.*

Kara-Angolam, MAL.  
Woodooga, TEL.

Akola, HIND.

**DESCR:** Tree: leaves alternate, ovate-lanceolate, with longish sudden acumination, velvety beneath: petioles pubescent: petals 6-7: stamens twice or thrice the number of the petals: drupe 1-seeded with a purple rind, tomentose, coriaceous, filled with red pulpy juice: flowers purple. *Fl. May.*—*W. & A. prod.* I. 326. *Wight's Ill. t.* 96.—*Rheede* IV. t. 26.—Allahabad. Malabar.

**USES, &c.** The roots are aromatic and said by the Malays to possess purgative properties. The fruit is edible, but not pleasant to the taste. The wood is considered valuable.

(37) **Aleurites triloba** (*Forst.*) Nat. Ord. EUPHORBIACEÆ.

**Monœcia Monadelphia. Sex: Syst:**

Belgaum Walnut, ENG.  
Akhrotee, MAL.

Akhrot, BENG.

**DESCR:** Large tree: leaves petioled, very large, cordate, with entire or scalloped margins, 3-5 lobed: panicles terminal; flowers small, white: fruit roundish, somewhat compressed, pointed, very hard, 2-celled: cells 1-seeded: *Fl. May.*—*J. Grah. Roxb. fl. Ind.* III. 629.—*Camirium cordifolium, Gærtn, Juglans camirium, Lour.*—Belgaum. Travancore. Mysore. Northern Circars. Bengal.

**USES, &c.** This is a large and handsome tree, the newly formed parts of which are covered with a farinaceous substance. A useful kind of oil is expressed from the kernels of the nut, which can be extracted without difficulty. The Natives are fond of the nut, which is palatable, and something like our English Walnut. In the Sandwich Islands they are employed for candles. A number of them strung upon a stick will burn for hours, giving a clear and steady light. They are considered aphrodisiac in the Moluccas. A gummy substance exudes from the seeds, which the

Natives of Tahiti are fond of chewing. One great advantage attending the manufacture of oil from this nut is that the oil can be separated with much less labour and simpler machinery than the cocoanut oil, which requires great pressure to separate it from the kernel. The tree grows most readily from seed, and might be extensively cultivated. The cake after expression of the oil is a good food for cattle and useful as manure. According to Simmonds, "31½ gallons of the nut yield 10 gallons of oil, which bears a good price in the home market." About 10,000 gallons are yearly produced in the Sandwich Islands. In Ceylon it is manufactured, and there known as the "kekuna" oil. It is supposed to be a good substitute for rape oil. *Lindley. Simmonds. Comm : prod. Jury Rep. M. E. &c.*

(38) **Alhagi maurorum** (*Tourn.*) Nat. Ord. LEGUMINOSÆ.

**Diadelphia Decandria.** *Sex : Syst.*

Hebrew Manna, ENG.

| Juwasa, HIND.

DESCR : Shrub 2-3 feet: leaves obovate-oblong, glaucous beneath: calyx acutely 5-toothed: longer than the pedicels: corolla papilionaceous: vexillum folded together: keel straight: peduncles axillary, spinescent: flowers racemose, few, reddish: legumes stalked: few-seeded: seeds reniform. *Fl.* April—May.—*W. & A. prod.* I. 232.—*A. mannifera, Desv.*—*Hedysarum alhagi, Roxb. fl. Ind.* III. 344.—*Manna hebraica, Don.*—Delhi. Mahratta Country. Scinde.

USES, &c. The eatable substance known as 'Manna' is an exudation from the leaves and branches of this shrub, only appearing in the hot weather. But this secretion is not found in the Indian plant. It is gathered by merely shaking the branches. At first it resembles drops of honey, but soon thickens into solid grains. In the hot season when almost all the smaller plants die, this puts forth its leaves and flowers. Camels and other cattle are very fond of the plant. What is called manna in England, is a substance collected from the flowering ash, and has nothing to do with this plant. It may be curious to remark how the word manna came first to signify what we now understand by that name, which was solely from an erroneous translation of Exodus xvi. 45, which runs thus: "And when the children of Israel saw it, they said to one another, 'It is manna,' for they wist not what it was." So clear a contradiction in the text does not require to be pointed out. The fact is that the words in the original were *Man-hu*, meaning 'What is it?' which, instead of being correctly rendered, was given as, 'It is *Man-hu*,' or manna, an error which has been preserved in



our version of the Septuagint to the present time. *Gibson. Lindley. Don. &c.*

(39) **Allamanda cathartica** (*Linn.*) N. Ord. APOCYNACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

DESCR: Shrub with a climbing habit: stem and leaves covered with roughish hairs: arranged in threes or fours round the stem, short-petioled, oblong-lanceolate, acuminate, deep green above; calyx deeply 5-cleft: corolla funnel-shaped, with long tube, 5-cleft: flowers fascicled, axillary, bright yellow: capsule prickly, 1-celled, 2 valved, many-seeded: flowering all the year.—*Don's Mill. IV. 102.*—*A. Aubletii, G. Don.*—*A. verticillata, Desf.*—*A. grandiflora, Lam.*—*Orelia grandiflora, Aubl.*—Travancore in gardens, and elsewhere cultivated in the Peninsula.

USES, &c. This showy plant was introduced into India from Guiana in 1803. It has become quite naturalized, and is one of the handsomest ornaments of our gardens. If allowed to climb up large trees, the effect is very striking and beautiful, owing to the clusters of bright yellow flowers it is covered with. An infusion of the leaves is reckoned a valuable cathartic medicine, but in overdoses is violently emetic and purgative. The whole plant abounds in milky juice. *Lindley. Don. Pers. obs.*

(40) **Aloe Indica** (*Royle.*) Nat. Ord. LILIACEÆ.

**Hexandria Monogynia.** *Sex: Syst:*

Indian Aloe, ENG.  
Kuttalay, TAM.  
Kalabunda, TEL.

Kunwar, DUK.  
Gheekomar, HIND.  
Ghrito-komaree, BENG.

DESCR: Leaves ensiform, dentate, erect: calyx none: flowers racemed, reflected, cylindrical.—*Roxb. fl. Ind. II. 167.*—N. West Provinces. Common in gardens.

USES, &c. This is a species of Aloe with large red flowers. A kind of Aloes, but of an inferior description, is obtained from it. The *A. spicata* is also common in the Peninsula. It is a good hedge plant; and the leaves yield a useful fibre.

(41) **Aloe littoralis** (*Kœnig.*) Do.

Sea-side or small Aloe, ENG.  
Siroo Kuttalay, TAM.  
Chinikala Bunda, TEL.

Chota-kunwar, DUK.  
Koomaree, BENG.

USES, &c. This species is commonly found growing near the sea coast, and is readily distinguishable by the reddish colour of its leaves. It grows plentifully at Cape Comorin and the neighbourhood. A good kind of Aloes is procurable from it. The Natives attach much value to the juice of the leaves, which they apply externally in cases of ophthalmia, and especially in what are commonly termed country sore-eyes. The mode of administering it is to wash the pulp of the leaves in cold water and mix it up with a little burnt Alum. In this state it is applied to the eyes, being previously wrapped in a piece of muslin cloth. An ink is prepared by the Mahomedans from the juice of the pulp. *Ainalie*,

(42) **Aloe vulgaris** (Lam.) Do.

Do.

Common or Hedge Aloe, ENG. ) Kuttalay, TAM.

DESCR: Stem short: leaves fleshy, amplexicaul, first spreading, then ascending, lanceolate, glaucous-green, flat, obovate, convex below, armed with distant reddish spines perpendicular to the margin: the parenchyma slightly coloured brown, and very distinct from the tough leathery cuticle; spike cylindrical-ovate: flowers at first erect, then spreading, afterwards pendulous, yellow with the three inner segments at the apex somewhat orange, not longer than the stamens.—*Lam. Enc. I.* 86. *Rheede XI. t. 3.*—A. *Barbadosis*, *Mill.*—Common in the Peninsula.

USES, &c. The above species of Aloe, which is properly a native of Greece, or as some say of the Cape Colony, has long been naturalized in both Indies. It yields what is known as the Barbadoes Aloes. This substance is of a dark or reddish-brown colour, and has a most unpleasant odour. In quality it is far inferior to the real Socotrine Aloes (*A. Socotrina*.) As a drug, Aloes is reckoned extremely valuable, and its medical properties are very numerous. Although aperient, yet unlike other cathartics, the effect is not increased if given in large doses beyond a certain point. To persons predisposed to apoplexy it is more beneficial than most other purgatives. The compound decoction is a valuable emmenagogue, particularly when combined with preparations of iron. One of the best modes of covering the unpleasant taste of Aloes when given liquid is in the compound tincture of lavender. Aloes are produ-

ced by most of the varieties of these plants, but Dr. O'Shaughnessy remarks that the quality of the product is apparently more dependent on soil, climate, and preparation, than on any specific difference in the plant itself. A great deal depends on the mode of preparation. The usual way of extracting the substance is by making a transverse incision in the leaves or cutting them off at the base and scraping off the juice as it flows if done in the former way, and allowing it to run in a vessel placed for the purpose, if in the latter. Pressure is made occasionally to assist the flow, but as Dr. O'S. observes, 'by this means large quantities of the mucilage are forced out and mix with the proper bitter juice which is proportionately deteriorated,' for it must be recollected that the Aloe contains a great deal of mucilaginous matter abundant towards the centre of the thick fleshy leaves. The Aloes after being received into a vessel are exposed to the sun or other heat by which means they become inspissated. The greater portion of Aloes sent to England is from the Cape Colony. Of late years the importation of the true Socotrine Aloes has considerably decreased. What is now shipped to Europe is sent usually round by Bombay, but Simmonds says, "Socotrine Aloes, although long considered the best kind, is now below Barbadoes Aloes in commercial value." In 1852-54 were exported from Madras 515 cwt. of Aloes, valued at Rupees 4,037, chiefly to Bengal and New South Wales. The several kinds of Aloes are the East Indian or Hepatic Aloes, so called from its liver colour, and said to be the produce of the *A. Arabica*. The Barbadoes Aloes which is of a darker colour and more bitter and nauseous to the taste than the former; and the Horse-Aloes which is only used in veterinary medicine. This latter product is said to be obtained by boiling the leaves that have been previously used for producing a finer sample. The greater part of Cape-Aloes is the produce of *A. Spicata*, which is of a yellowish colour, and has a heavy disagreeable odour. *Ainslie. Lindl. Penny Cycl. Bengal Disp. Comm. prod. Mad.*

(43) **Alpinia galanga** (Swz.) Nat. Ord ZINGIBERACEÆ.

**Monandria Monogynia.** Sex: Syst:

Greater Galangal, ENG.  
Pere-aretei, TAM.  
Dombastacum, TEL.

Khoolinjan, BENG.  
Chitta-ratta, MAL.

DESCR: Perennial: stem 6-7 feet when in flower, with leafless sheath up to the middle: leaves short-stalked, lanceolate: white, and somewhat callous on the margin, smooth: panicles terminal, spreading, dichotomous: each division with from 2 to 6 pale, greenish, fragrant flowers: calyx smooth, white

1-toothed: exterior limb of corolla of 3 nearly equal recurved divisions: interior one unguiculate, oval, deeply 2-lobed, white with reddish specks; capsule size of a small cherry, obovate smooth, deep orange red, 3-celled: seed 1, much compressed, deep chestnut colour, a little wrinkled, arillate, except at the apex. *Fl.* April—May.—*Roxb. fl. Ind.* I. 59.—*Ed. Car.* I. 58—*Maranta galanga*, *Linn.*—*Galanga major*, *Rumph.*—*Amomum galanga*, *Lour.* South Concan. Chittagong. Travancore.

USES, &c. The tubers which are faintly aromatic, pungent, and somewhat bitter, are the larger galangal of the shops and are used as a substitute for ginger. They are given in infusion in fevers, rheumatism and catarrhal affections. In Cochin-China they are employed when fresh for seasoning fish, as well as for other economical purposes. Simmonds says, the galangal root is much used in China, and is one of the articles of commerce, realizing in London 12 to 16 shillings per cwt. It has an aromatic pungent taste; the outside is of a reddish-brown; internally it is reddish-white. An inferior sort of galangal is got from A. Allughas, (*Roscoe*) the root of which is considerably aromatic. Of this latter species too Rheede says, that the juice of the root is applied externally in gout, and is also used internally. The root itself macerated and mixed with wine is a good external application for pains in the limbs, and pulverised is administered in colic. It is the *Mala Inschikua* of Rheede. *Ainslie*, *Simmonds*. *Rheede*.

(44) ***Alstonia scholaria*** (*R. Br.*) N. Ord. APOCYNACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Mookum Pala, Pala, MAL.  
Chatinn, BENG.

Eer-ellay-palay, TAM.

DESCR: Tree 50 feet: leaves 5-7 in a whorl, obovate-oblong, obtuse, veins ribbed, approximating the margin: calyx 5-parted: corolla salver-shaped, with roundish segments: cymes on short peduncles: limb of corolla a little bearded: flowers greenish-white, follicles very long, slender. *Fl.* November, December. *Don's Mill.* IV 86.—*Rheede* I. t. 45.—*Wight's Icon.* t. 422.—*A. oleandrifolia*, *Lodd.*—*Echites scholaris*, *Linn.*—Travancore. Coromandel. Assam.

USES, &c. A handsome tree. It obtained the trivial name *Scholaris* from the fact of plauks being used as school boards on which the children traced letters (with sand) as in the Lancastrian system. The wood is white and close-grained. It is bitter-tast-

ed and the bark is a powerful tonic, much used by the Natives in bowel complaints. The whole plant abounds in milky juice. In Assam, where the tree grows to a large size, and where it is called Loteeana, the wood is much prized for beams, and light work, such as boxes, trunks, scabbards, &c. Bruised and mixed with water it is applied to ulcers, and is also used externally in rheumatism. The bark boiled in oil and mixed with bruised cotton seeds is applied to the ears in deafness. *Nimmo. Roxb. Rheede.\**

(46) **Amarantus campestris** (*Willd.*) N. O. AMARANTACEÆ.

**Monœcia Pentandria.** *Sex: Syst:*

Sirroo-keeray, TAM.

| Tseeri-koora, TEL.

**DESCR:** Annual, stem simple, pubescent: leaves alternate, on short petioles, roundish-ovate, acuminate, covered with roughish adpressed hairs on both surfaces: spikes axillary, minute, solitary, or 1-2 together: corolla 5-petalled, whitish-green, woolly on the outside: anthers orange-coloured. *Fl.* May—June—*Spr. Syst.* I. 927. Bengal. Travancore.

**USES, &c.** The root is considered demulcent and is given in decoction in cases of strangury. The leaves are eaten by the poorer classes. *Ainslie.*

(46) **Amarantus frumentaceus** (*Buch.*) Do.

*Do.*

Poong-keeray, TAM.

**DESCR:** Annual: stem and branches erect: leaves broad-lanceolar: panicles erect: leaves of the calyx daggered: capsule wrinkled: seed pellucid, with callous white margins.—*Roxb. fl. Ind.* III. 609.—*Wight's Icon t.* 720—Mysore. Coimbatore.

**USES, &c.** This plant is extensively cultivated in the Coimbatore district, chiefly for the flour of its seeds, which is a great article of diet among the Natives. Besides the above, there are several other species of Amaranths used as vegetables by the Natives, such as the *A. polygonoides*, (*Roxb.*) considered very wholesome, especially for convalescents: the *A. oleraceus*, (*Linn.*) of which the several varieties are cultivated for diet, especially the Var: *giganteus*, which is about 4 to 8 feet high, and with a thick succulent stem, which is eaten as a substitute for asparagus; the *A. lanceolatus*, (*Roxb.*) and the *A. viridis*, (*Linn.*) whose leaves are used as emollient poultices, and others. *Roxb. Ainslie., &c. &c.*

\* For action and use of this new remedy, See Gibson in *Pharm. Journal* Vol. XII p. 422.

(47) **Amoora Rohituka** (*W. & A.*) Nat. Ord. MELIACEÆ.**Hexandria Monadelphia.** *Sex: Syst:*Chemmarum, MAL.  
Hurin-hura, or Khana, HIND.

Tikhta-raj, BENG.

**DESCR:** Small tree : leaves unequally pinnated : leaflets 6 pair, opposite, obliquely-oblong, glabrous : young petioles slightly hairy on their lower part : male flowers in panicles shorter than the leaves, subsessile : calyx 3-leaved ; female flowers numerous, sessile, solitary, erect on spikes, which are rather more than half the length of the leaves : petals three : capsule pale-yellow, 3-celled, 3-valved : seeds solitary, enclosed in a fleshy scarlet aril : flowers small white or cream-coloured. *Fl.* July—August.—*W. & A. prod.* I. 119.—*Andersonia Rohituka, Roxb. fl. Ind.* II. 213.—*Sphærosacme Rohituka, Wall.*—*Meliacea Wightiana, Do.*—*Travancore.* Bengal.

**USES, &c.** From the seeds, where the trees grow plentifully, the Natives extract an oil which they use for many economical purposes. *Roxb.*

(48) **Amorphophallus campanulatus** (*Blume.*) Nat. Ord. ARACEÆ.**Monœcia Polyandria.** *Sex: Syst:*Telinga Potatoe, ENG.  
Karuna, MAL.  
Muncha kunda, TEL.Karoona, TAM.  
Ol, HIND. 🌱

**DESCR:** Stemless : leaves decomposed : flowers small, dark-coloured, sessile with respect to the surface of the ground, and appearing when the plant is destitute of leaves : spathe the length of the spadix, campanulate, with curled margins : no nectary : club broad-ovate, lobate : anthers 2-celled. *Fl.* June.—*Wight's Icon.* t. 782. *Arum Campanulatum, Roxb. fl. Ind.* III. 509.—*Cor.* III. t. 272.—*A Rumphii, Gaudich*—*A. Zeylanicum, Commel.*—*Candarum Roxburghii, Schott.*—*Rheede* XI. t. 18 t. 19—*Bengal. Peninsula.*

**USES, &c.** The roots of this plant are very nutritious, on which account they are much cultivated for the purpose of diet. They are planted in May, and will yield from 100 to 250 maunds per beegah, selling at the rate of a Rupee a maund. The roots are also used for pickling. They are acrid when raw, and are employed medicinally in boils and ophthalmia. *Wight* says, that

“ when in flower the fetor it exhales is most overpowering, and so perfectly resembles that of carrion as to induce flies to cover the club of the spadix with their eggs.” A very rich soil, repeatedly ploughed, suits it best. The small tuberosities found in the large roots are employed for sets, and planted in the manner of potatoes. In twelve months they are reckoned fit to be taken up for use ; the larger roots will then weigh from 4–8 or more pounds and keep well if preserved dry. The Natives employ them for food in the manner of the common yam. The plant is the chaneh or mullum chaneh of Rheede. *Jury Rep. M. E. Roxb. &c.*

(49) **Amphidonax karka** (*Lindl.*) Nat. Ord. GRAMINACEÆ.

**Triandria Digynia.** *Sex : Syst :*

Naga Sara, Maitantos, TEL.

Nar Nul, BENG.

DESCR : Culms erect, 8–12 feet, round, smooth, covered with the sheaths of the leaves : leaves approximate, ensiform, smooth : mouths of the sheaths bearded : panicles erect, oblong, composed of many filiform, sub-verticelled ramifications, bowing to the wind, rachis of the branches angular and hispid : florets alternate : calyx 3–5 flowered : glumes unequal. *Fl.* September.—February.—*Roxb. fl. Ind.* I. 347. *Ed. Car.* I. 348.—*Arundo Karka, Retz.*—*A. Roxburghii, Kth.*—*Trichoon Karka, Roth.*—*Calamagrostis Karka, Gmel.*—Peninsula. Bengal.

USES, &c. The common Durma mats at Calcutta are made of the stalks of this reed split open. Pipes are made of the culms, especially those used by people carrying about dancing snakes. This grass is more luxuriant in Bengal than on the Coast. In Scinde the culms are made into chairs, and the flower stalks are beaten to form fibres which are there called Moonyah. These are used for strings, ropes, &c. *Royle.*

(50) **Anacardium occidentale** (*Linn*) N. O. TEREBINTHACEÆ.

**Polygamia Dioecia.** *Sex : Syst :*

Cashew-nut tree, ENG.

Moondri Marum, TAM.

Hijilee Badam, HIND.

Parunkimavah, MAL.

Iidi-memidi, TEL.

DESCR : Tree 30–40 feet : leaves oval, alternate, with roundish or emarginate apex : calyx 5-cleft nearly to the base : petals 5

linear-lanceolate, pale yellow with pink stripes : stamens usually nine with one longer than the others : style solitary : panicles terminal with male and hermaphrodite flowers mixed together : flowers greenish red : fruit a kidney-shaped ash-brown nut, sessile on the apex of a yellow or crimson-coloured torus. *Fl.* February—March.—*W. & A. prod.* I. 168.—*Lindl. fl. med.*—*Roxb. fl. Ind.* II. 312.—*Acajuba occidentalis*, *Gærtn.*—*Cassuvium pomiferum*, *Lam.*—*Rheede* III. t. 54.—Coasts of the Peninsula. Chittagong. Trichinopoly.

USES, &c. Indigenous to the West Indies, but now common to Asia, Africa, and America. The fruit is sub-acid and astringent. The pericarp of the nut contains a black acrid oil, which owing to its caustic properties is often applied to floors or wooden rafters of houses to prevent the attacks of white ants. It requires however to be used cautiously. This oil is called Cardole, and is a powerfully vesicating agent. It is applied to warts, corns, ulcers, &c., but it is said that the vapour of the oil when roasting will produce violent swelling and inflammation. Martius says, "The sympathy effect of the nut borne about the person upon chronic inflammation of the eyes, especially when of a scrofulous nature, is remarkable." A transparent gum is obtained from the trunk of the tree, useful as a good varnish, and making a fair substitute for gum Arabic. It should be collected while the sap is rising. It is particularly useful when the depredations of insects require to be guarded against. For this purpose it is used in S. America by the book-binders, who wash their books with a solution of it in order to keep away moths and ants. The kernels are edible and wholesome, abounding in sweet milky juice, and are used for imparting a flavour to Madeira Wine. Ground up and mixed with cocoa they make a good chocolate. The juice of the fruit expressed and fermented yields a pleasant wine, and distilled, a spirit is drawn from it making good punch. Rheede states that the juice expressed is given in diarrhoea and for the cure of diabetes. A variety of the tree grows in Travancore, and probably elsewhere, the pericarp of whose nuts has no oil, but may be chewed raw with impunity. The astringency of the fruit juice has been recommended as a good remedy in dropsical habits. The tree flowers twice a year. The juice which flows from an incision in the body of the tree will stain linen so that it cannot be washed out. The bark of the tree is given internally in infusion for syphilitic swellings of the joints. It has been used for tanning in the West Indies. An edible oil equal to olive or almond oil is procured from the nuts, but it is seldom prepared, the kernels being used as a table fruit. The wood is of no value. *Lindley. Pereira. Don. Rheede. Pers. obs.*



(51) **Anamirta cocculus** (*W. & A.*) N. O. MENISPERMACEÆ.**Diœcia Monadelphis.** Sex: *Syst* :Kaka-coollie, TAM.  
Kaki-chempoo, TEL.Kakmari, HIND.  
Polla, or Kaandaka-conuveh, MAL.

DESCR: Twining: bark deeply cracked: leaves alternate, slightly cordate, roundish, acute, whitish beneath, with 5 digitate ribs: calyx 6-sepalled: corolla none: racemes of female flowers, lateral, whitish-green: drupes 2-3; seeds globose.—*W. & A. prod.* I. 446.—*Lindl. flor. med.* 371.—*Menispermum cocculus*, *Linn.*—*M. heteroclitum*, *Roxb. II. B.*—*M. monadelphum*, *Roxb. in E. I. C. Mus.*—*Cocculus suberosus*, *W. & A. prod.* I. 11.—*A. paniculata*, *Colebr. Linnean Soc. Trans.*—*Rheede VII. t. 1, and XI. t. 62.*—Malabar. Circular mountains. Concans.

USES, &c. The berries of this plant, which are very disagreeable to the taste, are known as the *Cocculus Indicus* seeds, and have been extensively used by unprincipled merchants in the adulteration of malt liquors, thereby rendering them more intoxicating. In over-doses, they become a deadly poison. An oil is produced from them used for poisoning fish and game. In a powdered state they are employed for destroying pediculi in the hair, and in ointment are reckoned of value in cutaneous diseases. The juice of the fresh fruit is applied externally to foul ulcers, and esteemed a good remedy in scabies. Ainslie states that "the berry is employed by the Vytians as a useful external application in cases of inveterate itch and herpes: on which occasions, it is beat into a fine powder and mixed with a little warm castor oil." Marcet proved by experiments that it is also a poison for vegetable substances, a solution prepared with an extract made from the seeds having killed a bean plant in twenty-four hours. The poisonous properties reside in the seeds, which contain a large percentage of the virulent principle called *Picrotoxine*. And the pericarp yields another dangerous alkaloid called *Menispermine*. Its chief influence, as a poison, is upon the nervous system, and leaves scarcely any trace of its action upon the coats of the stomach. The ointment made from the powdered berries is very efficacious in allaying inflammation, but requires to be cautiously used. That the seeds are illegally employed in the adulteration of beer by the lower class of brewers in England is an undoubted fact, although the penalties imposed by the legislature are very severe. It is said that 1 lb. of these berries is equal to a sack of malt in brewing, and it was even recommended by one man who wrote on the "Art of Brewing," to add 3 lbs. of seeds to every ten quarters of malt. A consider-

able quantity of "Cocculus Indicus" is exported from Malabar and Travancore, and shipped for the London market, where the price varies from 18 to 24 shillings per cwt. The exports from Travancore alone for 1854-55, were upwards of 75 candies. The imports in the English market are about 240 tons annually. In four years ending 1856, 5,817 cwt. of the seeds were exported from the Madras Presidency, valued at 7,124 Rupees, chiefly to Bombay, the United Kingdom and Persian Gulf. *Ainsl. Simmonds. Lindley. Comm. prod. Mad.*

(52) **Ananas sativus** (*Schult.*) Nat. Ord. BROMELIACEÆ.

**Hexandria Monogynia.** *Sex: Syst:*

Pine-apple, ENG.  
Pooreether, MAL.  
Anasa, TAM.

Ananas, DUK.  
Ananas, TEL.

DESCR : Perennial, 2-3 feet : leaves ciliate with spinous points : calyx 3-parted : petals 3 : spikes tufted : flowers small, bluish. *F1.* April—May.—*Roxb. fl. Ind. II. 116.*—*Ananassa sativa, Lindl.*—*Bromelia ananas, Linn.*—Naturalized in India.

USES, &c. The Pine-apple has long been domesticated in the East Indies, and is now found in an almost wild state in most parts of the Peninsula, Northern Provinces, and Ceylon. The Portuguese appear to have first introduced the seeds from the Moluccas. It is abundant in China and the Philippine Islands. The delicious flavour of the fruit is well known. The plant succeeds well in the open air as far North as 30°, while in the Southern parts of the Peninsula it forms hedges, and will grow with little care and in almost any soil. The flavour of the fruit is greatly heightened by cultivation, being somewhat acrid in its wild state. The plants are remarkable for their power of existing in the air without contact with the earth, and in South America they may be seen in abundance, hanging up in the gardens and dwelling-houses, in which situations they will flower profusely, perfuming the air with their delicious fragrance. The most important use of the pine-apple plant consists in the fine white fibres yielded by the leaves. These have been formed into the most delicate fabrics, as well as fishing lines, ropes, &c. Unlike other fibres they are not injured by immersion in water—a property much increased by tanning, which process is constantly used by the Natives. In Malacca and Singapore, a trade is carried on with China in these fibres, which are there used in the manufacture of linen-stuffs. As a substitute for flax they are perhaps the most valuable of Indian fibres. Dr. Royle states, "that a patent was taken out for the manufacture of

thread from the pine-apple fibre, because, when bleached, it could be manufactured in the same way as flax. The process of bleaching by destroying the adhesion between the bundles of fibres renders it much finer, and hence enables it to be extended between the rolls in the process of spinning." Specimens of pine-apple fibre were sent to the Madras Exhibition from Travancore, South Arcot, and other parts of the country; upon which the Juries reported, "the above samples are nearly white, very soft, silky and pliant, and the material seems to be a good substitute for flax, as it is known to be strong, durable, and susceptible of fine subdivision. It has also the advantage of being as long in the staple as flax, and it can be worked upon with the same machinery." According to experiments by Dr. Royle, pine-apple fibre prepared at Madras bore 260 lbs., and some from Singapore 350 lbs. A rope of the same broke at 57 cwt. In other experiments a 12-thread rope of plantain fibre broke at 864 lbs., and a similar rope of pine-apple fibre at 924 lbs. *Royle. Ainslie. Jury Rep. &c.*

(53) **Andrographis paniculata** (*Wall.*) ACANTHACEÆ.

**Diandria Monogynia.** *Sex: Syst:*

Nela-vembu, TAM.  
Kiriatha, MAL.  
Creat, DUK.

Nella-vemoo, TEL.  
Kalupnath, Mahatita, HINDI  
Kala-megh, BENG.

**DESCR:** Annual, 1-2 feet: stem quadrangular, pointed, smooth: leaves opposite, on short petioles, lanceolate, entire: calyx deeply 5-cleft: corolla bilabiate, lips linear, reflected, upper one 3-toothed, lower one 2-toothed: flowers remote, alternate, on long petioles, downy, rose-coloured, or white, streaked with purple: capsules erect, somewhat cylindrical: seeds 3-4 in each. *Fl.* November—February.—*Lindl. flor. med.* 501.—*Justicia paniculata*, *Roxb. fl. Ind.* I. 118.—*Ed. Car.* I. 119.—*Rheede IX. t. 56.*—*Wight's Icon. t. 518.*—Bengal in dry places under trees. Cultivated in Tinnevely.

**USES, &c.** This plant is much valued for its stomachic and tonic properties, especially the root, which is one of the chief ingredients in the French mixture called *Drogue amère*. The whole of the plant is very bitter, and is occasionally used in cholera and dysentery. It is also said to be alexipharmic. It is cultivated in Tinnevely and other districts, and is found wild in Bengal and the Northern districts of the Peninsula. In some parts of India it is well known as the Nella-vemboo. *Ainsl. Lindl. &c.*

(54) **Andropogon citratus** (DC.) Nat. Ord. GRAMINACEÆ.**Triandria Digynia.** Sex: Syst:Lemon-grass, or Sweet rush, ENG.  
Kamachie-pilloo, Wassina-pilloo,  
Cavatam-pilloo, TAM.  
Kamachie-kussoo, TEL.Ghunda-bela, HIND.  
Sireku, MAL.  
Gundha-bena, BENG.

DESCR: Root perennial: panicles somewhat secund: spikes conjugate, ovate-oblong: rachis pubescent: floscules sessile, awnless: culms 5-7 feet, erect, smooth: leaves many near the root, bifarious, soft, pale-green, 3-4 feet long: spikelets in pairs, on a common pedicel furnished with a spathe: rachis articulated, hairy: flowers in pairs, one hermaphrodite and sessile, the other male and pedicelled.—*Rheede* XII. t. 72.—*A. schœnanthus*, *Linn.*—*Roxb. fl. Ind.* I. 274.—*Ed. Car.* I. 278.—*Cymbopogon schœnanthus*, *Spreng.*—Travancore. Bengal. Cultivated in Coromandel.

USES, &c. An infusion of the fragrant leaves, which are bitter and aromatic, is given to children as an excellent stomachic. It is also diaphoretic. An essential oil is prepared from them, which is a most valuable remedy in rheumatism, applied externally. Mixed with butter-milk, the leaves are used in cases of ringworm. When fresh and young, they are used in many parts of India as a substitute for tea; and the white centre of the succulent leaf-culms is used to impart a flavour to curries. In Bengal, large tracts of waste land are covered with this grass. The oil is of a light straw colour, but becomes red if kept long. It is much used in perfumery, as the oil of Verbena. The export of Lemon-grass oil from Ceylon amounts in value to nearly £7,000 annually.—*Roxb. Lindley. Ainsl. Simmonds. Carey.*

(55) **Andropogon Iwarancusa** (*Roxb.*) Do.

Do.

Iwaran-kussa, BENG.

DESCR: Root perennial, fibrous: culms erect, 3-6 feet, smooth, filled with a light spongy substance: leaves near the root longer than the culm-points, margins hispid, otherwise smooth: panicles axillary and terminal, consisting of numerous fascicles of pedicelled, thin, 5-jointed spikes, with a spathe to each pair of spikes: flowers on the rachis in pairs; one awned, sessile, the other one awnless, male, and pedicelled: the terminal florets are three, one hermaphrodite, two male: glumes two, 1-flowered, which with the rachis

and pedicels are woolly at the base.—*Roxb. fl. Ind.* I. 275.—*Ed. Car.* I. 279.—*Lindl. flor. med.* 611.—Skirts of the N. Mountains India. Hurdwar.

USES, &c. The roots of this fragrant grass are used by the Natives in Northern India in intermittent fevers. In habit and taste it is similar to the *A. schœnanthus*. Dr. Royle denies that it yields a grass-oil. *Pereira. Royle, &c.*

(56) **Andropogon Martini** (*Roxb.*) Do.

*Do.*

Roussa-grass, ENG.

| Koobell, HIND.

DESCR. Root perennial, fibrous : culms erect, 3-6 feet, smooth, filled with pith : leaves very long, tapering to a fine point, smooth and soft : sheaths shorter than the joints on full grown plants : spikelets paired 3-jointed : panicles and calyx as in *A. Iwarancusa* : flowers paired : rachis jointed, woolly : corolla 1-valved, with an awn occupying the place of the other—*Roxb. fl. Ind.* I. 277.—*Ed. Car.* I. 280.—Balaghaut Mountains. Delhi. Nagpore. Deccan.

USES, &c. A fragrant oil is extracted from this species of grass known as the grass oil of Nemaour. It is valuable as a rubefacient, and is employed as a substitute for Cajeput oil. The grass has a strong aromatic taste, scenting the milk of those animals which feed on it. It is considered by Dr. Royle to be the sweet cane of Scripture. The oil being obtained by distillation is frequently applied externally in rheumatic affections. The scent is very fragrant and aromatic, and the colour is of pale straw. Much used in perfumery also ; and medicinally as a stimulant and diaphoretic. It is also known as the ginger-grass oil. It has the power in a remarkable degree of preventing the hair of the head from falling off after acute diseases, such as fever, or after confinement or prolonged nursing. It even restores hair which has fallen off, but it must be strong and pure, and not that usually sold by perfumers. *Lindley. Royle. Pereira. Roxb.*

(57) **Andropogon muricatum** (*Retz.*) Do.

*Do.*

Cuscus-grass, ENG.

Vette-vayr, TAM.

Cooroo-vayroo, or Kussavoo, TEL.

Kror, Khus-kus, BENG.

Bena, Useer, HIND.

Ramichum, MAL.

DESCR : Root perennial, fibrous : culms numerous, smooth, slightly compressed at the base, 4-6 feet : leaves bifarious near the

base, narrow, erect : florets in pairs, awnless, male and hermaphrodite, the former pedicelled, the latter sessile.—*Roxb. fl. Ind.* I. 265. *Ed. Car.* I. 269.—*Anatherum muricatum*, *Beauv.*—*Phalaris Zizania*, *Linn.*—Bengal. Coromandel. Trichore forests.

USES, &c. An infusion of the root is used medicinally as a gentle stimulant, and a grateful drink in feverish cases. The roots are also made into fans, and being thinly worked into bamboo frames are employed for the purpose of cooling the heated atmosphere in dwelling-houses during the hot winds. These are known as the Cuscus tatties. The grass is used for thatching bungalows and for covering Palanquins. The roots reduced to powder are given in bilious affections, and mixed with milk and applied externally, as cooling applications to the skin when irritated. They are delightfully fragrant and aromatic, and contain a volatile oil, which is imported into England for perfumery. An ointment prepared with the oil has been employed in removing pediculi from the hair. A weak infusion is frequently given in cases of gout and rheumatism, it is stimulating and diaphoretic. In three years ending in 1856 were exported from Madras 1,021 cwt. of the root, valued at 4,343 Rs., chiefly to Bombay and Travancore. *Ainsl. Roxb. Pereira. Comm. prod. Mad.*

(58) **Anethum sowa** (*Roxb.*) Nat. Ord. APIACEÆ.

**Pentandria Digynia.** *Sex. Syst.*

Sowa, Dill, or Bishops-weed, ENG.	Sowa, Shuta-poosha, HIND.
Satha-cooppa, TAM.	Shatha-kooppa, MAL.
Sompa, TEL.	Soolpha, Beng.

DESCR: Annual, 2-4 feet, erect, glabrous : leaves decomposed, alternate ; leaflets filiform : petioles sheathing below : stem smooth, covered with whitish pubescence : petals roundish, entire : umbels terminal, without involucels : stamens about the length of the petals : fruit oblong, compressed, almost destitute of a membranaceous margin ; seeds two : flowers yellow. *Fl.* February—April.—*W. & A. prod.* I. 372.—*Wight's Icon.* t. 572.—*Roxb. fl. Ind.* II. 96.—*A. graveolens*, *Wall.*—Bengal. Cultivated in the Peninsula.

USES, &c. The seeds are to be met with in every Indian bazar, they form one of the chief ingredients in curry powder. They yield a valuable oil, prepared by distillation, and used medicinally. Bruised and boiled in water and mixed with the roots, these seeds are applied externally in rheumatic and other swellings of the joints. The leaves applied warm and moistened with a little oil are said to hasten suppuration. *Ainsl. Roxb. &c.*

(59) **Anisochilus carnosus** (Wall.) Nat. Ord. LAMIACEÆ.**Didynamia Gymnosperma.** Sex: Syst:Thick-leaved Lavender, ENG.  
Karpooora-wullie, TAM.Litakee-pungerie, DUK.  
Kautoo-kunka, MAL.

DESCR: Small plant: stem erect, tetragonal: leaves petiolate, ovate-roundish, crenated, cordate at the base, thick, fleshy, tomentosely villous on both surfaces: spikes on long peduncles: calyx with upper lip, with ciliated edges, lower lip truncate, quite entire: corolla bilabiate, upper lip bluntly 3-4 cleft, lower lip entire: flowers lilac. *Fl.* June—September.—*Don's Mill.* IV. 685.—*Rheede Mal. X. t.* 90.—*Lavandula carnosus*, *Linn. Amœn.*—*Plectranthus carnosus*, *Sm.*—*P. dubius*, *Spreng.*—*P. crassifolius*, *Hortul.* *P. strobiliferus*, *Roxb. fl. Ind.* III. 23.—Clefts of rocks among mountains in N. Circars and Malabar. Mysore.

USES, &c. The fresh juice squeezed from the leaves of this plant and mixed with sugar and gingly oil is used as a cooling liniment for the head. Leaves and stems are given in infusion to children in coughs and colds. The plant also yields a volatile oil. *Ainsl. Rheede, &c.*

(60) **Anisomeles Malabarica** (R. Br.) Do.

Do.

Malabar Cat-mint, ENG.  
Péyamératti, TAM.Moga-bira, TEL.  
Karintooimba, MAL.

DESCR: Shrub 2-5 feet: branches tomentose: leaves ovate-lanceolate, crenately serrated at the upper part, entire below: calyx 5-cleft, thickly covered with long white, somewhat viscid pubescence: upper lip of corolla entire white: under one 3-cleft, with the lateral divisions reflexed: anthers deep purple: whorls disposed in simple racemes. *Fl.* July—August.—*Don's Mill.* IV. 822.—*Wight's Icon. t.* 861.—*Nepeta malabarica*, *Linn.*—*Ajuga fruticosa*, *Roxb. fl. Ind.* III. 1.—*Stachys malabarica*, *Sieb.*—*Rheede X. t.* 93. Travancore. Peninsula.

USES, &c. The juice of the leaves is given to children in colic and indigestion, and fevers arising from teething. Also employed in infusion in stomachic complaints, dysentery, and intermittent fevers. Patients suffering from ague are made to inhale the va-

pour arising from an infusion of this plant: copious perspiration ensues, which is kept up by drinking more of the infusion. The leaves which are bitter and astringent, are taken to assist digestion, and to impart tone to the stomach. The plant is very common in Travancore. A clear reddish oil is distilled from the plant, of heavy odour, acrid and slightly bitter. A decoction of the whole plant is antarthritic, if the body be washed with it. *Wight. Ainsl. Lindley. Rheed.*

(61) **Anona squamosa** (Linn) Nat. Ord. ANONACEÆ.

**Polyandria Polygynia.** Sex: Syst:

Custard-apple, ENG.

Ata, HIND.

Atta-marum, MAL.

Loona, Meba, BENG.

Seeta-phul, DUK.

Sita-pullum, TAM.

DESCR: Shrub or small tree 15–20 feet: leaves oblong, or oblong lanceolate, glabrous, pellucid-dotted: calyx 3-sepalled: petals 6 in a double row; exterior ones narrow-lanceolate, three cornered near the apex; inner ones scarcely any: peduncles axillary: flowers whitish-green. *Fl.* March—April.—*W. & A. prod.* I. 7—*Rheed* III. t. 29.—*Roxb. fl. Ind.* II. 657.—Domesticated everywhere in India.

USES, &c. The Anonas are all South American plants. This species, as well as the *A. reticulata*, (Sweet-sop, or Bullock's-heart,) and the *A. muricata*, (Sour-sop,) has long been naturalized in the East Indies. The fruit is delicious to the taste, and on occasions of famine, has literally proved the staff of life to the Natives. Royle says, "It is not generally known that the leaves of this plant have a heavy disagreeable odour, and the seeds contain a highly acrid principle fatal to insects, on which account the Natives of India use them powdered and mixed with the flour of gram (*Cicer arietinum*) for washing the hair." The leaves gently bruised and mixed with salt and reduced to the form of a plaster and so applied to malignant tumours will act powerfully in ripening them. The unripe fruit mixed with a little ginger is given in vertigo. When in fruit, the Custard Apple is easily distinguished from the Bullock's-heart. They are well known as *Seeta-phul* and *Ram-phul*. The Sour-sop, or rough Anona is sparingly cultivated in Madras, the fruit is muricated with soft prickles. *Royle. Gibson. Rheed, &c.*

(62) **Antiaris saccidora** (Dalz.) Nat. Ord. ARTOCARPACEÆ.

**Monœcia Monandria.** Sex: Syst:

Araya-anjely, MAL.

DESCR: Large tree: leaves alternate ovate, oblong, acuminate, entire, glabrous above, slightly villous beneath: capitule axillary,



aggregated: drupe shape and size of a small fig, covered with purple down. *Fl.* October.—*Wight's Icon. t.* 1958.—*Lepurandra saccidora*, *Nimmo in Grak's Cat.*—Malabar. Travancore. N. Concans.

USES, &c. The Natives strip the bark of this tree into large pieces, soak it in water, and beat it well, when it becomes white and furry. In this state the Hill people use it as clothing, and also make it into large bags by making a singular perpendicular incision in the bark, and one above and below, and then sewing the sides together again. Paper is also made from the bark. It is a very large tree: 18 feet in circumference at the base. On wounding the fruit a milky viscid fluid exudes in large quantities, which shortly hardens, becoming of a black and shining colour, and of the consistency of bees-wax. The inner bark is composed of very strong tenacious fibres, and seems excellently adapted for cordage and matting. The nuts are intensely bitter, and contain an azotized principle, which may prove an active medical agent. In the N. Concans, the Natives call the tree Juzoogy and Kurwut. Sacks made from the bark are used by the villagers for carrying rice, and are sold for six annas each. The tree was first noticed by Dr. Lush at Kandalla in 1837. The native name given in Graham's catalogue is Chandul, and there described as having dentate serrulate leaves. *Dalzell in Hooker's Journ. of Bot.* III. 232. *Nimmo. J. Grak. Cat.*

(63) **Antidesma bunias** (*Spreng.*) N. Ord. STILAGINACEÆ.

**Discia Pentandria.** *Sex: Syst:*

Nolai-tali, TAM.

|

Nuli-tali, MAL.

DESCR: Middle sized tree: leaves alternate, entire, lanceolate-oblong: spikes axillary and terminal: male flowers triandrous with an abortive column in the centre: flowers green: fruit red.—*Roxb. fl. Ind.* III. 758.—*Wight's Icon. t.* 819.—*Rheede* IV. *t.* 56.—*A. alexiterium, Spreng.*—*Stilago bunias, Linn.*—Coromandel. Malabar. Nepal.

USES, &c. The shining deep-red fruit is subacid, and esteemed for its cooling qualities. The bark is used for making ropes, especially in Travancore. It is one of the numerous plants whose leaves are considered as a remedy against the bites of poisonous snakes. The leaves are acid and diaphoretic, and, when young, are boiled with pot-herbs, and employed in India in syphilitic affections. In Assam it grows to rather a large size, with the trunk 12 or 14 inches in diameter. The timber is greatly affected by immersion in

water, becoming heavy and black as iron. Another species, the *A. diandrum*, which is found on the Circar mountains, yields a tolerable timber, which is useful for various purposes. *Roxb. Lindley, &c.*

(64) **Antidesma pubescens** (*Linn.*) Do.

*Do.*

Tejeriam-cottam, MAL.

Pollarie, TEL.

DESCR : Tree : calyx 5-cleft : corolla none : leaves alternate, on short petioles, oblong, entire, pubescent : spikes terminal, paniced, pubescent : flowers minute, greenish-yellow. *Male-tree*—leaflets hairy : filaments 5, spreading. *Female-tree*—calyx 6-cleft : styles two, short : fruit a drupe.—*Roxb. fl. Ind. III. p. 770.*—*Roxb. Cor. t. 167.*—*Wight's Icon. t. 821.*—*Rheede V. t. 11.*—Northern Circars.

USES, &c. Similar to the preceding species, the bark is used for making ropes, whence the generic name. The succulent drupes are eaten by the Natives. *Roxb.*

(65) **Aponogeton**

**monostachyon** (*Willd.*) Nat. Ord. JUNCAGINACEÆ.

**Hexandria Trigynia.** *Sex : Syst :*

Parua-kalanga, MAL.  
Ghechoo, HIND.

Kotee-kalangoo, TAM.  
Nama, TEL.

DESCR : Perennial, aquatic : roots tuberous : leaves radical, linear-oblong, cordate at the base, pointed, entire, 3-5-nerved : scapes slightly striated, as long as the leaves : spikes single, closely surrounded with flowers : capsules 3, smooth, 1-celled, 4-8-seeded : anthers blue.—*Roxb. fl. Ind. II. 210.*—*Rheede XI. t. 15.*—Peninsula. Concans.

USES, &c. This aquatic plant is found in shallow standing water and the beds of tanks, flowering during the rainy season. The Natives relish the small tubers as an article of diet. They are said to be as good as potatoes, and esteemed a great delicacy. *Roxb. Ainsl.*

(66) **Arachis hypogæa** (*Linn.*) Nat. Ord. LEGUMINOSÆ.

**Diadelphia Decandria.** *Sex : Syst :*

Earth-nut, Manila-nut, ENG.  
Vayer or Nelay-cadalay, TAM.  
Nela Sanagalu, TEL.

Velsiatee-moong, DUK.  
Moong-phullee, HIND.

DESCR : Annual, diffuse : stem hairy : leaves abruptly pinnated : leaflets 2-pair : calyx tubular, long : corolla papilionaceous : stamens

and petals inserted into the throat of the calyx : flowers above ground sterile, aggregate, axillary, yellow : legumes long stalked, indehiscent, 1-celled, 2-3-seeded. *Fl.* June.—*W. & A. prod.* 1. 280.—*Roxb. fl. Ind.* III. 280—A. *Africana*, *Tourn.*—A. *Asiatica*, *Lour.*—Cultivated in the Peninsula.

**USES, &c.** Properly indigenous to South America, but extensively cultivated in the Peninsula for the sake of the oil yielded by the seeds. This plant obtained the name from the pods burying themselves in the earth, where they ripen their seeds ; these latter are roasted in America, and are considered a good substitute for chocolate. The oil which is expressed from them is much used in China and India for lamps. The poorer classes eat the nuts. An experiment was made in France as to the relative consumption of the ground-nut oil and olive oil in a lamp having a wick of  $\frac{1}{8}$ th of an inch in diameter, when it was found that an ounce of the ground-nut oil burnt 9 hours and 25 minutes, while olive oil under similar circumstances burnt only 8 hours.\* It has the additional advantage of giving no smoke. In Europe, a bushel of ground-nuts produces one gallon of oil when expressed cold : if heat be applied, a still greater quantity is procured, but of inferior quality. The nut, according to Dr. Davy, abounds with starch as well as oil, and a large proportion of albuminous matter, and in no other instances had he found so large a proportion of starch mixed with oil. The leaf is something like that of clover, and affords excellent food for cattle, and the cakes after the expression of the oil form a good manure. Under favourable circumstances, the nuts will produce half their weight of oil and the quantity is much increased by heat and pressure. It is cultivated in the neighbourhood of Calcutta, the oil being used for pharmaceutical purposes, and especially for lamps and machinery. A great quantity of the oil is annually exported from the Madras territories, as will appear from the following account of this valuable product extracted from the Juries reports :—“ In the year 1848-49, 37,000 gallons were shipped, but in the two following years the exports exceeded 103,000 gallons. It has however fallen to 57,207 gallons in 1852-53. It does not seem to be consumed to any large extent in this country, although the nut itself is much eaten by the poorer classes. It is said to be used for adulterating gingely oil in North Arcot, where it costs from Rs. 1-8 to 2-12, per maund. In the Nellore District, the seeds are procured at Rs. 1-8 per maund, and in Tanjore about 200 acres are cultivated, producing annually 75 candies of oil, at Rs. 2-6 per maund. The seeds yield about 43 per cent of a clear straw-coloured edible oil, which is an excellent substitute for olive oil, and makes a good soap. Its value in London, in January 1855, was £47-10 per ton.” In four years ending 1856 were exported from Madras 334,024 gallons of the oil valued at 212,896 Rs. chiefly to the United

Kingdom, Bombay and Indian French ports: and of the nuts in 1854-55 about 72 quarters valued at 1,043 Rs. to the United Kingdom and Bengal. Simmonds has remarked upon this useful product:— "This oil is good for every purpose for which olive or almond oil is used. For domestic purposes it is esteemed, and it does not become rancid so quickly as other oils. Experiments have been made on its inflammable properties, and it is proved that the brilliancy of light was superior to that of olive oil, and its durability was likewise proved to be seven minutes per hour beyond the combustion of the best olive oil, with the additional advantage of scarcely any smoke." And further, "that the culture of the *Arachis* in warm climates, or even in a temperate one, under favourable circumstances, should be encouraged, there can be but one opinion, especially when it is considered that its qualities are able to supersede that of the olive and the almond, which are but precarious in their crops. \* \* \* I am informed by an American merchant that he cleared 12,000 dollars in one year, on the single article of ground or pea nuts obtained from Africa. Strange as it may appear, nearly all these nuts are transhipped to France, where they command a ready sale; are there converted into oil, and then find their way over the world in the shape of olive oil, the skill of the French chemists enabling them to imitate the real Lucca and Florence oil, so as to deceive the nicest judges. Indeed, the oil from the pea nuts possesses a sweetness and delicacy that cannot be surpassed." There are two varieties of this plant grown in Malacca, also in Java, one with white, the other with brown seeds. It is there known as the Katjang oil. So useful a plant should be more extensively cultivated in this country. It thrives well on a light sandy soil, and is very prolific. In some parts of America it yields from 30 to 80 bushels of nuts per acre. On the Western Coast of Africa it is planted to a great extent. *Ed. Phil. Mag. Simmonds. Jury Rep. Mad. Exhib. Comm. prod. Mad.*

(67) ***Aralia papyrifera* (Hook.)** Nat. Ord. ARALIACEÆ.

**Pentandria Pentagynia.** Sex: Syst:

Rice paper plant of China, Eng.

**DESCR:** Stem unarmed, erect, suffruticose, with annular striae, and a copious white medulla: leaves terminal, long petioled, large, palmately 5-lobed, underneath covered with a stellate ferruginous tomentum, lobes acute serrated, petioles with two large subulate stipules at the base. Flowers in immense downy panicles.

This plant has been introduced into the Calcutta Botanical Gardens, and from thence to Madras.—*Bot. Mag. Vol. XII. t. 4897.*—*Hook. Journ. of Botany 1852, p. 53. t. 1-2.*

USES, &c. The Chinese rice-paper, has long been known to be cut from cylinders of pith which has always a central hollow chamber, divided into compartments by septa or excessively thin plates. It is only within the last few years that the above supposition has been confirmed, by Sir William Hooker receiving from China, after many years of correspondence, specimens of the rice-paper plant itself. It is used for drawing paper, and has been employed by Entomologists for lining the drawers of their Cabinets; in its texture it resembles Shola pith, (*Æschynomene aspera*) but is much finer and whiter.

(68) **Areca catechu** (Linn.) Nat. Ord. PALMACEÆ.

**Monocotyledon Hexandria. Sex: Syst.**

Areca or Betel-nut Palm, ENG. Paak-marum or Camooghoo, TAM. Poka-chettu, TEL.	Suparie, DUK. Adaka or Cavooghoo, MAL. Goos, BENG.
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DESCR: Palm: spathe double: spadix much branched: male flowers numerous, above the female, sessile: calyx 1-lobed, 3-cornered, 3-partite: petals 3, oblong, smooth: stamens 2-partite, inserted round the base of the style: female flowers 1-8 at the base of each ramification, sessile: calyx 5-lobed, flowers small white, fragrant. *Fl.* April—May.—*Spreng. Syst.* II. 139.—*Roxb. fl. Ind.* III. 615.—*Cor.* I. t. 76.—A. Faupel, *Gaertn.*—*Rhede* I. t. 5, 6, 7, 8.—Commonly cultivated all over India.

USES, &c. In appearance, the Areca Palm is perhaps the most graceful and elegant among Indian Palms. Its native place is unknown, but it is extensively distributed in India. It yields the betel-nut of commerce. These nuts when young, are, in conjunction with other things prescribed in decoction, for costiveness and dyspepsia. They are much relished by the Natives, being chewed with the leaf of the betel pepper, (*Chavica Betel*), spread with chunam. They sadly discolour the teeth, but the Natives imagine that they fasten them, and clean the gums. A strong decoction of the nut is used in dyeing. A tree will produce annually on an average three hundred nuts. By Hukeems they are considered to have astringent and tonic properties. Roasted and pounded they make an excellent charcoal powder for the teeth. The catechu which they yield is of a very inferior quality. There are two preparations of it which are respectively called by the Tamools, Cuttacamboo and Cashcuttie; in Teloogoo, Kansee, and in Dukhanie, Bharab-cutta and Acha-cutta. The first (Cuttacamboo) is chewed with the betel leaf. The other is the astringent medicinally used in fluxes and ulcers. Like most of the Palm tribe, the trunk is much used for ordinary building purposes, and in Travancore is especially used for spear-handles,

&c. The spathe which stretches over the blossoms, which is called Paak-muttay, is a fibrous substance with which the Hindoos make vessels for holding arrack, water, &c.: also caps, dishes and small umbrellas. It is so fine that it can be written on with ink. A decoction of the root is applied to sore lips. The juice of the tender leaves mixed with oil is applied externally in lum-bago. The Areca Palm is found chiefly in Malabar, N. Bengal, the lower slopes of the mountains of Nepaul, and the S. W. Coast of Ceylon. It will produce fruit at five years, and continue to bear for twenty-five years. Unlike the Cocoa Palm, it will thrive at high regions, and at a distance from the sea. In the Eastern Islands, the produce of the tree varies from 200 to 1,000 nuts annually. They form a considerable article of commerce with the Eastern Islands and China, and are also one of the staple products of Travancore. The nuts are gathered in July and August, though not fully ripe till October. In the latter country, the nuts are variously prepared for use. "Those that are used by families of rank, are collected while the fruit is tender; the husks or the outer pod is removed; the kernel, a round fleshy mass, is boiled in water; in the first boiling of the nut, when properly done, the water becomes red, thick and starch-like, and this is afterwards evaporated into a substance like catechu; the boiled nuts being now removed, sliced and dried, the catechu-like substance is rubbed to the same, and dried again in the sun, when they become of a shining black, ready for use. Whole nuts without being sliced are also prepared in the same form for use amongst the higher classes, while ripe nuts, as well as young nuts in a raw state, are used by all classes of people generally, and ripe nuts preserved in water with the pod are also used." When exported to other districts, the nuts are sliced and coloured with red catechu, as also the nut while in the pod. The average amount of exports of the prepared nuts from Travancore is from 2 to 3,000 candies, annually, exclusive of the nuts in their ordinary state, great quantities of which are shipped to Bombay and other ports. According to the last survey, there were upwards of a million trees in Travancore. The following mode of extracting the catechu from the nuts in Mysore, is taken from "Heyne's Tracts on India":—"The nuts are taken as they come from the tree, and boiled for some hours in an iron vessel. They are then taken out, and the remaining water is inspissated by continual boiling. This process furnishes Kossa, or most astringent terra japonica, which is black and mixed with paddy husks, and other impurities. After the nuts are dried, they are put into a fresh quantity of water and boiled again; and this water being inspissated, like the former, yields the best or dearest kind of catechu called Coony. It is yellowish-brown, has an earthy fracture, and is free from the admixture of foreign bodies." The nuts are seldom imported into England. The catechu has of late years superseded madder in the calico works of Europe for dyeing a golden coffee brown, 1 lb. of this being equal to 6 of madder. In 1852, the value of Areca nuts exported from

Ceylon to British Colonies and Foreign States, amounted to £52,280. In three years ending in 1855, were exported from Madras 149,874 cwt. of the boiled nuts valued at 780,645 Rupees chiefly to Cutch, Mauritius, Bourbon, Scind and Concan; and of raw nuts in four years ending in 1856, 75,544 cwt. valued at Rupees 39,910 to the same places. On the mountains of Travancore and Malabar, a wild species, the *A. Dicksonii*, is found in great abundance. Of this, the poorer classes eat the nuts as a substitute for the common betel nut, but no other part of the tree appears to be employed for any useful purpose. *Ainslie. Lindley. Simmonds. — v. on Product of Travancore. Rheede. Comm. prod. Mad.*

(69) **Argemone Mexicana** (Linn.) N.Ord. PAPAVERACEÆ.

**Polyandria Monogynia. Sex: Syst:**

Yellow-thistle or Mexican-poppy,  
ENG.  
Bramadandoo, TAM.  
Brahmadandi, TEL.

Feringie-datura, or Peela, DUK.  
Buro-shialkanta, or Thialkanta,  
BENG.  
Bherband, HIND.

**DESCR:** Annual, herbaceous: leaves alternate, sessile, repand-sinuate, sharply toothed: sepals 2-3: calyx prickly, glabrous: petals 4-6: stem bristly: flowers solitary on erect peduncles: capsules prickly: seeds roundish: flowers yellow. *Fl.* Oct—Nov. — *W. & A. prod.* I. 18.—*Lindl. flor. med.* 15.—Coromandel. Malabar in waste places.

**Uses, &c:** This plant is a native of Mexico, but is now found abundantly in Asia and Africa, over a very extended area. The stalks and leaves abound with a bitter yellow juice like Gamboge, which is used in chronic ophthalmia. The seeds are used in the West Indies as a substitute for Ipecacuanha. An oil is also expressed from them, which in South America is much used by painters, and for giving a shining appearance to wood. It has also been employed as a substitute for castor oil, and is applied externally in headache by the native practitioners. The juice of the plant in infusion is diuretic, relieves strangury from blisters and heals excoriations. The seeds are very narcotic, and said to be stronger than opium. Simmonds says, "the seeds possess an emetic quality. In stomach complaints, the usual dose of the oil is thirty drops on a lump of sugar, and its effect is perfectly magical, relieving the pain instantaneously, throwing the patient into a profound refreshing sleep, and relieving the bowels." This valuable but neglected plant has been strongly commended as an aperient, anodyne and hypnotic by Dr. Hamilton and other experienced practitioners in the West Indies, vide *Pharm. Journal*, vols. 4, 5, and 12. Samples of the oil were produced at the Madras Exhibition. It is cheap and procurable in the bazars, being used chiefly for lamps. *Ainslie. Lindley. Simmonds, &c.*

(70) **Argyreia bracteata** (*Choisy.*) N. O. CONVULVULACEÆ.  
**Pentandria Monogynia.** *Sex: Syst:*

DESCR: Twining shrub, branched: leaves alternate, on long petioles, broadly cordate-ovate, dark shining green above, beneath hirsute and somewhat silky: calyx 5-cleft: sepals hairy: corolla campanulate, hairy externally, purplish-white, with a deep purple eye: peduncles axillary, dividing at the extremity in 2 or 3 branches with a sessile abraded flower in the fork, each of the pedicelled flowers with three bracteas at the base of the calyx: berry 3-4 seeded, deep orange colour: seeds embedded in pulp.—*W. & A.—Lindl. flor. med. 395.—Ipomœa bracteata, Heyne herb.*—Madras. C.romandel.

USES, &c. This plant is filled with milky juice. Decoctions of the leaves are used by the Natives as fomentations in cases of scrofulous enlargement of the joints: the boiled leaves being used as poultices at the same time. *Wight.*

(71) **Argyreia Malabarica** (*Choisy.*) Do.

*Do.*

Kattu Kalangu, MAL.

| Paymoostey, TAM.

DESCR: Twining shrub: stem downy: leaves roundish-cordate, acute, furnished with a few scattered hairs on both surfaces, paler below: corolla campanulate: peduncles as long as the leaves, many flowered at the apex: sepals 5; exterior ones clothed with hoary villi with revolute edges: petioles and peduncles villous: flowers small, cream-coloured, with deep purple eye. *Fl.* July—Aug.—*Don's Mill.* IV. 256.—*Convolvulus malabaricus, Linn.—Ipomœa malabarica, Roem. and Schult.—Rheede XI. t. 51.*—Mysore. Malabar. Common on the ghauts.

USES, &c. The root is cathartic. This plant is considered by farriers a good horse medicine. The leaves beaten up with the codi avanacu (*Tragia chamaelea*) and fresh butter promote the maturation of abscesses. The root is used externally in erysipelas. *Ainslie. Rheede.*

(72) **Argyreia speciosa** (*Sweet.*) Do.

*Do.*

Elephant creeper, ENG.  
 Samudra-chedi, TAM.

| Samudra-patra, TEL.  
 Samudra-stogam, MAL.

DESCR: Twining shrub, tomentose: leaves cordate, acute, glab-



rous above, thickly nerved beneath, and clothed with silky silvery down : sepals 5 : corolla campanulate : peduncles equal in length to the petioles, umbellately capitate : corolla nearly two inches long, deep rose-coloured, hairy in the plicæ outside. *Fl.* July—Aug.—*Don's Mill.* IV. 254.—*Convolvulus nervosus*, *Burm.*—*C. speciosus*, *Linn. Suppl.*—*Ipomæa speciosa*, *Pers.*—*Lettsomia nervosa*, *Roxb. fl. Ind.* I. 488.—*Ed. Car.* II. 78.—*L. speciosa*, *Roxb. II. B.*—*Rheede XI. t.* 61.—*Wight's Icon. t.* 851. 1360.—Malabar forests. Hedges in the Peninsula.

**USES, &c.** The leaves are used by native practitioners in the preparation of emollient poultices, and also in cutaneous complaints, being applied externally to the parts affected. The upper side of the leaves is used by the Natives to act as a discutient, the under or white side, as a maturant. *Ainslie. Gibson.*

### (73) **Aristolochia**

**bracteata** (*Retz.*) Nat. Ord. ARISTOLOCHIACEÆ.

**Gynandria Hexandria.** *Sex:* *Syst:*

Worm-killer, **ENG.**  
Addatnapalay, **TAM.**

Gadida-guda-pa. **TEL.**

**DESCR :** Trailing : roots perennial, fibrous : stems striated, waved : leaves alternate, petioled, kidney-shaped, curled at the margins, glaucous below : petioles channelled : flowers axillary, solitary, peduncled, drooping : calyx with the upper part of the tube and tongue erect : colour dark purple : covered on the inside with purple hairs : capsules ovate. *Fl.* Nearly all the year.—*Roxb. fl. Ind.* III. 490.—*Lindl. flor. med.* 341.—Coromandel in cultivated places. Travancore. Banks of the Jumna.

**USES, &c.** Every part of this plant is nauseously bitter. In cases of gripes, two of the fresh leaves are rubbed up with water and given once in 24 hours. An infusion of the dried leaves is given as an anthelmintic : fresh bruised and mixed with castor oil, they are considered a valuable remedy in obstinate cases of itch. The fresh leaves applied to the navel of a child are said to have the effect of moving the bowels. The same, fried with castor oil and made into a ball the size of an orange, relieves horses when suffering from gripes. The leaves beaten up with water are given internally in cases of snake-bites : also in infusion for boils and inflammatory attacks. The plant grows abundantly on dark red or black soil in the Deccan. The Natives squeeze the juice into

wounds to kill worms, hence its name 'keeramar.' *Roxb. Ainsl. Lindl. Gibson.*

(74) **Aristolochia Indica** (*Linn.*) Do.

*Do.*

Indian Birthwort, ENG.  
Perumarundoo, Talashroobe, TAM.  
Doolagovila, Eesara, TEL.

Perumurundoo, Kadalewegam, MAL.  
Ishwurmool, BENG.  
Israbel, HIND.

DESCR: Perennial, twining: leaves stalked, wedge-shaped or obovate, 3-nerved, pointed, waved: calyx tubular, nearly globose at the base: racemes axillary, shorter than the leaves: flowers erect: corolla purplish: capsule roundish, hexagonal, 6-celled: seeds numerous. *Fl.* Sept.—Oct.—*Roxb. fl. Ind.* III. 489.—*Wight's Icon. t.* 1858.—*Rheede VIII. t.* 25.—Copses and jungles in Travancore. Coromandel. Bengal. Hills throughout the Concan.

USES, &c. The root is nauseously bitter, and is said to possess emmenagogue and antarthritic virtues, and to be a valuable antidote to snake-bites, being applied both externally and internally. For particulars regarding the alleged efficacy of this remedy, see *Journal of the Agri-Hort. Soc. of India*, V. 138 and 742. Mixed with honey, the root is given in white leprosy, and the leaves internally in fever. *Ainslie. Lindl. &c.*

(75) **Artocarpus chaplasha** (*Roxb.*) N. O. ARTOCARPACEÆ.

**Monœcia Monandria.** *Sex: Syst:*

Chapalasha, BENG.

DESCR: Large tree: leaves in the adult, obovate, entire: in the young, pinnatifid: aments axillary, long-peduncled, subrotund: fruit spherical. *Fl.* Feb.—May.—*Roxb. fl. Ind.* III. 525.—*Wight's Icon. t.* 682.—Chittagong. Assam.

USES, &c. From this immense tree, canoes are made for river use where the tree grows. The wood is also useful for many other purposes, particularly when required to be used under water. *Roxb.*

(76) **Artocarpus hirsutus** (*Lam.*) Do.

*Do.*

Anjelic, ENG.  
Anjelec, TAM.

Ayence, Ansjeli, MAL.

DESCR: Tree: leaves elliptic, obtuse, or rounded at both ends, glabrous, hairy, especially on the nerves, beneath: male catkin

long, cylindrical, at first ascending, afterwards pendulous: females oval, size of an egg: fruit globose, echinate. *Fl.* Feb.—March.—*Roxb. fl. Ind.* III. 521.—*Rheede* III. t. 32.—*Wight's Icon.* t. 1957.—Travancore forests. Malabar.

USES, &c. This tree yields the Anjely wood so well known on the Western Coast for house-building, ships, frame-works, &c. As a timber, it is esteemed particularly useful. The tree attains a large size in the forests on the Western Coast, where it abounds. The fruit is the size of a large orange, and abounds in a viscid juice, which freely flows from the rough rind if touched: this is manufactured into bird-lime. The pulpy substance which surrounds the seeds is much relished by the Natives, being almost as good as the Jack-fruit. The bark is occasionally used in Canara for preparing a brown dye. The leaves dried and pulverised and then heated are applied to pains and stiffness of the limbs. Reduced to powder and mixed with camphor ointment they make a good external application to buboes and hydrocele. *Roxb. Wight. Pers. obs. Rheede.*

(77) **Artocarpus integrifolius** (Linn.) Do.

*Do.*

Indian Jack-tree, ENG.		Phunus, DUK.
Pila, TAM.		Pilavoo, MAL.
Panasa, TEL.		Kantal, BENG.

DESCR: Large tree: young branches hirsute: leaves alternate, petiolate, ovate-oblong, glabrous, pale below and hirsute with stiff hairs: flowers male and female on the same branch: peduncle pendulous arising from the trunk or branches: amentum of male flowers cylindrical: calyx none: petals 2: fruit ovate, muricated. *Fl.* Nov.—Dec.—*Roxb. fl. Ind.* III. 522.—*Cor.* III. 250.—*Rheede* III. t. 26-28.—*Wight's Icon.* t. 678.—*Smith in Rees' Cycl.*—A. heterophylla, *Lam.*—Polyphema jaca, *Lour.*—Sitodium cauliflorum, *Gærtn.*—Malabar. Peninsula. Bengal.

USES, &c. The timber of this tree, so well known as the Jack-wood, is much esteemed for making furniture of all kinds, for which it is well adapted. At first it is somewhat pale, but afterwards assumes a darker tinge approaching to mahogany, and, when polished, becomes one of the best fancy woods for tables, chairs, frames, &c. The root of the older trees is dark-coloured, and admirably adapted for picture-frames, and carving-work of all kinds. Like others of the same family, the tree abounds in viscid milky juice. The fruit, which grows to an enormous size, and hangs by a peduncle springing from the trunk, is a favourite article of food among the Natives. There are several varieties, but what is called the honey-jack is by far the sweetest and best. The seeds when

roasted are also much prized as a diet among the poorer classes. The leaves are given to goats and other cattle, and are said to be very fattening. In Travancore, the Jack-tree is a monopoly, and yields an annual tax to the Sircar. The juice which exudes from the trunk, especially if mixed with vinegar, is said to check the progress of glandular swellings, and the young leaves are frequently applied externally in cutaneous affections. A decoction of the roots is given in diarrhœa. The juice of the root mixed with the pulp of the fruit and some sugar is made into a plaster and applied to obstinate herpes. The milky juice of the bark mixed with powdered Sweet Flag root is said to be a good specific in nyctolopia. The Jack-tree if planted in stony soil grows short and thick; if in sandy ground, tall and spreading, and if the roots happen to come in contact with water, the tree will not bear fruit. Bird-lime is manufactured from the juice. The word Jack, is a corruption from the Sanscrit word 'Tchackka,' which means the fruit of the tree. The situation of the fruit varies with the age of the tree, being first borne on the branches, then on the trunk, and in very old trees on the roots. In Travancore, the mode of propagation is as follows: they put the whole fruit in the ground, and when the seeds germinate and grow up they tie the stems together with straw, and by degrees they form one stem, which will bear fruit in six or seven years. *Mill. Dict. Rees' Cycl. Roxb. Pers. obs. Rheede.*

(78) **Artocarpus lakoocha** (*Roxb.*) Do.

*Do.*

Dephul, BENG.

DESCR: Tree: leaves alternate, entire, oval, pointed, downy beneath; deciduous: aments axillary, globular: fruit nearly round, somewhat lobate, and almost smooth.—*Roxb. fl. Ind* III. 524.—*Wight's Icon. t.* 681.—Bengal. Rather common in gardens. Cultivated in the Concans.

USES, &c. The whole tree and unripe fruit contain much tenacious milky juice. The roots are used for dyeing yellow. The male spadix is acid and astringent, and is eaten by the Natives in their curries. *Roxb. J. Grah.*

(79) **Arum montanum** (*Roxb.*) Nat. Ord. ARACEÆ.

**Monœcia Polyandria.** *Sex: Syst:*

Konda-rakis, TEL.

DESCR: Stemless: root a subcylindrical tuber: leaves cordate repand, polished: spadix nearly as long as the cucullate coloured spathe: anthers many-celled.—*Roxb. fl. Ind.* III. p. 497.—*Wight's Icon. t.* 796.

USES, &c. A native of the mountainous parts of the Northern Circars, where the root is employed to poison tigers. Among other useful plants of this genus may be mentioned the *A. lyratum*, (*Roxb.*) also a native of the Circar mountains, the roots of which are eaten by the Natives, and reckoned very nutritious. They require, however, to be carefully boiled several times, and dressed in a particular manner, in order to divest them of a somewhat disagreeable taste. *Roxb.*

(80) **Asparagus ascendens** (*Roxb.*) Nat. Ord. LILIACEÆ.

**Hexandria Monogynia.** *Sex: Syst:*

DESCR: Perennial: stems nearly straight: spines solitary: leaves fasciated, filiform, glabrous: petals 6, reflexed: racemes axillary, solitary, or one on each side: flowers small, white, on diverging jointed pedicels: berry pendulous, 3-lobed, red and succulent when ripe. *Fl.* Oct.—Nov.—*Roxb. fl. Ind.* II. 153.—Rohilcund,

USES, &c. The root is medicinal, and considered a good substitute for Salep in Northern India. *Roxb.*

(81) **Asparagus racemosus** (*Willd.*) Do.

*Do.*

Sada-bori, HIND.  
Suth-moolie, BENG.

Challa, TEL.  
Wari, MAL.

DESCR: A straggling climbing shrub: branches striated: leaves fasciated, linear, falcate: thorns solitary, reflexed: racemes many-flowered, axillary: flowers small, white. *Fl.* Nov.—Dec.—*Roxb. fl. Ind.* II. 151.—*Wight's Icon.* t. 2056.—Travancore. Deccan.

USES, &c. This plant, says Roxburgh, will perfume the air to a considerable distance owing to the delightful fragrance of its flowers. The root boiled in milk is given in bilious affections. It is necessary to remove the bark previous to administering it, as it is considered poisonous. The leaves boiled and mixed with ghee are applied externally to promote suppuration in boils and tumours. *Roxb. Ainsl.*

(82) **Asparagus sarmentosus** (*Willd.*) Do.

*Do.*

Chinbroy Asparagus, ENG.  
Shtawari, Schadaveli, MAL.  
Tanneer-vittang, TAM.

Challaghedalo, TEL.  
Suffaid-mooslie, DUK.

DESCR: Climbing shrub: branches armed with crooked spines:

leaves linear-lanceolate: flowers small: berries red, 3-lobed.—*Rheede Mal. X. t. 10.*—Travancore. Peninsula.

USES, &c. The root, which is long, white, and fleshy, is bruised and soaked in water, and the latter, if drunk, is said by the Natives to be a remedy in preventing small-pox from becoming confluent. In Ceylon, the root is mixed with milk and eaten. The roots are often candied, in which state they are sometimes brought from China. They are also pickled in vinegar, and used as tonic, and also boiled in oil, and applied to diseases of the skin. *Ainsl. J. Grah.*

(83) **Asteracantha longifolia** (Nees.) N. O. ACANTHACEÆ.

**Didynamia Angiospermia.** Sex: Syst;

Neer-moolie, TAM.  
Neer-goobbie, TEL.  
Gokshura, HIND.

Kanta-koolika, BENG.  
Wahel-schullii, MAL.

DESCR: Annual: stem erect, bluntly quadrangular, hispid: leaves opposite, ensiform, very long: calyx 4-cleft: corolla funnel-shaped, 5-cleft, one division deeper than the rest: flowers in whorls, axillary, blue or bright violet: spines three on each side of the stem equal in length to the whorls. *Fl.* July--Dec.—*Don's Mill.*—*Wight's Icon. t. 449.*—*Barleria longifolia*, Linn.—*Ruellia longifolia*, Roxb. *fl. Ind. III. 50.*—*Rheede II. t. 45.*—Malabar. Travancore. Bengal.

USES, &c. This plant may commonly be met with by the side of paddy-fields and other damp situations. The roots are considered tonic and diuretic, administered in decoction. They are also employed in dropsical affections, and gravel. The leaves boiled in vinegar are reckoned diuretic. *Ainsl. Rheede, &c.*

(84) **Atalantia monophylla** (DC.) Nat. Ord. AURANTIACEÆ.

**Monadelphis Octandria.** Sex: Syst:

Wild-lime, ENG.  
Cat-ilimicham, TAM.

Malnaregam, MAL.  
Adivi-nimma, TEL.

DESCR: Shrub 8 feet: thorns small: leaves ovate or oblong, more or less emarginate at the apex: calyx 4-toothed: petals 4: racemes short, sessile: pedicels long, slender: berry globose, size of a lime, 3-4 seeded: flowers axillary and terminal, small, white. *Fl.* Oct.—Nov.—*W. & A. prod. I. 91.*—*Limonia monophylla*, Linn.—*Roxb. fl. Ind. II. 378.*—*Cor. I. t. 82.*—*Turraea virens*, Kæn. (not Linn.)—*Trichilia spinosa*, Willd.—*Limonia pumila*, Burm.—*Rheede IV. t. 12.*—Malabar. Coromandel.

**USES, &c.** The wood is hard, heavy and close-grained: of a pale yellow colour, and very suitable for cabinet work. In the forests of Coromandel it grows to be a small tree, flowering about the rainy season. *Roxb.*

(85) **Averrhoa bilimbi** (*Linn.*) Nat. Ord. OXALIDACEÆ.

**Decandria Pentagynia.** *Sex: Syst:*

Bilimbi tree, ENG.  
Wilumpi, MAL.

Bilimbi BENG.  
Kamarunga, HIND.

**DESCR:** Tree 15–20 feet: leaves alternate, unequally pinnated: leaflets oblong, lanceolate, acuminate, entire: calyx 5-cleft, pubescent: petals 5: flowers reddish-purple in racemes from the trunk: fruit oblong, obtuse-angled: seeds without aril. *Fl.* May—June.—*W. & A. prod.* I. 142.—*Roxb. fl. Ind.* II. 451.—*Rheede III. t. 45, 46.*—Goa. Travancore. Cultivated.

**USES, &c.** The juice of the fruit has a pleasant acid taste, from which a syrup is made given as a cooling drink in fevers. The leaves are slightly sensitive to the touch. The tree is a native of the Moluccas. The fruits are pickled or preserved in sugar.

(86) **Averrhoa carambola** (*Linn.*) Do.

*Do.*

Carambola tree, ENG.  
Tamara-tonga, or Kamaranga, MAL.

Cumurunga, BENG.  
Meetha-kumarunga, DUK.

**DESCR:** Tree 15–20 feet: leaves alternate, unequally pinnated: leaflets ovate, acuminate, 2–5 pair on small petioles: calyx glabrous: stamens 5: flowers disposed in short racemes arising from smaller branches on the trunk: corolla 5 petalled, campanulate: petals yellowish-purple: fruit acutely 5-angled with a smooth yellowish rind: seeds with aril. *Fl.* April—June.—*W. & A. prod.* I. 141.—*Rheede III. t. 43, 44.*—*Roxb. fl. Ind.* II. 450.—Travancore. Coromandel. Cultivated.

**USES, &c.** This beautiful tree originally came from Ceylon and the Moluccas. It is now commonly to be met with in the Peninsula. The fruits which contain an acid watery pulp are good when candied or made into syrup. They also make good pickles, and the juice is very useful in removing iron-moulds from linen. The leaves are a good substitute for sorrel. The root, leaves, and fruit, are medicinal, and the latter is used for dyeing and other purposes. *Rheede. Don. &c.*

(87) **Avicennia tomentosa** (*Linn.*) Nat. Ord. VERBENACEÆ.**Didymia Angiospermia.** *Sex: Syst:*White Mangrove, ENG.  
Oepata, MAL.

Bina, BENG.

DESCR: Small tree: leaves opposite, obovate or oval, slightly tomentose beneath: flowers terminal, small dingy yellow. *Fl.* April.—May.—*Roxb. fl. Ind.* III. 88.—*J. Grah. Cat. Wall. pl.*—*As. Res.* III. 211.—*A. resinifera*, *Forst.*—*A. oepata*, *Buch. Herb.*—*Secura marina*, *Forst.*—*Mangium album*, *Rumph.*—*Rheede* IV. t. 45.—*Wight's Icon. t.* 1481.—Soonderbunds. Salt Marshes in the tropics.

USES, &c. A preparation is made from the ashes of the wood which Dhobies use for washing and cleaning cotton cloths. Painters mix the same with their colours to make them adhere more firmly. The kernels are bitter but edible. The green fruit mixed with butter and boiled is made into a plaster good for softening and maturing tumours, and also for healing small-pox ulcers. In Rio Janeiro the bark is used for tanning. *Rheede.*

(88) **Azadirachta Indica** (*Ad. de Juss.*) N. O. MELIACEÆ.**Monadelphica Decandria.** *Sex: Syst:*Neem tree, ENG.  
Aria-bepon, MAL.  
Vaypum, TAM.Vepa, TEL.  
Neem, BENG.

DESCR: Tree 20 feet: calyx 5-partite: petals 5: anthers ten on the throat of the stamen-tube: leaves pinnated: leaflets ovate-lanceolate, unequal sided, acuminate, serrated: panicles axillary: flowers small, white: fruit when ripe purple, size of a small olive, 1-celled, 1-seeded. *Fl.* April—July.—*W. & A. prod.* I. 118.—*Roxb. fl. Ind.* II. 394.—*Rheede* IV. t. 52.—*Wight's Icon.* III. t. 17. *Melia azadirachta*, *Linn* — Malabar. Peninsula. Bengal.

USES, &c. This is a beautiful tree, and one which may be said to be equally useful and ornamental. Its chief virtues reside in the bark, which has a remarkably bitter taste, and has been much employed, especially of late years, as a fair substitute for Cinchona. The Natives consider it a most useful tonic in intermittent fevers and chronic rheumatism, administering it either in decoction or powder. The dried leaves added to common poultices, act powerfully in preventing glandular tumours from coming to maturity. The same discutient effect is produced after the application of leeches, in all kinds of bruises and sprains, by a watery



or vinous infusion of them, particularly when spirit of camphor is now and then sprinkled over the cloth, steeped in the infusion. The greatest benefit has been derived from the application in the worst cases of compound fracture. A *sacculus aromaticus* of these leaves, with a few grains of powdered camphor, seldom fails to afford relief in rheumatic affections of the ears, eyes, and teeth. Dr. Wight says, 'the leaves beaten into a pulp, and externally applied, act like a charm in removing the most intractable form of Psora and other pustular eruptions.' On the decline of the small-pox, it is almost invariably the custom of the Natives to cover the body with the leaves of this tree. The timber is hard and durable, and fit for ship-building, carts, and other purposes. From the pericarp of the seed an acrid bitter oil is expressed, which is a useful remedy in leprosy, and is moreover anthelmintic and stimulant, being used externally in cases of bad ulcers, and as a liniment in headaches and rheumatic affections. It is obtained either by boiling or expression, is of a deep yellow colour, and is much used for burning in lamps. It is also used in imparting colours to cotton cloths. There is a steady increase in the exportation of this oil from Madras, chiefly to Ceylon, the quantity in 1852-53 being upwards of 3,000 gallons. The seeds after being skinned are employed to kill insects, and the kernels powdered and mixed with water for washing the hair. A gum is also got from the bark, used medicinally as a stimulant. A kind of toddy, called Vaypum-khulloo, is procured from the young trees, which is said to be a good stomachic. *Rheedc. Ainsl. Roxb. Jury Rep. M. Exhib. Wight. Voigt.*

## B.

### A (87) **Balanites Ægyptiaca** (*Delile.*)

**var. Indica.** Nat. Ord. AMYRIDACEÆ.

**Decandria Monogynia.** *Sex: Syst:*

Hingen, BENG.  
Garee, TEL.

Nunjoonda, TAM.

**DESCR:** Tree 20 feet : leaves alternate, bifoliate : spines axillary : calyx 5-parted : sepals villous : petals 5, lanceolate : pedicels 1-flowered : flowers aggregate, small, green : drupe ovoid, acute, 1-celled, 1-seeded, with a woody 5-angled nut. *Fl.* April—May. —*Ximenia Ægyptiaca*, *Roxb. fl. Ind.* II. 253.—*Wight's Icon.* 274. —Deccan. Goozerat. Hurryhur. Circars.

**USES, &c.** This is a variety of the Egyptian plant which is found in the plains of the Deccan. The flowers are very fragrant. In Egypt, the fruit, according to Delile, passes for chebulic myrobalans. The nut is covered with a soft pulpy substance like soap ; bitter to the taste, and with an offensive, greasy smell. It is very hard and used in fireworks. For this purpose a hole is drilled in it, the kernel extracted, and the shell filled with powder : when fired, it bursts with a loud report. In Africa, the wood which is very hard and of a yellow colour, is used for making furniture. An oil is also extracted from the seeds. In the Egyptian variety, the leaves are slightly acid and have anthelmintic properties. The unripe drupes are bitter and violently purgative, but are eaten when ripe without any unpleasant consequences. The ryots use the bark medicinally for their cattle. This is one of the few trees which flourish on black soil. *Roxb. Lindl. J. Grah. &c.*

### B (88) **Balsamodendron**

**agallocha** (*W. & A.*) Nat. Ord. AMYRIDACEÆ.

**Octandria Monogynia.** *Sex: Syst:*

Googul, BENG.

**DESCR:** Tree : trunk crooked and clothed with many drooping crooked branches down to the ground : branchlets often ending in

thorny points : calyx 4-toothed : petals 4 : leaves alternate, petioléd, oval or elliptic, serrulate, smooth on both sides : at the base or apex of the petiole on each side is generally a small leaflet giving the appearance of a ternate leaf : flowers on short peduncles, axillary, small, red, aggregate on the buds by the former year's leaves : berry drupaceous, red, smooth, size of a currant : nut 2-celled, 1-seeded. *Fl.* Feb.—March.—B. Roxburghii, *Arn.*—*Wight's Ill.* I. 185.—*Amyris agallocha*, *Roxb.* *H. B.*—*Amyris commiphora*, *Roxb. fl. Ind.* II. 244. —Silhet. Assam.

USES, &c. This tree is said to yield the Indian bdellium, a substance like myrrh. Dr. Royle has remarked that all the species of this genus require to be carefully examined from good and authentic specimens, accompanied by their respective products, so much doubt still remains in the opinions of Botanists regarding the tree producing this substance. From an interesting paper by Dr. Stocks in Hooker's *Journal of Botany*, (vol. I. p. 257,) it would appear that this plant is not identical with the B. Mukul which grows in Scinde, and which from the similarity of the native name 'Googul' has been mistaken for it. It is important to notice this fact, especially when so much doubt exists as to the true plant yielding Indian bdellium, though in all probability the exudation of both species is similar in its properties. Of the one under notice, Dr. Roxburgh observes, that the whole plant while growing is very odoriferous, and if broken in any part diffuses around a grateful fragrance, like that of the finest myrrh, yet that the juice never congeals, but is carried off by evaporation, leaving little or nothing behind ; and all that he could procure was a minute portion of gummy matter, which certainly resembles myrrh both in smell and appearance, but has no tendency to be even tenacious or elastic. The Googul is collected in the cold season by making incisions in the tree and letting the resin fall on the ground. This accounts for the dirty condition in which it is found in the shops. Bdellium is properly a gum resin of which there are several kinds. It occurs in brittle masses of different sizes and shapes, of a red, yellow, or brownish colour, sometimes transparent, with a bitterish, balsamic taste, like myrrh. It is soluble in potass, and contains resin, gum, bassorine, and a volatile oil. It is often used as a substitute for myrrh, to which it has some resemblance in its effect upon the human frame. It was formerly much used in compounds and plasters, but is not employed at the present day in England. The odour is more faint and more agreeable than myrrh, by which it may be distinguished. It will melt in the mouth, while myrrh when chewed adhere to the teeth and impart a milky colour to the saliva. *Roxb. Royle. Penny Cycl. Hooker's Journ. &c.*

(89) **Bambusa arundinacea** (*Willd.*) N. O. GRAMINACEÆ.**Hexandria Monogynia.** *Sex* : *Syst* :Bamboo, ENG.  
Kull-moolah, MAL.  
Mungil, TAM.Veduru, TEL.  
Bhans, DUK,  
Bansh, BENG.

**DESCR** : Stems erect, bending at the summit, jointed, hollow between the joints : branches alternate : thorns two or three, alternate on the joints ; when double, a branchlet occupies the centre ; when triple, the largest is strong, sharp and somewhat recurved, occasionally wanting : leaves sheathing, linear-lanceolate, upper sides and margins hispid : sheaths downy : when in flower the tree is leafless and the extremities are covered with flowers like one large panicle composed of numerous verticillate spikes, each verticel composed of several oblong, jointed, sessile spikelets : calyx 2-6-flowered, 3-valved : flowers hermaphrodite and male : seeds size and appearance of oats : male flowers 1-3 above the hermaphrodite ones. *Fl.* March—May.—*Roxb. fl. Ind.* II. 191.—*Cor.* I. t. 79.—*Arundo bambos*, *Linn.*—*Nastus arundinaceus*, *Sm. in Rees' Cycl.*—*Bambos arundinacea*, *Zetg.*—Forests of the Peninsula.

**USES, &c.** These gigantic arborescent grasses which cover the sides and tops of the mountains throughout the continent of India form one of the peculiar as well as most striking features of Oriental scenery. Few objects present a more attractive sight in the wild forests of this country than a clump of these beautiful plants with their tall bending stems and delicate light green foliage. With the exception of the Cocoa and some other palms perhaps, the Bamboo is the most useful and economical of all the vegetable products of the East. In no other plant is strength and lightness combined to that degree which renders this so important an article in building houses, lifting weights, forming rafts, and a thousand other uses which might here be enumerated. It attains a considerable height, some 70-80 feet, and has been known to spring up thirty inches in six days. At the age of 15 years, the Bamboo is said to bear fruit, a whitish seed like rice, and then to die. These seeds are eaten by the poorer classes.

The following summary will show at a glance the various uses to which the Bamboo is applied in the East :—

The purpose to which different species of Bamboo are applied are so numerous that it would be difficult to point out an object in which strength and elasticity are requisite, and for which light-

ness is no objection, to which the stems are not adapted in the countries where they grow. The young shoots of some species are cut when tender and eaten like asparagus. The full-grown stems while green, form elegant cases, exhaling a perpetual moisture, and capable of transporting fresh flowers for hundreds of miles : when ripe and hard, they are converted into bows, arrows, and quivers, lance-shafts, the masts of vessels, bed-posts, walking-sticks, the poles of palanquins, to floors and supporters of rustic bridges, and a variety of similar purposes. In a growing state the spiny kinds are formed into stockades, which are impenetrable to any but regular Infantry, aided by Artillery. By notching their sides, the Malays make wonderfully light scaling-ladders, which can be conveyed with facility where heavier machines could not be transported. Bruised and crushed in water, the leaves and stems form Chinese paper, the finer qualities of which are only improved by a mixture of raw cotton and by more careful pounding. The leaves of a small species are the material used by the Chinese for the lining of their tea-chests. Cut into lengths and the partitions knocked out, they form durable water-pipes, or, by a little contrivance, are made into excellent cases for holding rolls of papers. Slit into strips they afford a most durable material for weaving into mats, baskets, window blinds, and even the sails of boats. Finally, the larger and thicker truncheons are exquisitely carved by the Chinese into beautiful ornaments. No plant in Bengal is applied to such a variety of useful purposes as the Bamboo. Of it are made implements for weaving ; the posts and frames of the roofs of huts ; scaffoldings for buildings ; portable stages for native processions ; raised floors for granaries ; stakes for nets in rivers ; rafts, masts, yards, oars, spars, and in boat-decks. It is used for building bridges across creeks ; for fences ; as a lever for raising water for irrigation ; and as flag-poles. Several agricultural implements are made of it : as are also hackeries or carts, doolies or litters, and biers ; the shafts of javelins or spears, bows and arrows, clubs, and fishing-rods. A joint of Bamboo serves as a holder for pens, small instruments and tools. It is used as a case in which things of little bulk are sent to a distance : the eggs of silk-worms were brought in a Bamboo-cane from China to Constantinople, in the time of Justinian. A joint of Bamboo answers the purpose of a bottle ; and a section of it is a measure for solids and liquids in bazars. A piece of it is used as a blow-pipe, and as a tube in a distilling apparatus. A small bit of it split at one end serves as tongs to take up burning charcoal ; and a thin slip of it is sharp enough to be used as a knife in shelling betelnuts, &c. Its surface is so hard, that it answers the purpose of a whetstone, upon which the ryots sharpen their bill-hooks, sickles, &c.

The substance known as Tabasheer, which is a word of Sanscrit

origin (Tavakshiri, meaning cows-milk,) is only procured from the female plant. It so far resembles Silix as to form a kind of glass when fused with alkalis. It is also unaffected by fire and acids. It is employed medicinally in the cures of all sorts of paralytic complaints, flatulencies, and poisons. Sir David Brewster made some singular discoveries on the optical properties of this substance. The other parts of the Bamboo which are medicinal are the root which is a diluent, the bark a specific in eruptions, and the leaves which are given to children as anthelmintic, and are moreover a powerful emmenagogue. *Ainsl. Roxb. Penny Cycl. Timbs, &c.*

(90) **Bambusa spinosa** (*Roxb.*) Do.

*Do.*

Ily, MAL.

| Behoor-bansh, BENG.

DESCR: Height 30-50 feet, stems scarcely fistulous, crowded together, jointed: joints 6-12 inches asunder: flowering stems with larger joints than the rest: spines triple at the joints: middle one largest, all more or less recurved: leaves and inflorescence as in the other species. *Fl.* June.—*Roxb. fl. Ind.* I. 198.—*Rheede, I. t.* 16.—*Arundo arbor, Linn. Zeyl.*—*A. bambos, Linn. in Burm. Ind.*—Bengal.

USES, &c. This species of Bamboo grows in the vicinity of Calcutta, it is said to form an impenetrable thicket from its habit of growing with the stems so crowded, and these armed with such strong sharp spines. The joints have a smaller cavity than the other Bamboos. From its great strength it is eminently useful for many purposes. A staff of this bamboo must be placed in the hand of every young Brahmin when invested with the sacerdotal thread, otherwise they say the ceremony cannot be performed. *Roxb.*

**Barleria obovata** (*Linn.*) Nat. Ord.

**Didynamia Angiospermia.** *Sex: Syst:*

Caraschulli, MAL.

DESCR: Shrub: leaves opposite, subrotund, nearly sessile: spines in axillary pairs longer than the leaves: flowers solitary in the forks of the spines, pale rosy lilac. *Fl.* Dec.—Jany.—*J. Grah. Cat. p.* 160.—*Rheede II. t.* 47.—*B. buxifolia, Roxb. fl. Ind.* III. 37.—not *Linn.*—Mysore. Malabar. Conkans.

USES, &c. Reduced to powder and put into vinegar, this plant

is applied by the Natives to swellings of the body and boils. The root is given in decoction in dysuria. *Rheede*.

(92) **Barleria prionitis** (Linn.) D. o.

*Do.*

Coletta-veetla, MAL.  
Shem-moolie, TAM.

Mooloo-gorinta, TEL.  
Cantha-jathi, BENG.

DESCR: Shrub four feet: stem herbaceous: leaves opposite, entire, lanceolate-ovate: between the branch and the leaf there is a spine with four sharp rays from the same centre: flowers sessile, axillary, orange-coloured. *Fl.* nearly all the year.—*Roxb. fl. Ind.* III. 36.—*Wight's Icon.* II. 452.—*Rheede* IX. t. 41.—*Justicia appressa*, *Forsk.*—Malabar. Peninsula. Bengal.

USES, &c. The juice of the leaves mixed with sugar and water is given to children in fevers and catarrhal affections. The ashes of the burnt plant mixed with water and rice conjee are employed in cases of dropsy and anasarca: also in coughs. *Ainslie*, &c.

(93) **Barringtonia**

**acutangula** (Gaertn.) Nat. Ord. MYRTACEÆ.

**Icosandria Monogynia.** Sex: Syst:

Sjeria-samstravadi, MAL.

DESCR: Tree: leaves crowded about the ends of the branches, cuneate-obovate, serrulated: racemes long, pendulous: pedicels very short: calyx 4 cleft: ovary 2-celled: fruit oblong, 4-sided, sharp-angled: flowers small, reddish-white, with scarlet filaments. *Fl.* April—May.—*W. & A. prod.* I. 333.—*Rheede* IV. t. 7.—*Roxb. fl. Ind.* II. 635.—*Stravadium rubum*, *Pers.*—*S. coccineum*, *D. C.*—*Eugenia acutangula*, *Linn. sp.*—*E. racemosa*, *Roxb. in E. I. C. Mus.*—*Meteoras coccineus*, *Lour.*—*Spreng Syst.* III. 127.—Bengal. Peninsula. Travancore,

USES, &c. This is a beautiful tree with long pendulous racemes of scarlet flowers. It may be often seen overhanging the sides of the streams and backwaters in Travancore. It is not so common as the *B. racemosa*, but I have met with it in several places, especially on the banks of the river at Alwaye in the Cochin territory. The wood is hard, solid, and suited for ordinary work. The juice

of the leaves mixed with oil is made into an ointment for scabies. The kernels of the drupes pulverised and mixed with sago and butter are administered in diarrhœa, and with ginger and lemon juice in tenesmus. Mixed with milk they are given to excite vomiting, and are employed internally in jaundice and other bilious diseases. They are also said to be a good specific in ophthalmia. *Rheede. Pers. obs.*

(94) **Barringtonia racemosa** (*Roxb.*) Do

*Do.*

Samutra-pullum, TAM.

Samudra-poo or Sam-stravadi, MAL.

DESCR : Tree : leaves alternate, short-petioled, cuneate oblong, acuminate, serrulate, smooth on both sides : racemes terminal, or axillary from the large branches, pendulous : flowers on short pedicels, large, white with a tinge of rose : calyx 2-3 cleft : petals four : filaments longer than the petals : style long : fruit ovate, drupaceous, bluntly 4-angled, smooth, brownish-red : endocarp scarcely separating from the epicarp : seed 1. *Fl. May—W. & A. prod. I. 333—Wight's Icon. t. 152.—Roxb. fl. Ind. II. 634.—Rheede IV. t. 6.—Eugenia racemosa, Linn. sp.—Stravadium racemosum, Juss.—Malabar. Coromandel.*

USES, &c. The seeds mixed with baits are used to inebriate fish in the same way as those of the *Cocculus Indicus*. Fruit in powder is used to clean the nostrils in cold as a snuff. Also applied externally in combination with other remedies in sore throats and cutaneous eruptions. The tree when in flower has a most beautiful appearance from its long pendulous racemes of rose-coloured flowers. Both this species, and the *B. acutangula*, which has smaller but not less attractive flowers, are commonly to be met with along the banks of the backwaters in Travancore. The medicinal properties of the plant are said to be the same in either species. The roots are slightly bitter, but not unpleasant. They are considered by the Hindoo doctors valuable on account of their aperient, deobstruent, and cooling properties. The bark is reputed to possess properties similar to those of *Cinchona*. *Ainslie. Roxb. Lindley. Rheede.*



(95) **Basella alba** (Linn.) Nat. Ord. BASELLACEÆ.**Pentandria Trigynia.** *Sex: Syst*Malabar nightshade, ENG.  
Sufed-pooin, BENG.Allu-batsalla, TEL.  
Poi, HIND.

DESCR: Stem twining, perennial: leaves ovate, undulated, entire, fleshy: spikes peduncled, simple.—*Roxb. fl. Ind.* II. 104.—*Wight's Icon. t.* 896.—*Spreng. Syst. Veg. p.* 25.—Common every where.

USES, &c. This esculent herb is cultivated in every part of the country. The succulent leaves are dressed and eaten like spinach. The most curious part of the structure of this plant is the seed, the embryo of which is rolled up like the main spring of a watch. *Wight. Roxb.*

(96) **Basella cordifolia** (Lam.)

Do.

Do.

Pooin-shak, BENG.  
Pedda-batsalla, TEL.

Pooi, HIND.

DESCR: Twining, perennial: leaves cordate, smooth, entire: flowers small, rose-coloured. *Fl.* Jany.—March.—*Roxb. fl. Ind.* II. 105.—*B. lucida*, Linn.—*Rheede VII. t.* 24.—Cultivated in most parts of India.

USES, &c. Cultivated as a potherb. It grows to a considerable size, running over trellises about the houses of the Natives, where its succulent shoots and leaves form an agreeable protection from the heat of the sun. There are several varieties of this species, one of which is the *B. rubra*, (*Spreng.*) called Rukto-pooi in Bengalee. Lindley states that this last yields a very rich purple dye, but it is said to be difficult to fix. *Roxb. Lindley.*

(97) **Bassia butyracea** (Roxb.) Nat. Ord. SAPOTACEÆ.**Dodecandria Monogynia.** *Sex: Syst:*

Indian Butter tree, ENG.

Phulwara, BENG.

DESCR: Tree 30–40 feet: leaves obovate, tomentose beneath: corolla 8-cleft: stamens 30–40 on longish filaments: pedicels aggregate, and are as well as the calyx woolly: drupes oval: flowers

smallish, white. *Fl.* Jan.—Feb.—*Don's Mill.* IV. 36.—*D. Don.*  
*fl. Nep. p.* 146.—*As. res.* VIII. 477.—*Roxb. fl. Ind.* II. 527.—  
 Almora Hills. Nepaul.

USES, &c. A pure vegetable butter called Choorie is produced by this tree, the mode of extraction, Dr. Roxburgh has fully described in the 8th vol. of the Asiatic Researches. The kernels of the fruit are bruised into the consistence of cream, which is then put into a cloth bag with a moderate weight laid upon it and left to stand till the oil or fat is expressed, which becomes immediately of the consistence of hog's lard, and is of a delicate white colour. Its uses, in medicine, are much esteemed in rheumatism and contractions of the limbs. The pulp of the fruit is eatable. The juice is extracted from the flowers and made into sugar by the Natives. It is sold in the Calcutta bazar, and has all the appearance of date sugar, to which it is equal if not superior in quality. The butter which is obtained from the kernels of the fruit is reckoned a valuable preservative when applied to the hair, mixed with sweet scented oil and thus sold and exported. Being cheaper than ghee, it is used to adulterate that article. It resembles the Piney tallow, especially in its chemical properties, and is of a pale-yellow colour. By experiments in England, a specimen was found to consist of solid oil, 34 of fluid oil, and 6 parts of vegetable impurities.\* The original specimen dissolved readily in warm alcohol, a property which may render it of great advantage in medicinal purposes. It makes excellent soap. When pure, it burns bright without smoke or smell, and might be advantageously employed in making candles.

It is a peculiar characteristic of the seeds of the Bassia trees that they contain at the same time saccharine matter, spirit and oil, fit both for food and burning in lamps. The butter procured from this species of Bassia is not liable to become rancid, even if kept for some time. It is completely melted at a temperature of 120°. *Roxb. Royle. Simmonds, &c.*

(98) **Bassia latifolia** (*Roxb.*)

Do.

*Do.*

Mahwah tree, ENG.  
 Poonum, MAL.  
 Caat-elloorpei, TAM.

Ipie, TEL.  
 Moola, HIND.  
 Mahwah, or Muhoora, BENG.

DESCR: Tree 40 feet: leaves alternate, oblong or elliptic, crowded about the extremities of the branches, smooth above, somewhat whitish below: stamens 20–30 within the gibbous tube of the corolla, on short filaments: corolla thick, fleshy, with a more than

\*Analysis of the Butter by Solly. Journ. Agri-Hort. Soc. vol. 1 p. 23.

8-lobed limb: lobes cordate: sepals four: pedicels drooping, terminal: flowers white, with a tinge of green and cream colour, numerous, crowded from the extremities of the branchlets, peduncled; and bent with the mouth of the flowers directly to the ground: berry size of a small apple, 1-4-seeded. *Fl.* March—April.—*Roxb. fl. Ind.* II. 526.—*Cor. I. t.* 19.—*Don's Mill.* IV. 36.—Circar mountains. Bengal. Concan.

**USES, &c.** The timber of this tree is hard and strong, and is in request for naves of wheels, carriages, &c. An ardent spirit is distilled from the flowers by the hill tribes (where the tree is abundant,) which makes a strong and intoxicating liquor. The flowers are sweet-tasted, and are eaten raw. Jackals are particularly fond of them. The seeds yield by expression a large quantity of concrete oil, which is used in lamps, to adulterate ghee, for frying cakes, &c. The kernels are easily extracted from the smooth chestnut-coloured pericarps, when they are bruised, rubbed, and subjected to a moderate pressure. The oil concretes immediately it is expressed, and retains its consistency at a temperature of 95°. The oil is however thick and coarse and only used by the poorer classes.

The following account by Dr. Gibson is given of this plant in Guzerat and Rajpootana, where it abounds. "This flower is collected in the hot season by Bheels and others, from the forests, also from the planted trees, which are most abundant in the more open parts of Guzerat and Rajwarra. The ripe flower has a sickly sweet taste resembling manna. Being very deciduous, it is found in large quantities under the trees every morning during the season. A single tree will afford from 200 to 400 lbs. of the flowers. The seeds afford a great quantity of concrete oil, used in the manufacture of soap.\* The forest or Bheel population also store great quantities of the dried flowers as a staple article of food; and hence in expeditions undertaken for the punishment or subjection of those tribes when unruly, their Bassia-trees are threatened to be cut down by the invading force, and the threat most commonly ensures the submission of the tribes."

"In Guzerat and Rajpootana every village has its spirit shop for the sale of the distilled liquor from the flowers; in the island of Caranja, opposite to Bombay, the Government duty on the spirits distilled (chiefly from this flower) amounts to at least £60,000 per annum; I rather think that £80,000 is most generally the sum. The Parsees are the great distillers and sellers of it in all the country between Surat and Bombay, and they usually push their distilleries

\* Hawkes gives the process of manufacture of Illoopoo-Oil Soap in *Mad. Jour. of Lit. & Sci.* N. S. v. 3 p. 54.

and shops into the heart of the forest which lines the Eastern border and hills of those countries. The spirit produced from the Bassia is, when carefully distilled, much like good Irish whisky, having a strong smoky and rather foetid flavour; this latter disappears with age. The fresh spirit is, owing to the quantity of aromatic or empyreumatic oil which it contains, very deleterious, and to the European troops stationed in Guzerat some thirty years ago, appeared to be quite as poisonous as the worst new rum of the West Indies has generally proved to our soldiers. It excited immediately gastric irritation, and on this supervened the malarious fever so common in those countries." *Hook. Journ. of Boty.* 1853, p. 90. *Roxb. &c.*

(99) **Bassia longifolia** (Linn.)

Do.

Do.

Elloopie, MAL.  
Elloopa, TAM.Ippa, TEL.  
Mohe, HIND.

DESCR: Tree 40 feet: leaves ovate-lanceolate, entire, crowded about the ends of the branchlets, immediately above the peduncles: young shoots and petioles slightly villous: calyx of two opposite pairs of leaflets: corolla 8-cleft: filaments scarcely any: pedicels axillary, drooping, crowded, 1-flowered: stamens 16-20, within the gibbous tube of the corolla: flowers whitish: fruit olive-shaped, yellowish when ripe, 8-9 seeded: seeds solitary. *Fl.* May.—*Roxb. J. Ind.* II. 523.—*Don's Mill.* IV. 35.—Coromandel. Malabar. Circars.

USES, &c. Like most Sapotads, this tree abounds in a gummy juice which exudes from the bark. It is employed by the Vytians, according to Ainslie, in rheumatic affections. The bark itself is used in decoction as an astringent and emollient, and also as a remedy in the cure of itch. The flowers are roasted and eaten, and are also bruised and boiled to a jelly and made into small balls, which are exchanged by the Natives for fish and rice. The leaves are boiled and given in medicine as well as the milk of the green fruits. An oil is expressed from the ripe fruits which is used for lamps among the poorer classes, and is one of the principal ingredients in making country soap. It is to the common people a substitute for ghee and cocoanut oil in their cakes and curries. The cakes which are left after the oil is expressed, are used for washing the head, and are carried as articles of trade to those countries where the tree does not grow. The oil is solid at a moderate temperature, but will not keep any length of time—not more than a fortnight or three weeks in the warm season, it then becomes rancid, emitting a disagreeable odour. If however it be well corked and secured from contact with the air, it will in cold weather keep for some months. In England it is used in the manufacture of candles. The price of this

oil is about three Rupees and a half a maund. The wood of this tree is hard and nearly as durable as teak, but not so easily worked, nor is it procurable of such length for beams and planks. It thrives best on deep, light soils. *Roxb. Hunter on Veg. Oils of S. India.*

(100) **Batatas edulis** (*Choisy.*) Nat. Ord. CONVULVACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Sweet or Spanish Potatoe, ENG.  
Kappa-kalenga, MAL.

Shukar-kundoo-aloo, BENG.  
Chillagada, Grasugada, TEL.

DESCR: Stem creeping, rarely twining: leaves variable, usually angular, also lobed, cordate: sepals 5: corolla campanulate; peduncles equal in length to the petioles, 3-4-flowered: flowers white outside, purple inside. *Fl.* Feb.—March.—*Don's Mill.* IV. 260.—*Rheede* VII. t. 50.—*Convolvulus batatas*, *Michx. Linn.*—*Roxb. fl. Ind.* I 483.—*ed. Car.* II. 69.—*C. esculentus*, *Spreng.*—*C. edulis*, *Thunb.*—*Ipomœa batatas*, *Lam.*—Cultivated everywhere.

USES, &c. This plant is said originally to have been found wild in the woods of the Malayan Archipelago, from whence it was introduced into this country. There are two varieties, one with red, the other with white tubers. The red variety is considered the best, but both are very nutritious and palatable, though slightly laxative. This nutritious root was brought to England from Spain and Portugal, before the common potatoe became known. "The sweet potatoe," says Sir Joseph Banks, "was used in England as a delicacy long before the introduction of our potatoes. It was imported in considerable quantities from Spain and the Canaries, and was supposed to possess the power of restoring decayed vigour." In India they are cultivated by all classes. They require very little care, the ground being merely cleared of weeds, the plants will grow on any soil. For Chinese mode of cultivation see "Fortune's Wanderings." 2d Ed. p. 235. In taste they are sweet and palatable possessing a quantity of saccharine matter. The Natives eat both the tubers, leaves, and tender shoots. The former are considered quite as nourishing as our potatoe, and a much lighter food. The tubers yield a large proportion of starch. They must be kept very dry, or they decay soon. The herbage is employed for feeding cattle. *Don. Simmonds. &c.*

*Batatas betacea*, the *Beet-rooted sweet Potatoe*, figured in the *Bot. Reg.* t. 56 (1840,) has been lately introduced, the following particulars are given in the *Jury Reports Mad. Exh. 1855.*

"Four small roots were sent from Australia by Mr. Dowdeswell and planted by Mr. Rohde at Guntoor, whence it has been already largely distributed. It has been in daily use as a vegetable for the last six months, and is preferred to the common sweet potatoe as being less sweet and more farinaceous."

(101) **Batatas paniculata** (Choisy.) Do.

Do.

Phal-modecca, MAL.  
Deo-Kanchanam, TEL.

Bhooin Koomra, BENG. and HIND.

DESCR : Twining plant : leaves large, palmate, 5-7-cleft : peduncles much exceeding the petioles, many-flowered, dichotomously and corymbosely paniced : sepals 5, very blunt, equal : corolla rose-coloured, large, with purple eye : capsule 3-4-celled : seeds furnished with long hairs at the top which are bent in within the capsule. *Fl. June* —Sept.—*Don's Mill.* IV. 261—*Roxb. fl. Ind.* I. 478.—*ed. Car.* II. 63.—*Mad. Jour. of Sc.* V. t. 2.—*Rheede* XI. t. 49.—*Convolvulus paniculatus*, *Linn.*—*C. gossipifolius*, *Spreng.*—*C. insignis*, *Spr.*—*Ipomæa paniculata*, *R. Br.*—*I. Mauritiana*, *Jacq.*—*I. quinqueloba*, *Willd.*—*I. gossipifolia*, *Willd. enum.*—*I. eriosperma*, *Beauv.*—*I. insignis*, *And. Bot. Reg.*—Peninsula. Bengal. Assam.

USES, &c. The large turnip-shaped root dried in the sun, reduced to powder, and then boiled with sugar and butter is said to promote obesity. It is also cathartic, and is used as such by the Natives. Cattle are very fond of it. *Roxb.*

(102) **Bauhinia acuminata** (Linn.) N. Ord. LEGUMINOSÆ.

**Decandria Monogynia.** *Sex: Syst:*

Velutta Mandarum, MAL.  
Kanchun Chukta, BENG.

Deo-kanchana, TEL,

DESCR : Shrub 6-10 feet, unarmed : leaves cordate at the base, young ones slightly pubescent on the under side, old ones glabrous : leaflets ovate, slightly acute or acuminate, united to above the middle, parallel, 4-nerved : racemes solitary, leaf opposed or terminal, short, few-flowered : calyx spathaceous, 5-toothed at the apex : legumes 8-10 seeded, obliquely linear-lanceolate : stamens all fertile and united at the base, alternate ones shorter : flowers pure white. *Fl.* All the year.—*W. & A. prod.* I. 295.—*Roxb. fl. Ind.* II. 324.—*Rheede* I. t. 34.—*B. candida*, *Ait.*—*B. purpurea*, *Wall.*—Bengal. Malabar. Peninsula.

USES, &c. This is a favourite shrub in gardens, the large white and fragrant flowers having a pretty appearance. The root in decoction, mixed with oil and made into an ointment, is a good ap-

plication to small pustules. The bark is used in cutaneous complaints, and the flowers rubbed up with pepper are applied to the forehead in headache. *Rheede*.

(103) **Bauhinia racemosa** (*Lam.*) Do.

*Do.*

Bun-raj, BENG.

DESCR: Small tree, unarmed, bushy: branchlets drooping: leaves cordate at the base, upper side glabrous, under villous, or pubescent, or nearly glabrous: leaflets roundish or broadly ovate, united to about the middle, 3-nerved: racemes solitary, terminal or leaf-opposed, leafless, much longer than the leaves: flowers scattered, small, white: calyx spathaceous, at length reflexed, 5-toothed, pubescent: petals linear lanceolate, slightly hairy outside: stamens all fertile, united at the base: filaments and anthers bearded: style none (!) stigma flat, sessile: legumes linear, straightish or curved, scarcely dehiscent, many-seeded. *Fl.* May—June.—*W. & A. prod.* I. 295.—*B. parviflora*, *Vahl.*—*Roxb. fl. Ind.* II. 323.—*B. spicata*, *Koen.*—Mysore. Concan mountains. Bengal.

USES, &c. This tree has a thick bark of which matchlock men make their matches. It burns long and slowly without any substance being mixed with it. To prepare the bark it is boiled, dried and beaten. Strong ropes are made from the bark stripped from the green branches, used for cots, tying fences and various other purposes. The fibre is not exported and the price is very low. Among other Bauhinias which yield fibres may be mentioned the *B. diphylla*, which is common about Cuddapah and Guntoor, where it is known as the Authee nar, Yepy and Apa. *Roxb. Jury Rep. M. E.*

(104) **Bauhinia scandens** (*Willd.*) Do.

*Do.*

Naja-balli, MAL.

DESCR: Climbing shrub: branchlets very long, flexuose: tendrils opposite: leaves alternate, round-cordate, 2-lobed, occasionally undivided at the apex: racemes terminal, usually simple, covered with much rusty pubescence: calyx 5-cleft: petals 5, orbicular,

short-clawed, densely clothed with much soft rusty tomentum : flowers small, whitish, solitary, on long pedicels : legumes linear-oblong, somewhat villous, 4-6 inches long and 2 broad : seeds 2, the size of a chestnut, surrounded with a soft greenish-yellow substance. *Fl. March—April.—Roxb. fl. Ind. II. 326.—Wight's Icon. I. t. 264.—Rheede VIII. t. 29.—B. lingua, D.C.—Concans. Assam. Travancore*

USES, &c. A fibre is procured from this large climbing species of Bauhinia. A line made from it was tested by Captain Thomson, who stated that it sustained 168 lbs. for the space of 45 minutes, thereby equalling in strength the best Sunn hemp. The leaves rubbed up with milk and fresh butter and made into a kind of ointment are applied to the head in cephalalgia and catarrh. *Royle. Rheede.*

(105) **Bauhinia tomentosa** (*Linn.*) Do.

*Do.*

Caat-attie ; Triviat-putrum, TAM. | Chanscheha, MAL.

DESCR : Shrub 6 to 12 feet unarmed : leaves ovate or roundish at the base, under surface villous as well as the petioles, branches, peduncles and calyx : leaflets connected beyond the middle, oval, obtuse, 3-nerved : peduncles 2-flowered, leaf-opposed : pedicels each with 3 bractees at the base : calyx spathaceous, 5-toothed : petals oval : stamens all fertile : legumes flat, lanceolate, 5-6-seeded : flowers large, pale sulphur. *Fl. July—August.—W. & A. prod. I. 295.—Roxb. fl. Ind. II. 323.—Rheede I. t. 35.—Malabar. Coromandel. Oude.*

USES, &c. The native doctors administer the dried leaves and young flowers in dysenteric affections, and a decoction of the bark of the root is given in cases of liver and phlegmatic complaints, and also as a vermifuge. The bruised bark is also occasionally applied to tumours and wounds. *Ainslie. Rheede.*

(106) **Bauhinia Vahlii** (*W. & A.*) Do.

*Do.*

Mahwal, HIND. | Adda, TEL.

DESCR : Shrub climbing to an immense extent : young shoots, petioles, peduncles, and tendrils covered with thick rusty-coloured



tomentum : leaves roundish, deeply cordate at the base, upper side nearly glabrous, under tomentose : leaflets oval, obtuse, united to a little above the middle, 4-6-nerved : nerves covered with rusty tomentum : tendrils opposite, below the leaves, spiral : racemes terminal, corymbiform : podicels elongated, and with the calyx densely villous : calyx ovate, splitting to the base of the limb into two reflexed segments : petals densely clothed on the back with silky hairs ; the three upper a little larger than the others : fertile stamens 3, villous at the base : ovary densely villous, its stalk cohering on one side with the calyx tube : legumes pendulous, long, linear, compressed, 8-12 seeded : flowers largish white, gradually becoming cream-coloured. *Fl.* March—April.—*W. & A. prod.* I. 297.—*B. scandens*, *Roxb. in E. I. C. Mus.* (not in *fl. Ind.*)—*B. racemosa*, *Vahl.*—*Roxb. fl. Ind.* II. 325.—Circars. Bengal.

USES, &c. This is one of the largest of the Bauhinias, and a native of Alpine districts. The large leaves are nearly a foot in diameter and are collected in the Northern districts of the Circars, and sold in the bazars for various purposes, such as plates, packages, &c. The seeds are eaten raw, when ripe, tasting like cashew-nuts. The flowers hang down in elegant festoons, and the branches are very extensive from 100 to 300 feet long, climbing over the highest trees. Ropes are made from the bark : the Natives boil and then beat it, which makes it soft and pliable. It will however rot if kept too long in the water. The ropes have been occasionally used for suspension bridges over the mountain torrents in the Himalayan vallies. *Royle fib. plants.* *Roxb.*

(107) **Bauhinia variegata** (*Linn.*)

Do.

⊙

Do.

Chovanna Mandarce, MAL.

| Sona, HIND.

DESCR : Tree 20-30 feet : unarmed : leaves roundish, upper side glabrous, tender when young villous : cordate at the base : leaflets oval, obtuse, 5-nerved, united far beyond the middle : petals oblong, nearly sessile, the upper one somewhat larger and on a rather longer claw than the others : fertile stamens 5 : all shortly united at the base : racemes axillary and terminal : calyx spathaceous, 5-toothed at the apex : legumes straight, 5-12-seeded. *Fl.* Feby.—March.—*W. & A. prod.* I. 296.—*Rheede* I. t. 32, 33.

The two varieties are :

- a* —*B. purpurascens*—Rukhta-kanchun, Beedul, BENG.—four petals reddish and varied with purple : the fifth variegated with purple, brown, and yellow.—*B. purpurea*, *Wall.*—*B. variegata*, *Roxb. fl. Ind. II. 319.*—Malabar. Coromandel.
- b*—*B. candida*—Kana-raj, BENG.—four petals whitish : the fifth variegated on the inner side, with yellow and green. *Roxb. fl. Ind. II. 318.*—Bengal. Malabar. Oude.

Uses, &c. The buds are eaten as vegetables when prepared with animal food. The bark is astringent and is used for tanning and dyeing purposes. It is a handsome and ornamental tree in gardens owing to its beautiful purple flowers. The root in decoction is given to dispel flatulency. The flowers mixed with sugar are said to be gently laxative. The bark, flowers, and fruit rubbed up together and mixed with rice water are occasionally used for bringing boils to maturity. *Rheede. Roxb. &c.*

(108) **Beesha Rheedii** (*Kunth.*) Nat. Ord. GRAMINACEÆ.

**Hexandria Monogynia.** *Sex: Syst:*

Beesha, MAL.

| Bish-bansh, BENG.

DESCR : Unarmed : leaves alternate, ovate-lanceolate, bifarious smooth on both sides : sheaths villous, bearded at the mouth : pericarp a large, fleshy, conical-curved and pointed fruit with a single oval seed in each. *Fl.* July—Sept.—*Roxb. fl. Ind. II. 197.*—*Bambusa baccifera*, *Kunth.*—*Roxb. Cor. III. t. 243.*—*Rheede V. t. 60.*—*Melocanna bambusoides*, *Spreng.*—*Syst. II. 113.*—Peninsula. Chittagong mountains. Malabar.

Uses, &c. Indigenous to the mountains in Chittagong, where it is called Pagu-tullu. It bears no thorns, and is moreover remarkable for its large, pendulous pericarp. Pierard, quoted by Roxburgh, says, that this bamboo is in common use in the country where it grows, for every purpose of building. "It grows in dry places chiefly on the sides of hills, where the upper stratum of the soil is sandy. The circumference near the base is 12–13 inches, the height from 50 to 70 feet, beautifully erect and without the least flexure or inequality of surface, bare of branches, except near the extremity. Perishes after yielding its fruit. It yields more or less of the Tabasheer of a siliceous crystallization : sometimes it is said the cavity is nearly filled with this, which the people called "chuna, or lime."

The Natives make arrows and bows from the stems, also pens from the younger shoots. The leaves infused are given as a wash in toothache, and also for strengthening the gums. *Rheede. Roxb.*

(109) **Benincasa cerifera** (*Savi.*) Nat. Ord. CUCURBITACEÆ.

**Monœcia Triandra.** *Sex: Syst:*

White Gourd, ENG.

Cumbuly, TAM.

Cumbulam, MAL.

Koomra, BENG.

Budadi-Gumadi, TEL.

**DESCR:** Climbing: stems and petioles very hairy with a musky scent: calyx segments short, toothed on the margin: corolla 5 partite, segments waved and curled: leaves cordate, somewhat 5-lobed, lobes acutish, crenated: tendrils simple: fruit ovate-cylindrical, woolly, pendulous, green: flowers large, yellow. *Fl.* Oct.—Dec.—*W. & A. prod.* I. 344.—*Rheede VIII. t. 3.*—*Don's Mill.* III. 29.—*Cucurbita cerifera, Fisch.*—*C. hispida, Willd.*—*C. Pepo, Roxb. fl. Ind.* III. 718.—*C. alba, Roxb. in E. I. C. Mus.*—Cultivated in Bombay and the Deccan.

**USES, &c.** The young unripe fruit is universally eaten by Natives in their curries, though *Rheede* asserts by some strange mistake that it is poisonous. The ripe fruits he says are alexipharmic, and rubbed up with butter will increase the appetite. Mixed with oil they are employed in dysuria. *Rheede. Roxb.*

(110) **Berberis lycium** (*Royle.*) Nat. Ord. BERBERIDÆ.

**Hexandria Monogynia.** *Sex: Syst:*

Raisin Berberry, ENG.

**DESCR:** Shrub 6-8 feet. spines trifid or simple: leaves oval, cuneated or elliptical, mucronate, smooth, under surface, glaucous, entire or spinulosely toothed: racemes short, many flowered, corymbose, shorter than the leaves: pedicels elongated, 1-flowered: berries purplish: flowers small, yellow. *Fl.* May—June.—*Don's Mill.* I. 116, (under *B. Asiatica.*)—Nepaul. Kumaon.

**USES, &c.** This plant is distinguished from other species by the very short racemes of its flowers. The fruit is oblong, purplish or pinkish, wrinkled and covered with bloom like that of the best raisins. Among many conflicting opinions of Botanists it becomes difficult to identify the several described species of *Berberis*. It has now been definitively settled by *Dr. Royle* that this is the *Lycium Indicum* of *Dioscorides*, over which much doubt has hung for so long a period.\* The medicine it yields is of

\* Report on the Medical uses of Berberry and its preparations by *W. S. Stiven*, M. D. Agra, 1856.

the highest antiquity, and has been known to the Hindoos from very early ages. The most celebrated part is the extract called Rusot, which is prepared by digesting in water pieces of the root, stem and branches. This is frequently employed as a remedy in ophthalmia, especially useful after the acute symptoms have subsided. Some say that it is one of the best applications ever used in that complaint. The tincture which is also prepared from the bark of the root is recommended as preferable to the extract. It is very bitter, yielding a principle called *Berberine*. As a medicine it is reckoned exceedingly valuable and is easily prepared where the plant is indigenous. According to Dr. O'Shaughnessy the medicine is best administered as a febrifuge, promoting digestion and acting as a gentle but certain aperient. In ague and remittent fevers, it is peculiarly useful, and by some it is reckoned only second to quinine, externally either alone or with equal parts of alum and opium mixed up in water and applied round the eye. The *B. lycium* is found at a lower elevation (*viz.* at 3,000 feet) than any of the other species and therefore may be acclimated in the plains.

All the species of Berberry are supposed to possess similar properties in a greater or less degree. There has been much confusion in arranging them, but the following may perhaps be enumerated as distinct plants :

- B. floribunda*. \*—Spines very stiff and three parted : leaves oblong or oblong-lanceolate, nearly entire or toothed sometimes deeply and coarsely veined : flowers in long loose slender racemes. —Common in Northern India, distinguished by its slender pendulous or erect racemes of flowers, longer than the leaves and not corymbose.
- B. Sinensis* —Spines 3-5 or more : leaves lanceolate, very acute, much netted, entire, or regularly toothed : flowers numerous in drooping racemes, not much longer than the leaves. — Found in Northern India and China.—Berries are said to be dark purple.
- B. Wallichiana*.—Spines long slender, 3-parted : leaves oblong-lanceolate, deep-green, sharp-pointed, finely serrated : flowers very numerous in clusters shorter than the leaves. — Native of Nepaul at very high elevations.
- B. Nepaulensis*.—Leaves 3-5 pairs, ovate : leaflets spiny, toothed : racemes upright, slender, elongated : fruit bluish purple. —Native of mountainous parts in Northern India growing 10-12 feet high at 8,000 feet elevations. Said to be one of the finest of the species. It differs very little from *B. Leschenaultii*.—(*W. & A. prod.* I. 16.) and is perhaps a

\* This is only a variety of *B. aristata*, Hooker and Thomson Fl. Ind.

mere variety. The fruit being globose in the latter, and the upper leaflets lanceolate.

Besides these there are the *B. petiolaris* and *B. Kunawarensis*, the latter growing in Kumaon where it is used for the same medicinal purposes as the others.—*Royle. Loudon. Indian Annals of Med. Science, &c. &c.*

(111) **Berberis tinctoria** (*Lesch.*) Do.

*Do.*

Dyer's Berberry, ENG.

DESCR: Shrub 6-10 feet: leaves simple, oboval, entire, or with distant, small, spiny teeth, glaucous with the principal veins and nerves prominent beneath, but not above: racemes stalked longer than the leaves: pedicels slender: petals 6, distinctly biglandular: sepals 6, spines deeply divided into three sharp rigid segments: flowers yellow: berries 2-3 seeded. *Fl.* January—April.—*W. & A. prod.* I. 16.—Neilgherries. Pulney mountains.

USES, &c. This species of Berberry, found on the Neilgherries, serves as the name implies, for dyeing a yellow colour. The roots contain 17 per cent. of useful colouring matter.\* According to Leschenault who had the wood analysed, it contained the yellow colouring principle in a greater state of purity, than the common English Berberry. According to recent investigations this species is identical with the *B. aristata* (D. C.) It ranges on the mountains of India from the Himalayahs to the Neilgherries and to Newera Ellia in Ceylon. It is a handsome and ornamental shrub remarkable for its fine large compound racemes of flowers: the fruit is of an oblong shape, and brownish-purple colour, with little or no bloom. It is very distinct from other species and grows quickly. The root and wood are of a dark yellow colour and form the yellow wood of Persian Authors. In Nepal, the fruit of this species is dried like raisins. *Wight. Loudon. Penny Cycl. &c.*

(112) **Bergera Koenigii** (*Kæn.*) Nat. Ord. AUBANTIACEÆ.

**Decandria Monogynia.** *Sex: Syst.*

Curry-leaf-tree, ENG.

Kari-bepon, Karreya-pela, MAL.

Carroova-pillay, TAM.

Kari-vepa, TEL.

Karay-paak, HIND.

Bursunga, BENG.

DESCR: Small tree with pinnate leaves: leaflets alternate, ovate, acuminate, pubescent, somewhat serrated: panicles corymbiform, terminal: calyx 5-cleft: petals 5: spreading: berry 1-celled, 1-

\* Yellow color of Berberry and its uses in Arts Jour. Agri-Hort. Soc. V. iii p 272.

seeded : flowers small, white. *Fl.* April—July.—*W. & A. prod.* I. 94.—*Roxb. fl. Ind.* II. 376.—*Cor.* II. t. 112.—*Rheede* IV. t. 53—*Murraya Koenigii, Spreng. Syst.*—Circar Mountains. Malabar. Cultivated in gardens.

USES, &c. The Natives put the leaves of this tree in their curries, to which they impart an agreeable flavour. When rubbed together they emit a pleasant aromatic smell. They retain their flavour when dried and are sold in that state in the bazars. The root is laxative, and both bark and roots are stimulant, and are used externally as remedies in eruptions, and in infusion to check vomitings in cholera. It is used for bites of poisonous animals, the tender leaves being boiled in milk, bruised, and applied as a poultice to the parts effected. The fresh leaves are good, eaten raw in dysentery. The pulp of the fruit gives out a kind of white juice which blackens the skin like walnuts. The wood is hard and durable and is used for implements of husbandry &c. A yellow clear and transparent oil is procured from the seeds known as the Simboleo oil. *Roxb. Ainslie. Rheede, &c.*

(113) **Bignonia chelonoides** (*Linn.*) N. O. BIGNONIACEÆ.

**Didynamia Angiospermia.** *Sex: Syst:*

Padrie-marum, MAL.  
Ponpadyra Marum, TAM.

Tagada, Kalighootroo, TEL.

DESCR: Large tree : leaves impari-pinnate : leaflets about four pairs, ovate to oblong, entire, downy while young, lower pair the smallest : calyx spathaceous : panicles large, terminal with decussate ramification, smaller ones dichotomous, with a sessile flower in the fork : corolla bilabiate : follicles pendulous, very long with sharp edges and variously curved : flowers large, yellowish, tinged with orange and brown. *Fl.* May—July.—*Don's Mill.* IV. 223. *Roxb. fl. Ind.* III. 106.—*Rheede* VI. t. 26.—*Spathodea longiflora, Vent.*—*Bignonia longiflora, Willd.*—Coromandel. Forests in Malabar. Silhet.

USES, &c. The beautiful flowers of this tree are offered by the Hindoos as acceptable to their deities, and are often brought to their temples for this purpose. When immersed in water, they give it an agreeable odour. Both the roots and the flowers are given in infusion as a cooling drink in fevers. A decoction of the leaves is given in cases of visceral obstruction. The wood is high coloured, hard and durable, and much used by the inhabitants of the hills where it abounds. *Ainslie. Roxb. Rheede.*

(114) **Bignonia suberosa** (*Roxb.*) Do.

*Do.*

Indian Cork-tree, ENG.

DESCR : Tree 40–50 feet : leaves opposite, supra-de compound : leaflets acuminate, sub-cordate, entire : panicles terminal, with horizontal ramifications, the first trichotomous, then dichotomous, with generally a simple flower in the fork : flowers numerous, large, pure white, fragrant. *Fl.* June—Aug.—*Don's Mill.* IV. 229, (under *Millingtonia*).—*Roxb. fl. Ind.* III. 111.—*Millingtonia hortensis*, *Lin. fl.*—Tanjore. Courtallum. Madras.

USES, &c. The wood is white, firm, and close-grained. The bark is very spongy yielding an inferior kind of cork. The tree grows rapidly, is handsome and ornamental, and well adapted for avenues and plantations. *Roxb. Jury Report.*

(115) **Bixa orellana** (*Linn.*) Nat. Ord. BIXINEÆ.

**Polyandria Monogynia.** *Sex : Syst :*

Arnotto tree, ENG.  
Korungoomunga, MAL.  
Jafra, TEL.

Kooragoomangjul, TAM.  
Gawpurgee, HIND.

DESCR : Tree 30-feet : leaves cordate ovate, acuminate, entire or angular, smooth on both surfaces : sepals 5, orbicular : petals 5, capsule 2-valved, prickly on the outside : seeds 8–10 attached to each placenta, surrounded by a red pulp : corymbs terminal, panicked : peduncles 2–4 flowered : flowers pale peach-coloured, or white. *Fl.* May—August.—*W. & A. prod.* I. 31.—*Roxb. fl. Ind.* II. 581.—Travancore. Bengal. Mysore.

USES, &c. A valuable dye known as the Arnotto dye is produced from the pulp surrounding the seeds of this plant. It is prepared by macerating the pods in boiling water, extracting the seeds, and leaving the pulp to subside: the fluid being subsequently thrown off. The residuum with which oil is sometimes mixed, is placed in shallow vessels and dried in the shade. When properly made it should be of a bright yellow colour. It imparts a deep orange tinge to silk and cotton, and is used by the dyers for that purpose. The Spanish Americans mix it with their chocolate. In this country the dye prepared is of a pale rose colour. The cloth is prepared by first being soaked in strong alum water ; the colour is then suspended in butter-milk into which the cloth is dipped and charged

with the colour. The dye is not very durable and requires to be renewed from time to time and that of the Indian variety is inferior to that of the West Indian plant. Arnotto is astringent and slightly purgative and is esteemed a good antidote to dysentery and disorders of the kidneys. Mixed with lemon juice and gum it makes the paint with which the American Indians adorn their persons. The same people produce fire by the friction of two pieces of the wood. Cordage is made from the bark in the West Indies.

Several specimens of the Arnotto dye were sent to the Madras Exhibition. It is soluble in Alkalies by which means it is fixed to silk or wool. In Europe, it is frequently used to impart a tinge to butter, cheese, oils and varnish. The article is chiefly prepared and exported from South America to Europe. Dr. Ure in his *Dicty. of Arts* has given a long account of the process of manufacture in the West Indies, part of which is here subjoined. "The substance thus extracted is passed through sieves, in order to separate the remainder of the seeds, and the color is allowed to subside. The precipitate is boiled in coppers till it be reduced to a consistent paste; it is then suffered to cool, and be dried in the shade. Instead of this long and painful labor, which occasions diseases by the putrefaction induced and which affords a spoiled product. Leblond proposes simply to wash the seeds of Arnotto till they be entirely deprived of their color, which lies wholly on their surface; to precipitate the color by means of vinegar or lemon juice, and to boil it up in the ordinary manner, or to drain it in bags as is practised with Indigo.

"The experiments which Vauquelin made on the seeds of Arnotto imported by Leblond, confirmed the efficacy of the process which he proposed; and the dyers ascertained that the Arnotto obtained in this manner was worth at least four times more than that of commerce; that, moreover, it was more easily employed: that it required less solvents; that it gave less trouble in the copper, and furnished a purer color."

The plant is cultivated in Mysore and the Northern parts of India. There is a large importation about 3,000,000 lbs. per annum for home consumption chiefly from South America. In London the value is about a shilling a pound. *Roxb. Don. Simmonds. Ure, &c. &c.*

### (116) *Boerhavia procumbens* (

*Monandria Monogynia. Ser: Syst:*

Spreading Hog-weed, ENG.  
Mookaretti, TAM.  
Ataka-Mamidi, TEL.

Tameerama, MAL.  
Tikri, HIND.  
Gada-poorna, Swhet-poorna, BENG.

DESCR: Low creeping plant with many diffused stalks, about two feet long: flowers pale-rose coloured, much scattered on long



branching peduncles from the axils and at the end of the branches, seeds brown, oblong, striated, very rough : leaves ovate, rather roundish, bright green above, whitish below : sometimes curled at the edges. *Fl.* All the year.—*Roxb. fl. Ind.* I. 146.—*ed. Car.* I. 148.—*Rheede VII. t.* 56.—*Wight's Icon. t.* 874.—Coromandel. Travancore. India generally.

**USES, &c.** Of this troublesome weed, which is common in all parts of India there are two varieties, one with white the other with rose-coloured flowers. The root is given in powder as a laxative and in infusion as a vermifuge. The taste is slightly bitter and nauseous. In Jamaica, the leaves are given to hogs whence the English name. *Ainslie.*

(117) **Bombax Malabaricum** (*D. C.*) N. O. BOMBACEÆ.

**Monadelphia Polyandria.** *Sex: Syst:*

Red cotton tree, **ENG.**

Mooloo Elavoo, **MAL.**

Poolah Mooloo Elavoo, **TAM.**

Rukhta Shimool, **BENG.**

Buruga, **TEL.**

**DESCR:** Large tree : leaves palmate, or with 5-7 oblong, entire, acuminate leaflets : calyx campanulate, irregularly 2-3-lobed, or 5-6 cleft : petals five, united, and slightly connected at the base with the column of stamens : flowers in fascicles near the extremities of the branches, scarlet or red on the inside, but pale on the outside : capsule oblong, 5-celled : cells many-seeded : seeds embedded in silky cotton. *Fl.* Feby.—March.—*W. & A. prod.* I. 61. *Don's Mill.* I. 511.—*B. heptaphyllum, Cav.*—*Roxb. Cor.* III. 247. *B. ceiba, Burm.*—*Salmalia malabarica, Schott and Endl.*—*Rheede III. t.* 52.—Courtallum. Malabar.

**USES, &c.** This is a very large tree common in the forests of S. India. It is of little value. The wood is soft and spongy, used for floating rafts and packing boxes. The wool of the pods is used for stuffing pillows, cushions, &c. In Java, the bark of the root is used as an emetic. An astringent gum-resin called *mochrus* exudes from the bark, which, as well as the young roots, is considered strengthening *Royle. Hooker, &c.*

(118) **Borassus flabelliformis** (*Linn.*) Nat. Ord.

**Diœcia Hexandria.** *Sex: Syst:*

Palmyra Palm, **ENG.**

Pana, **MAL.**

Pannei, **TAM.**

Tadi, **TEL.**

Talgachh, **BENG. and HIND.**

Tala, **SANS.**

**DESCR:** Trunk 30-40 feet : everywhere marked with old cicatrices of fallen leaves : fronds composed of several folded linear lan-

ceolate divisions united as far as the centre : flowers male and female on different trees : drupe subglobular, flattened at the apex, filled with soft yellow pulp : nuts 3, perforated at the apex.—*Lontarus domestica*, *Rumph.*—*Roxb. Cor. I. t. 71.*—*f. Ind. III. 790.*—*Rheede I. t. 9, 10.*—Common in the Peninsula.

USES, &c. This species of palm is most extensively distributed over the continent of India, especially near the sea coast. Sir W. Jones said that this magnificent palm was justly styled the king of its order, among those which the Hindoos call grass trees. Its uses are manifold, the best known among which is the fermented liquor called toddy, and this constitutes its chief value to the Native inhabitants. The mode of procuring the vinous sap is as follows. The spadix or young flowering branch is cut off near the top, and an earthen chatty or pitcher then tied on to the stump ; into this the juice runs, every morning it is emptied and replaced, the stump being again cut, the vessel placed as before, and so on, until the whole has been gradually exhausted and cut away. If drank before the sun rises, the taste is agreeable and refreshing. Although inferior to that procured from the cocoa palm. It is said to be gently aperient, if the use be continued for several days. If kept after sunrise, it soon ferments and becomes one of the most intoxicating of the country liquors. It is known in Tamil as the Pannung-khulloo. It is from this liquor that sugar is extracted, and by the same process as that described for procuring the toddy, except that the inside of the earthen vessel or receiver is powdered with chunam which prevents any fermentation ; the juice is then boiled down and dried by exposure. Some few trees that from unknown causes do not flower in spring, put out their flowers in the cold season and give a scanty supply ; but in spring many are rendered artificially barren by breaking off the flowering bud as it begins to form. These also flower in the winter season and are called Basanti. They do not give above  $2\frac{1}{2}$  maunds of juice, but this is of as much value as the 6 maunds which a tree gives in spring. Either the male or female will answer for the spring or winter crop ; but the female alone will yield juice in the rainy season. When this is wanted the fruit is allowed to form and afterwards the point of the spadix or stem which supports the clusters, is cut and allowed to bleed. This does not prevent a great many fruit on each cluster from coming to maturity. Palms managed thus are called, Ghour. The fruit ripens in August : but many of the stems continue to bleed until October. A Coleopterous insect often attacks the heart of this tree and occasions it to languish. The remedy is to cut a hole about six inches long and two wide entirely through the middle of the stem, and four or five feet from the ground. The stem is found hollow and a great deal of rubbish like saw dust falls out, but the palm soon recovers. The insect probably undergoes a change and comes out by the hole.

The coarse sugar is called Jaggery and in Tamil Karepotee. It is used for medicinal purposes as well as for sweetening drinks. The pulpy matter surrounding the fresh seeds is cooling and pleasant to the taste, but after they ripen it becomes insipid. The stems when old become very hard and are capable of taking a fine polish, being used for bows, &c. For house building and various domestic purposes, the timber is the most generally used of the Palm tribe. It is used chiefly for rafters, joists and reapers, protected from moisture, and esteemed especially when of good age. For this purpose the trunk is split into 4 for rafters, into 8 for reapers, and these are dressed with an Adze. From the structure of the fibres, it splits easily in the direction of its length, but supports a greater cross-strain than any other wood : iron nails however, will rust rapidly in it. The fruits and fusiform roots are used as food by the poorer classes in the N. Circars, the leaves are used for writing on. They are also employed for thatching houses and making baskets, mats, umbrellas and fans. Strong and durable fibres are procured from the petioles of the fronds. A fine downy substance is found at the base of the leaves used for stopping bleeding wounds.—*Roxb. Lind. Ainsl. Jury. Rep. &c. &c.*

(119) **Boswellia glabra** (*Roxb.*) Nat. Ord. TEREBINTHACEÆ.

**Decandria Monogynia.** *Sex: Syst :*

Koonthrekum, MAL.  
Koondricum, TAM.

Googoola, TEL.

**DESCR :** Tall erect tree covered with greenish ash-coloured bark : leaves alternate, unequally pinnate, at the extremities of the branchlets : leaflets 6-10 pairs, opposite, broadly-lanceolate, obtuse, serrated glabrous : flowers numerous, on short pedicels small, white : calyx small, 5-toothed : petals 5 : capsule 3-angled, 3 celled, 3-valved : seeds solitary surrounded by a membranaceous wing : racemes simple, terminal, fascicled, shorter than the leaves. *Fl.* March—April.—*W. & A. prod.* I. 174.—*Roxb. fl. Ind.* II. 384.—*Cor.* III. 207.—*Canarium balsamiferum, Willd.*—Coromandel Mountains. Deccan.

**USES, &c.** This tree yields a fragrant resinous substance known as *Koondricum*. It is bitter and pungent, and is soluble in Æther and Spirits of Wine. Resin exudes from wounds in the bark. It soon becomes hard and brittle, and is often used when boiled with oil as a substitute for pitch and called Googul by the Telingies. Mixed with ghee the native doctors prescribe it in Gonorrhœa and other complaints. The resin is much burnt as an incense in the religious ceremonies of the Hindoos. Mixed with lime-juice or cocoanut oil it is applied as a plaster in cutaneous affections as

well as in cases of ulcer, bad wounds &c. : the wood is heavy, hard, and durable. *Ainslie. Roxb.*

(120) **Boswellia thurifera** (*Roxb.*) Do.

*Do.*

Salai, BENG.

| Luban, HIND.

DESCR : Large tree : leaves unequally pinnated : leaflets oblong, obtuse, serrated, pubescent : racemes axillary, single, shorter than the leaves : calyx 5-toothed : petals 5 : flowers small, white : seeds solitary with a winged membrane : capsule 3-angled. *Fl. March—April.—W. & A. prod. I. 174—Roxb. fl. Ind. II. 383.—Mountains of Coromandel. Belgaum.*

USES, &c. This is a large tree affording good timber. Colebrooke in the Asiatic Researches has identified the olibanum or frankincense of the ancients with the balsamic gum-resin which it produces. It is called Koondooroo or Ghundurur or Cundun in Bengal. For a long time, this substance was supposed to have been produced by various species of junipers, and this opinion is held to this day by some ; but it is known that the coniferæ, to which family the junipers belong yield pure resin only, but not gum-resin. Of the present olibanum there are two varieties, one of which is far inferior to the other. The best is found in pieces as large as a walnut, of a high yellowish colour, inclining to red or brown, covered on the outside with a white powder, the whole becoming a whitish powder when pounded. It burns with a clear and steady light, not easily extinguished, and diffuses a pleasant fragrance. In taste it is slightly bitter, and not perfectly soluble of water or alcohol. It is seldom used in medicine, but has astringent and stimulant properties. Externally it is useful as a rubefacient and antispasmodic, especially as a plaster in cramps in the stomach. The incense burnt in Roman Catholic Churches is the produce of this tree. *Colebr. in As. Res. IX. 377. Penny. Cycl. Roxb. Ainslie.*

(121) **Bragantia Wallichii** (*R. Br.*) N. O. ARISTOLOCHIACEÆ.

**Gynandria Hexandria.** *Sex : Syst :*

Alpam, MAL.

DESCR : Shrub : leaves alternate, oblong, lanceolate : 3-nerved at the base : tube of the perianth smooth, lobes of the limb acutish : anther 9, 3-adelphous, united by threes, male pistil very short, stigmata, 9 radiating, united at the base, three of them bifid, fruit terete.—*W. & A. in Ed. Phil. Jour. 1832.—Wight's Icon. II. t. 520.—Rheede, VI. t. 28.—Apama siliquosa.—S. Concan. Wynaad. Travancore.*

**USES, &c.** This is by no means a common plant, and would appear to be peculiar to the Western Coast. The whole plant mixed with oil and reduced to an ointment is said to be very efficacious in the treatment of Psora or inveterate ulcers. Like other plants belonging to the same natural order it is supposed to have virtues in the cure of snake bites. The juice of the leaves mixed with the Vussumboo root, the root itself rubbed up with lime juice and made into a poultice and externally applied are the chief modes of administering it among the Natives.

Bartolomeo in his voyage to the East Indies says of this plant, the only Malabar plant which I can with certainty call an antidote to poison is a shrub, about three or four feet in height named Alpam. The root is pounded, and administered in warm water to those who have been poisoned. A Malabar proverb says: Alpam agatta, Veszam poratta; as soon as the Alpam root enters the body poison leaves it. *Rheede. Bartolomeo Voy. to East Indies. Wight and Arn. in Ed. Phil. Journ., 1832.*

(122) **Briedelia spinosa** (*Willd.*) Nat. Ord. EUPHORBIACEÆ.

**Polygania Monœcia.** *Sex: Syst:*

Moolloo-vengay, TAM.  
Coraman, TEL.

Moolloo-vangay, MAL.  
Sun, DUK.

**DESCR:** Tree 30-40 feet: bark scabrous: branches numerous, spreading: thorns large, few, chiefly on the large branches: leaves oblong, alternate, pointed, entire with conspicuous parallel veins running from centre to circumference: spikes axillary or terminal: flowers aggregate, small, greenish-yellow, males and females together. *Fl.* July—Oct.—*Roxb fl. Ind.* III. 735.—*Cluytia spinosa, Roxb. Cor. II. t. 172.*—*Wight's Icon. t. 1905.*—Circars. Assam. Travancore.

**USES, &c.** Roxburgh says the bark is a strong astringent and the wood dark coloured, hard and durable. Cattle are fond of the leaves which are said to free them from intestinal worms. The tree which is known as the Moolloo-vangay\* in Travancore and which is common in the forests yields a light coloured wood rather soft, though well adapted for picture frames and such light works. *Roxb. Pers. obs.*

(123) **Bryonia callosa** (*Rottl.*) Nat. Ord. CUCURBITACEÆ.

**Monœcia Monadelphia.** *Sex: Syst:*

Toomutti, TAM.

Boddama, TEL.

**DESCR:** Climbing shrub, spreading: stem filiform, furrowed, rough with bristly hairs: leaves on long petioles, cordate, 3-5

\* This is probably different as the wood *B. spinosa* is strong and tough.

lobed, roundish, toothed, scabrous and hispid on the veins below : berries globose, largish, smooth : flowers yellow.—*Rottler ap.*—*Ainslie* II. 428.—Coromandel.

USES, &c. The seeds which are bitter tasted are mixed with oil and employed as a vermifuge. They are also occasionally used by farriers in diseases of horses. They yield a fixed oil by boiling which is used for lamps by the poorer classes. *Ainslie*.

(124) **Bryonia epigæa** (*Rottl.*) Do.

*Do.*

Kolung Kovay, TAM.  
Akasagarooda, TAM.

Rakus, HIND.

DESCR: Climbing shrub : stem glabrous : often very flexuose at the joints : tendrils simple : leaves somewhat fleshy on longish petioles, cordate, usually three lobed, densely covered on both sides with short bristly hairs : lobes rounded the lateral ones the broadest, and slightly 2 lobed, all remotely and slightly toothed : male flowers shortly racemose at the apex of a long thickish peduncle : calyx campanulate : females short peduncled, solitary, in the same or different axils from the males : berry ovate, rostrate, glabrous, few seeded : seeds white, compressed.—*W. & A. prod.* I. 346.—*B. glabra*, *Roxb. fl. Ind.* III. 725.—*B. palmata*, *Wall.*—Coromandel.

USES, &c. The root of this species was once supposed to be the famous Calumba root which it resembles in its medicinal qualities. It has a bitter subacid taste, and is marked on the outside with whitish circular rings. It is used as an external application in conjunction with cummin seeds, onions and castor-oil as a kind of ointment for chronic rheumatism ; it has also other medicinal uses and is esteemed of special value in dysenteric and long standing venereal complaints. The root lives in the air without water and will grow and send forth shoots in that position. *Ainslie*.

(125) **Bryonia laciniosa** (*Linn*) Do.

*Do.*

Nehoemaka, MAL.  
Gurga-naroo, HIND.

Mala, BENG.

DESCR: Climbing : stems glabrous : tendrils bifid : leaves slightly scabrous, palmately 5 lobed : segments oblong lanceolate, acuminate : serrated. petioles shorter than the leaves muricated :

male flowers fascicled : female solitary in the same axil : corolla 5 partite, berries spherical, 3 celled : seeds few, surrounded by a pulpy aril : flowers small, yellowish-green. *Fl.* All the year.—*W. & A. prod.* I. 345.—*Roxb. fl. Ind.* III. 728—*Wight's Icon.* II. t. 500.—*Rheede* VIII. t. 19— Peninsula. Malabar. Bengal.

USES, &c. The juice of the leaves mixed with milk is taken internally in bilious complaints, and when mixed with honey and sugar in coughs and flatulency. *Rheede.*

(126) **Bryonia rostrata** (*Rottl.*) Do.

*Do.*

Appakovay, TAM.

DESCR: Climbing : stem slender, hairy or pubescent : tendrils simple : leaves on longish petioles, roundish cordate, sinuate, toothed pubescent : male flowers usually two together, pedicelled, on a slender peduncle, longer than the petiole : calyx campanulate : female solitary, very shortly peduncled, in the same axils with the male : being ovate, rostrate, longitudinally striated, hairy 2-6-seeded : seeds black, compressed, with a thin margin.—*W. & A. prod.* I. 346—*B. pilosa*, *Roxb. fl. Ind.* III. 726.— Tranquebar.

USES, &c. The root which is small and of a light grey-colour is sweet and mucilaginous to the taste. It is administered internally in cases of piles, and powdered, is sometimes given as a demulcent in humoral asthma. The leaves are eaten as greens in Southern India. *Ainslie.*

(127) **Bryonia scabrella** Do.

*Do.*

Mucca-piri, MAL.  
Agumerkee, HIND.

Putribudinga, TEL.

DESCR: Climbing : stems and petioles hispid and scabrous : tendrils simple : leaves cordate, lobed or angled, scabrous above, hispid below : flowers on short peduncles : males fascicled ; females 1-4 in different axils from the male : berry globular, size of a pea, glabrous or occasionally with a few bristly hairs : seeds several, surrounded by a narrow zone, rugose : flowers small, yellowish. *Fl.* All the year—*W. & A. prod.* I. 345.— *Wight's*

*Icon.* II. t. 501.—*Roxb. fl. Ind.* III. 724.—*Rheede* VIII. t. 13.—*B. Maderaspatana*, *Berg.*—*Cucumis Maderaspatanus*, *Linn.*—*Mukia scabrella*, *Arn.*—Peninsula. Bengal. Malabar.

USES, &c. Seeds in decoction are sudorific and are also employed in diabetes and dysuria. Root in decoction is given in flatulency, and the root itself is masticated to relieve the toothache. *Rheede.*

(128) **Buchanania latifolia** (*Roxb.*) N. O. TEREBINTHACEÆ.

**Decandria Pentagynia.** *Sex: Syst:*

Moræda, Mowda or Kat Mango  
marum, TAM.  
Piyala, BENG.

Chara puppoe, TEL.  
Peeyar Cheroonjie, HIND.

DESCR: Tree 30 feet: leaves alternate, entire, broadly oval or obovate, obtuse: calyx small, obtusely 5-cleft: petals 5, sessile recurved: branches of the panicles hirsute, terminal and axillary with the flowers, crowded, assuming the appearance of a corymb at the tops of the branches: fruit a drupe with slightly fleshy red sarcocarp: nut very hard, 2-valved, 1-celled: flowers small, greenish white. *Fl.* Feb.—March.—*W. & A. prod.* I. 169.—*Roxb. fl. Ind.* II. 385.—*Don's Mill.*—*Chirongia sapida*, *Buch.* II. 65.—*Spondias elliptica*, *Rottl.*—Mountains of Coromandel and Malabar. Belgaum forests. Mysore.

USES, &c. The wood is used for various purposes. The kernels are a general substitute for Almonds among the Natives, they are much esteemed in confectionery, or roasted and eaten with milk. The bark is used in tanning. An oil is extracted from the seeds of a pale straw colour known as the Cheroonjie oil, and also a black varnish similar to that obtained from the nuts of the *Semecarpus anacardium*, and other trees of the same order. Another species, the *B. lancifolia*, (*Roxb.*) grows in Chittagong, the tender unripe fruit of which is eaten by the Natives in their curries. *Jury Rep. Roxb. Lindley, &c.*

(129) **Butea frondosa** (*Roxb.*) Nat. Ord. LEGUMINOSÆ.

**Diadelphia Decandria** *Sex: Syst:*

Bastard Teak, ENG.  
Porasum, TAM.  
Moduga, TEL.

Palasie, MAL.  
Palas, HIND.  
Palas, Dhak, BENG.

DESCR: Middle sized tree: leaves pinnately trifoliolate: leaflets large, roundish ovate, rather velvety beneath: corolla papilionace-



ous : racemes simple, many flowered, lax : calyx segments short, slightly acute, several times shorter than the tube : corolla densely pubescent : vexillum ovate, acute, recurved : keel and alæ incurved : legume flat, thin, with a large solitary seed at the apex : flowers in threes, bright scarlet. *Fl.* Dec.—Feb.—*W. & A. prod.* I. 261.—*Don's Mill.* II. 273.—*Roxb. Cor.* I. t. 21.—*flor. Ind.* III. 244.—*Erythrina monosperma*, *Lam.*—Malabar. Circars.

USES, &c. This tree, when in flower, has a very striking appearance from the gaudy appearance of bright scarlet corollas. Peacock in his Greece in India has remarked that the name of Pelassi has been derived from this plant. In modern times the name of Plassy so celebrated in Indian History is nothing more than Palas or Palasie, the Hindoostanee name for this beautiful tree. The Natives are very fond of offering the flowers in their temples ; and the women by intertwining the rich scarlet blossoms in their hair assume a very attractive and pleasing appearance. The following account of this tree is given by a very amusing writer on Indian subjects.

“ The lakh was brought to me in little cakes from the bazar, enclosed in leaves of the Palas or Dhak (*Butea frondosa*) fastened together with wooden pins like long thorns. Many articles are wrapped up in this way in lieu of using paper ; and packets of the leaves freshly gathered are to be seen in the shops ready for use. The lakh is the produce of an insect (*Coccus lacca*), in which its eggs are deposited ; it is found on the Dhak, the Peepul, the Banyan, and the Biar, as well as on several other trees. The wood and leaves of the Dhak are used in religious ceremonies ; the bark is given with ginger in snake bites, When the bark is wounded a red juice issues, which soon hardens into a ruby coloured, brittle, astringent gum ; a solution of it in water is of a deep red colour ; the addition of a little *sal martis* changes it into a good durable ink. An infusion of the flowers dyes cotton, which has been steeped previously in a solution of alum, a beautiful bright yellow ; a little alkali added, changes it to a deep reddish orange. The flowers are papilionaceous, of a deep red-shaded with orange and silver, and very numerous.”

The red juice which exudes from the bark is known in commerce as the Butea Kino or Pulas Kino. It dissolves perfectly in water and partially in spirit. As a colouring matter it is strong and durable, but cannot easily be applied to tanning purposes. For an account of the properties of the gum see *Journ. Agri. Hort. Soc. Bengal*, VIII. p. 24, 1852. See also *Journ. R. As. Soc. Lond.* VII. p. 145. It is used in medicine as a powerful astringent, adminis-

tered in the form of tincture and powder. Some specimens of this Kino when analysed yielded  $73\frac{1}{2}$  per cent. of tannin. The Natives in the North Western provinces employ it for precipitating their Indigo, and in tanning, but in England it is objected to on account of the discoloration it imparts to leather. The lac insects are frequently found upon the smaller branches and petioles of the tree, but whether the natural juices of its bark contribute to improve the red colouring matter of the lac has not been determined. The expressed juice of the fresh flowers, and infusion of the dried flowers yield a water colour brighter than Gamboge; they also yield a fine durable yellow-lake in a large proportion. The wood of the tree is one of those burnt for Gunpowder charcoal. Two or three seeds deprived of their outer covering are frequently given as an anthelmintic in cases of tape-worm. Strong ropes are made from the fibre of the roots, used immediately after the bark has been stripped off.—*G. Don. F. Parks. Roxb. Ainslie, &c.*

(130) **Butea parviflora** (*Roxb.*) Do.

*Do.*

DESCR: Twining shrub; racemes paniced: pedicels 3-4 times shorter than the calyx: flowers very numerous: calyx segments nearly as long as the tube, acuminate, corolla: twice the length of the calyx: vexillum ovate, emarginate at the apex: flowers small, white. *Fl. Nov.—Dec.—W. & A. prod. I. 261.—Wight's Icon. t. 210.—Roxb. fl. Ind. III. 248.—Coromandel. Hilly parts of the Concans. Assam.*

USES, &c. The gum which exudes from the bark is dissolved in arrack, and reckoned useful in colic and hysteria.

(131) **Butea superba** (*Roxb.*) Do.

*Do.*

Tiga-moduga, TEL.

DESCR: Twining shrub with pinnated 3 foliolate leaves: leaflets roundish, velvety beneath: racemes simple, lax: pedicels about twice the length of the calyx: corolla papilionaceous: legumes flat, compressed, thin clothed with rusty tomentum, with one solitary seed at the apex: calyx segments shortish, acuminate: vexillum ovate, acute: flowers large, bright scarlet. *Fl. March.—W. & A. prod. I. 261—Don's Mill. II. 273.—Roxb. Cor. I. t. 22.—fl. Ind. III. 247.—Travancore forests. Circar mountains.*

USES, &c. The red juice which flows from fissures in the bark of this creeper is one of the kinds of East Indian Kino, and is similar in most respects to that procured from the *B. frondosa*. The flowers are in like manner used for dyeing yellow, and for preparing a yellow pigment. Strong ropes are made from the roots of both species used as cordage and for agricultural purposes. The colour of the Kino is ruby red, brittle and transparent, consisting of small round tears. It becomes opaque and dark coloured after keeping. Exposed to heat it ignites. It imparts a fine red colour to water, the interior only dissolving. In hot water the entire will dissolve. The exudation should be collected when fresh and only just hardening, as being then far more applicable to useful purposes, than when after exposure to the air. It is soluble in Alcohol but far less than in water: also in Æther slightly. It contains a large proportion of tannin which might render it useful in the arts and in tanning leather, especially for thick hides. *Solly in. As. Researches. Ainslie. Royle. &c.*

## C.

(132) **Caesalpinia coriaria** (*Willd.*) Nat. Ord. LEGUMINOSÆ

**Decandria Monogynia.** *Sex: Syst:*

American Sumach, Divi-divi or Dibi-dibi, ENG.

DESCR: Tree 25-30 feet, unarmed: leaves bipinnate: pinnæ 6-7 pairs: leaflets 15-20 pairs, linear, obtuse: racemes paniced: pedicels shorter than the flowers: calyx cup-shaped at the base, 5-lobed: petals five, unequal: upper one shorter than the rest: legume oblong, incurved laterally: flowers small, yellow. *Fl.* December—January.—*Don's Mill.* II. 432.—*Poinciana coriaria*, *Jacq.*—Cultivated in the Peninsula.

USES, &c. This beautiful tree was introduced into India by Dr. Wallich twenty five years ago. It is properly a native of the sea shore of St. Domingo, and of Curaçoa, but has now become so extensively distributed in this country, and promises to be so useful a tree, that it is well deserving of a place here. Its chief virtue resides in the pods which are greatly employed for tanning purposes. These pods are said to contain about 50 per cent. of tannin. The average yearly produce of pods from a single full grown tree in the West Indies is 100 lbs. which, deducting 25 lbs. for seeds, leaves 75 lbs. of tanning material. The pods form an article of export into Great Britain from the West Indies. By experiments it was ascertained that one part of Divi-divi (which is the commercial name for the pod) is equal to four parts of bark for tanning purposes, and the process occupies about one third of the time. The price of the pods ranges from £8 to £13 per ton. About 3,900 tons were imported into the United Kingdom in 1844. The pods are considered superior to any other material used in the tanneries of this country. When cured with this substance leather resembles that tanned with Oak-bark. The tree is easily propagated from seeds: indeed they grow so fast and luxuriantly that large plantations might soon be raised with little outlay in the moist climate of the Western Coast. *Simmonds. Jury. Rep. Pers. obs.*

(133) **Cæsalpinia digyna** (*Rottl.*) Do.

Do.

Noonee gatcha, TEL.

Umul-koochi, BENG.

DESCR: Scandent shrub, armed with numerous small recurved prickles: pinnæ of the leaves 7-10 pair: leaflets 6-10 pair, linear-oblong, obtuse. racemes supra-axillary: simple, shorter than the leaves: pedicels long, slender: flowers largish yellow, legume oblong, obliquely-pointed, very protuberant at the seeds, glabrous, 2-3-seeded. *Fl.* Aug.—Sept.—*W. & A. prod.* I. 281.—*C. oleosperma*, *Roxb. fl. Ind.* II. 357.—*Guilandina oleosperma*, *Roxb. in E. I. C. Mus.*—*Wight's Icon. t.* 1995.—Bhaugulpore. Coromandel.

USES, &c. An oil is expressed from the seeds used in lamps. *Roxb.*

(134) **Cæsalpinia sappan** (*Linn.*) Do.

Do.

Sappan and Brasiletto, ENG.  
Patungha, TAM.  
Bukkum, HIND. and BENG.

Tsiapangum, MAL.  
Bukkapi, TEL.  
Puttung, DUK.

DESCR: Tree\* 40 feet; armed: pinnæ 10-12-pair: leaflets 10-12-pair unequal sided, obliquely oval-oblong, emarginate, pale on the under side: terminal panicles: legumes compressed, glabrous, elliptic-obovate, obliquely-truncated, cuspidate at the apex, 3-4-seeded: flowers yellow. *Fl.* March—May.—*W. & A. prod.* I. 281.—*Don's Mill.* II. 430.—*Roxb. Cor.* I. t. 16.—*fl. Ind.* II. 357.—*Rheede* VI. t. 2.—Coromandel. Bengal.

USES, &c. The wood which is the red wood of commerce is extensively used in dyeing and is exported for that purpose. It is an ingredient in the red dye on the Coromandel Coast called the Chay-dye. Where a cheap red is required for cotton cloth, the wood is employed by the native dyers, but they cannot make it stand. The process of the Telinga dyers is as follows:—The cotton cloth is well washed, to remove any remains of the quick-lime, &c. used in bleaching; an infusion of half a pound of the powdered Kadukai, (*Terminalia chebula*) in a pint and a half of cold water strained is employed to prepare the cloth, which is done by wetting it twice in the same infusion, drying it between and after. The following day it is twice wetted in a strong solution of alum, and as often dried in the sun. Next day a decoction of the Sappan-wood is prepared as follows: take 1 pound of Sappan-wood in powder, water 12 quarts, boil it

\*It grows freely without any care, and is of the finest quality in Malabar and Mergui.

till a third is consumed, divide the remaining 8 quarts into 3 parts, one of 4 and the other two of 2 quarts each; into the 4 quarts put the cloth, wet it well, wring it gently, and half dry it, it is again wetted in one of the small portions and when half dry, wetted for the third and last time in the other remaining portion of the decoction; dry in the shade, which finishes the process. In Paulhaut, the tree is cultivated for the sake of the dye which is used for colouring the mats made at that place. A decoction of the wood is considered a powerful emmenagogue. Much Sappan-wood is annually exported from Ceylon. In 1842 about 78,000 cwts. were shipped from that Island. It is largely shipped for the London market from Calcutta. The total import into the United Kingdom for 1850 amounted to about 3,670 tons, worth from £8 to £12 the ton. The exports of Sappan-wood from Madras in 4 years ending in 1855 were 15,275 cwt. valued at Rs. 44,757. *Roxb. Ainsl. Don. Simmonds. Com. Prod. Mad. Pres.*

(135) **Cajanus Indicus** (*Spreng.*) Nat. Ord. LEGUMINOSÆ.

**Diadelphia Decandria.** *Sex: Syst:*

Pigeon-pea, ENG.  
Thovaray, TAM.  
Candaloo, TEL.

Toor, HIND.  
Dal Urur, BENG.

DESCR: Shrub 3-6 feet, softly pubescent: leaves pinnately trifoliate: leaves oval, lanceolate, mucronate: calyx campanulate, somewhat bilabiate: lips nearly equal in length, upper one shortly bifid, lower one 3-partite: segments slightly curved upwards: apices recurved: corolla papilionaceous: petals equal in length: vexillum broad, bi-callous at the base: keel falcate: racemes axillary: pedicels slender, in pairs: legumes hirsutely pubescent: flowers yellow. *Fl. Oct.—Nov.—W. & A. prod. I. 256.—Don's Mill. II. 365.—* Peninsula. Bengal. Assam.

Of this shrub, there are two varieties which differ by the colour of the vexillum alone.

*a*—Segapoo, Thovaray, Tam.—Yerray candaloo, Tel.—Lal Toor, Hind.—vexillum of a uniform yellow colour on both sides.—*C. flavus, D. C.—Cytisus cajan, Linn.—Roxb. fl. Ind. III. 325.*

*b*—Maenthoveray, Tam.—Conda Candaloo, Tel.—Paoudke-Toor, Hind.—vexillum purplish, and veined on the outside, yellow on the inside.—*C. bicolor, D. C.—Cytisus pseudo cajan, Jacq.—Rheede, Mal. VI. t. 13.*

USES, &c. The seeds are much esteemed by the Natives who hold them third in rank among their leguminous seeds. Cattle are very fond of the tender parts of the plant, both green and dry.

The dried stem is excellent fuel, and well adapted for producing fire by friction. The leaves rubbed with pepper cleanse the gums, and are also given in toothache. A drink is moreover prepared from them administered to patients suffering from small pox. *Roxb. Rheede.*

(136) **Calamus fasciculatus** (*Roxb.*) Nat. Ord. PALMAOEE.

**Diacia Hexandria.** *Sex: Syst:*

Rattan-cane, ENG.  
Buro-bet, BENG.

Perambu, MAL.  
Paramboo, TAM.

**DESCR:** Leaves pinnated: spathes several: flowers sessile in spikes: calyx 3-toothed: petals 3; united at the base: style scarcely any: ovary 3-celled, berry 1-seeded: seeds surrounded with a succulent flesh. *Fl.* June—August.—*Blume.*—*Roxb. fl. Ind.* III. 779.—Bengal.

**USES, &c.** These plants, though generally arranged among the Palm tribe, hold a middle station between the Palms and Grasses having the habit of the former, whereas their inflorescence is that of the latter. Canes and rattans, which are the stems of different species of Calamus, form considerable articles of commerce. They are exported from the vallies of the Himalayahs into the plains, though the species yielding them are not well known. In some years from four to five millions have been exported from this country. The stems of this species are when divested of their sheaths about as thick as the forefinger, and are used as walking sticks. *Roxb. Royle, &c.*

(137) **Calamus rotang** (*Linn.*)

Do.

*Do.*

Rattan Cane, ENG.  
Bettam, TEL.

Bet or Beta, BENG. and HIND.

**USES, &c.** This yields the common rattan. It is the Tijeru to jurel of Rheede (*Mal. XII. t. 64*) and *C. Roxburghii* of Griffith; and is common in the S. Concans, as well as in Coromandel and Bengal. Though the several species yielding the rattans of commerce have not been distinctly identified, yet it is believed that this one is a stouter kind than the others. Some rattans grow to an immense length, climbing over the highest trees in the forest, even as long as 500 or 600 feet. Such have been the dimensions given to the *C. extensus*, a native of Silhet. When fresh-gathered, the stems are covered with its green sheaths, but are divested of them while yet in a green state, and then dried. They are extensively used as props for plants, cables, ropes, wicker work, baskets, chairs, couches, &c. being very strong and at the same time flexible, are admirably adapted for those purposes.

Cordage and cables for vessels are sometimes made from the stems twisted together. In fact their strength is exceedingly great when several are twisted in this way, and will answer all the purposes of the strongest cables. In China and Japan they are in great request. Marco Polo refers to their uses in those countries. Talking of a certain place in China, he says, "They do not employ hempen cordage, excepting for the masts and sails (standing and running rigging.) They have canes of the length of fifteen paces such as have been already described, which they split in their whole length, into very thin pieces, and these, by twisting them together, they form into ropes three hundred paces long. So skilfully are they manufactured, that they are equal in strength to cordage made of hemp. With these ropes the vessels are tracked along the rivers, by means of ten or twelve horses to each, as well upwards against the current, as in the opposite direction." Here he evidently refers to the rattan canes and not to bamboos as supposed by some. The seeds are surrounded by a fleshy kind of substance which is eaten as well as the young tender shoots which are reckoned very delicate food. Of the species best known in India and the neighbouring countries, the following may be enumerated: *C. rudentum*, (*Lour.*) native of the Moluccas.—*C. erectus*, (*Roxb.*) indigenous to Silhet, where the poorer classes use the seeds as a substitute for Betel nut.—*C. verus*, (*Lour.*) Moluccas and Cochin China.—*C. scipionum*, (*Lour.*) which yields the so called Malacca cane.—*C. Royleanus*, a species found in Dheyra Dhoon.—*C. draco*, (*Willd.*) Sumatra and the Moluccas.—*C. gracilis* and *tenuis* both of Chittagong, with several others. What are known as the Penang lawyers are yielded by a small Palm the *Licuala acutifida*. *Royle. Roxb. &c.*

(138) **Callicarpa lanata** (*Linn.*) Nat. Ord. VERBENACEÆ.

**Tetrandria Monogynia.** *Sex: Syst:*

Caat comul, TAM.  
Bastra, HIND.

Massandaree, BENG.  
Tondi, Teregam, MAL.

DESCR: Shrub, or small tree: branches, peduncles, and leaves covered with a kind of woolly nap: leaves ovate: peduncles axillary, solitary: calyx 4-cleft: corolla monopetalous, funnel shaped, 4-cleft: berry 1-celled, 4-seeded, convex on one side, concave on the other: margin slightly elevated: flowers purple. *Fl.* February—March.—*Roxb. fl. Ind.* I. 391.—*C. cana*, *Linn.*—*C. tomentosa*, *Lam.*—*C. Americana*, *Lour.*—*Rheede* IV. t. 60.—Travancore. Neilgherries. Coromandel.

USES, &c. The bark which is sub-aromatic and slightly bitter to the taste is chewed by the Cingalese instead of betel-leaves.



The Malays reckon the plant among their diuretics. In upper Hindoostan the root is employed in cutaneous complaints. It is one of the trees used for making charcoal. A fibre is procured from the inner bark called the Aroosha fibre, in Chittagong, but much value is not attached to it. *Ainslie. Royle. Jour. Agri-Hort. Soc. Vol. VI. p. 186.*

(139) **Calonyction grandiflorum** (Choisy.) N. O. CONVULVULACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Moon-flower, ENG.  
Munda-valli, MAL.

Naghamooghatic, Vulamambo, TAM.  
Nagaramoo Kutty, TEL.

**DESCR:** Twining plant: sepals equal, acute: leaves large, glabrous, cordate, acuminate: corolla snow-white with a long cylindrical greenish tube: expanding at night. *Fl.* August—Oct. —*Don's Mill.* IV. 264.—*Convolvulus grandiflorus*, *Linn.*—*C. latiflorus*, *Desrouss.*—*Ipomœa latiflora*, *Rom. and Schult.*—Cultivated in gardens.

**USES, &c.** This beautiful species of *Convolvulus* appears to have been introduced from the West Indies. The seeds are eaten when young and the dried seeds and capsules, as well as the flowers, leaves, and roots are among the manifold specifics in snake bites. The seeds for this purpose are administered in powder, about three daily.

As a creeper for trellis work in gardens it has a very striking appearance from its large pure white blossoms which open at sunset and fade at daylight. *Ainslie, &c.*

(140) **Calophyllum inophyllum** (Linn.) N. O. GATTIFERÆ.

**Polyandria Monogynia.** *Sex: Syst:*

Alexandrian Laurel, ENG.  
Ponna, MAL.  
Pinnay, TAM.

Ponna, TEL.  
Sultan-champa, HIND.  
Oondee, DUK.

**DESCR:** Tree 50 feet: branches terete: leaves elliptical or oboval, obtuse or retuse; furnished with numerous parallel slender nerves: racemes longer than the leaves, disposed in terminal panicles: sepals 4: petals 4: drupe spherical, 1-celled, 1-seeded: flowers white, very fragrant. *Fl.* June—Dec.—*W. & A. prod.* I. 103—*C. bintagor*, *Roxb. fl. Ind.* II. 606.—*Wight's Icon.* t. 77.—*Balsamaria inophyllum*, *Lour.*—Malabar. Peninsula.

USES, &c. This is a beautiful tree, not less esteemed for its ornamental appearance than for the delicious fragrance of its flowers. A dark green oil of a disagreeable odour is procured from the fresh seeds when subjected to pressure. According to the Juries' reports this oil is more used as medicine than for domestic purposes nor is it now exported from this country, except in small quantity to Ceylon. The oil is known as the Pinnay oil. The seeds, says Simmonds, or berries contain nearly 60 per cent. of a fixed oil, which is used for burning as well as for medicinal purposes, being considered a cure for the itch. It is perfectly fluid at common temperatures, but begins to congeal when cooled below 50°. The Pinnay oil is one of those commonly used in Travancore, especially for lamps. It is manufactured in large quantities in that province, especially in the Southern district. A yellow resinous juice exudes from the kernels. The latter are very bitter. A somewhat similar juice flows from the wounded branches frequently hardening to a gum. This gum and the bark are both used in medicine, and in Travancore the Natives put the leaves in water, and use the oil which rises to the surface as an application to sore eyes. Horsfield says, that in Java the tree is supposed to possess diuretic and excellent properties. This tree flowers twice a year and is said to attain a great age. Lindley says that the true E. Indian Tacamahaca is produced by the *C. calaba*; but there is certainly one kind collected from the *C. inophyllum* in the East India Islands, as well as from *C. tacamahaca*, which is indigenous to Bourbon and Madagascar. The said resin is of a brownish yellow colour, white spotted, and rather pleasant to the smell. It is scarcely used, if at all, in the present day for medicinal purposes. The exports of Pinnay oil from Madras Presidency in 1852 were 81 quarters valued at Rupees 1,167. *Lindley. Simmonds. Penny. Cyl. Com. prod. Mad. Pres.*

(141) **Calophyllum spurium** (*Choisy*) Do.

*Do.*

Cheroo-pinnay, TAM.

Tsirou-panna, MAL.

DESCR : Tree : leaves cuneate-obovate, obtuse, or emarginate : young branches square : racemes lax, as long as the leaves, axillary near the ends of the branches : sepals 2 : petals 2 : drupe oblong, 1-celled : petals yellowish.—*W. & A. prod.* I. 103.—*C. calaboides, G. Don.*—*C. apetalum, Willd.*—*C. calaba, Linn.*—*Rhoebe IV. t. 39.*—Travancore. Malabar.

USES, &c. This is a handsome looking tree somewhat similar to the former. The wood is hard and of a reddish colour. Fruit

when ripe red, and sweet ; it is eaten by the Natives in Malabar, and an oil is expressed from it for lamps. This is also used in leprosy and cutaneous affections : and in infusion, mixed with honey in scabies and rheumatism. This oil is called Pootunjee.—It grows very plentifully about Cunneepooram, a 10 or 12 miles N. W. from Trevandrum on the Quilon road, and is conspicuous from the young leaves being of a dark red colour, affording a picturesque contrast with the deep shining green of the older ones, and the rest of the foliage around. *Lindley. Pers. obs. Jury. Rep.*

(142) **Calosanthès Indica** (*Blume.*) Nat. O. BIGNONIACEÆ.

**Pentandria Monogynia** Sex: Syst :

Vanga, or Pana Woodachie marum, TAM.		Pampena, TEL.
Aulantha, MAL.		Shyona, HIND.

DESCR : Tree 40–50 feet : leaves opposite, decussate, 4–5 feet long : leaflets obliquely cordate, smooth, pointed : peduncles and pedicels scabrous : racemes terminal, erect : capsule 2 feet in length, linear : seeds surrounded with a membranaceous wing : corolla campanulate with short tube : upper lip 2-cleft : under lip 3-cleft : flowers large, outside dark purple, inside yellowish white. *Fl.* May—June.—*Don's Mill.* IV. 229.—*Bignonia Indica*, *Linn.*—*Rheede I. t.* 43–44.—*Roxb. fl. Ind.* III. 110.—*B. pentandra*, *Lour.*—*Spathodea Indica*, *Pers.*—*Wight's Icon. t.* 1337–38.—Travancore. Coronandel.

USES, &c. This is the Palega pajanelie of Rheede. It is a handsome looking tree, but the timber is soft and spongy (*Roxb*) “The bark rubbed up and mixed with wine is applied to fractures and cuts to strengthen them. Root in decoction is given in dropsy, and the young leaves are used in the treatment of ulcers.” *Rheede.*

(143) **Calotropis gigantea** (*R. Br.*) Nat. Ord. ASCLEPIADACEÆ

**Pentandria Digynia** Sex: Syst :

Gigantic Swallow-wort, ENG.		Nella-jilledoo, TEL.
Yercum, TAM.		Akund, BENG.
Yerica, MAL.		Mudar, Ark, HIND.

DESCR : Shrub 6–10 feet : leaves stem clasping, decussate, oblong-ovate, wedge shaped, bearded on the upper side at the base, smooth on the upper surface, clothed with wooly down on the un-

*Note.*—One of the species of *Calophyllum* yields the Poon Spars so much valued for masts of ships. It is a lofty tree, with straight stems, small flowers and acuminate leaves. The Poon is one of the reserved timber trees. Dr. Gibson and Dr. Cleghorn consider it to be the *C. angustifolium*, *Roxb.*

der side : segments of corolla reflexed, with revolute edges : staminateous corona 5-leaved, shorter than the gynostegium : leaflets keel-formed, circinnately recurved at the base : incurved and subtridentate at the apex : umbels sometimes compound, surrounded by involueral scales : follicles ventricose, smooth, seeds comose : flowers rose-colour and purple mixed. *Fl.* All the year.—*Don's Mill.* IV. 146.—*Asclepias gigantea*, *Willd.*—*Roxb. fl. Ind.* II. 30.—*Ericu*, *Rheede, Mal.* II. t. 31—*Wight's Icon.* t. 1278.— Peninsula in waste places. Southern provinces.

a.—Alba.—Shevet akund, *Beng.*—Belerica, *Mal*—Tella jille-doo, *Tel*—Vella-yercum, *Tam.*—flowers white, cream-coloured, inodorous.

**USES, &c.** The only difference in the two varieties of this shrub consists in the colour of the flowers. It is commonly to be found in waste ground among rubbish, ruins, and such like places. Of late years the plant has attracted much attention from the many and important uses to which its several properties can be applied. An acrid, milky juice flows from every part of the shrub when wounded, and this the Natives apply to medicinal purposes in many different ways, besides preparations of the plant itself in epilepsy, paralysis, bites of poisonous animals, as a vermifuge, &c. &c. In almost all cutaneous affections, especially in leprosy, it is frequently employed, and much attention has lately been bestowed upon its virtues in the cure of the latter dreadful complaint. The root, bark, and inspissated juice are used as powerful alteratives and purgatives. Its activity is said to be owing to a principle called Mudarine, discovered by the late Dr. Duncan of Edinburgh, which he found to possess the singular property of congealing by heat and becoming again fluid on exposure to cold. It is obtained from the tincture of Mudar, the powdered root being macerated in cold rectified spirit. After recovering the spirit by distillation, the solution is allowed to cool. A granular resin is then deposited, which is allowed to dry, in order that it may concrete. If water be then applied, the coloured solution from which the resin was deposited, dissolves, and the resin remains. This solution is called Mudarine. In taste it is very bitter, soluble in alcohol and cold water, but insoluble in sulphuric Æther, or Olive oil. By experiments made by Dr. G. Playfair, the milky juice was found to be a very efficacious medicine in leprosy, lues, tænia, herpes, dropsy, rheumatism, hectic and intermittent fevers. By the Hindoos it is employed in typhus fever, and syphilitic complaints with such success as to have earned the title of vegetable mércury. Dr. Duncan considered that it agreed

in every respect with Ipecacuanha, and that from the facility of procuring it, might eventually supersede the latter medicine. The powdered bark is given in doses of 5-6 grains twice daily. It will occasionally produce nausea and vomiting, but such symptoms are removed by a dose of castor oil. The root pulverised and made into an ointment is very efficacious in the treatment of old ulcers so common in the Western Coast.

Besides the various uses above enumerated, the root is used in the manufacture of gun-powder charcoal. With the powdered flour the Natives adulterate Safflower. The silky floss which surrounds the seeds has been woven into shawls and handkerchieves, and even paper, besides a soft kind of thread by the Natives. The milky juice mixed with common salt is given in toothache, and the juice of the young buds in earache. The leaves beat up with pepper are administered internally in cases of snake bites, and boiled in oil they are rubbed over the body in scabies. Warmed and moistened with oil they are applied as a dry fomentation in pains of the abdomen, and also form a good rubefacient. They are fatal to cattle.

But in addition to its medicinal uses, this plant is valuable from the fine strong fibres with which it abounds. To procure them the straightest branches are cut and exposed to wither for at least 24 hours : on the 2d and 3d day they are slightly beaten : the skin is then peeled and the stringy substance between the bark and the wood taken out. They are then dried in the sun. This slow process is necessarily expensive, but if the bark is steeped in water, it becomes discoloured and cutting will destroy it. Still the fibre is strong and possessed of many of the properties of Europe flax. It can be spun into the finest thread for sewing or weaving cloth. It resists moisture for a long time : from recent experiments made by Dr. Wight its tenacity compared with other Indian fibres is as follows :

Breaking weights.

Yercum, <i>Calotropis gigantea</i> .....	lbs.	552
Janapum, or Sunn, <i>Crotalaria juncea</i> ...	„	407
Kattalay, <i>Agave Americana</i>		360
Cotton, <i>Gossypium herbaceum</i> .....		346
Marool, <i>Sansevieria Zeylanica</i> .....		316
Poolay-munja, <i>Hibiscus cannabinus</i> ....		290
Coir, <i>Cocos nucifera</i> .....		224

This fibre however is too valuable for ordinary cordage and might fetch a high price in Europe. It is said by good judges to be better for cloth than cordage. It is much used in this coun-

try for bow-strings, ropes, bird-nets, and tiger-traps. It has never been cultivated as a cordage plant. It is widely diffused through the Southern provinces of the Peninsula, while in the Bellary district, and to the north it is replaced by the *C. Hamiltonii* which is equally abundant. In the Journal of the Society of Arts, it is stated "that Yercum which much resembles Belgian flax, is well calculated for prime warp yarns, and worth £100 per ton." Royle says that it yields a kind of manna called Mudar-sugar. It has been tried to employ the viscid juice as a caoutchouc and a great quantity was collected for that purpose. To prepare it the juice was evaporated in a shallow dish, either in the sun or in the shade, when dry, it may be worked up in hot water with a wooden kneader, as this process removes the acidity of the gum. It becomes immediately flexible in hot water, but is said to become hard in cold water, and is soluble in oil of turpentine, takes impressions, and will no doubt prove a valuable product, either alone or mixed with other substances. *Royle fib. plant.*

In experiments made in London Petersburg hemp bore lbs. 160—brown hemp of Bombay and Jubbulpore hemp lbs. 190, which latter was also the strength of the Yercum. Its value in England, might probably be reckoned at from £30 to £40 the ton. *Ainalie. Royle. Report on fibres. Penny. Cycl. Jury Rep. &c.*

(144) **Calotropis Hamiltonii** (*Wight.*) Do.

*Do.*

DESCR: Shrub 6-10 feet: lobes of the corolla patulous, revolute on the margin: leaflets of the crown of the stamens equalling the short depressed gynostegium, the circinnate portion short, often acuminate.—*W. & A. Icon. IV. p. 1.—Don's Mill. IV. 146.—C. procera, Ham. in Linn. Trans. (not R. Br.)—Wight's Icon. t. 1278.—Deccan. Bellary.*

USES, &c. This species differs from the former in the segments of the corolla not being reflexed. It is a widely distributed plant, very abundant in the Bellary district, but quite unknown in the Southern provinces. In uses, the two species are probably similar in every respect. The *C. procera* (R. Br.) is a Persian plant, totally different from either of the preceding ones. Five grains of the bark of the root of this species mixed with very minute doses of arsenic, is internally administered in the form of a pill in leprosy with the best effect. *Wight. Pers. obs.*

(145) **Calysaccion longifolium** (*Wight.*) N. O. CLUSIACEÆ.**Dioecia Polyandria.** *Sex: Syst:*

DESCR: Large tree: leaves opposite, oblong, coriaceous: flowers polygamous, in clusters on the thick branches below the leaves, small, white, streaked with red. *Fl.* March—April.—*J. Graham Cat.* p. 27.—*Wight's Illustr.* Vol. I. 130.—*Wight's Icon.* t. 1999.  
—Concans. Kennary jungles. W. Mysore.

USES, &c. The flower buds are collected and sold in the bazars for dyeing silk, they emit a fragrance not unlike that of violets, and are used as a perfume. The native names in those districts where the tree abounds, are Woondy and Taringee for the male trees, and Poonag for the female ones. *J. Graham Cat.*

(146) **Canarium commune** (*Linn.*) N. O. TEREBINTHACEÆ.**Polygamia Dioecia.** *Sex: Syst:*

Java Almond, ENG.

| Jungle-badam, HIND.

DESCR: Tree 50 feet: leaves unequally pinnate: leaflets 7-10 on long stalks, ovate-oblong, acute, or shortly acuminate, entire, glabrous: panicles terminal, divaricated: flowers 2-3 together, almost sessile at the extremity of the ultimate pedicels: drupe covered with a thin somewhat fleshy sarcocarp, calyx 3-lobed, externally silky: petals 3: nut very hard, 3-angled: seed solitary: flowers white. *Fl.* March—May.—*W. & A. prod.* I. 175.—*Don's Mill.* II. 85.—*C. mehenbenthene, Gærtn.*—*Amyris Zeylanica, Retz.*—*Balsamodendron Zeylanicum, Kunth.*—*Colophonia Mauritiana, D.C.*—*Bursera paniculata, Lam.*—Peninsula.

USES, &c. This fine looking tree is cultivated in the Moluccas for the sake of its fruit, which in taste is something like an Almond. A resinous fragrant gum having balsamic properties exudes from the bark. An oil is expressed from the nuts which in Java is used in lamps, and when fresh is mixed with food. Bread is also made from the nuts in the Island of Celebes. If eaten fresh, or indulged in too freely, they are apt to bring on diarrhœa. Lindley says, "the bark yields an abundance of limpid oil with a pungent turpentine smell, congealing in a buttery camphoraceous substance: it has the same properties as Balsam of Copaiba." Said to yield East Indian gum elemi. The resinous exudation is used for burning as a light, in Amboyna. *Ainslie. Lindley. Flor. Med. Pers. obs.*

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For further details, vide Cleghorn in *Pharm. Jour.* Vol. X. p. 597, and Seemann Vol. XII. p. 62.

(147) **Canarium strictum** (*Roxb.*)

Do.

*Do.*

Black Dammer tree, ENG.  
Thelly, MAL.

Congilium-marum, TAM.

DESCR: Large tree: young parts densely clothed with rusty coloured pubescence: leaflets 9-15 stalked, ovate, or ovate-lanceolate, acuminate, at length serrulate-ciliate, hairy.—*Roxb. fl. Ind.* III. 138.—*W. & A. prod.* I. 195.—Tinnevely. Malabar. Trichore forests. Pulney Hills.

USES, &c. "This is known in Malabar under the name of the black dammer-tree, in contra-distinction to the white dammer-tree (*Vateria Indica*). It is common in the Alpine forests about Courtallum in the Tinnevely district, and is there rented for the sake of its dammer. The resin is transparent, and of a deep brownish yellow or amber colour, when held between the eye and the light, but when adhering to the tree it has a bright shining black appearance." *Wight. Ill.* I. 134.

(148) **Canavalia gladiata** (*D.C.*) LEGUMINOSÆ.

**Monodelphia Decandria.** Ser: ♂♂:

Sword Bean, ENG.  
Segapoo or Vellay Thumbetten, TAM.  
Yerra or Tellay Tumbetten-kaya,  
TEL.

Suffaid or Lal Kudsumbal, HIND.  
Mekhun Shirn, BENG.

DESCR: Perennial shrub, twining: leaves pinnately trifoliolate: leaflets cordate-ovate, rather acute: calyx unequally bilabiate, upper lip largest, lower lip acutely 3-toothed: corolla papilionaceous: vexillum bicallous at the base: keel falcate at a right angle, petals distinct: racemes axillary, many flowered: flowers in pairs, or threes, purplish: legumes 5-10 times longer than broad.—*W. & A. prod.* I. 253.—*Wight's Icon.* t. 753.—*Dolichos gladius*, *Jacq.*—*D. ensiformis*, *Lour.* (not Linn.)—*Rheede VIII.* t. 44.—Cultivated in the Peninsula.

USES, &c. Of this kind of bean, there are several varieties with seeds and flowers of different colours. The variety with large white seeds and flowers is considered the most wholesome, and is extensively used at the tables of Europeans, as well as by the Natives. It is a common plant in hedges and thickets, but is cultivated for the sake of its esculent pods. *Roxb. Wight. &c.*

*Canavalia obtusifolia*, D. C. common on the sea-shore, frequently entwined with the *Ipomea pes caprae*, is also a useful plant,



binding the sand at the Adyar, the mouth of the Godavery, a  
between Quilon and Anjengo. *Mad. Jour. of Sc.* 1856. *pl.* 4.

(149) **Canna Indica** (Linn.) Nat. Ord. **MARANTACEÆ.**

**Monandria Monogynia.** Sex: Syst:

Indian Shot, ENG.

Kull-valei-munnie, TAM.

Ukkil-bar-ki-Munker, DUK.

Surbo-jay

Katoo-bala, MAL.

Krishna-tamarah, TEL.

: Small shrub, 2-3 feet : leaves large, stem clasping :  
inner limb of the corolla trifid : segments lanceolate, straight : flow-  
ers spathaceous, large, bright scarlet. *Fl.* All the year.—*Roxb. fl.*  
*Ind.* I. 1 —*C. orientalis, Roxb.*—*C. Chinensis, Willd.*—*Rheede XI.*  
*t.* 43.—Common all over India.

USES, &c. There is a variety with bright yellow flowers equal-  
ly common with the above. The leaves are large and tough and  
are sometimes used for wrapping up goods. The seeds are  
black, hard, and shining, resembling shot, for which they are  
sometimes used. The Natives make necklaces and other orna-  
ments of them. They yield a beautiful purple dye, which is said  
not to be durable. In the West Indies, the leaves are used to  
thatch houses. Nearly all the species contain starch in the root-  
stock, which renders them fit to be used as food, after being  
cooked. From the root of one kind, *C. edulis*, a nutritious ali-  
ment (*Tous les mois*) is prepared, this is peculiarly fitted for in-  
valids, not being liable to turn acid. To prepare it the starch  
is first separated by cutting the tubers in pieces and putting  
them in water, which is poured off after a time, when the starch  
subsides. A juice is got from the seeds which when heated is a  
remedy in earache. Beaten to a pulp and mixed with sugar they  
are applied to the navel in diabetes. When cattle have eaten any  
poisonous grass, which is generally discovered by the swelling of  
the abdomen, the Natives administer to them the root of this plant,  
which they break up in small pieces, boil in rice water with pepper  
and give them to drink. *Rheede. Penny Cycl. Pers. obs. &c.*

(150) **Cannabis sativa** (Linn.) Nat. Ord.

**Diœcia Pentandria.** Sex: Syst:

Common hemp plant, ENG.

Tsjeroo Cansjava, MAL.

Gunja, TAM.

Ganjah Chettoo, TEL.

Ganjar, BENG.

DESCR: Annual plant 4-6 feet, covered all over with an ex-  
tremely fine rough pubescence : stem erect, branched, green, angu-  
lar : calyx 5-parted : leaves alternate or opposite, on long petioles,  
digitate, with linear-lanceolate, sharply-serrated leaflets, tapering

to a long, smooth point: flowers in spikes, axillary, clustered, small, greenish white: males lax and drooping: females erect, leafy at the base. *Fl.* All the year.—*Roxb. fl. Ind.* III. 772.—*C. Indica, Rumph.*—*Rheede X. t.* 60.—Hills North of India. Cultivated in the Peninsula.

**USES, &c.** The earliest notice we have of the hemp plant is in the first book of Herodotus, (C. 202) who in his account of the Massagetæ, one of those barbarous nomad tribes inhabiting the shores of the Caspian Sea, and who have been supposed to be identical with the Scythians, states, "The Scythians never washed any part of their bodies excepting their heads, and accordingly purified themselves with an intoxicating kind of smoke, which seems to have been somewhat analogous to the smoke of tobacco. Having first washed and thoroughly cleansed their heads, they made a tent, by stretching thick woollen cloths over three sticks fixed in the ground and inclining towards each other. They next placed a vessel full of red-hot stones in the centre of the tent, and crept round it, whilst the tent covering was kept very close and almost air-tight. They then threw hemp seed on the hot stones; and a smoke and steam soon arose, which was denser than the hottest vapour-bath; and the intoxicated Scythians would cry and shout at the top of their voices, from the excitement and exhilaration produced by this overpowering process." And again in his fourth book (C. 74-75) the same author referring to the manner and customs of the Scythians, says, "They have a sort of hemp growing in this country very like flax, except in thickness and height; in this respect the hemp is far superior: it grows both spontaneously and from cultivation; and from it the Thracians make garments very like linen, nor would any one who is not well skilled in such matters distinguish whether they are made of flax or hemp, but a person who has never seen this hemp would think the garment was made of flax. The plant is here called Cannabis, the same word which we now use and from which the English word Canvas is derived. To the present day it grows in Northern Russia and Siberia, Tauria, the Caucasus, and Persia, and is found over the whole north of Europe. We next learn of it in Athenæus, who quoting from an ancient historian, Moschion, the description of a ship built by Hiero, King of Syracuse, and which was superintended by the famous Archimedes, says, "for ropes he provided cordage from Spain, and hemp and pitch from the river Rhone." This was Hiero II. who flourished about 270 B. C. We next hear of it in Pliny, who describes the hemp-plant as being well known to the Romans, who manufactured a kind of cordage from it. This author has minutely described in the 19th book of his *Natural History* the mode of cultivating it and its subsequent preparation in order to obtain the fibre. He further states that in those

days it had some repute in medicine especially the root and juice of the bark, but these uses are now obsolete or of little value. It is now cultivated every where in India, chiefly for the intoxicating property which resides in its leaves, and which is made into the drug called Bhang. Dr. Royle in a report published in the Transactions of the Agri-Horticultural Society of India, as well as in his 'Fibrous Plants,' has entered very fully upon the subject of Indian hemp. Much attention has of late years been paid to its cultivation, and several able reports upon this subject have been drawn up. According to Captain Huddleston, in the above Transactions, (Vol. viii. 260,) 'in the Himalayans, there are two kinds, one is wild of little or no value, but the other one is cultivated on high lands, selected for this purpose. The land is first cleared of the forest trees; owing to the accumulation of decomposed vegetable matter, no manure is required for the first year, but after that or in grounds which have not been cleared for the purpose, manure must be abundantly supplied to ensure a good crop of hemp. The plant flourishes best at elevations ranging from 4 to 7,000 feet. The seeds are put down about the end of May or beginning of June, and as soon as the young plants have risen up, the ground is carefully cleared of weeds and the plants thinned, with a distance between each of 3 or 4 inches. They are then left to grow not being fit to cut before October or November. The best hemp is procured from the male plants, and these latter are cut a month earlier than the female ones and yield a tougher and better fibre. When the stalks are cut, they are dried in the sun for several days. The seeds are then rubbed out between the hands, and this produces what is called Churrus, which is scraped off and afterwards sold. The stalks being well dried are put up in bundles, and steeped for a fortnight in water, being kept well under by pressure, then taken out, beaten with mallets and again dried. The fibre is now stripped off from the thickest end of the stalk, and then made up in twists for sale and manufactured into bags, ropes, &c.

It would appear that none of the hemp so cultivated is exported, only sufficient being grown for consumption among the inhabitants of the districts. Dr. Roxburgh was the first who turned his attention to the cultivation of the plant in the plains, and found that to ensure success the ground selected should be, if possible, of a low humid description, and that the rainy season was the best in which to sow the seeds, the intense heat of the sun being prejudicial to its favourable growth. Dr. Royle, and others consider that with ordinary care and judicious treatment the hemp plant can be successfully cultivated in the Indian plains, though the fibres yielded may not be of such fine quality as those grown in mountainous districts. When sown for the sake of its cordage, the plant should be sown thick, in order that the stem may run up to a considerable

height without branching, whereby a longer fibre is obtained, and the evaporation is less from the exclusion of air and heat, rendering the fibre of a more soft and pliable nature. The Natives on the contrary, who cultivate the Cannabis solely for the Bhang, transplant it like rice, the plants being kept about 8 or 10 feet apart. This has the effect of inducing them to branch, and the heat naturally stimulating the secretion, the intoxicating properties are increased. Although the cultivation of the hemp plant has considerably decreased in this country of late years, yet it would appear that plants requiring so little care, might be easily reared to any extent for the sake of their fibres, should the demand require it, even were they only for use in our own dominion, without the object of exportation. It has been shown in the Journal of the Asiatic Society, that the cost of hemp, as prepared by the Natives in Dheyra Dhoon, would be about £6 or £7 per ton in Calcutta, (preparation, and carriage included,) but were the cultivation increased and improved, the extra remuneration to the cultivators with other contingent charges would make the total cost at the Presidency about £17 per ton. With the introduction of Railways, this might be still further decreased. In point of strength and durability as evinced by the samples produced, there is no doubt that good Himalayan hemp is superior to Russian hemp; at any rate proof exists that it can be produced of a superior quality. On a specimen of Russian hemp being shown to a native cultivator, he remarked that were he to produce such an inferior article it would never find a sale. The exports of hemp from India to England have been increasing within the last few years, being in 1847, 185,788 cwt., in 1851, 570,923 cwt., in 1850-51, from Bombay the exports were 15,896 lbs. valued at nearly 6,000 Rupees. Its value in England is from £30 to £35 per ton.

The hemp plant, it is said has the singular property of destroying caterpillars and other insects which prey upon vegetables, for which reason it is often the custom in Europe to encircle the beds with borders of the plant which effectually keeps away all insects.

It is grown in almost all parts of Europe, especially in Russia, Italy, and England. Much uncertainty prevails among Botanists regarding the plant or plants which produce the *Gunja* and *Bhang*, whether they are different species or mere varieties. Both the above drugs are sold separate in the Indian bazars, and in external appearance are considerably different. *Gunja* has a strong aromatic and heavy odour, abounds in resin and is sold in the form of flowering stalks. *Bhang* is in the form of dried leaves, without stalk, of a dull green colour, not much odour, and only slightly resinous: its intoxicating properties are much less. *Gunja* is smoked like tobacco. *Bhang* is not smoked, but pounded up with water into a pulp so as to make a drink highly con-

ducive to health, and people accustomed to it, seldom get sick. *Bhang* grows in abundance in Tirhoot and Bhagulpoor, in the wild state. Probably *C. sativa*, and *Indica*, are identical, yielding Gunja and Bhang. In Scinde, a stimulating infusion made from the plant is much drunk among the upper classes, who imagine that it is an improver of the appetite. Gunja is frequently mixed with tobacco to render it more intoxicating. This is especially done by the Hottentots who chop the hemp leaves very fine, and smoke them together in this manner. Sometimes the leaves powdered are mixed with aromatics, and thus taken as a beverage, producing much the same effects as opium, only more agreeable. A good oil is obtained from the seeds by pressure, which is used in medicine for the preparation of emulsions. Churrus is a narcotic gum resin which has been employed by Dr. O'Shaughnessy with good results in tetanus. The exports of hemp from Madras in 3 years ending in 1854 were 23,147 cwt. valued at Rupees 95,896. *Royle. Fib. Plants. Vegetable Substances. Muller in Hooker's Journ. of Botany. Penny Cycl. Com. Prod. Mad. Pres.*

(151) **Canthium parviflorum** (*Lam.*) N. O. CINCHONACEÆ.

**Tetrandria Monogynia.** *Sex: Syst:*

Kanden-khara, MAL.  
Caray-cheddie, TAM.

Ballusoo-kura, TEL.

**DESCR:** Small shrub, usually with opposite horizontal thorns a little above the axils, sometimes unarmed: leaves opposite, ovate, often fascicled on the young shoots: racemes short, axillary, few-flowered on each side: drupe obovate, slightly emarginate, compressed, furrowed on each side: corolla with short tube, segments woolly inside or sometimes glabrous: nut 2-celled: seeds solitary: flowers small, yellow. *Fl.* April—May.—*W. & A. prod.* I. 426.—*Roxb. fl. Ind.* I. 534.—*Webera tetrandra, Willd.*—Southern Mahratta Country. Travancore. Coromandel.

**USES, &c.** This bush makes excellent fences. The Natives are very fond of the leaves in their curries. A decoction of them, as well as of the root, is given in certain stages of flux: and the latter is supposed to have anthelmintic qualities. The bark and young shoots are used in dysentery. *Ainslie.*

(152) **Capparis Heyneana** (*Wall.*) Nat Ord. CAPPARIDÆ

**Polyandria Monogynia.** *Sex: Syst:*

Chayrooka, MAL.

**DESCR:** Shrub: with small straight thorny stipules: leaves ovate or obovate, lanceolate, 3-nerved at the base, otherwise

feather-nerved : nerves prominent beneath : pedicels stoutish, axillary or terminal at the top of the shoots, solitary, 1-flowered, 3-4 times longer than the petioles : ovary oblong, densely pubescent.—*W. & A. prod.* I. 25.—*Rheede* VI. t. 57.—Cochin. Courtallum. S. Concan.

USES, &c. The leaves are applied as a remedy for rheumatic pains in the joints. A decoction is made with the flowers given as a laxative drink. *Rheede*.

(153) **Capsicum annuum** (Linn.) Nat. Ord. SOLANACEÆ.

**Pentandria Monogynia** Sex: Syst:

Spanish Pepper, ENG.  
Gach-murich, BENG.  
Mollaghai, TAM.

Merapu-kai, TEL.  
Capoo Mologoo, Mal.

DESCR : Small plant : 1-2 feet : stem herbaceous : calyx 5-toothed : corolla 5-cleft : leaves solitary, scattered, entire : peduncles extra-axillary, 1-flowered : fruit oblong, pendulous or erect, red, yellow, or variegated : flowers white. *Fl.* All the year.—*Don's Mill.* IV. 444.—*Roxb. fl. Ind.* I. 573. —Cultivated in the Peninsula.

USES, &c. This is properly a native of South America. There are several varieties of it distinguished by the shape of the fruit. Cayenne pepper is the produce of many of the smaller species of Capsicum, the fruits being dried and pounded small, and mixed with salt. They are considered wholesome for persons of phlegmatic temperament being reckoned stimulating. When gathered and eaten fresh, they are excellent promoters of digestion in tropical countries. In Europe, they are made into pickles and otherwise used for seasoning food. There are two distinct principles in the pods, one of which is an Ethereal oil and which constitutes the real stimulating principle. The bruised berries are employed as powerful rubefacients being reckoned preferable to sinapisms in sore throats. They are also given with the best results as a gargle. Mixed with Peruvian bark they are given internally in typhus and intermittent fevers and dropsy. Chillies are a principal ingredient in all curries, in India. By pouring hot vinegar upon the fruits all the essential qualities are preserved, which cannot be effected by drying them owing to their oleaginous properties. This Chilly-vinegar is an excellent stomachic, imparting a fine flavour to fish and meats. A great quantity is exported to England, especially from the West Indies, the price of Chillies in London being from 15s to 25s. the cwt. Of the different varieties, the following are the best known—*C. baccatum*, (Linn.) Birds-eye pepper.—*C. fastigiatum*, (Blume) Cayenne pepper.—*C. frutescens*, (Linn.) Chilly pepper.—

the extraordinary property of hastening the decay of muscular fibre, when the latter is exposed to its influence. A great deal has been written upon the various effects, which this secretion produces upon animal substances; and there appears to be little doubt that the juice really possesses the wonderful virtues attributed to it. I have attempted to collect all the most important remarks which have been written upon this subject, as I find there is still a tendency among scientific men to doubt the very peculiar properties of the juice. Humboldt thus writes (*Travels II. p. 52, Bohn's Ed.*) concerning it. "I may be permitted to add the result of some experiments which I attempted to make on the juice of the *Carica papaya* during my stay in the valleys of Aragua, though I was then almost destitute of chemical tests. The juice has been since examined by Vauquelin, and this celebrated chemist has very clearly recognized the albumen and caseous matter; he compares the milky sap to a substance strongly animalized,—to the blood of animals.

The younger the fruit of the *Carica*, the more milk it yields: it is even found in the germen scarcely fecundated. In proportion as the fruit ripens, the milk becomes less abundant and more aqueous. When nitric acid, diluted with four parts of water, is added drop by drop to the milk expressed from a very young fruit, a very extraordinary phenomenon appears. At the centre of each drop a gelatinous pellicle is formed, divided by greyish streaks. These streaks are simply the juice rendered more aqueous, owing to the contact of the acid having deprived it of the albumen. At the same time, the centre of the pellicles becomes opaque, and of the colour of the yolk of an egg; they enlarge as if by the prolongation of divergent fibres. The whole liquid assumes at first the appearance of an agate with milky clouds; and it seems as if organic membranes were forming under the eye of the observer. When the coagulum extends to the whole mass, the yellow spots again disappear. By agitation it becomes granular like soft cheese. The yellow colour reappears on adding a few more drops of nitric acid. After a few hours the yellow colour turns to brown. The coagulum of the papaw tree, when newly prepared, being thrown into water, softens, dissolves in part, and gives a yellowish tint to the fluid. The milk, placed in contact with water only, forms also membranes. In an instant a tremulous jelly is precipitated resembling starch. This phenomenon is particularly striking, if the water employed be heated to 40 or 60°. The jelly condenses in proportion as more water is poured upon it. It preserves a long time its whiteness, only growing yellow by the contact of a few drops of nitric acid."

Browne in his '*Natural History of Jamaica*,' p. 360, states that "water impregnated with the milky juice of this tree is thought to make all sorts of meat washed in it tender: but 8 or 10 minutes'

steeping it is said will make it so soft that it will drop in pieces from the spit before it is well roasted, or turn soon to rags in the boiling." This circumstance has been repeatedly confirmed, and moreover, that old hogs and old poultry which are fed upon the leaves and fruit, however tough the meat they afford might otherwise be, is thus rendered perfectly tender, and good if eaten as soon as killed, but that the flesh passes very soon into a state of putridity. In the third volume of the Wernerian Society's Memoirs, there is a highly interesting paper on the properties of the juice of the Papaw tree, by Dr. Holder, who witnessed its effects in the Island of Barbadoes, and writes of them as known to all the inhabitants. The juice causes a separation of the muscular fibres. Nay, the very vapour of the tree serves this purpose; hence many people suspend the joints of meat, fowls, &c. in the upper part of the tree in order to prepare them for the table. It is not known whether the power of hastening the decay of meat be attributable to the animal matter or fibrine contained in the juice of the Papaw. The resemblance between the juice of the Papaw tree and animal matter is so close, that one would be tempted to suspect some imposition, were not the evidence that it is really the juice of the tree quite unquestionable.

The tree grows very quickly and bears fruit in three years from first putting down the seed. The fruit itself is pleasant to the taste, and is much relished in this country both by Natives and Europeans. In order to render meat tender, either flesh or fowl, the simplest operation is to hang the flesh under the tree for 2 or 3 hours which is quite sufficient. I have repeatedly tried it and can testify to the true result. Another way is to wrap the meat in the leaves and then to roast it. In a tropical climate like India, where meat requires to be cooked quickly, in order to provide against rapid decomposition, (on which account it is often found very tough,) there should be one of these trees in every garden.

Wight mentions (Ill. II. 36.) that the farmers in the Isle of Barbadoes mix the milky juice with water and give to horses in order (to use their expression) "to break down the blood:" and this is a remarkable fact that the effects of this dissolving power in the fruit is not confined to muscular fibre, but acts on the circulating blood. This tree has besides several valuable medicinal properties. The milky juice is among the best vermifuges known. A single dose is sufficient for the cure. The Natives in Travancore repeatedly use it for children. In the West Indies, the powder of the seeds is used for the same purpose. The juice of the pulp of the fruit is used to destroy freckles on the skin caused by the sun's heat, and the Negroes employ the leaves to wash linen instead of soap. The Natives in this country both pickle and preserve the fruit for their curies, even in a raw state it is very palatable. *Don. Wight. Lindley. Pers. obs. &c. &c.*



(157) **Carissa carandas** (Linn.) Nat. Ord. APOCYNACEÆ.**Pentandria Monogynia.** Sex: Syst :Keelay, MAL.  
Kalaka, TAM.  
Kurumchee, BENG.Kurunda, HIND.  
Wakay, TEL.

DESCR : Shrub: leaves ovate, mucronate, or elliptic: calyx 5-toothed: corymbs terminal and axillary, few flowered: cells of fruit 4-seeded: spines always in pairs at the divisions of the branches, and at every other pair of leaves, 2-forked; peduncles terminal, usually twin: flowers pure white: berry when ripe of a shining black. *Fl.* Nearly all the year.—*Don's Mill.* IV. 104.—*Roxb. Cor. I. t. 77.*—*fl. Ind. ed. Car. II. 523.*—*Wight's Icon. t. 426.*—*Capparis carandas, Gmel.*—*Echites spinosa, Burm.*—Common everywhere.

USES, &c. This thorny shrub is very good for fences; the number and strength of the thorns rendering it impassable. The berries scarcely ripe, are employed to make tarts, preserves, and pickles. They are universally eaten by the Natives and are pleasant tasted. The shrub is found in jungles and uncultivated places. *Roxb. &c.*

(158) **Carthamus tinctorius** (Linn.) Nat. Ord. ASTERACEÆ.**Syngenesia Polygamia.** Sex: Syst :Bastard Saffron, or Safflower, ENG.  
Sendoorkum, TAM.  
Koosum, HIND.Koosumba, TEL.  
Kajecrah, BENG.

DESCR : Annual, 1-2 feet: stem erect, cylindrical, branching near the summit: leaves oval, sessile, much acuminate, somewhat spiny: heads of flowers inclosed in a roundish spiny involucre: flowers large, deep orange. *Fl. Nov.*—*Dec.*—*Roxb. fl. Ind. III. 409.*—*Crocus Indicus, Rumph.*—Peninsula (cultivated). Mysore. Bellary. Tinnevely.

USES, &c. The dried flowers which are very like Saffron in appearance have been employed to adulterate that drug. They contain a colouring principle called *Carthamite*, used by dyers and constituting the basis of rouge. The flowers are used by the Chinese to give rose, scarlet, purple, and violet colours to their silks. They are thrown into an infusion of alkali and left to macerate. The colours are afterwards drawn out by the addition of lemon juice in various proportions, or of any other vegetable acid. The

flowers are imported to England from many parts of Europe, and from Egypt for dyeing and painting; they are also used in cakes and toys, but if used too much they have purgative qualities. Poultry fatten on the seeds. An oil of a light yellow colour is procured from the seeds. It is used for lamps and for culinary purposes. The seeds contain about 28 per cent. of oil. The dried florets yield a beautiful colouring matter which attaches itself without a mordant. It is chiefly used for colouring cotton, and produces various shades of pink, rose, crimson, scarlet, &c. In Bangalore, silk is dyed with it, but the dye is fugitive and will not bear washing. An alkaline extract precipitated by an acid will give a fine rose-colour to silks or cotton. The flower is gathered and rubbed down into powder; and sold in this state. When used for dyeing it is put into a cloth and washed in cold water for a long time to remove a yellow colouring matter; it is then boiled, and yields the pink dyeing liquid. The Chinese Safflower is considered superior to the Indian one. In Assam, Dacca and Rajpootana, it is cultivated for exportation. About 300 tons are annually shipped from Calcutta, valued in England from £6 to £7-10 per cwt. That from Bombay is least esteemed. The mode of collecting the flowers and preparing the dye as practised in Europe, where the plant is much cultivated, is as follows. The moment the florets which form the compound flowers begin to open, they are gathered in succession without waiting for the whole to expand, since, when allowed to remain till fully blown, the beauty of the colour is very much faded. As the flowers are collected they are dried in the shade. This work must be carefully performed, for if gathered in wet weather, or badly dried, the colour will be much deteriorated. These flowers contain two kinds of colouring matter,—the one yellow, which is soluble in water; the other red, which being of a resinous nature, is insoluble in water, but soluble in alkaline carbonates. The first is never converted to any use, as it dyes only dull shades of colour: the other is a beautiful rose-red, capable of dyeing every shade, from the palest rose to a cherry-red. It is therefore requisite before these flowers can be made available, to separate the valueless from the valuable colour; and since the former only is soluble in water, this operation is matter of little difficulty.

The flowers are tied in a sack and laid in a trough, through which a slender stream of water is constantly flowing; while, still farther to promote the solution of the yellow colouring matter, a man in the trough treads the sack and subjects every part to the action of the water; when this flows without receiving any yellow tinge in its passage, the washing is discontinued, and the Safflower, if not wanted for immediate use, is made into cakes which are known in commerce under the name of Stripped Safflower. It is principally used for dyeing silk, producing poppy-red, bright orange, cherry, rose, or flesh-colour, according to the alterative

employed in combination. These are alum, potash, tartaric acid, or sulphuric acid. The fixed oil which the plant yields is used by the native practitioners in rheumatic and paralytic complaints. The seeds are reckoned laxative, and have been employed in dropsy, and the dried flowers in Jamaica are given in jaundice. *Vegetable Substances. Penny Cycl. Jury Rept. Simmonds. &c. &c.*

(159) **Caryota urens** (Linn.) Nat. Ord. PALMACEÆ.

**Monœcia Polyandria.** Sex: Syst:

Bastard Sago, ENG.  
Coonda-panna, TAM.

Erimpana, Schunda-pana, MAL.  
Teeroogoo, TEL.

**DESCR:** Trunk erect, 50–60 feet, slightly marked with the cicatrices of the fallen leaves: leaves pinnate: leaflets sub-alternate, sessile, obliquely præmorse, jagged with sharp points: spathe many leaved: spadix pendulous, 6–16 feet long: branches covered with innumerable sessile flowers, regularly disposed in threes, one male on each side, and a single female between them: male calyx 3-leaved: petals 3, larger than the calyx, greenish outside: female flowers on the same spadix, with the calyx and corolla as in the male: berry roundish 1-celled, size of a nutmeg, covered with thin yellow bark: nut solitary. *Fl.* December—March.—*Roxb. fl. Ind.* III. 625.—*Rheede I. t.* 11.—Malabar. Coromandel. Travancore.

**USES, &c.** Sugar and toddy wine are both prepared from this palm which is cultivated by the Natives for those uses. It may be seen in its wild state in the jungles on the Malabar Coast. Sago is prepared from the pith. The Natives value it much from its yielding such a quantity of sap. The best tree will yield 100 pints of sap in 24 hours. This sago is made into bread and boiled as a thick gruel. Seeds used by Mahomedans as beads. A fibre is prepared from this palm used for fishing lines and bow strings, which is the Indian gut of the English market. It is strong and durable, and will resist for a long time the action of water, but is liable to snap if suddenly bent or knotted. In Ceylon, the split trunks are used as rafters and are found very hard and durable. The fibre of the leaf stalks is made into ropes in that country and used for tying wild elephants. The woolly substance found at the bottom of the leaves is employed occasionally for caulking ships. According to Buchanan, the trunks of this palm are the favorite food of elephants. The fruit which is about the size of a plum, has a thin yellow rind, very acrid, and if applied to the tongue, will produce a burning sensation, hence the specific name of the plant. *Ainslie. Jury Rep. Royle. &c.*

(160) **Casearia canziala** (Wall.) Nat. Ord. SAMYDACEÆ.\* **Decandria Monogynia.** *Sex: Syst:*

Anavinga, MAL.

DESCR: Large tree: leaves alternate, bifarious, ovate oblong, serrulate, downy beneath, on short petioles: sepals 5, villous: corolla none: peduncles short: axillary, 1-flowered, surrounded at their base with villous involucre: flowers small, crowded into globular heads, pale green. *Fl. March.*—*Roxb. fl. Ind. II. 420.*—*Samyda canziala, Buch. in Wall. Cat.*—*C. ovata, Roxb.*—Goalpara. Banks of the Hoogly.

USES, &c. This tree is very bitter in all its parts: the leaves are used in medicated baths, and the pulp of the fruit is very diuretic. *Lindley.*

(161) **Casearia esculenta** (Roxb.) Do.*Do.*

Kunda-pragara, TEL.

Tsjerou-kanneli, MAL.

DESCR: Large shrub: leaves alternate, oblong, entire smooth: flowers axillary: sepals 5: corolla none: capsule sulcated, 1-celled, 3-valved, many seeded: seeds nestling in a scarlet nidus: flowers small, greenish-yellow. *Fl. March—April.*—*Roxb fl. Ind. II. 422.*—*Rheede V. t. 50.*—Circar Mountains.

USES, &c. The leaves are eaten by the Natives. The bitter roots are purgative, and as such are used by the mountaineers. *Roxb.*

(162) **Cassia absus** (Linn.) Nat. Ord. LEGUMINOSÆ.*Do.*

DESCR: Biennial, all over clammy except the leaves: branches diffuse: leaves long-petioled; leaflets 2-pair, obovate, obtuse, glabrous or slightly hairy on the under side: lower flowers axillary, solitary; upper ones forming a short raceme: pedicels short, with a bractea at their base, and minute bracteoles about the middle: stamens 5, all fertile: legume nearly straight, obliquely pointed, much compressed, sprinkled with rigid hairs, few seeded: flowers small, yellow. *Fl. All the year.*—*W. & A. prod. I. 291.*—*C. vis-*

cosa, *Roxb. in E. I. C. Mus.*—*Senna absus*, *Roxb. fl. Ind. II.* 340.—Coromandel. Bengal. \*

USES, &c. A native of Egypt as well as of India. The seeds are very bitter, somewhat aromatic, and mucilaginous. They are regarded in Egypt as the best of remedies for ophthalmia. *Lindley.*

(163) **Cassia alata** (*Linn.*)

Do.

*Do.*

Ringworm Shrub, ENG.  
Dadoo Murdun, BENG.  
Veleytie Aghatia, HIND.

Wandukolli, Seemee Aghatie, TAM.  
Seema-avisee, Metta-tamara, TEL.

DESCR: Shrub 8-12 feet: branches spreading, irregularly angled, glabrous: leaflets 8-14 pairs, obovate oblong, very obtuse, mucronate, glabrous on both sides or nearly so, the lowest pair close to the branch, and at a distance from the next pair: petiole triangular: without glands: racemes terminal: legumes long, enlarged on each side with a broad crenulated wing, about 5 inches long and 1½ broad: flowers large yellow. *Fl.* Sept.—Oct.—*W. & A. prod. I.* 287.—*Wight's Icon. t.* 253.—*C. bracteata*, *Linn.*—*C. herpetica*, *Jacq.*—*Senna alata*, *Roxb. fl. Ind. II.* 349.—Travancore. Cultivated in India.

USES, &c. The juice of the leaves mixed with lime-juice is used as a remedy for ringworm: the fresh leaves simply bruised and rubbed upon the parts will sometimes be found to remove the eruption. Roxburgh says the Hindoo doctors affirm that the plant is a cure in all poisonous bites besides cutaneous affections. The plant is said to have been introduced from the West Indies. Its large yellow flowers give it a striking appearance when in blossom. *Ainslie. Roxb.*

(164) **Cassia auriculata** (*Linn.*)

Do.

*Do.*

Averie, TAM.  
Turwer, HIND.

Tanghedu, TEL.

DESCR: Shrub: young branches, petioles and peduncles pubescent: leaflets 8-12 pair with a gland between each pair, oval, obtuse or retuse, mucronate, upper side glabrous under slightly pubescent: racemes axillary, nearly as long as the leaves, many flowered, approximated towards the ends of the branches: pedicels

compressed : sepals slightly hairy : legumes compressed, straight : flowers 3-5 together, bright yellow. *Fl.* Oct.—Dec.—*W. & A. prod.* I. 290.—*Senna auriculata*, *Roxb. fl. Ind.* II. 349.—Common in the Peninsula.

**USES, &c.** A very common but handsome shrub, the bark of which is much used by Natives for tanning leather. It is generally found growing on dry waste land. The Natives consider the powder of the dry seeds as a good remedy in certain stages of ophthalmia. The bark is astringent and used to dye leather of a buff colour. Workers in iron employ the root in tempering iron with steel. Branches are made into tooth brushes by the Natives. *Ainslie. Roxb. &c.*

(165) **Cassia elongata** (*Lem. Lisane.*) Do

*Do.*

Tinnevely Senna, ENG.  
Sona-pat, BENG.  
Soona-mukhee, HIND.

Nilaverei, TAM.  
Nela-ponna, Nela-tungadoo, TEL.

**DESCR :** Annual : stem erect, smooth : leaves narrow, equally pinnated : leaflets 4-8-pairs, lanceolate, nearly sessile, slightly mucronate, smooth above, rather downy beneath : petioles without glands : racemes axillary and terminal, erect, stalks longer than the leaves : petals bright yellow : legumes pendulous, oblong, membranous, about  $1\frac{1}{2}$  inch long, straight, tapering abruptly to the base, rounded at the apex, deep-brown, many seeded. *Fl.* Oct.—Dec.—*Lindl. flor. med.* 258.—*C. lanceolata*, *Royle Ill. t* 37, (not Forsk.) *W. & A. prod.* I. 288.—*Senna officinalis*, *Roxb. fl. Ind.* II. 346.—*Cassia senna*, *Roxb. H. B.*—Tinnevely. Guzerat.

**USES, &c.** After much difference of opinion regarding the identification of this species and its synonyms, it is now thought that though the above comes very near to the *C. lanceolata* of Forskahl, it is a distinct species. Of this plant, Graham states that it is indigenous in Guzerat, and that by experiments made upon the leaves, they were found to be equally efficacious with the best Egyptian or Italian Senna. They are far superior to the Senna brought to Bombay from Mocha, and may be obtained in any quantity. Lindley says the dried leaves form the finest Senna of commerce. Fine samples of the Tinnevely Senna were sent to the Madras Exhibition upon which the Jurors reported very favorably. It is satisfactory to remark, that Senna, grown in the Southern provinces of the Presidency is highly esteemed in

Britain, and preferred by many to all other sorts, as being both cheaper and purer. As a purgative medicine, Senna is particularly valuable, if free from adulteration. Unfortunately leaves of other plants, even poisonous ones are frequently mixed with the Senna leaves, which is the cause of griping after being taken; this is not the case when pure Senna leaves are employed, especially if the infusion be made with cold water. The concentrated infusion of Senna is prepared by druggists by pouring cold water on the leaves and letting it stand for 24 hours, carefully excluding the air. Senna contains a volatile oil and a principle called cathartine. Senna leaves are worth from 10 to 15 Rupees the cwt. at Bombay. In 1848, about 800,000 lbs. were imported into England from India. The exports of Senna from Madras in 3 years ending in 1855, and excluding 1854, were 1715 cwt. valued at Rupees 17,487. *Lindley. Penny Cycl. Simmonds. Com. prod. Mad. Pres.*

(166) **Cassia glauca** (*Lam.*)

Do.

*Do.*

Wellia-tagera, MAL.

**DESCR**: Tree: branches spreading in every direction: young ones irregularly angled: leaflets 4-6-pairs, oval, broadest at or below the middle, upper ones largest: upper side glabrous, under glaucous and slightly pubescent: racemes axillary, corymbiform, erect, crowded near the ends of the branches: flowers large, sulphur-coloured, on long pedicels: petals nearly equal: legumes drooping: linear, straight, thin, glabrous. *Fl.* July—Dec.—*W. & A. prod.* I. 289—*C. Surattensis, Burm*—*C. arborescens, Vahl.* (not Mill.)—*C. sulphurea, D. C.*—*C. cuneophylla, Koen.*—*Senna arborescens, Roxb. fl. Ind.* II. 345.—*Rheede VI. t. 9-10.*—Coromandel. Malabar. Cultivated in gardens.

**USES, &c.** Bark mixed with sugar and water is given in diabetes: and the bark and leaves mixed with Cummin seed, white sugar and milk, are administered by the Natives in virulent gonorrhœa. *Rheede.*

(167) **Cassia obtusa** (*Roxb.*)

Do.

*Do.*

Nela Tungadi, TEL.

**DESCR**: Perennial, herbaceous, procumbent: branches glabrous: leaflets 4-6 pair, obtuse, mucronate, unequal at the base, glabrous

petioles without glands : racemes axillary, few-flowered, much shorter than the leaves : legumes lunate, broad, thin, obtuse : valves protuberant and slightly angled, but scarcely crested at the seeds : flowers small, yellow. *Fl.* All the year.—*W. & A. prod.* I. 288. *Wight's Icon. t.* 757.—*C. obovata, Wall.*—*Senna obtusa, Roxb. fl. Ind.* II. 344.—Mysore.

USES, &c. This species is frequent in pastures and uncultivated ground in Mysore and the Southern provinces. The leaves are much used by the Natives as a substitute for Senna.

(168) **Cassia occidentalis** (*Linn.*) Do.

*Do.*

Payaverei, TAM.  
Payavera, MAL.

Cashanda, TEL.

DESCR: Annual, erect, branches glabrous : leaflets 3-5 pairs without glands between them, ovate lanceolate, very acute, glabrous on both sides, petiole with a large sessile gland near its tumid base : flowers longish pedicelled, upper ones forming a terminal raceme, lower ones 3-5 together on a very short axillary peduncle : legumes long when ripe, when dried surrounded with a tumid border nearly cylindrical : flowers yellow. *Fl.* All the year. *W & A. prod.* I. 290.—*Senna occidentalis, Roxb. fl. Ind.* II. 343. *C. sophera, Wall.*—*C. foetida, Roxb. E. I. C. Mus.*—Common everywhere.

USES, &c. This is very nearly allied to *C. sophera*, the best distinction is the position of the seeds. It is a native of both Indies, and is found in this country everywhere among rubbish. The leaves which are purgative have a very unpleasant odour. In the W. Indies, the root is considered diuretic and the leaves taken internally and applied externally, are given in cases of itch and other cutaneous diseases both to men, and animals. The Negroes apply the leaves smeared with grease to slight sores, as a plaster. The root is said by Martius to be beneficial in obstructions of the stomach and in incipient dropsy. *Wight. Lindley.*

(169) **Cassia sophera** (*Linn.*) Do.

*Do.*

Ponaverie, TAM.  
Pydee-tanghadu, TEL.

Ponnam-taghera, MAL.  
Kulkashinda, BENG.

DESCR: Annual, erect, branched, glabrous : leaflets 6-12 pair, lanceolate or oblong lanceolate, acute, with a single gland near



the base of the petiole : racemes terminal or axillary, few flowered : upper petal retuse : legumes long, linear, turgid : when immature and dried compressed, glabrous, many-seeded : suture keeled : seeds horizontal with cellular partitions : flowers middle-sized, yellow. *Fl.* Nov.—February—*W. & A. prod.* I. 287.—*C. esculenta*, *Roxb. in E. I. C. Mus.*—*C. purpurea*, *do.*—*C. torosa*, *Cav.*—*C. Indica*, *Poir.*—*C. Coromandeliana*, *Jacq.*—*C. sophoroides*, *Collad.*—*Senna sophera*, *Roxb. fl. Ind.* II. 347.—*Rheede* II. t. 52.—Peninsula. Bengal. Assam.

USES, &c. The smell of this plant is heavy and disagreeable. The leaves are eaten by Natives in their curries. The bark when combined in the form of infusion is given in diabetes, and the powdered seeds mixed with honey in the same. The bruised leaves and bark of the root powdered and mixed with honey are applied externally in ringworm and ulcers. Wight remarks "the legumes when unripe and dried appear quite flat, but when ripe and fresh are turgid and almost cylindrical, from not attending to which, this species has been split into many." The leaves mixed up with sugar and water are given as a drink in jaundice, also in decoction in fever and gout. *Ainslie.* *Wight.* *Rheede.*

(170) **Cassia tora** (*Linn.*) . Do.

*Do.*

Tagara, MAL.  
Tageray, Tagashay, TAM.

Tantipu, TEL.  
Chakoonda, BENG.

DESCR : Annual, with spreading branches : leaflets 3 pair, with a gland between the 1-2 lower pair, but without any between the uppermost, cuneate-obovate, obtuse, glabrous or pubescent on the under side : flowers on long pedicels, upper ones forming a short terminal raceme, lower ones 1-2 together on a short axillary peduncle : upper petals obcordate : legumes very long, sharp pointed, 4-sided, many-seeded, each suture two-grooved : flowers small, yellow. *Fl.* Oct.—Jany.—*W. & A. prod.* I. 290.—*C. obtusifolia*, *Burm. Ind.*—*C. foetida*, *Salisb.*—*C. gallinaria*, *Collad. var. a.*—*Senna tora*, *Roxb. fl. Ind.* II. 340. *var. b.*—*C. tagera*, *Lam.* (not *Linn.*)—*Senna toroides*, *Roxb. fl. Ind.* II. 341.—*Rheede, Mal.* II. t. 53.—Mysore. Peninsula.

USES, &c. The leaves which are mucilaginous and have a disagreeable odour, are given in decoction as aperients to children

who suffer from fever while teething. Fried in castor oil they are applied to ulcers: the seeds ground and mixed with butter-milk are used to allay irritation in itchy eruptions. The root rubbed with lime juice is a good remedy for ringworm. The leaves are often employed for making warm poultices to hasten the suppuration of boils. The seeds are used in preparing a blue dye, generally fixed with lime water. The leaves rubbed are applied to parts stung by bees. *Rheede. Ainslie.*

(171) **Cassyta filiformis** (*Linn.*) Nat. Ord. CASSYTHACEÆ.

**Enneandria Monogynia.** *Sex: Syst:*

Cottan, TAM.

Kotan, DUK.

Acatsja-bulli, MAL.

Akash-bullee, BENG.

Fauneh-tiga, TEL.

**DESCR:** Parasitic leafless plant: spikes lateral, ascending: calyx 3-leaved: segments very small, round: petals 3, larger than the calyx: flowers small, white, rather remote: bracteas 3-fold embracing the fructification: fruit a drupe with a 1-seeded nut, round. *Fl.* Nov.—Dec.—*Roxb. fl. Ind.* II. 314.—*Calodium* Cochin-Chinese, *Lour.*—*Rheede* VII. t. 44.—Peninsula. Bengal. Cochin.

**USES, &c.** This leafless thread-like parasite is found twisting round the branches of trees, in most parts of the Peninsula. It is put as a seasoning into butter-milk and much used for this purpose by the Brahmins in Southern India. The whole plant pulverised and mixed with dry ginger and butter is used in the cleaning of inveterate ulcers. Mixed with gingely oil it is employed in strengthening the roots of the hair. The juice of the plant mixed with sugar is occasionally applied to inflamed eyes. *Rheede. &c.*

(172) **Casuarina muricata** (*Roxb.*) N. O. CASUARINACEÆ.

**Monœcia Monandria.** *Sex: Syst:*

Casuarina, Tinian Pine, ENG.

Chowk-marum, TAM.

Serva-chettoo, TEL.

**DESCR:** Tree 60 feet high, trunk straight as in firs and pines: bark smooth, brown: branches scattered: leaves verticelled, slightly furrowed, jointed, joints ending in a cup, in which the next joint sits: stipules annular: Male aments, cylindric, terminating the leaves: scales 6 to 8 in a verticel, united at the base, pointed and woolly. Flowers, as many as divisions in the verticel: corolla, 2 opposite, boat-shaped, ciliate scales: filaments single: anthers 2-lobed. Female flowers, on a different tree. Aments oval, short peduncled: scales 6 to 8, in a verticel, with a single flower between each: corolla none: germs oblong: style dividing into two long,

recurved, garnet coloured portions : stigmas simple : strobiles oval, size of a nutmeg, armed with the sharp points of the two valved capsule : seeds small, with a large, wedgeshaped membranaceous wing.—*Roxb. fl. Ind.* III. 519

USES, &c. Native of the sand hills, on the sea side, in the province of Chittagong; and from thence sent by Dr. Buchanan to the Botanic garden, Calcutta, whence in the course of 30 years, from seed, it has been introduced all over Southern India and grows well with trunks  $3\frac{1}{2}$  feet in circumference, 4 feet above ground. Timber according to Wight is without exception, the strongest wood known for bearing cross strains. Its weight is a serious objection to its use for many purposes. A brown dye has been extracted from the bark by M. Jules Lepine of Pondicherry. *Vide Jury. Rep. Mad. Exh.*

(173) **Castanospermum Australe** (*Cunn.*) N. O. LEGUMI-

**Diadelphia Decandria.** *Sex: Syst:*

Moreton Bay Chesnut, ENG.

DESCR: Tree 30 to 40 feet high : leaves unequally pinnated, leaflets elliptical, ovate, acuminate, entire, smooth : flowers papilionaceous, bright saffron yellow : pods large, solitary and pendulous, produced by two-years-old wood, obtuse, rather inflated, containing from 3 to 5 large chestnut-like seeds. *Fl.* March—April.—*Hook Bot. Misc. Vol. I. pl 51, 52.*

USES, &c. This tree is found in the forests near Moreton Bay in Australia, and was introduced about 20 years ago—the shade afforded by the foliage is said to excel that of most Australian trees. By the Natives of that country, the seeds are eaten on all occasions : they have when roasted the flavour of a Spanish chestnut, and travellers assert that Europeans who have subsisted upon them have experienced no other unpleasant effect than a slight pain in the bowels, and that only when the seeds are eaten raw. They are however hard, astringent, and not at all better than acorns. (*Hook. Bot. Misc.*) There are several large trees in the Lalbagh, Bangalore.

(174) **Cathartocarpus fistula** (*Pers.*) Nat. O. LEGUMINOSÆ.

**Decandria Monogynia.** *Sex: Syst:*

Koannay, TAM.

Amultas, HIND.

Choonnay, MAL.

Sonaloo, BENG.

Rela, TEL.

DESCR: Tree middling size, with usually smooth bark : leaflets

about 5 pair, broadly ovate, obtuse or retuse, glabrous: petioles without glands: racemes terminal, long, lax, drooping: flowers on long pedicels: legumes cylindric, pendulous, glabrous, smooth, dark brown, nearly two feet in length: cells numerous, each containing one smooth oval shining seed immersed in black pulp: flowers bright yellow, fragrant. *Fl.* May—June.—*W. & A. prod.* I. 285.—*Cassia fistula*, *Linn.*—*Roxb. fl. Ind.* II 333.—Peninsula. Travancore forests.

**USES, &c.** This tree will readily be recognized by its beautiful long pendulous racemes of yellow flowers. The mucilaginous pulp which surrounds the seeds is considered a valuable laxative. It consists chiefly of sugar and gum. It enters into the composition of confection of Cassia. The pulp of Cassia is employed chiefly in the essence of coffee. This is gently aperient and recommended to persons of dyspeptic habits. The flowers, which are fragrant, are given in decoction in certain stomachic affections and the roots are said to be an excellent febrifuge. The bark and leaves rubbed up and mixed with oil are applied to pustules. The bark is used for tanning, but not being very astringent is of no great value. The wood is close grained, and when of large size is sufficient for the spars of native craft, and other similar uses. *Ainsl. Penny Cycl. &c.*

(175) **Cathartocarpus Roxburghii** (*D.C.*) Do.

*Do.*

**DESCR:** Tree: bark deeply cracked, branches spreading; young shoots with the petioles and peduncles pubescent: leaflets 10–20 pair, oblong, unequal-sided, obtuse or somewhat emarginate and mucronate at the apex, pubescent beneath; margins coloured and slightly thickened: petioles without glands: racemes axillary, solitary, much shorter than the leaves: legumes cylindric, very long, pendulous, glabrous, flowers rose coloured. *Fl.* October—December.—*W. & A. prod.* I. 286.—*Cassia marginata*, *Roxb.* (not Willd.) *Roxb. fl. Ind.* II. 338.—Gingie Hills.

**USES, &c.** A very beautiful and ornamental tree, something like the weeping Ash. It is of rare occurrence in the wild state. The wood is hard and handsomely marked.

(176) **Cedrela toona** (*Roxb.*) Nat. Ord. CEDRELACEÆ.**Pentandria Monogynia.** *Sex: Syst:*

Indian Mahogany, Bastard Cedar, ENG.	Toona, HIND.
Toon-marum, TAM.	Toon, BENG.

**DESCR:** Tree 60 feet: leaves abruptly pinnate: leaflets 6-12 pair, ovate lanceolate, acuminate, slightly undulated on the margins, quite entire or slightly and distinctly toothed, glabrous: calyx small, 5-cleft: petals 5-ciliated: panicles drooping, terminal: capsule oblong, 5-celled, dehiscent: flowers small, white, fragrant. *Fl.* May-June.—*W. & A. prod.* I. 124.—*Roxb. fl. Ind.* I. 635.—*Corom.* III. t. 238.—*Wight's Icon.* t. 161.—C. hexandra, *Wall. in Roxb.*—Peninsula. Bengal. Mysore.

**USES, &c.** The wood of this tree is very like Mahogany, but lighter and not so close in the grain. It is much used for furniture and various other purposes. The bark is powerfully astringent and has been found a good remedy in remittent and intermittent fevers, diarrhœa, and dysentery, and though not bitter is a fair substitute for Peruvian bark; particularly when united with powdered Bonduc nut. Powdered and applied externally it has been beneficially used in the treatment of ulcers. Rumphius states that an infusion of this bark in combination with the root of the *Acorus calamus*, (*Vussambo*) is given in Java in fevers and other complaints. Forster considered it especially useful in bilious fevers and inveterate diarrhœa arising from atony of the muscular fibre. The flowers are used in Mysore for dyeing cotton a beautiful red colour. In some places, the timber is known as the Chittagong wood, and said to be one of the most valuable woods known under that name. *Lindley. Roxb. Ainslie. &c.*

(177) **Celastrus paniculata** (*Willd.*) N. O. CELASTRACEÆ.*Do.*

Staff tree, ENG.	Bavungie, TEL.
Valuluvy, TAM.	Malkunganee, HIND.

**DESCR:** Climbing shrub, unarmed; young shoots and flower-bearing, branches pendulous: leaves alternate, broadly oval, or ovate, or obovate, usually with a sudden short acumination, slightly serrated, glabrous: racemes terminal, compound or supra-decompound, elongated, much longer than the uppermost leaves: petals 5: calyx 5-partite, lobes rounded, ciliated: capsule globose, 3-celled, 3-6 seeded: seeds with a complete arillus: flowers small,

greenish. *Fl.* March—May.—*W. & A. prod.* I. 158.—*Wight's Icon.* t. 150.—*Roxb. fl. Ind.* I. 621.—*C. nutans*, *Roxb. fl. Ind.* I. 623.—*C. Rothiana*, *Schult.*—*Ceanothus paniculatus*, *Heyn.*—*Scutia paniculata*, *Don's Mill.* II. 34.——Neilgherries. Hilly parts of the Concans. Vizagapatam. Dheyra Dhoon.

USES, &c. The seeds yield an empyreumatic oil (*Oleum nigrum*) used in lamps. It is said to be of a stimulant nature, and is used medicinally, having been found a successful remedy in beriberi. The seeds owing to a resinous principle have a very hot and biting taste. Royle says the oil is a stimulant and useful medicine. It is of a deep scarlet colour. It is administered in doses of a few drops daily in emulsion. *Royle. Malcolmson.*

(178) **Celtis orientalis** (*Linn.*) Nat. Ord. ULMACEÆ,

**Pentandria Digynia.** *Sex: Syst:*

Indian Nettle tree, ENG.  
Mallam-toddali, MAL.

Chakan Tubunna, BENG.

DESCR: Small tree, 15 feet: leaves alternate, bifarious, short petioled, ovate-cordate, acuminate, minutely serrated, scabrous above, villous underneath: flowers axillary, aggregated on short 2-cleft diverging peduncles: calyx 5-parted: male and female flowers generally on a separate tree: drupe small, succulent, black when ripe, nut wrinkled, 1-celled, 1-seeded: flowers very small, green. *Fl.* Nearly all the year.—*Wight's Icon.* t. 602.—*Roxb. fl. Ind.* II. 65.—*Sponia orientalis*, *Commers.*—*Rheede* IV. t. 40.—Coromandel. Bengal. Travancore.

USES, &c. This tree is common in most parts of India, and is in blossom the greater part of the year. It yields a gum resembling that of the cherry tree. The inner bark consisting of numerous reticulated fibres, forms a kind of natural cloth used by certain tribes in Assam. The leaves are used for polishing horns, &c. The root, bark and leaves are somewhat aromatic, and employed as a remedy for epilepsy. *Royle. Fibrous plants of India*, p. 313. *Roxb.*

(179) **Cerbera odollam** (*Gærtn.*) Nat. Ord. APOCYNACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Odallam, MAL.

Caat-aralie, TAM.

DESCR: Tree 20 feet: leaves alternate, lanceolate, approximate, shining; calyx 5-cleft, segments revolute: corymbs terminal: segments of corolla sub-falcate: stigma large and conical, 2-cleft at

Being hotter when unripe, they are then gathered and dried in the sun, when they change to a dark grey colour. The spikes are imported entire. The taste of the berries is pungent though rather faint. On the Coromandel Coast, the Natives prescribe the berries in an infusion mixed with honey for catarrhal affections. The roots are given by Natives in palsy, tetanus, and apoplexy. These and the thickest parts of the stem are cut into small pieces and dried, and much used for medical purposes. The berries have nearly the same chemical composition and properties as the black Pepper, and are said to contain piperin. *Penny Cycl. Wight. Ainslie. Lindley.*

(182) **Chickrassia tabularis** (*Ad. Juss.*) N. O. CEDRELACEÆ.

**Monodelphia Decandria.** *Sex: Syst:*

Chittagong wood, ENG.  
Aglay Marum, TAM.

Chikrassee, BENG.

**DESCR:** Tree: calyx short, 5-toothed: petals 5, erect: leaves abruptly pinnated: leaflets 5-8 pair, nearly opposite, obliquely ovate, oblong, unequal-sided, obtusely acuminate, quite entire, more or less conspicuous, hairy in the axils of the nerves beneath: panicles terminal, erect: capsule ovoid, 3-celled, 3-valved, dehiscent, septifragal: stamen-tube sub-cylindrical, rather shorter than the petals, striated, with 10 short antheriferous teeth: seeds numerous, expanding downwards into a wing, and imbricated in a double series across the cells: flowers large, greenish white. *Fl.* April—May.—*W. & A. prod.* I. 123.—*Illustr.* I. t. 76.—*Swietenia chickrassa, Roxb. fl. Ind.* II. 399.—*Plagiotaxis chickrassa, Wall.*—Chittagong. Dindigul hills.

**USES, &c.** The wood is one of those known as the Chittagong-wood, and is very close-grained, light-coloured and elegantly veined. It is employed much by cabinet makers for furniture. The bark is powerfully astringent: though not bitter. *Roxb. Jury Rep.*

(183) **Chloroxylon swietenia** (*D. C.*) N. O. CEDRELACEÆ.

**Monodelphia Decandria.** *Sex: Syst:*

Satin wood tree, ENG.  
Moodooda, Vum-maay, Kodawah-  
porsh, TAM.

Billoo, Billuda, TEL.

**DESCR:** Tree: leaves abruptly pinnate: leaflets pale-coloured, small, numerous, alternate or nearly opposite, unequal-sided: calyx

short, 5-partite : petals 5, shortly unguiculate : panicles terminal, branched : capsule oblong, 3-celled, 3-valved, dehiscent from the apex, septifragal : seeds about 4 in each cell, extending upwards into a wing : flowers small, greenish-white. *Fl.* March—April.—*W. & A. prod.* I. 123.—*Swietenia chloroxylon*, *Roxb. Cor.* I. t. 64.—*fl. Ind.* II. 400.—*Circars.* Mountainous districts of the Peninsula.

**USES, &c.** The wood, which is of a yellow or light orange colour like box, is close-grained. It is durable and will stand immersion in water. Though not a tree of large size, planks of 12 or 15 inches broad may be obtained from it. It is very suitable for picture frames, and if well varnished, will preserve its handsome appearance for a long time. Satin wood takes a fine polish, but is apt to split. It yields a wood oil. *Roxb. Jury Rep.* &c.

(184) **Chonemorpha Malabarica** (*G. Don.*) Nat. Ord.

APOCYNACEÆ.

**Pentandria Monogynia.** *Sex: Syst.*

Pal-valli, MAL.

**DESCR:** Stem scandent, slender : leaves ovate acuminate : calyx small, 5-parted : corolla funnel-shaped : racemes axillary, cymose, villous : flowers light green, reddish outside, with whitish neck : follicles stiff, narrow, rather flattened.—*Don's Mill.* IV. 76.—*Echites Malabarica*, *Lam.*—*Rheede* IX. t. 12.—Malabar.

**USES, &c.** The root mixed with dried ginger and coriander seed is used as a febrifuge. The leaves rubbed up in rice water are applied to carbuncles. *Rheede.*

(185) **Cicca disticha** (*Linn.*) Nat. Ord. EUPHORBIACEÆ.

**Monœcia Tetrandria.** *Sex: Syst:*

Country Goose-berry, ENG.  
Arunelli, TAM.  
Nelli, MAL.

Harfaroorie, HIND.  
Nubaree, BENG.

**DESCR:** Small tree : calyx 4-parted : leaves pinnate, 1-2 feet long, often flower-bearing : leaflets numerous, alternate, stalked, nearly orbicular, 1-3 inches long : petioles round, smooth, sometimes ending in a short raceme of male flowers : racemes numerous, terminal, axillary and from the old buds on the naked branches : flowers numerous, small, reddish, in globular heads : drupe 3-4



lobed, grooved, size of goose-berry. *Fl.* May.—*Lindl. flor. Med.*—*Phyllanthus longifolius*, *Jacq.*—*Roxb. fl. Ind.* III. 672.—*Averrhoa acida*, *Linn.*—*Rheede* III. t. 47-48.—Cultivated in gardens.

USES, &c. The leaves are sudorific. The round succulent fruit is subacid, and is eaten both raw and made into pickles and preserves. It is cooling and wholesome. The seeds are cathartic. The wood is of little or no value.

(186) **Cicendia hyssopifolia** (*Adans.*) N. O. GENTIANACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Chota-chiretta, HIND.  
Nella-gullie, TEL.

Vallaragu, TAM.

DESCR: Annual, herbaceous: stem quadrangular, angles slightly winged: leaves opposite, decussate, linear lanceolate, tapering at the base, embracing the stem with the short petioles, 3-nerved, paler below: calyx 5-cleft: segments margined, reflexed at the point, permanent, closely embracing the base of the mature capsule: corolla tubular, 5-cleft: segments spreading, oblique at the base, remaining attached to the capsule till the latter bursts: flowers 6-8 together in axillary, whorls, sessile, white: capsule 2-valved, 1-celled: seeds numerous, small, round, small white. *Fl.* July—Sept—*W. & A.*—*Lindl. flor. Med.* 520.—*Gentiana hyssopifolia*, *Linn.*—*Exacum hyssopifolium*, *Willd.*—*Adenema hyssopifolium*, *Don's Mill.* IV. 201.—*Gentiana verticillata*, *Linn. Zeyl.*—*Roxb. fl. Ind.* II. 71.—*Slevogtia verticillata*, *D. Don.*—*Hippion hyssopifolium*, *Spreng.*—Moist uncultivated grounds. Coromandel. Bengal. Banks of the Jumna.

USES, &c. The whole plant is very bitter. It is used as a tonic in recovery from fevers and as a substitute for gentian. It is reckoned a good stomachic, and is administered either in powder or decoction. *Wight. Lindley.*

(187) **Cicer arietinum** (*Linn.*) Nat. Ord. LEGUMINOSÆ.

**Diadelphia Decandria.** *Sex: Syst:*

Common Chick pea, Bengal gram, ENG.  
Kadala, MAL.  
Kadalay, TAM.

Sanegaloo, TEL.  
Chenna, HIND.  
Boot-kaley, Chuna, BENG.

DESCR: Herbaceous, annual plant: calyx 5-lobed, scarcely gibbous, segment as long as the aæ of the corolla: leaves unequally pinnated: leaflets ovate, serrated, equal; stipules lanceolate some-

what toothed: corolla papilionaceous: flowers axillary, bluish-purple: legumes hairy. *Fl.* Sept.—Oct.—*W. & A. prod.* I. 285.—*Roxb. fl. Ind.* III. 324.—*Wight's Icon.* t. 20.—Cultivated.

s, &c. In Mysore, the Natives spread a cloth over the young plants to catch the early dew; they then rinse it out in a vessel, when the clind becomes acid and makes a pleasant beverage mixed with water. Dr. Christie mentions that an acid (oxalic acid) exudes from all parts of the plant which is collected by the ryots and used in their curries instead of vinegar. This is a naturalized plant, a native of Europe. The seeds are eaten by the Natives in curries, cakes, &c. They are very fattening to cattle. It is said that in Europe when people walk through the fields where this plant grows, the leather of their shoes becomes spoiled by the acid. The free use of the vegetable, owing to the abundance of oxalic acid, is apt to do harm to persons suffering from calculus, as it leads to the formation of oxalate of lime in the bladder.

The exports of Bengal gram from Madras in 4 years ending in 1855 were quarters 72,195, valued at Rupees 7,49,475. *Christie in Mad. Journ.* No. 13. *Penny Cycl. J. Grah. Com. Prod. Mad. Pres.* &c.

(188) **Cinnamomum iners** (*Rein.*) Nat. Ord. LAURACEÆ.

**Enneandria Monogynia.** *Sex: Syst:*

Wild Cinnamon, ENG.  
Dar-chini, HIND.

Coat-carva, MAL.

**DESCR:** Tree 25-30 feet: leaves opposite, broad-lanceolate, 3-nerved: panicles terminal: calyx 6-cleft: flowers small, greenish-yellow. *Fl.* Jany.—March.—*J. Grah. Cat.*—*Wight's Icon.* t. 122. *Rheede I. t.* 57.—Concans. Forests in Malabar.

**USES, &c.** The seeds bruised and mixed with honey or sugar are given to children in dysentery and coughs, and combined with other ingredients in fevers. The leaves have a pleasant aromatic smell when bruised. It is supposed to have furnished the Cassia of the ancients. The Natives use the bark as a condiment in their curries. The tree is very common in the jungles on the Western Coast and Travancore forests. *J. Grah. Nimmo.*

(189) **Citrullus colocynthis** (*Schrad.*) N. O. CUCURBITACEÆ.

**Monoclea Monadelphia.** *Sex: Syst:*

Colocynth or Bitter Apple, ENG.  
Peycoomuttee, MAL.  
Peycoomuti, Varrieccoomuttie, TAM.

Putsa-kaya, TEL.  
Makhal, BENG.  
Indrawan, DUK.

Annual: stems scabrous: leaves smooth above, mu-

riate beneath with small white tubercles, many cleft, obtuse lobes: tendrils short: female flowers solitary: calyx, tube globose and hispid: fruits globose, glabrous, streaked: flowers yellow. *Fl.* July—September.—*Cucumis colocynthis*, *Linn.*—*W. & A. prod.* 1. 342.—*Roxb. fl. Ind.* III. 179.—*Wight's Icon. t.* 498.— Peninsula. Lower India in sandy situations.

**USES, &c.** The Colocynth plant is properly a native of Turkey, but has long been naturalized in India. The medullary part of the fruit freed from the rinds and seeds is alone made use of in medicine. It is very bitter to the taste. The seeds are perfectly bland and highly nutritious and constitute an important article of food in Africa, especially at the Cape of Good Hope. The extract of Colocynth is one of the most powerful and useful of cathartics. The juice of the fruit when fresh mixed with sugar is given in dropsy and is externally applied to discoloration of the skin. A bitter and poisonous principle called Colocynthin resides in the fruit, the incautious use of which has frequently proved fatal. An oil is extracted from the seeds used in lamps. Before exportation to Europe the rind is generally removed from the fruit. In medicine its chief uses are for constipation and the removal of visceral obstructions at the commencement of fevers and other inflammatory complaints. *Ainslie. Lindley flor. Med. Penny. Cycl.*

(190) **Citrus aurantium** (*Linn.*) Nat. Ord. AURANTIACEÆ.

**Polyadelphia Polyandria, Sex: Syst**

Sweet Orange, ENG.  
Kitchlee, TAM.  
Kichidie, TEL.

Naringee, HIND.  
Kumla-neboo, BENG.

**DESCR:** Tree 20-25 feet: spines axillary, solitary: young shoots glabrous: leaves oval, elongated, acute, sometimes slightly toothed: petioles more or less dilated and winged: flowers white, large: fruit orange coloured, roundish or ovoid, usually depressed: rarely terminated by a small knob: rind with convex vesicles of oil: pulp sweet. *Fl.* Feb.—*W. & A. prod.* I. 97.—*Roxb. fl. Ind.* III. 392.—*C. nobilis*, *Lour.*—*Circars. Aurungabad.* Cultivated.

**USES, &c.** It has been remarked that the Orange is a rare instance of a plant having at once beautiful foliage, fragrant flowers, and nourishing fruit. India and China are the native countries of the sweet Orange. Dr. Royle found two plants

having the characters of the Lemon and Citron, growing wild in the forest at the base of the Himalayahs. He has also stated that a kind of Lime grows in the jungles at Rungpore. The Orange is indigenous in Silhet, and on the slopes of the Neilgherry mountains.

There are several varieties cultivated in India. Those of Sautgur near Vellore are much esteemed. The Mandarin Orange has a large loose skin and is found in the Northern Circars, where it is called *Oumbla nabla*. The large China Orange (*Burra chin*) is a fine smooth skinned and sweet kind. Another species has the skin very rough and is called the Caffrie Orange, a sweet and pleasant tasted fruit. The common Orange of the country, called *Koda* in Hindoostanee and *Kitchlee* in Tamil, is of an indifferent flavour. The Hindoo Vytians think that Oranges are great purifiers of the blood and improve the appetite. The rind is well known as a useful carminative and a valuable addition to bitter infusions in cases of dyspepsia. Oranges are used to form various perfumes and pomades, and the flowers distilled produce Orange water, used in cooking, medicine, and as a perfume; but the chief use of the sweet Orange is for the dessert. Every part of the ripe fruit is used either in diet or medicine. It is invaluable in Scurvy. The rind pulverised and added to magnesia and rhubarb affords a grateful tonic to the stomach in gout and dyspepsia. The roasted pulp is an excellent application to fœtid ulcers. *Penny Cycl. Ainslie. Royle. Don.*

(191) **Citrus bergamia** (*Risso.*) Do.

*Do.*

Bergamotte or Acid Lime, ENG.  
Eroomitchee-narracum, MAL.  
Elemitchum, TAM.

Nemma Pundoo, TEL.  
Neemboo, HIND.  
Neboo, BENG.

DESCR: Shrub or small tree: leaves oblong, more or less elongated, acute or obtuse, under side somewhate pale: petioles more or less winged or margined: flowers usually small, white: fruit pale yellow, pyriform or depressed: rind with vesicles of fragrant oil: pulp more or less acid. *Fl.* April—May.—*W. & A. prod.* I. 98.—*C. limetta*, var. *D. C.*—*Citrus acida*, *Roxb. fl. Ind.* III. 390.—Peninsula. Bengal.

USES, &c. Lime juice is much used in medicine by native practitioners. They consider it to possess virtues in checking bilious vomiting, and to be refrigerant and antiseptic. It probably possesses all the virtues attributed to the Lemon. An essence much used by perfumers is prepared from the flowers and fruit. *Ainslie. Penny Cycl &c.*

(192) **Citrus decumana** (Linn.) Do.

Do.

Pumplemose or Shaddock, ENG.  
 Bamblee-naranga, MAL.  
 Bambalmas, TAM.

Bator-neboo, BENG.  
 Chakotra, HIND.

DESCR: Tree: young shoots pubescent: leaves large, oval-oblong, acute or obtuse, coriaceous: petioles long and much winged: flowers large, white: fruit pale yellow; rind with flat or convex vesicles of oil: pulpy vesicles separate from each other. *Fl.* Feb.—March.—*W. & A. prod.* I. 97.—*Roxb. fl. Ind.* III. 393.—Cultivated in India.

USES, &c. This is among the largest of known fruits, and is equally common in both Indies. Some consider it to be the forbidden fruit. It owes its trivial name to a Captain Shaddock, who first introduced the tree into the W. Indies from China. The rind is very thick, and the pulpy juice subacid. The fruit will keep longer at sea than any other of the Orange family. *G. Don. &c.*

(193) **Citrus limonum** (Risso.) Do.

Do.

Lemon, ENG.

Korna Neboo, BENG.

DESCR: Small tree: young branches flexible: leaves oval, oblong, usually toothed: petioles simply margined: flowers white tinged with red, fragrant. *Fl.* March—May.—*W. & A. prod.* I. 98.—*C. medica*, *Roxb. fl. Ind.* III. 392.—Foot of the Himalayahs.

USES, &c. The useful parts of the Lemon are the juice and the rind of the fruit, and the volatile oil of the outer rind. The juice of Lemons is analogous to that of the Orange, from which it only differs in containing more citric acid, and less syrup. The quantity of the former is indeed so great that the acid has been named from the fruit, acid of lemons, and is always prepared from it. The simple expressed juice will not keep on account of the syrup, extractive, mucilage, and water, which causes it to ferment. The yellow peel is an elegant aromatic, and is frequently employed in stomachic tinctures and infusions, and yields by expression or distillation water and essential oil, which is much used in perfumery. Fresh Lemon juice is specific in the prevention and cure of scurvy; and is also a powerful and agreeable antiseptic. Citric acid is often used with great success for allaying vomiting;

The most full information on this difficult genus is contained in Risso's work on "THE NATURAL HISTORY OF ORANGE TREES," lately translated by Lady Reid.

with this intention it is mixed with carbonate of potass, from which it expels the carbonic acid with effervescence. Lemon juice as well as Lime juice is also an ingredient in many pleasant refrigerant drinks which are of great use in allaying febrile heat and thirst. Lemon juice like other vegetable acids is given to correct acidity in the stomach, by elevating the power of that organ it not only prevents the formation of an excess of acid, but is useful in the same way in bilious and remittent fevers especially when combined with port-wine and cinchona bark. It is often employed internally to excite the nervous system after narcotic poisoning, but should not be used till all the poisonous substance has been removed from the stomach, otherwise its effects may prove the reverse. Slices of Lemon are applied with good effect to scorbutic, and other sores. *Penny Cycl. Don.*

(194) **Citrus medica** (*Linn.*)

Do.

*Do.*

Citron, ENG.  
Beg-poorra, BENG.

|  
Lcemoo, HIND.

DESCR : Shrub : young branches rigid : leaves oblong, pointed : petioles simple : flowers white, tinged with red : fruit obovoid, deeply furrowed and wrinkled, terminated by a knob : pulp very slightly acid. *Fl.* April—June.—*W. & A. prod.* I. 98.—*Roxb. fl. Ind.* III. 392.—Foot of the Himalayahs. Cultivated in the Peninsula.

USES, &c. The Citron is supposed to be the same as the Median apple which was introduced into Greece and Italy from Persia and the warmer regions of Asia at an early period. It was cultivated in Judea, and the fruit may be seen as a device on Samaritan coins. To the present day the Jews make a conserve of the fruit, which is invariably used by them in the feast of tabernacles. The ancients attached medical virtues to the fruit for Theophrastus in his history of plants says that it was an expellent of poisons. "The Median territory, and likewise Persia, has many other productions, and also the Persian or Median apple. Now, that tree has a leaf very like and almost exactly the same as that of the bay-tree, the arbutus, or the nut : and it has thorns like the prickly-pear, or black thorn, smooth but very sharp and strong : and the fruit is not good to eat, but is very fragrant, and so too are the leaves of the tree. And if any one puts one of the fruit among his clothes, it keeps them from the moth. And it is useful when any one has taken poison injurious to life : for when given in wine it produces a strong effect on the bowels, and draws out the poison. It is serviceable also in the way of making

the breath sweet : for if any one boils the inner part of the fruit in broth or in anything else, it makes his breath smell sweet." Virgil who has imitated this passage in his second Georgic mentions also that the fruit was used in asthma.

Media fert tristes succos, tardumque saporem  
 Felicis mali: quo non præsentius ullum,  
 Pocula si quando sævæ infecere novercæ,  
 Miscueruntque herbas et non innoxia verba,  
 Auxilium venit, ac membris agit atra venena,  
 Ipsa ingens arbos, faciemque simillima lauro;  
 Et, si non alium late jactaret odorem,  
 Laurus erat: folia haud ullis labentia ventis:  
 Flos ad prima tenax; animas et olentia Medi  
 Ora fovent illo, et senibus medicantur anhelis.

GEORG. II. 126—135.

The Romans used the wood of the tree in making furniture. There are three principal varieties now cultivated in Europe. The fruit itself is seldom eaten, but is generally preserved and made into confections. The outer rind yields a volatile oil. In China, there is a large variety known as the fingered Citron, so called from its lobes separating into fingers of different shapes and sizes. The rind is very fragrant from the quantity of aromatic oil which exists in it. On this account, the Chinese place it on dishes in their apartments to perfume the air. *G. Don. Penny Cycl. &c.*

(195) **Clerodendron inerme** (Gærtn.) N. O. VERBENACEÆ.

**Didynamia Angiospermia.** *Sex: Syst:*

Sangam-cupy, TAM.  
 Neer Notsjil, MAL.  
 Sung-koopie, DUK.

Nallaopie, Pisinigha, TEL.  
 Bun-joeen, BENG.

DESCR: Scandent shrub: leaves opposite, ovate, entire, shining: peduncles branched and petioles smooth: peduncles axillary: flowers pure white with greenish-white tube. *Fl.* More or less all the year. *Roxb. fl. Ind.* III. 58.—*Volkameria inermis*, Linn.—*Rheede V. t.* 49.—Peninsula.

USES, &c. This is rather an ornamental shrub, and is one of the best plants for hedges or inner fences, for which it is much used in Madras and the neighbourhood. The juice of the root and leaves is bitter, and occasionally employed by native doctors in scrofulous complaints; but Lindley remarks that the reputed virtues of these plants can scarcely be depended on, and are probably of no importance. Rheede mentions that the leaves dried, pulverised and mixed with sugar and rice are given in infusion in venereal disorders. The leaves boiled are applied to buboes, and the root boiled in oil is made into a liniment for rheumatism. *Rheede. Ainslie. Lindley.*

(196) **Clerodendron phlomoides** (*Linn.*) Do.

Do.

Taludala, TAM.

| Tekeli, Telaki, TEL.

DESCR: Shrub: leaves opposite, ovate, acuminate, bluntly serrated in the middle: young branches, petioles and peduncles tomentose: leaves glabrous above: puberulous below: panicles terminal, large: cymes trichotomous, lax: calyx half 5-cleft, segments acute: flowers white, fragrant: tube of corolla subglandular, thrice the length of the calyx. *Fl.* October—March.—*Wight's Icon. t.* 1473.—*Roxb. fl. Ind.* III. 57.—*Volkameria multiflora*, *Burm. Ind.*—Coromandel. Deccan. Bengal.

USES, &c. The bitter juice of the leaves is given as an alterative. It is a common shrub frequent in hedgerows growing from 8 to 10 feet, and when in full flower is very handsome; the panicles of white flowers, pale cream colour of the calyx and bracts contrasting with the lively green colour of the leaves. There is a variety with red flowers found on the Mountains of the Coromandel coast. *Wight. Ainslie.*

(197) **Clerodendron serratum** (*Blume.*) Do.

Do.

Tsjeru-teka, MAL.

| Chiru-dekka, TAM.

DESCR: Shrub: young shoots four-sided: leaves opposite, 5-10 inches long, and broad in proportion, serrated: panicles terminal: flowers pale-blue, with lower lip indigo-coloured. *Fl.* May—June.—*J. Grah. Cat.* 157.—*Wight's Icon. t.* 1472.—*C. macrophyllum*, *Sims.*—*Volkameria serrata*, *Linn.*—*Roxb. fl. Ind.* III. 62.—*Rheede IV. t.* 29.—Courtallum. Bombay. Cultivated in Travancore.

USES, &c. When in flower this is a very ornamental shrub, The Natives eat the leaves and flowers as vegetables, and are very fond of them. In the Northern Circars, the root is known by the name of *Gunta Baringa*. The leaves boiled with oil and butter are made into an ointment very useful as an application in cephalalgia and ophthalmia. The root mixed with ginger and coriander seed and boiled in water is given in nausea of the stomach. The seeds bruised and boiled in butter-milk are slightly aperient, and are occasionally administered in cases of dropsy. *Ainslie. Rheede. J. Grah.*



(198) **Clerodendron viscosum** (*Vent.*) Do.

Do.

Peragu, MAL.  
Bhant, BENG.

Bockada, TEL.

DESCR: Shrub: stems quadrangular: panicles large, terminal, dichotomous: flowers white tinged with red inside. *Fl.* Feb.—March.—*C. infortunatum*, *Linn.*—*Wight's Icon t.* 1471.—*J. Grah. Cat. p.* 157.—*Volkameria infortunata*, *Roxb. fl. Ind.* III. 59.—*Rheede II t.* 25.—S. Concans. Bengal. Malabar.

USES, &c. The root of this plant beaten up and mixed with wine or sour milk is administered internally in colic, and externally for drying up pustular eruptions on the skin. The juice of the leaves is taken internally as a vermifuge. *Rheede.*

(199) **Clitorea Ternatea** (*Linn.*) Nat. Ord. LEGUMINOSÆ.**Diadelphia Decandria** *Sex: Syst:*ShlongoKuspi, Shunkoo-pushpa, MAL.  
Karka Kartun, TAM.  
Nulla-ghentana, TEL.Khagin, HIND.  
Upara-jita, BENG.

DESCR: Climbing herbaceous plant: calyx 5-cleft: leaves unequally pinnated: leaflets 2-3 pairs, oval or ovate: stem pubescent, peduncles short, axillary, solitary, 1-flowered: bracteoles large, roundish: flowers resupinate: legumes slightly pubescent, 1-celled, many-seeded: flowers white or blue. *Fl.* All the year.—*W. & A. prod. I.* 205.—*Roxb. fl. Ind.* III. 321.—*Rheede VIII. t.* 38.—Common everywhere in the Peninsula.

USES, &c. This common creeper with its pretty blue or white flowers is well known. It derives its name from Ternate in the Moluccas. It is very ornamental for trellis-work, but from its quickly spreading is apt to become a little troublesome in gardens. *Rumphius* states that the flowers of the blue variety are employed in Amboyna to impart a colour to boiled rice. A blue dye is procured from the corollas but it is not permanent. The powdered seeds are a useful purgative.\* The root is used in croup:

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\* In combination with cream of Tartar, this forms a safe and efficient laxative. The Alcoholic extract is also a useful preparation. The cost is trifling as the seeds are easily procurable.

it sickens and occasions vomiting. It is also given as a laxative to children and is also diuretic. Of the two varieties that with the white flowers is said to be the best. Dr. O'Shaughnessy states that he repeatedly tried the root in order to ascertain the truth of its alleged emetic effects, but the results were not satisfactory and he could not recommend its use. *Roxb. Beng. Disp. &c.*

(200) **Cluytia collina** (*Roxb.*) Nat. Ord. EUPHORBIACEÆ.

**Polygamia Monœcia**, *Sex: Syst:*

Wodisha, TEL.

| Wodoogoo-marum, TAM.

DESCR: Small tree: leaves alternate, on short petioles, entire, smooth shining: flowers on short peduncles, male and female, occasionally together in the axils of the leaves; otherwise distinct: or on different trees. *Male flowers*; calyx 5-cleft, nearly to the base: segments semi-lanceolate, petals 5: *Female flowers*; calyx 2: corolla same as in male: styles 3-2 cleft: capsules 3-lobed, smooth, 3-celled, size of a nutmeg: seeds, round, smooth, size of a pea: flowers small, white. *Fl.* March—May.—*Roxb. fl. Ind.* III. 732.—*Cor.* II. t. 169.—Concans. Orissa.

USES, &c. The wood is of a reddish colour very hard and durable, much used at Rajahmundry. The bark, or outer crust of the capsules is said to be very poisonous. *Roxb.*

(201) **Cluytia patula** (*Roxb.*)

Do.

*Do.*

Jiguru, TEL.

DESCR: Large tree: leaves alternate, on short petioles, and much attenuated at the apex, entire, glabrous, shining: flowers small, white, nearly sessile, male and female aggregate together in the axils of the leaves: *Male flowers*, calyx 5-cleft nearly to the base: petals 5, orbicular: *Female flowers*, calyx and corolla as in male: styles 3, two-cleft: capsule size of a cherry, 3-celled, 3-valved: seed solitary. *Fl.* March—July.—*Roxb. fl. Ind.* III. 733.—*Cor.* II. t. 170.—Valleys among the Circars.

USES, &c. The timber of this tree which is of a reddish colour is both hard and durable, and might be employed for many useful purposes. It has been recommended for railway sleepers. *Roxb.*

\*(202) **Clypea Burmanni** (*W. & A.*) N.O. MENISPERMACEÆ.

**Diœcia Monadelphia** *Sex: Syst:*

Pada Valli, MAL.

DESCR: Twining shrub: leaves triangular, acuminate, mucronate, slightly cordate at the base: upper side shining and sprinkled with a few hairs: under more or less densely pubescent: calyx 6-sepalled in a double series: stamens united in a central column, dilated at the apex: corolla none: panicles narrow, elongated, longer than the leaves, axillary: branches alternate: drupe obliquely reniform: seed solitary.—*W. & A. prod.* I. 14.—*Cocculus Burmanni*, *D.C.*—*C. peltatus*, *D.C.*—*Cissampelos discolor*, *Wall.*—*Menispermum peltatum*, *Lam.*—*Rheede* VII. *t.* 49.—Malabar. Coromandel.

USES, &c. The root which is very bitter, mixed with butter-milk and cummin seeds is given in dysentery and hæmorrhoids: also in flatulency. The juice of the leaves is applied by native practitioners to inflamed eyes. *Rheede.*

(203) **Coccinia Indica** (*W. & A.*) N. O. CUCURBITACEÆ.

*Do.*

Cova, TAM.  
Covel, MAL.

Tela Koocha, BENG.  
Kai-donda, TEL.

DESCR: Climbing shrub: tendrils simple: leaves long, petioled, cordate, entire or 5-angled, or slightly 5-lobed, minutely toothed, nearly quite smooth, calyx 5-cleft: corolla campanulate, 5-cleft: stamens united at the base into a slender column: peduncles solitary, axillary, 1-flowered: fruit oblong, somewhat baccate, 10-streaked, bright red when ripe; bursting longitudinally: seeds numerous, covered with a gelatinous aril: flowers large, white. *Fl.* All the year.—*W. & A. prod.* I. 347.—*C. grandis*, *Wight's Ill.* II. *p.* 31.—*Bryonia grandis*, *Linn.*—*Momordica monadelphia*, *Roxb. fl. Ind.* III. 708.—*Rheede* VIII. *t.* 14.—Peninsula. Bengal. Common in every Hedge.

USES, &c. The ripe fruit is eaten raw by the Natives and also used in their curries. It is the favourite food of many birds. The whole plant rubbed up with the root of the Elaculli (*Euphorbia nerifolia*) and powdered cummin seed is administered by native practitioners in gonorrhœa. Leaves rubbed with butter are applied in the form of a liniment to eruptions of the skin. *Rheede.*

\* Hooker and Thomson have reduced the genus *Clypea*, and consider *Rheede's* and *Burmans's* plants distinct, *Cyclea peltata* and *Burmanni*. See *Fl. Ind.* p. 201.

(204) **Cocculus acuminatus** (D.C.) N. O. MENISPERMACEÆ.

Dioecia Hexandria Sex: Syst:

Tiga-mushadi, TEL.  
Baga-luta, HIND.Tilia-kora, BENG.  
Vully-caniram, MAL.

DESCR: Twining shrub: leaves ovate, acuminate, acute or truncate, or slightly cordate at the base, glabrous: racemes axillary, usually about half the length of the leaf: pedicels in the males one or two from each bractea, 2-3-flowered; in the females solitary, 1-flowered: petals much shorter than the filaments: flowers small, cream coloured, fragrant: drupes numerous. *Fl.* April—July.—*W. & A. prod.* I. 12.—*C. radiatus*, D. C.—*C. polycarpus*, Wall.—*Menispermum acuminatum*, Lam.—*M. polycarpum*, Roxb. *f. Ind.* III. 816.—*Tiliacora racemosa*, Colebr.—*T. acuminata*, Miers in *Hook. and Thoms. Fl. Indica*.—*Braunea menispermoides*, Willd.—*Rheede* VII. t. 3.—Peninsula. Bengal. Common in hedges. Negapatam.

USES, &c. One of the many plants used as an antidote to snake-bites. It is administered by being rubbed between two stones and mixed with water. It is used in elephantiasis and a decoction of the leaves is applied externally in ulcers and pustular eruptions. *Roxb. Rheede.* \*

(205) **Cocculus cordifolius\*** (D.C.)

Do.

Sheendie Codie, TAM.  
Citamerdo, MAL.  
Goolbayl, DUK.Gurcha, HIND.  
Tippatingay, TEL.  
Guluncha, BENG.

DESCR: Twining shrub: bark corky, slightly tubercled leaves alternate, roundish, cordate, with a broad sinus, shortly and sharply pointed, glabrous: racemes axillary or lateral: of male flowers longer than the leaves, pedicels several together: of female ones scarcely so long as the leaves, pedicels solitary: petals unguiculate: unguis linear, slightly margined upwards: limb triangular, ovate, reflexed: drupes 2-3, globose, flowers small, yellowish. *Fl.* April—July.—*W. & A. prod.* I. 12.—*Wight's Icon.* II. t. 485.—*C. convolvulaceus*, D.C.—*C. verrucosus*, Wall.—*Menisper-*

\* *Tinospora cordifolia* (Miers.) See Hooker and Thomson's *Flora Indica*, p. 184.

num cordifolium, *Willd.*—*M. glabrum*, *Klein*, (not *Koen*).—*Rheede* VII. t. 21.—Peninsula. Bengal. Assam.

USES, &c. What is known as *Guluncha* extract is procured from the stems of this plant. It is a well known specific in the bites of poisonous insects, as well as in fevers and rheumatism. The leaves beaten up and mixed with honey are applied externally to ulcers, and with oil to the head as a remedy in colds. In decoction they are given as a tonic in gout. The native practitioners use this plant extensively in a great variety of diseases especially in fevers, jaundice, and visceral obstructions. The parts chiefly used are the roots, stem, and leaves, from which a decoction called *Pachuna* is prepared. The extract called *Paho* is procured also from the stem, and is reputed of much value in urinary affections.

Dr. Wight states that from 15 to 20 grains of the powdered root constitute a good emetic, a fact also recorded by *Ainslie*, who especially remarks that it is a successful remedy in snake-bites administered in the above dose about three times a day at an interval of twenty minutes between each dose. The bitterness of the extract varies according to the season when the plant is gathered, which should be during the hot weather. The young leaves bruised and mixed with milk are used as a liniment in erysipelas. It is stated in the Bengal Dispensatory that in experiments made at the College hospital, the *Guluncha* was found to be a very useful tonic. The decoction or cold infusion was of great utility in chronic rheumatism and secondary venereal affections. Its action is decidedly diuretic and tonic in a high degree. *Bengal Disp.* " " *Rheede. Trans. Med. and Phys. Soc. Calcutta. Ainslie.*

(206) **Cocculus villosus** (*D.C.*)

Do.

*Do.*

Dier, Faridbuti, HIND.  
Doosra-tiga, TEL.

Huyr, BENG.

DESCR: Twining shrub: leaves on old branches, cordate-orbicular or hastate, 3-lobed, obtuse or retuse, mucronulate; on young shoots oblong, cordate or acute at the base, more or less downy: petals about equal to the filaments: racemes, axillary, not half the length of the leaves, of male flowers branched and corymbose, of female simple and 1-3 flowered: nuts of the drupe reniform, compressed: flowers small, greenish. *Fl.* Oct.—Dec.—*W. & A. prod.* I. 18.—*C. sepium*, *Colebr.*—*Menispermum villosum*, *Lam.* (not *Roxb.*)—*M. hirsutum*, *Linn.*—*M. myosotoides*, *Linn.*—Peninsula. Bengal. Hurdwar.

**USES, &c.** The juice of the ripe berries makes a good durable bluish-purple ink. A decoction of the fresh root mixed with pepper and goats milk is given in rheumatism, dose  $\frac{1}{2}$  a pint every morning. It is said to be laxative and sudorific. When under this treatment, the Natives make a curry of the leaves which they recommend to their patients. The leaves when agitated in water render it mucilaginous: this sweetened with sugar, and drank when fresh made to the extent of half a pint twice a day is given for the cure of gonorrhoea. If suffered to stand for a few minutes, the mucilaginous parts separate, contract, and float in the centre, leaving the water clear like Madeira wine and almost tasteless. *Roxb. Ainslie. Penny Cycl.*

(207) **Cochlospermum gossypium** (D. C.) Nat. Ord. TERNSTROEMACEÆ.

**Polyandria Monogynia.** *Sex: Syst:*

Tanakoo-marum, TAM.		Conda gongu-Chettu, TEL.
Tschema-pungee Marum, MAL.		

**DESCR:** Tree 50 feet: leaves palmately 5-lobed, lobes acuminate, quite entire, upper side becoming glabrous; under tomentose: sepals 5, oval oblong, unequal, at length reflexed, the 2-exterior ones smaller: petals 5, emarginate, unequal-sided: capsules shortly obovate: seeds numerous, somewhat reniform: flowers large, yellow paniced: peduncles somewhat jointed at the base: *Fl.* March—April.—*W. & A. prod.* I. 87.—*Bombax gossypinum*, *Linn.*—*Roxb. fl. Ind.* III. 169.—Travancore. Coromandel. Hurdwar.

**USES, &c.** The seeds are surrounded with a very soft silky cotton, apparently of little value, except for stuffing pillows, &c. The tree yields a gum called *Cutsera*, used as a substitute for Tragacanth in the North West provinces. This gummy substance exudes from every part of the tree, if broken. It is not uncommon in S. India, and is conspicuous when in flower, from its large yellow flowers. *Royle. Pers. obs*

(208) **Cocos nucifera** (Linn.) Nat. Ord. PALMACEÆ.

**Hexandria.** *Sex: Syst:*

Cocconut Palm, ENG.		Narikadam, Tenkaia, TEL.
Tongā, MAL.		Naril, HIND.
		Narikel, BENG.

**DESCR.:** Spathe axillary, cylindric, oblong, terete, bursting longitudinally: spadix erect, or nearly so, winding: male flowers numerous, approximate, sessile, above the female: calyx 3-sepalled: leaflets minute, broadly cordate, fleshy: petals 3: female flowers usually one (occasionally wanting) near the base of each

ramification of the spadix: corolla six petalled.—*Roxb. fl. Ind.* III. 614.—*Cocos nucifera*, *Gaertn.*—*Rheede I. t.* 1-4.—Shores of equinoctial Asia and its Islands.

USES, &c. The principal distribution of the Cocoa palm lies within the intertropical regions of the old and new worlds, requiring a mean temperature of 72°. It is cultivated in great abundance in the Malabar and Coromandel Coasts, Ceylon, the Laccadives, and, everywhere in the Islands of the Eastern Archipelago. It thrives best in low sandy situations, within the influence of the sea breeze, and although it grows far inland on the continent, yet whenever found in places distant from the sea, the vigour of the palm is less than if cultivated in those maritime situations, which nature has evidently determined should be its best and proper locality. Few if any products of the Vegetable Kingdom, are so valuable to man in those countries where it is indigenous as the Cocomut palm, for there is scarcely a part of the plant which cannot be applied more or less to some use by the inhabitants of tropical climates. Of these uses, the chief are the oil from the nuts, the nuts themselves, the fibres, the leaves, the stem, the toddy, &c.; but before detailing these separately, it may be as well to give a short account of the palm itself, its history, cultivation, &c. Many botanists have enumerated the manifold uses of the Cocoa-palm, and among them especially Kœmpfer and Loureiro have collected much valuable information. One of the earliest accounts is that by Marco Polo whose description of the 'Indian nuts', as he terms them, is remarkably accurate. When speaking of an Island in the Indian Archipelago, he says 'the Indian nuts also grow here, of the size of a man's head, containing an edible substance that is sweet and pleasant to the taste, and white as milk. The cavity of this pulp is filled with a liquor clear as water, cool, and better flavoured and more delicate than wine or any other kind of drink whatever.' Sir John Mandeville also mentions the 'great nut of India,' and another ancient writer has said in a paper read before the Royal Society in 1688.\* 'The Cocomut-palm is alone sufficient to build, rig, and freight a ship with bread, wine, water, oil, vinegar, sugar and other commodities. I have sailed (he adds) in vessels where the bottom and the whole cargo, hath been from the munificence of this palm tree.' Though there are several varieties enumerated by Rumphius, yet they have all been resolved into three species, of which one only is indigenous in the East, the other two being natives of Brazil. Fortunately so prolific a plant requires little care in its cultivation, and being essentially maritime thrives best in those

—*The Indian Nut alone,*  
*Is clothing, meat and trencher drink and can,*  
*Boat, Cable, Sail, Mast, Needle all in one.*

G. HERBERT.

situations where other trees would perish or decay. In Ceylon, where greater care than elsewhere is bestowed upon its cultivation, it is considered best that they should not be planted too close together. The soil should first be carefully cleared from weeds. The nut should not be carelessly placed in the earth, but in a position favorable for germination, attention to which is somewhat important to the future perfection of the tree. The nut should be quite ripe before being deposited in the ground, and the hole may be dug with the slightest labour, it being sufficient to cover only two thirds of the nut. In three or four months, the nut begins to germinate. The usual time for planting on the Western Coast is before the rains, and unless the nut is transplanted no further watering is required in the hot season, the internal moisture of the nut being sufficient for the nourishment of the young plant for nearly a year. After that time, the palm requires watering twice a day until the fourth or fifth year, the roots being carefully heaped with earth to avoid too much exposure to the air. Beyond this no further care is requisite. From the fifth to the eighth year, it begins to bear according to the situation and soil, and continues bearing from 70 to 80 years. The tree is in its highest vigour from 25 to 30 years of age and will attain the age of 100 years. In the third year of its growth, the fronds begin to fall, one new frond appearing the end of every month. These fronds fall more frequently in hot than in rainy weather. Of these there are about 28 more or less in a full grown tree. On a single tree there are about 12 branches or spadices of nuts, one bearing the dry nuts called Barutta or Cotta-tenga in Malyalum, another spadix the ripe ones called Maninga-tenga. Most of the young fruits fall off, only a few coming to perfection, but as from 10 to 15 nuts on an average are produced on one branch, a single tree may produce from 80 to 100 nuts every year. Of trees requiring so little attention, it may easily be imagined how much value is attached to their possession. In Travancore and on the Malabar Coast, the Natives draw their chief subsistence from the produce of this useful palm. The price of a full grown tree varies from  $\frac{1}{2}$  a Rupee to 5 Rupees according to circumstances. A yearly tax to the Sircar is averaged at a few Annas, so that the profit derived from a large plantation is very considerable. It will now be necessary to enumerate the various uses to which the several parts of the tree may be applied and first among them may be mentioned.

*The Oil.*—This is procured by first extracting the kernel from its outer integument or shell and boiling it in water. It is then pounded and subjected to strong pressure. This being boiled over a slow fire the oil floats on the surface. This is skimmed off as it rises and again boiled by itself. Fourteen or fifteen nuts will yield about two quarts of oil. A somewhat different practice obtains on the Malabar Coast. The kernel is divided into half pieces which are laid on shelves, and underneath is placed a



charcoal fire in order to dry them. After two or three days, they are placed on mats and kept in the sun to dry, after which they are put in a press. When the oil is well extracted by this method, a hundred nuts will yield about two gallons and a half of oil. This is the method usually resorted to, when the oil is required for exportation, the former, when merely used for culinary purposes. Of late years the application of steam, especially to a press, for the purpose of procuring the oil has been attended with the greatest advantages. Cocoanut oil in India is used chiefly for culinary purposes, burning in lamps, &c. and in Europe for the manufacture of soap and candles. It has recently been used as a substitute for fish-liver-oil, and is said to be equally efficacious in cases where the latter has been employed. It is curious that when Cocoanut oil is first manufactured, there is no unpleasant smell for the first 30 or 40 hours, but after that it acquires that rancid taste, and smell which render it so unpalatable in cookery. The oil becomes solid at about 70°. It is said that its consumption in Europe is likely to decrease, owing partly to the new means of purifying tallow, whereby candles equally good as those made from Cocoanut oil are produced. Great quantities of oil are shipped annually from Ceylon and the Western Coast, and in extraordinary seasons have realized in England £70 a ton or upwards: the average price is from £35 to £40 a ton. That which is shipped from Cochin bears generally a higher price than that from Ceylon.

The average produce of Cocoanuts, says Royle, in the whole of Malabar is estimated at from 300 to 400 millions annually, which are valued at half a million of Rupees; but in addition to this from 20,000 to 25,000 candies of Copra, or the dried kernels, are exported, valued at 400,000 Rupees. The imports into England were upwards of 85,000 cwt. in 1848, and in 1853 had increased to 164,000 cwt., the proportion from India alone being about 85,000 cwt. In the Report of the articles sent to the Madras Exhibition from Travancore it is said, "According to the last Survey in 1837, there were 5,577,401 Cocoanut trees in Travancore which would yield an estimated yearly produce of 14, 20, 70, and 130 Cocoanuts, and since that period the cultivation has been greatly increased. The annual quantity of Cocoanut oil exported from Travancore on an average of the last 5 years amounts to 1,063 candies, besides 20,000 candies of Copra and the large number of 4,900,000 Cocoanuts. The estimated number of 60,000,000 Cocoanuts and 14,467 candies of oil being annually consumed in the country. The Copra which is the dried kernels as also the Poonac is occasionally sent to Europe by itself from Ceylon and Cochin. The Poonac is the refuse of the kernel after the oil has been expressed. It is very fattening to fowls and cattle, and forms the best manure to young Cocoanut-trees, as it returns to the soil, many of the component parts which the tree has previously extracted for the formation of the fruits. For this reason,

it has been found worth while to transmit the *Poonac* to those localities, where the Coconut tree grows far inland away from the saline soil of the Coast. The Cocoa-palm abstracts from the soil chiefly silex and soda, and where these two salts are not in abundance the trees do not thrive. Common salt applied to the roots will be found very beneficial as a manure to the young trees when cultivated at any distance from the sea.

*Coir* is the fibrous rind of the nuts, with which the latter are thickly covered. There are several ways of stripping the fibres from the husk. One is by placing a stake or iron spike in the ground and by striking the nut on the point, the fibres are easily separated. The husks are first separated from the nuts, and then placed in salt or brackish water for about 12 or 18 months, they are then scraped and cleaned for use. There exists however no necessity for steeping the husk so long in water, it having been found that a shorter time is sufficient for the purpose. In the Jury Report of the Madras Exhibition, we find, "It has lately been proved that the fibre from the husk of the ripe fruit is greatly improved in quality and appearance, by beating, washing, and soaking, and that the old method of steeping in salt water for 18 months or 2 years is quite unnecessary, and that it produces a harsher and dirtier coir. The tannin which this substance contains prevents the fibre from rotting, but most of the coir of commerce is a dirty harsh produce very different from many of the clean and dyed samples exhibited, which are suited to a superior class of manufactures, as fine mats and furniture brushes."\* Coir is applied to many uses, for stuffing couches and pillows, for cordage, saddles, &c. Large quantities are annually shipped to Europe where it is manufactured into brushes, mats, and carpets; and even hats and bonnets, the latter attracted much attention at the great Exhibition in London. The fibre is rather difficult to twist, still it is made into ropes for ordinary purposes in shipping. The character of Coir, says Royle, has long been established in the East, and is now well known in Europe as one of the best materials for cables, on account of its strength, lightness and elasticity. These cables are further valuable being durable, particularly when wetted with saltwater. Numerous instances have been related of ships furnished with cables of this light, buoyant, and elastic material, riding out a storm in security, while stronger made, though less elastic ropes of other vessels have snapped in two, and even when chain cables have given way. Indeed until chain cables were so largely introduced all the ships navigating the Indian seas were furnished with Coir cables. Coir cordage in Dr. Wight's experiments broke at 224 lbs. weight. In 1858, the imports into England from Ceylon and the Malabar Coast alone amounted to 164,176 cwt., and from Cochin alone, of coir, yarn, rope, junk and fibres about 8,000 tons are annually exported.

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\* Reports of the Juries Madras Exhibition, 1855, p. 57.

The mode of extracting the toddy is the same as that used in other palms (see *Borassus*.) Spirit distilled from the toddy is called arrack. Good vinegar is also made from it, particularly at Mahè. One hundred gallons of toddy yield 25 of arrack. To procure the sugar or jaggery, the fresh toddy is boiled down over a slow fire, when the syrup is further evaporated to the brown coarse sagar. This jaggery is mixed with chunam for making a strong cement, enabling it to resist great heat, and to take a fine polish. The toddy is called Tenna-kulloo and Narillie in Dukhanie. If taken before sunrise it is very refreshing and delicious. The native doctors recommend it in consumption, and it is said that if regularly taken, it is good for delicate persons suffering from habitual constipation.

The milk of the Coccoanut is said to be a purifier of the blood, and when old, to be slightly aperient. The kernels scraped and rubbed up with water may be used as milk which it much resembles. The Vytians prepare plasters from the oil for softening the hair. The water of the nuts is used by the bricklayers in preparing a fine white-wash, also in making the best and purest castor-oil, a certain portion of it being mixed with the water in which the seeds are boiled. The shell when burnt yields a black paint, which in fine powder and mixed with chunam, is used for colouring walls of houses. The soft downy substance found at the bottom of the fronds is a good styptic for wounds, leech-bites, &c. It is called in *Tamil*, Tennamarruttoo punjee, and in *Malayalum*, Tenzam-pooppa. The web-like substance which surrounds the Coccoa-palm at those parts where the branches expand is called Panaday in *Tamil*, Konjatty in *Malayalum*, and it is used by the toddy drawers to strain the toddy through. In Ceylon it is manufactured into a coarse kind of cloth for bags, coverings, &c., and from these bags again a coarse kind of paper is made. The Coccoanut cabbage is the terminal bud found at the summit of the tree, but to procure it the tree must be destroyed. It makes an excellent pickle and may also be used as a vegetable.

In addition to the above uses, the leaves are employed for thatching houses, especially in Malabar, and the stems for rafters of houses, bridges, beams, small boats, and where the wood is thick is even used for picture frames and articles of furniture. It is known in Europe as the Porcupine wood and has a pretty mottled appearance. The nuts dried and polished are made into drinking cups, spoons, baskets, and a variety of fanciful ornaments. The midribs of the leaves are used for paddles. In medicine the roots in decoction mixed with water and dried ginger are given in fevers, and the juice from the tender branches mixed with honey is applied as a cooling application to the eyes. The juice of the flowers mixed with cows milk is said to be beneficial in gonorrhœa. A peculiar resin flows from the bark of a brownish colour used in

medicine. The Natives chew the roots as they do the Aneca-nut with the Betle-leaf. Abundance of potash is yielded by the ashes of the leaves. Cocoanuts are occasionally fixed on stakes in the public roads in India for the purpose of giving light, for which they are well adapted from their fibrous covering without and oily substance within. Marine soap, or Cocoanut oil soap so useful for washing linen in salt water is made of soda, Cocoanut lard and water. So great and so varied are the uses of the Cocoa palm, fully calculated to realize the old saying. "Be kind to your trees and they will be kind to you." *Royle. fibr. Plants. Simmonds. Ainslie. Penny Cycl. Rheede. Pers. obs. &c.*

(209) **Coffea Arabica** (*Linn.*) Nat. Ord. CINCHONACEÆ.

Sex: Syst :

Coffee, ENG.  
Capié-côttay, TAM.  
Bun, kahwa, ARAB.

Kawa, MAL.  
Kawa, Coffee, HIND.

DESCR: Large erect bush, quite smooth in every part: leaves oblong-lanceolate, acuminate, shining on the upper side, wavy, deep green above, paler below: stipules subulate, undivided: peduncles axillary, short, clustered: corolla white, tubular, sweet scented, with a spreading 5-cleft limb: anthers protruded: berries oval, deep-purple, succulent, 2-seeded.—*Bot. Mag. t. 1303.—D.C. prod. IV. 499.—W. & A. prod. I. p. 435.—Wight's Icon. I. t. 53.—*Low Mountains of Arabia. Neilgherries. Shevaroy Hills. &c.

USES, &c. The albumen of the seeds constitutes the aromatic Coffee of commerce, which when dried and roasted, is an agreeable tonic and stimulant. It has the power of removing drowsiness and of retarding the access of sleep for some hours, and is prescribed medicinally in various derangements of the viscera and in nervous headaches. In small doses, a strong decoction of Coffee is capable of arresting diarrhoea. It is often given to disguise the taste of nauseous medicines, particularly Quinine, Senna and Epsom Salts; a strong decoction of Coffee, (an ounce to a cup,) has been found of great service in allaying the severity of a paroxysm of *spasmodic asthma*. In poisoning by *Opium* or other narcotic poisons a strong infusion of Coffee, without milk or sugar, is an effectual stimulant. It is also advantageously given in the depression after drunkenness. Many good samples were exhibited at Madras from various districts, (Nuggur, Wynaad, Pulney hills, &c.,) and some of very superior quality from the virgin forest land of the Western Ghats; the cultivation of this staple is now extending in a surprising manner, and becoming of much importance. It has been pursued with great

For varieties of Cocoanut, see *B. Seemann's Popular History of the Palms*, p. 165. For method of collecting toddy and implements employed, see *Kew Miscellany*, Vol. II.

success by private individuals, upwards of 30 Europeans have settled within the last few years, in the Wynaad alone. Several species of the genus *Coffea*, (*alpestris*, *grumelioides* and *Wightiana*,) are indigenous to the Neilgherry hills. The value of commercial Coffee depends upon the texture and form of the berry, the colour and flavour. In 1853-54, were exported from Madras, 72,05,996 lbs. of Coffee, valued at Rupees 7,15,562. *Lind. flor. Med. Waring Ther. Jury Rep. Mad. Exhib.*

(210) **Coldenia procumbens** (Linn.) N. O. EHRETIACEÆ.

**Pentandria Monogynia.** Sex: Syst:

Seru-padi, TAM.  
Tripungkhi, HIND.

Hamsa-padu, TEL.

**DESCR:** Small annual, spreading: leaves cuneiform, petiolate, having one of the sides shorter than the other, coarsely serrated, plicate: calyx 5-parted: corolla funnel-shaped, the throat wide: stem villous: leaves beset with adpressed hairs above, villous beneath: flowers axillary, usually solitary, sessile, white: carpels 4, wrinkled, one-celled. *Fl.* July—August.—*Don's Mill.* IV. 365.—*Roxb. fl. Ind. ed. Car.* I. 468.—Peninsula. Bengal.

**USES, &c.** This small plant is usually found in the dry paddy-fields during the cold season. The dried plants mixed with Fenu-greek seeds and rubbed to a fine powder are used to promote the suppuration of boils. *Ainslie. Roxb.*

(211) **Coleus Amboinicus** (Lour.) Nat. Ord. LAMIACEÆ.

**Didynamia Gymnospermia.** Sex: Syst:

Country Borage, ENG.

Pathoor-choor, BENG.

**DESCR:** Shrub: 2-3 feet: branches tomentosely pubescent, or hispid: leaves petiolate, broad, ovate, crenated, rounded at the base, or cuneate, very thick, hispid on both surfaces, or clothed with white villi, very fragrant, floral leaves hardly equal in length to the calyx: racemes simple: whorls 20-30 flowered or more: calyx tomentose: tube of corolla about twice as long as the calyx, defracted at the middle: throat dilated: lower lip a little dilated, boat-shaped: flowers smallish, pale blue, very aromatic. *Fl.* April.—*Don's Mill.* IV. 682.—*C. crassifolius*, *Benth.*—*C. aromaticus*, *Benth.*—*Plectranthus aromaticus*, *Roxb. fl. Ind.* III. 22.—Peninsula. Common in gardens.

use of dried Coffee leaves in Sumatra, see *Pharmaceutical Journal*, Vols. XII, XIV. *passim.*

USES, &c. Every part of this plant is delightfully fragrant. The leaves are frequently eaten with bread and butter, or bruised and mixed with various articles of food, drink, or medicine. *Roxb.*

(212) **Coleus barbatus** (*Benth.*) Do.

*Do.*

DESCR: Stem 2-3 feet, shrubby at the base, tomentosely hispid: leaves ovate, crenated, narrowed at the base, clothed with soft tomentum when young: floral leaves membranous, broad ovate, acuminate, comose at the tops of the racemes, deciduous: racemes simple: whorls 4-flowered, distant: calyx hispid: upper tooth ovate, lower ones lanceolate, acute, nearly equal: lower lips of corolla large, stipitate, boat-shaped: corolla beset with white hairs: flowers small, light purple. *Fl.* January—March.—*Wight's Icon. t.* 1432.—*Don's Mill.* VI. 682.—*Plectranthus barbatus, Andr. Bot. Rep.*—*P.* Forskahli, *Willd.*—*P.* comosus, *Sims.*—*P.* asper, *Spreng.*—*P.* monadelphus, *Roxb. fl. Ind.* III. 22.—*Orenium asperum, Roth.*—Bangalore. Dindigul. Goozerat. Nepal.

USES, &c. The whole plant possesses a strong but not disagreeable smell. It is commonly cultivated in native gardens at Bombay for the roots which are pickled. *Roxb. Graham.*

(213) **Colocasia antiquorum** (*Schott.*) N. O. ARACEÆ.

**Monœcia Polyandria.** *Sex: Syst:*

Chama, TEL.  
Kuchoo, BENG.

Shema Kilangu, TAM.

DESCR: Stemless: leaves peltate, ovate, repand, semibifid at the base: scape shorter than the petioles: spathe much longer than the spadix, cylindric, erect: club sub-cylindrical, length of the antheriferous part of the receptacle: anthers many celled. *Fl.* September—November.—*Roxb. fl. Ind.* III. 494.—*Wight's Icon. t.* 786.—*Arum colocasia, Linn.*—*A. Ægyptiacum, Rumph.*—Cultivated in the Peninsula. Tanjore in wet marshy grounds.

USES, &c. There are two varieties cultivated in lower Bengal. They are planted about the beginning of the rainy season. Of the *Kala-kuchoo*, the leaves and petioles are eaten by the Natives. Some varieties are seldom, if ever eaten. *Roxb.*

(214) **Colocasia Indica** (Roxb.) Do.

Do.

Man-kutchoo, BENG.

DESCR: Caulescent: erect: leaves cordate, base bifid, lobes approximate and rounded: spadix cylindrical, equalling the linear boat-shaped spathe: club cylindric, longer than the rest of the spadix. *Fl.* Sept.—Nov.—*Roxb. fl. Ind.* III. 498.—*Wight's Icon.* t. 794.—*Arum Indicum*, *Lour.*—Southern Provinces.

USES, &c. Cultivated in Bengal for its esculent stems and small pendulous tubers which are eaten by all classes of Natives. There is a variety with dark coloured petioles, but they seldom (either of them) produce ripe seeds. *Roxb.*

(215) **Colocasia nymphœefolia** (Roxb.) Do.

Do.

Sar-kuchoo, BENG.

Welli-ela, MAL.

DESCR: Stemless: leaves peltate, ovate, repand, semibifid at the base: scape shorter than the petioles: spathe much longer than the spadix, subcylindrical, erect: club slender, scarcely half the length of the antheriferous part of the receptacle: anther many celled. *Fl.* Oct.—Dec.—*Roxb. fl. Ind.* III. 495.—*Wight's Icon.* t. 786.—*Arum nymphœifolium*, *Roxb.*—*Caladium nymphœifolium*, *Vent.*—*Rheede.* XI. t. 22.—Both Concans. Bengal.

USES, &c. The fruit rubbed up with eggs of the red ant are applied to parts affected with numbness. The tubers are given as a remedy in gonorrhœa. This species is common in Malabar, where it forms part of the food of the inhabitants. *Rheede. Wight.*

(216) **Conocarpus acuminat**

**Decandria Monogynia.** *Sex: Syst:*

Pachi-man, TEL.

DESCR: Large tree: limb of calyx 5-cleft: petals none: leaves without glands, nearly opposite, oval or oblong-lanceolate, entire, acute: when young, pubescent, adult ones glabrous: peduncles simple with one head of flowers: flowers small, pale greenish. *Fl.* Jan.—Feb.—*W. & A. prod.* I. 316.—*Roxb. fl. Ind.* II. 448.—

*Andersonia acuminata*, *Roxb. in. E. I. C. Mus.*—*A. lanceolata*, *Rottl.*—*Anogeissus acuminatus*, *Wall.*—Circar Mountains.

USES, &c. The timber of this tree is very hard and durable, almost equalling teak especially if kept dried: but decays if exposed to water. It is good for house building, though it is difficult to procure straight logs of it. *Roxb.*

(217) **Conocarpus latifolius** (*Roxb.*) Do.

*Do.*

Siri-mann, TEL.

| Vallay-naga, TAM.

DESCR: Tree: leaves alternate or nearly opposite, quite entire: limbs of calyx 5-cleft: petals none: leaves without glands, elliptical or obovate, obtuse, emarginate, glabrous: peduncles branched, bearing several heads of flowers sometimes thickly aggregated: fruit coriaceous, somewhat scaly, globular: seed solitary: flowers small, greenish pale. *Fl.* Jan.—Feb.—*W. & A. prod.* I. 316.—*Wight's Icon.* t. 994.—*Roxb. fl. Ind.* II. 442.—*Andersonia altissima*, *Roxb. in. E. I. C. Mus.*—*Anogeissus latifolius*, *Wall.*—Valleys of the Concan rivers. Deccan Hills. Dheyra Dhoon.

USES, &c. This is a large tree found on the Circar mountains, and other parts of the Peninsula. The timber is good, and if kept dry is said to be very durable. It is especially esteemed for many economical purposes. Towards the centre it is of a chocolate colour, and is then exceedingly durable. For house and ship building the Natives reckon it superior to every other sort, except teak and perhaps one or two more. *Roxb.*

(218) **Convolvulus arvensis** (*Linn.*) N. O. CONVOLVULACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Corn-bindweed, ENG.

DESCR: Twining: stems angular, striated: leaves sagittate, smooth, somewhat auricled: peduncles usually 1-flowered, bibracteate about the middle: sepals ovate-roundish: flowers large, deep rose-colored, fragrant. *Fl.* May—August.—*Don's Mill.* IV. 288.—*C. Chinensis*, *Ker.*—*C. Malcolmi*, *Roxb. fl. Ind. ed. Car.* II. 55.—Deccan.

USES, &c. This is supposed to be a mere variety of the common Bindweed of England. It is said to possess purgative qualities. It is commonly to be met with on the black soil of the Deccan. *Gibson.*



(219) **Corchorus capsularis** (Linn.) Nat. Ord. TILIACEÆ.

Polyandria Monogynia. Sex: Syst:

Capsular Corchorus, ENG.

| Ghinalita pat, BENG.

DESCR: Annual, 5-10 feet : calyx deeply 5-cleft : petals 5 : leaves alternate, oblong acuminate, serrated, two lower serratures terminating in narrow filaments : peduncles short : flowers whitish, yellow in clusters opposite the leaves : capsules globose, truncated, wrinkled and muricated, 5-celled : seeds few in each cell, without transverse partitions : in addition to the 5 partite cells there are other 5 alternating, smaller and empty. *Fl.* June.—July.—*W. & A. prod.* I. 73.—*Wight's Icon.* t. 311.—*Royle fib. plants.*—*Roxb. fl. Ind.* II. 581.—Peninsula. Bengal. Cultivated.

USES, &c. Extensively cultivated for the sake of its fibres, especially in Bengal. The present species may be distinguished from all others by the capsules being globular instead of cylindrical. The cultivation and manufacture has been described in the excellent work of Dr. Royle on the Fibrous Plants of India. According to his statement, the seeds are sown in April or May when there is a probability of a small quantity of rain. In July or August the flowers have passed. When the plants are ripe, they being then from 3 to 12 feet in height, they are cut down close to the roots when the tops are clipped off, and fifty or a hundred are tied together. Several of these bundles are placed in shallow water, with pressure above to cause them to sink. In this position they remain eight or ten days. When the bark separates and the stalk and fibres become softened, they are taken up and untied ; they are then broken off two feet from the bottom, the bark is held in both hands and the stalks are taken off. The fibres are then exposed to the sun to be dried, and after being cleaned are considered fit for the market. These fibres are soft and silky and may be used as a substitute for flax ; but although the plant is one of rapid growth and easy culture the fibres are very perishable, and it is owing to this circumstance that they lose much of their value. The attention of practical men has been turned to remedy so serious a defect in one of the most useful products of Bengal. Could the fibres be prepared without the lengthened immersion in water, whereby they are subsequently liable to rot and decay, the difficulty might be partially if not wholly overcome. So careful is the manufacturer obliged to be, that during the time the plants are in the water, he is forced to examine them daily in order to guard against undue decomposition, and even after they are removed from the water, the lower part of the stem, nearest the root which the hand

has previously held are so contaminated that they are cut off as useless. These fragments however in themselves have their use, they are shipped off to America from Calcutta for the use of paper-making, preparing bags and such like purposes, and even made into whiskey. The great care of watching the immersed Jute until it almost putrefies is to preserve the fine silky character so much valued in fibre intended for export. For consumption in this country such care is not taken, therefore the article is stronger and more durable. The trade is very considerable. Beside the gunny bags made from the fibrous part or bark; the stems of the plant themselves are used for charcoal for gun-powder, fences, basket work, fuel. The exports of Jute from Madras in 1855 were 828 cwt. valued at Rs. 2,781. *Royle. Com. Prod. Mad. Pres.*

(220) **Corchorus olitorius** (Linn.) Do.

Do.

Jew's Mallow, ENG.  
Singin janascha, HIND.

Blunjee Pat, BENG.

DESCR: Annual, 5-6 feet erect: leaves alternate, ovate-acuminated, serrated, the two lower serratures terminated by a slender filament: peduncles 1-2 flowered: calyx 5-sepalled: petals 5: capsules nearly cylindrical, 10-ribbed, 5-celled, 5-valved: seeds numerous with nearly perfect transverse septa: flowers small, yellow: *Fl.* July—August.—*W. & A. prod.* I. 73.—*Royle. fib. Plants.*—*Roxb. fl. Ind.* II. 581.—*C. decem-angularis*, *Roxb.*—Peninsula. Bengal. Cultivated.

USES, &c. Rauwolf says this plant is sown in great quantities in the neighbourhood of Aleppo as a pot herb, the Jews boiling the leaves to eat with their meat. Leaves and tender shoots are also eaten by the Natives. It is cultivated in Bengal for the fibres of its bark, which like those of *C. capsularis* are employed for making a coarse kind of cloth, known as gunny, as well as cordage for agricultural purposes, boats, and even paper. Roxburgh says there is a wild variety called *Bun pat* or *Wild pat*; an account of the manufacture of paper from this plant at Dinajepore, may be found in Dr. Buchanan's survey of the lower provinces of the Bengal Presidency. This plant requires much longer steeping in water than hemp, a fortnight or 3 weeks being scarcely sufficient for its maceration. The fibre is long and fine and might well be substituted for flax. The medicinal uses to which it is applied are given by Ainslie, who states that in Behar the dried plant being toasted and pulverised is employed in visceral obstructions. *Roxb. Ainslie. Royle.*

(221) **Cordia angustifolia** (Roxb.) Nat. Ord. CORDIACEÆ.

Pentandria Monogynia. Sex: Syst.

Narrow-leaved Sepistan, ENG.  
Goond, HIND.Narroovalli, TAM.  
Nukkeru, TEL.

DESCR: Tree 12-15 feet: leaves nearly opposite, lanceolate obtuse or emarginate, scabrous: calyx campanulate, obscurely 4-toothed: corolla-tube longer than the calyx: limb 4-partite with revolute edges: panicles terminal, corymbose: stamens four: flowers small, white: drupe round, smooth, yellow: nut surrounded with mucilaginous pulp. *Fl. May.*—*Roxb. fl. Ind. ed. Car.* II. 338.—*Don's Mill.* IV. 379.—*C. reticulata*, *Roth.* (not Vahl.)—Mysore. Bombay. Deccan.

USES, &c. This tree was originally brought to notice by Dr. Buchanan who found it in Mysore. A fibre is prepared from the bark which is made into ropes, and these are used in Malabar for dragging timber from the forests. It is very strong and by experiments made at Cannanore, supported a weight of more than 600 lbs. The fruit is eatable. Dr. Gibson mentions that the wood is very tough, and useful for poles of carriages, and such like purposes.

(222) **Cordia latifolia** (Roxb.)

Do.

Do.

Broad-leaved Sepistan, ENG.  
Buro buhoari, BENG.

Bhokur, Buralesoora, HIND.

DESCR: Tree 12-25 feet: leaves roundish, cordate, entire, repand, 3-nerved, smooth above, scabrous beneath: calyx villous, campanulate, with a unequally-toothed mouth: corolla short, campanulate: segments five: panicles terminal and lateral: flowers numerous small, white: drupe pal straw colour covered with whitish bloom: nut surrounded with soft clammy pulp. *Fl. March*—*April.*—*Roxb. fl. Ind.* I. 581.—*ed. Car.* II. 330.—*Don's Mill.* IV. 378.—Guzerat. Silhet.

USES, &c. Young fruits are pickled, and also eaten as vegetables. There are two kinds of Sebesten fruit, noticed by writers on Indian *Materia Medica*; the first with the pulp separable from the nut, the other a smaller fruit with the pulp adhering to the nut. The latter is the sweetest of the two. The tree under notice bears the large kind of fruit which is about the size of a prune, the *C. myca* producing the small ones. Lindley says that under the name of Sebesten plums, Sebestan, or Sepistans, two sorts of Indian

fruit have been employed as pectoral medicines, for which their mucilaginous qualities combined with some astringency recommend them. They are believed to have been the *Persea* of Dioscorides. *Lindley. Flor. Med. Roxb. Colebr. in As. Res.*

(223) **Cordia myxa** (Linn.)

Do.

Do.

Sepistan-plum, ENG.  
Vidi-marum, MAL.  
Vidi-marum, TAM.

Lusora, HIND.  
Buhocari, BENG.  
Nakeru, TEL.

DESCR: Tree middling size: leaves oval, ovate or obovate, repand, smooth above, rather scabrous beneath: calyx tubular, widening towards the mouth, torn as it were in 3-5 divisions: divisions of corolla revolute: drupes globular, smooth, yellow: panicles terminal and lateral: nut 4-celled, tetragonal, cordate at both ends, surrounded with transparent viscid pulp: flowers small, white. *Fl. Feb.*—*March.*—*Roxb. fl. Ind. ed. Car. II. 332.*—*Wight's Icon. t. 1378.* *C. officinalis*, or *Sebestana domestica*, *Lam.*—*C. domestica*, *Roth.*—*Sebestana officinalis*, *Gaertn.*—*S. domestica* or *myxa*, *Commel.*—*Prunus*; *sebestana*, *Pluk*—*Cornus sanguinea*, *Forsk.* (not *Linn.*)—*Rheede IV. t. 37.*—Both Peninsulas. Bengal. N. Circars.

USES, &c. The fruit when ripe is eaten by the Natives and also pickled. It was formerly known among medical writers as the *Sebesten*, and was occasionally sent to Europe as an article of *Materia Medica*. *Horsfield* mentions that the mucilage of the fruit is of a demulcent nature, useful in diseases of the chest and urethra, and also employed in Java, as an astringent gargle. The seeds are a good remedy in ring-worm, being powdered and mixed with oil and so applied. The smell of the nuts when cut is heavy and disagreeable: the taste of the kernels is like that of fresh filberts. The wood is soft, and is said to have furnished the timber from which the Egyptian mummy cases were made. It is one of those used for procuring fire by friction. *Graham* states that in *Otaheite* the leaves are used in dyeing. The bark is much used as a mild tonic in Java. The juice of the bark in infusion with *Cocoanut* milk is administered in bad gripes. The root is said to be purgative. The leaves bruised are applied to pustular eruptions on the face. *Rheede. Lindley. Ainslie. &c.*

(224) **Coriandrum sativum** (Linn.) Nat. Ord. APIACEÆ.**Pentandria Digynia.** Sex: Syst:

Coriander, ENG.

Dhunya, DUK.

Dhunya, BENG.

Danga, MAL.

Cottamillie, TAM. and TEL.

**DESCR :** Herbaceous : stem erect, 12-13 inches high, more or less branched, round, striated : lower leaves pinnated, on longish petioles : leaflets wedge-shaped, acutely notched : upper leaves multifid : segments linear : umbels with 4-5 rays, rarely more : calyx, teeth five, unequal : petals with the segments inflexed : fruit pale-brown, spherical, 10-ribbed : flowers white, sometimes with a reddish tint : involucels 3-leaved : seeds excavated in front with a loose skin. *Fl.* Feb.—Mar.—*Wight's Icon t.* 516.—*Don's Mill.* III. 382—*Roxb. fl. Ind.* II. 94.—*Lindley flor. Med.* p. 58.  
—Cultivated in India.

**USES, &c.** The Coriander plant is a native of the South of Europe, Greece, and the Levant ; but is extensively cultivated in India for the seeds, which are much used among Natives in their curries. The fruit which is carminative and aromatic is used in liqueurs, sweetmeats, and cookery. Cullen considered it a better corrective of the taste and smell of Senna, than any other aromatic. Ginger is however now substituted for it. In England, the seeds are sown in September, and are ripe for plucking in the following August. Twenty pounds of seeds will sow an acre, and the produce is from 10 to 14 cwt. the acre. It is used by distillers for flavouring spirits, as well as by the druggist for various purposes. The officinal part is improperly called the seed, being in reality the fruit. Although the plant when fresh has a disagreeable smell, this disappears when dried, and the aroma becomes rather pleasant. A volatile aromatic oil is procured from the fruit of a yellowish colour. Ten pounds of the fruit yield 6 drachms of oil. The constitution and properties of Coriander Oil are given by A. Kawalier in *Pharm. Jour.* XII. 396. This is also used as a carminative. The exports of Coriander seed from Madras in 4 years ending in 1855 were 6,057 quarters, valued at Rs. 41,551. *Don. Penny Cycl. Lindley. Ainslie. Com. Prod. Mad. Pres.*

(225) **Corypha tallera** (Roxb.) Nat. Ord. PALMACEÆ.**Hexandria Monogynia.** Sex: Syst:

Tara, Talier, Tariyat, BENG.

Taliera, HIND.

**DESCR :** Trunk 30-35 feet, rough with the marks of the fallen leaves : leaves subrotund, palmate-pinnatifid, plaited : segments 40 pairs : margins of the channel of the petioles armed : spadix ter-

minal, pyramidal, the length of the trunk, consisting of an immense supra-decompound, round panicle, issuing from the apex of the tree, and centre of the leaves: flowers small, sessile, pale yellow. *Fl. March—April.—Roxb. fl. Ind. II. 174.—Corom. III. t. 255, 56.—Taliara Bengalensis, Spreng.—Bengal.*

USES, &c. The leaves are used for writing on with an iron style as well as for thatching and chuppering roofs, being strong and durable. Hats and umbrellas are made from them in Bengal. *Roxb.*

(226) **Corypha umbraculifera** (*Linn.*) Do.

*Do.*

Talipot or Fan Palm, ENG.  
Coddapana, MAL.  
Condapana. TAM.

Talee, BENG.  
Sidalum, TEL.

DESCR: Trunk 60-70 feet: leaves sublunate, palmate-pinnatifid, plaited: segments 40-50 pair: petioles armed: inflorescence pyramidal, equalling the trunk of the tree: calyx 3-toothed: petals 3: ovary 3-celled, 1-seeded.—*Roxb. fl. Ind. II. 177.—Rheede III. t. 1-12 Incl.—Ceylon. Malabar. Malay Coast.*

USES, &c. This is the well known Fan palm of Ceylon. Its large broad fronds are used for thatching, and also for writing on with an iron style. Such records are said to resist the ravages of time. Seeds used as beads by certain sects of Hindoos. The dried leaf is very strong, and is commonly used for umbrellas by all classes. It opens and shuts like a lady's fan, and is remarkably light. A kind of flour or sago is prepared from the pith of the trunk. *Rheede* states that "the juice from the fruit-bearing branches excites vomiting, and is on that account used in snake bites. If the tender capsule be cut in half, a liquor flows from it, which will kill and even expel the fœtus in pregnancy, if given internally." Little bowls and other ornaments are made from the nuts, and when polished and coloured red are easily passed off for genuine coral. *Roxb. Knox's Ceylon. Rheede. &c.*

(227) \***Coscinium fenestratum** (*Colebr.*) Nat. Ord. MENISPERMACEÆ.

**Diœcia Hexandria.** *Sex: Syst:*

Tree Turmeric, ENG.  
Mara Munjel, TAM.

Jar-ki-huldie, DUK.  
Mani-pussupoo, TEL.

DESCR: Climbing plant with thick ligneous stem and branches:

\* Sir W. Hooker in *Pharmaceutical Journal*, Vol. XII. 185. (with Fig.)

leaves alternate, petioled, cordate, entire, 5-7 nerved, smooth and shining above, very hoary below, acuminate or obtuse, 3-9 inches long, 2-6 broad: petioles downy, shorter than the leaves: flowers in small globular heads, numerous, sub-sessile, villous, of an obscure green: *female* umbels several from the same bud, rising from the branches, on thick downy peduncles; the latter longer and thicker in fruit: calyx 6-leaved: 3 exterior sepals oval, downy outside: 3 interior ones longer; petals 6, filaments very downy: style recurved: berries round, villous, size of a large filbert: seed 1: flowers greenish. *Fl.* Nov.—Dec.—*Roxb. fl. Ind.* III. 809.—*Menispermum fenestratum*, *Gaertn.*—*Pereira Mat. Medica.*—*Lind. flor. Med.*—Aurungole Pass. Courtallum. Ceylon.

USES, &c. This plant which has long been known in Ceylon is considered in that country to be a valuable stomachic. The wood is of a deep yellow colour and bitter to the taste. The root in infusion is used medicinally. This is sliced and steeped in water for several hours and then drunk. This is the plant alluded to in *Ainslie's Materia Indica*, Vol. II. p. 183, where he says that the root which is an inch in circumference is commonly met with in the bazars, being brought from the mountains for sale. It is employed in preparing certain cooling liniments for the head, as well as in the preparation of a yellow dye. But its chief value consists in its tonic properties, for which the wood and bark are employed. *Lindley. Ainslie.*

(228) **Costus speciosus** (*S. M.*) Nat. Ord. ZINGIBERACEÆ.

**Monandria Monogynia.** *Sex: Syst:*

Tsjana-kua, MAL.  
Bomma Kachica, TEL.

Keoo, HIND. and BENG.

DESCR: Height 3-4 feet, spirally ascending: leaves sub-sessile, spirally arranged, oblong, cuspidate, villous underneath: flowers large, pure white. *Fl.* July.—Sept.—*Roxb. fl. Ind. ed. Car.* I. 57. *Wight's Icon. t.* 2014.—*C. Arabicus*, *Linn.*—*Hellenia grandiflora*, *Retz.*—*Banksia speciosa*, *Koen.*—*Amomum hirsutum*, *Lam.*—*Tsjana speciosa*, *Gmel.*—*Rheeds XI. t.* 8.—Coromandel. Concans. Bengal.

USES, &c. A very elegant plant, found chiefly near the banks of rivers and other moist and shady places. A kind of preserve is made from the roots which the Natives deem very wholesome. They are insipid. The dried roots do not at all resemble the *C. Arabicus* of the shops. Roscoe imagined that *Rheede's* figure represented that plant. *Roxb. J. Grah.*

(229) **Cratæva nurvala** (*Ham.*) Nat. Ord. CAPPARIDACEÆ.**Polyandria Monogynia.** *Sex: Syst:*Neer-vaia, MAL.  
Mavilinghum, TAM.Maredoo, TEL.  
Tapia, Birni, HIND.

**DESCR:** Tree 15-20 feet: leaves trifoliolate: leaflets ovate-lanceolate, acuminate, lateral ones unequal at the base: limb of the petals ovate-roundish: torus hemispherical, very ovoid: calyx 4-sepalled: petals 4, unguiculate: being stipitate, pulpy inside: flowers greenish-white with red stamens: racemes terminal. *Fl.* Feb.—March.—*W. & A. prod.* I. 23.—*C. tapia*, *Burm.*—*C. inermis*, *Linn.*—*Rheede Mal.* II. t. 42.—Malabar. Mysore.

**USES, &c.** In the Society Islands, of which this tree is a native as well as of Malabar, it is planted in burial grounds, being esteemed sacred to their idols. The leaves are somewhat aromatic, slightly bitter and considered stomachic. The root is said to possess alterative qualities. The juice of the bark is given in convulsions and flatulency, and boiled in oil is externally applied in rheumatism. There appear to be few points of difference between this and the *C. Roxburghii*. The bark macerated in water and mixed with ginger, long pepper, milk and gingely oil makes a good liniment for drying up humours. The seeds mixed with rice and rubbed up in fresh water are used in the preparation of an emollient plaster which readily brings abscesses to maturity. *Rheede. Ainslie. &c.*

(230) **Crinum Asiaticum** (*Willd.*) N. O.**Hexandria Monogynia.** *Sex: Syst*Belutta-pola-tali, MAL.  
Veshi Moonghee, TAM.  
Kesara-chettu, TEL.Veshamungaloo-pakoo, TEL.  
Sookh-dursun, BENG.

**DESCR:** Stemless: leaves radical, linear, concave, 3-4 feet long, obtuse: pointed, margins smooth: umbels 6-16 flowered: flowers sub-sessile: roots bulbous, with a terminal fusiform portion, issuing from the crown, from which numerous fibrous roots proceed: flowers large, white, fragrant at night: corolla, tube cylindrical, usually pale-green: segments linear-lanceolate, margins broad with a recurved process at the apex of each. *Fl.* October—December.—*Roxb. fl. Ind.* II. 129.—*C. defixum*, *Bot. Mag.* 2208.—*Bulbine Asiatica*, *Gærtn.*—*Rheede, Mal.* XI. t. 38.—Both Concans.



**USES, &c.** The leaves bruised and mixed with castor oil, are useful in whitlows and local inflammations of the kind. In Upper India, the juice of the leaves is given in earache. In Java, the plant is reckoned a good emetic, and it is also considered of efficacy in curing wounds made by poisoned arrows. The root sliced and chewed is emetic. The *C. toxicarium* is perhaps a mere variety indigenous to both Concans, and of which Dr. O'Shaughnessy found by experiments, the leaves to be equal as an emetic to the best Ipecacuanha. The plant is found on the banks of rivers and in marshy places, and flowers nearly all the year. *Roxb. J. Gralh. Ainslie. &c.*

(231) **Crinum latifolium** (*Herb.*) Do.

*Do.*

Sjovanna-pola-tali, MAL.

**DESCR :** Bulb spherical, stemless : spathes 10-20 flowered : leaves lanceolate, waved, terete, obtuse : flowers sessile, tube of corolla green, border pale-rose, almost white, expanding after sunset. *Fl.* April—June.—*Roxb. fl. Ind.* II. 137.—*Wight's Icon. t.* 2019, 20.—*C. ornatum*, var.—*Herb.*—*Amaryllis latifolia*, *L'Herit.*—*Rheede XI. t.* 39.—Coromandel. Concans. Bengal.

**USES, &c.** There are several varieties of this plant. Roxburgh speaks in praise of its beautiful appearance. In medicine, the bulbs are roasted and are said to be efficacious in the treatment of boils and ulcers. *Rheede. Roxb.*

(232) **Crotalaria juncea** (*Linn.*) Nat. Ord. LEGUMINOSÆ.

**Monadelphia Decandria. Sex : Syst :**

Sun-hemp plant, ENG.		Shanamoo, TEL.
Wuckoo or Janupa-nar, TAM.		Sunn, BENG.

**DESCR :** Small plant 4-8 feet, erect, branched, more or less clothed with shining silky pubescence or hairs : branches terete, striated : stipules and bracts setaceous : leaves from narrow linear to ovate-lanceolate, acute : calyx deeply 5-cleft, densely covered with rusty tomentum : the 3 lower segments usually cohering at the apex : racemes elongated, terminating every branch : flowers distant : legumes sessile, oblong, broader upwards about twice the length of the calyx, tomentose and many-seeded : flowers yellow.

*Note.*—The species of *Crinum* are handsome plants and form a great ornament in our gardens. Consider the Lilies (*tak-rina*) of the field how they grow.

*Fl. Nov.*—January.—*W. & A. prod.* I. 185.—*Roxb. fl. Ind.* III. 259.—*Cor.* II. t. 193.—*C. Benghalensis, Lam.*—*C. tenuifolia, Roxb. fl. Ind.* III. 263.—*C. fenestrata, Sims. Bot. Mag.*—*C. porrecta, Wall.*—*C. sericea, Willd.*—*Rheede IX. t. 26.*—Peninsula. Malabar. Bengal.

USES, &c. This plant is extensively cultivated for the sake of its fibres, in many parts of India, especially in Mysore and the Deccan. These are known by different names according to the localities where they are prepared. In some places the fibre is known as the Madras hemp or Indian hemp, but this latter appellation is incorrect. It is the *Wuckoo-nar* of Travancore, the *Sunn* of Bengal and so on. The mode of preparation differs from that of other fibres, in one particular especially, the plant being pulled up by the roots and not cut. After the seeds are beaten out, the stems are immersed in running water for five days or more, and the fibres are then separated by the fingers, which process makes it somewhat expensive to prepare. Dr. Gibson asserts that the crops repay the labour bestowed on them, as the plant is suited for almost any soil. When properly prepared the fibres are strong and much valued in the home markets. In this country, they are used for fishing nets, cordage, canvas, paper, gunny-bags, &c. &c., the latter name being derived from the word *Goni*, the native name for the fibre on the Coromandel Coast. In the \**Report on the Fibres of S. India*," it is stated that the fibre makes excellent twine for net, ropes, and various other similar articles. The fibres are much stronger if left in salt water. They will take tar easily, and with careful preparation the plant yields foss and hemp of excellent quality. It is greatly cultivated in Mysore and also in Rajahmundry. In the latter district it is a dry crop planted in November and cut in March. The yellow flowers resemble those of Spanish broom. It requires manure but not too much moisture. Samples of the Sunn fibre were sent to the Great Exhibition and also to the Madras Exhibition in 1855. On those forwarded to England, Mr. Dickson reported that these fibres will at all times command a market (when properly prepared) at £45 to £50 a ton, for twine or common purposes; and when prepared in England with the patent liquid they become so soft, fine and white as to bear comparison with flax, and to be superior to Russian flax for fine spinning. In the latter state it is valued at £80 a ton. In several parts of India, the price varies from R. 1 to Rs. 2-8 per maund. In Calcutta, about Rs. 5 per maund, and the prices both in the latter place and Bombay are gradually increasing. By experiments made on the strength of the fibre, it broke at 407 lbs. in one instance. Large quantities are shipped for the English market. What is known

\* No. XXIII. Records of Madras Government.

as Jubbulpore hemp is the produce of *C. tenuifolia*, which according to Wight is a mere variety of *C. juncea*. Royle however and other Botanists think that it is a distinct plant. It is said to yield a very strong fibre, but probably not very different from the Sunn. *Royle. Jury Reports. Report on fibres of S. India*

(233) **Crotalaria retusa** (Linn.) Do.

Do

Wedge-leaved Crotalaria, ENG.  
Bil-jhunjun, BENG.

Potu-galli-geetsa, TEL.  
Tandal-ecotti, MAL.

DESCR: Small plant, erect, branched, leaves slightly pubescent beneath: branches striated, leaves cuneate-oblong, retuse or rounded: racemes terminal, elongated, many-flowered: calyx smaller than the corolla, glabrous: legumes, oblong, broader upwards, sessile, many-seeded: flowers large, bright yellow. *Fl.* Dec.—Jan.—*W. & A. prod.* I. 187.—*Roxb. fl. Ind.* III. 272.—*Lupinus Cochinchinensis, Lour.*—*Rheede IX. t. 25.*—Malabar. Coromandel. Bengal.

USES, &c. The bark is used in the manufacture of cordage, canvas, &c. The root rubbed up and mixed with wine is stated to be an excellent specific in colic and flatulency. The juice of the leaves is given as a drink in fevers, and said to purify the blood. The plant is given in decoction in chronic fevers. *Rheede.*

(234) **Crotalaria verrucosa** (Linn.) Do.

Do.

Pee-tandale-cotti, MAL.  
Vuttei Khillu-killupie, TAM.

Allagalligheetsa, Ghelegerinta, TEL.  
Bunsun, HIND. and BENG.

DESCR: Herbaceous, erect, much branched, young parts pubescent, leaves and racemes acutely 3-4 angled: stipules recurved: leaves ovate, suddenly and shortly acuminate at the base: racemes terminal and leaf opposed, many-flowered: bracts reflexed: pedicels shorter than the calyx: calyx smaller than the corolla, slightly pubescent: corolla with the vexillum greenish white, streaked with pale blue inside: legumes cylindric, oblong, sessile, softly pubescent, many-seeded. *Fl.* June—July.—*W. & A. prod.* I. 187.—*Roxb. fl. Ind.* III. 273.—*Wight's Icon. t. 200.*—*C. angulosa, Lam.*—*C. cærulea, Jacq.*—*Rheede IX. t. 29.*—Malabar.

USES, &c. The juice of the leaves is said by Rheede to diminish salivation. The same combined with salt is anthelmintic. It is slightly purgative. *Rheede. Ainslie.*

(235) **Croton polyandrum** (*Roxb.*) Nat. Ord. EUPHORBIAEÆ.

**Monœcia Monadelphia.** *Sex: Syst:*

Duntee, BENG.  
Hakoon, HIND.

Konda-amadam, TEL.

DESCR: Stems several from the same root: young shoots a little downy, round, 3-6 feet high: leaves alternate, ovate sometimes lobed, deeply toothed or remotely serrate, 3-nerved: *male* flowers racemose, small, dull yellow: calyx 5-leaved: *female* flowers stalked, axillary: seeds ovate, shining, dotted. *Fl.* July—Dec.—*Roxb. fl. Ind.* III. 682—*Lind. flor. Med.*—*Wight's Icon. t.* 1885.—C. Roxburghii, *Wall.*—Circars. Bengal. Found in moist places near hills and streams.

USES, &c. The seeds are reckoned a useful purgative. The Natives mix them with water, administering two or three at a time according to circumstances. *Roxb. Lindley.*

(236) **Croton tiglium** (*Linn.*)

Do.

*Do.*

Croton Oil plant, ENG.  
Cadel-avanacu, Neervaula, MAL.  
Nervalum, TAM.

Naypalum, TEL.  
Jumalghota, HIND. and DUK.  
Jypal, BENG.

DESCR: Small tree with a few spreading branches: leaves alternate, ovate-oblong, smooth, acuminate, 3-5-nerved at the base, covered when young with minute stellate hairs: petioles channelled: calyx 5-cleft: petals 5, lanceolate, woolly: racemes erect, terminal: upper flowers male, lower ones female: seeds convex on one side, bluntly angular on the other, enveloped in a thin shell, flowers small, downy, greenish-yellow. *Fl.* April—June.—*Wight's Icon. t.* 1914.—*Roxb. fl. Ind.* III. 682.—*Lind. flor. Med.*—C. jamalghota, *Buch.*—*Tiglium Klotcheanum, Rheede* II. *t.* 33.—Coromandel. Travancore.

**USES, &c.** The seeds yield the well-known Croton oil. They are the size of a sloe, and are considered one of the most drastic purgatives known. Ten or twenty seeds have been known to kill a horse by producing the most violent diarrhœa. The usual way to get the oil is first to roast the seeds and then compress them. The colour is brownish, or brownish yellow, soluble in fixed and volatile oils. So powerful is its action that a single drop of the oil applied to the tongue is considered sufficient to ensure the full results, especially in apoplexy, paralysis of the throat, or difficulty of breathing arising from these causes, even should the patient be insensible at the time. But this must be of the pure oil, for it is often adulterated with olive, castor, or purging-nut oil. It is chiefly employed in incipient apoplexy, visceral obstruction, and occasionally in dropsy. The seeds mixed with honey and water are often applied to obstinate buboes in native practice.

The expressed oil of the seed is a good remedy externally applied, in rheumatism and indolent tumours. Rheede says that the leaves rubbed and soaked in water are also purgative, and when dried and powdered are a good application to snake bites. If the leaves are chewed they inflame the mouth and lips and cause them to swell, leaving a burning sensation. The mode of preparing the oil in Ceylon is by pulverising the seeds: the powder is then put into bags, placed between sheets of iron, left to stand for a fortnight and then filtered. Alcohol is then added to twice the weight of the residue. Much caution is requisite to avoid injury from the fumes which arise during the process. The wood which is bitter tasted is gently emetic and powerfully sudorific.

Herodotus in his second book C. 94, relates as follows. "The Egyptians who live about the fens use an oil drawn from the fruit of the Sillicypria, which they call *Kiki*, and they make it in the following manner. They plant these Sillicypria, which in Greece grow spontaneously on the banks of the rivers and lakes; these, when planted in Egypt, bear abundance of fruit, though of an offensive smell. When they have gathered it, some bruise it and press out the oil; others boil and stew it, and collect the liquid that flows from it: this is a fatty oil, and no less suited for lamps than that of the olive, but it emits an offensive smell." (Cary's trans.) Upon this passage, Mr. Blakesley in his admirable recent edition of the historian remarks. The Hellenic name of this plant was, according to Hesychius, *Croton*, it being in fact that from the seeds of which the modern 'Croton oil,' is expressed. It is the same which in the English version of Jonah. IV. 6, is called 'a gourd' the old Antihieronymian Latin versions having rendered the Colokuntnes of the Septuagint 'Cucurbita.' (Blakesley's Herod. I. p. 231, note 1.) *Ainslie. Roxb. Simmonds. Penny Cycl. Lindley.*

(237) **Crozophora plicata** (*Ad. Juss.*) N. O. EUPHORBIACEÆ**Monœcia Monadelphia.** *Sex: Syst:*

Souballi, HIND.

Lingameriam chettu, TEL.

Khoodi-okra, BENG.

DESCR: Small annual, hoary: stems and branches round, dichotomous: leaves alternate, waved, toothed, broadly cordate, tapering to a stalk: flowers small, greenish-white: male ones above the females: capsules scabrous. *Fl. Nov.*—January.—*Roxb. fl. Ind.* III. 681.—*Croton plicatum*, *Vahl.*—*C. tinctorium*, *Burm.*—Common in the Peninsula. Behar.

USES, &c. This is commonly found in rice-fields, flowering during the cold weather. It is said to have virtues in leprous affections, the dry plant being made into a decoction to which is added a little mustard. A cloth moistened with the juice of the green capsules becomes blue after exposure to the air. This colouring matter might possibly be turned to good account. *Roxb. Ainslie.*

(238) **Cryptostegia****grandiflora** (*R. Br.*) Nat. Ord. ASCLEPIACEÆ.**Pentandria Digynia,** *Sex: Syst:*

Palay, MAL.

DESCR: Twining shrub: leaves opposite, elliptic, bluntly acuminate, shining above, minutely reticulated with brown beneath: calyx 5-parted: segments lanceolate with undulated margins: corolla funnel-shaped: tube furnished with fine enclosed narrow bipartite scales inside, covering the anthers, being opposite them: stamens enclosed: stigmas globosely conical: corymbs trichotomous, terminal: flowers large, reddish-purple: follicles divaricate, acutely triquetrous. *Fl.* All the year.—*Don's Mill.* IV. 164.—*Wight's Icon. t.* 832.—*Nerium grandiflorum*, *Roxb. fl. Ind.* II. 10.—Malabar. Coromandel.

USES, &c. This plant yields a fine strong fibre resembling flax, and which may be spun into the finest yarn. A good specimen was exhibited at the Madras Exhibition. The milky juice has long been known to contain caoutchouc, which is often prepared for rubbing out pencil marks, but it has not yet been collected for the purposes of commerce. Samples of a fair quality were sent to the Madras Exhibition. *Jury Rep.*

(239) **Cucumis melo** (*Linn.*) Nat. Ord. CUCURBITACEÆ.

Monsecia Monadelphia. Sex: Syst:

Melon, ENG.

Khurbooja, HIND.

Khurbuz, BENG.

Molam, TAM.

DESCR: Climbing: stems prostrate, scabrous: leaves rounded, angled: flowers axillary: stamens included: fruit ovate or somewhat globose, 8-12 furrowed: flowers yellow. *Fl.* March—June.—*W. & A. prod.* I. 341.—*Roxb. fl. Ind.* III. 720.

USES, &c. The native country of the Melon is not clearly ascertained. It is cultivated in all the countries of the East, for the fruit, and is too well known to need description. There are many varieties of the plant.

(240) **Cucumis momordica** (*Roxb.*) Do.

Do.

Phoontee, BENG.

Tooti, HIND.

Pedda-doskay, TEL.

DESCR: Climbing: stems scabrous: leaves roundish-cordate, sometimes 5-angled, repand-toothed: flowers short peduncled: *males* fascicled: *females* solitary: fruit cylindric-oblong, straight, 4 times longer than thick, bursting spontaneously, flowers yellow. *Fl.* Feb.—March.—*W. & A. prod.* I. 341.—*Roxb. fl. Ind.* III. 720.—*C. muricatus*, *Willd.*—*Momordica sativa*, *Roxb. in. E. I. C. Mus.*—Cultivated.

USES, &c. The fruit is an article of diet and a good substitute for the common Cucumber. When ripe it is reckoned as good and as wholesome as the Melon. The seeds are occasionally ground into a kind of meal. *Roxb. Royle.*

(241) **Cucumis pubescens** (*Willd.*) Do.

Do.

Bun-gumuk, HIND.

Kodee-budinga, TEL.

DESCR: Stems scabrous: leaves somewhat reniform, acutely toothed, slightly angled: fruit oval, obtuse at both ends, terete spotted, more or less pubescent: flowers largish yellow. *Fl.* Nearly all the year.—*W. & A. prod.* I. 342.—*Wight's Icon. t.* 496.—*Roxb. fl. Ind.* III. 723.—Coromandel. Bengal.

USES, &c. Though the Natives do not cultivate this plant, yet they prize the fruit. When ripe it becomes aromatic.

(242) **Cucumis sativus** (Linn.) Nat. Ord. CUCURBITACEÆ.**Monsecia, Monadelphia.** Sex: Syst:Common Cucumber, ENG.  
Mullen-belleri, MAL.  
Moolloo-velleri, TAM.Keera, HIND.  
Susha, BENG.

DESCR: Trailing: stems scabrous: leaves cordate, 5-lobed, the terminal lobes the longest: flowers shortly peduncled, about 3-together: *males* with the calyx tube tubular, campanulate, and the limb patent and deflexed: petals a little acute: fruit linear-oblong, straight, somewhat triquetrous, smooth, and shining when ripe, indehiscent: flowers yellow. *Fl.* Nearly all the year.—*W. & A. prod.* I. 342.—*Roxb. fl. Ind.* III. 720.—*Rheede* VIII. t. 6.—Cultivated everywhere.

USES, &c. The green fruit is used as a salad; it is also salted when half-grown, and preserved in vinegar making an excellent pickle. The Cucumber is nearly as old in history as the vine, for Moses\* mentions it as abounding in Egypt when the children of Israel were there 3000 years ago. It is a native of Tartary and of the E. Indies, and is met with in every garden in this country. The juice of the Cucumber mixed with alcohol is used in rheumatic affections. The juice is also said to banish wood-lice and kill cockroaches. It is recommended to strew the floors with the green peel at night time, for 3 or 4 nights. The cockroaches collect round the pieces and devour them, when it proves fatal and they disappear. Leaves boiled in water and mixed with roasted and powdered cummin seed are given internally in the cure of difficult breathing and impeded deglutition by Hukeems. A fixed oil is procured from the seeds. *Rheede. Don. Ainslie.*

(243) **Cucumis utilissimus** (Roxb.)

Do.

Do.

Field Cucumber, ENG.  
Kakrie, HIND.Kankoor kurktee, BENG.  
Doskai, TEL.

DESCR: Trailing: stems scabrous: leaves broad-cordate, more or less 5-lobed: lobes rounded and toothed: *male* flowers crowded, *fe-males* solitary: fruit short, oval, when young pubescent, when old glabrous, variegated: flowers yellow. *Fl.* Nearly all the year.—*W. & A. prod.* I. 342.—*Roxb. fl. Ind.* III. 721.—Cultivated. Guntoor.

USES, &c. The fruit is pickled when half-grown, and when ripe and hung up, it will keep good for several months. The seeds

\* "We remember the fish which we did eat in Egypt; the Cucumbers and the Melons." Numbers XI. 5.



contain much farinaceous matter mixed with a large proportion of mild oil. The meal is an article of diet with the Natives, and the oil is used for lamps. Roxburgh has the following remarks upon this plant. "This appears to me to be by far the most useful species of *Cucumis* that I know; when little more than half-grown, the fruits are oblong and a little downy, in this state they are pickled; when ripe, they are about as large as an ostrich's egg, smooth and yellow; when cut they have much the flavour of the Melon, and will keep for several months, if carefully gathered without being bruised and hung up: they are also in this state eaten raw, and much used in curries by the Natives. The seeds like those of other Cucurbitaceous fruits, are nutritious; the Natives dry and grind them into a meal, which they employ as an article of diet; they also express a bland oil from them, which they use in food and burn in their lamps. Experience as well as analogy, proves these seeds to be highly nourishing and well deserving of a more extensive culture than is bestowed on them at present. The powder of the toasted seeds mixed with sugar is said to be a powerful diuretic, and serviceable in promoting the passage of sand or gravel. As far as my observation and information go, this agriculture is chiefly confined to the Guntoor Circar, where the seeds form a considerable branch of commerce, they are mixed with those of *Holcus Sorghum* or some others of the large culmiferous tribe and sown together; these plants run on the surface of the earth and help to shade them from the sun, so that they mutually help each other. The fruit, as I observed above, keeps well for several months if carefully gathered and suspended. This circumstance renders it an excellent article to carry to sea during long voyages." *Roxburgh*.

(244) **Cucurbita citrullus** (Linn.)

Do.

Do.

Water-Melon, ENG.  
Turmooj, Turbooz, BENG.  
Samauka, HIND.

Pitcha Shakara-koomatee, TAM.  
Darboojee, TEL.

DESCR: Leaves 3-5 partite, rough on the underside, the segments sinuately pinnatifid, obtuse: corolla rotate: fruit somewhat globose, stellately spotted: flowers large yellowish. *Fl.* January—February.—*W. & A. prod.* I. 351.—*Roxb. fl. Ind.* III. 719.—*Cucumis citrullus*, *Ser.* in *D.C.*—Cultivated.

USES, &c. The Water-Melon is considered to be the Melon of the Jews, frequently mentioned in Scripture. In Egypt it is used in medicine, especially in ardent fevers; the people collecting the juice when almost rotten and mixing it with sugar and rose-

water. The fruit is of a white fleshy colour within, reddish towards the centre. The juice makes a refreshing drink, but has not much taste. *Don.*

(245) **Cucurbita maxima** (*Duch.*) N. O. CUCURBITACEÆ.

**Monœcia Monadelphia.** *Sex: Syst:*

Squash-gourd, or Red gourd, ENG.  
Pusani-kai, TAM.  
Suphura Koomra, BENG.

Gumudi, TEL.  
Schakeri-schora, MAL.

DESCR: Climbing: leaves cordate, rugose, harshly pubescent beneath: petioles hispid: flowers campanulate: division of the corolla re-curved: fruit large roundish, torulose: flowers yellow. *Fl.* Nearly all the year.—*W. & A. prod.* I. 351.—*Wight's Icon.* t. 507.—*C. Melopepo, Roxb. fl. Ind.* III. 719.—*Rheede VIII. t. 2.*—Cultivated.

USES, &c. The Natives are fond of this as a vegetable. The fruit is as large as a Pumplemose, and is boiled before being eaten.

(246) **Curcuma amada** (*Roxb.*) Nat. Ord. ZINGIBERACEÆ.

**Monandria Monogynia.** *Sex: Syst:*

Mango-ginger, ENG.

| Amada, BENG.

DESCR: Bulbs conic, and with the palmate tubers, inwardly pale yellow: leaves radical, bifarious, lanceolar, cuspidate, 6-18 inches long, petioled above the sheaths: spikes few-flowered, crowned with a tuft of loose pale rose colored abortive bracts: flowers small, white or pale yellow, with a deeper yellow line running down the middle of the lip. *Fl.* June—July.—*Roxb. fl. Ind. ed. Car.* I. 33.—Guzerat. Concans.

USES, &c. The root is used medicinally by the Natives. It has the smell of a green mango. *Roxb.*

(247) **Curcuma angustifolia** (*Roxb.*) Do.

*Do.*

East Indian Arrowroot, ENG.  
Kooa, Kooghei, MAL.

| Kooa, TAM.  
Tikhur, HIND.

DESCR: Bulbs oblong with pale oblong pendulous tubers: leaves petioled, narrow-lanceolate, most acute, striated with fine parallel veins: flowers longer than the bracts: petioles 6-10 inches

long, lower half sheathing : spike radical, 4-6 inches long, crowned with an ovate purple tuft, flowers bright yellow, expanding at sunrise and fading at sunset. *Fl.* July.—*Roxb. fl. Ind. ed. Car.* I. 31.—Nagpore. Travancore.

**USES, &c.** An excellent kind of Arrowroot is prepared from the tubers of this species especially in Travancore, where the plant grows in great abundance. This is a favorite article of diet among the Natives. The flour when finely powdered and boiled in milk is an excellent diet for sick people or children. It is also much used for cakes, puddings, &c. though considered by some to produce constipation. In a commercial point of view the East Indian Arrowroot is below the West Indian starch, tho' similar in its qualities and uses. The exports of Arrowroot from Travancore average about 250 candies annually. The mode of preparation is as follows. The tubers are first scraped on a rough stick generally part of the stem of the common rattan or any plant with rough prickles to serve the same purpose. Thus pulverised, the flour is thrown into a chatty of water, where it is kept for about two hours : all impurities being carefully removed from the surface. It is then taken out and again put into fresh water, and so on for the space of four or five days. The flour is ascertained to have lost its bitter taste when a yellowish tinge is communicated to the water, the whole being stirred up, again strained through a piece of coarse cloth and put in the sun to dry. It is then ready for use. *Roxb. Pers. obs.*

(248) **Curcuma aromatica** (*Salisb.*) Do.

*Do.*

Wild Turmeric, ENG.  
Jungle-huldee, HIND.

Bun-huldee, BENG.

**DESCR :** Bulbs small, and with the long palmate tubers, inwardly yellow : leaves 2-4 feet in length, broad lanceolate, sessile on their sheaths, sericeous underneath : the whole plant of a uniform green spikes, 6-12 inches long : flowers largish, pale rose coloured, with a yellow tinge along the middle of the lip. *Fl.* March—May.—*Roxb. fl. Ind. ed. Car.* I. 23.—*Wight's Icon. t.* 2005.—*Curcuma Zedoaria*, *Roxb.*—Malabar. Bengal.

**USES, &c.** An ornamental and beautiful plant when in flower. It abounds in the Travancore forest. The Natives use the root as a perfume and also medicinally ; both when fresh and dried. They have an agreeable fragrant smell, are of a pale yellow colour and aromatic taste. Roxburgh asserted that the roots of this species

are not only the longer kinds of *Zedoary* sold in the shops, but identical with the shorter kind, the tubers having merely been cut previous to drying. The root possesses aromatic and tonic properties and is less heating than ginger. *Pereira. Roxb.*

(249) **Curcuma leucorrhiza** (*Roxb.*)\* Do.

*Do.*

DESCR: Height 3-4 feet: bulbs ovate: palmate tubers long and far spreading, pale straw coloured internally: leaves petioled, broad lanceolate, smooth: spikes few flowered: flowers the length of the bracts, rosy-yellow, with a pale-rosy tuft. *Fl.* Oct.—Dec.—*Roxb. fl. Ind. ed. Car. I. 30.*—Forests of Behar. Bhaugulpoor.

USES, &c. A kind of Arrowroot is produced from the tubers, the process of preparing which in the countries where it grows is as follows. The root is dug up and rubbed on a stone or in a mortar and afterwards stirred in water with the hand, and strained through a cloth: the fecula having subsided, the water is poured off and the *tikor* (as it is called) is then fit for use. *Roxb.*

(250) **Curcuma longa** (*Roxb.*) Do.

*Do.*

Long rooted Turmeric, ENG.  
Mangella-kua, MAL.  
Munjel, TAM.

Pasoopoo, TEL.  
Huldec, Pitras, HIND,  
Hurida, Huludec, BENG.

DESCR: Leaves broad lanceolate, long petioled: bulbs small, and with the palmate tubers inwardly of a deep orange colour: flowers large, whitish with a faint tinge of yellow, the tuft greenish white. *Fl.* July.—Sept.—*Roxb. fl. Ind. ed. Car. I. 32.*—*Amomum curcuma, Gmel.—Rheede XI. t. 11.*

USES, &c. Cultivated in most parts of India. According to Rumphius, the Javanese make an ointment with the pounded roots and rub it over their bodies as a preservation against cutaneous diseases. The root is considered a cordial and stomachic, and is prescribed by native doctors in diarrhœa. It is also an ingredient in curries. There is a wild sort which grows in Mysore; the Natives consider Turmeric in powder an excellent application for cleaning foul ulcers. The root in its fresh state has rather an unpleasant smell, which goes off when it becomes dried, the colour is that of Saffron and the taste bitter. Mixed with juice of the Nelli-kai (*Emblia officina-*

*lis*.) it is given in diabetes and jaundice. The juice of the fresh root is anthelmintic, and the burnt root mixed with Margosa oil applied to soreness in the nasal organs. The root is applied by the Hindoos to recent wounds, bruises, leech-bites, &c. Roxburgh states that it is frequently planted in the neighbourhood of Calcutta on land where sugar cane grew the preceding year, the soil being well ploughed and cleaned from weeds. It is raised in April and May. The cuttings or sets, viz. small portions of the fresh root are planted on the tops of ridges prepared for the purpose, about 18 inches or two feet apart. One acre thus sown will yield about 2000 lbs. weight of the fresh roots. The exports of Turmeric from Madras in 1853 were 136 lbs. valued at Rs. 1,661. *Ainslie. Roxb. Com. Prod. Mad. Pres.*

(251) **Curcuma rubescens** (*Roxb.*)

Do.

Do.

DESCR: Bulbs ovate-lanceolate, and with the palmate tubers inwardly pearl-coloured: leaves broad, lanceolate, or red winged petioles, above the sheaths: rib red: scape and scales red: flowers longer than the bracteas, small, bright-yellow, purple, fragrant, with rose-coloured tuft. *Fl.* April—May.—*Roxb. fl. Ind. ed. Car.* I. 28.—Bengal.

USES, &c. The whole plant has a strong aromatic smell if bruised. The tubers yield a starch, which forms a good substitute for the West Indian Arrowroot. It is an article of diet with the Natives in several parts of India.

(252) **Curcuma zedoaria** (*Roscoe.*)

Do.

Do.

Long Zedoary, ENG.  
Katon-inschi-kua, MAL.  
Pulang Killungu, Capoor-kichlie, TAM.  
Kuchooru, Kichlie-gudda, TEL.

Kuchooru. Kakhura, HIND.  
Shutee, BENG.  
Kutchoor, DUK.

DESCR: Height 3-4 feet: bulbs and palmate tubers pale straw coloured throughout: leaves broad-lanceolate with a dark purple sheath down the middle: scape 5-6 inches long, distinct from the leafy stems: spike 4-5 inches long: flowers deep yellow and bright crimson tuft. *Fl.* April.—*Wight's Icon. t.* 2005.—*Curcuma zerumbet, Roxb. fl. Ind. I. ed. Car.* 20.—*Corom. III. t.* 201.—*Amomum zerumbet, Koen.*—*Rheede XI. t.* 7.—Chit-tagong. Malabar.

USES, &c. According to Roxburgh this plant yields the *long Zedoary* of the shops, though Pereira states that the plant has not been well ascertained. The root is used medicinally by the Natives. It is cut into small round pieces about the third of an inch thick and two in circumference. The best comes from Ceylon where it is considered tonic and carminative. According to Rheede it has virtues in nephritic complaints. The pulverised root is one of the ingredients in the red powder (*Abeer*) which the Hindoos use during the Hooly festival. The exports of Zedoary from Madras in 2 years ending in 1855 were 612 cwt. valued at Rs. 5,646. *Roxb. Pereira. Rheede. Com. Prod. Mad. Pres.*

(253) **Curculigo orchioides** (*Gærtn.*) N. O. HYPOXIDACEÆ.

**Hexandria Monogynia.** *Sex: Syst?*

Nelapanna, MAL.  
Nelapannay, TAM.  
Nala-tatta-gudda, TEL.

Niahmooslie, HIND.  
Tamoolie, Telnoor Moodol,

DESCR: Stemless: root tuberous with many spreading fibres, leaves narrow-lanceolar, nerved, slender: petioles channelled, sheathing below: racemes solitary, axillary: flowers hermaphrodite, yellow. *Fl.* All the year.—*Roxb. fl. Ind.* II. 144.—*Cor.* I. t. 13.—*Rheede* XII. t. 59.—Peninsula every where. Travancore.

USES, &c. The root is slightly bitter and aromatic, and mucilaginous to the taste and is considered a demulcent. It is used in gonorrhœa and also has tonic qualities. There are several species or rather varieties, the *C. Malabarica* and *C. brevifolia*, but the same virtues attach to all. It grows in moist shady places. The apices of the leaves are viviparous and will produce young plants, if allowed to rest on the ground for any length of time. *Roxb. Ainslie.*

(254) **Cyamopsis psoraloides** (*D.C.*) N. O. LEGUMINOSÆ.

**Diadelphia Decandria.** *Sex: Syst:*

Koth-averay, TAM.  
Kothoo-averay Kayaloo, GEN.

| Mutkee pully, HIND.

Annual, erect: leaves pinnately trifoliolate: leaflets ovate, dentate, glaucous: calyx 5-cleft: petals nearly equal: kæl cohering with the alœ and falling off together: vexillum roundish: racemes axillary, very short, flowers small, purplish: legumes oblong-linear, compressed, rostrate: seeds 7-8 obovate or truncated on one side. *Fl.* Jan.—Feb.—*W. & A. prod.* I. 197.—*Wight's Icon.* t. 248.—*Dolichos psoraloides*, *Lam.*—*D. fabæformis*, *L'Herit*

—*Roxb. fl. Ind.* III. 316.—*Psoralea tetragonoloba*, *Linn.*—*Trigonella tetrapetala*, *Roxb. in E. I. C. Mus.*—*Lupinus trifoliatum*, *Cav. Icon.* I. t. 59.—Native place unknown. Cultivated in India.

USES, &c. The legumes are delicate and are much relished as vegetables. They are eaten like French beans and put in curries, &c. Cattles are also fond of this plant.

(255) **Cycas circinalis** (*Linn.*) Nat. Ord. CYCADACEÆ

**Diœcia Polyandria.** *Sex: Syst.*

Wara-gudu, TEL.

! Todda-puna, MAL.

DESCR: Trunk cylindrical, unbranched, surmounted with a terminal bud, consisting in the male of a cone composed of peltate scales: leaves pinnated, thorny, springing from the apex of the trunk. *Fl.* May.—*Roxb. fl. Ind.* III. 744.—*C. inermis*, *Lour.*—*Rheede* III. t. 13–21.—Malabar. S. Concan. Forests near Trichore.

USES, &c. This a singular looking plant, very abundant in the forests of Malabar and Cochin. It is very fertile and easily propagated both from nuts and branches. Its vitality is said by *Rheede* to be remarkable, insomuch that the tree having been taken up and put down again a second time after one or two years it will grow. A kind of sago is prepared from the nuts. In order to collect it the latter are dried in the sun for about a month beaten in a mortar and the kernel made into flour. It is much used by the poorer classes of Natives and forest tribes. It however will not keep long. The fruit eaten with sugar is said to be mildly aperient and is given in gripes. It is also occasionally administered to check vomiting. The fruit bearing cone reduced to a poultice is applied to the loins for the removal of nephritic pains. A gummy substance which exudes from the trunk, becomes hard in the sun, is applied as an external antidote to bites of snakes, but probably is not of much use. These are cut in slices and well dried in the sun before they are fit for use, otherwise when eaten they are intoxicating, occasioning vomiting and purging. *Simmonds. Rheede.*

(256) **Cynodon dactylon** (*Pers.*) Nat. Ord. GRAMINACEÆ

**Triandria Digynia** *Sex: Syst.*

Huriallee Grass, ENG.  
Arugam-pilloo, TAM.

| Gericha, TEL.  
Doorba, BENG.

DESCR: Culms creeping, with flower-bearing branchlets, erect,

6-12 inches high, smooth : leaves small : spikes 3-5, terminal, sessile, secund, 1-2 inches long : rachis waved : flowers alternate, single, disposed in two rows on the under side : calyx much smaller than the corolla : exterior valves boat-shaped, keel slightly ciliate. *Fl.* All the year.—*Panicum dactylon*, *Linn.*—*Roxb. fl. Ind. ed. Car.* I. 292.—*Agrostis linearis*, *Retz.*—Both Peninsulas. Bengal.

USES, &c. One of the commonest of Indian grasses growing everywhere in great abundance. It forms the greater part of the food of cattle in this country. Respecting this grass, Sir W. Jones observes (*As. Res.* IV. 242,) that it is the sweetest and most nutritious pasture for cattle." Its usefulness added to its beauty induced the Hindoos to celebrate it in their writings. The Natives too eat the young leaves, and make a cooling drink from the roots. *Roxb.*

(257) **Cynometra ramiflora** (*Linn.*) N. O. LEGUMINOSÆ.

**Decandria Monogynia.** *Sex: Syst:*

Iripa, MAL.

DESCR: Tree 60-feet : leaves composed of 2-6 opposite leaflets : calyx tube very short, 4 partite, segment reflexed : petals 5, oblong-lanceolate : stamens distinct, inserted with the petals into a ring lining the calyx tube : peduncle solitary, few flowered, springing from the branches among the leaves : flowers white.—*W. & A. prod.* I. 293.—*C. ramiflora*, *Lam.*—*C. cauliflora*, *Wall.*—*Rheede* IV. t. 31.—Malabar.

USES, &c. The root is purgative. A lotion is made from the leaves boiled in cow's milk, which mixed with honey is applied externally in scabies, leprosy, and other cutaneous diseases. An oil is also prepared from the seeds used for the same purposes. *Rheede.*

(258) **Cyperus bulbosus** (*Vahl.*) Nat. Ord.

**Triandria Monogynia.** *Sex: Syst*

Sheelandie, TAM.

| Pura-gaddi, TEL.

DESCR: Culms 2-4 inches high, semi-terete, 3-cornered : root bulbous, tunicate, with bulbiferous fibres : spikelets linear-lanceolate, acuminate, 10-16 flowered, alternate in the apex of the culm :



lower two double : scales ovate-lanceolate, acuminate : style trifid : seed oblong, 3-cornered, involucre with alternate leaflet : two lower ones longer than the spikes : leaves filiform, all radical, far-sheathing.—*Roxb. fl. Ind. ed. Car. I.* 196.—*Wight's Contrib. p.* 88.—*C. capitatus, Retz*—*C. jemenicus, Roxb.*—Coromandel.

**USES, &c.** This kind of sedge is found in sandy situations near the sea on the Coromandel Coast, where it is known as the *Sheelandie arisee*. Roots are used as flour in times of scarcity and eaten roasted or boiled. They have the taste of potatoes. *Puri gaddi* is the Telinga name of the plant, and *Puri dumpa* that of the root. The mode of preparing the flour is thus given by Roxburgh. The little bulbs are gently roasted or boiled, then rubbed between the hands in the folds of a cloth to take off the sheaths, this is all the preparation the Natives adopt to make them a pleasant wholesome part of their diet, which they have frequent recourse to particularly in times of scarcity. Some dry them in the sun, grind them into meal, and make bread of them, while others stew them in curries and other dishes ; they are palatable, tasting like a roasted potatoe. *Roxb.*

(259) **Cyperus hexastachyus** (*Rottl.*)

Do.

*Do.*

Koray, TAM.  
Shaka-toonga, TEL.

}\ Kora, MAL.  
}\ Moothoo, BENG.

**DESCR :** Culms erect, 1-2 feet, triangular with rounded angles : leaves radical, sheathing, shorter than the culms : root tuberous, tubers irregular, size of filberts, rusty coloured : umbels terminal, compound : involucre 3-leaved, unequal : spikes linear, sessile. *Fl.* June—August.—*Roxb. fl. Ind. ed. Car. I.* 201.—*Wight's Contrib. p.* 81.—*C. rotundus, Linn.*—Peninsula. Bengal.

**USES, &c.** The tubers are sold in the bazars and used by perfumers on account of their fragrance. In medicine they are used as tonic and stimulant, and have been employed in the treatment of cholera. In the fresh state given in infusion as a demulcent in fevers, and also used in cases of dysentery and diarrhœa. It is perhaps the most common species in India of this extensive genus. It is found chiefly in sandy soils but will grow almost anywhere. Hogs are very fond of the roots, and cattle eat the greens. It becomes a troublesome weed in the gardens, being difficult to extirpate. *Roxb. Ainslie*

(260) **Cyperus inundatus** (*Lindl.*) Do.

*Do.*

Patee, BENG.

| Pota-pullu, MAL.

DESCR : Culms 2-4 feet, triangular : leaves numerous, deeply channelled on the inside, keeled on the back, as long as the culms : involucre 4-5 leaved, one very long : root jointed, creeping : umbel decomposed, a span long, spikelets sessile, diverging. *Fl.* July—August.—*Roxb. fl. Ind. ed. Car.* I. 205.—*Wight's Contrib. p.* 76.—*C. procerus*, *Roxb. fl. Ind. ed. Car.* I. 206.—*C. bacha*, *Ham.*—*Rheede XII. t.* 50.—Peninsula. Bengal.

USES, &c. Found in great abundance on the low banks of the river Hooghly and rivulets near Calcutta. Where the tide rises high over it, it thrives most luxuriantly and helps much to bind and protect the banks from the rapidity of the water. *Roxb.*

(261) **Cyperus pertenuis** (*Roxb.*) Do.

*Do*

Nagur-moothee, HIND.

| Naga, BENG.

DESCR : Culms 3-4 feet, subrotund at the base ; triangular above : root somewhat tuberous, fibrous : leaves 1-2 at the base of each culm, about one-third the length of the culm : umbel very small, compound and decomposed : spikelets filiform, many-flowered, involucre 3-leaved, one long and two shorter, tapering to acute points. *Fl.* July—August.—*Roxb. fl. Ind. ed. Car.* I. 202.—*Wight's Contrib. p.* 83.—Bengal.

USES, &c. Its naked delicate form, small and compound umbels, short slender leaves, readily distinguish this one from other Indian species. The roots are aromatic, and are used for perfuming the hair. *Roxb.*

## D.

(262) **Dæmia extensa** (*R. Br.*) Nat. Ord. ASCLEPIACEÆ**Pentandria Digynia.** *Sex: Syst:*

Vaylie-partie, Ootamunnie, TAM.	Oobrun, DUK.
Jutuga, TEL.	Chagul-bantee, BENG.
Sagowanie, HIND.	

DESCR: Twining, shrubby: leaves roundish-cordate, acuminate, acute, auricled at the base, downy, glaucous beneath: staminous corona double: outer one 10-parted, inner one 5-leaved: peduncles and pedicels elongated, filiform: margins of corolla ciliated: flowers in umbels, pale-green, purplish inside: follicles ramentaceous. *Fl.* July—Dec.—*Don's Mill.* IV. 156.—*Wight's Contrib.* p. 59.—*Wight's Icon.* t. 596.—*Cynanchum extensum*, *Jacq. Icon.*—*C. cordifolium*, *Retz.*—*C. bicolor.* *And. Bot. Rep.*—*Asclepias echinata*, *Roxb. fl. Ind.* II. 44. — Peninsula. Bengal. Himalayahs.

USES, &c. This twining plant abounds in milky juice. The smell of the flowers is very offensive. In medicine the Natives use the whole in infusion in pulmonary affections, if given in large doses it will cause nausea and vomiting. The juice of the leaves mixed with chunam is applied externally in rheumatic swellings of the limbs. A fibre is procured from the stems which has been recommended as a fair substitute for flax. It is said to be very fine and strong. *Jury Rep.* *Ainslie.*

(263) **Dalbergia frondosa** (*Roxb.*) Nat. Ord. LEGUMINOSÆ.**Diadelphia Decandria.** *Sex: Syst:*

DESCR: Tree 30-feet: bark smooth: leaves pinnate: leaflets about 5 pairs, alternate, cuneate-oval, emarginate, when very young silky: panicles axillary, pubescent: flowers secund, racemose along the alternate branches of the panicles, small, bluish-white:

calyx hairy: also as long as the vexillum, about twice as long as the keel: corolla papilionaceous: ovary very slightly pubescent: legume lanceolate, 1-4 seeded or less. *Fl.* May—June.—*W. & A. prod.* I. 266.—*Roxb. fl. Ind.* III. 226.—*Wight's Icon. t.* 266.—*D. arborea, Heyn.*—Courtallum, Travancore.

**USES, &c.** Yields a valuable timber. The bark in infusion is given internally in dyspepsia and the leaves are rubbed over the body in cases of leprosy, and other cutaneous diseases. An oil is procured from the seeds used in rheumatic affections, and a milk which exudes from the root is occasionally applied to ulcers. *Roxb. &c.*

(264) **Dalbergia latifolia** (*Roxb.*) Do.

*Do.*

Black-wood tree, ENG.  
Eettie, Corin-toweray, TAM.  
Eettie, MAL.

Viroo-goodu-Chawa, TEL.  
Shwet-sal, BENG.

**DESCR:** Tree 40-50 feet: leaves pinnate: leaflets alternate 3-7, generally 5, orbicular, emarginate, above glabrous, beneath somewhat pubescent when young: panicles axillary, branched, and divaricating: corolla papilionaceous: calyx segments oblong: stamens united in a sheath open on the upper side: ovary stalked, 5-ovuled: legumes stalked, oblong lanceolate 1-seeded: flowers small, white, on short slender pedicels. *Fl.* April—July.—*W. & A. prod.* I. 264.—*Roxb. fl. Ind.* III. 221.—*Cor.* II. t. 113.—*Wight's Icon. t.* 1156.—Circar mountains. S. Concan. Travancore. Coromandel.

**USES, &c.** A magnificent tree, abundant in the forests of S. India and elsewhere, producing what is well known as the black wood. As a timber for furniture it is in very great request. It is likewise used for ordnance purposes. The planks however have a propensity to split longitudinally, when not well seasoned. An earthy deposit is frequently found embedded in the largest logs which occasions a great defect in what would otherwise be fine planks. Some planks are four feet broad after the sap wood has been removed. Black wood is one of the most valuable woods of S. India, and when well polished has much the appearance of rose-wood, which name it frequently receives in commerce. The root of the tree is used in medicine, and a fixed oil is procured from the seeds said to be good in cutaneous diseases. The value of black wood timber exported from Madras in 1852-56, amounted to nearly two lacs of Rupees. *Roxb. Pers. obs. Com. prod.*

(265) **Dalbergia Oojeinensis** (*Roxb.*)

Do.

\*

Do.

\*

DESCR: Tree 30-feet: leaves pinnately trifoliolate: leaflets ovate, roundish, rather villous, with undulated curved margins: pedicels 1-flowered rising in fascicles, and as well as the calyx villous: flowers smallish, pale rose, fragrant. *Fl.* April—July.—*Don's Mill.* II. 574.—*Roxb. fl. Ind.* III. 220.—*Wight's Icon.* t. 391.—Oude. Dheyra Dhoon.

USES, &c. This species yields a useful and valuable timber especially adapted for house building. *Roxb.*

(266) **Dalbergia sissoo** (*Roxb.*)

Do.

Do.

Sissoo, BENG. and HIND.

| Sissu, TEL.

DESCR: Tree 50 feet: leaves pinnate: leaflets 3-5, alternate, orbicular or obcordate, with a short sudden acumination, slightly waved on the margin, when young pubescent: panicles axillary, composed of several short secund spikes: flowers almost quite sessile: stamens 9, united into a sheath open on the upper side: style very short: legumes stalked, linear, lanceolate, 3-seeded: flowers small, yellowish, white. *Fl.* April—July.—*W. & A. prod.* I. 264.—*Roxb. fl. Ind.* III. 223.—*Pterocarpus sissoo*, *Roxb. in E. I. C. Mus.*—Coromandel. Goozerat. Bengal.

USES, &c. Timber light, and remarkably strong, colour light greyish-brown. It is good for ordinary economical purposes. It is much used in Bengal for knees and crooked timber in ship building as well as for gun carriages and mail carts. Wood hard, strong, tenacious, and compact, whilst its great durability combines to render it one of the most valuable timbers known. There are few trees which so much deserve attention, considering its rapid growth, its beauty and its usefulness. The tree grows rapidly, is propagated and reared with facility, and it early attains a good working condition of timber. Plantations have been recommended along the channels of the Northern Annicuts. *Roxb. Jury Rep. &c.*

(267) **Dalbergia sissoides** (*Grah.*)

Do.

Do.

Black-wood, ENG.

| Biti-marum, TAM.

DESCR: Tree: leaflets 5-7, alternate, elliptic-ovate, bluntly

acuminate : panicles axillary, branched, lax, half the length of the leaves : flowers on slender shortish pedicels : stamens 9, united in a sheath open on the upper side : ovary stalked, 4-5 ovuled, glabrous.—*W. & A. prod.* I. 265.—Neilgherries. Courtallum. Travancore. Concans.

**USES, &c.** This is a smaller tree than *D. latifolia*, but more common ; both yield a black wood. The timber is much the same, except that owing to a quantity of oil in the wood, it is not adapted for receiving paint. Another species, the *D. paniculata* (*Roxb.*) has a fine whitish wood, but less useful than many others. *Jury Rep.*

(268) **Daphne cannabina** (*Lour.*) Nat. Ord. THYMELACEÆ.

**Ocandria Monogynia** *Sex: Syst:*

Nepal paper-shrub, ENG.

**DESCR:** Shrub, 5-6-feet : branches ascending : leaves ovate-lanceolate, quite entire, smooth : umbels axillary towards the ends of the branches : corolla salver-shaped with a long tube : segments minute, ovate : filaments in two rows within the tube : berry ovate, red : flowers yellow. *Fl.* January—February.—*Miller's Dict. Vol. II.*—Himalayahs. Nepaul.

**USES, &c.** An excellent writing paper is made from the inner bark, prepared like hemp. Fragments of a brown resinous substance resembling the Lign aloes are frequently found within the trunk of this tree near the root. The bark and root have been used medicinally in dropsy. The process of making paper from this species is thus described in the 'Asiatic Researches.' After scraping the outer surface of the bark, what remains is boiled in water with a small quantity of oak ashes. After the boiling it is washed and beat to a pulp on a stone. It is then spread on moulds or frames made of bamboo mats. The *Setburosa* or paper-shrub, says the same writer in the above journal is found on the most exposed parts of the mountains, and those the most elevated and covered with snow throughout the province of Kumaon. In traversing the oak forests between Bhumtah and Ramgur, and again from Almorah to Chimpanat and down towards the river, the paper-plant would appear to thrive luxuriantly only where the oak grows. The paper prepared from its bark is particularly suited for cartridges, being strong, tough, not liable to crack or break, however much bent or folded, proof against being moth-eaten

and not subject to damp from any change in the weather; besides if drenched or left in water any considerable time, it will not rot. It is invariably used all over Kumaon and is in great request in many parts of the plains, for the purpose of writing *misub-namaks* or genealogical records, deeds, &c. from its extraordinary durability. It is generally made about one yard square and of three different qualities. The best sort is retailed at the rate of forty sheets for a Rupee, and at wholesale eighty sheets. The second is retailed at the rate of fifty sheets for a Rupee, and a hundred at wholesale. The third of a much smaller size is retailed at a hundred and forty sheets, and wholesale a hundred and sixty sheets to a hundred and seventy for a Rupee. Specimens of the paper were sent by Colonel Sykes to the Great Exhibition. Dr. Royle states that an engraver to whom it was sent to experimentalize upon, said that it afforded finer impressions than any English made paper, and nearly as good as the fine Chinese paper, which is employed for what are called India paper proofs. Dr. Campbell describes the paper as strong and almost as durable as leather and quite smooth enough to write on, and for office records incomparably better than any India paper. Many of the books in Nepal written on this paper are of considerable age, and the art of making paper there seems to have been introduced about 500 years ago from China and not from India. *Murray in As. Res. Royle's fibrous Plants. Miller.*

(269) **Datura alba** (*Rumph.*) Nat. Ord. SOLANACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

White flowered thorn Apple, ENG.  
Hummatoo, MAL.  
Vellay-oomstay, TAM.

Dhootoora, BENG.  
Sada-dhatooora, HIND.  
Tella-oomatie, TEL.

**DESCR:** Annual 2-3 feet: leaves ovate, acuminate, repandly toothed, unequal at the base and as well as the stem smooth: stamens enclosed: fruit prickly: corolla white: calyx 5-lobed. *Fl.* All the year.—*Don's Mill.* IV. 474.—*Wight's Icon.* t. 852.—*D. metel, Roxb. fl. Ind. ed. Car.* II. 238.—*Rheede* II. t. 28.—Common everywhere.

**USES, &c.** This plant has probably in almost all respects the same properties as the *D. fastuosa*. It is a strong narcotic, though it is said not to be quite so virulently poisonous as the latter. The juice of the leaves boiled in oil is applied to cutaneous affections of the head. It is also used by Rajpoot mothers to smear their breasts, so as to poison their new born female children. The seeds are employed in fevers about three at a dose, &c. and are with the leaves applied externally in rheumatic and other swellings of the limbs. *Rheede. Roxb. Brown on Infanticide.*

(270) *Datura fastuosa* (Willd.)

Do.

Do.

Purple thorn Apple, ENG.  
Nela-hummatta, MAL  
Karoo-oomatay, TAM.

Nulla-oomattie, TEL.  
Kala-datoora, Ial-dhatoora, HIND.  
Kala-dhotoora, BENG.

DESCR: Annual, 2-3 feet: leaves ovate, acuminate, repandly toothed, unequal at the base, and, as well as the stem downy: flowers double, fruit tubercled: corolla violaceous outside, and white inside, teeth of the limb subrotate. *Fl.* All the year.—*Don's Mill.* IV. 474.—*Roxb. fl. Ind. ed. Car.* II. 238.—*Wight's Icon. t.* 1896.—*Rheede II. t.* 29-30.—Common everywhere.

USES, &c. This plant is known for the intoxicating and narcotic properties of its fruit. The root in powder is given by Mahomedan doctors in cases of violent head-aches and epilepsy. The inspissated juice of the leaves is used for the same purpose. The Hindoo doctors use the succulent leaves and fruit in preparing poultices, mixed with other ingredients, for repelling cutaneous tumours and for piles. They also assert that the seeds made into pills deaden the pain of the tooth-ache, when laid upon the decayed tooth. In Java the plant is considered anthelmintic, and is used externally in herpetic diseases. The Chinese employ the *Datura* seeds for stupifying and even poisoning those whom they are at enmity with, a practice resorted to also in India. This species is reckoned more poisonous than the white flowered one. Leaves in oil are rubbed on the body in itch or rheumatic pains of the limbs. The seeds bruised are applied to boils and carbuncles. They are soporific and very dangerous if incautiously used. *Rheede. Ainslie. &c.*

(271) *Dendrocalamus strictus* (Nees.) N. O. GRAMINEÆ.

Hexandria Monogyn . Sex: Syst:

Male Bamboo, ENG.

Sadanapa Vedroo, TEL.

DESCR: Stems straight: thorns frequently wanting: inflorescence the same as in the common Bamboo: verticels sessile, globular, numerous, entirely surrounding the branchlets: flowers hemaphrodite: corolla 2-valved: extreme valves pubescent, sharply pointed: pistil woolly. *Fl.* April—June.—*Roxb. fl. Ind.* II. 193.—*Corom.* I. t. 80.—*Nastus strictus*, *Sm. in Rees' Cycl.*—Coromandel.



**USES, &c.** This species of Bamboo has great strength and solidity, and is very straight, hence it is better suited for a variety of uses than the common Bamboo. The Natives make great use of it for spears, shafts, &c. It is clearly a distinct species, growing in a drier situation than other Bamboos. *Roxb.*

(272) **Dendrocalamus tulda** (*Nees.*) Do.

*Do.*

Tulda Bans, BENG.

| Peka Bans, HIND.

**DESCR:** Stems jointed, unarmed, smooth : leaves alternate, bifarious, sheathing, linear-lanceolate, broad, and sometimes cordate at the base : sheaths longer than the joints : panicles oblong, composed of numerous supra-de-compound ramifications, only appearing when the plant is destitute of leaves : spikelets lanceolate, sessile, 4-8 flowered. *Fl.* May.—*Bambusa tulda*, *Roxb. fl. Ind.* II. 193.—Bengal.

**USES, &c.** This is the common Bamboo of Bengal, and is there very abundant. It is much used for house building, scaffolding, &c. and if soaked in water for some weeks previous to being used, lasts much longer and becomes stronger ; besides, it prevents it being attacked by insects. It grows quickly. The tender shoots are eaten as pickles by the Natives. There are two varieties one called the *Peka-bans* which is larger than the first, the joints being larger, and thicker and therefore better adapted for building. The other is the *Bashini-bans* which has a larger cavity and is much employed in basket making. Another species, the *D. ballcooa* is also much prized for its strength and solidity, especially after having been immersed in water previous to using. Indeed this species is perhaps preferable to any other from its size. *Roxb.*

(273) **Desmodium triflorum** (*D.C.*) N. O. LEGUMINOSÆ.

**Diadelphia Decandria, Sex: Syst:**

Koodaliya, BENG.  
Moonoodna-mooodoo, TEL.

| Kodaliya, HIND.

**DESCR:** Stems procumbent, diffuse : leaves trifoliolate : leaflets orbicular, obovate or obcordate, more or less pubescent or hairy : peduncles axillary, solitary, fascicled, 1-3 flowered : calyx deeply divided : vexillum obovate, long-clawed : style bent acutely near the summit and tumid at the angle : legumes hispidly pubescent, 3-6-jointed, notched in the middle on the lower margins, even on the other : joints truncated at both ends : flowers small, blue.

*Fl.* All the year—*W. & A. prod.* I. 229.—*Hedysarum triflorum*, *Linn.*—*D. heterophyllum*, *D. C.*—*H. triflorum*, *Willd.*—*Roxb. fl. Ind.* III. p. 353.—*Wight's Icon.* I. t. 292.—*H. stipulaceum*, *Burm.*—*Aeschynomene triflora*, *Poir.*—Peninsula Bengal.

USES, &c. This is a common and widely distributed plant, springing up in all soils and situations, in India supplying the place of *Trifolium* and *Medicago* in Europe. There are several varieties. The Natives apply the plant fresh gathered to abscesses and wounds that do not heal well. *Wight. &c.*

(274) **Dichrostachys cinerea** (*W. & A.*) Do.

**Polygamia Monœcia.** *Sex: Syst:*

Vadatara, Waratara, TAM.		Vurtuli, HIND.
Vellitooroo Yeltoor, TEL.		

DESCR: Shrub 6-7 feet: thorns solitary: calyx 5-toothed: pinnæ 8-10 pair: leaflets ciliated, 12-15 pair: petioles pubescent: spikes axillary, usually solitary, cylindric, drooping, rather shorter than the leaves: corolla 5-cleft, petals scarcely cohering by their margins: flowers white or rose coloured at the bottom, and yellow at the top: legumes thick, curved: joints 1-seeded. *Fl.* April—May.—*W. & A. prod.* I. 271.—*Wight's Icon.* t. 357—*Mimosa cinerea*, *Linn.*—*Roxb. fl. Ind.* II. 561.—*Cor.* II. t. 174.—*Desmanthus cinereus*, *Willd.*—*Acacia cinerea*, *Spr.*—*A. dalea*, *Desv.*—Coromandel. Sterile plains in the Deccan.

USES, &c. The young shoots are bruised and applied to the eyes in cases of ophthalmia. The wood is very hard, like that of the *babool*. It is a striking plant when in flower, with its long drooping cylindric spikes of white and yellow flowers. *Ainslie. Roxb.*

(275) **Dilivaria ilicifolia** (*Juss.*) Nat. Ord. ACANTHACEÆ.

**Didynamia Anglespermiæ.** *Sex: Syst:*

Paina-schulli, MAL.	Harkooch Kanta, Hurkut, HIND.
Kolee-molee-cheddie, TAM.	Hakorch, BENG.
Alisa, TEL.	

DESCR: Shrub 4-5 feet, glabrous: leaves spinous-dentate, spikes many-flowered: flowers blue. *Fl.* Nearly all the year.—*Wight's Icon.* II. t. 459.—*Acanthus ilicifolius*, *Linn.*—*Roxb. fl. Ind.* III. 32.—*Rheede* II. t. 48.—Backwaters and Canals in Travancore. Soonderbunds. Cochrane's Canal, Madras, and generally near salt

USES, &c. In appearance this is very like the English Holly. It is common by the side of streams or swampy situations near the sea-shore. The leaves soaked in water are considered in Malabar a specific for snake bites. An infusion of the root is given as a gargle in tooth ache and gum-boils. *Rheede. Ainslie.*

(276) *Dillenia pentagyna* (Roxb.) Nat. Ord. DILLENIACEÆ.

**Polyandria Polygynia.** Sex: Syst.

Rawadarn, TEL.

DESCR: Tree 20 feet: leaves broadly lanceolate, sharply toothed or serrated, appearing after the flowers: peduncles from the axils of the scars of the former year's leaves, several together, 1-flowered: inner row of stamens longer than the others: styles 5-flowered: gold coloured, fragrant seeds immersed in a gelatinous pulp: carpels joined into a ribbed baccate fruit. *Fl. March—April.—W & A. prod. I. 5.—Roxb. Cor. 1. t. 20.—fl. Ind. II. 652.—Colbertia Coromandeliana, D. C.—Wormia Coromandeliana, Spr.—Malabar. Coromandel. S. Mahratta Country. Assam.*

USES, &c. A large timber tree. The wood is close grained, and used for a variety of purposes. In Assam it is used for canoes. The leaves are employed at Poona as a substratum for chuppered roofs. *Roxb.*

(277) *Dillenia speciosa* (Thunb.) Do.

Do.

Syalita, MAL.  
Uva-chitta, TEL.

Chalita, BENG.  
Uva-maram, TAM.

DESCR: Tree 40 feet: leaves oblong, serrated, glabrous, appearing with the flowers: sepals and petals 5: peduncles solitary, terminal, one-flowered: stamens all equal in length: styles and carpels about 20: seeds hairy: carpels joined into a spurious many-celled, many-seeded berry, crowned by the radiant stigmas: flowers large, showy with white petals and yellow anthers.—*W. & A. prod. I. 5.—Wight's Icon. t. 823.—Roxb. fl. Ind. II. 650.—D. Indica, Linn.—D. elliptica, Thunb.—Rheede III. t. 38-39.—Malabar. Bengal. Chittagong.*

USES, &c. The fruit is eatable and has a pleasant flavour though acid. Mixed with sugar and water the juice is a cooling beverage in fevers and as a cough mixture.

leaves are astringent and used medicinally. It is an ornamental tree and affords good timber especially valuable for its durability in water. It is used to make gun stocks, &c. Leaves which are hard and rough are used for polishing furniture and tinware, like others of the same family. A good jelly is made in Assam from the outer rind of the fruit. The juice of the root is applied to reduce œdematous swelling. Ripe fruit is slightly laxative and apt to bring on diarrhœa if too freely indulged in. The bark in infusion is used in rheumatism externally. *Rheede. Royle. &c.*

(278) **Dioscorea aculeata** (*Linn.*) Nat. Ord. DIOSCOREACEÆ.

**Diœcia Hexandria.** *Sex: Syst:*

Goa-potatoe, ENG.  
Kata-kelenga, MAL.

Kautoo-kelangoe, TAM.  
Mou-aloo, BENG. and HIND.

DESCR: Tubers oblong, pendulous, the fibres of the proper roots become spinous: leaves reniform, cordate, acute, from five to seven-nerved.—*Roxb. fl. Ind.* III. 800.—*Wight's Icon. t.* 2060.—*Rheede VII. t.* 37.—Goa.

USES, &c. The tubers make a good esculent vegetable. They are about 2 lbs. or more in weight. They are dug up in the forest during the cold season, and sold in the bazars. *Roxb.*

(279) **Dioscorea alata** (*Linn.*)

Do.

*Do.*

Yam, ENG.  
Kastaje-kelenga, Perin vullie-  
kelenga, MAL.  
Niluvu-pendalum, TEL.

Khum-aloo, BENG.  
Kam-aloo, HIND.  
Yams-kalung, TAM.

DESCR: Tubers oblong, white: stems annual, twining, four winged: leaves opposite, deep cordate, from five to seven nerved: petioles winged: flowers small green. *Fl.* July—August.—*Roxb. fl. Ind.* III. 797.—*Wight's Icon. t.* 810.—*Rheede VII. t.* 38.—Wild in both Concans. Cultivated in Coromandel.

USES, &c. A favourite kind of yam with the Natives. The juice of the leaves is used in bites of scorpions. The root powdered is a good application to ulcers. *Rheede.*

(280) **Dioscorea bulbifera** (*Linn.*)

Do.

*Do.*

Katu-katsjill, MAL.

DESCR: Leaves alternate, deeply cordate, acuminate, 7 nerved: the exterior nerves 2 cleft: transverse veins reticulated: stem bul-

biferous : *male* spikes fascicled.—*Wight's Icon. t.* 878.—*Rheede VII. t.* 36.—Both Concans.

USES, &c. The *Dioscorea* are climbing and sarmentaceous plants. The roots are large, tuberous, and very rich in nutritious starch. The flowers and roots are eaten by the poorer classes : the latter are very bitter, but after undergoing the process of being covered over with ashes and steeped in cold water, they become eatable. This yam in decoction with powdered China root is applied to the cleansing of ulcers. *Rheede. J. Graham.*

(281) ***Dioscorea globosa*** (*Roxb.*) Do.

*Do.*

Choopri-aloo, BENG. and HIND.

DESCR: Tubers roundish, white : stems twining, six winged : leaves alternate and opposite, sagittate, cordate : *male* spikes compound, long, pendulous, and verticelled : *female* flowers small, white ones simple. *Fl.* July—September.—*Roxb. fl. Ind.* III. 797.—*Wight's Icon. t.* 812.—Cultivated.

USES, &c. This species is much cultivated as affording the most esteemed of the yams, eaten by Europeans and Natives in India.

(282) ***Dioscorea pentaphylla*** (*Linn.*) Do.

*Do.*

Nureni-kelangu, MAL.

| Kanta-aloo, BENG.

DESCR: Tubers oblong : stems herbaceous, twining, prickly : leaves digitate, downy : *male* flowers paniced, greenish-white, fragrant : *female* ones spiked.—*Roxb. fl. Ind.* III. 806.—*Wight's Icon. t.* 814.—*Rheede VII. t.* 34, 35.—Concans.

USES, &c. A common species in jungles on low-hills, &c. but never cultivated, so far as I have seen, says Dr. Wight, which is remarkable as I have always found the Natives dig the tubers, whenever they had an opportunity to dress and eat them. The male flowers are sold in the bazars and eaten as greens, and are said to be wholesome. There are several other kinds of edible yams, among which may be mentioned the *D. fasciculata* (*Roxb.*) which is cultivated largely in the vicinity of Calcutta, where it is known as the *soosni-aloo*, a starch is also made from the tubers. Another kind is the *D. purpurea* (*Roxb.*) known as the Pondicherry sweet potatoe, which is an excellent kind of yam, but only found in a cultivated state. *Roxb. J. Graham.*

(283) **Dioscorea triphylla** (Linn.) Do.

Do.

Tsiagri-nuren, MAL.

DESCR: Root tuberous, biennial: stems annual, twining, armed: leaves terrate: leaflets obovate-cuneate, 3 to 5 nerved: *male* spikes axillary, compound, drooping, sometimes leaf-bearing, 6 to 18 inches long: *female* on a different plant: spikes axillary, solitary, pendulous: styles scarcely any: stigmas three.—*Roxb. fl. Ind.* III. 805.—*Rheede* VII. t. 33.—Both Concans.

USES, &c. The root is bitter and intoxicating and is often put into toddy to make it more potent; a few slices introduced are sufficient for the purpose. *J. Graham.*

(284) **Diospyros chloroxylon** (Roxb.) N. O. EBENACEÆ.

**Polygamia Dicoecia.** Sex: ♂♂

Peddi ulinda, Nella-woolimera, TEL.

DESCR: Tree middling size: calyx deeply 4-cleft: corolla urceolate 4-cleft: thorns numerous if present, occasionally wanting: leaves alternate, oval, entire, pubescent below, short petioled: *male* flowers paniced: peduncles axillary, solitary: stamens 12, inserted in the bottom of the tube of the corolla: hermaphrodite flowers solitary, sessile with about eight stamens: styles 4: flowers white: berry 2-3 seeded. *Fl.* March—April.—*Roxb. fl. Ind.* II. 538.—*Cor.* I. t. 49.—*Don's Mill.* IV. 38.—*Wight's Icon.* t. 1224.—Coromandel. Circars. Orissa mountains.

USES, &c. The fruit is eatable and very palatable. The wood yellowish very hard and durable; and is used by the Natives for many purposes. *Roxb.*

(285) **Diospyros cordifolia** (Roxb.) Do.

Do.

Kak-woolimera, TEL.  
Vuckana-marum, TAM.

Bungab, BENG.

DESCR: Large tree: thorns numerous, scattered over the trunk and larger branches: leaves alternate, linear-oblong, cordate at the base, entire, smooth, somewhat pubescent on short petioles: *male* peduncles axillary, solitary, with 3 flowers: stamens 8, inserted in

the base of the tube of the corolla : hermaphrodite flowers, 1-flowered : stamens 12 : styles 4 : berry 6-10 seeded : flowers greenish white. *Fl.* Feb.—May.—*Roxb. fl. Ind.* II. 538.—*Cor. I. t.* 50.—Peninsula. Bengal.

**USES, &c.** The wood which is dark coloured is hard and durable, and is used by the Natives for many economical purposes. *Roxb.*

(286) **Diospyros melanoxylon** (*Roxb.*) Do.

*Do.*

Ebony-tree, ENG.  
Tumballi, TAM.  
Toomida, TEL.

Tindoo, HIND.  
Kiew, Kendoo, BENG.

**DESCR :** Large tree : young shoots pubescent : leaves nearly opposite, oblong or oblong-lanceolate, acute at the base, coriaceous, entire, obtuse, when young pubescent : calyx and corolla 5-cleft : *male* peduncles axillary, solitary, 3-6 flowered : stamens 12 : hermaphrodite flowers rather larger than the male, nearly sessile : styles 3-4 : berry round, yellow : flowers white : seeds 2-8 immersed in pulp. *Fl.* April—May.—*Roxb. fl. Ind.* II. 530.—*Cor. I. t.* 46.—*Don's Mill.* IV. 40.—Malabar. Coromandel. Orissa.

**USES, &c.** The true Ebony of commerce is obtained from the *D. Ebenaster*, (Retz.) which tree is a native of Ceylon, but in fact other species scarcely differing from one another yield this timber. The great peculiarity of Ebony wood is its extreme heaviness and dark black colour. Some species have the wood variegated with white, or brownish lines. Ebony was known and appreciated by the ancients as a valuable wood. Virgil said that it only came from India, though it is well known that Æthiopia was famous for it, a fact recorded by Pliny. Dioscorides said that Æthiopia's Ebony was the best. Herodotus wrote concerning the latter country, "It produces much gold, huge elephants, wild trees of all kinds, Ebony, &c."

This species yields a fine kind of Ebony. It is only the centre of the larger trees that is black and valuable, and the older the trees the better the quality. The outside wood is white and spongy which decaying or destroyed by insects displays the central Ebony. It is much affected by the weather on which account European cabinet makers seldom use it except in veneer. The ripe fruit is eatable but rather astringent. The bark which is

also astringent is reduced to an impalpable powder and applied to ulcerations and internally mixed with black pepper is given in dysentery. There is a slight export trade of Ebony from Madras. *Roxb. Pers. obs. &c.*

(287) **Diospyros montana** (*Roxb.*) Do.

*Do.*

\* Yerra-gada, TEL.

DESCR: Middling sized tree, armed with spines: leaves alternate, ovate-oblong, pointed, glabrous on both sides, entire, short petioled: flowers axillary, solitary, nearly sessile, corolla twisted: stamens 8, inserted into the bottom of the tube: hermaphrodite: flowers solitary on short peduncles: stamens 4 sterile: styles 4, flowers small green, fragrant. *Fl.* February—May.—*Roxb. fl. Ind.* II. 538.—*Cor.* I. t. 48.—*Wight's Icon. t.* 1225.—*Don's Mill.* IV. 40.—Circular mountains.

USES, &c. The timber of this tree is variegated with dark and white coloured veins. It is very hard and durable. *Roxb.*

(288) **Diospyros tomentosa** (*Roxb.*) Do.

*Do.*

Tumal, HIND.

| Kyou, BENG.

DESCR: Tall tree: tender parts downy: leaves opposite and alternate, oval, entire: *male* peduncles 3-flowered: calyx and corolla gibbous, 4-toothed: stamens 12: *female* flowers having the calyx and corolla 5-parted: berry 5-seeded: flowers whitish: styles 2: berry yellow when ripe and filled with soft pulp. *Fl.* March—May.—*Roxb. fl. Ind.* II. 532.—*Wight's Icon. t.* 182, 83.—*Don's Mill.* IV. 38.—Northern parts of Bengal.

USES, &c. This tree like other species of *Diospyros* furnishes a kind of Ebony wood, much used in those parts of the country where it is indigenous. The wood is black, hard and heavy. Roxburgh compares this tree to a cypress from its tall and elegant form. The leaves all fall off in the cold season. *Roxb.*

\* *Roxb.* called it yerra-gada, but this is *Dalbergia latifolia*.



(289) **Dipterocarpus angustifolius** (*W. & A.*) Nat. Ord.

## DIPTEROCARPACEÆ.

**Polyandria Monogynia.** *Sex: Syst:*

**DESCR:** Large tree : young branches hairy : leaves linear oblong, rounded at the base, acuminate, hairy below : calyx tube 5-cleft : two segments of which becomes elongated into expanded wings when in fruit : petals 5 : racemes terminal : flowers small, white, tinged with red. *Fl.* December—January.—*W. & A. prod. p. 84.*—*Dipterocarpus costatus*, *Roxb. fl. Ind. II. 613.*—Chittagong.

**USES, &c.** A large quantity of wood oil is furnished by this tree. It is a native of Chittagong where it is called *tileeyagurjun*. *Roxb.*

(290) **Dipterocarpus lævis** (*Ham.*) Do.

Do.

Tilea gurjun, BENG.

**DESCR:** Large tree : young branches compressed, two-edged : leaves ovate or oblong-ovate, retuse at the base, acute, shining on both sides, with numerous prominent veins : petioles glabrous : tube of enlarged calyx slightly ventricose, two segments expanded into wings when in fruit : capsule ovate, even : flowers white, tinged with red. *Fl.* March—*W. & A. prod. I. 85.*—*Dipterocarpus turbinatus*, *Roxb. fl. Ind. II. 612.*—*Cor. III. t. 213.*—Chittagong. Tipperah.

**USES, &c.** This tree is famous over Eastern India and the Malay Islands, on account of its yielding a thin liquid balsam commonly called Wood-oil, which is much used for painting ships and houses in India. A large notch is cut in the trunk of the tree near the ground, where fire is kept until the wound is charred, soon after which the liquid begins to ooze out. A small gutter is cut in the wood to conduct the fluid into a vessel placed to receive it. These operations are performed in the month of November to February ; and should any of the trees become sickly the following season, a year's respite is given them. The average produce is 40 gallons in one season. Large quantities of this Wood oil is exported from Moulmein to Europe, where it has become a new drug in trade. It resembles in a remarkable degree the balsam of Copaiba, and has been used a substitute for that Me-

dicine.\* It has a curious property which is exhibited when it has been heated in a corked phial to about 266° Fahr., it then becomes slightly turbid and so gelatinous, that the phial may be inverted even while hot, without its contents being displaced, and on cooling, the solidification is still more complete. With regard to its medicinal properties it has been proved that Wood-oil is nearly equally efficient with copaiba in the diseases in which that drug is indicated. It is known as the *gurjun* balsam. It is insoluble in water, scarcely in Æther, but freely so in alcohol. Its price in the Calcutta bazars varies from 3 to 5 Rupees the maund. Dr. Wight speaks from experience of the value of *gurjun* oil mixed with dammer in preventing the white ants from attacking timber. *Beng. Disp. Chemist. Pharm. Journ. Roxb. &c.*

(291) **Dolichos sinensis** (Linn.) Nat. Ord. LEGUMINOSÆ.

**Diadelphia Decandria.** Ser: Syst:

Paru, MAL.  
Burbuti, BENG.  
Kara-mani, TAM.

Lobia, HIND.  
Alsanda, TEL.

DESCR: Twining annual, glabrous: leaves pinnately trifoliolate: leaflets ovate or oblong, acuminate: peduncles longer than the leaves: flowers in an oblong head or short raceme: calyx campanulate, 5-toothed: lowest one longer than the rest: legume nearly straight, cylindric, torulose, with a more or less recurved unguiculate beak, 6-12 seeded: seeds truncated at both ends: flowers largish, pale violet. *Fl.* June—August.—*W. & A. prod.* I. 250.—*Roxb. fl. Ind.* III. 302.—*Rheede* VIII. t. 41.—Cultivated in the Peninsula.

USES, &c. Of this plant there are several varieties differing in the colour of their flowers and seeds. It is cultivated for the seeds which are much used by the Natives in their food. Those with white seeds are most esteemed. These pulverised are applied to sore eyes, and mixed with onions, gingely oil, or leaves of the castor oil plant as an ointment when suffering from spasms or paralytic trembling of the joints. *Rheede. Roxb.*

(292) **Dolichos uniflorus** (Lam.) Do.

Do.

Horse gram plant, ENG.  
Kooltee, HIND.  
Koolthee, BENG.

Kôlloo, TAM.  
Moothera, MAL.  
Woola-waloo, TEL.

DESCR: Annual: stem erect: branches twining: young shoots

\* Wood-oil a substitute for Copaiba, *D. Hanbury in Pharm. Journ. Vol. XV.* 321.

and leaves covered with silk hairs: leaves pinnately trifoliolate: leaflets ovate, villous, pubescent when old: corolla papilionaceous: calyx deeply bilabiate: upper lip split at the apex: vexillum longer than the keel, ovate oblong: alæ cohering with the keel at the base: flowers axillary 1-3 together, sulphur coloured: legumes compressed, linear, falcate, softly hairy, 6-seeded. *Fl.* Nov.—Dec.—*W. & A. prod.* I. 248.—*D. biflorus*, *Roxb. fl. Ind.* III. 813, (not Lour.)—Coromandel. Deccan. Bengal. Cultivated in the Peninsula.

USES, &c. Of this there is a variety with jet black seeds, those of the present plant being grey. Seeds of both are everywhere given in the Peninsula for feeding cattle. The Natives also use them in curries. The gram plant has never been seen in a wild state. The best time to sow the seeds is at the end of the rainy season, and in a good soil and favourable year, the produce will be sixty fold. *Roxb.*

(293) **Dracontium polyphyllum** (*Linn.*) Nat. Ord. ARACEÆ.

**Heptandria Monogynia.** *Seet: Syst:*

Purple-stalked Dragon, ENG.  
Caat-karnay, TAM.

Jungle kandi. DUK.  
Adivie kanda, TEL.

DESCR: Stalk 1-foot, smooth, purple-coloured, full of sharp variegated protuberances, with a tuft of leaves at the top: scape very short: petiole rooted: leaflets 3-parted: divisions pinnatifid: root irregular, knobbed, covered with a rugged skin: flower stalk rising from the root, about 3 inches high: spathe oblong, opening lengthwise: flowers closely arranged on a short thick style.—*Mil-ler's Dict.* Vol. II.—*Spreng syst.* III. 766.—Bombay. Conkans.

USES, &c. In Japan a medicine is prepared from the acrid roots, esteemed a good emmenagogue. In the Society Islands, the plant is cultivated for the sake of its roots, which, notwithstanding the taste being very acrid, are eaten in times of scarcity. Ainslie states that when properly prepared these roots possess antispasmodic virtues, and are also of repute in asthmatic affections, given in the quantity of from 12 to 15 grains per diem. They are used by the Native Doctors in hæmorrhoids. The plant is likewise a native of Guiana, and Surinam: and in the former country is a remedy against the Labarri snake, which its spotted petioles resemble in colour. It is certainly a powerful stimulant. The spathe on first opening smells so powerfully, that vomiting and fainting

sometimes ensue from the stench. Graham states that it is a very common plant, the leaves opening in July, and the scape springing up at the commencement of the rains. There has existed some slight doubt as to whether the American and Indian species are identical. *Ainslie. Miller. Lindley. J. Graham.*

(294) ***Drosera peltata* (Sm.)** Nat. Ord. DROSERACEÆ.

**Pentandria Pentagynia.** *Sex: Syst:*

**DESCR:** Herbaceous : stem erect, glabrous, leaves scattered, furnished with long reddish hairs, petioled, peltate, broadly lunate, with two longish horns pointing upwards : styles multifid, pencil shaped : seeds oblong, testa not arilliform : sepals occasionally ciliated : capsule globose : seeds small, numerous : flowers yellow. *Fl.* Aug. Sept.—*W. & A. prod.* I. 34.—*D. lunata, Ham.*—Neilgherries. Bababoodens.

**USES, &c.** The viscous leaves of this plant close upon flies and other insects which happen to light upon them. A dye might be prepared from the plant as Royle mentions the fact of the paper which contained his dried specimens being saturated with a red tinge. Leaves bruised and mixed with salt and applied to the skin are said to blister it. If mixed with milk they will curdle it. Cattle will not touch them. The sensitive irritability of the hairs of the leaves is a singular characteristic of the genus to which this plant belongs. Many of the other species yield a dye, but no one appears to have been made aware of these qualities. *Royle. Lindley.*

(295) **Echaltium piscidium** (Wight.) N. O. APOCYNACEÆ.**Pentandria Monogynia.** *Sex Syst :*

DESCR : Perennial, climbing : leaves oblong, acuminate, shining : panicles terminal, shorter than the leaves : tube of corolla longer than the calyx : staminateous corona of five bifid villous segments : follicles swollen, oblong, obtuse : seeds membranaceous : flowers pale yellow. *Fl.* May—June.—*Don's Mill.* IV. 86.—*Wight's Icon. t.* 472.—*Nerium piscidium*, *Roxb. fl. Ind.* II. 7. —Silhet.

USES, &c. The name of this creeper in Silhet where the plant is indigenous is Echalat, whence the origin of the generic name given by Dr. Wight. The bark contains a quantity of fibrous matter, which the Natives in Silhet use as a substitute for hemp. In steeping some of the young shoots in a fish-pond, to facilitate the removal of the bark and cleansing of the fibres, Dr. Roxburgh found that it had the effect of killing nearly all the fish. Hence the specific name which he applied. *Roxb. Royle. fib. plant.*

(296) **Eclipta erecta** (Linn.) Nat. Ord. ASTERACEÆ.**Syngenesia Polygamia.** *Sex : Syst :*

Kaiantagarie, Kursalenkunnie, TAM.	Brinraj Bungrah, HIND.
Goontagelinjeroo, TEL.	Keshooriia, BENG.

DESCR : Stem prostrate or erect : leaves lanceolate, serrate, somewhat waved : flowers nearly sessile, alternate in pairs : corolla white. *Fl.* All the year.—*Wight's Contrib. p.* 17.—*E. prostrata*, *Roxb. fl. Ind.* III. 438.—*E. adpressa*, *Mönch.*—*Verbesina alba*, *Linn.*—*Cotula alba*, *Linn.*—*Micrelium asteroides*, *Forsk.*—*Rheede X. t.* 41.—Common in wet clayey soils in the Peninsula.

USES, &c. This plant in its fresh state ground up and mixed with gingely oil is applied externally in cases of Elephantiasis. It has a peculiarly bitter taste and strong smell. Roxburgh considered the *E. erecta*, *prostrata* and *punctata* to be the same species, varying in form from age, soil, and situation. *Roxb. Ainslie.*

(297) **Ehretia buxifolia** (Roxb.) Nat. Ord. EHRETIACEÆ.

**Pentandria Monogynia.** Sex: Syst:

Cooruvingie, TAM.  
Bapana boory, TEL.

Poluh, HIND.

DESCR: Shrub or small tree: leaves alternate, fascicled, sessile, reflexed, cuneiform, very scabrous, shining: peduncles axillary, 2-6 flowered: pedicels very short: flowers small, white: calyx 5-parted, segments lanceolate: corolla campanulate, 5-6 cleft: berry succulent, red, quadrilocular: nuts 2. *Fl.* July—August.—*Roxb. fl. Ind.* I. 598.—*ed. Car.* II. 343.—*Cor.* I. t. 57.—*Cordia retusa*, *Vahl.*—Coromandel. Common on barren lands and in forests.

USES, &c. The root is used for purifying and altering the habit in cases of cachexia and venereal affections of long standing. By Mahomedan doctors it is considered an antidote to vegetable poisons. *Ainslie.* *Lindley.*

(298) **Ehretia serrata** (Roxb.)

Do.

*Do.*

Kala-oja, BENG.

DESCR: Tree: leaves alternate, oblong, and broad-lanceolate, acutely serrate, smooth: calyx 5-cleft: corolla 5-parted: panicles terminal, and from the exterior axils: flowers small, greenish-white, fragrant, numerous, aggregate in somewhat remote, sessile fascicles: drupes round, pulpy, red when ripe. *Fl.* March—May.—*Roxb. fl. Ind.* I. 596.—*ed. Car.* II. 340.—*E. pyrifolia*, *Don. flor. Nep.*—Bengal. Chittagong. Dheyrah Dhoon.

USES, &c. The wood is tough, light, durable and easily worked. Sword handles are made from it. It is also considered good for gun-stocks. The tree is a native of Bhootan as well as of the Eastern parts of Bengal. It is also a common tree in Nepaul where it is called *Nulshima*. It grows both on mountains and in valleys blossoming profusely in the summer, and ripening its fruit during the rains. The latter are not touched by the Natives. The flowers emit a powerful honey-like smell. *Roxb. Wallich's obs.*

(299) **Elcœodendron****Roxburghii** (*W. & A.*) Nat. Ord. CELASTRACEÆ.

Do.

Neerija, TEL.

**DESCR** : Small tree : leaves opposite, elliptical or ovate, crenate-serrated, young ones glaucous : calyx 5 partite : petals 5, linear oblong : peduncles axillary : cymes lax, dichotomous, divaricated, about half the length of the leaves, usually with a solitary flower in the forks : drupe 1-celled, obovoid : nut somewhat crustaceous and soft : flowers small, yellow. *Fl.* March—April.—*W. & A. prod.* p. 157.—*E. glaucum*, *Wall.*—*Nerija dichotoma*, *Roxb. fl. Ind.* I. 646.—*ed. Car.* II. 444.—*Rhamnus nerija*, *Spreng.*—Mountains of Coromandel. Courtallum.

**USES, &c.** The root is reported to be an excellent specific in snake bites. The fresh bark of the roots rubbed with water is applied externally to remove almost any swelling. It is a very strong astringent. *Roxb.*

(300) **Elephantopus scaber** (*Linn*) Nat. Ord. ASTERACEÆ.**Syngenesia Polygamia** *Sex: Syst* :Anashovadi, MAL. and TAM.  
Shamdulun, BENG.

| Samdulun, HIND.

**DESCR** : Stem dichotomous, ramous : leaves scabrous, radical ones crenate, cuneate, alternated at the base : cauline ones lanceolate : floral ones broad-cordate, acuminate, canescent : flowers purple. *Fl.* December—February.—*Wight's Icon.* t. 1086.—*Roxb. fl. Ind.* III. 445.—*Wight's Contrib.* p. 88.—*Rheede X. t.* 7.—Peninsula. Common everywhere.

**USES, &c.** According to *Rheede*, a decoction of the root and leaves is given in dysuria. In Travancore, the Natives boil the bruised leaves with rice and give them internally in swellings of the body or pains of the stomach. *Rheede. &c.*

(301) **Elettaria cardamomum** (Maton.) N. O. ZINGI-

## BERACEÆ.

**Monandria Monogynia.** *Sex: Syst:*

Cardamom plant, ENG.  
Yalum, MAL.  
Aila-cheddie, TAM.

Yaylakooloo, TEL.  
Eelachie, DUK. and HIND.  
Elachee, BENG.

DESCR: Stem perennial, erect, jointed, 6-9 feet, enveloped in the sheaths of the leaves: leaves lanceolate, acuminate, sessile, entire, 1-2 feet long: sheaths slightly villous: scapes several, flexuose, jointed, branched, 1-2 feet long: flowers alternate, short stalked, solitary at each point of the racemes: calyx funnel-shaped, 3 toothed, finely striated: corolla tube as long as the calyx: limb double: exterior portion of 3-oblong, concave, nearly equal divisions: inner lip obovate, longer than the exterior divisions, curled at the margins: apex 3-lobed marked in the centre with purple violet stripes: capsule oval, somewhat 3-sided, 3-celled, 3-valved: seeds numerous, angular: flowers pale greenish white.—*Alpinia cardamomum*, Roxb. *fl. Ind.* I. 70.—*ed. Car.* I. 68.—*Cor.* III. t. 226.—*Amomum repens*, seu *Cardamomum*, *Woodv.*—*A. repens*, *Roscoe*, *Willd.*—*A. racemosum*, *Lam.*—*Cardamomum minus*, *Pharm Lond. and Edin.*—*Elettaria*, *Rheede* XI. t. 45.—Hilly parts of Travancore and Malabar. Wynaad. Coorg. Nuggur.

USES, &c. Produces the Cardamoms of commerce. They are either cultivated or gathered wild. In the Travancore forests they are found at elevations of three to five thousand feet. The mode of obtaining them is to clear the forests of trees, when the plants spontaneously grow up in the cleared ground. A similar mode has been mentioned by Roxburgh, who states that in Wynaad before the commencement of the rains in June, the cultivators seek the shadiest and woodiest sides of the loftier hills: the trees are felled and the ground cleared of weeds, and in about 3 months the Cardamom plant springs up. In four years the shrub will have attained its full height, when the fruit is produced and gathered in the month of November, requiring no other preparation than drying in the sun. The plant continues to yield fruit till the seventh year when the stem is cut down, new plants arising from the stumps.\* They may also be raised from seeds. Cardamoms are much esteemed as a con-

\* For a good description of plantations of Cardamom in Coorg, See Coorg Memoirs by Rev. H. Moegling, p. 75.



diment, and great quantities are annually shipped to Europe from Malabar and Travancore. In commerce there are three varieties known as the *short*, *short-longs* and the *long-longs*. Of these the *short* are more coarsely ribbed and of a brown colour, and are called the Malabar Cardamoms or Wynaad Cardamoms. They are reckoned the best of the three. The *long-longs* are more finely ribbed and of a paler colour. Seeds are white, and shrivelled. The *short-longs* merely differ from the latter in being shorter or less pointed. It is usual to mix the several kinds together when ready for exportation. Some care is required in the process of drying the seeds as rain causes the seed vessels to split and otherwise injures them, and if kept too long in the sun their flavour becomes deteriorated. As cordial and stimulant they are frequently used medicinally, but more frequently as correctives in conjunction with other medicines. A volatile oil is procured from the seeds by distillation which has a strong aromatic taste soluble in alcohol. It loses its odour and taste by being kept too long. The Natives chew the fruits with Betle and use it in decoction for bowel complaints and to check vomiting. In infusion they are given in coughs. Malabar Cardamoms are worth in the London market from 2 to 3s. per lb. In Travancore they are chiefly procured from the high lands overlooking the Dindigul, Madura and Tinnevely districts. In these mountains the cultivators make separate gardens for them as they thrive better, if a little care and attention be bestowed upon them. Cardamoms are a monopoly in the Travancore State, and cultivators come chiefly from the Company's country obtaining about 200 or 210 Rupees for every candy delivered over to the Government. The average number of candies for the year 1845-54 was about 300 candies. The value of exports of Cardamoms from Madras in 1852-56, amounted to Rs. 10,94,733 chiefly shipped for Bombay, Bengal, Mauritius, Pegue and Britain. *Com. prod. Mad. Pres. Ainslie. Pereira. Pers. obs. Report of prod. of Travancore.*

(302) **Eleusine coracana** (Gaertn.) N. O. GRAMINACEÆ

**Triandria Digynia.** *Sex: Syst:*

Mootamy, Tsjetti-pullu, MAL.  
 Kayvaru, Kelwaragoo, TAM.  
 Tamida, Sodee, TEL.

Murooa, BENG.  
 Ragee, HIND.

**DESCR:** Culms erect, 2-4 feet, a little compressed, smooth: leaves bifarious, large, smooth: mouths of sheaths bearded: calyx 3-6 flowered, glumes keeled, obtuse, with membranaceous margins: spikes 4-6 digitate, incurved, secund, 1-3 inches long, composed of two rows of sessile 3-4 flowered spikelets: rachis slightly waved: valves of corolla nearly equal: seeds globular, brown, a little wrink-

led, covered with a thin aril. *Fl.* July—Sept.—*Roxb fl. Ind.* I. 342.—*ed. Car.* I. 343.—*Cynosurus coracanus*, *Linn.*—*Rheed* XII. t. 78.—Cultivated.

**USES, &c.** This is the most prolific of cultivated grasses, forming the chief diet of the poorer classes in some parts of India, as Mysore, N. Circars, slopes of the Ghauts. Roxburgh says he never saw it in a wild state. On the Coromandel Coast it is known as the *Natchnee* grain, and is the *Raggee* of the Mahomedans. In Teloo goo the name of the grain is *Ponassa*. A fermented liquor is prepared from the seeds called Bojah, in the Mahratta country. *Roxb.*

(303) **Eleusine stricta** (*Roxb.*) Do.

*Do*

Raggee, HIND.

| Pedda Sooloo, Pedda Sodi, TEL.

**DESCR:** Culm erect, 2-5 feet, compressed : leaves bifarious : spikes digitate, straight : calyx 3-6 flowered : seeds round. *Fl.* July—Sept.—*Roxb. fl. Ind.* I. 343.—*ed. Car.* I. 344.—Cultivated in the Peninsula. Rajahmundry.

**USES, &c.** This species is cultivated to a great extent. It differs from the preceding in having the spikes straight, being of a larger size, and more productive. The seeds are also heavier, which cause the spike to bend down horizontally. All the Millets prefer a light good soil, from which the water readily flows after the heavy rains. In a favourable season, the farmers reckon on an increase of about a hundred and twenty fold. The variety known in Teloo goo as the *Maddi ruba-soloo* requires a richer soil than the others, and in good years, when the land fit for its cultivation can be procured, increase five hundred fold. *Roxb.*

(304) **Embelia Basaal** (*Alph. D.C.*) N. O. MYRSINACEÆ.

**Pentandria Monogynia.** *Sex:* *Syst:*

Basaal, MAL.

**DESCR:** Shrub or small tree : leaves alternate, ovate, acute, quite entire, aggregate, glabrous : racemes small, lateral, shorter than the leaves : segments of corolla acute : flowers small, numerous, white, fragrant : berries small.—*Wight's Icon.* t. 1209.—*Don's Mill.* IV. 21.—*Rheed* V. t. 12.—Malabar. Kandalla.

**USES, &c.** The tender leaves mixed with ginger are used in making a gargle for sore throat. The berries mixed with butter are made into an ointment which the Natives apply to the forehead in phrenitis. The kernels of the fruit are considered anthelmintic, and the dried bark of the root is said to be a specific in tooth-ache. *Rheede.*

(305) **Embellia ribes** (.Burm.) Do.

Do.

Vellal, TAM.  
Vishaul, MAL.

Barbung, BENG.

**DESCR :** Large climbing shrub : tender shoots and peduncles hoary : leaves alternate, oblong, entire, glabrous : panicles terminal, hoary : calyx and corolla 5-parted : stamens inserted in the middle of the petals : flowers numerous, very small, greenish yellow : tube of calyx concave : berries succulent, black. *Fl.* February—March.—*Wight's Icon. t.* 1207.—*Don's Mill.* IV. 20.—*Roxb. fl. Ind.* I. 586.—*ed. Car.* II. 285.—*E. ribesioides, Linn.*—Peninsula. Silhet.

**USES, &c.** The Natives in the vicinity of Silhet where the plant grows abundantly, gather the berries, and when dry, sell them to the small traders in black pepper, who fraudulently mix them with that spice which they so resemble as to render it almost impossible to distinguish them by sight or by any other means as they are withal somewhat spicy. Given in infusion they are anthelmintic. They are also administered internally in piles. Their pungency is ascribed by DeCandolle to the quantity and some peculiar quality of the resinous substance. Royle states they are cathartic. *Don. Royle. Roxb.*

(306) **Embllica officinalis** (Gaertn.) N. O. EUPHORBIACEÆ.

**Monœcia Monadelphica. Sex : Syst :**

Nellee, MAL.  
Nelle-kai, TAM.  
Amla, BENG.

Amlika, Arooli, Aoongra. HIND.  
Assereki, TEL.

**DESCR :** Tree : leaves alternate, bifarious, pinnate, flower bearing : leaflets numerous, alternate, linear-obtuse, entire, petioles striated, round : calyx 6-parted : flowers in the *male* very numerous in the axils of the lower leaflets, and round the common petiole below the leaflets : in the *female* few, solitary, sessile, mixed with some males in the most exterior floriferous axils : stigmas 3 :

drupe globular, fleshy, smooth, 6-striated : nut obovate triangular 3-celled : seeds 2 in each cell : flowers small, greenish-yellow. *Fl.* April—November.—*Wight's Icon. t.* 1895-2-95.—*Lindl. flor-med.* 176.—*Phyllanthus emblica*, *Linn.*—*Roxb. fl. Ind.* III. 671.—*Rheede I. t.* 38.—Coromandel. Malabar. Deccan. Bengal.

USES, &c. The seeds are given internally as a cooling remedy in bilious affections and nausea, and in infusion make a good drink in fevers. They are also used in diabetes. Infusion of the leaves is applied to sore-eyes. Bark of the root mixed with honey is applied to aphthous inflammations of the mouth. The bark of the tree itself is astringent and is used for tanning purposes. It is also medicinally used in diarrhœa. The fruit is occasionally pickled or preserved in sugar. When dry it is said to be gently laxative. In the latter state the decoction is employed in fevers, and mixed with sugar and drank in vertigo. The young leaves mixed with sour milk are given by the Natives in dysentery. The tree yields a hard and valuable timber. In Travancore the Natives put the young branches into the wells to impart a pleasant flavour to the water, especially if it be impure from the accumulation of vegetable matter, or other causes. *Ainslie. Rheede. Pers. obs.*

(307) **Embryopteris glutinifera** (*Roxb.*) N. O. EBENACEÆ.

**Polygamia Diœcia.** *Sex: Syst:*

Wild Mangosteen, ENG.  
Panitsjika marum, MAL.  
Panichakai, toombika, TAM.

Tumika, TEL.  
Gaub, HIND.  
Gab, BENG.

DESCR : Tree 25-30 feet : leaves alternate, linear-oblong, pointed, glabrous, shining, short petioled : *male* peduncles axillary, solitary, 3-4 flowered : stamens 20 : *females* 1-flowered, larger than the male : stamens 2-4, short : pistils 4 : nut globular, size of a small apple, rusty coloured, filled with pulpy juice and covered with a rusty farina : seeds 8 : flowers white. *Fl.* March—April.—*Roxb. fl. Ind.* II. 533.—*Cor. I. t.* 70.—*Wight's Icon. t.* 844.—*Diospyros glutinosa*, *Koen.*—*D. embryopteris*, *Pers.*—*Don's Mill.* IV. 41.—*Rheede III. t.* 41.—Peninsula. Travancore. Bengal.

USES, &c. The fruit, though astringent is eaten by the Natives. The juice is used in Bengal for paving the bottoms of boats. The unripe fruit contain a very large proportion of tannin. The infusion is used to steep fishing-nets in, to make them more durable. The Hindoo doctors apply the fresh juice of the fruit to wounds. On the

Malabar Coast it is much employed by carpenters as an excellent glue. The glutinous pulp surrounding the seeds is used by Europeans in binding books, as it is obnoxious to insects. The fruit also yields a concrete oil from boiling the seeds. They are first dried in the sun, then pounded, and boiled; the oil collects on the surface, and becomes concrete during the cooling. It is of a yellowish colour. The oil is used by the Natives as a healing medicine, and from its rapidly absorbing heat when applied to the skin, it might be applied with good effect to inflammations. An infusion of the bark is applied to ulcers and the juice of the leaves sometimes given in ophthalmia. The bark reduced to powder mixed with rice and cocoanut milk is given as a cooling drink in fevers, and the decoction of the bark mixed with honey is good for gripes. The oil of the seeds mixed with ginger and cummin seeds is used in dropsy and is gently purgative. The wood is of indifferent quality and not much used. *Roxb. Rheede. Ainslie.*

(308) **Emilia sonchifolia** (D.C.) Nat. Ord. ASTERACEÆ.

**Syngenesia Polygamia.** *Sex: Syst:*

Muel-schevi, MAL.

| Sadi-modi, BENG.

DESCR: Annual: stem herbaceous, branching a little towards the top: leaves lyrate: stem clasping: flowers few in terminal umbellets, cylindrical, peduncled: flowers small, bright purple. *Fl.*—November—February.—*Wight's Contrib. p. 24.*—E. purpurea, *Cass.*—*Cacalia sonchifolia*, *Linn.*—*Roxb. fl. Ind. III. 413.*—*Senecio sonchifolia*, *Moench.*—*Crassocephalum sonchifolium*, *Less.*—*Rheede X. t. 68.*—Both Peninsulas. Common everywhere.

USES, &c. This plant is used in decoction on the Malabar Coast as a febrifuge, and mixed with sugar the juice is given in bowel complaints. The leaves are eaten raw in salads in China. In Travancore, the pure juice of the leaves is poured drop by drop in the eyes for about 10 minutes in cases of night blindness. The Natives consider the juice as cooling as rose-water and prescribe it in inflammation of the eyes. *Rheede. Ainslie. Pers. obs.*

(309) **Entada puscetha** (D.C.) Nat. Ord. LEGUMINOSÆ.

**Polygamia Monœcia.** *Sex: Syst:*

Gila-gach, BENG.

| Parin-kaka Vully, MAL.

DESCR: Climbing shrub: leaves bipinnated: pinnæ 2 pairs, sometimes only 1: leaflets 2-5 pairs, glabrous on both sides, oblong-

ovate or ovate emarginate : spikes solitary or in pairs, axillary : petals 5 connected at the base : stamens 10 : legume more or less twisted, very large, 2-3 feet long, ligneous, with the sutures very thick : seeds nearly orbicular, 2 inches in diameter : flowers small. pale-yellow. *Fl.* March—April.—*W. & A. prod.* I. 267.—*E. monostachya*, *D. C.*—*Mimosa scandens*, *Linn.*—*Roxb. fl. Ind.* II. 554.—*M. entada*, *Linn.*—*Acacia scandens*, *Willd.*—*Rheede VIII. t. 32-34*,—*IX. t. 77.*—Travancore. Western Ghauts. Trichore forests. N. Circars.

USES, &c. The seeds which are of an immense size are used by Natives for washing the hair, and by the Hill people as a febrifuge. In Java they are employed as emetic. When the plants are young, the spikes are frequently axillary on the young shoot, which has made some Botanists suppose that there are two species in India. *Wight. Rheede. Gibson.*

(310) **Epicarpurus orientalis** (*Blume.*) N. O. MORACEÆ.

**Diacia Triandria.** *Sex: Syst:*

Sheora, BENG.  
Peerahi, TAM.  
Pukkie, TEL.

Nuckchilnie, DUK.  
Seura, HIND.  
Tinda-parua, MAL.

DESCR: Tree : leaves alternate, short-petioled, obovate, cuspidate, acuminate, serrated towards the apex, very rough above : *male* flowers capitate, heads axillary, aggregated, short-peduncled : *females* axillary 1-2 together, longish-pedicelled : fruit drupaceous, deep yellow, 1-seeded : cotyledons very unequal-sided : flowers small, greenish-yellow. *Fl.* Jan.—Feb.—*Wight's Icon.* VI. t. 1961.—*Trophis aspera*, *Willd.*—*Roxb. fl. Ind.* III. 761.—*Rheede I. t. 48.*—Concans. Coromandel. Bengal.

USES, &c. This is described by Dr. Wight as a small, rigid, stunted-looking tree, common all over India, very suitable for hedges. The milky juice is applied to sand cracks in the feet and excoriations of the skin. The plant is said to have astringent and anti-septic qualities. On the Malabar Coast it is applied in decoction as a lotion to the body in fevers, and the root bruised is applied to boils. A fibre is procured from the stem, and pieces of the wood are frequently used by the Natives as tooth-brushes. *Ainslie. Rheede. &c.*

(311) **Eriodendron anfractuosum** (*D. C.*) N. O. BOMBACEÆ.**Monadelphia Polyandria**, *Sex: Syst.*Pania, Paniala, MAL.  
Elavum, TAM.  
Poor, TEL.Huttian, HIND.  
Shwet-shimool, BENG.

DESCR: Tree 50–60 feet: trunk prickly at the base: branches growing out horizontally from the stem, three from one point: leaflets 5–8 quite entire, or serrulated towards the point, lanceolate, mucronate, glaucous beneath: petals 5, united at the base: filaments joined at the base, each bearing 2–3 versatile anfractuose anthers: style crowned with a 5–6 cleft stigma: capsule 5-celled, 5-valved: cells many seeded: seeds imbedded in silky-cotton: flowers white, springing from the branches. *Fl. Dec.*—*Jan.*—*W. & A. prod.* I. 61.—*Wight's Icon. t.* 400.—Gossampinus Rumphii, *Schott.* and *Endl.*—*Bombax pentandrum*, *Linn.*—*Roxb. fl. Ind.* III. 165.—*Cciba pentandra*, *Gærtn.*—*Rheede* III. *t.* 49–51.—Peninsula. Travancore.

USES, &c. A solution of the gum of this tree is given in conjunction with spices in bowel complaints. The cotton which is got from the pods is only of use for stuffing pillows and cushions. The texture is too loose to admit of its being used in the fabrication of cloth. The cotton from it easily catching fire is put in tinder boxes, and employed in the preparation of fire-works. An oil is extracted from the seeds of a dark brown colour. *Jury Rep.*

(312) **Erythrina Indica** (*Lam.*) Nat. Ord. LEGUMINOSÆ.**Diadelphia Decandria**, *Sex: Syst.*Indian Coral tree, ENG.  
Muruka-marum, TAM.  
Moolloo-moorikah, MAL.Palita-mundar, BENG.  
Furrud, HIND.  
Badide-chettu, TEL.

DESCR: Tree 20–30 feet, armed with prickles: petioles and leaves unarmed: leaves pinnately trifoliate: leaflets glabrous, entire, the terminal ones broadly cordate: racemes terminal, horizontal: calyx spathaceous, contracted and 5-toothed at the apex: corolla papilionaceous: vexillum about 3 times shorter than the calyx, and four times longer than the alæ: petals of keel distinct: stamens monadelphous with the sheath entire at the base, thence diadelphous with the tube split: legumes 6–8 seeded: flowers scarlet. *Fl. Jan.*—*April.*—*W. & A. prod.* I. 260.—*Roxb. fl. Ind.*

III. 249.—*Wight's Icon. t. 58.*—*Rheede VI. t. 7.*—E. corallo-dendron, *Linn.*—Coromandel. Concans. Bengal. Travancore.

USES, &c. This tree yields a light and soft wood called *Mootchie wood*, much used for toys, sword sheaths, and other light work. Leaves and bark are used in cases of fevers by the Natives. The tree is much used in Malabar for the support of the Betel vines and from being armed with numerous prickles it serves as an excellent hedge plant to keep cattle from cultivated grounds. The leaves pulverised and boiled with the ripe Cocoanut, till reduced to the thickness of an ointment, are applied to venereal buboes, and pains in the joints. Mixed with jaggery applied externally to the stomach in gripes and colic. *Wight. Rheede.*

(313) **Eugenia acris** (*Wight.*) Nat. Ord. MYRTACEÆ.

**Icosandria Monogynia.** *Sex: Syst:*

The pimento Tree, ENG.

DESCR: Tree 20–30 feet: young branches acutely 4-angled: leaves opposite, elliptic-oval, obtuse, very glabrous, upper side reticulated with elevated veins: peduncles compressed, axillary and terminal, trichotomous, corymbose, rather longer than the leaves: calyx limb 5-partite, segments roundish: berry globose, 1–4 seeded: flowers small white. *Fl.* Jan.—March.—*W. & A. prod. I.* 331.—E. pimenta, *D. C.*—*Myrtus pimenta*, *Linn.*—Var. *latifolia*, *Roxb. II. B.*—*M. aromatica*, *Poir.*—*M. caryophyllata*, *Jacq.*—*M. acris*, *Swartz.*—*Myrcia acris*, *D. C.*—*M. pimentoides*, *D. C.*—Courtallum. Travancore. Madras.

USES, &c. Introduced from America. The timber is hard, red and heavy, capable of being polished and used for mill-cogs, and other purposes, where much friction is to be sustained. The bark is astringent and somewhat aromatic. The leaves are sweetly aromatic, astringent, and often used in sauce. The berries are used for culinary purposes. *Lunan.*

(314) **Euphorbia antiquorum** (*Linn.*) N. O. EUPORBIACEÆ.

**Decandria Trigynia,** *Sex: Syst:*

Triangular Spurge, ENG.  
Schadida-calli, MAL.  
Shadray Kullie, TAM.

Bontajamiroodoo, TEL.  
Narashij, Seyard, HIND.  
Narsij, BENG.

DESCR: Stems jointed, erect, ramous 3–4 or more angled: angles furnished with numerous protuberances, each armed with



two short spreading stipulary spines : joints straight : peduncles solitary or in pairs, usually 3-flowered a little above the axils of the stipules : flowers greenish-yellow. *Fl.* Dec.—Jan.—*Roxb. fl. Ind.* II. 468.—*Wight's Icon. t.* 897.—*Rheede* II. *t.* 42.—Coromandel. Common in waste places in the Peninsula.

**USES, &c.** The juice which flows from the branches of this plant is corrosive. The Natives use it externally in rheumatism : they also give it in tooth-ache, and internally, when diluted, as a purgative in cases of obstinate constipation. This is easily distinguished from the alluded species by the straight, not twisted stem, and the peduncles being few, one or two from each protuberance or bud, while in the others they are numerous. A plaster prepared from the roots and mixed with *Assafœtida* is applied externally to the stomachs of children suffering from worms. The bark of the root is purgative, and the stem is given in decoction in gout. *Wight. Rheede. Ainslie.*

(315) **Euphorbia Cattimandoo** (*W. Elliot.*) Do.

*Do.*

Cattimandu, TEL.

**DESCR :** Shrub or small tree : erect, 5-sided with prominent repand angles : stipulary thorns paired, short, subulate : leaves sessile, succulent, deciduous, obovate, subcuneate, cuspidate, glabrous : peduncles crowded, 3-flowered, middle one usually sterile, and lateral one fertile : flowering after the fall of the leaf. *Fl.* March—June.—*Wight's Icon. t.* 1993.—*Vizagapatam.*

**USES, &c.** This valuable plant was first brought to notice by the Hon'ble W. Elliot. I here transcribe from Dr. Wight's *Icones*, the following notes which were communicated to him by Mr. Elliot. "The milk is obtained by cutting off the branches when it flows freely. It is collected and boiled on the spot, at which time it is very elastic, but after being formed into cakes or cylinders it becomes resinous or brittle, in which state it is sold in the bazars and employed as a cement for fixing knives into handles and other similar purposes, which is effected by heating it. It is also employed medicinally, as an outward application in cases of rheumatism. The juice I sent you was, I think, boiled in water. It is much superior to what is sold in the bazar, but it has not the valuable property, like gutta percha, of being ductile at all times. It can be made to take any shape when first boiled, but as far as we know, not afterwards, though some plan may be found for making it more pliant afterwards."

In remarking upon the specimen sent him, Dr. Wight states as follows, "judging from the abovementioned sample of the Cattimandoo, now before me, I should suppose that, were it in the hands of men accustomed to work in such material, it would soon be turned to valuable account. I find, when exposed to the heat of a fire or lamp, it rapidly softens and becomes as adhesive to the hands as shoemaker's wax, but when soaked for some time in warm water (150° to 180°) then it slowly softens, becomes pliable and plastic, and in that state takes any required form." Specimens of the gum were sent to the Great Exhibition in 1851, as well as to the Madras Exhibition. In the report of the jurors it was said that it may be applied to a variety of uses. It requires little or no preparation. The fresh juice is used as a vesicant. Articles may easily be moulded by the hand from it. *Wight. Jury Rep.*

(316) **Euphorbia ligularia** (*Roxb.*) Do.

*Do.*

Munsa sij, BENG.

DESCR: Tree 20 feet: young shoots 5-sided, somewhat spirally disposed and armed with large teeth, each of which supports a leaf, and a pair of short, black, stipulary thorns: leaves alternate about the ends of the branches, wedge-shaped, waved, fleshy: peduncles solitary between the serratures of the angles of the branchlets, 1-3 dichotomous, with a larger sessile flower in the forks: petals five, fringed with a ragged margin inserted into the calyx: flowers greenish-yellow. *Fl.* Feb.—March.—*Roxb. fl. Ind.* II. 465.—Peninsula. Bengal.

USES, &c. The root mixed with black pepper is employed in cases of snake-bites, both internally and externally. The plant is sacred to Munsa the goddess of serpents. Every part abounds with an acrid milky juice employed to remove warts and cutaneous eruption. *Roxb.*

(317) **Euphorbia nivulia** (*Buch.*) Do.

*Do.*

Ellaculli, MAL.  
Elakullie, TAM.  
Akoo-jemmoodoo, TEL.

Ptoon, HIND.  
Shij, BENG.

DESCR: Tree: branches round: thorns stipulary: leaves sessile, wedge-shaped: peduncles 3-flowered: flowers greenish yellow.

low. *Fl. March*—April.—*Wight's Icon. t. 1862.*—*Roxb. fl. Ind. II. 467.*—*E. nereifolia, Linn.*—*Rheede II. t. 43.*—Concans. Bengal. Coromandel.

USES, &c. The juice of the leaves of this plant is used internally as a purgative; mixed with Margosa oil it is applied externally in certain cases of rheumatism. On the Western Coast the bark of the root boiled in rice water and arrack is given in dropsy. The leaves simply warmed in the fire will promote urine externally applied, while their juice warmed is a good remedy in ear-ache, and is occasionally rubbed over the eyes to remove dimness of sight. *Ainslie. Rheede.*

(318) **Euphorbia thymifolia** (*Linn.*) Do.

*Do.*

Chin-amaum-patchayarise, Sittra	Biddarie-nanabeeam, TEL.
paladi, TAM.	Shewt-kherua, BENG.

DESCR: Branches pressing flat on the earth, coloured, hairy: leaves opposite, obliquely ovate, serrate: flowers axillary crowded, on short peduncles: calyx and corolla each of four semilateral parts: flowers small, greenish. *Fl. Nearly all the year.*—*Roxb. fl. Ind. II. 473.*—Peninsula. Bengal. Dry situations near woods.

USES, &c. The leaves and seeds are slightly aromatic and astringent. In a dried state they are given as a vermifuge. The leaves when carefully dried smell like tea. *Ainslie.*

(319) **Euphorbia tirucalli** (*Linn.*) Do.

*Do.*

Milk-hedge or Indian Tree Spurge, ENG.	Lunka sij, BENG.
Tirucalli, MAL. and TAM.	

DESCR: Tree unarmed, 20 feet: leaves alternate, remote, sessile, linear, smooth: flowers at the end of the twigs and in the divisions of the branchlets, crowded, sub-sessile, pale yellow: calyx campanulate with 3-5 flat peltate horizontal segments: capsule villous, 5-lobed, 3-celled: seeds solitary. *Fl. June*—Sept.—*Roxb. fl. Ind. II. 470.*—*Rheede II. t. 44.*—Coromandel. Malabar. Bengal.

USES, &c. The fresh acrid juice of this plant is used as a vesicatory. *Rheede* says that a decoction of the tender branches is given in colic, and the milky juice mixed with butter as a purgative on the Malabar Coast. It is used among the Natives as a

good manure. Goats will eat the plant notwithstanding its acrid juice. Bark and small branches are ingredients used in dyeing cotton a black colour. Root in decoction is administered internally in pains in the stomach. On the Coromandel Coast it is frequently employed for hedges and is known as the milk hedge. *Roxb.*

(320) **Euryale ferox** (*Salisb.*) Nat. Ord. NYPHÆACEÆ.

**Polyandria Polygynia.** *Sex: Syst:*

Machana, HIND.

•DESCR: Stemless floating plant: sepals 4: petals numerous in 4-7 series: leaves peltate, about 1-4 feet each way from orbicular to oval, entire, dark green above with ferruginous veins, armed: with few slender prickles above, spinous beneath: petioles armed: calyx covered with recurved spines on the outside, carpel size of a pea: flowers bluish-purple. *Fl.* Nearly all the year.—*Anneslea spinosa, Roxb. fl. Ind. II. 573.*—Chittagong. Lucknow.

USES, &c. The fibrous roots of this curious plant descend deep into the soil at the bottom of the water: if the water be shallow the peduncles are long enough to elevate the flower above the surface, but if deep they blossom under water. The petals of the flowers are very numerous, the exterior ones being large and gradually lessening till they become very small. It is a native of sweet water lakes and ponds in Chittagong and places eastward of Calcutta, where it is in blossom most part of the year. The seeds are farinaceous and after being heated in hot sand and husked are eaten by the Natives. Roxburgh states that the mode of preparation to fit them for the table is as follows: a quantity of sand is put into an earthen vessel, placed over a gentle fire, in the sand they put a quantity of the seed, agitate the vessel, or the sand, with an iron ladle; the seed swells to more than double its original size, when it becomes light, white and spongy; during the operation the hard husk of the seed breaks in various parts, and then readily separates by rubbing between two boards, or striking it gently with a bye board. The Hindoo physicians consider these seeds to be possessed of powerful medical virtues, such as restraining seminal gleets, and invigorating the system. *Roxb.*

(321) **Evolvulus alsinoides** (*Linn.*) N. O. CONVULVULACEÆ.

**Pentandria Digynia.** *Sex: Syst:*

Vistna-clandi, MAL.  
Vistnoo-krandie, TAM.

Vistnoo-krandum, TEL.

DESCR: Procumbent: stem scarcely any: branches numerous,

covered when young with long soft white hairs : leaves alternate, bifarious, sub-sessile, oblong, entire, hairy on both sides : peduncles, axillary, solitary, longer than the leaves, pointed near the middle, 1-3 flowered, erect while in blossom, afterwards drooping : calyx of 5 segments, lanceolate : corolla, campanulate : flowers, small, blue with a white tube. *Fl. Nov.*—*Jan.*—*Roxb. fl. Ind.* II. 106.—*E. hirsutus*, *Lam.*—*Rheede XI. t. 64.*—Peninsula. Bengal.

USES, &c. A widely distributed plant. The leaves, stalks and roots are used in medicine and reputed to be excellent remedies in dysentery and fever. *Ainslie.*

(322) **Exacum bicolor** (*Roxb.*) N. O. GENTIANACEÆ.

**Tetrandria Monogynia.** *Sex: Syst:*

DESCR : Small plant, 1-2 feet : stem and branches tetragonal : leaves sessile, sub-acute, ovate, 3-5 nerved, margins smooth : calyx 4-cleft : flowers axillary, solitary, on short pedicels : corolla white, having the segments tipped with blue. *Fl.* August—Oct.—*Wight's Icon. t. 1321.*—*Roxb. fl. Ind. I. 397.*—*Don's Mill. IV. 212.*—Neilgherries. Malabar. Ghauts. Cuttack. Salsette. By the margins of rivulets.

USES, &c. A valuable febrifuge.

(323) **Exacum tetragonum** (*Roxb.*) Do.

*Do.*

Purple Chiretta, ENG.  
Oodachiretta, HIND.

| Koochuri, BENG.

DESCR : Small annual : stem tetragonal, 2-4 feet : leaves opposite, decussate, sessile, lanceolate, 5-nerved, smooth : calyx divided nearly to the base into four segments : petals 4, oblong, spreading ; flowers terminal, numerous, blue, with gold coloured anthers : capsule 2-celled, 2-valved. *Fl.* July—Sept.—*Roxb. fl. Ind. I. 398.*—*ed. Car. I. 413.*—Malabar. Kandalla. Bengal.

USES, &c. The whole plant is used as a febrifuge.

(324) **Excæcaria camettia** (*Spreng.*) N. O. EUPHORBIACEÆ.

**Dissecta Monadelphica.** *Sex: Syst:*

Cametti, MAL.

**DESCR:** Small tree: leaves ovate, oblong, acute, entire: flowers in terminal aments. *Fl.* Nov.—Dec.—*J. Grak. Cat.* 185.—*Rheede* V. t. 45.—Salt marshes in Cochin. Travancore. Concans.

**USES, &c.** This shrub or small tree grows abundantly along the back-waters in Travancore and Cochin. It abounds in an acrid milky juice and is known as the *Tiger's milk tree*. The Natives are afraid almost to cut the branches, for fear of the milk blistering the skin or causing blindness, should it by chance get into the eyes. The juice is applied with good effect to inveterate ulcers. The leaves are used also in decoction for this purpose. A good kind of caoutchouc may be prepared from the milk, which is worthy of attention. *Rheede. Pers. obs.*

## F.

(325) **Feronia elephantum** (Cor.) N. O. AURANTIACEÆ.**Decandria Monogynia.** Sex: Syst:

Elephant or Wood-apple, ENG.

Velanga marum, MAL.

Velam marum, pitavoola, TAM.

Velaga, TEL.

Khoet, HIND or DUK.

Kuthbel, BENG.

DESCR: Tree 50-60 feet, armed with spines: leaves pinnated: leaflets 5-7, obovate, almost sessile: petioles winged, pointed: racemes lax, axillary or terminal: calyx 5-toothed: petals 5: style scarcely any: flowers small, pale pink with crimson anthers: fruit about the size of an apple with a hard greyish rind, 5-celled, many seeded: seeds immersed in fleshy pulp. *Fl* March.—*W. & A. prod.* I. 96.—*Wight's Icon.* t. 15.—*Cratæva vallanga*, *Koen.*—*Roxb. fl. Ind.* II. 411.—*Cor.* II. t. 141.—Coromandel. Travancore. Guzerat. Bengal.

USES, &c. The pulpy part of the fruit is edible. A jelly, much resembling black currant jelly, only with a more astringent taste is made from it. The wood is white, hard and durable, fine grained, and would answer well for ornamental carving. A transparent gummy substance exudes from the stem when cut or broken, which is used for mixing with painter's colours, in dyeing, and also in ink and varnish, and by bricklayers in preparing a fine kind of white-wash. The gum which is called in Tamil *Velam pisnie*, resembles much the true gum-arabic, and is used medicinally by the Native Vytians, being reduced to powder and mixed with honey and then given in dysentery and diarrhœa. The leaves when bruised have a fragrant smell, like anise. The Natives consider them as stomachic and carminative. They are also used by native practitioners as a gentle stomachic stimulant in the bowel complaints of children. There is a variety of this tree, the properties of which are nearly the same as this. It is called *Cooti-velam* in Tamil. *Wight. Ainslie. Roxb. Beng. Disp.*

(326) **Ficus Bengalensis** (Linn.) Nat. Ord. MORACEÆ.**Polygamia Monœcia.** Sex: Syst:Common Banyan tree, ENG.  
Ala-marum, TAM.  
Bur, But, BENG.Marri, TEL.  
Peralu, MAL.

DESCR: Tree: branches spreading very much: lower ones rooting: leaves alternate, ovate, bluntly acuminate, with parallel nerves, paler underneath, entire, downy when young, afterwards smooth: fruit-receptacles, axillary, paired, sessile, as large as a middle-sized cherry, appearing and ripening in the hot season.—*Wight's Icon. t.* 1989.—*Miller's Dict. Vol. II.*—F. Indica, *Roxb. fl. Ind. III.* 539.—*Arostigma Bengalense, Miguel.*—*Rheede I. t.\** 28.—Common all over India.

USES, &c. There are several species as well as varieties of the Banyan tree, which throw out roots from their branches. The present one may perhaps be considered the best type of the family. It is remarkable as every one knows, for the singular property of letting a gummy kind of rootlet fall from its branches. These on reaching the ground soon form a natural support to the larger branches of the present tree, and several of these extending and increasing from year to year, forming a vast assemblage of pillar-like stems, cover a considerable area round the original trunk.

Branching so broad and long that in the ground  
The bending twigs take root and daughters grow  
About the mother tree, a pillared shade—  
High over-arched with echoing walks between.

Many instances are in record of the immense extent of some of these trees, which form so peculiar a feature in an oriental landscape. One tree of the kind near Fort St. David was computed to cover nearly 1,700 yards. Colonel Sykes mentions one at Mhow with 68 stems descending from the branches, and capable of affording a shade under a vertical sun to 20,000 men. Roxburgh says that he has seen such trees fully 500 yards round the circumference of the branches and 100 feet high, the principal trunk being more than 25 feet to the branches, and eight or nine feet in diameter. Travellers in this country have described them large enough to shelter a Regiment of Cavalry, and how they have formed a natural canopy for public meetings and other assemblages. The ancients were acquainted with the tree and both Strabo and Pliny have accurately described it. The wood is of no value, being light and porous. The Brahmins use the leaves as plates to eat off. Bird-lime is manufactured from the milky juice which abounds in every part of the tree. If the seeds drop into the axils of the leaves of the palmyra tree, the roots grow



downwards embracing the trunk in their descent, until by degrees they envelope every part except the top. In very old specimens the leaves and head of the palmyra are seen emerging from the trunk of the banyan tree, as if they grew from it. These the Hindoos regard with reverence and call them holy marriages. The seeds of the fruit are considered as cooling and tonic, being prescribed in the form of electuary. The white glutinous juice which flows from the stems is applied as a remedy in tooth-ache and also to the soles of the feet when cracked and inflamed. The bark given in infusion is said to be a powerful tonic, and is also used in diabetes. *Ainslie. Roxb. Miller. &c. &c.*

(327) **Ficus Benjamina** (*Linn.*) Do.

Do.

Oval-leaved Fig tree, ENG.  
Itty alu, MAL.

Tella barinka, TEL.

DESCR: Tree: branches slender, flexuose, streaked and wrinkled: leaves petioled, ovate, entire, slenderly streaked across: fruit globular, scattered over the branchlets.—*Miller's Dict. Vol. II.—Roxb. fl. Ind. III. 550.—Wight's Icon. t. 642, 668.—Rheede I. t. 26.*—Peninsula. Malabar.

USES, &c. This is one of the most beautiful of the species. A decoction of the leaves mixed with oil is reckoned in Malabar a good application to ulcers. *Rheede.*

(328) **Ficus citrifolia** (*Lam.*) Do.

Do.

Katou-alou, MAL.

*Rheede III. t. 59.*—Concans. Malabar.

USES, &c. The bark of the root boiled in water is given as a wash in apthous complaints; it is said to strengthen the gums and also to be diuretic. A kind of balsam prepared from the bark is mixed with oil and applied to ulcerous affections of the ear and in deafness. A bath made from the bark of root and stem is said by the Natives to be very efficacious in the cure of leprosy, and mitigating pains in the limbs. *Rheede.*

(329) **Ficus cunia** (*Buch.*) Do.

Do.

Perina teregam, MAL.

DESCR: Fruit-receptacles turbinate, ribbed, pedicelled, size of

a filbert, hairy, umbilicated, in pairs or threes on long procumbent, radical and cauline, compound, leafless branches, appearing all the year.—*F. conglomerata*, *Roxb. fl. Ind.* III. 561.—*Wight's Icon. t.* 648.—*Rheede* III. *t.* 61.——Concans. Malabar. Oude. Coromandel.

**USES, &c.** The rough leaves of this tree are used for polishing furniture. The fruit is administered in aphthous complaints, and also boiled in milk, in visceral obstruction. A bath made both from the fruit and bark is reckoned a useful treatment in leprosy. *Rheede*.

(330) **Ficus elastica** (*Roxb.*)

Do.

Do.

Indian Caoutchouc tree, **ENG.**| Kusneer, **BENG.**

**DESCR:** Tree 30-40 feet : leaves from oval to oblong, pointed, thick, firm and glossy : fruit in axillary pairs, sessile, oval, smooth, the size of an olive : stipules nearly as long as the leaves, smooth and rosy. *Fl.* March—April.—*Roxb. fl. Ind.* III. 541.—*Wight's Icon. t.* 663.——Khassya mountains. Cultivated in Malabar. Juntipoor Hills.

**USES, &c.** This beautiful tree produces when wounded a quantity of milk which yields about one-third of its weight of Caoutchouc. This milk is used by the Natives of Silhet to smear over the inside of baskets constructed of split rattan, which are then rendered water tight. The milk is extracted by incisions made across the bark down to the wood, at a distance of about a foot from each other all round the trunk or branch up to the top of the tree, and the higher the incision, the more abundant the fluid is said to be. The tree requires a fortnight's rest before the operation is repeated. When the juice is exposed to the air, it separates spontaneously into a fine elastic substance and a fœtid whey-coloured liquid. Fifty ounces of pure milky juice taken from the tree in August yielded exactly 15½ oz. of clean washed Caoutchouc. This substance is of the finest quality and may be obtained in large quantities. It is perfectly soluble in the essential oil of Cajeput. The tree is easily propagated by cuttings and is very ornamental. *Roxb. Penny Cycl. &c.*

(381) **Ficus excelsa** (*Vahl.*)

Do.

Do.

Attimeraloo, **MAL.**

**DESCR:** Tree : leaves alternate, bifarious, slightly scabrous be-

neath: fruit receptacles axillary, solitary or paired, peduncled, somewhat turbinate, smooth, size of a cherry, yellow when ripe. June—July.—*Roxb. fl. Ind.* III. p. 552.—*Wight's Icon t.* 650.—*Rheede* III. t. 58.—Peninsula. Malabar.

USES, &c. Rheede states that at the pagoda at Vyekkam, a town on the back water about 20 miles S. E. of Cochin, one of these trees was growing in his time about fifty feet in circumference, and which was traditionally reported to be two thousand years old. A decoction is made from the root powerfully aperient in visceral obstructions. *Rheede.*

(332) **Ficus nitida** (*Thunb.*) Do.

*Do.*

Itti-alou, MAL.

DESCR: Tree: fruit receptacle lateral, fascicled, globular, sessile, size of a large pea, smooth, appearing in December or January.—*Spreng Syst.* III. 781.—*Wight's Icon t.* 642.—*Rheede* III. t. 55.—Concans. Coromandel. Malabar.

USES, &c. The bark of the root, and root itself, as well as the leaves boiled in oil, are severally considered as good applications applied to wounds or bruises. *Rheede.*

(333) **Ficus racemosa** (*Linn.*) Do.

*Do.*

Red-wooded Fig tree, or Country  
Fig tree, ENG.  
Atti-olu, MAL.

Attie-marum, TAM.  
Maydi, TEL.  
Gooler, HIND.

DESCR: Tree: leaves ovate, entire, pointed, veined: fruit receptacles on racemes, round, reddish, size of a small plum.—*Rheede* I. t. 25.—Concans. Malabar.

USES, &c. The root in decoction and bark of the tree are used in medicine. The latter is slightly astringent, and sometimes used in the form of a fine powder; and in combination with Gingely oil, is applied in cancerous affections. The fruit is edible. A fluid which is yielded by incisions in the root is given as a tonic by native doctors. An infusion of the bark is given in diabetes, and the young leaves reduced to powder and mixed with honey in bilious affections. *Ainslie. Rheede. &c.*

(334) **Ficus religiosa** (Linn.) Do.

Do.

Poplar-leaved Fig tree, ENG.  
 Ashwuth, BENG.  
 Pippul, HIND,  
 Arasum-marum, TAM.

Ray, Raghie, TEL.  
 Arealu, MAL.  
 Ani-peepul, DUK.

DESCR: Tree: leaves long-petioled, ovate, cordate, narrow acuminate, acumen one-third the length of the leaf, entire, or repandly undulated towards the apex: fruit receptacles axillary, paired, sessile, depressed, size of a small cherry, appearing in the hot season and ripening in the rainy season.—*Wight's Icon.* VI. t. 1967.—*Roxb. fl. Ind.* III. 547.—*Arostigma religiosum*, *Miguel.*—*Rheede I. t. 27.*—Common all over India.

USES, &c. Of this tree there are two nearly allied species. The tree is commonly distributed over the country. It is much respected by the Natives who are very unwilling to cut it down at any time. It is frequently to be met with near pagodas, houses, and other buildings. The Hindoos venerate it from a superstitious belief that their Deity Vishnoo was born among the branches. The petioles being very long and slender, the leaves tremble in the air like those of the Aspen tree. Silk worms are very fond of the leaves. The Arabs use them in tanning. Birds are very fond of the fruit, and often drop the seeds in cracks of buildings where they vegetate, and occasion great damage if not removed in time. The wood is light and of no use. The seeds are said to possess cooling and alterative qualities and are prescribed in electuary and in powder. The glutinous juice which exudes from the stem is made into bird-lime. Leaves and young shoots are used as a purgative, and an infusion of the bark is given internally in scabies, though of doubtful efficacy. *Ainslie.* *Roxb. Wight. &c.*

(335) **Ficus rubescens** (Vahl.) Do.

Do.

Valli-teragam, MAL.  
 Buroni, TEL.

Goori-shiora, BENG.

DESCR: Fruit-receptacles axillary, paired, peduncled, round turbinate, size of a gooseberry, scabrous, appearing all the year.—*F. heterophylla*, *Lam.*—*F. aquatica*, *Koen.*—*Roxb. fl. Ind.* III. 532.—*Rheede* III. t. 62.—Coromandel. Malabar. Bengal.

USES, &c. The juice of the root of this shrub is internally administered in colic pains, and the juice of the leaves mixed with

milk in dysentery. The bark of the root which is very bitter, pulverised and mixed with Coriander seed is considered a good remedy in coughs and asthma, and similar affections of the chest. *Rheede. Roxb.*

(336) **Ficus tsiela** (*Roxb.*) Do.

Do.

Tsiela, MAL.

Jovee or Pedda-Jovee, TEL.

DESCR: Large tree: fruit receptacles axillary, paired, sessile, round turbinate, smooth, size of a cherry, appearing in March or April.—*Roxb. fl. Ind.* III. 549.—*Wight's Icon. t.* 668.—*Rheede* III. *t.* 63.—Mountains and plains of Coromandel. Malabar Ghauts.

USES, &c. A decoction is made from the bark of the root which mixed with long pepper is given in bad coughs and pulmonary affections. The juice of the root and fruit is said to be a good remedy in sore eyes. *Rheede.*

(337) **Ficus venosa** (*Ait.*) Do.

Do.

Tajakela, MAL.

Pakoor, BENG.

DESCR: Tree: fruit-receptacle paired, axillary, sessile, globular, smooth, size of a pea. March—April.—*F. infectoria*, *Willd.*—*Roxb. fl. Ind.* III. 551.—*Rheede* III. *t.* 64.—Concans. Bengal. Travancore.

USES, &c. From the bark of the root is made a peculiar kind of bow-string. A red dye is also prepared from the root used for dyeing clothes. *Rheede.*

(338) **Flacourtia cataphracta** (*Roxb.*) Nat. Ord. FLA-

**Dioecia Polyandria**, *Sex: Syst:*

Talishaputrie, MAL. and TAM.  
Talishaputrie, TEL.

Talishputrie, HIND.  
Paniyala, BENG.

DESCR: Shrub 8-feet: leaves oval-oblong, acuminate, serrated: racemes axillary, many flowered: flowers numerous, small, greenish. *Fl.* Dec.—Jan.—*Roxb. fl. Ind.* III. 834.—Nepaul. Behar.

USES, &c. The fruit is edible. The leaves and young shoots which are bitter and astringent have the taste of rhubarb and are considered stomachic, and are given in diarrhœa, dysentery, fevers, and even in consumption. An infusion of the bark is used in hoarseness. The wood is close-grained, hard and durable. *Ainslie. Lindley. &c.*

(339) **Flacourtia sepiaria** (*Roxb.*) Do.

*Do.*

Courou moelli, MAL.  
Conrew, TEL.

Sottacla, TAM.  
Jootay karoonday, DUK.

DESCR: Shrub 6-feet: thorns very numerous, patent, bearing both leaves and flowers: leaves obovate-oblong, older ones very rigid and coriaceous, serrate: peduncles axillary, solitary, 1-flowered: flowers small, green: berry very globular, size of a pea, succulent: seeds 4-8. *Fl.* April.—*W. & A. prod.* I. 29.—*Roxb. fl. Ind.* III. 835.—*Cor.* I. t. 68.—*Rheede* V. t. 39.—Peninsula. Common everywhere.

USES, &c. The berries are eatable and are sold in the bazars. The plant makes good fences from its numerous sharp thorns. An infusion of the leaves and roots is given in snake bites, and the bark rubbed with oil and made into a liniment is used on the Malabar Coast in cases of gout. The bark fried in oil is applied externally in rheumatism. *Wight. Ainslie. Rheede.*

## G

(340) **Garcinia pedunculata** (Roxb.) N. O. CLUSIACEÆ.

Polyandria Monogynia. Sex: Syst:

Tikul or Tikoór, HIND.

DESCR: Tree 60 feet: leaves opposite, short petioled, oblong, or obovate-oblong, entire, smooth on both sides, with large parallel veins: flowers terminal, peduncled: *male* ones numerous, forming small trichotomous panicles on separate trees: *females* solitary: calyx of two opposite pairs of nearly equal sepals: petals four, alternate with the segments of the calyx and nearly of the same length: berry large, round, smooth, yellow when ripe: seeds ten, reniform, arillate. *Fl.* January—March.—*Roxb. fl. Ind.* II. 625.—*Wight's Ill.* I. p. 125.—*Icon. t.* 114-115.—Rungpore.

USES, &c. The fruit of this species of *Garcinia* ripens about April or May. It is very large, about two pounds weight, of a rich yellow colour when ripe and exceedingly acid to the taste: each seed is enclosed in its own proper aril, within which is generally found a soft, yellow resin. The fleshy part of the fruit has a sharp, pleasant, acid taste. It is used by the Natives in their curries, and for acidulating water. If cut into slices and dried, it retains its qualities for years, and might possibly be used to advantage during long sea-voyages as a substitute for limes or put into various messes, where salt meat is employed. *Roxb.*

(341) **Garcinia pictoria** (Roxb.) Do.

Do.

Mukki, TAM.

DESCR: Tree 60 feet: much branched: leaves opposite, short petioled, oblong-ventricose, slightly acute, entire, smooth on both sides: hermaphrodite flowers axillary, solitary, sessile: calyx segments obtuse, in two unequal pairs: petals four, oval: berry oval,

size of a large cherry, smooth, slightly marked with four lobes and crowned with the sessile verrucose stigma: seeds four, oblong reniform: calyx and corolla of male flowers as in the female: flowers yellow. *Fl.* Feb.—*Wight's Icon.* t. 102.—*Roxb. fl. Ind.* II. 627.—*Hebradendron pictorium*, *Christison*—Wynaad forests. Mysore.

**USES, &c.** This tree is found in the high mountain lands of Wynaad, and attempts to cultivate it in the low country have failed. A good kind of Gamboge is procured from the tree. The bark according to Roxburgh, is intermixed with many yellow specks and through its substance particularly on the inside, considerable masses of Gamboge are found. Samples which were sent to Dr. R. from Tellicherry even in a crude and unrefined state, he considered superior to most other kinds and the specimens forwarded to the Madras Exhibition were also considered of an excellent quality. It was reported by Mr. Maltby the Collector of Canara, that the tree is to be found in the greatest abundance along the whole line of Ghauts, and it is probable that if the attention of the trade were directed to these provinces it might become an important article of export. An oil is got from the seeds; the following particulars regarding it were furnished by Dr. Oswald to the Madras Exhibition. It is procurable in moderate quantities by pounding the seeds in a stone mortar, and boiling the mass until the butter or oil rises to the surface. Two and a half measures of seeds should yield one seer and a half of butter. In the Nuggur Division of Mysore it is sold at the rate of As. 1-4 per seer of 24 Rs. weight, or at £36-6 per ton, and is chiefly used as a lamp oil by the better classes of Natives, and by the poor as a substitute for ghee. The butter thus prepared does not appear to possess any of the purgative qualities of the Gamboge resin, but is considered an antiscorbutic ingredient in food. There has been some difference of opinion among Botanists regarding the true definition of the species yielding the Mysore Gamboge; and also in what respect both the tree itself, and its products differ with those from Ceylon and Siam. An excellent paper has been written by Dr. Christison in the 6th vol. of *Pharmaceutical Journal* upon this subject, which has been given entire in *Dr. Hunter's Indian Journal of Arts and Sciences*. From the various information which Dr. C. has been able to collect regarding this Gamboge tree, it would appear to constitute a genus distinct from the Ceylon plant, which latter Dr. Graham in the *Companion to the Botanical Magazine*, has from certain points of distinction in its Botanical character designated as the *Hebradendron Gambogioides*. The species under consideration is found on high lands in the Coorg and Mysore countries. Dr. Cleghorn had an opportunity of personally examining the tree in its native forest which is in the



North Western parts of Mysore; he then remarked that its range of elevation was between 2,000 and 3,000 feet, and that he found it in greater abundance as he proceeded southward. It probably has an extensive range along the Western Ghauts. Regarding the quality of the specimens sent him, Dr. Christison observed that they were all in a concrete state, of a tawny brownish yellow colour and glistening waxy lustre, exactly like fine Siam Gamboge, and shewing its tendency to conchoidal fracture; free from odour, tasteless, and equal to the Siam Gamboge in being easily reducible to a fine emulsion in water. As a pigment it proved of an excellent quality, like that of Ceylon. It is in a great degree soluble in Sulphuric Æther to which it communicates a fine orange colour, the solution yielding upon evaporation an orange-coloured resin. Upon analysis the composition proved to be essentially the same with that of Ceylon, but indicating more colouring matter, more resin, and less gum than in the Gamboge of commerce. In its medicinal effects it would appear to excite the same influence on the animal body as common Gamboge, as it has undergone experiments both in England and as well as in this country. The Natives appear little acquainted with its uses, unless perhaps as Dr. Cleghorn ascertained, for colouring cloth in the low country. Dr. Christison expressed his opinion that "it is probable this Gamboge might advantageously be applied to any use to which the Gamboge of Siam is habitually put." At all events it is an equally fine pigment, and as it can be obtained in almost unlimited quantity it may be introduced equally into the European trade. Gamboge fetches in the London market from £5 to £11 per cwt. The average imports during the past 5 or 6 years have been from 400 to 500 chests of one to 2 cwt. each. *Simmonds. Dr. Christison in Pharm. Jour. Dr. Hunter's Indian. Jour. &c.*

(842) **Garcinia purpurea** (Roxb.) Nat. Ord. CLUSIACEÆ.

**Polyandria Monogynia.** Sex: Syst:

Mate Mangosteen, ENG.

DESCR: Tree: branches drooping: leaves lanceolar, obtuse, shining, dark green: berry spherical, smooth, not furrowed, deep purple throughout.—*Roxb. fl. Ind.* II. 624.—*J. Grah. Cat. p.* 25.—*Wight's Ill. Vol. I. p.* 125—Concans. Ravines at Kandalla.

USES, &c. This differs says Roxburgh from every other species in the whole fruit, which is about the size of a small orange, being throughout of a deep purple colour, even the proper purple aril of the seeds. The seeds yield an oil known as the Kokum oil, of which Col. Messurier gives the following account in the Pharmaceutical Journal. The Indian name of Mangosteen oil is *Kokum*. This

oil is of much use in cases of chapped skin, hands, face, &c. either scraped into hot water or powdered, the powder being rubbed on the face and hands. The fruit has an agreeable acid flavour and is eaten by Natives. Workers in iron use the acid juice as a mordant. A concrete oil is obtained from the seeds which is well known and used at Goa for adulterating ghee. This oil is used by the Natives as a healing application, and from its powerfully absorbing heat, it might be usefully employed in such wounds or sores, as are accompanied with inflammation. Kokum butter is a solid, firm and friable substance, it has a greasy feeling, its colour is pale yellow and has a faint but not disagreeable odour; it is readily soluble in Æther, and slightly so in rectified spirits, more in hot than in cold. *Pharm. Journal. Roxb.*

(343) **Gardenia campanulata** (Roxb.) N. O. CINCHONACEÆ.

**Pentandria Monogynia.** *Sex : Syst :*

**DESCR :** Shrub 5-10 feet : branches spiny at the apex : spines solitary : leaves lanceolate, smooth, acuminate at both ends : flowers on short pedicels, in terminal or lateral fascicles : limb of calyx campanulate, with a short, acutely 5-toothed border : corolla sub-campanulate, 5-lobed : berry roundish-ovate : flowers pale yellow, small, crowded at the extremities of short stiff branchlets : berry smooth, 1-celled : seeds imbedded in yellow pulp. *Fl. March.*—April.—*Roxb. fl. Ind. I p. 710.*—*ed. Car. II. 556.*—*Don's Mill. III. 498.*—*Wight's Icon. t. 578.*—Chittagong.

**USES, &c.** The fruit is used by the Natives as a cathartic and anthelmintic, and also to wash out stains in silk. *Roxb.*

(344) **Gardenia gummifera** (Linn.) Do.

*Do.*

**DESCR :** Shrub 5-6 feet : unarmed, with resinous buds : leaves sessile, from narrow elliptic-oblong to ovate-oblong, bluntly acuminate, with simple parallel veins : flowers terminal, 1-3 together, almost sessile : calyx densely puberulous : limb short, segments 5, ovate, acuminate : corolla hypocateriform : tube long, slender, wide at the mouth, slightly pubescent : limb 5-partite ; segments more than half the length of the tube : berry drupaceous, oblong, smooth, crowned with limb of the calyx : flowers large, white, becoming yellow towards evening, fragrant. *Fl. March*—

April.—*W. & A. prod.* I. 395.—*Wight's Icon. t.* 576.—*Roxb. fl. Ind.* I. 709.—*ed. Carey* II. p. 555.—*G. arborea*, *Roxb. fl. Ind.* I. 708.—Circars. Gingie Hills.

USES, &c. From the buds and wounds in the bark, exudes a beautiful yellow resin similar to gum Elemi, which might be turned to some advantage. *Roxb.*

(345) **Gardenia lucida** (*Roxb.*)

Do.

*Do.*

DESCR: Tree: unarmed, with resinous buds: leaves short petioled, oblong, or oval or obovate, obtuse or bluntly pointed, glabrous shining, with simple parallel nerves and prominent veins: limb of calyx with 5 divisions, sprinkled on the inside with stoutish bristles: corolla hypocrateriform; tube long, striated; limb 5-partite, divisions as long as or a little shorter than the tube: berry drupaceous, even, oblong, crowned with the calyx: nut very hard thick and long, with two parietal receptacles: flowers somewhat terminal, solitary, shortly pedicelled, large, pure white, fragrant. *Fl.* March—April.—*W. & A. prod.* I. 395.—*Wight's Icon. t.* 575.—*Roxb. fl. Ind.* I. p. 707.—*ed. Car.* II. 555.—*G. resinifera*, *Roth.*—Circars. S. Mahratta Country. Chittagong.

USES, &c. This is stated by Roxburgh to be in flower and fruit the greater part of the year. The total want of pubescence, structure of the stipules, length of the calyx, and sharpness of its divisions distinguish this species from *G. gummifera*, which it most resembles. A fragrant resin known in Canara and Mysore as the *Dikamali* resin is procured from the tree, which is said to be useful in Hospitals, keeping away flies from sores, on account of its strong aroma. It is used by Native farriers, and is certainly a substance worthy of attention. *Roxb. Jury. Rep. Mad. Exhib.*

(346) **Gendarussa Tranquebarensis** (*Nees.*) Nat. Ord.  
ACANTHACEÆ.

**Diandria Monogynia.** *Sex: Syst:*

Tavashoo Moorunghie, Poonakoo-poondoo, TAM. | Pindi-konda, TEL.

DESCR: Herbaceous: leaves roundish, broad cordate: spikes terminal, quadrangular: flowers solitary, in two rows, on the fore part of the spikes.—*Roxb. fl. Ind.* I. 130.—*Wight's Icon. t.* 462.—Tranquebar. Madras.

USES, &c. The juice of the leaves is reckoned cooling and aperient, and given to children in small-pox. The bruised leaves are also applied to blows and other external injuries. *Ainslie*.

(347) **Gendarussa vulgaris** (Nees.) N. O. ACANTHACEÆ.

**Diandria Monogynia** Sex: Syst:

Vada-kodi, MAL.  
Caroo-nochie, TAM.  
Kali-Thumbali, DUK.

Nulla Vavali, TEL.  
Jugutmudun, BENG.

DESCR: Shrub 3-4 feet: leaves opposite, lanceolate, elongated: branches numerous, long and straggling: flowers in whorls on terminal spikes: upper lip undivided: flowers pale, greenish white, sparingly stained with purple.—*Wight's Icon* II. t. 468.—*Justicia Gendarussa*, *Roxb. fl. Ind.* I. 128.—*ed. Carey* I. p. 129.—*Rheede* IX. t. 42.—N. Concans. Travancore, Madura.

USES, &c. The leaves and tender stalks are prescribed in certain cases of chronic rheumatism: the bark of the young parts is generally of a dark purple colour, whence it derives its Tamil name. In Java it is considered a good emetic. The leaves are scattered by the Natives amongst their clothes to preserve them from insects. The same in infusion are given internally in fevers, and a bath in which these leaves are saturated is very efficacious in the same complaints. Juice of the leaves is administered in coughs to children and the same mixed with oil as an embrocation in glandular swellings of the neck and throat. Also mixed with mustard seed is a good emetic. The Natives put the leaves in a bag with some common salt, and warming them, reckon it a good remedy applied externally in diseases of the joints. *Ainslie. Rheede. &c.*

(348) **Girardinia Leschenaultiana**, Nat. Ord. URTICACEÆ.

**Monœcia Tetrandria** Sex: Syst:

Neilgherry Nettle, ENG.

Ana shorigenam, MAL.

DESCR: Annual, erect: leaves alternate, long-petioled covered with stinging hairs: flowers small, green. *Fl.* September—November.—*Wight's Icon.* t. 1976.—*Urtica heterophylla*, *Roxb. fl. Ind.* III. 586.—*Rheede* II. t. 41.—Neilgherries. Concans. Coromandel. Nepal.

USES, &c. A ferocious-looking plant, if incautiously touched this nettle will produce temporarily a most stinging pain. The plant succeeds well by cultivation. Its bark abounds in fine, white, glossy, silk-like, strong fibres. The Todawars on the Neilgher-

ries separate the fibres by boiling the plant and spin it into thin coarse thread : it produces a beautifully fine and soft flax-like fibre which they use as a thread. The Malays simply steep the stems in water for 10 or 12 days, after which they are so much softened that the outer fibrous portion is easily peeled off. Dr. Dickson states (as quoted by Royle) that the Neilgherry nettle is the most extraordinary plant, it is almost all fine fibre, and the tow is very much like the fine wool of sheep, and no doubt will be largely used by wool-spinners *Wight. Royle.*

(349) **Gloriosa superba** (*Linn.*) Nat. Ord. LILIACEÆ.

**Hexandria Monogynia** *Sex: Syst:*

Mendoni, MAL.  
Caateejan, TAM.

Ulatchandul, BENG.  
Cariari, HIND.

**DESCR:** Climbing with herbaceous stem : leaves cirrhiferous, ovate-lanceolate, inferior ones oblong : corolla 6-petalled : petals reflexed : flowers yellow and crimson mixed : capsule 3-celled, 3-valved. *Fl.* August—October.—*Wight's Icon.* VI. t. 2047.—*Roxb. fl. Ind.* II. 143.—*Methonica superba, Lam.*—*Rheede* VII. t. 57.—Coromandel. Malabar. Concaus. Bengal.

**USES, &c.** This splendid creeper truly designated by Linnæus as "vere gloriosus flos," is commonly to be met with in the Travancore forests. Although I have given it as above under the Natural Order of *Liliaceæ*, restricting myself in all cases as much as possible in the orders as given in Lindley's Vegetable Kingdom, yet Dr. Wight has correctly removed the genus to *Uvularææ* coinciding in the previous opinion of the late Dr. Stocks of Bombay. Roxburgh says it is one of the most ornamental plants any country can boast of. The root of the plant is reckoned very poisonous. The Natives apply it in paste to the hands and feet of women in difficult parturition. A salt is procured from the root by repeated washing and grinding, throwing away the liquor, and washing the residuum carefully. The white powder so found is bitter to the taste. Mixed with honey it is given in gonorrhœa. *Lindley. Roxb. Pers. obs.*

(350) **Gmelina arborea** (*Roxb.*) Nat. Ord. VERBENACEÆ.

**Didynamia Angiospermia** *Sex: Syst.*

Cumbulu, MAL.  
Joogani-chookur, HIND.  
Gumbaree, BENG.

Tagoomooda, TEL.  
Goomadee, TAM.

**DESCR:** Arboraceous, unarmed, ramuli and young leaves covered with a greyish powdery tomentum : leaves long-petioled, cordate or somewhat produced and acute at the base, acuminate, the adult

ones glabrous above, greyish tomentose beneath, with 2-4 glands at the base : panicles tomentose axillary and terminal ; raceme-like cymules decussate, trichotomous, few flowered : bracts lanceolate, deciduous : the acutely dentate calyx, eglandulose : flowers large sulphur coloured, slightly tinged with red on the outside. *Fl.* April—May.—*Wight's Icon. t.* 1470.—*Roxb. fl. Ind.* III. 84.—*Cor.* III. t. 246.—*Rheede I. t.* 41.—Coromandel. Neilgherries. Concans. Oude.

USES, &c. A small tree not unfrequent in the Paulhaut jungles and generally distributed in Malabar. The light wood of this tree is used by Natives for making the cylinders of their drums called *Dholucks*, also for making chairs, carriages, pannels, &c. as it combines lightness with strength. The root in decoction is used in fevers accompanying gouts or pains in the limbs. The powdered bark of the root is applied externally in gout. *Wight. Roxb. Rheede.*

(351) **Gmelina Asiatica** (*Linn.*) Do.

*Do.*

Neelacoomil, TAM.

Nelagoomadi, TEL.

DESCR : Shrub : leaves opposite, petioled, ovate, tomentose underneath, with frequently a sharp short lobe on each side : spines axillary, opposite, horizontal, pubescent at the tip, the length of the petioles : flowers from the end of the tender twigs on peduncles : fruit a berried drupe size of a jujube, black, smooth : flowers large, bright sulphur. *Fl.* All the year.—*Roxb. fl. Ind.* III. 87.—Coromandel. Travancore.

USES, &c. The root is a demulcent and mucilaginous. Another species the *G. parviflora* has the power of rendering water mucilaginous, and is employed for the cure of the scalding of urine in gonorrhœa. *Roxb.*

(352) **Gomphia angustifolia** (*Vahl.*) N. O. OCHNACEÆ.

**Decandria Monogynia** *Sex : Syst :*

Tejocatti, TAM.

Pur-Tejetti, MAL.

DESCR : Shrub 4-5 feet : petals 5 : leaves elliptic oblong, acuminate at both ends, slightly serrulated, shining : racemes compound : sepals broadly oval, shorter than the petals, carpels obo-

vate, reniform : flowers yellowish, middle-sized.—*W. & A. prod.* I. 152.—*G. Zeylanica*, *D.C.*—*G. Malabarica*, *D.C.*—*Ochna Zeylanica*, *Lam.*—*Rheede* *V. t.* 48.—Travancore. Southern provinces. S. Concan.

USES, &c. The root and leaves, which are bitter, are given as tonics in Malabar. A decoction of the leaves is given in heart-burn and also applied to ulcers. The leaves, flowers and fruits boiled in water are administered as a wash in gingiva, and for strengthening the gums. The root boiled in milk and mixed with cummin seeds is said to allay vomiting, and the root and bark pulverised and mixed with oil are made into an ointment for scabies and other cutaneous affections. *Rheede. &c.*

(353) **Gossypium Indicum** (*Lam.*) Nat. Ord. MALVACEÆ.

**Monadelphia Polyandria.** *Sex: Syst:*

Indian Cotton plant, ENG.  
Paratie, Van-paratie, TAM.

• Kapas, DUK.  
• Puttie, TEL.

DESCR: Herbaceous : stem more or less branched,  $1\frac{1}{2}$  feet : young parts velvety, often hairy, in the upper part sometimes of a reddish colour, frequently marked with black spots : leaves hairy, palmate, 3-5 lobed : lobes broad, rounded : petioles long, usually hispid and dotted : flowers axillary, generally solitary toward the extremities of the branches : petals yellow, with a purple spot near the claw : segment of involucre cordate at the base, margin dentate, sometimes entire : capsule ovate, pointed, 3-4 celled : seeds 5, clothed with greyish down under the short-staple white wool. *Royle.*—*G. herbaceum*, *Linn.*—*Roxb. fl. Ind.* III. 184.—*Royle. Illustr. of. Him. Bot. t.* 23, *fig.* 1.—Cultivated.

USES, &c. As flax is characteristic of Egypt, and the hemp of Europe, so cotton may truly be designated as belonging to India. Long before history can furnish any authentic account of this invaluable product, its uses must have been known to the inhabitants of this country, and their wants supplied from time immemorial, by the growth of a fleecy-like substance, covering the seeds of a plant, raised more perhaps by the bounty of Providence, than the labour of mankind.

In Sanscrit, cotton is called *kurpas* from whence is derived the Latin name *Carbasus*, mentioned occasionally in Roman authors. This word subsequently came to mean sails for ships and tents. Herodotus says, talking of the products of India " And certain

wild trees, bear wool instead of fruit, that in beauty and quality exceeds that of sheep : and the Indians make their clothing from these trees. (III. 106).” And in the book of Esther (v. 6.) the word *green* corresponds to the Hebrew ‘*kurpas*’ and is in the vulgate translated *Carbasinus*. The above shews from how early a period cotton was cultivated in this country. ‘The Natives,’ says Royle, (alluding to its manufacture in India) ‘of that country early attained excellence in the arts of spinning and weaving, employing only their fingers and the spinning-wheel for the former ; but they seem to have exhausted their ingenuity when they invented the hand loom for weaving, as they have for ages remained in a stationary condition.’ Cotton is not less valuable to the inhabitants of this country than it is to European nations. It forms the clothing of this immense population, besides being used by them in a thousand different ways for carpets, tents, screens, pillows, curtains, &c. The great demand for cotton in Europe has led of late years to the most important consideration of improvements in its cultivation. The labours and outlay which government has expended in obtaining so important an object have happily been attended with the best results. The introduction of American seeds and experimental cultivation in various parts of India have been of the greatest benefit. They have been the means of producing a better article for the market, simplifying its mode of culture and proving to the Ryots how with a little care and attention, the article may be made to yield ten-fold, and greatly increase its former value. To neither the soil nor the climate can the failure of Indian cotton be traced : the want of easy transit however from the interior to the Coast, the ruinous effect of absurd fiscal regulations, and other influences were at work to account for its failure. In 1834, Professor Royle drew attention to two circumstances, ‘I have no doubt that by the importation of foreign, and the selection of native seed, attention to the peculiarities not only of soil, but also of climate, as regards the course of the seasons, and the temperature, dryness, and moisture of the atmosphere, as well as attention to the mode of cultivation, such as preparing the soil, sowing in lines, so as to facilitate the circulation of air, weeding, ascertaining whether the mixture of other crops with the cotton be injurious or otherwise, pruning, picking the cotton as it ripens, and keeping it clean, great improvement must take place in the quality of the cotton. Experiments may at first be more expensive than the ordinary culture ; the Natives of India, when taught by example, would adopt the improved processes as regularly and as easily as the other ; and as labour is no where cheaper, any extra outlay would be repaid fully as profitably as in countries where the best cottons are at present produced.’

The experiments urged by so distinguished an authority were put in force in many parts of the country, and notwithstanding the



great prejudice which existed to the introduction of novelty, and other obstacles the results have proved eminently successful. It has been urged that Indian cotton is valuable for qualities of its own, and especially that of wearing well. It is used for the same purposes as hemp and flax, hair, and wool are in England. There are of course a great many varieties in the market, whose value depends on the length, strength and fineness as well as softness of the material, the chief distinction being the *long stapled* and the *short stapled*. Cotton was first imported into England from India in 1783, when about 114,133 lbs were received. In 1846, it has been calculated that the consumption of cotton for the last 30 years has increased at the compound ratio of 6 per cent., thereby doubling itself every twelve years. The chief parts of this country where the cotton plant is cultivated are in Guzerat, especially in Surat and Broach, the principal cotton districts in India, the Southern Mahratta countries including Dharwar, which is about a hundred miles from the sea-port, the Concans, Canara and Malabar. The average export from the former place to Bombay for thirteen years ending in 1846, was ten millions of pounds, and from the latter less than one million. There has never been any great quantity exported from the Madras side, though it is cultivated in the Salem, Coimbatore, and Tinnevely districts, having the port of Tuticorin on one Coast, and of late years that of Cochin on the other, both increasing in importance as places of export. In the Bengal Presidency, Behar and Benares, and the Saugor and Nerbudda territories are the districts where it is chiefly cultivated. In 1849, the imports from India to Great Britain were 84,101,961 lbs., averaging at the rate of from 2*d.* to 3*d.* a pound.

The present species and its varieties are by far the most generally cultivated in India. Dacca cotton is a variety chiefly found in Bengal furnishing that exceedingly fine cotton, and employed in manufacturing the very delicate and beautiful muslins of that place, the chief difference being in the mode of spinning not in any inherent virtue in the cotton or soil where it grows. The Berar cotton is another variety with which the N. Circar long-cloth is made. This district since it has come under British rule, promises to be one of the most fertile and valuable cotton district in the whole country.

Much diversity of opinion exists as to the best soil and climate adapted for the growth of the cotton-plant, and considering that it grows at altitudes of 9,000 feet, where Humboldt found it in the Andes, as well as at the level of the sea, in rich black soil, and also on the sandy tracts of the sea-shore, it is superfluous to attempt specifying the particular amount of dryness or moisture absolutely requisite to ensure perfection in the crop. It seems to be a favorite idea however that the neighbourhood of the sea-

coast, and islands, are more favorable for the cultivation of the plant than places for inland, where the saline moisture of the sea air cannot reach. But such is certainly not the case in Mexico and parts of Brazil, where the best district for cotton-growing are far inland, removed from the influence of sea-air. Perhaps the different species of the plant may require different climates. However that may be, it is certain that they are found growing in every diversity of climate and soil, even on the Indian continent, while it is well known that the best and largest crops have invariably been obtained from island plantations, or those in the vicinity of the sea on the main land.

The remaining uses of this valuable plant must now claim our attention. The seeds are bruised for their oil, which is very pure, and is largely manufactured at Marseilles from seeds brought from Egypt. These seeds are given as a fattening food to cattle. An emulsion of them is employed as an antidote to opium, also in dysentery, and the oil is useful in cases of poisoning from narcotics. A decoction of the root is prescribed by the Vytians in cases of strangury and gravel, as they consider it demulcent. A gum which exudes from the stem is diuretic, and is internally administered in measles and small pox, and externally in cutaneous eruptions. The young leaves and shoots are prescribed for children in dysentery, also in colic, and hysterics. They are said to be very cooling. The root in infusion is diuretic. Cotton-seed cake is imported from the West Indies into England, being used as a valuable food for cattle. The produce of oil cake and oil from cotton seeds is two gallons of oil, to one cwt. of seeds, and 96 lbs. of cake. The importation of oil-seed cakes to the United Kingdom amounted in 1852, to 53,616 tons. A great quantity is shipped from China, chiefly from Shanghai, for the English market. It forms an invaluable manure for the farmer. *Royle on Cotton Cultivation. Simmonds. Penny Cycl. Rheede.*

(354) **Grangea Maderaspatana** (Poir.) N. O. ASTERACEÆ.

**Syngenesia Polygamia. Sex: Syst :**

Nelampata, MAL.  
Mashiputtrie, TAM.

Mustaroo, TEL.  
Namuti, BENG.

DESCR: Annual: stem procumbent or diffuse, extremities vil-  
lous by pubescent: flowers, small, yellow. *Fl.* Jan.—Feb.—  
*Wight's Icon. t.* 1097.—*G. Adansonii, Cass.*—*Artemisia Mada-*  
*raspatana, Roxb. fl. Ind.* III. 422.—*Cotula Maderaspatana, Willd.*  
—*Rheede X. t.* 49.—Peninsula. Bengal. Borders of tanks in S.  
provinces.

USES, &c. The leaves are used medicinally as a stomachic. The Vytians also consider them to have deobstruent and antispasmodic properties. Used also in the preparation of antiseptic and anodyne fomentations. *Ainslie*.

(355) **Graptophyllum hortense** (*Nees.*) N. O. ACANTHACEÆ.

**Diandria Monogynia.** *Sex : Syst :*

Tsjude-marum, MAL.

DESCR : Shrub 6-12 feet : leaves opposite, ovate-lanceolate, smooth-pointed, generally variegated with large white spots : racemes terminal, erect, short : flowers crimson or darkish purple : throat of corolla compressed, divisions of the border becoming spirally revolute after expansion, wrinkled inside, and ornamented with chrySTALLINE specks. *Fl.* All the year.—*Justicia picta*, *Roxb.* *fl. Ind.* I. p. 117.—*ed. Car.* I. 118.—*Rheede* VI. t. 60.—Cultivated in gardens.

USES, &c. This plant is properly a native of Java, but has become very common in gardens of the Peninsula, where it is one of the handsomest ornaments. There are several varieties with leaves green, or variegated green and white, or dark claret colour. The Natives use the leaves as soap.

(356) **Grewia elastica** (*Royle.*) Nat. Ord. TILIACEÆ.

**Polyandria Monogynia.** *Sex : Syst :*

DESCR : Tree 15-20 feet : leaves ovate, acuminate, frequently tapering towards and unequal at the base, young branches densely hoary or rufous with stellate pubescence : petioles short, thick towards the apex : stipules very hairy : peduncles lateral or axillary, solitary or aggregated, twice as long as the petioles, 3-flowered : sepals coriaceous, hairy outside, coloured.—*Royle's Ill.* I. t. 25.—Base of the Himalayahs.

USES, &c. The timber highly valued for strength and elasticity and much used for bows, buggy shafts, and sticks. The berries have a pleasant acid taste, are used for making sherbet. The fruit of the *G. Asiatica* is used for the same purposes. *Royle*.

(357) **Grewia microcos** (Linn.)

Do.

Do.

Schagericotam, MAL.

DESCR : Shrub or small tree : leaves ovate or obovate-lanceolate, acuminate, slightly cordate at the base, serrulate, adult ones glabrous or nearly so ; under side of young ones covered with a starry pubescence : panicle terminal, pubescent : flowers 2 or 3 together within an involucre : petals 3-times shorter than the calyx : drupe with a single, hairy, 3-celled nut. *Fl.* Aug.—Sept.—*W. & A. prod.* I. 81.—*Ill.* I t. 35.—*G. ulmifolia*, *Roxb. fl. Ind.* II. 591.—*Wight's Icon.* t. 84.—*G. affinis*, *Lindl. Hort. Soc. Trans.* VI. p. 265.—*Microcos paniculata*, *Linn.*—*M. mala*, *Ham.*—*M. Stauntoniana*, *G. Don. in. Mill. Dict.*—*Arsis rugosa*, *Lour.*—*Rheede* I. t. 56.—Peninsula. Malabar.

USES, &c. The juice of the leaves mixed with sugar is given in flux and hepatitis. A lotion is also made from them said to be good for pustular eruptions in the mouth, being mixed with vinegar and used as a gargle. The leaves in decoction are employed internally in fevers. *Rheede.*

(358) **Grewia oppositifolia** (Buch.)

Do.

Do.

DESCR : Tree : leaves bifarious, alternate, short petioled, from ovate to rhomb-shaped ; 3-nerved, serrate, serratures obtuse and glandular, rather harsh on both sides : peduncles leaf-opposed, solitary, longer than the petioles, 3-5 flowered : flowers large, yellowish : calyx 3-ribbed at the back : sepals 5, linear : petals lanceolate : drupe, smooth, olive coloured, fleshy : nut 1-celled. *Fl.* March—June.—*Roxb. fl. Ind.* II. 583.—*Wight's Icon.* t. 82.—Kheree pass. Dheyra Dhoon.

USES, &c. The inner bark is used for cordage and coarse-cloth. The former much used for agricultural purposes, for rigging boats. A kind of paper is also made from it. *Royle.*

(359) **Grislea tomentosa** (Roxb.) Nat. Ord. LYTHRACEÆ

Octandria Monogynia. Sex: Syst:

Sirinjie, TEL.

| Dhace-phool, BENG.

DESCR: Shrub 2-6 feet, branchlets pubescent: leaves opposite, entire, lanceolate, somewhat cordate at the base, sessile, under side hairy, smoothish above: petals usually 6, scarcely conspicuous: stamens declinate: capsule oblong: calyx tubular, sharply toothed: seeds numerous: peduncles axillary, many flowered: flowers red. *Fl. Dec.*—April.—*W. & A. prod.* I. 308.—*Roxb. fl. Ind.* II. 233.—*Cor.* I. t. 31.—*Lythrum fruticosum*, *Linn.*—Peninsula. Bengal. Oude. Dheyra Dhoon.

USES, &c. The petals are used as a red dye as well as in medicine. An infusion of the leaves is employed as a substitute for tea by the Hill tribes near Ellichpoor where the shrub grows. Dr. Gibson remarks that it is a very common shrub throughout the forest of the Concan, and along the ghauts. It has rather pretty red flowers, appearing from December to February, and in Candeish where the plant grows abundantly, forms a considerable article of commerce inland as a dye. *Dr. Gibson. &c.*

(360) **Guazuma****tomentosum** (*H.B. & Kth.*) N. O. BYTTNERIACEÆ.

Monadelphia Decandria. Sex: Syst:

Bastard Cedar, ENG.

DESCR: Tree 40-60 feet: leaves alternate, ovate or oblong, unequal at the base, toothed, acuminate at the apex, stellately, puberulous on the upper side, tomentose beneath: petals 5: yellow with two purple awns at the apex: capsules 5-celled, many seeded: seeds angular: peduncles axillary and terminal. *Fl.* Aug.—Sept.—*W. & A. prod.* I. 64.—*Wight's Ill.* t. 31.—*G. ulmifolia*, *Wall.*—*Bubroma Guazuma*, *Willd.*—*B. tomentosum*, *Spreng.*—Cultivated.

USES, &c. This tree has been introduced from the West Indies, but is now common in India; it is a wide spreading tree not unlike the English elm with leaves that droop hanging quite down whilst the petioles remain stiff and straight. The fruit is filled with mucilage which is very agreeable to the taste. The wood is light and loose grained, and is much used in making furniture especially by coach-makers for panels. A decoction of the inner bark is very glutinous and is employed to clarify sugar, it is also said to

be of use in Elephantiasis, while the older bark is employed as a sudorific and is given in diseases of the chest. A fibre was prepared from the young shoots which was submitted to experiments by Dr. Roxburgh, and found to be of considerable strength, breaking at 100 lbs. when dry, and 140 lbs. when wet. *Don. Royle. fib. Plants.*

(361) **Guettarda speciosa** (Linn.) N. O. CINCHONACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Puneer-marum, TAM. | Ravapoo, MAL.

**DESCR:** Tree: leaves ovate or obovate, often slightly cordate at the base, obtuse at the apex, pubescent on the under side: cymes peduncled, axillary, velvety, much shorter than the leaf: corolla hypocrateriform with cylindrical tube: flowers 4-9 cleft: anthers sessile in the throat of the corolla: calyx limb deciduous: stamens 4-9: drupe depressed, marked by the traces of the calyx: cells of the nut curved, 1-seeded: flowers white, very fragrant. *Fl.* April—May.—*W. & A. prod.* I. 422.—*Wight's Icon.* I. t. 40.—*Roxb. fl. Ind.* I. 686.—*ed. Car.* II. p. 521.—*Cadamba jasminiflora, Sonnerat.*—*Gardenia speciosa, Roxb. in E. I. C. Mus.*—*Jasminum hirsutum, Willd.*—*Nyctanthes hirsuta, Linn.*—*Rheede IV. t. 47, 48.*—Travancore. Coromandel in gardens.

**USES, &c.** The flowers of this tree are exquisitely fragrant. They come out in the evening, and have all dropped on the ground by the morning. The Natives in Travancore distil an odoriferous water from the corollas which is very like rose water. In order to procure it they spread a very thin muslin cloth over the tree in the evening, taking care that it comes well in contact with the flowers as much as possible. During the heavy dew at night the cloth becomes saturated, and imbibes the extract from the flowers. It is then wrung out in the morning. This extract is sold in the bazars. *Pers. obs.*

(362) **Guilandina bonduc** (Linn.) Nat. Ord. LEGUMINOSÆ.

**Decandria Monogynia.** *Sex: Syst:*

Kulunje, Caretti, MAL.		Nata-caranja, HIND.
Kalichikai, TAM.		Gutchka, DUK.
Getsakaia, TEL.		Nata, BENG.

**DESCR:** Climbing shrub: leaves abruptly bipinnated, more or less pubescent, 3-8 pair, with 1-2 small recurved prickles between them: leaflets oval or ovate: prickles solitary: flowers yellow:

sepals 5, nearly equal: petals 5, sessile: flowers, largish, sulphur coloured, spicately racemose: legume ovate, 2-valved, 1-2 seeded, covered with straight prickles: seeds long, nearly globose. *Fl.* Aug.—Oct.—*W. & A. prod.* I. 280.—*G. bonducella*, *Linn.*—*Cæsalpinia bonduc*, *Roxb. fl. Ind.* II. 362.—*C. bonducella*, *Fleming.*—*Rheede* II. t. 22.—Coromandel. Travancore. Bombay. Bengal.

USES, &c. The kernels of the nuts are very bitter and said by the native doctors to be powerfully tonic. They are given in cases of intermittent fevers mixed with spices in the form of powder. Pounded and mixed with castor oil they are applied externally in hydrocele. At Amboyna the seeds are considered as anthelmintic, and the root tonic in dyspepsia. The nuts are used as beads and marbles. In Cochin China the leaves are reckoned as deobstruent and emmenagogue, and the root astringent. The oil from the former is useful in convulsions, palsy, &c. In Egypt the nuts are strung as necklaces and used by women as amulets against sorcery. In Scotland where they are frequently thrown upon the sea shore they are known as Molucca Beans. The root and seeds in infusion are given in intermittent fevers. Piddington has detected in the nuts, oil, starch, sugar, and resin. *Ainslie. Lour. Rumph. &c.*

(363) **Guizotia oleifera** (*D.C.*) Nat. Ord. ASTERACEÆ.

**Syngenesia Polygamia**, *Sex: Syst.*

Ramtíl, BENG.  
Ramtilla, DUK.

Kalatill, HIND.  
Valesuloo, TEL.

DESCR: Annual, herbaceous, erect: leaves opposite, long lanceolate, coarsely serrated: peduncles elongated, sub-corymbose: flowers large, bright yellow. *Fl.* Nov.—Dec.—*G. Abyssinica*, *Cass.*—*Polymnia Abyssinica*, *Linn. fl.*—*P. frondosa*, *Bruce.*—*Verbesina sativa*, *Roxb. fl. Ind.* III. 441.—*Parthenium luteum*, *Spreng.*—*Heliopsis platyglossa*, *Cass.*—*Tetragonotheca Abyssinica*, *Ledeb.*—*Jagera Abyssinica*, *Spreng.*—*Helianthus oleifer*, *Wall.*—*Ramtilla oleifera*, *D.C.*—*Buphthalmum ramtilla*, *Buck.*—*Anthemis Mysorensis*, *Herb.*—Madras. Cultivated in the Deccan. Lower Bengal.

USES, &c. Commonly cultivated in Mysore and the Deccan for the sake of the oil yielded by its seeds. The Ramtil oil is sweet tasted, and is used for the same purposes as the gingely-oil, though an inferior oil. The oil expressed from the larger seeds is the common lamp oil of Upper India and is very cheap. In Mysore

the seed is sown in July or August after the first heavy rains, the fields being simply ploughed, neither weeding nor manure being required. In three months from the sowing, the crop is cut, and after being placed in the sun for a few days, the seeds are thrashed out with a stick. The produce is about 2 bushels an acre. The annual exports from Calcutta amount to nearly 5,000 maunds. In Mysore the price is about Rs. 3-8 a maund. *Ainslie. Jury Rep. Heyne's Tracts. Simmonds.*

(364) **Gynandropsis****pentaphylla** (*D.C.*) Nat. Ord. CAPPARIDACEÆ.**Monadelphix Hexandria.** *Sex: Syst:*Caat-kodokoo, Cara-vella, MAL.  
Kanala, Shada Hoorhooreeja, BENG. |

Nai-kadughoo, Nai Vaylla, TAM.

**DESCR:** Annual, 1 foot: calyx sepals 4: spreading: petals 4, open: not covering the stamens: stem more or less covered with glandular pubescence or hairs: middle leaves 5 foliolate, lower and floral leaves trifoliate: leaflets obovate, puberulous, entire, or slightly serrulate: flowers white, or flesh coloured, with pink stamens and brown anthers: siliqua stalked. *Fl.* July—Aug.—*W. & A. prod.* I. 21.—*G. affinis*, *Blume.*—*Cleome pentaphylla*, *Linn.*—*Roxb. fl. Ind.* III. 126.—*Rheede IX. t.* 24.—Common every where. Bengal. Nepaul.

**USES, &c.** The leaves eaten by the Natives in their curries: bruised and applied to the skin act as a rubefacient, and produce abundant serous exudation answering the purpose of a blister. The seeds are given internally, beaten to a paste, in fever and bilious affections, and the juice of leaves beaten up with salt, in ear-ache. The whole plant made into an ointment with oil, is applied to pustular eruptions of the skin, and simply boiled in oil is efficacious in cutaneous diseases, especially leprosy. *Rheede. Ainslie.*

(365) **Gyrocarpus Asiaticus** (*Willd.*) N. O. COMBRETACEÆ.**Polygamia Monœcia.** *Sex: Syst:*

Tanukoo, TEL.

**DESCR:** Large tree: leaves crowded about the extremities of the branchlets, broad cordate, 3-nerved, often slightly lobed, above smooth, below downy, with two pits on the upper side of the base: petioles downy: panicles terminal, divisions 2-forked: hermaphro-



dite flowers solitary, sessile in the division of the panicle: calyx 5 sepalled: segments unequal: interior pairs large, wedge-shaped, 3-toothed, expanding into two long membranaceous wings: flowers small, yellow: capsule globular wrinkled, 1-celled, 1-valved, size of a cherry, ending in two long lanceolate membranaceous wings. *Fl.* Dec.—Jan.—G. Jacquina, *Roxb. fl. Ind. I. p. 445.*—*ed. Car. I. 465.*—*Cor. I. t. 1.*—Coromandel mountains. Banks of the Krishna.

USES, &c. The wood of this tree is very light, and when procurable is preferred above all others in the construction of Catamarans. The rough muricated beads are strung for necklaces and worn by Fakeers. *Roxb.*

## H.

(366) **Hedyotis umbellata** (Lam.) N. O. CINCHONACEÆ.

Tetrandria Monogynia, Ser: Syst

Indian Madder, ENG.

Saya or Emboorel cheddie, TAM. |

Cheriveloo, TEL.

DESCR: -Small plant: suffruticose, erect or diffuse, slightly scabrous: calyx 4-parted: corolla rotate, 4-cleft: leaves opposite or verticillate, linear, paler on the under side, margins recurved: stipules ciliated with bristles: peduncles alternate, axillary, bearing a short raceme: partial peduncles 1-3 flowered: capsule globose with a wide dehiescence: flowers white.—*W. & A. prod.* I. 413.—*H. hispida*, *Roth.*—*H. Indica*, *Roem* and *Schult.*—*Oldenlandia umbellata*, *Linn.*—*Roxb. Cor. I. t. 3.*—*fl. Ind. I. 421.*—Coromandel. Concans. Cultivated in the Peninsula.

USES, &c. This is much cultivated in sandy situations on the Coromandel Coast, especially at Nellore, Masulipatam and other places. The root which is long and orange-coloured gives the best and most durable red dye for cotton cloth. A purple and brown orange dye is also procured from it. It is often called by the Tamulians the *Ramiseram Vayr*, from its growing plentifully on that Island. Among Europeans it is known as the *Chay root*. Simmonds says the outer bark of the roots furnishes the colouring matter for the durable red for which the chintzes of India are famous. Chay root forms a considerable article of export from Ceylon. The wild plant there is considered preferable; the roots which are shorter, yielding one-fourth part more colouring matter, and the right to dig it is farmed out. It grows spontaneously on light, dry, sandy ground on the sea coast; the cultivated roots are slender, with a few lateral fibres, and from one to two feet long. The dye is said to have been tried in Europe, but not with much advantage. This red dye similar to Munjeet, is used to a great extent in the southern parts of Hindoostan by the native dyers. It is not held in very good estimation in Europe, but seems to deserve a better reputation than it at present possesses. Specimens of the dye were forwarded to the Madras Exhibition upon which the Jurors reported as follows. "The colouring matter resides entirely in the bark of the root, the inner

portion is white and useless. The root is of great importance to the Indian dyer, yielding a red dye similar to Munjeet, which is used to a great extent in the southern parts of Hindoostan. The celebrated red Turbans of Madura are dyed with the Chay root, which is considered superior of its kind, but this is probably owing to some chemical effect which the water of the Vigay-river has upon it, and not to any peculiar excellence of the dye itself. Wild Chay is considered to yield one-third more colouring matter than the cultivated root, this probably arises from too much watering, as much rain injures the quality of the root. Roots of two years growth are preferred when procurable. It is currently reported, that Chay root rapidly deteriorates by being kept in the hold of a ship or indeed, in any dark place. The leaves are considered expectorant. Dried and powdered they are mixed with flour and made into cakes and given in asthmatic complaints and consumption, an ounce daily of decoction being the dose given. *Ainslie. Simmonds. Jury Rep.*

(367) **Hemidesmus Indicus** (*R. Br.*) N. O. ASCLEPIACEÆ.

**Pentandria Digynia.** *Sex: Syst:*

Country Sarsaparilla, *ENG.*  
Naroneendee, *MAL.*  
Nunnari, *TAM.*

Soogundapala, *TEL.*  
Mugraboo, *IND.*  
Unanto-mool, *BENG.*

**DESCR:** Twining: stem glabrous: leaves from cordate to ovate, cuspidate, passing into narrow linear, acute, often oblong-lanceolate: cymes often sub-sessile, sometimes peduncled: scales of the corolla obtuse, cohering the whole length of the tube: foli-oles slender, straight: flowers on the outside, pale green: on the inside, dark blood-coloured. *Fl.* June—August.—*Wight's Contrib. p. 63.*—*Icon. t. p. 594.*—*Periploca Indica, Willd.*—*Asclepias pseudosarsa.* Var, *latifolia, Roxb. fl. Ind. II. 39.*—*Rheede X. t. 34.*—Coromandel. Bombay. Bengal. Very common in Travancore.

**USES, &c.** This root is an excellent substitute for Sarsaparilla, and much used among the Natives, being sold in the bazars for this purpose. They employ it particularly for the thrush in children, giving about a drachm every morning and evening of the powder fried in butter. Dried and reduced to powder and mixed with honey it is reckoned a good specific in rheumatic pains, boils, &c., and in decoction with onions and cocoanut-oil is internally recommended in hæmorrhoids, and simply bruised and mixed with water in diarrhœa. *Ainslie* states that the root is mucilaginous and slightly bitter, and is recommended by the Tamool doctors in cases of strangury and gravel, being pulverised and mixed with cow's

milk : they also give it in decoction with cummin seeds to purify the blood and correct the acrimony of the bile. A decoction of it is also prescribed by European practitioners in cutaneous diseases, scrofula and venereal affections. Dr. O'Shaughnessy repeatedly experimented upon the roots and found their diuretic properties very remarkable. Two ounces infused in a pint of water and allowed to cool was the quantity usually employed daily ; and by such doses the discharge of urine was generally trebled or quadrupled. " It also acted as a diaphoretic and tonic, greatly increasing the appetite." Dr. Pereira says the root is brownish externally, and has a peculiar aromatic odour, somewhat like that of sassafras. It has been employed as a cheap and efficacious substitute for Sarsaparilla in cachectic diseases, increasing the appetite and improving the health. In some cases it has succeeded where Sarsaparilla has failed, and in others failed where Sarsaparilla proved successful. The milky juice of the fresh plant boiled in oil is applied externally in rheumatism, and an infusion of the whole plant is given in fevers. *Roxb. Rheede. Ainslie. Beng. Disp. Pers. obs. &c.*

(368) **Herpestis monniera** (*H. B. ; Kth.*) Nat. Ord.

## SCROPHULARIACEÆ.

**Didynamia Angiospermia.** *Sex: Syst:*

Beami, MAL.  
Neerpirimie, TAM.  
Sambronichitto, TEL.

Shevet-chamni, HIND.  
Adha-birni, BENG.

**DESCR:** Annual, creeping : leaves opposite, sessile, obovate, wedge shaped or oblong, smooth, entire, fleshy, dotted with minute spots : peduncles axillary, alternate, solitary, shorter than the leaves, 1-flowered : flowers blue : calyx 5-cleft : exterior 3 segments larger than the others : corolla campanulate, 5-parted, divisions equal : capsule ovate, 2-celled, 2-valved : seeds numerous. *Fl.* Nearly all the year.—*Roxb. fl. Ind. I. p. 141.—ed. Car. I. 141.—Cor II. t. 178.—H. Brownei, Nutt.—H. procumbens, Spreng.—H. cuneifolia, Pursh.—Bramia Indica, Lam.—Calytriplex obovata, Ruiz and Pav.—Monniera cuneifolia, Michx.—M. Brownei, Pers.—Gratiola portulacacea, Weinm.—G. Monniera, Linn.—Rheede X. t. 14.—Moist situations near streams or on the borders of tanks.*

**USES, &c.** The root, stalks and leaves are used by the Hindoos medicinally as diuretic and aperient. Roxburgh says that the expressed juice mixed with petroleum is rubbed on parts affected with rheumatism. *Ainslie. Roxb.*

(369) **Hibiscus cannabinus** (Linn.) N. O. MALVACEÆ.**Monadelphia Polyandria.** Sex: Syst:Deckanee hemp, ENG.  
Palungoo, TAM.  
Gongkura, TEL.Ambaree, DUK.  
Maesta-paut, BENG.

DESCR: Stem herbaceous, prickly: leaves palmately 5-partite, glabrous: segments narrow lanceolated, acuminate, serrated: flowers almost sessile, axillary, solitary: leaves of the involucrel about 9, subulate, prickly with rigid bristles, shorter than the undivided portion of the calyx: calyx divided beyond the middle: segments slightly prickly, 1-nerved: corolla spreading: fruit nearly globose, acuminate, very hairy: seeds few, glabrous: flowers, pale sulphur, with a deep purple centre: carpels joined into a 5-celled, 5-valved capsule. *Fl.* June—July.—*W. & A. prod.* I. 50.—*Roxb. fl. Ind.* III. 208.—*Cor.* II t. 190.—Negapatam. Cultivated in Western India.

USES, &c. The bark of this species is full of strong fibres which the inhabitants of the Malabar Coast prepare and make into cordage, and it seems as if it might be worked into strong fine thread of any size. In Coimbatore it is called *Pooley-munjee* and is cultivated in the cold season, though if with sufficient moisture it will thrive all the year. A rich loose soil suits it best. It requires about 3 months from the time it is sown before it is fit to be pulled up for watering, which operation with the subsequent dressing is similar to that used in the preparation of the Sunn fibre. Dr. Buchanan observed that it was sown by itself in fields where nothing else grew. It goes by various names in different parts of the country. The fibres are harsh and more remarkable for strength than fineness, but might be improved by care. It is as much cultivated for the sake of its leaves as its fibres, which former are acidulous and are eaten by the Natives. In Dr. Roxburgh's experiments a line broke at 115 lbs., Sunn under the same circumstances at 160 lbs. But in Professor Royle's experiments this broke at 190 lbs., Sunn at 150. Dr. Gibson states that in Bombay it is cut in November and kept for a short time till ready for stripping the bark. The length of these fibres is usually from 5 to 10 feet. *Royle. Roxb.*

(370) **Hibiscus furcatus** (Roxb.) Do.*Do.*

DESCR: Stem erect, 6-8 feet, somewhat woody, softly pubescent, and with the petioles and pedicels rough with numerous

small recurved prickles : leaves palmately 3-5 lobed, underside densely pubescent : nerves beneath prickly : pedicels shorter than the petioles : leaves of the involucl about 10, linear, incurved, with an oblong foliaceous spreading appendage at their back about the middle : flowers large, pale sulphur with dark purple eye. *Fl.* October—November.—*W. & A. prod.* I. 48.—*H. bifurcatus, Roxb in E. I. C. Mus.—flor. Ind.* III. 204.—Southern Provinces. Interior of Bengal.

**USES, &c.** The bark yields abundance of strong white fibres. It is a very prickly plant. A line broke dry at 89 lbs., wet 92 lbs. It is cut when flowering and steeped at once. *Royle.*

(371) **Hibiscus Rosa sinensis** (*Linn.*)

*Do.*

Shoe-flower plant or China rose, **ENG.**  
Schempariti, **MAL.**  
Sapatoo cheddie, **TAM.**

Dasanie, **TEJ.**  
Jasoon, **DUK.**  
Juva, **BENG.**

**DESCR :** Shrub 12-15-feet : stem arborescent without prickles : leaves ovate, acuminate, coarsely toothed, and slightly cut towards the apex, entire at the base : pedicels axillary, as long or longer than the leaves, jointed above their middle : involucl 6-7 leaved : calyx tubular, 5-cleft : flowers large, single or double, crimson, yellow or white : seeds unknown. *Fl.* All the year.—*W. & A. prod.* I. 49.—*Rheede* II. t. 16.—*Roxb. fl. Ind.* III. 194.—Peninsula. Cultivated in gardens.

**USES, &c.** In China they make these handsome flowers into garlands and festoons on all occasions of festivity, and even in their sepulchral rites. The petals of the flowers are used for blacking shoes, and the women also employ them to colour their hair and eyebrows black. They are also eaten by the Natives as pickles. The leaves are considered in Cochin China as emollient and slightly aperient. The flowers are used to tinge spirituous liquors and the petals when rubbed on paper communicate a bluish purple tint which forms an excellent substitute for litmus paper as a chemical test. *Rheede* says the root triturated with oil is useful in menorrhagia, and that the tender leaves rubbed with butter are applied to boils to bring them to maturity. The leaves are prescribed by the Natives in small pox, but are said to check the eruption too much. *Rheede. Don. Ainslie.*

(372) **Hibiscus sabdariffa** (Linn.)

Do.

Do.

Roselle, or red Sorrel, ENG.  
Mesta, BENG.

Polechee, MAL.

DESCR : Annual, glabrous, 1-3 feet : lower leaves undivided : upper palmately 3-5 lobed, cuneate and entire at the base : lobes oblong-lanceolate, acuminate, toothed : flowers axillary, solitary on very short pedicels : involucre segments about 12 : stems unarmed, smooth : capsule many-seeded : seeds smooth : flowers pale sulphur, with dark brown eye. *Fl.* October—December.—*W. & A. prod.* I. 52.—*Roxb. H. B.* p. 52.—Common in gardens.

USES, &c. The fleshy calyx and capsule freed from the seeds, make excellent tarts and jellies. A decoction of them sweetened and fermented is commonly called in the West Indies Sorrel-drink. The leaves are used in salads. *Sabdariffa* is the Turkish name for the plant. Root is said to be purgative. The stem is cut when in flower and a fibre got from the bark which is rather fine and silky. In *Rajahmundry* they are planted for this purpose. The stems are left to rot in fresh water, but spoil if put in salt-water. Excellent tow and hemp might be made from several species of *Hibiscus*, the staple being long, fibre uniform, silky and fine. Cordage of greater compactness and density could therefore be made from them than from many of the coarser fibres. All plants of the kind should be sown thick for the simple reason that they will grow tall and slender, thus giving a greater length of straight fibre yielding stem. No plant yielding fibres should be gathered for more than one or two days before prepared, as the drying up of the sap, stains the fibres, and the sooner the fibre is cleaned the stronger and whiter it will be ; and newly cleaned fibres must not be exposed to the sun as they acquire a brown tinge, and it must be recollected that all plants are usually in greatest vigor when in flower or fruit ; and then it is at that time they yield the greatest amount of fibre. *Report on fibres. Ainslie. Don. &c.*

(373) **Holigarna longifolia** (Roxb.) N. O. ANACARDIACEÆ.**Polygamia Diœcia** Sex: Syst:

Cattu Tsjeru, MAL.

DESCR : Tree 60-feet : leaves alternate, cuneate, oblong or acute : petioles usually with a soft incurved thorn-like deciduous

process on each side about the middle : panicles terminal and axillary : styles recurved : calyx 5-toothed : petals 5, oblong, spreading : stamens 5, shorter than the corolla, nut ovate with a fleshy pericarp : flowers, small, whitish. *Fl.* January—February.—*W. & A. prod.* I. 169.—*Roxb. fl. Ind.* II. 80.—*Cor.* III. t. 282.—*Rheede* IV. t. 9.—Travancore. Concans. Chittagong.

USES, &c. This is a tall tree found on the mountains of Malabar. The Natives by incision extract an exceedingly acrid juice from the stem, which they use as varnish. The nut is about the size of an olive, containing between the laminæ numerous cells filled with black, rather thick, acrid fluid. The fruit is like a prune, at first glaucous and downy, when ripe dark blue and glabrous. The juice is succulent and glutinous. There is another variety with a round dark fruit. Small boats are made from the timber. The bark when wounded gives out tears acrid and glutinous. The juice of the fruit is used by painters and also for fixing indelible colours figured on linen cloths. The fruit in decoction is given internally for scabies, leprosy, vertigo and colic pains. The same and also the bark is given in toothache and applied to indolent tumours acting as a vesicatory. Some say the trees are poisonous and the body swells if touched with it, but which is cured by milk, butter, or oil. *Rheede. Don.*

(374) **Holarrhena**

**antidysenterica** (*Wall.*) Nat. Ord. APOCYNACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

DESCR: Shrub with angular stem : leaves ovate-lanceolate, with obsoletely crenulated edges, glabrous : calyx and corolla downy : corymb axillary, dichotomous : calyx sessile, 5-partite : corolla with a twisted limb : folicles distinct, slender : seeds with a tuft of hair at the upper extremity : flowers white. *Fl.* Feb.—May.—*Echites antidysenterica*, *Roxb. H. B. Roth.*—*Chonemorpha antidysenterica*, *Don's Mill.* IV. 76.—*Wight's Icon.* II. t. 439.—Chittagong. Malabar. .

USES, &c. This is a common but handsome flowering shrub on the Malabar Coast. It has astringent and tonic properties in its bark, and is a remedy in fevers. The seeds are given in infusion in slight bowel complaints. *Wight.*



(375) **Holostemma Rheedii** (Spr.) N. O. ASCLEPIACEÆ.**Pentandria Digynia.** Sex: Syst.

Ada-kodien, MAL.

| Palla-gurgi, TEL.

DESCR: Stems twining, perennial: leaves broad cordate, opposite: corolla subrotate, 5-cleft: stamineous corona inserted below the gynostegium, simple, annular, obsoletely 5-lobed: follicles ventricose, smooth: seeds comose: flowers largish, thick and fleshy, purplish green. *Fl.* Sept.—Oct.—*Wight's Contrib.* p. 55.—*Wight's Icon.* t. 597.—*J. Grah. Cat.* p. 121.—H. Ada-kodien, *Rœm et Sch.*—*Asclepias annularia*, *Roxb. fl. Ind.* II. 37.—A. Convolvulacea, *Herb. Heyne.*—*Sarcostemma annulare*, *Roth.*—*Rheede IX.* t. 7.—Malabar. Covalum jungles near Trevandrum. Mysore. Samulcottah. Circars.

USES, &c. The flowers of this creeper are remarkably pretty, and would answer well for trellis work in gardens. The medical virtues of the plant are given by Rheede, who states that the root pulverised and applied to the eyes will remove dimness of vision. Mixed with other ingredients it is also used in ophthalmia, for says that author "vires hujus plantæ planè ophthalmicæ sunt." It has an extensive distribution being found from the southernmost province to the base of the Himalayahs. The plant yields a tolerable fibre, which is said to be in its best condition after the rains. *Wight. Rheede. Pers. obs.*

(376) **Homalonema aromaticum** (Schott.) N. O. ARACEÆ.**Heptandria Monogynia.** Sex: Syst:

DESCR: Perennial: caulescent leaves sub-sagittate, cordate, acuminate, lobes rounded and divaricate: spadix cylindric, obtuse, equalling the spathe, above male, below female with abortive stamens intermixed: anthers many celled. *Fl.* Jan.—Feb.—*Wight's Icon.* t. 805.—*Calla aromatica*, *Roxb. fl. Ind.* III. 513.—*Zantedeschia aromatica*, *Spreng.*—Chittagong.

USES, &c. A native of Chittagong: when cut, it diffuses a pleasant aromatic scent. The Natives hold the medical virtues of the root in high estimation. *Roxb.*

(377) **Hoya pendula** (*W. & A.*) N. O. ASCLEPIACEÆ.

**Pentandria Digynia.** *Sex; Syst.*

Nausjera-patsja, MAL.

DESCR: Stem woody, twining: leaves fleshy, glabrous from oblong-oval, acute to broadly ovate, acuminate, revolute on the margins: peduncles somewhat longer than the petioles, pendulous, many flowered: corolla downy inside: leaflets of stameneous corona, oboval, very obtuse, depressed, having the inner angles short and truncate at the apex: stigma apiculated: flowers white, fragrant. *Fl. March, May.*—*W. & A. Contrib. p. 36.*—*Wight's Icon. t. 474.* A. *Rheedii. W. & A.*—*Asclepias pendula, Roxb. fl. Ind. II. 36.*—B. *Neilgherense, Wight's Cat. p. 1521.*—*H. revoluta, Wight in Wall Herb.*—*Rheede IX. t. 13.*—Circular Mountains. Malabar. Neilgherries.

USES, &c. This plant is emetic and alexipharmic. Rheede gives many uses for it when mixed with other ingredients. There are two varieties of the plant differing in the shape of the leaves. *Rheede.*

(378) **Hugonia mystax** (*Linn.*) Nat. Ord. HUGONIACEÆ.

**Monadelphia Decandria,** *Sex; Syst.*

Modera canni, MAL.

| Agoore, TAM.

DESCR: Shrub 10-15 feet: leaves alternate, or crowded at the ends of the branches, oval, glabrous, entire: sepals distinct, acute, unequal: petals 5, alternate with the sepals: styles 5, distinct: ovary roundish, 5-celled: fruit a drupe enclosing 5, distinct, one seeded carpels: peduncles axillary, 1-flowered: spines circinate, opposite: flowers yellow. *Fl. Feb.*—*May.*—*W. & A. prod. I. 72.*—*Wight's Ill. I. t. 32.*—*Rheede II. t. 19.*—Travancore. Coromandel. Malabar.

USES, &c. This is a handsome shrub when in flower, commonly met with in Travancore. Its blossoms are of a beautiful golden yellow colour. The bruised roots are used in reducing inflammatory tumours. The same is a remedy in the bites of serpents. Is used as a febrifuge and reckoned anthelmintic especially for children. Also a sudorific, and said to promote the flow of urine. The bark of the root is also employed as an antidote to poisons. *Rheede.* *Pers. obs.*

(379) **Hydnocarpus****inebrians** (*Vahl.*) Nat. Ord. FLACOURTIACEÆ.**Diœcia Pentandria.** *Sex: Syst:*

Morotti, MAL.

| Maravuttie, TAM.

**DESCR:** Tree 50-feet. leaves glabrous, alternate: sepals 5, two outer ones ovate, 3 inner ones larger, very concave: petals 5, fringed with soft white hairs: pistil none: fruit globose, very hard, large as an apple, crowned with the undivided portion of the stigma: seeds numerous: flowers small white. *Fl.* Oct.—Nov.—*W. & A. prod.* I. 30.—*Wight's Ill.* I. t. 16.—*Icon.* t. 942.—*Rheede* I. t. 36.—Common in Travancore. Malabar.

**USES, &c.** The fruit if eaten occasions giddiness, and is greedily devoured by fishes, but fish taken by these means are not fit to be eaten, occasioning vomiting and other violent symptoms. On the Malabar Coast an oil is extracted from the seeds given in cutaneous diseases and ophthalmia, causing an excessive flow of tears. In Ceylon the seeds are used for poisoning fish. The tree is very common on the Western Coast. It is generally found overhanging tanks, and is usually laden with fruit which is excessively hard. The oil from the seeds is used as a sedative and as a remedy in scabies, and ulcers on the feet. The *H. Alpinus* common on the Neilgherries is a good timber tree, and much used for building purposes. *Rheede. Pers. obs.*

(380) **Hydrocotyle Asiatica** (*Linn.*) Nat. Ord. APIACEÆ.**Pentandria Digynia.** *Sex: Syst:*Asiatic Penny wort, ENG.  
Vullarei, TAM.  
Codagam, MAL.     ♁Babassa, TEL.  
Thulkuri, BENG.

**DESCR:** Herbaceous: leaves attached by the margin, orbicular-reniform, equally crenated, 7-nerved, glabrous or slightly villous below when young: petioles and peduncles fascicled, sprinkled with soft hairs: umbels capitate, short peduncled, few flowered: calyx tube slightly compressed: petals ovate, acute, spreading: fruit orbicular, reticulated, with 4 ribs on each of the flat sides: flowers whitish or purplish red. *Fl.* July—Aug.—*W. & A. prod.* I. 366.—*Roxb. fl. Ind.* II. 88.—*H. rotundifolia*, *Wall.*, (not *Roxb.*)—*Wight's Icon* t. 565.—*Rheede* X. t. 46.—Travancore.

USES, &c. A widely distributed plant growing in moist shady places near hedges or tanks. The leaves which are bitter are toasted and given in infusion to children in bowel complaints and fevers. They are also applied to parts that have suffered from blows or bruises as anti-inflammatory. In Java according to Horsfield they are considered as diuretic. The plant is one of the remedies for leprosy on the Malabar Coast, for which it is said to be a excellent specific, and one which is worthy of more attention than has hitherto been bestowed upon it. *Roxb. Rheede.*

(381) **Hydrolea Zeylanica** (*Vahl.*) N. O. HYDROLEACEÆ.

**Pentandria Digynia.** *Sex: Syst:* . . .

Kauchra Ishalangulya, BENG. | Tsjeru-vallel, MAL.

DESCR: Annual: herbaceous: stems erect, variously bent towards the extremities: leaves short, lanceolate, rather obtuse, marked below with numerous prominent parallel veins: racemes axillary, spreading, few flowered, and with the pedicels and calyx pubescent: pedicels 1-flowered, usually opposite to a small bracted-leaf: flowers deep blue, with a white spot in the centre: calyx 5-parted: divisions lanceolate, thickly covered with glandular hairs: corolla wheel-shaped: tube short, five-cleft: petals spreading, or even reflexed when fully open. *Fl. Dec.*—*Jan.*—*W. & A. in Bot. Mag.* II. 193.—*Nama Zeylanica*, *Linn.*—*Roxb. fl. Ind.* II. 73.—*Steris aquatica*, *Burm.*—*Wight's Icon. t.* 601.—*Rheede X. t.* 28.—Marshy places in the Peninsula. Always near Cochin.

USES, &c. The leaves beaten into a pulp and applied as a poultice are considered efficacious in cleaning and healing bad ulcers, particularly those in which maggots have begun to breed. *Wight.*

(382) **Hymenodyction**

**excelsum** (*Wall.*) Nat. Ord. CINCHIONACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Pundaroo, TEL.

| Kala Buchnal, DUK.

DESCR: Tree 50-feet: leaves from oblong to roundish ovate, pubescent: stipules cordate: floral leaves oblong, coloured, bul-  
late: panicles terminal and axillary: anthers nearly sessile in  
tube of the corolla: calyx 5-toothed: corolla infundibuliform, 5  
parted: capsule 2-celled, many seeded: seeds girded by a membran-  
ous reticulated border: flowers small, greenish. The lower pairs

on two of the ramifications of the panicle are ornamented, each with a pair of coloured floral leaves. *Fl.* July—Aug.—*W. & A. prod.* I. 392.—*Roxb. fl. Ind.* II. 149.—*Cinchona excelsa*, *Roxb. Cor.* II. t. 106.—*fl. Ind.* I. 529.—*Wight's Icon.* 79-1159.—Circars. Colombo.

**USES, &c.** The two inner coats of the bark of this tree possess both the bitterness and astringency of Peruvian bark, and, when fresh, in a stronger degree. The wood is fine close grained, of a pale mahogany colour and very useful for many purposes. The bark is used for tanning leather and also medicinally astringent. *Roxb. Don.*

(388) **Hymenodyction utile** (*R. W.*)

Do.

*Do.*

**DESCR :** Tree : leaves roundish-ovate, abruptly acuminate, glabrous above, villous beneath : stipules broad-ovate, obtuse : panicles terminal, loose : branches racemose : flowers pedicelled, bracteolate, fasciated : corolla subrotate, tube about the length of the calyx-limb : filaments inserted on the throat a little shorter than the oblong-ovate anthers.—*Wight's Icon.* 1159.—*H. excelsum*, *Wight's Cat. No* 1264, (not of Roxburgh and Wallich.)—Paulghaut. Malabar.

**USES, &c.** This species is common in the Paulghaut jungles, often attaining a large size. The wood is nearly the colour of mahogany, but of a loose texture, soft, and very hygrometric. *Wight.*

## I.

(384) **Ichnocarpus****frutescens** (E. Br.) Nat. Ord. APOCYNACEÆ.**Pentandria Monogynia** Sex: Syst:Paal-vully, MAL.  
Shyama-luta, BENG.

Nalla-tiga, TEL.

DESCR: Twining: leaves oblong, or broad lanceolate: deep green above, pale below, glabrous: calyx 5-cleft: corolla salver-shaped, throat hairy, segments twisted, hairy: panicles terminal: follicles long, linear: flowers greenish-white. *Fl.* July—August.—*Wight's Icon. t.* 430.—*Echites frutescens*, *Roxb. fl. Ind.* II. 12.—*Apocynum frutescens*, *Linn.*—Peninsula. Bengal. Travancore. Common in hedges.

USES, &c. This plant is occasionally used as a substitute for Sarsaparilla.

(385) **Icica Indica** (W. & A.) Nat. Ord. AMYRIDACEÆ.**Octandria Monogynia** Sex: Syst:

Nayor, BENG.

DESCR: Tree 70 feet: young shoots, petioles and calyx pubescent: leaves unequally pinnated: leaflets 7-11, petioled oblong-lanceolate, more or less serrulated, from almost glabrous to densely pubescent: panicles axillary, solitary, lax, much shorter than the leaves: calyx small, 5-toothed: petals 5 recurved, sessile: stamens inserted with the petals and shorter than them: drupe globose, 1-3 celled: seeds bony, very hard, solitary in each cell, covered with an arilliform pulp: flowers small, whitish green. *Fl.* March—April.—*W. & A. prod.* I. 177.—*Bursera serrata*, *Wall.*—*Schinus Benghalensis*, *Herb. Buch.*—Chittagong. Assam.

USES, &c. The timber is close grained and hard, is much esteemed, and used for furniture. It is as tough as oak, and much heavier.

(386) **Indigofera aspalathoides** (Vahl.) LEGUMINOSÆ.

Do.

Shevenar-Vaymboo, TAM. | Manneli, MAL.

DESCR : Shrubby, erect : young parts whitish with adpressed hairs : branches slender, spreading in every direction : leaves sessile, digitately 3-5 foliolate : leaflets narrow-cuneate, small, underside with a few scattered hairs : peduncles solitary, 1-flowered, about the length of the leaves : legumes cylindrical, pointed, straight, 4-6 seeded : flowers rose-coloured. *Fl.* Nearly all the year.—*W. & A. prod.* I. 199.—*Wight's Icon. t.* 332.—*I. aspalathifolia*, *Roxb. fl. Ind.* III. 371.—*Aspalathus Indicus*, *Linn.*—*Lespedeza juncea*, *Wall. Rheede IX. t.* 37.——Peninsula. Common on waste lands.

USES, &c. The leaves, flowers and tender shoots are said to be cooling and demulcent, and are employed in decoction in leprosy and cancerous affections. The root chewed is given in tooth-ache and aphthæ. The whole plant rubbed up with butter is applied to reduce œdematous tumours. A preparation is made from the ashes of the burnt plant to clean dandruff from the hair. The leaves are applied to abscesses, and an oil is got from the root, used to anoint the head in erysipelas. *Ainslie. Rheede.*

(387) **Indigofera****enneaphylla** (*Linn.*) Nat. Ord LEGUMINOSÆ.**Diadelphia Decandria** *Sex: Syst:*

Cheppoo-neringie, TAM. | Cherra-gaddaun, TEL.

DESCR : Perennial, procumbent : young parts and leaves pubescent with white hairs : branches prostrate and edged : leaves pinnate, sessile, leaflets 3-5 pairs, obovate oblong : racemes sessile, short, dense, many flowered : legumes oval, pubescent, not winged : seeds 2, ovate and truncated at one end : flowers small bright red. *Fl.* Nearly all the year.—*W. & A. prod.* I. 199.—*Wight's Icon. t.* 403.—*Roxb. fl. Ind.* III. 376.—*I. cæspitosa*, *Wight.*—*Hedyarum prostratum*, *Linn. mant.*—Dindigul hills.

USES, &c. The juice is given as an antiscorbutic and alterative in certain affections. An infusion of the whole plant is diuretic and as such is given in fevers and coughs. *Ainslie.*

(388) **Indigofera tinctoria** (Linn.)

Dō.

Do.

Common Indigo, ENG.  
Ameri, MAL.  
Averie, TAM.

Neelie, TEL.  
Neel, BENG. and HIND.

DESCR: Shrub 2-3 feet, erect, pubescent: branches terete, firm: leaves pinnated: leaflets 5-6 pairs, oblong, ovate, cuneate at the base, slightly decreasing in size towards the apex of the leaf: racemes shorter than the leaves, sessile, many-flowered: flowers small, approximated at the base of the raceme, more distant and deciduous towards the apex, greenish-rose colour: calyx 5-cleft, segments broad, acute: legumes approximated towards the base of the rachis, nearly cylindrical, slightly torulose, deflexed and curved upwards: seeds about 10, cylindrical, truncated at both ends. *Fl.* July—August.—*W. & A. prod.* I. 202.—*Wight's Icon.* t. 365.—*Roxb. fl. Ind.* III. 379.—I. Indica, *Lam.*—I. Sumatrana, *Gærtn.*—*Rheede* I. 54.—Quilon. Concans. Cultivated in Bengal and elsewhere.

USES, &c. According to Loureiro the Indigo plant is spontaneous in China and Cochin-China, and is cultivated all over those vast Empires. The ancients were acquainted with the dye which we call Indigo, under the name of *Indicum*. Pliny knew that it was a preparation of a vegetable substance, but he was not acquainted with the plant, nor with the process of making the dye. Even at the close of the sixteenth century it was not known in England what plant produced it. The celebrated traveller Marco Polo thus mentions Indigo as one of the products of Quilon where the plant grows wild. "Indigo also of excellent quality and in large quantities is made here. They procure it from an herbaceous plant, which is taken up by the root, and put into tubs of water, where it is suffered to remain till it rots, when they press out the juice. This, upon being exposed to the sun and evaporated, leaves a kind of paste, which is cut into small pieces of the form in which we see it brought to us." To the present day Indigo is manufactured at Quilon, though probably some hundred years ago it was made in considerable quantities. The account given above is a tolerably correct one of the rude process of its manufactures. It is one of the most profitable articles of culture in Hindoostan, chiefly because labour and land are cheaper than anywhere else, and partly because the raising of the plant and its manufacture may be carried on even without the aid of a house. It is chiefly cultivated in Bengal in the delta of the Ganges, on those Districts lying between the Hooghly and the main stream of the



former river. The ground is ploughed in October and November after the cessation of the rains, the seeds are sown in March and beginning of April. In July the plants are cut when in blossom, that being the time when there is the greatest abundance of dyeing matter. A fresh moist soil is the best, and about 12 lbs. of seeds are used for an acre of land. The plants are destroyed by the periodical inundations, and so last only for a single year. When the plant is cut it is first steeped in a vat till it has become macerated and parted with its colouring matter, then the liquor is let off into another vat in which it undergoes a peculiar process of beating to cause the fecula to separate from the water: the fecula is then let off into a third vat where it remains some time and is then strained through cloth bags and evaporated in shallow wooden boxes placed in the shade. Before it is perfectly dry, it is cut into small pieces an inch square: it is then packed up for sale. Indigo however is one of the most precarious of Indian crops, being liable to be destroyed by insects; as well as inundation of the rivers. It is generally divided into two classes, viz., the Bengal and Oude Indigo. Madras Indigo is not much inferior to that grown in Bengal.

In the Jury Report of the Madras Exhibition it is said; in former years the usual mode of extracting Indigo, as practised in Southern India, was from the dry leaf, a process which will be found minutely described in the pages of Heyne and Roxburgh. But this is now almost entirely superseded, by the better system of the *green leaf* manufacture, which is followed in all the Indigo growing districts of this Presidency, save the province of South Arcot. In the latter, the *dry leaf* process is still persevered in, but probably, it is so only because of the distance to which the leaf has generally to be carried before it reaches the factory, and the consequent partial drying that takes place on the journey. The Indigo trade of Madras has of late years sustained a great development, though owing to the drought of 1854, the export fell off above 50 per cent., it having in that year only reached 2,162 candies (about 4,300 chests) while in 1853, it amounted to 5,445 candies (about 10,900 chests). The average import from Bengal from 1840 to 1854 was about 22,000 chests, but Madras contributes 30 per cent. of the whole supply of this dye from India to the London market. Notwithstanding the importance of the traffic, the general manufacture is so indifferently conducted, or rather on so imperfect a system, that the value of the article produced is seriously diminished, and its currency injured as an article of trade. It is not that the quality of Madras Indigo is inferior to the ordinary run of that of Bengal, but Indigo is commonly manufactured over the Madras Presidency in driblets; one vat-owner often not producing enough to fill even a chest, and the consequence is, that no one can make a purchase of a quantity of Indigo in the Madras market upon a sample, as is commonly done

in Bengal,—that every parcel, and often the same chest is of mixed qualities, and that the value of the dye becomes thereby disproportionately depreciated at home.

The best Indigo comes from the District of Kishnagur, Jessore, Moorshedabad, and Tirhoot. Roxburgh stated that he extracted most beautiful light Indigo from the *I. cœrulea* (Roxb.) and in greater quantities than he ever procured from the common Indigo plant. The exports from India for 16 years ending 1829–30, were 7,400,000 lbs., and from Madras alone in 1839–40 were 1,333,808 lbs. The average production of Indigo in India for ten years ending 1848–49 was 126,744 maunds, of which nearly 85,000 maunds were from Bengal alone.

With regard to the medical properties of the plant, Ainslie states that the root is reckoned among those medicines which have the power of counteracting poisons, and that the leaf has virtues of an alterative nature, and is given in hepatitis in the form of a powder mixed with honey. The root is also given in decoction in calculus, and the leaves rubbed up in water and applied to the abdomen are efficacious in promoting urine. Indigo itself is frequently applied to reduce swellings of the body. Lunan states that the Negroes in Jamaica use a strong infusion of the root mixed with rum to destroy vermin in the hair. Powdered Indigo has been employed in epilepsy, and erysipelas, and sprinkled on foul ulcers is said to cleanse them. The juice of the young branches mixed with honey is recommended for aphthæ of the mouth in children. The wild Indigo (*I. paucifolia*, Delile) is considered an antidote to poisons of all kinds. The root boiled in milk is used as a purgative, and a decoction of the stem is considered of great efficacy in mercurial salivation used as a gargle. *Ainslie. Roxb. Beng. Disp. Simmonds. Lindley. Jury Rep. Mad. Exhib.*

(389) **Inga bigemina** (Willd.) Nat. Ord. LEGUMINOSÆ.

**Polygamia Monœcia** Sex: Syst:

Katon-konna, MAL.

DESCR: Arboreous, unarmed: leaves conjugately or bipinnated: pinnæ 1-2 pair, with a gland between each pair; leaflets 2-3 pair, short-petioled, ovate-lanceolate, acuminate, glabrous, shining, with a gland between each pair: racemes panicled, terminal, many-flowered: flowers in small globose heads: legumes spirally twisted: flowers small, white. *Fl.* March—May.—*W. & A. prod.* I. 269.—*Mimosa bigemina*, Linn.—*M. lucida*, Roxb. *f. Ind.* II. 544.—*Rheede* VI. t. 12.—Concans.

USES, &c. A decoction of the leaves is used to promote the growth of hair in baldness. Also as a cure for leprosy. *Rheede.*

(890) **Inga dulcis** (Willd.)

Do.

Do.

Manilla tamarind, ENG.

Coorookoo-pally, TAM.

**DESCR** : Tree 30-feet : extreme branches pendulous, armed with short straight thorns : leaves bigeminate ; leaflets oblong, very unequal-sided : petiole shorter than the leaflets : pinnæ and leaflets each one pair : flowers capitate ; heads shortly peduncled, racemose, the racemes paniced : legumes turgid, much twisted : seeds glabrous, smooth, imbedded in a firm edible pulp : flowers small, yellowish-greenish. *Fl.* Jan.—Feb.—*W. & A. prod* I. 269.—*Wight's Icon. t.* 198.—*Mimosa dulcis*, *Roxb. Cor. I. t.* 99.—*flor. Ind.* II. 556.—Cultivated. Madras.

**USES, &c.** Roxburgh says the tree was introduced into India from the Philliphine Islands. It has become very common now in this country. It makes an excellent hedge plant and is much used for that purpose on the Coromandel Coast, especially at Madras. The sweet pulp in the legumes is reckoned wholesome. The timber is also said to be good. *Roxb. Pers. obs.*

(891) **Inga Xylocarpa** (D.C.)

Do.

Do.

Conda-tanghero, TEL.

**DESCR** : Tree 60-feet, unarmed : leaves conjugately pinnated : leaflets 2-4 pairs, with an odd one on the outside below the pairs, ovate oblong, acute : peduncles in pairs, axillary, long : flowers globose-capitate : legumes ovate-oblong, hatchet-shaped, woody, many-seeded : flowers small white. *Fl.* Apr.—May.—*W. & A. prod.* I. 269.—*Mimosa xylocarpa*, *Roxb. Cor. t.* 100.—*fl. Ind.* II. 543.—*Acacia xylocarpa*, *Willd.*—Coromandel. Hilly part of the Concans.

**USES, &c.** The wood of this tree is chocolate-coloured towards the centre. It is esteemed useful by the Natives for its extreme hardness and durability especially for plough heads, as well as for knees and crooked timbers in ship buildings. *Roxb.*

IPOMŒA.

(392) **Ipomœa suffruticosum** (*Ging.*) Nat. Ord. VIOLACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Orala-tamaray, TAM.  
Oorelatamara, MAL.  
Pooroosharatanum, TEL.

Ruttun-puruss, DUK.  
Noonbora, BENG.

**DESCR:** Perennial : stem scarcely any : leaves alternate, subsessile, lanceolate, slightly serrate, smoothish : peduncles axillary, solitary, 1-flowered, shorter than the leaves, jointed above the middle, with 2-bracts at the joints : calyx 5-cleft : petals 5, two upper ones smallest, linear-oblong, two lateral ones sub-ovate, with long recurved apices : lower one largest, broad-cordate, supported on a claw : capsules round, 1-celled, 3-valved : seeds several : flowers small, rose-coloured. *Fl.* Nearly all the year.—*W. & A. prod.* 32, 33.—*Wight's Icon. t.* 308.—*Viola suffruticosa*, *Linn.*—*Roxb. fl. Ind. I. p.* 649.—*ed. Car. II.* 447.—*Rheede IX. t.* 60.—Peninsula. Travancore.

**USES, &c.** The root in infusion is diuretic and is a remedy in gonorrhœa, and affections of the urinary organs. The leaves and tender stalks are demulcent, and are used in decoction and electuary, and also employed, mixed with oil, as a cooling liniment for the head. *Ainslie.*

(393) **Ipomœa gemella** (*Roth.*) Nat. Ord. CONVULVULACEÆ.

*Do.*

Sirrootalie, TAM.

Tsinnatali, TEL.

**DESCR:** Twining : stem slightly pubescent at the top : leaves cordate, slightly villous underneath : peduncles two flowered : corolla large, bell-shaped, 5 times as large as the calyx : flowers open in the morning and closed before mid-day. *Vahl. Symb. III. p.* 27.—*Burm. Ind.*—*Convolvulus gemellus*, *Linn.*—Tranquebar.

**USES, &c.** The leaves of this plant have a mucilaginous taste and according to *Ainslie*, when toasted and boiled with ghee, are reckoned of value in aphtha.

**(394) Ipomœa pes-capræ (Sweet.) Do.**

Do.

Goats-foot creeper, ENG.  
Schovanna-adamboe, MAL.Chagul Khooree, BENG.  
Dopate-luta, HIND.

**DESCR :** Perennial : creeping but never twining : leaves long-petioled, roundish, deeply 2-lobed, smooth : peduncles axillary, solitary, 2-flowered : sepals oblong, acute, seeds covered with a brownish pubescence : flowers large reddish-purple. *Fl.* Nearly all the year.—*Convolvulus pes-capræ*, *Linn.*—*Roxb. fl. Ind. I. p. 486.*—*ed. Car. II. 74.*—*I. maritima*, *R. Br.*—*I. orbicularis*, *Ell.*—*I. carnosa*, *R. Br.*—*I. Brasiliensis*, *Meyer.*—*I. biloba*, *Forsk.*—*C. maritimus*, *Desrouss.*—*C. bilobatus*, *Roxb. fl. Ind. I. p. 485.*—*ed. Car. II. 73.*—*C. Brasiliensis*, *Linn.*—*C. bauhiniæfolius*, *Salisb.*—*Rheede XI. t. 57.*—Peninsula. Common on sea shores.

**USES, &c.** This plant is found on sandy beaches where it is of great use in helping to bind the loose soil, and in time rendering it sufficiently stable to bear grass. Goats, horses and rabbits eat it. The Natives boil the leaves and apply them externally as an anodyne in cases of colic, and in decoction they use them in rheumatism.

**(395) Ipomœa turpethum (R Br.) Do.**

Do.

Indian Jalap, ENG.  
Shevadie, TAM.  
Tella-tegada, TEL.Doodh-kulmee, BENG.  
Teeree, BENG.

**DESCR :** Perennial, twining : stem angular, winged, glabrous or a little downy : leaves alternate, cordate, ovate, acuminate sometimes entire or angularly sinuated or crenated : peduncles axillary, 1-4 flowered, bracteate at the apex : outer sepals the largest, ovate roundish : corolla twice as long as the calyx, white : capsule 4-sided, 4-celled : seeds round, black, 1 in each cell : flowers white with a tinge of cream colour. *Fl.* Nearly all the year.—*Don's Mill. IV. 268.*—*Convolvulus turpethum*, *Linn.*—*Roxb. fl. Ind. I. p. 476, ed. Car. II. 57.*—Malabar. Coromandel.

**USES, &c.** The bark of the root is employed by the Natives as a purgative, which they use fresh rubbed up with milk. About

6 inches in length of the root is reckoned a dose. Cattle do not eat the plant. The root being free from a nauseous taste and smell possesses a decided superiority over jalap for which it might be substituted. Turpethum is derived from its Arabic name. A resinous substance exudes from the root when wounded, which might probably be turned to some account: it is merely the milky juice of the fruits dried. Roxburgh has a long note upon this plant wherein he communicates the following information on the subject of its medical virtues, as received from Dr. Gordon of the Bengal Establishment. "The drug which this plant yields is so excellent a substitute for jalap and deserves so much the attention of practitioners, that I doubt not the following account will prove acceptable. It is a native of all parts of continental and probably of insular India also, as it is said to be found in the Society and Friendly Isles and the new Hebrides. It thrives best in moist shady places on the sides of ditches, sending forth long climbing quadrangular stems, which in the rains are covered with abundance of large, white, bell-shaped flowers. Both root and stem are perennial. The roots are long, branchy, somewhat fleshy, and when fresh contain a milky juice which quickly hardens into a resinous substance, altogether soluble in spirits of wine. The milk has a taste at first sweetish, afterwards slightly acid; the dried root has scarcely any perceptible taste or smell. It abounds in woody fibres, which however separate from the more resinous substance in pounding, and ought to be removed before the trituration is completed. It is in fact in the bark of the root that all the purgative matter exists. The older the plant the more woody is the bark of the root, and if attention be not paid in trituration to the removal of the woody fibres, the quality of the powder obtained must vary in strength accordingly. It is probably from this circumstance that its character for uncertainty of operation has arisen, which has occasioned its disuse in Europe. An extract which may be obtained in the proportion of one ounce to a pound of the dried root would not be liable to that objection. Both are given in rather larger proportion than jalap. Like it, the power and certainty of its operation are very much aided by the addition of cream of tartar to the powder, or of calomel to the extract. I have found the powder in this form to operate with a very small degree of tenesmus and very freely, producing three or four motions within two to four hours. It is considered by the Natives as possessing peculiar hydragogue virtues, but I have used it also with decided advantage in the first stages of febrile affections."

According to the Raja Nirghaunta the Teoree is dry and hot; a good remedy against worms; a remover of phlegm, swellings of the limbs and diseases of the stomach. It also heals ulcers and is useful in diseases of the skin. It is known to be one of the best purgatives.

The Bhavaprakasha has the following observation. "The white Teoree is cathartic, it is pungent; it increases wind, is hot and efficacious in removing cold and bile; it is useful in bilious fevers and complaints of the stomach. The black sort is somewhat less efficacious; it is a violent purgative, is good in faintings, and diminishes the heat of the body in fevers with delirium." *Ainslie. Roxb. Willich's obs.*

(396) **Isonandra acuminata** (*Lindl.*) Nat. Ord. SAPOTACEÆ.

• **Dodecandria Monogynia.** Sex: Syst:

Indian Gutta Tree, ENG.  
Pauchoontee, or Pashonti, MAL.

Pauley or Pali, TAM.

DESCR: Large tree, 80-90 feet: leaves fascicled at the extremities of the branches, somewhat coriaceous, dark-green above, paler beneath, entire, long-petioled, oblong, obovate, tapering at the base, terminating in a sudden blunt acumination: flowers, axillary, generally solitary, occasionally 2-3 together: calyx biserial: *outer* deeply 3-cleft, segments broad, acute at the apex, leathery, valvate: *inner* of 3-distinct sepals attached to the base of the outer calyx, alternate with its divisions, smaller, longer, equal, acuminate at the apex, of dirty white colour, imbricated in æstivation: corolla deeply 6-cleft, occasionally 5-cleft, deciduous, tomentose at point of insertion at the stamens, colour darkish red: stamens 12-18, usually 16, inserted into the throat of the corolla, shorter than the corolla, sessile, extrorse, 2-celled, all perfect, alternate in two rows: ovary tomentose, superior, 6-celled, each cell with one ovule: style nearly 3 times the length of the ovary: stigma simple: fruit chartaceous, size of an almond: seed exalbuminous, erect: flowers dullish-red. *Fl.* Jan.—April.—*Dr. Cleghorn's Report.*—Wynaad. Coorg. Travancore forests. Annamally mountains.

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USES, &c. This tree which promises to be of some importance among the vegetable products of the Peninsula has only been discovered of late years. Although first actually noticed by Mr. Lascelles in the Wynaad forests in 1850, yet the great attention paid to its locality and extensive distribution among the forests of

the Western Ghats by General Cullen, entitles the latter Officer to an equal share in the merit of its discovery. "I feel bound to mention," says Dr. Cleghorn in his report to Government, "the continued exertions of General Cullen, who has done more to introduce this interesting tree and its useful product to public notice than any other individual." The tree has an extensive range being found at the foot of the Ghats as well as at elevations of about 3000 feet above the sea. It is so lofty a tree and runs to such an immense height without giving off any branches that the naked eye is unable to distinguish the forms of the leaves and it is generally recognised by the fruit and flowers found fallen at the base. The bark is rusty, often whitish, from the presence of numerous lichens : and a section of the trunk shows a reddish and sometimes mottled wood. The timber when fully grown is moderately hard, but does not appear to be much sought after by the Natives. The exudation from the trunk which has some similarity to the gutta percha of commerce, is procured by tapping and the quantity is not inconsiderable, but it would appear that the tree requires an interval rest of some hours, if not days, after frequent incision. "In five or six hours," says General Cullen, "upwards of  $1\frac{1}{2}$  lbs. (more than a catty) was collected from 4 or 5 incisions in one tree." Again he writes in the same month (April); "Incisions were made in 40 places at distances nearly 3 feet apart, along the whole trunk. The quantity produced was  $2\frac{1}{2}$  dungalies (a dungaly is about  $\frac{1}{2}$  gallon), the reeds were placed again, but in the evening no more milk was found : but the bark is thin and the juice soon ceases to flow, although there is plenty of it in the tree." The gum when fresh is of a milky white colour, the larger lumps being of a dullish-red. Specimens of the gum were forwarded to England to be reported on by competent persons, and on an analysis of its properties Messrs. Teschemacher and Smith stated. "It is evident that this substance belongs to the class of the vegetable products of which caoutchouc and gutta percha are types, and that it greatly resembles "bird-lime" in its leading characteristics, but in a higher degree. It is evident that for water-proofing purposes it is (in its crude state) unfit, for although the coal tar, oil of turpentine paste might be applied to fabrics, as similar solutions of caoutchouc now are, and a material obtained impervious for a time to wet, yet that owing to the capacity of this substance to combine with water and become brittle in consequence at ordinary temperatures, such a water-proofed fabric would become useless very quickly. We do not of course in any way imply that in the hands of some inventors this and other difficulties to its useful application may not be overcome. Although unfit for water-proof clothing, moveable tarpauling and its like, yet it might be usefully employed to water-proof fixed sheds, or temporary erections of little cost covered with calico or cheap canvas ; but there are already a numerous class of cheap varnishes equally adapted for such a purpose ; so that as a



water-proofing material, it is but advisable for the present to look upon it as useless."

"Its perfume when heated might possibly render it of some value to the pastille and incense makers."

"Its bird-lime sticky quality might be made available by the game keeper and poacher in this country for taking vermin and small birds : we almost doubt whether a rabbit, hare, or pheasant could free itself, if hair, feathers or feet came in contact with it. We think it might be useful and more legitimately employed by the trapper for taking the small fur-bearing animals, turpentine would cleanse the soiled furs. The only extensive and practical use, however, in this country to which we at present think it may probably be with advantage applied is as a subaqueous cement or glue. We beg to forward you some deal-wood glued together with this substance melted and applied hot, which we have now kept under water for several days and two fragments of glasses which have been similarly treated. You will observe that the cement has hardened at the edges, but probably without injury to its cementing properties. We have no reason to think that it would not rot under water more rapidly than wood does, but experience must be the sole guide here. We have reason to think such a glue or cement would be readily tried and if found good, employed by joiners and others, having been applied some time since, to examine a glue which after application resisted the action of water."

With regard to the wood, Mr. Williams, Assistant Conservator of Forests, reported as follows to Dr. Cleghorn ; "It is not unlike *saul* in the grain, and yet it takes after the character of some of the harder kinds of cedar and *kurbah*. As the wood is capable of receiving a good polish, I am inclined to think it ought to make good furniture. Its specific gravity, weighing the specimen piece in the hand, appears to be about 50 lbs. to the cubic foot, and as the fibres possess both solidity and strength, I should say the wood ought to be useful in making doors and windows, &c., if not too readily destroyed by white ants, but I doubt whether it will be found capable of sustaining much weight, for the coalescing deposit is rather too pithy to make it useful as beams for terracing."

"The external surface with the bark peeled off exhibits hardness and the fibres are greatly elongated and closely adhering, but in planing down a portion I find that the alburnum occupies much more space than is apparent outside, and renders the wood too pithy to answer for the more substantial parts in building."

It remains to add that the tree is very plentiful in those districts where it grows, and that it is found both on the Eastern and Western slopes of the Ghauts.—*Memorandum on the Indian Gutta tree of Western Coast.*

(397) **Isora****corylifolia** (*Schott. and Endl.*) N. O. STERCULIACEÆ.**Monadelphia Decandria** *Sex: Syst:*Isora murri, Valumpiri, MAL.  
Valumbiri, TAM.  
Valumbricaca, TEL.Maroori, HIND.  
Antumora, BENG.

**DESCR:** Shrub 12-feet: leaves broad, slightly cordate, roundish, obovate, suddenly and shortly acuminate, serrate, toothed, upper side scabrous, under tomentose: pedicels 2-4 together forming an almost sessile, axillary corymb: petals reflexed: fruit cylindrical, spirally twisted, pubescent: flowers brick-coloured. *Fl.* September—November.—*W. & A. prod.* I. 60.—*Wight's Icon.* t. 150.—*Helicteres Isora*, *Linn.*—*Roxb. fl. Ind.* III. 143.—*H. Roxburghii*, *G. Don.*—*Rheede VI. t.* 30.—Foot of the Himalayahs. Peninsula. Travancore, at the base of the hills.

**USES, &c.** The leaves of this tree are very like the English hazel. The capsule has a singular appearance being in the form of a screw. A liniment is prepared from the powder of it, applied to sore-ears. It is mixed in preparation with castor-oil. The juice of the root is used in stomachic affections in Jamaica as well as the leaves in certain cases of constipation. Seed vessels used internally in bilious affections in combination with other medicines.

This is a valuable plant from the fibrous qualities of its bark. These fibres have of late been much brought to notice, being well adapted for ropes and cordage. They are strong and white-coloured. In Travancore it is known as the *kyvan nar*, and is employed for making gunny bags. It is a common plant chiefly grown at the foot of the hills. The fibres are cleaned by soaking the plant in water and beating them out afterwards. The curtain blinds of the verandahs of native houses are made from the fibre. It is one of the woods used by the Natives for producing fire by friction. *Ainalie. Report on prod. of Travancore. Pers. obs.*

(398) **Isora coccinea** (*Linn.*) Nat. Ord. RUBIACEÆ.**Tetrandria Monogynia.** *Sex: Syst:*

Schetti, MAL.

Thettie, TAM.

**DESCR:** Shrub 4-5 feet, glabrous: leaves nearly sessile, oval or oblong, with a more or less cordate base, acute or acuminate, shining on the upper surface: corymb nearly sessile, thin: lobes

of the calyx acute, connivent in fruit: corolla with a long tube: segments ovate, lanceolate or elliptical, acute: style shortly exerted: flowers scarlet, disposed in ample corymbs: berry drupaceous, 2-celled, nearly globose. *Fl.* All the year.—*W. & A. prod.* I. 427.—*Wight's Icon. t.* 153-707.—*Rowb. fl. Ind.* I. p. 375, ed. *Car.* I. 885.—*I. grandiflora, R. Br.*—Travancore. Peninsula. Common in gardens.

**USES, &c.** This derives its name from the Hindoo deity, Iswara to whom the beautiful scarlet flowers are offered, when decorating the images in the temples. The Ixoras are very ornamental plants but of very little use. There are a great many different species with white, cream coloured, and orange coloured flowers. The root bruised and mixed with cold water is given to persons spitting blood, and mixed with cow's milk in diseases of the kidneys. Also externally applied as an ointment for drying up pustular eruption, and other cutaneous diseases. A juice is extracted from the bark, leaves and flowers which is administered internally to people of plethoric habits. *Rheede.*

## J.

(399) **Janipha Manihot** (*Kth.*) N. O. EUPHORBIAEÆ.**Monœcia Monadelphica.** *Sex: Syst:*

Bitter Cassava, Tapioca, or Mandioc plant, ENG.	Maravullie, TAM. Maracheenie, MAL.
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**DESCR:** Stems white, crooked, 6-7 feet, smooth, covered with protuberances from the fallen leaves: branches crooked: leaves palmate, divided nearly to their base into 5-lanceolate, entire lobes, attenuated at both extremities, dark green above, glaucous beneath: midrib prominent below, of a yellowish red colour: panicles axillary and terminal, 4-5 inches long: *male* flowers smaller than the female: calyx purplish on the outside, brownish within: segments 5, spreading, divided nearly to the base: *female* flowers deeply 5-parted, with lanceolate-ovate segments: root oblong, tuberous: capsule ovate, triangular, tricoccous: seeds elliptical, black, shining: flowers small, reddish. *Fl.* April—May.—*Lindley flor. med.* 185.—*Spreng. syst.* III. 77.—*Jatropha Manihot*, *Linn.*—*Roxb. H. B.* p. 69.—*Manihot utilisima*, *Pohl.*  
—Cultivated in Travancore.

**USES, &c.** A native of South America, but now cultivated in lower India to a great extent, especially in Travancore. It yields the *Tapioca* of commerce. The following account of the preparation of this substance is given by Ainslie. "An amyllum or starch is first to be obtained from the fresh roots, which starch to form it into tapioca must be sprinkled with a little water and then boiled in steam: it is in this way converted into viscid irregular masses, which must be dried in the sun till they have become quite hard, and then they may be broken into small grains for use." Tapioca is a light and nourishing food, and affords a good diet for the sick. The poisonous substance which resides in the root is said to be Hydrocyanic acid. It can only be expelled by roasting, when the

starch becomes fit for food. This starch being formed into granules by the action of heat, constitutes the Tapioca of commerce. *Cassava* flour is obtained by immersing the grated starch in water, when the flour is self-deposited, and afterwards washed thoroughly and dried in the sun. Cassava is said to be very nourishing, one acre being equal in its nutritive qualities to six acres of wheat. Recently much attention has been paid to the cultivation of the plant for the purpose of exportation to Europe from the West Indies, it having been found to be a most profitable article of commerce, and one requiring little or no care in its cultivation, the plant thriving on the most barren soil. This is equally the case in Travancore where the cultivator has merely to clear away the low brushwood, and plant it, when it will spring up luxuriantly on the most rocky and exposed situations, either in the vicinity of the sea, or inland. Simmonds says on the subject, "the experimental researches of Dr. Shier have led him to believe that the green bitter cassava will give  $\frac{1}{4}$ th its weight of starch. If this be the case the return per acre would, under favorable circumstances, when the land is properly worked, be enormous. On an estate at Essequibo, an acre of cassava, grown in fine permeable soil yielded 25 tons of green cassava. Such a return as this per acre would enable our West India Colonies to inundate Great Britain with food, and at a rate which would make flour to be considered a luxury." If more attention were paid to its cultivation in India, a similar profitable return might be anticipated. The poorer classes in Travancore use it as food, especially when rice becomes scarce and dear, and nearly one half the population of several of the Southern districts live on Tapioca in the months of July, August and September. They reduce the root to powder for conjee, and cook the raw root for curries.

It is from the juice of this plant that the Red Indians in South America prepare the most deadly *mandioc poison* with which they tip their arrows. This is procured by distillation, and it is said that thirty drops will cause the death of a human being in six hours. Cases are not unfrequent of children being poisoned in the country by incautiously eating the root before they have undergone the necessary preparations.

An extract is made from the concentrated juice of the root called *Cassareep*, the poisonous principle being destroyed during the course of evaporation. It is used in the West Indies for flavouring soups and other dishes. It is a powerful antiseptic. In Jamaica the scrapings from the fresh roots are applied to bad ulcers. *Anslic. Simmonds. Pereira. Rep. on prod. of Travancore. Pers. obs.*

(400) **Jasminum angustifolium** (Vahl.) Nat. Ord. JASMINACEÆ.

**Diandria Monogynia.** Sex: Syst:

Katu-pitsjagam-mulla, MAL.	Adevie-mallie, TEL.
Caat-mallica, TAM.	Banmallica, HIND.

DESCR: Twining: leaves opposite, ovate or oblong, finely pointed, smooth, of a shining deep green: flowers terminal, generally by threes: calycine segments acute: segment of corolla 8-9, lanceolate: berries single, ovate: flowers large, white with a faint tinge of red, star-shaped, fragrant. *Fl.* March—May.—*Roxb. fl. Ind.* I. 96.—*ed. Car.* I. 95.—*Wight's Icon.* t. 698-700.—*J. vimineum* and *angustifolium*, *Willd.*—*J. triflorum*, *Pers.*—*Nyctanthes angustifolia*, *Linn.*—*N. viminea*, *Retz.*—*N. triflora*, *Burm.*—*Mogorium triflorum*, *Lam.*—*Rheede* VI. t. 53.—Coromandel forests. Travancore.

USES, &c. This species being constantly covered with leaves of a bright shining green, renders it always beautiful, and particularly well adapted for screening windows, covering arbours, &c. in warm climates. The bitter root ground small and mixed with lime juice and *vassambo* root is considered a good remedy in ringworm. *Roxb. Ainslie*

(401) **Jasminum hirsutum** (Linn.) Do.

Do.

Katu-tajeregam-mulla, MAL.	Koondo, BENG.
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DESCR: Shrub: stem scarcely any: young branches very downy: leaves opposite, cordate, entire, downy, terminal ones crowded (involucel-like) round the umbels: umbels terminal, sessile, with 10-30 sessile flowers, downy: flowers large, pure white, fragrant: calyx 6-cleft: corolla 6-9 cleft. *Fl.* Nearly all the year.—*Wight's Icon.* t. 702.—*J. pubescens*, *Willd.*—*Roxb. fl. Ind.* I. 91.—*ed. Car.* I. 90.—*J. multiflorum*, *Andr. Bot. Rep.*—*Nyctanthes hirsuta*, *Linn. sp.*—*N. pubescens*, *Retz.*—*N. multiflora*, *Burm.*—*Rheede* VI. t. 54.—Coromandel. Bengal. Concans. Travancore.

USES, &c. This is a fine looking plant and very desirable in gardens from its white fragrant flowers which open in succession. The leaves boiled in oil are applied in cases of ophthalmia. The root mixed with *Vassambo* (*Acorus*) is said to be really a good remedy in snake bites. *Rheede.*

(402) **Jasminum sambac** (Ait.) Do.

Do.

Tsjeregam-mulla, MAL.  
 Pun-mullika, MAL.  
 Kôdy-mulli, TAM.

Boondoo-mallie, TEL.  
 But-moogra, BENG.

DESCR: Twining shrub: leaves opposite, cordate, ovate or oblong, waved, sometimes scalloped, pointed, smooth, downy on the veins on the under side: calyx segments 5-9: flowers terminal, generally in small trichotomous umbellets, white. *Fl.* March - May.—*Roxb. fl. Ind.* I. 88.—*ed. Car.* 87.—*Wight's Icon.* t. 704.—*J. undulatum, Willd.*—*Mogorium Sambac, Lam.*—*Nyctanthes Sambac, Linn.*—Common everywhere.

USES, &c. Of this there are two other varieties, the double flowered Jasmin called *Bela* in Bengal, the *Nulla mulla* of Rheede (VI. t. 50) and the *Buro-bel*, and *Kadda mulla* of Rheede (VI. t. 51). The plant is common in every forest in the Peninsula and is commonly cultivated in gardens. The leaves if boiled in oil exude a balsam which is used for anointing the head in eye complaints. It is said to strengthen the vision. An oil is also expressed from the roots used medicinally. The flowers commonly known as the *Moogree* flowers are sacred to Vishnoo. *Rheede.*

(403) **Jatropha curcas** (Linn.) N. O. EUPHORBACEÆ

**Monœcia Monadelphia.** *Sex: Syst:*

Angular leaved Physic-nut, ENG.  
 Caat-amunak, TAM.  
 Caak-avanakoo, MAL.  
 Nepalam, Adivie amida, TEL.

Bag-bherenda, HIND.  
 Erundi, DUK.  
 Bagh-Dharanda, BENG.

DESCR: Small tree or shrub: leaves scattered, broad-cordate, 5-angled, smooth: panicles terminal, or from the exterior axils, cymose, many-flowered: *male* flowers at the extremities of the ramification on short articulated pedicels; the *female* ones in their divisions, with pedicels not articulated: calyx 5-leaved: corolla 5-petalled, campanulate, somewhat hairy: styles 3, short: flowers small, green: ovary oblong, smooth. *Fl.* Nearly all the year.—*Roxb. fl. Ind.* III. 686.—*Lindley flor. Med.* 184.—*Castiglionia lobata, Ruiz. and Pav.*—*Curcas purgans, Adans.*—Domesticated in India. Coromandel. Travancore.

USES, &c. The seeds are purgative occasionally exciting vomiting. It is said that they may be safely eaten if first deprived of their outer teguments. They consist of a fixed oil, and an acid poisonous principle. The leaves are reckoned as discutient and rubefacient, and the milky juice of the plant is said to possess a healing and detergent quality, and to dye linen black. A fixed or expressed oil is prepared from the seeds useful in cutaneous diseases and chronic rheumatism applied externally; also for burning in lamps. The Chinese boil the oil with oxide of iron and use the preparation for varnishing boxes, &c. It is frequently used as a hedge plant as cattle will not touch the leaves. The juice of the plant is of a very tenacious nature, and if blown, forms large bubbles probably owing to the presence of caoutchouc. The leaves warmed and rubbed with castor oil are applied by the Natives to inflammations when suppuration is wished for. The oil has been imported to England as a substitute for linseed oil. It is of a pale colour, and can be cheaply supplied in any part of the country. It differs from castor and croton oil in its slight solubility in alcohol, but mixed with castor oil its solubility is increased. According to Dr. Christison, 12 or 15 drops are equal to one ounce of castor oil. The juice of the plant has been applied externally in hæmorrhoids. A decoction of the leaves is used in the Cape Verd Islands to excite secretion of milk in women. Nearly 700 tons of this oil was imported into Liverpool in 1810 for dressing cloth, burning, &c. *Simmonds. Ainslie. Beng. Disp. &c.*

(404) **Jatropha glandulifera** (Roxb.)

Do.

Do.

Addaley, TAM.

| Nela-amida, TEL.

DESCR: Small plant, 1-foot, erect, pubescent: leaves 5-3 cleft, serrated, smooth, glaucous, almost veinless: petioles sub-villose, longer than the leaves, with glandular hairs: petals of female flowers ovate, the length of the calyx: capsule muricated as large as a hazel nut: seed size of a pea: flowers small, greenish yellow. *Fl.* All the year.—*Roxb. fl. Ind.* III. 688.—*J. glauca, Vahl. ?*—Panderpore in the Deccan. On bunds of tanks; Northern Circars.

USES, &c. An oil is expressed from the seeds which from its stimulating property is reckoned useful externally applied in cases of chronic rheumatism and paralytic affections. The plant exudes a pale thin juice, which the Hindoos employ for removing films from the eyes. *Roxb. Ainslie.*



(405) **Jussiaea villosa** (*Lam.*) Nat. Ord. ONAGRACEÆ.**Decandria Monogynia.** *Sex: Syst:*

Carambu, MAL.

| Lal-bunlunga, BENG.

**DESCR:** Perennial, herbaceous 1½ feet, erect, more or less pubescent or villous: leaves from broadly lanceolate to linear acuminate, tapering at the base into a short petiole: flowers almost sessile: calyx lobes 4 or 5, broadly lanceolate or ovate, 3-5 nerved, much shorter than the roundish, ovate petals: capsule nearly cylindrical, elongated, tapering at the base into a short pedicel: flowers largish, yellow. *Fl.* Oct.—Nov.—*W. & A. prod.* I. 336.—*J. suffruticosa*, *Linn.*—*J. fruticosa*, *D. C.*—*J. exaltata*, *Roxb. fl. Ind.* II. 401.—*Epilobium fruticosum*, *Lour.*—*Rheede*. II. t. 50.—Peninsula. Beñgal.

**USES, &c.** There are two varieties given by Wight of this plant. According to Rheede the plant ground small, and steeped in buttermilk is considered good in dysentery, also in decoction as a vermifuge, purgative, &c. *Ainslie*.

(406) **Justicia Ecbollum** (*Linn*) Do.*Do.*

Karim Corini, MAL.

| Oodoo Jati, BENG.

**DESCR:** Shrubby, erect, 2-4 feet: stems smooth, round, jointed, swelling above the joints: leaves opposite, oval, slightly terete at both ends, smooth, rather waved: spikes terminal, 4-sided, imbricated with four rows of large oval, sharply serrated 1-flowered bracts: flowers greenish or azure coloured: tube of corolla long and slender: under lip very broad, 3 partite, upper lip linear, reflexed, with a bifid apex: capsule 2-seeded. *Fl.* Nearly all the year.—*Roxb. fl. Ind.* I. 114.—*ed. Car.* I. 115.—*Wight's Icon.* t. 463.—*J. dentata*, *Klein.*—*Rheede* II, t. 20.—Common in most parts of India. Hills throughout the Concan.

**USES, &c.** The leaves of this common flowering shrub are given in decoction in dysuria. The root and leaves are used in calculus both externally and internally; and the former in rheumatism. *Rheede*.

## K

(407) **Koempferia galanga** (*Linn.*) Nat. Ord. ZINGIBERACEÆ.

**Monandria Monogynia.** *Sex: Syst:*

Katsjulum, MAL.  
Katajolum, TAM.

| Chundra Moola, Kumula, BENG.

DESCR: Rhizome biennial, tuberous: stem none: leaves stalked, spreading flat on the surface of the earth, round-ovate-cordate: margins membranaceous and waved: upper surface smooth, somewhat woolly towards the base: flowers fascicled, 6-12 within the sheath of the leaves expanding in succession, pure white with a purple spot on the centre of each of the divisions of the inner series: bracts 3 to each flower, linear, acute, half the length of the tube of the corolla: calyx the length of the bracts: tube of corolla long, filiform: limb double, both series 3-parted. *Fl.* October—November.—*Lindley flor. Med.* 563.—*Wight's Icon. t.* 899.—*Roxb. fl. Ind.* I. 15.—*ed. Car.* I. 14.—*Alpina sessilis Koen.*—*Rheede XI. t.* 41.—Peninsula. Bengal. Much cultivated in gardens.

USES, &c. This plant is said to be very common on the mountainous districts beyond Chittagong, and is brought by the mountaineers for sale to the markets in Bengal, where the inhabitants use it as an ingredient in their betel. The root is fragrant and used medicinally by the Natives as well as for perfumes. Reduced to powder and mixed with honey it is given in coughs and pectoral affections. Boiled in oil it is externally applied in stoppages of the nasal organs. *Rheede. Roxb.*

(408) **Koempferia rotunda** (*Linn.*)

Do.

Do.

Melan-kua, MAL.

| Bhuchampa, BENG.

DESCR: Leaves oblong, coloured: spikes radical, appearing before the leaves, which are oblong, waved, and usually stained underneath: upper segments of the inner series of the corolla lance-

olate, acute; lower ones divided into two broad obovate lobes, flowers near, fragrant, sessile, purplish-white: scapes embraced by a few common sheaths, very short, greenish purple: calyx above, one-leaved, as long as the tube of the corolla, somewhat gibbous; apex generally two-toothed, and of a dotted purplish colour. *Fl.* March—April.—*Roxb. fl. Ind.* I. 16.—*ed. Car.* I. 15.—*Wight's Icon.* t. 2029.—*K. longa*, *Redout.*—*Rheede* XI. t. 9.—Native place unknown.

USES, &c. This species is much cultivated in gardens for the beauty and fragrance of its flowers. When in flower the plant is destitute of leaves. The whole plant according to *Rheede*, is first reduced into a powder and then used as an ointment. It is in this state reckoned very useful in healing wounds, and taken internally will remove coagulated blood or any purulent matters. The root is useful in anasarca swellings. It has a hot, ginger-like taste. *Ainslie.* *Roxb.* *Rheede.*

(409) **Kandelia Rheedii** (*W. & A.*) Nat. Ord. RHIZOPHORACEÆ.

**Ico sandria Monogynia.** *Sex: Syst:*

Tsjeron-kandel, MAL.

DESCR: Shrub: leaves quite entire, linear oblong, obtuse; 2-3-lobotomous, 4-9-flowered: inflorescence axillary: calyx tube campanulate: segments linear, persistent: petals as many as the segments of the calyx, membranaceous, cleft to below the middle into numerous capillary segments: fruit oblong, longer than the tube of the calyx: germinating embryo subulate-clavate, acute: flowers largish white and green.—*W. & A. prod* I. 311.—*Wight's Ill.* t. 89.—*Rhizophora Candel*, *Linn.*—*Roxb. H. B.* p. 36.—*Rheede* VI. t. 35.—Malabar. Sunderbunds. Deltas on Coromandel Coast.

USES, &c. This species of mangrove is common on the backwaters in Travancore. The bark mixed with dried ginger or long pepper and rose-water is said to be a good cure for diabetes. *Rheede.*

(410) **Kydia calycina** (*R. W.*) Nat. Ord. BYTTNERIACEÆ.

**Monadelphis Polyandria** *Sex: Syst:*

DESCR: Tree: leaves alternate, 5-nerved, somewhat 5-lobed: calyx campanulate: capsule 3-valved, 3-celled, perfect cells 1-seeded, involucels of fertile flowers, usually four leaved, longer than the

calyx, spatulate, enlarging with the fruit: filaments united their whole length into a tube: style elongated, stigmas projecting: male involucre 4-6 leaved, shorter than the calyx, lanceolate, blunt: filaments united about half their length, free above: petals in both obliquely cordate, clawed, emarginate, ciliate: flowers, white or pale yellowish. *Fl.* August—December.—*W. & A. prod.* I. 70. *Roxb. Cor.* III. t. 215.—*K. Calycina*, *Roxb. fl. Ind.* III. 188.—*K. fraterna*, *Roxb. Cor.* III. t. 216—*fl. Ind.* III. 189.—*Wight's Icon.* t. 879-880.—Vallies of the Circar Mountains. Mysore. Slopes of the Neilgherries.

USES, &c. The bark is mucilaginous and is employed in the Northern Provinces to clarify sugar. *Royle.*

## L.

(411) **Lablab cultratus** (D. C.) N. O. LEGUMINOSÆ.**Diadelphia Decandria** *Sex: Syst:*

Panch-shim, BENG.

|

Talla-chikurkai, TEL.

DESCR: Twining: leaves pinnately trifoliolate; leaflets entire: racemes axillary, elongated: pedicels short: corolla papilionaceous: legumes oblong-linear, falcate and recurved at a right angle towards the apex: seeds transversely-oval: flowers white, red or purple.—*W. & A. prod.* I. 251.—*D. lignosus*, *Grah. in Wall.*—*Dolichos cultratus*, *Thunb.*—*D. lignosus*, *Roxb. fl. Ind.* III. 307. (*not Linn.*)—Cultivated everywhere.

USES, &c. Of this kind Roxburgh enumerates six varieties. All are cultivated during the cold season in gardens, and about native houses, forming cool arbours, and furnishing an excellent pulse for curries, &c. *Roxb.*

(412) **Lablab vulgaris** (Savi.) Do.

Do.

Bun-shim, BENG.  
Anoomooloo, TEL.

|

Mutcheh, TAM.

DESCR: Twining: leaves pinnately trifoliolate: leaflets entire: racemes axillary, elongated: pedicels short: corolla papilionaceous: calyx bi-bracteolate, campanulate, tubular, 4-cleft: legume broadly scimitar-shaped, gibbous below the apex, and ending abruptly in a straight or recurved cuspidate point: seeds longitudinally oval, of various colours: flowers red, purple or white. *Fl.* November—February.—*W. & A. prod.* I. 250.—*Wight's Icon. t.* 57-203.—*Roxb. fl. Ind.* III. 305.—*L. nankinicus*, *Savi.*—*L. lignosus*, *Wall.*—*L. leucocarpus*, *Savi.*—*Dolichos lablab*, *Linn.*—*D. spicatus*, *Koen.*—*D. albus*, *Lour.*—*D. Benghalensis*, *Jaog. Hort.*

*Vind.*—*D. purpureus*, *Jacq. frag.*—*D. tetraspermus*, *Willd.*—*D. cuspidatus*, *Grah. in Wall.*—Peninsula. Bengal. Cultivated.

**USES, &c.** There are several varieties differing in the colour of their seeds and forms of their legumes, some of which are cultivated, and others are not. Of one variety which is cultivated on the Coromandel Coast, Roxburgh states, that it will yield in a good soil about forty fold. The seeds bear a low price comparatively, and are much eaten by the poorer classes, particularly when rice is dear. They are not palatable, but are reckoned wholesome substantial food: Cattle are fed with the seeds and greedily eat the straw. Another variety which has white flowers is cultivated in gardens and supported on poles, often forming arbours about the doors of native houses. The pods are eaten but not the seeds. The grain of the best kind is imported from Madras to Ceylon.

(418) **Lagenaria vulgaris** (*Ser.*) Nat. Ord. CUCURBITACEÆ.

**Monadelphia Triandria** *Ser.*: *Syst.*:

White Pumpkin, Bottle gourd, ENG.	Bella-schora, MAL.
Hunea-kuddoo, DUK.	Lavoo, BENG.
Shora-kai, TAM.	Anapa-kai, TEL.

**DESCR.** Stem climbing, softly pubescent: calyx campanulate: petals rising from within the margin of the calyx: tendrils 3-4 cleft: leaves cordate, nearly entire or lobed: lobes obtuse, or somewhat acute, glaucous: flowers fascicled, white: petals very patent: fruit pubescent, at length nearly glabrous and very smooth: seeds numerous, flesh-white, edible: fruit bottle-shaped, yellow when ripe. *Fl.* July—September.—*W. & A. prod.* I. 341.—*Cucurbita lagenaria*, *Linn. sp.*—*Roxb. fl. Ind.* III. 718.—*Rheedæ* VIII. t. I. 4, 5.—Cultivated.

**USES, &c.** The fruit is known as the bottle-gourd. The poorer classes eat it, boiled with vinegar, or fill the shells with rice and meat, thus making a kind of pudding of it. In Jamaica and many other places within the tropics, the shells are used for holding water or palm-wine, and so serve as bottles. The pulp of the fruit is often used in poultices: it is bitter, and slightly purgative, and may be used instead of *Colocynth*. A decoction of the leaves mixed with sugar is used in jaundice. The hard shell when dry is used for Faqueer's bottles, and a variety of it is employed in making the stringed instrument known as the *Sitar*, as well as buoys for swimming across rivers, transporting baggage, &c. There is one kind, the fleshy part of which is poisonous. *Royle. Don. Gibson.*

(414) **Lagerstroemia parviflora** (Roxb.) LYTHRACEÆ.*Do.*

Chinangee, TEL.

DESCR : Tree : branches quadrangular : leaves opposite, entire, from oblong or oval and obtuse to ovate and acute, pale beneath : peduncles axillary, 3-6 flowered : calyx 6-cleft, even : petals 6, flat-tish, shortly unguiculate : the six outer stamens longer than the rest : capsule oblong, 3-4 celled : flowers small, white, fragrant. *Fl. May—June.—W. & A. prod. I. 308.—Wight's Icon. t. 69.—Roxb. fl. Ind. II. 505.—Cor. I. p. 68.—Circars. Courtallum. Neilgherries.*

USES, &c. Of this large tree there are two varieties, one which has the under sides of the leaves downy, and the other having them glabrous. The wood is very hard and is reputed to be an excellent timber.

(415) **Lagerstroemia reginæ** (Roxb.) N. O. LYTHRACEÆ.**Icosandria Monogynia.** *Sex: Syst:*

Adamboe, MAL.

| Jarool, BENG.

DESCR : Tree : petals 6, orbicular, waved, shortly unguiculate: leaves opposite, entire, oblong, glabrous : panicles terminal : calyx 6-cleft, longitudinally furrowed and plaited : capsule 3-6 valved, 3-6 celled : seeds numerous : flowers purple or rose-coloured. *Fl. April—July.—W. & A. prod. I. 308.—Wight's Icon. t. 413.—Roxb. Cor. I. t. 65.—fl. Ind. II. 505.—L. Flos Reginæ, Retz.—Adambea glabra, Lam.—Rheede IV. t. 20-21.—Circars. Courtallum. Travancore.*

USES, &c. This is without exception when in blossom one of the most showy trees of the Indian forests. It is now commonly cultivated in gardens on the Western Coast, where the moist damp climate is most suitable for its growth, and the full development of the rich rose-coloured blossoms. In the forests near the banks of rivers it grows to an enormous size, some having purple flowers and forming a most beautiful and striking appearance. The root in decoction is used for cleaning ulcers in the throat and in poultices is applied to tumours. From bark, leaves or flowers is made a decoction employed in visceral obstruction. In Rangoon this timber is used to make knees for ships. *Rheede. Pers. obs,*

(416) **Lawsonia alba** (*Lam.*) Nat. Ord. LYTHERACEÆ.Octandria Monogynia. *Sex: Syst:*Henna, Broad Egyptian Privet, ENG.  
Maroodanie, TAM.  
Goounta Chettoo, TEL.Mayndie, HIND.  
Mailanachi, Ponta-letsche, MAL.

DESCR: Shrub 6-10 feet: calyx 4-partite: petals 4, unguiculate, alternate with the lobes of the calyx, obovate, spreading: stamens in pairs alternating with the petals: leaves opposite, oval-lanceolate, quite entire, glabrous: flowers panicled: ovary sessile, 4-celled: capsule globose, 3-4 celled: seeds numerous: flowers white, or pale greenish. *Fl.* Nearly all the year.—*W. & A. prod.* I. 307.—*Wight's Ill. t.* 94.—*L. spinosa*, *Linn.*—*L. inermis*, *Linn. Roxb. fl. Ind.* II. 258.—*Rheede I. t.* 40.—Peninsula. Bengal.

USES, &c. The powdered leaves beaten up with catechu and made into paste are much used by Mahomedan women to dye their nails and skin a reddish-orange. The colour will last for three or four weeks before requiring renewal. The plant is supposed to possess vulnerary and astringent properties. The flowers have a strong smell, from which as well as from the leaves and young shoots the Natives prepare a kind of extract which they reckon useful in leprosy. The leaves are also used externally applied in cutaneous affections. In Barbary the Natives use them for staining the tail and mane of their horses red. The plant is often employed for making garden hedges. The old plants become somewhat thorny, but the species called *spinosa*, says Roxburgh, is nothing more, probably, than the same plant growing in a dry sterile soil, the branchlets becoming then short and rigid, with sharp thorny points. The leaves mixed with sugar are given in decoction in jaundice, and boiled in milk and drank are said to promote lethargy and sleep. A bath made with the bark, leaves and flowers is used in the cure of epilepsy. and other spasmodic affections. *Don. Rheede. Roxb. Ainslie. &c.*

(417) **Leea macrophylla** (*Roxb.*) Nat. Ord. VITACEÆ.Pentandria Monogynia. *Sex: Syst:*

Toolsoo-moodriya, BENG.

DESCR: Herbaceous, 4-feet: stems angular: leaves simple, stalked, dentato-serrate, broad cordate, or lobed: posterior lobes overlapping each other: calyx 5-cleft: petals 5: cymes trichotomous, terminal flowers numerous, small, white: berries depressed,



obscurely six or more lobed, when ripe black and succulent. *Fl.* June—Aug.—*Roxb. fl. Ind.* I. 653.—*ed. Car.* II. 465. (not *D.C.*) — *Wight's Icon.* t. 1154.—Bengal. Both Concans. Palghaut.

USES, &c. The root is astringent and mucilaginous, and is a reputed remedy for ringworm. *Roxb. J. Grah.*

(418) **Limonia acidissima** (*Linn.*) N. O. AURANTIACEÆ.

**Decandria Monogynia.** *Sex: Syst:*

Tajeru Caat-naregam, MAL.

DESCR: Shrub 6-10 feet: leaves pinnate with 2-3 pairs of leaflets and an odd one; leaflets oblong, retuse, crenated: spines solitary: petioles broadly winged: flowers corymbose: corymbs umbelliform, 2-3 together from the axils of the fallen leaves: petals 4: fruit globose, size of a nutmeg, yellowish, but red when perfectly ripe: flowers small, white, fragrant. *Fl.* March—May.—*W. & A. prod.* I. 92.—*L. crenulata, Roxb. Cor.* I. 86.—*fl. Ind.* II. 381.—*Rheede* IV. t. 14.—Coromandel. Malabar. Hurdwar. Assam.

USES, &c. The pulp of this fruit is flesh coloured, is very acid, and is used by the inhabitants of Java instead of soap. The leaves are good in epilepsy. The root is purgative, sudorific and used in colic pains. The dried fruits are tonic and said to resist contagious air from small pox, malignant and pestilential fevers, and considered an excellent antidote to various poisons, on which account they are much sought for especially by the Arabs and other merchants on the Western Coast, where they form an article of commerce. *Gibson. Rheede. &c.*

(419) **Linum usitatissimum** (*Linn.*) Nat. Ord. LINACEÆ.

**Pentandria Pentagynia.** *Sex: Syst:*

Common Flax, ENG.  
Alloveray, TAM.  
Mnsina, BENG.

Tisi, HIND.  
Ulsee, DUK.

DESCR: Annual, erect, glabrous: leaves alternate, lanceolate or linear, acute, entire: panicles corymbose: sepals ovate, acute or mucronate, with scarious or membranaceous margins: petals slightly crenated, 3 times larger than the calyx: stamens alternate with the petals having their filaments united together near their base: capsule roundish, pointed at the apex, 5-celled, each cell di-

vided into two partitions, containing a single seed: seeds oval, smooth, brown or white, mucilaginous outside, with oily and farinaceous kernels: flowers blue. *Fl.* December—February.—*W. & A. prod.* I. 134.—*Roxb. fl. Ind.* II. 100—Neilgherries. Cultivated in Northern India.

**USES, &c.** The native country of the flax plant is unknown, though it has been considered as indigenous to Central Asia from whence it has spread to Europe as well as to the surrounding oriental countries. For centuries it has been cultivated in India, though strange to say for its seeds alone, whereas in Europe it is chiefly sown for the sake of its fibres. The best flax comes from Russia, Belgium, and of late years from Ireland, where it has been cultivated with the greatest success. Much attention has lately been directed to the sowing of the flax plant in India for the sake of the fibres, and although the experiments hitherto made have not in every case met with that success which was anticipated, yet there seems little reason to doubt that when the causes of the failure are well ascertained, and the apparent difficulties overcome, that flax will be as profitably cultivated on the continent of India as it is in Europe, while European cultivators must eventually supercede the ryots whose obstinate prejudice to the introduction of novelty is fatal to any improvement at their hands. As their object is solely to plant for the seeds alone, they generally mix the latter with other crops, usually mustard, a system which could never be persisted in when the object is for fibres. Among those parts of India where flax has best succeeded, may be mentioned the Saugor and Nerbudda territories, Burdwan, and Jubbulpore. In the former districts especially, the rich soil and temperate climate is peculiarly favourable for its growth. In the Punjaub also its cultivation has been attended with the most successful results, as appears from the report of Dr. Jameson, who says, 'For some years I have been cultivating flax on a small scale from seeds procured from Russia, and its fibres have been pronounced by parties in Calcutta of a very superior description. There is nothing to prevent this country from supplying both flax and hemp on a vast scale. In the Punjaub thousands of acres are available, and from the means of producing both flax and hemp, this part of India will always be able to compete with other countries.' In the Madras Presidency it has been grown with the best results on the Neilgherries and Shevaroy Hills near Salem, and it would probably succeed equally well wherever the temperature is low, accompanied with considerable moisture in the atmosphere. The chief reason of the failures of the crops in Bengal and Behar was owing to the want of sufficient moisture after the cessation of the rains during the growth of the plant. In the Bombay Presidency it has been grown for the seeds alone. In India the time of sowing is the

autumn. The soil should be of that character which retains its moisture, though not in an excessive degree. If not rich, manure must be amply supplied and the plant kept free from all weeds. The best seeds procurable should be selected, of which the Dutch and American are reckoned superior for this country. Dr. Roxburgh was the first who attempted the cultivation of flax in India. In the early part of this century he had an experimental farm in the neighbourhood of Calcutta. Since his day the improvements which have taken place resulting from extended observation and experience have of course been very great, and specimens of flax which have been sent from Calcutta to the United Kingdom have been valued at rates varying from £30 to £60 a ton.

The following information on the mode of the culture of flax in India is selected from a report made by Mr. Denreef, a Belgian farmer, whose practical experience in this country, enabled him to be a correct judge, and whose report is printed entire in the Journal of the Agri-Horticultural Society of Bengal. Such portions of land as are annually renewed by the overflowing of the Ganges, or which are fresh and rich, are the best adapted for the cultivation of flax.

After the earth has been turned up twice or thrice with the Indian plough, it must be rolled; because without the aid of the roller the large clods cannot be reduced, and the land rendered fine enough to receive the seed. The employment of the roller, both before and after sowing, hardens the surface of the earth, by which the moisture of the soil is better preserved, and more sheltered from the heat of the sun. About and near Calcutta, where manure can be obtained in great abundance for the trouble of collecting it, flax may be produced of as good a quality as in any part of Europe.

Manure is the mainspring of cultivation. It would certainly be the better, if the earth be well manured, to sow first of all, either *Sunn* (Indian hemp,) or hemp, or rice, or any other rainy season crop; and when this has been reaped, then to sow the flax. The tillage of the land, by means of the spade (*Mamoty*) used by the Natives (a method which is far preferable to the labour of the plough,) with a little manure and watering at proper seasons, will yield double the produce obtainable from land tilled without manure and irrigation.

The proper time to sow the flax in India is from the beginning of October until the 20th of November, according to the state of the soil. The culture must be performed, if possible, some time before the sowing. The flax which I have sown in November, was generally much finer and much longer than that sown in the

former month, which I attributed to the greater fall of dew during the time it was growing. The quantity of country seed required to the Bengal beega is twenty seers, but only fifteen seers of the foreign seed, because it is much smaller and produces larger stalks. The latter should be preferred; it is not only more productive in flax, but, owing to the tenderness of its stalks, it can be dressed much more easily.

The flax must be pulled up by the roots before it is ripe, and while the outer bark is in a state of fusibility. This is easily known, by the lower part of the stalks becoming yellow; the fusion or disappearing of the outer bark is affected during the steeping, which may be fixed, according to the temperature; say, in December at six days, in January five, in February four days, and less time during the hot season. The steeping is made a day after the pulling, when the seed is separated, and then the stalks are loosely bound in small sheaves, in the same way as the *sun*. The Indians understand this business very well, but in taking the flax out of the water it should be handled softly and with great care, on account of the tenderness of its fibres. When it is newly taken out, it should be left on the side of the steeping pit for four hours, or until the draining of its water has ceased. It is then spread out with the root-ends even, turned once, and when dry it is fit for dressing or to be stapled.

To save the seed, the capsules after they are separated from the stalks, should be put in heaps to ferment from twenty-four to thirty hours, and then dried slowly in the sun to acquire their ripeness.

When flax is cultivated for the seed alone, the country flax should be preferred. Six seers per beega are sufficient for the sowing. It should be sown very early in October, and taken up a little before perfect ripeness, by its roots, separately, when it is mixed with mustard seeds; the flax seed being intended for the purpose of drying oil, is greatly injured by being mixed with mustard seed, by which mixture its drying qualities are much deteriorated."

The oil which is procured from the seeds, and known as Linseed oil, is obtained in two ways, either cold drawn, when it is of a pale colour, or by the application of heat at a temperature of not less than 200°. This latter is of a deeper yellow or brownish colour, and is disagreeable in its odour. One bushel of East Indian seeds will yield 14½ lbs. of oil; of English seeds from 10 to 12 lbs. Nearly 100,000 quarters of seeds are annually exported to Great Britain for the sake of the oil they contain. From Madras alone in 1850-51, 801 Cwt. of linseed was exported to the United Kingdom. Great quantities are also shipped from Bombay where the plant is cultivated for the sake of its

seeds alone. In 1852-53 the exports 114,309 Cwt. valued at Rs. 342,926. The export of linseed, says Dr. Royle from Bombay, is now estimated at an annual value of four lacs of Rupees. In 1850 the exports from Calcutta were 765,496 maunds.

As the oil made in India has not the full drying properties of that prepared in Europe, a considerable quantity of the seeds is imported. This arises from the Indian seeds being mixed with those of mustard, with which they are grown, the mixture deteriorating the quality of the oil. The oil cake, made from the seeds after the expression of the oil is very fattening food for cattle. Linseed meal is the cake coarsely pulverised, and is used for making emollient poultices. European practitioners in this country consider linseed a valuable demulcent, according to Ainslie, and is useful in diarrhoea, catarrh, dysentery, and visceral obstructions. A decoction of the seeds forms an excellent enema in abrasion of the intestines. The meal of the seeds is used for Cataplasms; the oil mixed with lime water (*Carron Oil*) has been a favourable application to burns and scalds. Linseed oil is one of the chief ingredients in oil varnishes and painter's inks; by boiling with litharge its drying properties are much improved. The inferior seeds which are not sufficiently good for oil are boiled and made into a flax-seed jelly, esteemed an excellent nutriment for stock. Linseed contains  $\frac{1}{3}$ th of mucilage,  $\frac{1}{8}$ th of fixed oil. The former resides entirely in the skin and is separated by infusion or decoction, the latter by expression. *Simmonds. Ainslie. Penny Cycl. Veg. subst. &c.*

(420) **Ludwigia parviflora** (Roxb.) N. O. ONAGRACEÆ.

**Tetrandria Monogynia** *Sex: Syst:*

Carambu, MAL.

| Bun-lubunga, BENG.

DESCR: Herbaceous, erect, branched: leaves alternate, lanceolate, entire, lower ones often, and the upper ones sometimes oblong: flowers shortly pedicellate: capsule obsoletely 4-5 angled, equally thick, longer than broad, shorter than the leaves: seeds crowded in several rows: flowers small, yellow. *Fl.* Sept.—November.—*W. & A. prod.* I. 336.—*Wight's Ill.* II. t. 101.—L. *Jussiaeoides*, *Wall.*—L. *diffusa*, *Ham. in Linn. S. tr.*—L. *perennis*, *Linn. sp.*—L. *oppositifolia*, *Linn. Syst. veg.*—L. *Zeylanica*, *Pers.*—*Jussiaea caryophyllæa*, *Lam.*—*Roxb. fl. Ind.* I. 419.—*ed. Car.* I. 440. *Rheede* II. t. 49.—Peninsula. Bengal.

USES, &c. The plant rubbed and mixed with sour milk is employed for stopping dysentery and flux. Also said to promote

urine. It is slightly purgative and anthelmintic. The seeds pulverised and mixed with honey are given in coughs and asthma. *Rheede*.

(421) **Luffa acutangula** (*Roxb.*) N. O. CUCURBITACEÆ.

**Monœcia Pentandria, Sex: Syst:**

Torooi, HIND.  
Jhingo, BENG.  
Beer-kai, TEL.

Peechenggah, MAL.  
Peekun-kai, TAM.

**DESCR:** Climbing: stems glabrous: leaves 5-angled or 5-lobed, *male* racemes long peduncled: stamens distinct: calyx segments of the *female* flowers covered with glands: fruit (about a foot long and 2-3 inches thick) clavate, obtuse, or shortly pointed, pretty smooth, 10-angled, the angles sharp and smooth; seeds, (black) irregularly pitted, 2-lobed at the base; flowers large yellow. *Fl.* Nearly all the year.—*W. & A. prod.* I. 343.—*Roxb. fl. Ind.* III. 713.—*Cucumis acutangulus, Linn.*—*L. foetida, Car.*—*Rheede VIII. t. 7.*—Peninsula. Hedges and waste lands. Cultivated.

**USES, &c.** The half-grown fruit is one of the best native vegetables in India. The Natives use it much in their curries. Peeled, boiled and dressed with butter, pepper and salt, it is little inferior to boiled peas. The root in decoction is purgative and said by *Rheede* to check cholera. An oil expressed from the seeds is useful in impetigo. *Roxb Rheede.*

(422) **Luffa amara** (*Roxb.*) Do.

*Do.*

Kerula, HIND.  
Sendu-beer-kai, TEL.

Tito-dhoondhool, BENG.

**DESCR:** Climbing, stems slender: leaves a little scabrous, roundish-cordate, slightly 5-7 lobed: calyx 5-toothed: petals 5 distinct: *male* racemes long peduncled: fruit oblong, tapering towards each end, acutely 10-angled: seeds blackish-grey, marked with elevated minute black dots: margin turned, 2-lobed at the base: flowers large yellow. *Fl.* Aug.—Oct.—*W. & A. prod.* I. 343.—*Roxb. fl. Ind.* III. 715.—*L. Plukenetiana, Ser. in DC. Prod.*—Peninsula. Bengal.

**USES, &c.** This is bitter in every part. The fruit is violently cathartic and emetic, and the juice of the young roasted fruit is

applied by the Natives to their temples in cases of headache. The seeds in substance or infusion are used as emeto-cathartic. *Roxb.*

(423) **Lumnitzera racemosa** (*Willd.*) N O. COMBRETACEÆ.

**Decandria Monogynia.** *Sex: Syst:*

Cara kundal, MAL.

**DESCR:** Tree: calyx 5-cleft: segments rounded: petals 5, acute, inserted on the calyx and longer than it: leaves alternate, cuneate-obovate, alternated at the base into a short petiole, glabrous, thick and somewhat fleshy: spikes axillary, 5 stamens longer than the other alternating ones and about the length of the petals: drupe clove-shaped, ovate oblong, bluntly angled, crowned with the calyx: nut linear-oblong angled, 1-seeded: flowers small white.—*W. & A. prod.* I. 316.—*Jussieua racemosa*, *Rottl.*—*Petaloma alternifolia*, *Roxb. fl. Ind.* II. 372.—*Combretum alternifolium*, *Herb. Madr.*—*Pyrrhanthus albus*, *Wall.*—*Bruguiera Madagascariensis*, *DC.*—*Rheede VI. t. 37.*—Salt marshes in the S. provinces and Malabar. S. Concans. Sunderbunds.

**USES, &c.** The timber is very strong and durable and is used as fuel in Calcutta, where it is brought in great quantities from the Sunderbunds. It grows in the backwater in Cochin among species of *Rhizophora*. *Roxb. Wight.*

## M.

(424) **Maba buxifolia** (*Pers.*) Nat. Ord. EBENACEÆ.**Diœcia Triandria.** *Sex: Syst:*

Erumbelie, TAM.

Pishanna, TEL.

DESCR: Shrub or small tree: leaves alternate, oval, entire, smooth: *male* flowers axillary, in the lower leaves, 3-fold, sessile, white: calyx 3-cleft: corolla 3-cleft hairy: stamens 6, short, inserted round a semi-globose receptacle: *female* flowers axillary, sessile, white or yellowish, very small; style 1: berry round, smooth, pulpy, size of a pea: seeds 2, flat on one side. *Fl. March—June.—Wight's Icon. t. 763. Ferreola buxifolia—Roxb. Cor. I. t. 45.—fl. Ind. III. 790.—Circar Mountains.*

USES, &c. The berries are edible and agreeable to the taste. The wood is dark coloured, very hard and durable, and useful for various economical purposes. *Roxb.*

(425) **Macaranga Indica** (*R. W.*) N. O. EUPHORBIACEÆ.**Diœcia Monadelphica.** *Sex: Syst:*

Vuttathamaray, TAM.

Putta-thamara, MAL.

DESCR: Tree: leaves stipuled, peltate: stipules paired, broad-ovate, cuspidate: *male* flowers paniced, glomerate: bracts petioled, glandulose: calyx 3-parted, pubescent: stamens 6-8: *female* panicles axillary: flowers solitary or paired, pedicelled, bracteate: style 1: ovary 1 celled: calyx 4-parted: capsule covered with resinous points, flowers greenish. *Fl. Dec.—Jan.—Wight's Icon. t. 1883.—Neilgherries. Travancore.*

USES, &c. This is a very common tree in Travancore. A gummy substance exudes from the cut branches and base of the petioles. It is of a light crimson colour and has been used for taking impressions of leaves, coins, medallions, &c. When the gum is pure and carefully prepared the impressions are as sharp as those of sulphur without its brittleness. This substance is very little known. Powdered and made into a paste it is reckoned a good external application in venereal sores. The *M. tomentosa* is also to be found in Travancore, and I observe that a similar gum exudes from both species. *Jury Rep. Pers. obs.*



(426) **Mangifera Indica** (*Linnaeus*) Nat. Ord. TEREBINTHACEÆ.**Polygamia Monœcia.** *Sex: Syst:*

Common Mango, ENG.  
Am, BENG. and HIND.  
Mamadichitoo, TEL.

Mava, MAL.  
Mam-marum, TAM.

DESCR: Tree, leaves alternate, lanceolate, acuminate, glabrous: calyx 5-cleft: petals 5: panicles terminal, much branched, pubescent, erect: drupe obliquely-oblong or somewhat reniform: seed solitary: flowers small, greenish-yellowish. *Fl.* Jan.—March.—*W. & A. prod.* I. 170.—*Roxb. fl. Ind.* I. 641.—*ed. Car.* II. 435.—*M. Montana, Heyne.*—*M. domestica, Gærtn.*—*Rheede IV. t.* 1, 2.—Common everywhere.

USES, &c. The Mango is well known as the most delicious of Indian fruits. It is esteemed very wholesome and when unripe is much used in tarts, preserves, pickles, &c. There are many varieties all more or less having a peculiar turpentine flavour, though the best kinds are generally free from it. The kernels of the nut seemingly contain much nourishment, but are only used in times of scarcity, and\**famine*, when they are boiled and eaten by the poorer classes. In the pulp of the fruit, there is sugar, gum, and citric acid; gallic acid has also been procured from the seed, and also stearic acid. Interesting experiments were made sometime ago, by a French chemist, upon the process of procuring the gallic acid, which he stated might be used in the preparation of ink instead of galls. Whenever the fruit is cut with a knife a blue stain is seen on the blade which is due to the presence of gallic acid. The timber is soft of a dull grey colour, porous, soon decaying if exposed to wet, but useful for common purposes. In large old trees the wood acquires a light chocolate colour towards the centre of the trunk and larger branches, and is then hard, close grained and somewhat durable. The Mango tree is best propagated by grafting, though it will readily grow from seeds. In the latter case the seed must be sown soon after it is taken from the fruit, but the produce is so inferior, that it is hardly worth the trouble bestowed upon it. The wood burnt with sandal wood, is one of those used by the Hindoos, for burning corpses, and is reckoned sacred for this purpose. The natives use the leaves as tooth brushes, and the stalks instead of betel, for chewing—powdered and calcined, they employ the latter also to take away warts. From wounds in the bark issues a soft reddish brown gum resin, hardening by age and much resembling *Bdellium*. Burnt in the flame of a candle it emits a smell like that of cashew-nuts when roasting. It softens in the mouth and adheres to the teeth, and in taste is somewhat pungent and bitter. It dissolves

entirely in spirit, and partly so in water. Mixed with lime juice or oil, it is used externally in scabies and cutaneous affections. The bark of the tree is administered in infusion in menorrhagia and leucorrhœa, and the resinous juice mixed with white of egg, and a little opium, is considered a good specific on the Malabar coast for diarrhœa, and dysentery. The tender leaves mixed with the bark of the castor oil plant and cummin seed are used in decoction for coughs, asthma, and affections of the chest. An infusion of the young leaves is likewise prescribed occasionally by native practitioners in bilious affections. *Roxb. Journ. of As. Soc. Ainslie. Rheede. Pers. obs. &c.*

(427) **Manisuris granularis** (Linn.) N. O. GRAMINACEÆ.

**Triandria Digynia.** *Sex: Syst:*

Trinpali, HIND.

DESCR: Height 1-2 feet: culm very resinous, suberect, hairy: spikes terminal and axillary, several together, 1 inch in length: leaves numerous, very hairy, stiff, sharp: rachis jointed, much waved: flowers male and hermaphrodite, 4-10 of each sort. *Fl. Oct.—Dec.—Roxb. fl. Ind. I. 352.—ed. Car. I. 352.—Cor. II. t. 118.—Peltophorus granularis; Beauv.—Peninsula. Behar.*

USES, &c. This plant is medicinal and is administered internally in conjunction with sweet oil in cases of spleen and liver complaints. *Ainslie. Hamilton's M.S.S.*

(428) **Maranta dichotoma** (Wall.) N. O. MARANTACEÆ.

**Monandria Monogynia.** *Sex: Syst:*

Mookto-patee, Pattee patee, or Madarpatee, BENG.

DESCR: Stems straight, 3-6 feet, very smooth polished: branches numerous, dichotomous, spreading, jointed at every division: leaves alternate, petioled, ovate-cordate, smooth, entire, acute, with fine parallel veins: petioles sheathing: racemes terminal, usually solitary, jointed, a little flexuose: flowers in pairs on a common pedicel, from the alternate joints of the rachis: calyx 3-leaved: border of corolla double: exterior of three equal, recurved segments: interior of five unequal ones, far extending above the rest: flowers large, white. *Fl. April—May.—Roxb. fl. Ind. I. 2. ed. Car. I. 2.—Spreng. syst. I. p. 8. Phrynium dichotomum, Roxb.—Donax Arundastrum, Lour.—Coromandel. Bengal.*

USES, &c. The split stems are very tough and from them are made the Calcutta mats called *Sital-pati* which signifies a cool mat. The stems are four feet long, thin as paper, shining and striated in the inside. *Colebrooke in. As. res. Roxb.*

(429) **Marsdenia****tenacissima** (W. & A.) Nat. Ord. ASCLEPIACEÆ.**Pentandria Digynia** Sex: Syst:

DESCR: Twining: corolla salver-shaped: leaves opposite, cordate, acuminate, tomentose on both surfaces: cymes large: segments of corolla broad, obtuse: leaflets of corolla broad, truncate, nearly entire at the apex, or bifurcate: flowers greenish yellow. *Fl.* April.—*Wight's Contrib.* p. 41.—*Wight's Icon.* t. 590.—*Asclepias tenacissima*, *Roxb. fl. Ind.* II. 51.—*Cor* III. t. 240.—*A. tomentosa*, *Herb. Madr.*—*Gymnema tenacissima*, *Spr. Syst.*—*Rajmahal.* Chittagong.

USES, &c. The bark of the young shoots yields a large portion of beautiful, fine silky fibres with which the mountaineers of Rajmahal make their bowstrings, on account of their great strength and durability. These fibres are much stronger than hemp and even than those of the *Sanseveria Zeylanica*. A line of this substance broke with 248 lbs. when dry, and 343 when wet. *Wight* considers this species not to be a native of the Peninsula. The specimens in the Madras herbarium are the one from the Missionary's garden, the other (*A. echinata*) was sent to Klein by Heyne, but is not the plant of Roxburgh. The milk exuding from wounds made in the stem, thickens into an elastic substance acting like Caoutchouc on black lead marks. *Roxb. Wight.*

(430) **Marsdenia tinctoria** (R. Br.)

Do.

Do.

DESCR: Twining: leaves opposite, cordate-ovate, or oblong acuminate, smoothish: thyrse lateral: throat of corolla beaded: flowers small, numerous, yellow. *Fl.* April.—*Wight's Contrib.* p. 40.—*Wight's Icon.* t. 589.—*Asclepias tinctoria*, *Roxb. fl. Ind.* II. 43.—*Pergularia tinctoria*, *Spr.*—*Cynanchum tinjeris* *Herb. Ham.*—*Coromandel.* Silhet.

&c. This species is cultivated in N. India being a native of Sumatra, Silhet, and Burmah. The leaves yield more and better Indigo than the *Indigofera tinctoria*, on which account it has been

recommended for extensive cultivation. Wight considers it a doubtful native of the Peninsula, though in the Hortus Calcuttensis the habitat is given as above. *Roxb. Wight.*

(481) **Melanthesa**

**rhamnoides** (*Retz.*) Nat. Ord. EUPHORBIACEÆ.

**Monœcia Monadelphia.** *Sex: Syst.*

Pavala-poola, TAM.

| Surasaruni, HIND.

**DESCR:** Shrub: leaves oval, rounded at the apex, acute at the base, glabrous: peduncles axillary, the inferior ones paired, *male*: upper ones solitary, *female*, about the length of the petiole: fruit embraced by the short calyx: berries globose, bright red, mealy when ripe: flowers small greenish. *Fl.* Nearly all the year.—*Wight's Icon. t.* 1898.—*Phyllanthus rhamnoides*, *Retz.*—*P. Vitis Idœa.*—*Roxb. fl. Ind.* III. 665.—Coromandel Coast.

**USES, &c.** The bright red fruits give this shrub a rather lively and attractive appearance. The leaves are used by Hindoo practitioners in discussing tumours especially carbuncles, applied warm with castor oil. In Behar the dried leaves are smoked as tobacco, when the uvula and tonsils are swollen. The bark of the root mixed with long pepper and ginger is drunk as a tonic. *Rheede. Ainslie. Wight.*

(482) **Melanthesa turbinata** (*R. W.*)

Do.

*Do.*

Perin-neruai, MAL.

**DESCR:** Shrubby or arboreous: floriferous branchlets bifarious: leaves oval, obtuse, entire, sometimes slightly unequal-sided: flowers axillary, frequently *male* and *female* in the same axil: *male* flowers turbinate 6-lobed; lobes inflexed nearly closing the orifice: *female* calyx deeply 6-lobed, enlarging with the fruit: fruit before maturity baccate, when quite ripe, dry and capsular, 3-valved: seeds 3-angular, arilled at the base: flowers small greenish. *Fl.* July—Sept.—*Wight's Icon. t.* 1897.—*P. turbinatus.*—*Roxb. fl. Ind.* III. 666.—*Phyllanthus Simsianus*, *Wall.*—*Rheede V. t.* 48.—Coromandel, Malabar. Mountains of Orissa. Neilgherries.

**USES, &c.** The leaves, fruit and root boiled in water and mixed with long pepper and cummin seed are given as a drink in asth-

ma, cough, and similar pulmonary affections. The leaves and bark simply boiled in infusion of rice and reduced to the form of a plaster and applied to tumours, will powerfully ripen them. *Rheede*.

(433) **Melastoma**

**malabathricum** (*Linn.*) N. O. MELASTOMACEÆ.

**Decandria Monogynia.** *Sex: Syst:*

Buro-phootika, BENG. | Cadali, MAL.

**DESCR:** Shrub: branches 4-angled, extreme ones compressed, rough from adpressed bristles: leaves elliptic-oblong, somewhat acute, quite entire, green on both sides, upper side strigose from bristles: under hirsute on the nerves and veins, harshly pubescent between them: corymbs terminal 1-5 flowered, sessile or nearly so: flowers surrounded with deciduous bracteoles: calyx tube clothed with small toothed scales: flowers large, red. *Fl.* Nearly all the year.—*W. & A. prod.* I. 324.—*Roxb. fl. Ind.* II. 405.—*Wight's Ill.* I. t. 95.—*Rheede* IV. t. 42.—Peninsula. Nepaul. Orissa.

**USES, &c.** The fruit is eatable and yields a purple dye for cotton cloths. The juice of leaves in infusion with rice water is administered in colic. *Rheede*.

(434) **Melia azedarach** (*Linn.*) N. O. MELIACEÆ.

**Monadelphia Decandria** *Sex: Syst:*

Common bead tree or Persian Lilac, ENG. | Taruka vepa, TEL.  
Malay-vaymboo, TAM. | Mullay vaempoo, MAL.

**DESCR:** Tree 40 feet: petals 5, nearly glabrous: calyx small, 5-cleft: stamen tube 10-cleft: leaves alternate, bipinnate, deciduous: leaflets about 5 together, obliquely ovate-lanceolate, serrated, finely acuminate glabrous: peduncles axillary, simple below above paniced, branched and many flowered: flowers smallish, white externally, lilac at the top, fragrant: fruit size of a cherry, pale yellow when ripe: nut 5-celled, cells 1-seeded. *Fl.* March.—*W. & A. prod.* I. 117.—*Roxb. fl. Ind.* II. 395.—*Wight's Icon.* t. 160.—Common in the Deccan. Concan. N. India.

**USES, &c.** The pulps surrounding the seeds is said to be poisonous, and mixed with grease is reputed to kill dogs. This however is doubtful. The root which is nauseous and bitter is used in N. America as an anthelmintic. The seeds are frequently bored and

strung for beads by Roman Catholics. A valuable oil is also produced from them. This tree has been naturalized in the South of Europe. The mature wood is hard and handsomely marked. *Ainslie. Lindley. Jury Rep.*

(435) **Melia sempervirens** (*Swz.?*) Do.

*Do.*

Bukarjun, Bukayun, HIND.

DESCR: Tree 25 feet: calyx 5-cleft: petals 5: leaves evergreen, bipinnate; leaflets ovate, sometimes cordate at the base, cut or serrated, with taper entire apices, glabrous: flowers smallish, lilac, fragrant. *Fl.* Nearly all the year.—*W. & A. prod.* I. 117.—*Roxb. fl. Ind.* II. 395.—M. Bukayun, *Royle Ill.* p. 141.—Naturalized in India. Nepaul.

USES, &c. This tree is known in the W. Indies by the name of the *Indian lilac*. Its leaves and fruits are used medicinally in that country. It is said that the wood is never attacked by vermin. A kind of toddy is obtained from the tree according to *Ainslie*. *Roxburgh* says that this plant is perfectly distinct from *M. Azedarach*, which is a robust deciduous timber tree, and this a small delicate evergreen of short duration compared with the other. *Dr. Wight* does not coincide in this opinion but thinks them both identical. *Roxb. Ainslie.*

(436) **Memecylon**  
**amplexicaule** (*Roxb.*) N. O. MEMECYLACEÆ.

Octandria Monogynia *Sex: Syst:*

Nedum schetti, MAL.

DESCR: Shrub: branches terete: leaves sessile, cordate at the base, from ovate to oblong and gradually acuminate: peduncles wanting: pedicels 1-flowered arranged on a sessile axillary receptacle: petals orbicular, sessile: fruit somewhat globose, 1-3 celled, 1-3 seeded: flowers numerous very small bluish-purple. *Fl.* April—May.—*W. & A. prod.* I. 320.—*Roxb. fl. Ind.* II. 261.—*Wight's Icon. t.* 279.—M. *Cordatum*, *Wall.*—M. *depressum*, *Benth.*—*Rheede* II. *t.* 15.—Travancore. Malabar. ●

USES, &c. A handsome flowering shrub common in the Travancore forests. On the Malabar coast a decoction of the flowers is made into an ointment which mixed with oil is applied in cases of itch. *Rheede. Pers. obs.*

(437) **Mimocylon tinctorium** (Koen.) Do.

Do.

Kanyavuh, MAL.  
Alli chettu, TEL.Kayampoovocheddi,  
Casau-cheddy, TAM.

DESCR: Shrub 10-12 feet: calyx with a hemispherical or subglobose tube: petals 4: branches terete: leaves shortly petioled, ovate or oblong, 1-nerved: peduncles axillary and below the leaves on the older branches bearing a more or less compound corymb of pedicellate flowers: stamens shortish: style about the length of the stamens: fruit globose crowned with the 4-toothed limb of the calyx: fruit 1-2 seeded: flowers bluish-purple. *Fl.* April—May.—*W. & A. prod.* I. 319.—*M. tinctorium*, Willd.—*M. edule*, Roxb. *Cor.* I. t. 82.—*fl. Ind.* II. 260.—*Rheede* V. t. 19.—Travancore. Malabar. Coromandel.

USES, &c. The pulp of the fruit when ripe is eaten by the Natives. It is rather astringent. The leaves are used in dyeing, affording a delicate yellow lake. The shrub is very common and highly ornamental in gardens, when in flower the stem being crowded with the beautiful sessile purple florets. The leaves are used by the mat makers in conjunction with kadukai (*myrobalan nuts*) and vuttang-cuttay (*sappan wood*) in imparting a deep red tinge to the mats. They are also good for dyeing cloths red. *Ainslie. Pers. obs.*

(438) **Mesua ferrea** (Linn.) Nat. Ord. CLUSIACEÆ.**Polyandria Monogynia** *Sex: Syst:*

Belutta-champagam, MAL.

Nagkushur, BENG.

DESCR: Tree 40 feet: sepals 4, unequal: petals 4, alternate with the sepals: leaves oblong-lanceolate, acuminate, glaucous beneath, upperside shining: midrib and margins coloured: flowers stalked, axillary, large, white, fragrant: fruit about the size of a small apple, 1-celled, 1-4-seeded. *Fl.* March—April.—*W. & A. prod.* I. 102.—*Wight's Icon.* t. 118-961.—*Roxb. fl. Ind.* II. 605.—*M. speciosa*, Choisy in *DC. prod.*—*Calophyllum nagassarum*, *Burm. Ind.*—*M. Roxburghii*, *Wight's Ill.* I. 127.—*Rheede* III. t. 53.—Courtallum hills.

USES, &c. This tree is much cultivated in Java as well as in Malabar for the beauty and fragrance of its flowers. (The M.

*speciosa* is according to Wight not a distinct plant.) When dry they are mixed with other aromatics such as the white sandal wood, and used for perfuming ointment. The fruit is reddish and wrinkled when ripe, with a rind like that of the chesnut which latter it much resembles both in size, shape, substance and taste. The tree bears fruit in six years from the planting of the seed and continues to bear during three centuries. It is planted near houses and affords an excellent shade. The bark, wood and roots are bitter and sweet-scented. The blossoms are found in a dried state in the bazars and are called *Naghesur*: they are used medicinally and are much esteemed for their fragrance; on which latter account the Burmese grandees stuff their pillows with the dried anthers. Round the base or rather at the bottom of the tender fruits a tenacious and glutinous resin exudes with a sharp aromatic smell. The root rubbed up with fresh ginger is given internally as a sudorific, and also used both internally and externally in bites of serpents. A poultice made from the leaves boiled with milk and palm oil is applied to the head in catarrh, and a decoction of them is internally administered in phlegm and cough. The young fruits boiled in honey are emollient and laxative, but dry, they are astringent. An oil from them is rubbed over the body, reputed to be a good remedy in rheumatism and pains in the limbs. *Rheede. Roxb. Ainslie. Don. Wight, &c.*

(439) **Michelia champaca** (Linn.) N. O. MAGNOLIACEÆ.

**Polyandria Polygynia** *Sex: Syst:*

Chempacam, MAL.

| Chumpaka or Chumpa, BENG.

DESCR: Tree 30-40 feet: petals numerous, disposed in several rows: leaves alternate, entire, lanceolate, acuminate, glabrous: flowers on short peduncles, axillary: spathe of one leaf: carpels 2-valved: seeds several: flowers large, yellow, fragrant. *Fl.* Nearly all the year.—*W. & A. prod.* I. 6.—*Roxb. fl. Ind.* II. 656.—*Wight's Ill.* I. p. 13.—Cultivated in Bengal. Gardens in the Peninsula.

USES, &c. This tree is highly venerated by the Hindoos and is dedicated to Vishnoo. It is celebrated for the exquisite perfume of its flowers. Sir W. Jones states that their fragrance is so strong that bees will seldom, if ever, alight upon them. The Natives adorn their heads with them, the rich orange colour of the flowers contrasting strongly with their dark black hair. The bark of the root is red, bitter and very acid. The fruit is said to be edible. The name *Champaca* is derived from Ciampa an island between Cambogia and Cochin-China, where the tree grows. The bark of the powdered root is reckoned emmenagogue. The flowers



beaten up with oil are applied to foetid discharges from the nostrils. The wood is light but used for making drums. All parts of the tree are said by Lindley to be powerfully stimulant. *Don. Lindley. Roxburgh.*

(440) **Michelia Rheedii** (*Wight.*) Do.

*Do*

Tsiapungum, MAL.

| Sempagum, TAM.

DESCR: Large tree: leaves elliptic, oblong, acuminate, attenuated at the base: flowers polypetalous in quaternary order (?): outer series the largest, obtuse: interior ones cuspidate: styles caducous, leaving a smooth circular shield-like scar on the apex: ovules numerous, 10-12: carpels large, approximate, rough, marked with numerous prominent warts, 4-seeded: seeds triangular enveloped in red fleshy pulp: flowers yellow.—*Rheede I. t. 19.*—Malabar. Travancore.

USES, &c. The timber is close-grained and heavy. It is of a handsome mottled colour, and has been tried in Bombay for ship-building. It is also well adapted for ornamental purposes. The root, and bark dried powdered, and mixed with sour milk, and prepared in the form of a plaster, is used for opening and bringing boils to maturity. The flowers boiled up in oil are applied in head-aches and affections of the eyes. Oil in which the flowers have been steeped for 40 days is also used occasionally in anointing the head. The oil of the fruits is given in flatulency. The bark of the root pulverised and mixed with warm water is reckoned emmenagogue, and according to Rheede, if taken in large quantities will expel the foetus in women. It is the general character of the Magnoliaceous order of plants to possess tonic qualities. The barks of many of the genus *Magnolia* are intensely bitter, and the *Michelias* are said to be powerfully stimulant. One of them, the *M. Doltsopa* is one of the finest trees in Nepaul, yielding an excellent fragrant wood, much used for house-building. The several Indian species of *Michelia* have been somewhat confusedly arranged by Botanists. Graham in his catalogue of Bombay plants gives as a reference to this one (*M. Rheedii*) Wight's *Illust.* p. 13 and the *As. Res.* 287. But I think he must be mistaking it for the *M. Champaca* which is properly a native of the Eastern Islands. Dr. Wight has figured another species, the *M. Nilagiri-ca*, which at one time he considered as distinct from the *M. Pulneyensis*. Subsequent examination enabled him to determine, they were identical. He says, "the tree here represented is the only

one found on the Neilgherries, and there attains the size of a large timber-tree, the wood of which however is only used in house-building. Owing to its hygrometric properties, it is not adapted for other purposes, as it swells and contracts, according to the moisture or dryness of the atmosphere, to an unusual extent, even after long seasoning. When formerly writing on this family in my Illustrations of Indian Botany, I considered this distinct from the plant there figured, under the name of *M. Pulneyensis*; better acquaintance with this one, had led me to doubt the correctness of the opinion there expressed, which was mainly formed, on what I now find an incorrect figure and description." *Lindley. Rheede. Jurié's Rep. Wight's Neilgh. plants.*

(441) **Mimusops elengi** (Linn.) N. O. SAPOTACEÆ.

**Octandria Monogynia** Sex: Syst:

Mimusops, ENG.  
Elengee, MAL.  
Maghadam, TAM.  
Poghada, TEL.

Bholscri, DUK.  
Mulsari, HIND.  
Bukul, BENG.

DESCR: Tree, middling size: leaves alternate, oval-lanceolate or oblong, acuminate, glabrous: pedicels shorter than the petals, many together 1-flowered: calyx 8-cleft, in a double series: segments lanceolate, four exterior ones larger and permanent: corolla-tube very short, fleshy: segments in a double series, exterior ones sixteen, spreading: interior ones 8, generally contorted, and converging, lanceolate, and slightly torn at the extremities: berry oval, smooth, yellow when ripe, usually one celled: seeds solitary, oblong: flowers white, fragrant. *Fl.* March—April.—*Roxb. fl. Ind.* II. 236.—*Cor.* I. t. 14.—*Wight's Icon.* t. 1586.—*Rheede* I. t. 20.—Peninsula. Bengal. Silhet.

USES, &c. This tree has an ornamental appearance. The flowers which appear twice a year are somewhat fragrant and powerfully aromatic. The Natives distil an odoriferous water from them. The fruit is edible. The bark is astringent and used medicinally. The root rubbed up with vinegar is applied to reduce swellings on the face. The same mixed with water is applied to pustular eruptions of the skin. A decoction of the bark is given in tooth-ache by rinsing out the mouth and throat with it. The fruit mixed with warm water is administered in cases of difficult parturition. The seeds yield an abundance of oil, in request for painters. If the leaves are put in the flame of a candle they will make a smart crackling noise. The tree is much cultivated in the gardens of the Natives, especially round the mausoleums of the Mahomedans. Dr.

Roxburgh said he only once found it in a wild state. It was on the mountains of the Rajahmundry district. *Rheede. Lindley. Roxb.*

(442) **Mimusops hexandrus** (*Roxb.*) Do.

*Do.*

Pallos, TAM.

| Palla, TEL.

DESCR : Tree : leaves alternate, cuneiform or obovate, deeply emarginate, glabrous and shining on both surfaces : calyx 6-cleft, with 3-interior and 3-exterior segments : corolla tube very short, interior segments 6, the exterior 12 : pedicels 1-6 together, nearly as long as the smooth petioles, 1-flowering : berry size and shape of an olive, yellow when ripe : flowers small, whitish. *Fl. March—April.—Roxb. fl. Ind. II. 238.—Cor. I. t. 15.—Don's Mill. IV. 35.—Wight's Icon. t. 1587.*—Mountains of the Circars. Bombay.

USES, &c. The wood is much used in Guzerat for a variety of purposes, such as sugar-mill-beams, well frames, &c. It is also much used by washermen to beetle their cloths on being remarkably heavy and tough. The fruit is eatable. *Roxb. Dr. Gibson.*

(443) **Mimusops Kauki** (*Linn.*) Do.

*Do.*

Manilkara, MAL.

DESCR : Tree : leaves alternate, obovate, very blunt, silvery or hoary beneath, crowded at the ends of the branches : flowers fasciated, hexandrous : fruit oval, drooping : flowers yellowish white tinged with rose. *Fl. March—April.—Roxb. fl. Ind. II. 238.—Don's Mill. IV. 35.—Mimusops dissectus, Spreng.—M. hexandra, Roxb.—Achra dissecta, Forst.—A. Balata, Aubl.—Rheede IV. t. 35.*—Malabar.

USES, &c. The bark is astringent and yields a kind of gummy fluid. The leaves ground and mixed with the root of Curcuma and ginger are used as cataplasm for tumours. The tree is extensively cultivated in China and Malabar on account of its acid and esculent fruit, which is said to increase the appetite. The leaves boiled in gingely oil and added to the pulverised barks are reckoned a good remedy in Beriberi. *Rheede. Hooker.*

(444) **Mollugo cerviana** (Ser.) N. O. CARYOPHYLLACEÆ.

Pentandria Trigynia. Sex: Syst:

Parpadagum, TAM.  
Parpatakum, TEL.

Ghimashak, BENG.

DESCR: Small plant half a foot, stems straightish, ascending, terete: leaves opposite, or alternate by abortion, linear, verticillate, very narrow, bluntish, glaucous: calyx 5 parted: petals none: peduncles elongated, bearing 3 umbellate flowers: stamens usually 5, or less by abortion: capsule 3-valved, 3-celled, many seeded: calyx white on the inside.—*W. & A. prod.* I. 44.—Pharnaceum *cerviana*, *Linn.*—Peninsula.

USES, &c. This plant mixed with oil is made into an ointment for scabies and other cutaneous diseases. The young shoots and flowers are given in infusion as a mild diaphoretic in fever cases. *Ainslie. Pers. obs.*

(445) **Mollugo spergula** (Linn.) Do.

Do.

Toora, TAM.  
Chatarashi, TEL.

Ghimi Shak, BENG.

DESCR: Small plant: stem very straggling and branched: leaves more or less succulent, oblong or obovate, mucronate, alternated towards their base: pedicels 1-flowered, several together, forming a simple sessile umbel: stamens 3-5 or 10: petals narrow, cleft to the middle, or none: seeds rough with numerous tubercles: flowers small, white. *Fl.* Nearly all the year.—*W. & A. prod.* I. 44.—*M. verticillata*, *Roxb. fl. Ind.* I. 360, (not *Linn.*)—*M. erecta*, *Burm. Ind.*—*M. parviflora*, *D.C. prod.* I. 391.—Pharnaceum *mollugo*, *Linn.*—*Roxb. fl. Ind.* II. 102.—*P. parviflorus*, *Roth.*—*Rheede X. t.* 24.—Peninsula. Bengal.

USES, &c. The bitter leaves are esteemed by the Natives as stomachic, aperient, and antiseptic, and are given in infusion, and are considered especially efficacious in suppressed lochia. Moistened with castor-oil and applied warm they are said to be a good remedy in earache. *Ainslie.*

(446) *Momordica Charantia* (Linn.) N. O. CUCURBITACEAE.

*Momordica Polyadelphia.* Ser: Syst:

Kurula, BENG.  
Pandipasel, MAL.

Pava-kai, TAM.

DESCR: Climbing: stems more or less hairy: leaves palmately 5-lobed, sinuate, toothed: when young more or less villous on the under side particularly on the nerves: peduncles slender with a reniform bracteole, *male* ones with the bracteole about the middle, *female* with it near the base: fruit oblong or ovate, more or less tubercled or muricated: seeds with a thick notched margin and red aril: flowers middle sized, pale yellow. *Fl.* Aug.—Oct.—*W & A. prod.* I. 348.—*Roxb. fl. Ind.* III. 707.—*Wight's Icon.* II. t. 504. *M. Muricata*, Willd.—*Rheede Mal.* VIII. t. 9, 10.—Cultivated everywhere in the Peninsula.

USES, &c. There are two chief varieties differing in the forms of the fruit, the one having the fruit longer and more oblong, the other with the fruit smaller, more ovate, muricated and tubercled. There are besides these many intermediate gradations. The fruit is bitter but wholesome and is eaten in curries by the Natives. It requires however to be steeped in salt water before being cooked. That of the smaller variety is most esteemed. The whole plant mixed with cinnamon, long pepper, rice and marothy oil (*Hydnocarpus inebrians*) is administered in the form of an ointment in psora, scabies, and other cutaneous diseases. The juice of the leaves mixed with warm water is reckoned anthelmintic. The whole plant pulverised is a good specific externally applied in leprosy and malignant ulcers. *Rheede. Dr. Gibson. Wight.*

(447) *Momordica dioica* (Roxb.)

Do.

Do.

Erimapasel, MAL.  
Paloopaghel, TAM.

Agakara, TEL.

DESCR: Climbing, diœcious: root tuberous: stems glabrous: leaves long-petioled, cordate at the base, from entire to 3-4 lobed, toothed, upper side slightly scabrous, under smooth or nearly so: peduncles slender with entire bracteoles: *male* with the bracteole close to the flower and concealing the lower part: *female* one small near the base: fruit ovate, muricated: seeds oval, surrounded with

a large red aril : flowers large, yellow. *Fl.* Sept.—Nov.—*W. & A. prod.* I. 848.—*Wight's Icon. t.* 505, 506.—*M. dioica, Willd.*—*M. Missionis. Wall.*—*Roxb. fl. Ind.* III. 709.—*Rheede VIII. t. 12.*—Peninsula.

**USES, &c.** Of this species also there are several varieties, differing chiefly in the forms of the leaves. The young green fruits and tuberous roots of the female plants, are eaten by the Natives. They sometimes weigh from 2 to 3 lbs. *Rheede* says that this plant is truly cephalic, for mixed with cocoanut, pepper, red sandal and other ingredients, and applied in the form of liniment, it stops all pains in the head. The root which is mucilaginous to the taste is prescribed by Hindoo practitioners in the form of electuary in hæmorrhoids. *Ainslie. Rheede.*

(448) **Morinda citrifolia** (*Linn.*) Nat. Ord. CINCHONACEÆ.

**Pentandria Monogynia. Sex: Syst :**

Indian Mulberry, ENG.  
Mauja-pavattay, Noona, TAM.  
Cada pilva, MAL.

Molagha, Maddichettoo, TEL.  
Al, Atchy, HIND.

**DESCR :** Small tree : leaves opposite, oval, alternated at both ends, shining : capituli shortly peduncled, leaf opposed : branchlets 4-angled : corolla long-infundibuliform 5 (occasionally 4-7) cleft : anthers half hid in the tube : style the length of the tube : berries concrete into an obtuse ovate shining fruit : flowers white. *Fl.* nearly all the year.—*W. & A. prod.* I. 419.—*Roxb. fl. Ind.* I. 541.—*Rheede I. t. 52.*—Coromandel. Cultivated in Kandeish, Berar, and the Deccan. Bombay.

**USES, &c.** The fruit of this species is used medicinally among the Cochin-Chinese as a deobstruent and emmenagogue. A scarlet dye is procured from the root, used for handkerchiefs, turbans, &c. The colouring matter resides chiefly in the bark of the roots. The small pieces which are best, are worth from 4 to 5 rupees a maund. It is exported in large quantities from Malabar to Guzerat and the Northern part of Hindoostan. *Dr. Gibson* says they are partly dug up the second year, and are in perfection the third. The wood is of a deep yellow colour, and useful for ordinary purposes. The Natives use it for their wooden slippers. The expressed juice of the leaves mixed with oil is applied externally in gout. The ashes of the fruit are given in dysentery and cholera. The leaves applied fresh to wounds and ulcers are said to be very efficacious in promoting their cure and will speedily generate a new skin. By

some chemical process a kind of salt is extracted from the leaves, also very useful in cleaning bad and inveterate ulcers. The *M. tinctoria* (Roxb.) is considered to be the same species in its wild state. It is common in most parts of India. The green fruits are eaten by the Natives in their curries. The wood is hard, very durable, variegated red and white, and employed for gun stocks in preference to any other wood. This latter is the *Tagaroo* of the Teloogoos. *Wight. Roxb. Ainslie. Rheede. Simmonds. Pers. obs.*

(449) **Morinda tomentosa** (*Heyne.*) Do.

*Do.*

Munjenatie, MAL.

DESCR: Tree 25-30 feet: branches glabrous and shining: young ones 4-angled, tomentose: leaves roundish, ovate, acuminate, often slightly cordate at the base but also tapering into a short petiole, shortly tomentose on both sides, particularly underneath and on the nerves above, peduncles axillary, solitary, larger than the petiole, tomentose: capituli oval, few flowered: flowers white. *Fl.* Nearly all the year.—*W. & A. prod.* I. 420.—*M. mudia, Ham. Linn. Soc. trans.*—Travancore.

USES, &c. This is a very common tree in Travancore. It grows quickly and is frequently found in gardens as well as in the forests. The number of stamens, their exertion or otherwise, as well as the segments of the corolla vary considerably in the same and separate trees. A dye is procured from the interior wood of the older trees. The timber is of a yellow colour and will take a polish equal to jack wood. It is useful for various economical purposes. *Pers. obs.*

(450) **Morinda umbellata** (*Linn.*) Do.

*Do.*

Noona-marum, TAM.  
Chota-Alka, DUK.

Moolooghoodoo, TEL.

DESCR: Climbing, glabrous: corolla short infundibuliform: leaves from oblong-lanceolate to cuneate oblong, pointed: stipules membranaceous united into a truncated sheath: peduncles terminal, 3-7 in a sessile terminal umbel, about half the length of the leaves: capituli globose: calyx margin entire: limb 4 (occasionally 5) cleft: filaments short inserted into the bottom of the dilated part

of the tube among much hairs : anthers exerted : flowers white. *Fl. March*.—*W. & A. prod.* I. 420.—*M. scandens*, *Roxb. fl. Ind.* I. 548.—*M. Padavara*, *Juss. in enc. meth.*—*Rheede* VII. t. 27.—*Courtallum*. Travancore. Malabar.

**Uses, &c.** The leaves are used in conjunction with certain aromatics among Native practitioners in cases of diarrhoea. The root yields a dye of permanent yellow and with the addition of sappan wood, a red dye is prepared from the same in Cochin China. *Simmonds* says that the colours dyed with it are for the most part exceedingly brilliant, and the colouring matter far more permanent, than many other red colours are. With improved management it would probably rival that of madder. This will apply to the various species of the Indian Mulberry plant. In this species the number of stamens varies in the same head of flowers, but there are usually only four. *Wight. Simmonds. Ainslie. Lour.*

(451) **Moringa**

**pterygosperma** (*Gaertn.*) Nat. Ord. Moringaceæ.

**Decandria monogynia** *Sw. : Syst :*

Horse-radish tree, ENG.  
Mooringhy, TAM.  
Mooraga, TEL.  
Moongay, DUX.

Sujna, HIND.  
Shajina, BENG.  
Mooringeh, MAL.

**DESCR :** Tree 30-35 feet : leaves 2-3 pinnate with an odd leaflet : calyx 5 cleft : petals 5, nearly equal, the upper one ascending : filaments hairy at the base : racemes paniced : five stamens without anthers : seeds numerous 3-angled, the angles expanding into wings : flowers white. *Fl.* Jany.—*March*.—*W. & A. prod.* I. 178.—*M. oleifera*, *Lam. ency.*—*M. Zeylanica*, *Pers.*—*Guilandina Moringa*, *Linn. sp.*—*Roxb. in E. I. C. Mus.*—*Hyperanthera Moringa*, *Vahl.*—*Roxb. fl. Ind.* II. 368.—*Amoma Moringa*, *Lour.*—*Rheede* VI. t. 11.—Common in gardens in the Peninsula.

**Uses, &c.** The root of this tree is much like the English horse-raddish. The long legumes are well known as a vegetable so often used, both by Europeans and Natives, in curries. The Native practitioners prescribe the fresh root as a stimulant in paralysis and intermittent fevers, they also use it in epilepsy and hysteria, and reckon it a valuable rubefacient in palsy and chronic rheumatism. In Java the roots have been reported beneficial in dropsy. The same virtues have been ascribed to the horse-raddish of Europe. A syrup made with an infusion of which the celebrated *Dr. Cullen* is efficacious in removing hoarseness. The root has a pungent



odour and a heavy aromatic taste. Dr. Wight suggested that it would greatly increase the activity of sinapisms. An oil is prepared from the seeds which is used externally for pains in the limbs, gout and rheumatism, in the West Indies it is used as a salad oil, because it does not congeal or turn rancid. These seeds were formerly known as the *Ben nuts*, from which the oil of ben was extracted, this oil is used chiefly by perfumers and watchmakers. Both leaves and flowers are eaten in this country by the Natives. The leaves, bark and root according to Rheede are anti-spasmodic. The juice of the leaves mixed with pepper, is applied over the eyes in vertigo, and mixed with common salt, is given to children in flatulency. It is also used to hasten suppuration in boils. The bark rubbed up in rice water mixed with cummin seed is a cure for gumboils and toothache. The leaves simply warmed are applied in hydrocele, and also good for ulcers, and guinea-worm. A gum resembling tragacanth exudes from this tree if an incision be made in the bark. It is used in headache mixed with milk and externally rubbed on the temples. It is also locally applied to buboes, and venereal pains in the limbs. In Jamaica the wood is employed for dyeing a blue colour. *Ainslie. Wight. Rheede. Lindley. Pers. obs. &c.*

(452) **Mucuna gigantea** (D.C) Nat. Ord. LEGUMINOSÆ.

**Diadelphis Decandria. Ser: Syst:**

Kakavalli, MAL.

DESCR: Climbing: perennial: leaflets ovate, acute, adult ones glabrous: flowers almost umbellate, at the apex of long pendulous peduncles: pedicels long, slender: 3 lower segments of the calyx short, tooth-like, the other very short: legumes linear-oblong, deeply furrowed along the sutures, not plaited, armed with stiff stinging hairs, 3-6 seeded: seeds oval: flowers large, sulphur coloured. *Fl. Aug.—Dec.—W. & A. prod. I. 254.—Dolichos giganteus, Willd. sp.—Carpopogon giganteum, Roxb. fl. Ind. III. 187.—Stizolobium giganteum, Spreng. Syst. suppl.—Rheede. VIII. t 36.—Malabar. Coromandel. Concan.*

USES, &c. Rheede states that the virtues of this plant in rheumatism are very conspicuous. The bark pulverised and mixed with dried ginger and other ingredients rubbed over the parts affected is one of the best modes of administering it. *Rheede.*

(448) *Mucuna prurita* (Hook.)

Do.

Do.

Cowhage, ENG.  
Nalcorma, MAL.  
Poonaykalie, TAM  
Peelidagoo kails, TR

Kiwach, HIND.  
Kanchkorie, DUK.  
Alkushie, BENG.

DESCR: Annual, twining: branches pubescent or slightly hairy: leaves pinnately trifoliolate: leaflets ovate: upper side glabrous, under sprinkled with adpressed silvery hairs: racemes shorter than the leaves, drooping: pedicels shorter than the calyx: calyx cleft to the middle, white with adpressed hairs: segments broad-lanceolate: corolla papilionaceous: vexillum cordate, incumbent on the alæ: alæ oblong-linear, sometimes slightly cohering: keel straight below, slightly falcate in the upper part, terminated by an acute beak: legume slightly curved like an S, densely clothed with rigid stinging hairs, 6-seeded: flowers large, dark purple. *Fl.* Dec.—Feb.—*W. & A. prod.* I. 255.—*M. pruriens*, *Wall.*—*Dolichos pruriens*, *Roxb. in. E. I. C. Mus.*—*Carpopogon pruriens*, *Roxb. fl. Ind.* III. 283.—*Rheede VIII. t.* 85.—Peninsula. Bengal. Dheera Dhoon.

USES, &c. The root in infusion is administered in cholera, and a syrup thickened with the hairs till it is of the consistence of honey is prescribed by European practitioners as a good anthelmintic: but the Natives do not use the stinging hairs of the pods for this purpose. There is no doubt, Ainslie observes, but that it is simply by these mechanical means that the hairs act in worm cases. Neither the tincture nor decoction have the same effect. If the pods are incautiously touched they will cause an intolerable itching in the fingers. The seeds of many species are edible and reckoned equal to our beans. Of these may be enumerated the *M. monosperma* (DC.) known as the Negro Beans, a favorite vegetable with Brahmins; the *M. nivea* (Buch.) is a cultivated sort, the tender fleshy pods of which when stripped off their exterior skin make a most excellent vegetable for the table, scarcely inferior to the garden bean of Europe. The present species is a native of both Indies. In the West Indies a decoction of the root is reckoned a powerful diuretic and cleanser of the kidneys, and is also made into an ointment for Elephantiasis. The leaves are applied to ulcers, and the beans reckoned aphrodisiac. A vi-  
nous infusion of the pods (12 to a quart) is said to be a certain remedy for the dropsy. *Miller. Ainslie. Roxb. Rheede.*

**Musa paradisiaca (Linn.) Nat. Ord. MUSACEÆ.****Polygamia Monandria<sup>♂</sup>-Sex: Syst:**

Common Plantain, Eng.  
Vella, MAL.  
Valie, TAM.  
Komarettie, TEL.

Kayla, HIND.  
Kach Kula, BENG.  
Maoz, DUX.

DESCR: Herbaceous: stem simple, thickly clothed with the sheathing petioles of the leaves; leaves forming a tuft on the apex of the stem: spike of flowers compound, rising from the apex of the stem: each division enclosed in a large spathe with *male* flowers at the base: *female* or hermaphrodite ones at the upper end: perianth with 6 superior divisions, five of which are grown together into a tube, slit at the back, the 6th is small and concave: style short: fruit oblong, fleshy, obscurely 3-5 cornered with numerous seeds buried in pulp: flowers yellowish-whitish. *Fl.* All the year.—*Spreng. Syst.* I. 833.—*M. sapientum, Roxb. fl. Ind.* I. 663.—*Cor.* III. 275.—*Rheede I. t.* 12-14.—Cultivated everywhere. Chittagong.

USES, &c. This extensively cultivated plant is common to both Indies. The Ancients were acquainted with the fruit, and the name of *Pala* which is used in Pliny's description of it, is identical with the word *Vala*, which is the Malayalum name of the tree in the present day. It may not be out of place to remark here how several of the Indian vegetable products were known to the inhabitants of Europe in earlier ages. Humboldt has enumerated many of the productive plants which the Greeks were acquainted with either commercially or otherwise, I venture to transcribe the following interesting passage from the *Cosmos*, as the plantain or *bauana* is mentioned among the rest.

“More certain knowledge was transmitted to the West from the Macedonian colonies respecting those Indian products of nature and art, which had hitherto been only imperfectly known from commercial intercourse, or from the narrative of Ctesias of Cnidus, who lived 17 years at the Court of Persia as Physician to Artaxerxes Mnemon. Among the objects there made known we must reckon irrigated rice-fields, for whose cultivation Aristobulus gives special directions; the cotton tree and the fine tissues and the paper for which it furnished materials; spices and opium; wine made from rice and the juice of palms, whose sanscrit name of *tala* has been preserved in the works of Arrian; sugar from the sugar-cane, which is often confounded in the Greek and Roman writers with the

*tabasshir* of the Bamboo reed ; wool from the great *Bombax* tree ; shawls made from Thibetian goat's hair, silken tissues ; oil from the white sesamum, attar<sup>of</sup> roses, and other perfumes.

Besides the knowledge of these products, which soon became objects of universal commerce, and many of which were transported by the Seleucidæ to Arabia, the aspect of a richly embellished tropical nature speedily yielded the Greeks enjoyment of another kind. The gigantic forms of hitherto unknown animals and plants, filled their imaginations with the most exciting images. Writers whose dry scientific style is usually devoid of all imagination, became poetic when they described the characteristics of animals, as for instance elephants, as when they spoke of the height of trees, whose summit cannot be reached by the arrow in its flight, and whose leaves are larger than the shields of the infantry, of the bamboo, a light feathery tree-like grass each of whose jointed parts may serve for the many-oared keel, "or of the Indian fig tree that takes root by its branches, and whose stem has a diameter of 28 feet and which forms a leafy canopy similar to a tent supported by numerous pillars : also the noble fan-like umbrella palm, and the delicate and ever-fresh green of the cultivated banana." Probably all the cultivated varieties in this country have sprung from a single species, of which the original, according to Dr. Roxburgh was grown from seeds procured from Chittagong. A wild variety probably the *M. superba*, which is found in the Dindigul valleys, I have often met with on the mountains in Travancore, at high elevations.

In the Himalayahs it is cultivated at 5000 feet, and may be found wild on the Neilgherries at 7000 feet. It is cultivated in Syria as far as latitude 34°, but Humboldt says ceases to bear fruit at a height of 3000 feet, where the mean annual temperature is 68° and where probably the heat of summer is deficient. Lindley enumerates ten species of *Musa*, some of which grow to the height of 25 or 30 feet, but the Chinese species (*M. Chinensis* or *Cavendishii*) does not exceed 4 or 5 feet in height. The specific name of the plant under consideration was given by Botanists in allusion to an old notion that it was the forbidden fruit of Scripture : it has also been supposed to be what was intended by the grapes, one branch of which was borne upon a pole between two men that the spies of Moses brought out of the promised land. The plantain is considered very nutritious and wholesome either dressed or raw, and no fruit is so easily cultivated in tropical countries. There is hardly a cottage in India that has not its grove of plantains. The Natives live almost upon them, and the stems of the plantain, laden with their branches of fruit are invariably placed at the entrance of their houses during their marriage or other festivals, appropriate emblems of plenty and fertility. Its succulent roots and large leaves are well adapted for keeping the ground moist

even in the hottest months. The best soil for its cultivation is newly cleared forest land where there is much decayed vegetation ; additional manure will greatly affect the increase and flavor of the fruit. Some of the varieties are far inferior to the rest, the Guindy plantains are the best known in Madras, which though small, are of delicious flavor. The plant must be cut down immediately after the fruit is gathered ; new shoots spring up from the old stems, and in this way it will grow on springing up and bearing for twenty years or more. In America, and the Society Isles, the fruit is preserved as an article of trade. A meal is prepared from the fruit, by stripping off the skins slicing the core, and when thoroughly dried in the sun powdering and sifting it. It is much used in the West Indies for infants and invalids, and is said to be especially nourishing. Regarding its nutritive qualities, Professor Johnston published the following information in the Journal of the Agricultural Society of Scotland : “ We find the plantain *fruit* to approach most nearly in composition and nutritive value to the potato, and the plantain *meal* to those of rice. Thus, the fruit of the plantain gives 37 per cent., and the raw potato 25 per cent. of dry matter. In regard to its value as a food for man in our northern climates, there is no reason to believe that it is unfit to sustain life and health ; and as to warmer or tropical climates, this conclusion is of more weight. The only chemical writer who has previously made personal observations upon this point (M. Boussingault) says, ‘ I have not sufficient data to determine the nutritive value of the banana, but I have reason to believe that it is superior to that of potato. I have given as rations to men employed at hard labour about 6½ lbs. of half-ripe bananas, and 2 ounces of salt meat.’ Of these green bananas he elsewhere states that 38 per cent. consisted of husk, and that the internal eatable part lost 56 per cent. of water by drying in the sun. The composition of the ash of the plantain also bears a close resemblance to that of potato. Both contain much alkaline matter, potash, and soda salts, and in both there is nearly the same per centage of phosphoric acid and magnesia. In so far, therefore, as the supply of those mineral ingredients is concerned, by which the body is supported as necessarily as by the organic food, there is no reason to doubt the banana, equally with the potato, is fitted to sustain the strength of the animal body.”

Dried plantains form an article of commerce at Bombay and other parts of the Peninsula. They are merely cut in slices and dried in the sun, and being full of saccharine matter, make a good preserve for the table. Exports from the former place to the extent of 267 cwt. valued at rupees 1,456 were shipped in 1850-51. The juice of the unripe fruit and lymph of the stamens are slightly astringent. In the West Indies the latter has been used as a kind of marking ink.

All the species of *Musa* are remarkable for the number of the spiral vessels they contain, and one species (*M. textilis*) yields a fine kind of flax, with which a very delicate kind of cloth is fabricated. The plantain fibre is an excellent substitute for hemp in linen thread. The fine grass cloth, ship's cordage and ropes which are made and used in the South sea fisheries are made from it. The outer layers of the sheathing foot-stalks yield the thickest and strongest fibres. It is considered that there would be no difficulty in obtaining from this plant alone any required quantity of fibre, of admitted valuable quality which might be exported to Europe. It can be used with no less facility and advantage in the manufacture of paper. A profitable export made of plantain and aloe fibre has been established on the Western Coast. The best mode of preparing the fibre is thus given by Dr. Hunter.

“ Take the upright stem and the central stalk of the leaves, if the outer ones are old, stained or withered, reject them; strip off the different layers, and proceed to clean them in shade if possible, soon after the tree has been cut down. Lay a leaf stalk on a long flat board with the inner surface uppermost, scrape the pulp off with a blunt piece of hoop iron fixed in a groove in a long piece of wood. (An old iron spoon makes a very good scraper.) When the inner side, which has the thickest layer of pulp, has been cleaned turn over the leaf and scrape the back of it. When a good bundle of fibres has been thus partially cleaned and piled up, wash it briskly in a large quantity of water, rubbing it all well and shaking it about in the water, so as to get rid of all the pulp and sap as quick as possible. Boiling the fibres in an alkaline ley, (potash or soda dissolved in water) or washing with Europe soap, gets rid of the sap quickly. The common country soap, which is made with quick lime, is too corrosive to be depended upon. After washing the fibres thoroughly, spread them out in very thin layers, or hang them up in the wind to dry. Do not expose the fibres to the sun when damp, as this communicates a brownish yellow tinge to them, which cannot be easily removed by bleaching. Leaving the fibres out at night in the dew bleaches them, but it is at the expense of part of their strength; all vegetable substances are apt to rot if kept long in a damp state.”

In the Jury Reports of the Madras Exhibition it is stated, “ It yields a fine white silky fibre of considerable length, especially lighter than hemp, flax, and aloe fibre by  $\frac{1}{4}$ th or  $\frac{1}{3}$ th and possessing considerable strength. There are numerous varieties of the plantain, which yield fibres of different qualities, viz.

Rustaley, superior table plantain.

Poovaley, or small Guindy variety.

Payvaley, a pale ash coloured sweet fruit.

Monden, 3-sided course fruit.

Shevaley, large red fruit.  
Putchay Laden, or long curved green fruit.

These varieties as might be expected, yield fibres of very different quality. This plant has a particular tendency to rot and to become stiff, brittle and discolored by steeping in the green state, and it has been ascertained by trial that the strength is in proportion to the cleanness of the fibre. If it has been well cleaned, and all the sap quickly removed, it bears immersion in water as well as most other fibres, and is about the same strength as Russian hemp. The coarse large fruited plantains yield the strongest and thickest fibres, the smaller kinds yield fine fibres, suited for weaving, and if carefully prepared, these have a glossy appearance like silk. This gloss however can only be got by cleaning rapidly, and before the sap has time to stain the fibre, it is soon lost, if the plant be steeped in water."

In Dr. Royle's experiments on its strength, some prepared at Madras broke at lbs. 190, that from Singapore at lbs. 390, a 12 thread rope broke at lbs. 864; proving that it is of great strength and applicable to cordage and rough canvas. Perhaps its value in the European markets might be £50 or at any rate £35 a ton, the coarser fibres, if sent in sufficient quantity and in a proper state. Respecting the manufacture of paper from the plantain fibres, the subjoined information is selected from Dr. Royle's memorandum :

"Among cultivated plants there is probably nothing so well calculated to yield a large supply of material, fit for making paper of almost every quality, as the plantain so extensively cultivated in all tropical countries, on account of its fruit, and of which the fibre yielding stems are applied to no useful purpose. As the fruit already pays the expenses of the culture, this fibre could be afforded at a cheap rate, as from the nature of the plant, consisting almost only of water and fibre, the latter might easily be separated. One planter calculates that it could be afforded for £9 13s. 4d. per ton. Some very useful and tough kinds of paper have been made in India from the fibres of the plantain, and some of finer quality from the same material both in France and in the country."

In medicine, the root of the plant beaten up and mixed with milk is administered as a draught in vertigo, the juice of the same is diuretic. The leaves from their cooling nature are generally used to dress blisters. Long in his history of Jamaica, says, that on thrusting a knife into the body of the plant, the astringent lumped water that issues out is given with great success to persons subject to spitting blood and in fluxes. The Natives eat the stem in their curries. *Roxb. Royle. fib. Plant. Simmonds. Indian Journ. of Arts & Sciences. Rheede. Pers. obs. &c.*

(455) **Musscenda frondosa** (Linn.) N. O. CINCHONACEÆ.**Pentandria Monogynia.** *Sex: Syst:*

Belilla, MAL.

Vella Ellay, TAM.

**DESCR :** Erect shrub : leaves opposite oval, acuminate : branches and corymbs pubescent when young : corymbs terminal : calyx 5 partite : segments subulate, hirsute, one of them in some of the axillary flowers produced into a large acute pubescent or villous leaf : corolla 5 partite : petals externally hirsute : fruit at first hairy, afterwards glabrous, obovoid : flowers gold coloured. *Fl.* Nearly all the year.—*W. & A. prod.* I. 393.—*M. frondosa*, *Linn. mant.*—*M. flavescens*, *Ham. in Linn. Soc. trans.*—*Roxb. fl. Ind.* I. 557.—*Wight's Ill.* II. t. 124.—*M. Belilla*, *Ham.*—*Rheede* II. t. 18.—Courtallum. Travancore. Coromandel. Common on the Ghauts. Lower Nepaul.

**USES, &c.** The white calycine leaf contrasting with the golden coloured flower gives this shrub a conspicuous appearance. It would be a very ornamental plant if it could be introduced into gardens or open lawns in Europe. There are many varieties, differing both in pubescence and the shape of the calycine leaf. The root rubbed in plain water is applied to inflammation of the eyes. The juice of the leaves and fruit is said to remove dimness of vision. *Rheede. Wight. Pers. obs.*

(456) **Myriophyllum verticillatum** (Linn.) Nat. Ord. HALORAGÆ.**Monœcia Tetrandria.** *Sex: Syst:*

Poonatsoo, TEL.

**DESCR :** Small aquatic plant consisting of filiform roots, and jointed shoots and stems, some creeping, some floating below the water : leaves sessile, verticillate, oblong, linear-lanceolate : *male* flowers axillary, sessile, 1-4 in the verticel, smaller than the *female* : spathe 1-flowered : corolla 3-petaled : petals reflected : *female* flowers on a distinct plant, axillary, generally solitary : capsule apparently siliquose, 1-celled, 3-5 seeded : flowers small, yellow. *Fl.* Aug.—Dec.—*Roxb. H. B. p.* 12.—Bengal.

**USES, &c.** When the male flowers are ready to expand the murexed spathe bursts, the flowers are then quickly detached, and swim remote from the parent plant on the surface of the water in



search of the female flowers, resting on the extremities of the reflected leaflets of the perianth and petals of the corolla. The sugar refiners use the herb while moist to cover the surface of their sugar as clay is used in the West Indies. Two or three days suffice for the use. *Roxb.*

## N.

(457) **Naregamia alata** (*W. & A.*) Nat. Ord. MELIACEÆ.

**Monadelphica Decandria.** *Sex: Syst:*

Nela-narœgam, MAL.

**DESCR:** Small shrub, glabrous: calyx small, cup shaped, 5-cleft: petals 5, very long, strap-shaped, distinct, free: filaments united into a long slender tube that is inflated and globular at the apex: the mouth with 10 very slight anther-bearing crenatures: leaves trifoliolate: leaflets cuneate-obovate, quite entire, sessile: petiole margined: flowers on long axillary, solitary peduncles, white: capsule slightly membranaceous, 3-correred, 3-valved: seeds 2. *Fl.* April—May.—*W. & A. prod.* I. 116.—*Wight's Icon. t.* 90.—*Turroea alata*, *Wight Mss.*—*Rheede X. t.* 22.—Travancore.

**USES, &c.** This is a pretty little plant and will flower freely when introduced in gardens. It grows wild in the Travancore forests. The root and leaves are used in rheumatism, and the juice of the plant mixed with cocoanut-oil is used in cases of psora. *Rheede. Pers. obs.*

(458) **Nauclea Cadamba** (*Roxb.*) Nat. Ord. CINCHONACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Vella Cadamba, TAM.  
Rudrakshakamba, TEL.

Cuddum, HIND.  
Kudum, BENG.

**DESCR:** Large tree with a perfectly straight erect trunk: leaves opposite, between bifarious and decussate, oval, smooth, entire: petioles smooth: peduncles terminal, solitary: heads of flowers globose: calyx 5-partite: capsules 4-sided, 4-celled: seeds numerous not winged: flowers small, orange coloured, fragrant. *Fl.* April—May.—*Roxb. fl. Ind.* I. 516.—*ed. Car.* II. 121.—Bengal.

**USES, &c.** This is a large and ornamental tree. It is common about Calcutta, and is planted for the extensive shade it yields. The wood is of a yellow colour and is used for various kind of furniture. *Roxb. Jury Rep.*

(459) **Nauclaea cordifolia** (Roxb.) Do.

Do.

Manja cadamba, TAM.  
Daduga, TEL.

Kelikudum, BENG.

DESCR: Tree 40–50 feet: leaves opposite, decussate, cordate, roundish, pubescent on the upper side, tomentose on the under: general peduncles axillary, 1–3 together: partial one shorter than the general, rather longer than the globose head of flowers: calyx 5 partite: segments clavate: corolla pubescent: lobes spreading: capsule 2-celled: seeds 6, winged at the extremities: flowers small, yellow. *Fl.* Nov.—Dec.—*W. & A. prod.* I. 391.—*Roxb. fl. Ind.* I. 514.—*Cor.* I. t. 53.—Coromandel mountains. Concans. Hurdwar. Bengal. Travancore.

USES, &c. The wood is exceedingly beautiful, and like that of the box-tree. It is very close grained and is procured from 1 to 2 feet in diameter. It is good especially for furniture being light and durable. If however exposed to wet it soon decays. In Bombay the carpenters use it for planking. *Roxb. Jury Rep.*

(460) **Nauclaea parvifolia** (Roxb.) Do.

Do.

Bota-cadamic, TEL.

Neer-cadamba, TAM.

DESCR: Tree 30–40 feet, glabrous except in the axils of the nerves on the under side of the leaves: branches brachiate: leaves opposite, ovate or oval, bluntish: general peduncles opposite, terminal, bearing a pair of small deciduous leaves: partial ones scarcely so long as the globose head of flowers: limb of calyx very short, and almost truncated: lobes of corolla spreading: capsule containing 2-coeci splitting at the inner angle: flowers small, yellow. *Fl.* April—Aug.—*W. & A. prod.* I. 391.—*Roxb. fl. Ind.* I. 513.—*Cor.* I. t. 52.—*Wight's Ill.* II. 123.—*N. parviflora*, *Pres.*—*N. orientalis*, *Linn. Gærtn.*—*Cephalanthus pilulifer*, *Lam. enc.*—Coromandel. Concans. Bengal.

USES, &c. The wood of this tree is of light chestnut colour, fine and close grained. It is useful for many purposes but if exposed to wet it soon rots. It is used in Malabar for flooring, planks, packing boxes, &c. *Roxb. Jury Rep.*

(461) **Nelumbium****speciosum** (*Willd.*) Nat. Ord: NELUMBIACEÆ.**Polyandria Polygynia.** *Sex: Syst:*

Egyptian or Pythagorean Bean, ENG.  
 Tamaray, TAM.  
 Tamara, Bem-tamara, MAL.  
 Yerra-tamaray, TEL.

Lalkamal; Kungwel; Kamal;  
 Padam; Ambuj, HIND.  
 Pudmapodoo; Komol;  
 Ponghuj, BENG.  
 Kung-evelka, DUK.

**DESCR:** Aquatic: leaves orbicular, attached by their centre, glabrous; under surface pale, margins somewhat waved: peduncles longer than the petioles, erect: root-stock horizontal, fleshy, sending out many fibres from the under-surface: petioles long, rising above the surface of the water, scabrous with acute tubercles: corolla polypetalous; connectivum produced beyond the cells of the anthers into a clavate appendage: nuts loose in the hollows of the torus, 1-2 seeded: flowers large, white or rose coloured. *Fl.* Nearly all the year.—*W. & A. prod.* I. 16.—*Wight's Ill.* I. t. 9.—*Roxb. fl. Ind.* II. 647.—*Spr. Syst.* II. 634.—*Nymphæa Nelumbo*, *Linn.*—*Nelumbo nucifera*, *Gærtn*—*Tamara rubra*, *Roxb. in E. I. C. Mus.*—*Rheede* XI. t. 30, 31.—Common in tanks in the Peninsula, and other parts of India.

**USES, &c.** It is universally believed that this is the sacred *Egyptian Lotus*, which originally found its way from India, to which country it was indigenous, and the fruit of which was known as the *Pythagorean* bean. If this be the case it is a singular fact that while the plant still survives in its native country, it has died out, after the lapse of centuries in Egypt for the real Lotus is no longer found on the waters of the Nile. Up to the 17th century, it was commonly believed to be peculiar to Lower Egypt, but no one had ever met with it there. Herodotus has alluded to the plant, and indeed accurately describes it. He called it the "*Lily of the Nile*," but this must not be confounded with several species of the *Nymphæa* tribe, which are found in the Nile to the present day. Of the Lotus, he says, "There are also other lilies, like roses, that grow in the river, the fruit of which is contained in a separate pod, that springs up from the root in form very like a wasp's nest: in this there are many berries fit to be eaten, of the size of an olive stone, and they are eaten both fresh and dried." It grew abun-

dantly in all the lakes and canals. Strabo and particularly Theophrastus have both mentioned the sacred plant of Egypt, and the latter has most minutely described it, but the *savans* who accompanied Napoleon in his expedition, to that country looked in vain for it. It has long ago disappeared. The most remarkable part of the plant is the structure of the seed receptacle, which has been aptly compared to a pomegranate cut in half, or as Herodotus says, like a wasp's nest. When ripe, the seeds are loose each in their separate cell, and if shaken make a noise like a rattle. Unlike the *Nymphæa*, the stems, petioles, and flower-stems of the lotus are raised above the water, a peculiarity which may serve to distinguish it, where so many errors have been made in the specification of the two genera. In this country as well as in China and Ceylon the flowers are held especially sacred. The roots and seeds were eaten by the Egyptians in the time of Herodotus as they are now in India. It is also cultivated for the purpose. The mode of sowing the seeds is by first, enclosing them in balls of clay and then throwing them into the water. The same method was adopted by the early Egyptians. Sir J. Staunton remarked that the leaf from its structure growing entirely round the stalk has the advantage of defending both flowers and fruit arising from its centre from contact with the water. The stem never fails to ascend with the water from whatever depth, where its leaf expands, rests upon it, and often rises above it. There are several varieties with white or rose coloured flowers and with or without a prickly stem. When the tanks are dry the roots are embedded in the mud but on the appearance of the rain they burst out again and the surface of the water as if by a miracle becomes covered with the large broad leaves. As a modern writer has observed 'there is no plant in the world which possesses so much interest in an historical point of view as the Lotus. The emblem of sanctity amongst the priests of an extinct religion, four thousand years ago, it is now no longer known in the countries where once it was held sacred, and has sought refuge in the gardens and conservatories of the far off lands of the west of which the votaries of Isis never dreamt.' Dr Roxburgh says that the tender shoots of the roots between the joints are eaten by the Natives either simply boiled or in their curries. The seeds are eaten either raw, roasted or boiled. The leaves and flower-stalks abound in spiral tubes, which are extracted with great care by gently breaking the stems and drawing apart the ends: with these filaments are prepared, those wicks which are burnt by the Hindoos in the lamps placed before the shrines of their Gods. The leaves are used as substitutes for plates, and in China the seeds and slices of the root are served up in summer with ice, and the roots are laid up in salt and vinegar for the winter. In medicine the root is said to be demulcent and diuretic, and the stalks, leaves, and flowers are used by the Vytians as cooling and tonic. *Ainslie. Roxb. Loudon.*

(462) **Nerium odorum** (*Ait.*) Nat. Ord. APOCYNACEÆ.

**Pentandria Monogynia.** *Sex* : *Syst* :

Sweet scented Oleander, ENG.		Kaneer, DUK.
Tajovanna Aralce, MAL.		Kaner, HIND.
Aralee, TAM.		Lal-kharubee, BENG.
Ghenneru, TEL.		

**DESCR** : Shrub 6-8 feet : calyx 5 cleft : corolla salver shaped, throat crowned by lacerated segments : segments of the limb twisted, unequal sided : leaves linear lanceolate, 3 in a whorl, veiny beneath, with revolute edges : peduncles terminal : flowers pale-red, fragrant : follicles cylindrical. *Fl.* June—August.—*Don's Mill.* IV. 84.—*Roxb. fl. Ind.* II. 2.—*N. odoratum*, *Lam.*—*N. oleander*, *Lour. Coch.*—*Rheede IX. t.* 1-2.—Near banks of rivers. Common in gardens.

**USES, &c.** There are two or three varieties, with deep red, white, rose coloured, single and double flowers. The bark of the root is used externally as a powerful repellent and made into a paste is applied in cases of ringworm. The root itself taken internally acts as a poison. *Ainslie.*

(463) **Nyctanthes**

**Arbor tristis** (*Linn.*) N. O. JASMINACEÆ.

**Diandria Monogynia.** *Sex* : *Syst* :

Munja-pumerum, MAL.		Hursinghar, HIND.
Singahar, BENG.		Pagala-mully, TAM.

**DESCR** : Tree 15-20 feet : young shoots 4-sided : leaves opposite, short-petioled, cordate, or oblong, pointed, entire or coarsely serrate, scabrous : panicles terminal, composed of smaller 6-flowered terminal umbellets : calyx campanulate, slightly 5-notched, downy : corolla tube cylindric, as long as the calyx ; segments 5-7 : involucl of four inverse-cordate, opposite, sessile, leaflets : flowers numerous ; tube orange coloured, border white, fragrant. *Fl.* Aug.—Oct.—*Roxb. fl. Ind.* I. 86. *ed. Car.* I. 85.—*Scabrita scabra*, *Vahl.*—*S. triflora*, *L. mant.*—*Parilium Arbor tristis*, *Gaertn.*—*Rheede I. t.* 21.—Cultivated in gardens.

**USES, &c.** The flowers of this plant shed a delicious fragrance in gardens where they grow, only during the night. It is at sunset that they open, and before the morning the ground is covered with the fallen corollas. The native women collect them and

stringing them on threads wear them as necklaces or twine them in their hair. The orange coloured tubes dye a beautiful buff or orange colour with the various shades between them, according to the preparation and mode of conducting the operation, but no way has yet been discovered of rendering the colour durable. Simmonds mentions the bark of this tree among other yielding tanning substances. The tree has not been found in its wild state. In India, it is only found in gardens and is raised from seeds. *Roxb. Lindley.*

(464) **Nymphæa edulis** (DC.) Nat. Ord. NYMPHÆACEÆ.

**Polyandria Polygynia.** *Sex: Syst:*

Koteka, TEL.

Chhota-sundhi, BENG.

DESCR: Aquatic: leaves oval, quite entire, downy underneath, margin sometimes slightly waved: petiole attached a little within the margin: petals 10-15: stamens 30, in a double series: stigmas 10-15 rayed: flowers white: connectivum not prolonged: seeds numerous. *Fl.* Nearly all the year.—*W. & A. prod.* I. 447.—*N. esculenta, Roxb. fl. Ind.* II. 578.—*Castalia edulis, Salisb. in Ann. Bot.*—Bengal. Circars.

USES, &c. The tubers are much sought after by the Natives, both as an article of food and medicine. The capsule and seeds are either pickled or put into curries or ground and mixed with flour to make cakes. The flowers are nearly three inches in diameter. *Roxb.*

(465) **Nymphæa Rubra** (*Roxb.*)

Do.

*Do.*

Red flowered Water Lily, ENG.  
Yerra Kulwa, TEL.

Rukhta-chunduna, HIND.  
Buro-rukto-kumbal, BENG.

DESCR: Aquatic: sepals 4: petals numerous: leaves peltate, sharply toothed, downy but not spotted beneath: lobes diverging connectivum not prolonged: petioles inserted very near the margin of the leaf: flowers deep red: torus bottle-shaped: carpels numerous, many seeded, stigma 10-20 rayed. *Fl.* March—Aug.—*W. & A. prod.* I. 17.—*Wight's Ill.* I. 10.—*Roxb. fl. Ind.* II. 576.—*Spr. Syst.* II. 605.—Peninsula in tanks and ditches. Tanjore.

USES, &c. The roots and seeds are eaten by the Natives; and the capsules and seeds together are prepared in different ways, sometimes pickled, or put into curries, or made into cakes. A kind of starch and arrowroot is made from the underground stems and roots, and both are used as aliments as well as in medicine. In Bengal there is a small rose coloured variety with fewer stamens. This is a beautiful flower, yet neither common nor so gaudy as the Egyptian Lotus. *Roxb.*



## O.

(466) **Ocimum Basilicum** (*Linn.*) Nat. Ord. LAMIACEÆ**Didynamia Gymnosperma** *Sex: Syst:*Sweet Basil, ENG.  
Tirnoot-patchie, TAM.  
Vepoodipatsa, TEL.Subzeh, DUK.  
Kala-tulsee, Pashana Cheddee, HIND.  
Babooitulse, BENG.

DESCR: Herbaceous, erect, glabrous: leaves petiolate, ovate or oblong, narrowed at the base, slightly toothed: petioles ciliated: racemes simple: calyxes longer than the pedicels: upper teeth ovate, concave, shortly acuminate, whorls about 6, rarely 10-flowered: flowers small, white. *Fl.* Nearly all the year.—*Wight's Icon. t.* 868.—*Don's Mill.* IV. 670.—*O. pilosum*, *Benth.* and *Willd.*—*Roxb. fl. Ind.* III. 16.—*O. minimum*, *Burm.* (not *Linn.*)—*O. Basilicum*, *Burm.*—*O. hispidum*, *Lam.*—*O. ciliatum*, *Horn.*—Peninsula. Bengal. Oude. Travancore.

The varieties are ;

*a* *O. anisatum*, *Benth.*

More erect and less pilose: leaves larger, thicker and slightly toothed: corollas usually villous.—*O. Basilicum*, *Linn.*—*Roxb. fl. Ind.* III. 17.—*O. anisatum*. *Hort.*—*Soladi tirtava*, *Rheede X. t.* 87.

*b* *O. glabratum*, *Benth.*

Erect: petioles and calyxes sparingly ciliated: leaves scarcely toothed: racemes elongated, simple.—*O. integerrimum*, *Willd.*—*O. caryophyllatum*, *Roxb. H. B. fl. Ind.* III. 16.—*Goolaltulsee*, *Beng.*—*Patna*.

*c* *O. thyrsiflorum*, *Benth.*

Erect, glabrous, petioles and calyxes hardly ciliated, raceme thyrsoid branched flowers pale-pink. *Roxb. fl. Ind.* III. 15.—*Wight's Icon. t.* 868.

**USES, &c.** The whole plant is aromatic and fragrant. The seeds are cooling and mucilaginous and are said to be very nourishing and demulcent. An infusion is given as a remedy in gonorrhœa, catarrh, dysentery and chronic diarrhœa. The juice of the leaves is squeezed in the ear in ear-ache. Dr. Fleming states that the seeds are a favorite medicine with Hindoo women for relieving the after-pains of parturition. In Europe the leaves and small branches, or leafy tops are gathered for culinary purposes, and used in highly seasoned dishes. Sometimes they are introduced into salad and soups. *Don. Ainslie.*

(467) **Ocimum sanctum** (*Linn.*) Do.

*Do.*

Holy basil, **ENG.**  
Toolasee, **TAM.**  
Toolsee, **DUK.**

Niella-tirtova, Krishna toolsee, **MAL.**  
Kala-toolsie, **HIND.**  
Kalo-tulsee, **BENG.**

**DESCR :** Stems and petioles pilose : leaves petiolate, oval, obtuse, toothed, pubescent : floral leaves sessile, shorter than the pedicels : racemes slender, simple or branched at the base : calyx shorter than the pedicels, smoothish, upper-tooth obovate, concave : corolla hardly exceeding the calyx : flowers pale purple. *Fl.* Nearly all the year.—*Don's Mill.* IV. 672.—*Roxb. fl. Ind.* III. 14.—*O. hirsutum*, *Benth.*—*O. tomentosum*, *Lam.*—*O. tenuiflorum*, *Lam. Willd. (not Linn.)*—*O. frutescens*, *Burm.*—*Lummitzera tenuiflora*, *Spreng.*—*Plectranthus monachorum*, *Spreng.*—*Basilicum agreste*, *Rumph.*—*Rheede X. t.* 85.—Cultivated in gardens and near Pagodahs

**USES, &c.** The whole plant is of a dark purple colour and has a grateful smell. The root is given in decoction in fevers and the juice of the leaves in catarrhal affections in children. Also an excellent remedy mixed with lime juice, in cutaneous affections, ring-worm, &c. This shrub is considered by the Brahmins as sacred to Vishnoo. The root is made into beads and worn round the neck and arms of Vishnoo-Brahmins.

(468) **Odina wodier** (*Roxb.*) **Nat. Ord.**

**Octandria Tetragynia** *Sex: Syst:*

Woodian, **TAM.**  
Waddi gampina, **TEL.**  
Cushnulla, **HIND.**

Jiwul, **BENG.**  
Wodier Marum, **MAL.**

**DESCR :** Large tree : leaves alternate about the ends of the

branches, unequally pinnated : leaflets 3-4 pair, opposite, almost sessile, oblong-ovate, acuminate, glabrous, entire, paler below : calyx shortly 4-lobed : segments rounded : petals 5, oblong, spreading : drupe uniform, very hard, 1-celled : seeds solitary, of the same shape as the nut : racemes terminal, fascicled : flowers small, greenish yellowish, externally purplish. *Fl.* February—March.—*W. & A. prod.* I. 171.—*Wight's Icon.* I. t. 60.—*Roxb. fl. Ind.* II. 293.—*Royle Ill. t.* 31. f. 2.—*Rheede* IV. t. 32.—Coromandel mountains. Bengal. Travancore.

Uses, &c. This tree, says Dr. Wight, is one of the most commonly cultivated and best known in the Peninsula, where though far from being ornamental or useful, its quickness of growth from cuttings recommends it. The tree is planted in avenues, but yields no shade in the hot weather being without leaves till June. The wood of the old trees is close grained, of a deep reddish-mahogany colour towards the centre. The coloured part is serviceable and looks well. It is useful for ordinary work, especially for sheaths of swords, knives, &c. The bark is full of fibrous materials. A gum which exudes from the tree, is beaten up with cocoanut milk, and applied to sprains and bruises, and the pulverised bark when boiled in or mixed with oil is put to bad ulcers and wounds. The leaves boiled in oil are externally applied to bruises. *Ainslie. Wight. Roxb. Jury Report.*

(469) ***Olea dioica*** (*Roxb.*) Nat. Ord. OLEACEÆ.

***Diandria Monogynia.*** Sex: *Syst.*

Kara-vetti MAL.

| Indian olive, ENG.

DESCR: Tree: leaves opposite, oblong, remotely and acutely serrate, acuminate, smooth, on short petioles : panicles axillary and opposite below the leaves : *male* flowers numerous : calyx 4-toothed : corolla tube very short, border 4-cleft : *female* flowers on a separate tree : calyx as in the male : corolla none : drupe nearly round, 1-celled, 1-seeded : flowers small, white. *Fl.* March—April.—*Roxb. fl. Ind.* I. 106. *ed. Car.* I. 105—*Rheede* IV. t. 54.—Chittagong. Silhet. Malabar.

USES, &c. The fruit in size and colour is much like the English sloe. The timber of the tree is reckoned excellent and is much used by the Natives. The juice of the leaves mixed with milk is said to be a good emetic and is administered in bilious complaints. The *O. robusta* (*Wall.*) indigenous to Silhet furnishes the Natives in that country with a hard and durable wood. *Rheede.*

(470) **Ophelia elegans** (R.W.) Nat. Ord. GENTIANACEÆ.**Tetrandria Monogynia.** *Sex: Syst:*

DESCR: Shrub; erect, ramous above, obsoletely 4-sided: leaves sessile, narrow ovate-lanceolate, tapering to a slender point, 3-nerved; lateral nerves close to the margin: branches ascending, slender, bearing at each point lateral, few flowered cymes, forming together a large, many flowered, leafy panicle: calyx lobes narrow-lanceolate, acute, about two-thirds the length of the corolla: lobes of the corolla obovate-cuspidate: foveæ bound with longish coarse hairs: flowers pale blue. *Fl.* Aug.—Sept.—*Wight's Icon. t.* 1331.—Pulney Hills. Northern Circars.

USES, &c. A very handsome species, says Dr. Wight, 'when in full flower forming as it does a rich panicle of light blue flowers streaked with deeper coloured veins. It seems very distinct from all other species.' The stems are used as a bitter and febrifuge in the Northern Circars and are there in great request. It closely resembles the *O. chiretta*, which is brought from the slopes of the Himalayahs and which there reckoned useful as a tonic in inter-rittent fevers. Of the present species the stalks are tied up in bundles about a foot long and 3 or 4 inches in thickness. The Native name in the districts where it grows is *Salaras* or *Salajit*. It is exported to a considerable extent and is easily procured in the bazars where the plant is indigenous. The Honourable W. Elliot was the first to bring this new species of Gentian to notice. *Ind. Annals of Med. Science. Jury Rep. Mad. Ex. Wight.*

(471) **Ophiorrhiza munghos** (Linn.) N. O. CINCHONACEÆ.**Pentandria Monogynia.** *Sex: Syst:*

DESCR: Perennial 1-½ feet: stem when old suffruticose: leaves opposite, elliptic-lanceolate, acuminate at both ends, glabrous, very thin, unequal in size: calyx tube turbinate, limb 5-cleft: corolla tube infundibuliform, short, hairy within: limb 5-lobed: stamens included: capsule compressed, crowned with the calycine segments, 2-celled, 2-valved: seeds numerous, somewhat hexagonal: cymes peduncled, terminal, branched: flowers nearly sessile, white. *Fl.* Aug.—Sept.—*W. & A. prod.* I. 404.—*Roxb. fl. Ind.* I. 701—*ed. Car.* II. 544.—Dindigul. Courtallum. Travancore.

**USES, &c.** There are several varieties slightly differing in the disposition of their form of inflorescence. Dr. Wallich found the plant growing in the forests of the valleys of Nepaul though he was not quite sure whether those he gathered did not belong to a distinct species. The Malays according to Kœmpfer called the root '*earth galls*' from its intense bitterness. The root is very bitter and reported to be a powerful alexipharmic. The plant in Ceylon is accounted a good specific in snake bites; the parts used are the leaves, root and bark made into decoction and administered in doses of  $\frac{1}{2}$  an ounce. Roxburgh doubted the good qualities ascribed to it. *Ainslie. Roxb.*

(472) **Ophioxylon serpentinum** (Linn.) N.O. APOCYNACEÆ.

**Pentandria Monogynia.** Sex: Syst;

Tajovanna-amelpodi, MAL.

Chota-chand, HIND.

Chivan-amelpodi, TAM.

Chandra, BENG.

Patal-ganni, TEL.

**DESCR:** Twining: calyx 5-cleft: corolla funnel shaped, with long tube, thick in the middle, 5-cleft, limb oblique: anthers almost sessile inserted in the middle of the tube: leaves 3-4-5 in a whorl, cuneate-oblong, acute, sometimes drooping: pedicels and calyxes red: drupe black, size of a pea, twin or solitary by abortion: nut wrinkled, 1-seeded: flowers white with the tube pale rose-lilac. *Fl.* All the year.—*Don's Mill.* IV. 100.—*Roxb. fl. Ind.* I. 694.—*ed. Car.* II. 530.—*Wight's Icon.* t. 849.—*Rheede* VI. t. 47.—Peninsula. Bengal. Malabar.

**USES, &c.** Few shrubs, says Sir W. Jones, in the world are more elegant, especially when the vivid carmine of the perianth is contrasted, not only with the milk-white corolla but with the rich green berries, which at the same time embellish the fascicles. Rheede says it is always bearing, the berries and flowers appearing together at all times. The root is used internally in various disorders both as a febrifuge and for the bites of poisonous animals, such as snakes, and scorpions, the dose being a pint of the decoction every 24 hours; the powder being also applied to the parts. The juice is also expressed and dropped into the eye for the same purpose. It is also administered to promote delivery in tedious cases, acting upon the uterine system in the same manner as ergot of rye. *Roxb. Wight. &c.*

(473) **Ormocarpum**

**sennoides** (D.C.) Nat. Ord. LEGUMINOSÆ.

**Diadelphia Decandria.** Sex: Syst:

**DESCR:** Shrub 3-6 feet: young shoots, petioles, peduncles and

calyx covered with soft glutinous hairs : leaves unequally pinnated : leaflets alternate, 4-6 pair, obovate, retuse, slightly mucronulate : calyx evidently bilabiate : stamens equally diadelphous 5 and 5 : legume 2-5 jointed : joints striated, armed with minute prickly warts : corolla papilionaceous : racemes few flowered axillary : flowers yellow, fragrant. *Fl.*—Aug.—Dec.—*W. & A. prod.* I. 216.—*Wight's Icon.* I. t. 292—*Hedysarum sennoides*, *Willd. Roxb. fl. Ind.* III. 364.—H. Nalla-Kashina, *Roxb. in E. I. C. Mus.*—Circars. Vendalore.

USES, &c. The root is stimulant and tonic. The plant is found in hedges and uncultivated lands in this country.

(474) **Orthanthera**

**viminea** (*Wight.*) Nat. Ord. ASCLEPIACEÆ.

**Pentandria Digynia.** *Sex : Syst :*

DESCR: Leafless, 10 feet : corolla urceolate, 5-cleft : staminal corona none : anthers simple at the top, erect, acute : umbels on short peduncles, few-flowered : calyx 5-parted : segments subulate at the apex : corolla villous outside, glabrous within.—*Wight's Contrib. p.* 48.—*Apocynea viminea*. *Wall.*—Doab. Base of the Himalayahs.

USES, &c. The fibres are very tenacious and long and probably are well suited for making ropes. *Royle.*

(475) **Oryza sativa** (*Linn.*) Nat. Ord. GRAMINACEÆ.

**Hexandria Digynia** *Sex : Syst :*

Common Rice-plant, ENG.  
Payera, MAL.  
Neloo, TAM.

Dhan, BENG.  
Pusuel, HIND.  
Ori, cheni, TEL.

DESCR: Annual : culms numerous, jointed, round and smooth : leaves sheathing long, scabrous outside : panicles terminal : rachis common and partial, angular, hispid : flowers simple, pedicelled : calyx glume 2-valved, 1-flowered : the larger valve ending in a long hispid coloured awn : corolla 2-valved, growing to the seed. *Roxb. fl. Ind.* II. 200.—*Spreng. Syst.* II. 136.—Circars. Cultivated everywhere.

**USES, &c.** The rice plant is extensively cultivated in almost all the countries of the East under the equator requiring a summer temperature of at least 73°, humidity and heat being the indispensable conditions of its growth. It is grown in Japan, China, the Philippines, Ceylon, Siam, both shores of the Red Sea, Egypt, and Madagascar, and from these countries it has emigrated to the Coasts of Western Africa and America. The wild rice plant from which all the cultivated varieties have sprung is found in and on the borders of lakes in the Circars : and also I understand in the backwaters in Travancore, near Allepey and other places. This wild rice is never cultivated, though it is gathered and eaten by the richer classes in the Rajahmundry districts, who boil it in steam and consider it a great dainty. It sells at a high price. It is white, palatable and wholesome. A coarse kind of confection is made from it which is sold in most bazars. Rice although the commonest and cheapest kind of food in the Peninsula is far from being so universally used among the Natives of India as people are apt to imagine. Great numbers in this country do not eat it. In all the North Western provinces wheat is the principal crop and the Natives have rather a contempt for the rice-eating districts. Still it constitutes one of the most important articles of food, not only in this country but especially in America, and China. It is grown now in Italy, Spain and even slightly in Germany. 'A rice field,' said Adam Smith, 'produces a much greater quantity of food than the most fertile corn field. Two crops in the year, from 30 to 60 bushels each, are said to be the ordinary produce of an acre.' Dr. Roxburgh however states that two crops in the year from the same land do not yield much more than a single crop would ; but owing to the liability of the seasons to fail, the cultivators rear as much as possible for the first crop. This is reaped in the rainy season when the straw cannot be preserved, and as rice straw is almost the only food which the cattle have in many districts, there is an absolute necessity for sowing the second crop for fodder. Dr. Roxburgh's statement, that he never saw or heard of a farmer manuring in the smallest degree a rice field is only applicable to those districts where the soil is sufficiently rich to yield those large crops which he speaks of. In Travancore and Tinnevely and perhaps other districts the farmers invariably manure the rice fields with leaves of trees, ashes, and cowdung. The most fertile soil for rice sowing is land periodically inundated in the neighbourhood of large rivers where the plant can receive much fertilising matter from the overflowing of the streams. Yet this is not sufficient for the perfect maturity and well being of the plant, for it requires rain also, the showers falling on the plant being absolutely requisite to ensure the full development of the flowers and seeds. Rice seed is usually first sown thick and then transplanted about 40 days afterwards ; the fields must be kept constantly supplied with water : the usual time for planting out to the reaping season

is about two months. This is however not the case with all kinds: some are sown broad cast in the same place where it is intended, the seeds should ripen. In this latter case the sowing should commence about 15 days before the rains set in. There are several ways of watering the rice crops. It is generally believed that the plants cannot have too much water (provided they be not quite submerged) except for a few days before the seeds become ripe, when a drier state is requisite to perfect the maturity, and improve the quality of the grain. Of the many varieties (and there are about 40 or 50 in the Peninsula, although Moon has enumerated one-hundred and sixty-one growing in Ceylon) some require more water than others. The time of sowing depends of course upon the season, varying on either Coast according to the setting in of the periodical rains. When the rice stalks are once cut they are immediately carried off the fields, when they are stacked and left for 2 or 3 days. The farmers then proceed to thrash the grain out either by manual labour or by the help of cattle. The mode of separating the husk from the grain is by beating it with the rice stamper. This work is usually performed by women. Of late years the process of rice cleaning has been greatly simplified among Europeans by the introduction of machinery which is usually resorted to in Ceylon. Although there is no actual rotation of crops so called in rice lands, yet during the intervals of the seasons the Natives frequently sow the land with other grains, such as horse-gram, sesamum, and different kinds of peas, &c., and the stubbles of these latter are used as manure for the succeeding crops of rice. Hill-rice is sown on dry and rather elevated lands which cannot be flooded and these crops therefore must depend entirely upon the annual rains. This rice is called *Modun* in Malabar and is of no great value. On the Himalayahs it grows at considerable elevations even on the slopes of the mountains. But this is sown in places within the influence of the periodical rains, and the moisture arising from the heated vallies is very favourable to its growth. Some of the Himalayan rice (*O Nepa- lensis*) which was reared without irrigation was displayed at the Great Exhibition in 1850.

Rice in the husk which we call paddy is *Nelloo* in Tamil, *Dhan* in Dukhanie, *Oodloo* or *Urloo* in Teloo goo. The husk seed is *Ari- see* in Tamil, *Chawul* in Hindustanie and Dukhanie, *Beum* in Te- loogoo, *Arie* in Malayalum; the two great crops of rice in South- ern India are the Caar and Soombah crops the last of which is also called the Peshanum crop, and is reaped in February and March, and the Hindoo doctors assert that the produce of the dif- ferent crops have different effects when medicinally prescribed. The produce of the Peshanum crop is more appreciated for this latter purpose. On the other hand the Caar crop which is reaped in October is reckoned inferior. In the Circars the cultivators divide



the numerous varieties into two orders; the Poonas or the early sort, and the Pedda worloo, the late or great crop. Dr. Roxburgh has given ample information upon this subject. Rice is composed almost entirely of fecula and on this account although valuable for exportation, yet is not so nourishing as wheat or other cereal grains owing to the absence of gluten. It is light, wholesome and very easy of digestion, but cannot be baked into bread. Rice may be kept a very long period in the rough. After being cleaned, if it be of a good quality, and well milled, it will keep a considerable time in European climates. Mustiness however is apt to accumulate on it which should be carefully washed off, if it has been long kept. Rough rice may remain under water 24 hours without injury if dried soon after. Rice glue is made by mixing rice flour with cold water and then boiling the mixture. This conjee is used in the process of paper making, and also by weavers in dressing and preparing thread for the loom and generally used by mechanics whenever strong adhesion may be required. There is a great percentage of starch in rice more so perhaps than in wheat: sometimes as much as 85 per cent. In manufacturing rice starch on a large scale, Patna rice yields 80 per cent of marketable starch. The following is Jones's patent process for its manufacture as given in the *Pharmaceutical Journal*, "100 lbs. of rice are macerated for 24 hours in 50 gallons of the alkaline solution, and afterwards washed with cold water, drained, and ground. To 100 gallons of the alkaline solution are then to be added 100 lbs. of ground rice, and the mixture stirred repeatedly during 24 hours, and then allowed to stand for about 70 hours to settle or deposit. The alkaline solution is to be drawn off, and to the deposit cold water is to be added for the double purpose of washing out the alkali and for drawing off the starch from the other matters. The mixture is to be well stirred up, and then allowed to rest about an hour for the fibre to fall down. The liquor holding the starch in suspension is to be drawn off and allowed to stand for about 70 hours for the starch to deposit. The waste liquor is now to be removed, and the starch stirred up, blued (if thought necessary) drained, dried and finished in the usual way." Among other kinds the Patna rice is justly celebrated but perhaps the most fertile province for rice growing is Arracan, from whence great quantities of the grain are shipped to Europe from the port of Akyab, the importance of which is yearly increasing. The quantity of rice exported to various countries from the Madras territories by sea in 1855-56 was 23,13,665 quarters valued at 2,11,28,930 Rupees.

The average annual imports of rice into the United Kingdom for 4 years ending with 1852 were 40,817 tons, exclusive of 80 or 40,000 quarters in the husk. *Roxb. Ainslie. Simmonds. Commercial export of Mad. Pres. Pers. obs.*

(476) **Osbeckia aspera** (*Blume.*) N. O. MELASTOMACEÆ.**Octandria Monogynia** *Sex: Syst:* • •

Choto-phootika, BENG.

Caat-kathalee, MAL.

**DESCR:** Shrub: branches obscurely 4-angled, rough with bristles: leaves shortly petioled, oblong-ovate, or oblong lanceolate, acute, 3-nerved: upper side very bristly: under hirsute on the nerves, and harshly pubescent between them: flowers on short pedicels, terminal, somewhat racemose: calyx tube cup-shaped, clothed with rigid pubescence: segments 5, ovate-oblong: stamens 10: flowers reddish purple. *Fl.* Nearly all the year.—*W. & A. prod.* I. 323.—*Wight's Icon.* II. t. 377.—*O. glauca*, *Benth?*—*Melastoma asperum*, *Linn.*—*Rheede* IV. t. 43.—Malabar. Travancore.

**USES, &c.** The *Osbeckias* are very pretty shrubs when in flower. There are several species growing in Travancore. The *O. virgata* which is common by the roadside is easily recognized by its very small leaves and flowers. Of the present one the leaves beaten up with leaves of the pepper plant dried and pulverised are given with sugar in coughs and asthma. *Rheede. Pers. obs.*

(477) **Oxalis corniculata** (*Linn.*) N. O. OXALIDACEÆ.**Decandria Pentagynia** *Sex: Syst:*Yellow-wood Sorrel, ENG.  
Pooliaray, TAM.  
Poolichinta, TEL.Umbuti, DUK.  
Amrool, HIND.

**DESCR:** Stems decumbent, branched, radicing, leafy: stipules united to the base of the petioles: leaves palmately 3-foliate: leaves obcordate, pubescent: peduncles 2-5, but mostly 2 flowered: stamens monadelphous: sepals pubescent: petals emarginate: pistils as long as the longer stamens: capsule many seeded, densely pubescent: flowers yellow. *Fl.* Nearly all the year.—*W. & A. prod.* I. 142.—*Roxb. fl. Ind.* II. 457.—*Wight's Icon.* I. t. 18.—*O. monadelphica*, *Roxb. in E. I. C. Mus.*—*O. pusilla*, *Salisb.*—Common everywhere. Base of the Himalayahs.

**USES, &c.** The leaves, stalks and flowers are used by the Hindoos as cooling medicines, especially in dysentery. *Ainslie.*

(478) **Oxalis sensitiva** (Linn.) Do.

Do.

Bun-maranga, BENG.

Todda-vaddie, MAL.

DESCR : Stem scarcely any : leaves umbellate, irritable to the touch : leaflets 10-14 pairs, obliquely obovate or oblong, mucronulate, upper side glabrous or slightly hairy, under glaucous, glabrous with a prominent midrib and diverging veins : peduncles from among the leaves, usually several together from  $\frac{1}{2}$  as long to twice as long as the leaves : flowers numerous umbellate, yellow. *Fl.* Nearly all the year.—*W. & A. prod.* I. 142.—*Biophytum sensitivum*, DC.—*Roxb. fl. Ind.* II. 457.—*Wight's Ill.* I. t. 62. fig. 9.—*Rheede IX. t.* 19.—Common in the Peninsula. Bengal. Travancore.

USES, &c. In Java this is reckoned tonic. The plant beaten up and mixed with butter is applied to wounds and boils. Mixed with gingely oil it is also given as a drink in gonorrhœa on the Malabar Coast. *Rheede. Ainslie.*

## P.

(479) **Pandanus**  
**odoratissimus** (*Linn. fil.*) Nat. Ord. PANDANACEÆ.

Dioecia Monandria. Sex: Syst:

Caldera bush, Fragrant Screw-  
pine, ENG.  
Thalay, TAM.Kaida, or Thala, MAL.  
Mogheli, TEL.  
Keori, BENG.

DESCR: Large shrub, 10 feet or more, bushy: roots issuing from lower parts of the stem, or larger branches: leaves confluent, stem clasping, closely imbricated in 3 spiral rows round the extremities of the branches, tapering to a fine triangular point, smooth, shining; margin and back armed with sharp spines: those on the margin point towards the apex, those below in various ways: flowers male and female in terminal racemes on different plants: in *female* flowers no other corolla or calyx than the termination of the three rows of leaves forming three imbricated fascicles of white floral leaves, standing at equal distance round the base of the young fruit: fruit something in appearance like a pine-apple, orange coloured, composed of numerous drupes, detached when ripe, and covered with a deeper orange-coloured skin: interior filled with rich-looking yellow pulp, intermixed with strong fibres: seed 1, oblong, smooth: flowers small, fragrant. *Fl.* Rainy season.—*Roxb. Cor. I. t. 94-96.*—*f. Ind. III. 738.*—*Athrodactylis spinosa, Forst.*—*Rheede II. t. 8.*—Peninsula near banks of streams and water courses.

USES, &c. This large and singular looking bush is very common along the banks of the canals and backwaters in Travancore, in which places it is planted to bind the soil. The flowers are seldom visible, but the large red-fruit, much like a pine-apple, is very attractive. The flowers are very fragrant and from them is made an oil known as the *Keora oil*. The perfume is extracted chiefly from the male flowers. The floral leaves themselves are eaten either raw or boiled. The lower pulpy part of the drupes are eaten by the natives in times of scarcity. The fusiform roots are used by the basket makers to tie their work with, and also, by reason of their soft and spongy nature, for corks. There are manufactures at Cuddalore and other places where mats, baskets and hats are made from these roots and a coarse brush for

white-washing houses : when beaten out with a mallet, they open out like a soft brush. Matting and packing bags are made from them in the Mauritius and China. The leaves which abound in toughish fibres are used for matting, cordage and thatch. They are said to be good for paper-making also. The natives make with them a fine kind of mat to sleep on which they stain red and yellow. Also used for making common umbrellas. In some districts the fibres are used for making the larger kinds of hunting nets, and drag ropes of fishing nets. In Tinnevely, they are mixed with flax in small quantities for the manufacture of *gunny* and ropes, but they are not sold in their pure state. Oil impregnated with the odour of the flowers and the distilled water is esteemed stimulant and antispasmodic, and is employed in headaches, rheumatism, &c. The root is used in dysuria and the immature fruit is emmenagogue. An oil prepared from the roots is used in rheumatic complaints. There are several varieties of *Pandanus* differing chiefly in the fruit and leaves. *Rheede. Roxb. Ainslie. Jury Rep Pers. obs.*

(480) **Panicum Italicum** (*Linn.*) Nat. Ord. GRAMINACEÆ.

● **Triandria Digynia.** *Sex : Syst :*

Italian Millet, **ENG.**

Tenney, **TAM.**

Tenna, **MAL.**

Rawla, **DUK.**

Kangoo Kungnee, **BENG.**

Kora, **HIND.**

Cora, **TEL.**

**DESCR :** Culms erect, 3-5 feet, round, smooth : roots issuing from the lower joints : margins of leaves hispid : mouths of the sheaths bearded : spikes nodding : spikelets scattered : pedicels 2-4 flowered, with smooth intermediate bristles : seeds ovate. *Roxb. fl. Ind. I. 302.—ed. Car. I. 305.—Setaria Italica, Beauv.—Pennisetum Italicum, R. Br.*—Cultivated.

**USES, &c.** This is considered by the natives one of the most delicious of cultivated grains. The Brahmans, indeed all classes of natives particularly esteem it and use the seeds for cakes and porridge, &c. It is good for pastry, scarcely inferior, says Ainslie, to wheat, and, when boiled with milk makes a pleasant light diet for invalids. It is cultivated in many parts of India, requiring a dry light soil. The seed time for the first crop is in June and July ; for the second between September and February. There are several kinds of Millet cultivated in the Peninsula, among which the most celebrated are *P. miliaceum*, Willd, and *P. frumentaceum*, Roxb. of which there are several varieties. The seed of this latter is very wholesome and nourishing. It yields about forty fold in a good soil. Cattle are very fond of it, the *P. spicatum* and others. *Roxb.*

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Panicum, so named from *panis*, bread.

(481) \***Papaver somniferum** (Linn.) N. O. PAPAVERACEÆ.**Polyandria Polygynia** Sex: Syst:

Opium Poppy, ENG.  
 Casa casa, TAM.  
 Cassa cassa, TEL.

Post, HIND.  
 Pasto, BENG.

DESCR: Herbaceous, 2-3 feet: sepals 2, deciduous: petals 4: stem smooth, glaucous: leaves amplexicaul, repand, cut and toothed: teeth somewhat obtuse: capsules obovate, or glabrous: calyx glabrous: peduncles drooping: seeds numerous: flowers red, white, or purplish. *Fl.* February—March.—*W. & A. prod.* I. 17—*Roxb. fl. Ind.* II. 571.—Cultivated on high lands in Northern India.

USES, &c. The poppy is cultivated both in Europe and Asia for its flowers and seeds. The half ripe capsules wounded yield the juice which concretes into opium. From the dried capsules, the decoction, syrup, and extract of poppies are prepared. Dr. Pereira considered that the capsules are more active if gathered before becoming ripe: when full grown and just when the first change of colour is perceptible is the best time to collect them. In Great Britain, although attempts have been made to extract good opium from the plant cultivated there, yet it would appear that the results although satisfactory are not such as to render the manufacture profitable. In Turkey, Persia and Egypt it is extensively cultivated for the purpose of obtaining the opium. In Greece the seeds were used as food from the earliest times. All the parts of the poppy abound in a narcotic milky juice, which is partially extracted together with a quantity of mucilage by decoction. The heads or capsules possess anodyne properties: they are chiefly employed, boiled in water as fomentations to inflamed or ulcerated surfaces, and the syrup prepared from them with inspissated decoction is used as an anodyne for children and to allay cough, &c. The milky juice of the poppy in its more perfect state, which is the case in warm climates only, is extracted by incisions made in the capsules and inspissated; and in this state forms the opium of commerce. The white variety is the one invariably cultivated in this country. The poppy plant requires a rich soil, plenty of manuring, and frequent irrigation. The cultivation is simple enough if these three requisites be attended to. The land in the neighbourhood of streams or other supplies of water are usually chosen for the purpose. The whole quantity of land under poppy cultivation in India in 1840 did not exceed 50,000 acres, and perhaps about as many persons were employed. The chief poppy

\* For an excellent account of the cultivation and manufacture of Opium, See *Pharm. Journ.* Vol. XI. 205.

growing districts are Behar, Patna, and Malwah. In the latter district it is grown at different elevations from 2000 to 7000 feet, requiring a moderate temperature as the plant will not thrive in the plains. The Malwah opium according to Dr. Royle is the produce of the *P. glabrum*, which differs from the Bengal opium in quality and appearance. The following mode of extracting the opium is given in the Bengal Dispensatory. "Early in February and March the bleeding process commences. Three small lancet-shaped pieces of iron are bound together with cotton, about one-twelfth of an inch of the blade alone protruding, so that no discretion as to the depth of the wound to be inflicted shall be left to the operator; and this is drawn sharply up from the top of the stalk at the base, to the summit of the pod. The sets of people are so arranged that each plant is bled all over once every three or four days, the bleedings being three or four times repeated on each plant. This operation always begins to be performed about three or four o'clock in the afternoon, the hottest part of the day. The juice appears almost immediately on the wound being inflicted, in the shape of a thick gummy milk, which is thickly covered with a brownish pellicle. The exudation is greatest over night, when the incisions are washed and kept open by the dew. The opium thus derived is scraped off next morning with a blunt iron tool resembling a cleaver in miniature. Here the work of adulteration begins; the scraper being passed heavily over the seed-pod, so as to carry with it a considerable portion of the beard or pubescence, which contaminates the drug and increases its apparent quantity. The work of scraping begins at dawn, and must be continued till ten o'clock; during this time a workman will collect seven or eight ounces of what is called "*chick*." The drug is next thrown into an earthen vessel, and covered over or drowned in linseed oil, at the rate of two parts of oil to one of chick, so as to prevent evaporation. This is the second process of adulteration; the ryot desiring to sell the drug as much drenched with oil as possible, the retailers at the same time refusing to purchase that which is thinner than half-dried glue. One acre of well cultivated ground will yield from 70 to 100 pounds of chick. The price of chick varies from three to six rupees a pound, so that an acre will yield from 200 to 600 rupees worth of opium at one crop. Three pounds of chick will produce about two pounds of opium, from a third to a fifth of the weight being lost in evaporation. It now passes into the hands of the Bunniah, who prepares it and brings it to market. From twenty-five to fifty pounds having been collected is tied up in parcels in double bags of sheeting cloth, which are suspended from the ceilings so as to avoid air and light, while the spare linseed oil is allowed to drop through. This operation is completed in a week or ten days, but the bags are allowed to remain for a month or six weeks, during which period the last of the oil that can be separated comes away; the rest probably absorbs oxygen and becomes thicker, as in paint.

This process occupies from April to June or July, when rain begins. The bags are next taken down and their contents carefully emptied into large vats from ten to fifteen feet in diameter, and six or eight inches thick. Here it is mixed together and worked up with the hands five or six hours until it has acquired a uniform colour and consistence throughout, become tough and capable of being formed into masses. This process is peculiar to Malwah. It is now made up into balls of from eight to ten ounces each, these being thrown as formed into a basket full of the chaff of the seeds pod: It is next spread out on ground previously covered with leaves and stalks of the poppy; here it remains for a week or so, when it is turned over and left further to consolidate, until hard enough to bear packing. It is ready for weighing in October or November, and is then sent to market. It is next packed in chests of 150 cakes, the total cost of the drug at the place of production being about fourteen rupees per chest, including all expenses. About 20,000 chests are annually sent from Malwah, at a prime cost charge of two lacs and 80,000 rupees."

The Opium produced in Malwah differs from Bengal opium in quality and appearance as much as Turkey opium does: while the latter yields  $6\frac{1}{2}$  per cent. of Morphia, the Malwah yields 6 per cent: the Bengal half as much, but some fine specimen of Bareilly opium no less than  $8\frac{1}{2}$  per cent. of Morphia. The *P. glabrum* and *cornigeera* are the only species of the genus which can be said to belong to the Flora of India. Several causes combine to produce important effects in the quality of the drug. Among these, locality and the atmosphere, exercise a considerable influence. The dew, it is said has the effect of facilitating the flow of juice, and though increasing it in quantity, renders it of a darker colour, and more liquid than otherwise. A dry state of the atmosphere, accompanied by strong winds is a favourable condition for elaborating the juice in the capsules, and this is well known not only to the cultivators, but to the Chemists, who are aware how the chemical nature of the drug is deteriorated, or otherwise altered by the effect of soil, climate, &c.: the proportions of Narcotine and Morphia becoming changed under certain conditions. It is in the difference of their chemical constituents that Bengal opium differs so much from Turkey opium, the former possessing a much greater quantity of narcotine. Two kinds of opium are found in commerce, the Turkey and East Indian, the former solid, compact and transparent, somewhat brittle, of a dark brown colour: the latter has much less consistence, being sometimes not thicker than tar, and always ductile. In colour it is more dark, nauseous, but less bitter. It is cheaper and not so strong as the Turkey. It is often adulterated with oil of sesamum, even cowdung, the aqueous extract of the capsules, gum arabic, tragacanth, aloes, and other articles.

Indian Opium is acknowledged to be the best owing to the care



taken in its cultivation and preparation. Good opium is not perfectly soluble in water ; when it is soluble in water it is of an inferior kind. Good opium is very inflammable and burns with a clear flame, inferior kinds are not inflammable. Opium is fatal to plants acting as a poison to vegetable as well as animal substances. It is still an open question whether it can be called stimulant or sedative. It is believed that the practice of taking opium in England is more on the increase than heretofore. It enters into the composition of many quack medicines. It is the most powerful ingredient in 'Godfrey's cordial' and is also employed in other soothing medicines, such as 'Battley's sedative liquor,' 'Jeremy's sedative solution, &c.' It is always necessary on the new purchase of opium for medicinal purposes to ascertain previously both the presence as well as the amount of Morphia, some specimens being occasionally found on analysis to be perfectly destitute of that principle. The following test is given in the new Edinburgh Pharmacopœia. 'A solution from 100 grs. of fine opium macerated 24 hours, in  $\mathfrak{f}$ .  $\mathfrak{z}$ ii of water, filtered and strongly squeezed in a cloth, if treated with a cold solution of  $\mathfrak{z}$ grs. of Carbonate of Soda in two waters, yields a precipitate which weighs when dry at least 10 grs., and dissolved entirely in solution of Oxalic acid.'

The stimulant effects of opium are most apparent from small doses which increase the energy of the mind, the frequency of the pulse, &c. These effects are succeeded by languor and lassitude. In excessive doses it proves a violent and fatal poison. By habit, the effects of opium on the body are remarkably diminished. The habitual use of this drug produces the same effects as habitual dram drinking, big tumors, paralysis, stupidity, and general emaciation. In disease it is chiefly employed to mitigate pain, procure sleep and to check diarrhœa and other excessive discharges. It is also used with good effect in intermittent and other fevers. Combined with calomel it is employed in cases of inflammation from local causes such as wounds, fractures, &c. : it is also employed in small-pox, dysentery, and cholera, and many other complaints. It is taken in various ways in different countries. The Chinese both smoke and swallow it. In Turkey it is chiefly taken in pills being sometimes mixed with syrup to render it more palatable. In England, the drug is administered either in its solid state, made into pills, or as a tincture in the shape of laudanum. The natives in India take it in pills or dissolved in water. They sometimes put the seeds into sweet cakes which are eaten by the higher ranks of Hindoos at their festivals. In Upper India an intoxicating liquor is prepared by heating the capsules of the poppy with jaggery and water. The native practitioners consider it to be injurious in Typhus fever, but they administer it in intermittents, lockjaw, and in certain stages of dysentery ; externally they recommend it in

conjunction with ginger, arrack, aloes, benzoin and bdellium in rheumatic affections; they however consider after all that it merely is efficacious in giving temporary relief. The oil of the seeds is almost as good as olive oil for culinary purposes. It is also used for lamps, and is much prized by artists. At Bhopaul the oil is sold at the rate of rupees 4-8 per maund of 25 lbs. or £40-6 a ton. By mere exposure of the oil to the heat of the sun in shallow vessels, it is rendered perfectly colourless. The seeds are not narcotic nor in any way deleterious, but are eaten freely by birds. It is well known that the opium trade is one of the monopolies of Government. Great quantities are annually shipped to China although the importation is strictly prohibited by the Chinese Government. The annual exportation of this drug to China amounts to nearly 60,000 chests, valued at nearly 30,000 dollars. A chest contains about 140 lbs. According to Mr. Thornton the production of opium in Bengal, has increased within the last 10 years cent. per cent. But it is not to China alone that there is so large an export trade from this country: the drug is now consumed in almost every country in the world. The imports into the United Kingdom, of course including those from other countries beside India, were in 1852, lbs. 205,780 and the consumption about lbs. 62,521. It is sent both from Bombay and Bengal to China. Foreign opium is only admitted at a heavy duty. The total revenue realised by the opium monopoly in Bengal and Bombay is in 1849-50 was upwards of £ 3,309,637. *Roxb. Royle. Bengal Dispensatory. Ainslie. Simmonds. Penny Cycl.*

(482) **Papyrus pangorei** (*Nees.*) Nat. Ord. CYPERACEÆ.

**Triandria Monogynia.** *Sex: Syst:*

Madoorkati, BENG.

DESCR: Root perennial: culms 3-6 feet, naked, obsoletely 3-sided, smooth: leaves consisting of 2 or 3 sheaths embracing the base of the culms: umbels decomposed: umbellets subsessile: involucre about 4-leaved, one or two longer than the umbel: spikelets alternate, many flowered: seeds elliptically triangular. *Fl. Aug.*—Sept.—*Roxb. fl. Ind.* 1. 208; *ed. Car.* 1. 211.—*Wight's Contrib.* p. 88.—*Cyperus pangorei, Rottl.*—*C. tegetum, Roxb.*—Peninsula. Bengal. Common in ditches and borders of tanks.

USES, &c. The mats so common at Calcutta, and which are used for the floors of rooms, are made from this grass. When green, they are split into three or four pieces, which on drying, contract sufficiently to bring the margins in contact or to overlap each other. In this state they are wove. *Roxb.*

(483) **Pardanthus Chinensis** (Ker.) Nat. Ord. IRIDACEÆ.**Triandria Monogynia.** *Sex: Syst:*

Belam-conda-sulal-mancee, MAL.

**DESCR:** Herbaceous: stem compressed: leaves bifarious, ensiform: umbels terminal: petals 6, expanding: flowers bright yellow below, above dull orange, with scarlet dots. *Fl.* Nearly all the year.—*Roxb. fl. Ind. I.* 170.—*ed. Car. I.* 174.—*Ixia Chinensis*, *Linn. Lour.*—*Moræa Chinensis*, *Thunb.*—*Belamcanda Chinensis*, *DC.*—*Ferraria crocea*, *Salisb.*—*Rheede XI. t.* 37.—Nepaul. Common in gardens in the Peninsula.

**USES, &c.** This is a handsome flowering shrub, very ornamental in gardens. Dr. Royle found it growing wild in the Himalayah vallies. Rheede states that the whole plant boiled is applied as a lotion to the body as an antidote to every poison. The root beaten up or bruised and applied to the bite of a cobra will effect a cure. The leaves also mixed with gingely oil are applied to the parts affected for the same purpose. *Rheede.*

(484) **Paritium tiliaceum** (St. Hil.) Nat. Ord. MALVACEÆ.**Polyandria Monadelphia.** *Sex: Syst:*

Boia, BENG.

| Paroottee, MAL.

**DESCR:** Small tree: leaves crenulated, sometimes quite entire, roundish-cordate with a sudden acumination, 7-11 nerved: upper side glabrous: under hoary with pubescence: involucl 10-lobed, shorter than the calyx: capsule 5-celled, 5-valved: cells many seeded: flowers very large, sulphur with a dark blood coloured eye. *Fl.* All the year—*W. & A. prod. I.* 52.—*Wight's Icon. t.* 7.—*H. similis*, *Blume.*—*H. elatus*, *DC.*—*Hibiscus tiliaceus*, *Linn.*—*Rheede I. t.* 30.—Malabar and Travancore.

**USES, &c.** This species is common to both Indies. Forster states, that the bark is sucked in times of scarcity when bread fruit fails in the West Indies. It abounds in mucilage. The fibres of the inner bark are used in the South sea Islands. They are stronger when tarred. A line when tarred and tanned broke at 62 lbs., when white at 41 lbs. After a hundred and sixteen days maceration, their strength was much diminished. Ropes, cords and whips are made from these fibres. Fine mats are made from them in Otaheite.

(485) **Pavetta Indica** (Linn.) Nat. Ord. CINCHONACEÆ.**Tetrandria Monogynia.** Sex: Syst:

Pavuttay, TAM.

Paputta and Noonipapoota, TEL.

Kookoora-choora, BENG.

Cancra, HIND.

Malleamothe, MAL.

DESCR: Shrub 3-4 feet: calyx-tube ovate: limb 4-toothed, teeth minute, acute: corolla hypocrateriform: lobes 4 (occasionally 5), 2-3 times shorter than the tube, oval, obtuse: leaves opposite, oval-oblong, acuminate, tapering at the base, petioled: corymbs terminal and from the upper axils, their primary ramifications opposite: stamens 4 (occasionally 5): style twice the length of the corolla, glabrous: flowers white, drupe globose, crowned with the calyx: 2-celled, cells 1-seeded. *Fl.* April—May.—*W. & A. prod.* I. 431.—*Wight's Icon. t.* 148.—*P. alba*, *Vahl.*—*Ixora paniculata*, *Lam. enc.*—*I. Pavetta*, *Roxb. fl. Ind.* I. 385.—*ed. Car.* I. 395.—*Rheede V. t.* 10.—Coromandel. Malabar. Bengal. Chittagong. Silhet.

USES, &c. The bitter root has aperient qualities and is prescribed by native doctors in visceral obstructions. The fruit is made into pickles. The leaves are used for manuring fields. Boiled in water, a fomentation is made from them for hæmorrhoid pains. The root pulverised and mixed with ginger and rice water, is given in dropsy. Handles for knives are made from the roots. *Ainslie*, *Rheede*.

(486) **Pavonia odorata** (Willd.) Nat. Ord. MALVACEÆ.**Monadelphía Polyandria.** Sex: Syst:

Peramoottie, TAM.

|

Mootoo-polagum, TEL.

DESCR: Shrub 2-3 feet: calyx 5-cleft: involucl 12-leaved, ciliated, longer than the calyx: stems viscidly hairy: leaves cordate, roundish-ovate, upper ones 3-lobed, toothed, more or less hairy and viscid; lower ones sometimes entire: pedicels axillary, 1-flowered: carpels 5, 2-valved, 1-seeded, not prickly: flowers rose-coloured. *Fl.* Nearly all the year.—*W. & A. prod.* I. 47.—*Roxb. fl. Ind.* III. 214.—*Spr. Syst.* III. 99.—*P. sidoides*, *Horn. DC.*—*Hibiscus odoratus*, *Roxb. H. B.*—*H. Chittle-benda*, *Roxb. in E. I. C. mus.*—Dindigul Hills. Vendulore. Coromandel.

USES, &c. The root is used in infusion as a diet-drink among the Hindoos in fevers. It is thick as a quill and light-coloured. *Wight.*

(487) **Pavonia Zeylanica** (*Car.*) Do.

*Do.*

Sitramoottie, TAM.

Tsinna mootapolagum, TEL.

DESCR: Stem herbaceous, 1-2 feet: calyx 5-cleft: leaves of involucre 10, ciliated, longer than the calyx: lower leaves roundish cordate, crenated; upper ones deeply 3-5 lobed, coarsely toothed: pedicels axillary, 1-flowered: carpels unarmed: flowers whitish. *Fl.* July—Sept.—*W. & A. prod.* I. 47.—*Spr. Syst.* III. 99.—*Hibiscus Zeylanicus*, *Linn.*—*Roxb. fl. Ind.* III. 214 — Trichinopoly and Southern Provinces. Circars.

USES, &c. An infusion of the root is given in fevers.

(488) **Pedaliium murex** (*Linn.*) Nat. Ord. PEDALIACEÆ.

**Didynamia Angiospermia.** *Sex: Syst:*

Ana-neringie, TAM.  
Kaka-moolloo, MAL.

Yeanugapulliroo, TEL.  
Burra ghokeroo, HIND and DUK.

DESCR: Small plant, 1-2 feet: calyx 5-parted, upper segments shortest: corolla with a 3-cornered tube, and 5-lobed limb, sub-labiate: stamens 4: leaves opposite, obovate, obtuse, regularly toothed, truncate, smooth: flowers yellow on short pedicels: drupe armed with sharp spines, and containing a 2-celled, 4-winged nut: cells 2-seeded: seeds arillate: flowers axillary, solitary, yellow. *Fl.* Aug.—Nov.—*Don's Mill.* IV. 236.—*Roxb. fl. Ind.* III. 114.—*Burm. Ind. t.* 45, *f.* 2.—*Rheede.* X. *t.* 72.— Shores of Coromandel. Cape Comorin. Bombay.

USES, &c. The whole plant has an odour of musk. If the leaves when fresh are stirred in water they render it mucilaginous, and this is given as a drink in gonorrhœa. The effect however goes off in 10 or 12 hours leaving the liquid in its former

state. The seeds are administered as a decoction for the same purpose. They are diuretic and are used in dropsy. The leafy stems are used in thickening butter-milk, to which they give a rich appearance. The plant is common about Cape Comorin on the sea shores. *Don. Ainslie.*

(489) **Pentaptera Arjuna** (*Roxb.*) N. O. COMBRETACEÆ.

**Polygamia Monœcia.** *Sex: Syst:*

Cahua, HIND.

| Arjoon, BENG.

DESCR: Tree 50 feet: leaves nearly opposite, petioled oblong, acute, glabrous, entire, bi-glandular: spikes usually tern, paniced: drupe furnished with 6-7 thick coriaceous wings, flowers small, greenish white. *Fl.* April—May.—*Don's Mill.* II. 660.—*Roxb. fl. Ind.* II. 438.—*Terminalia Arjuna*, *W. & A. prod.* I. 314. *ann.*—Bengal. Surat jungles.

USES, &c. This tree yields an excellent timber. The bark is in great repute among the natives as a tonic taken internally, and a vulnerary externally applied. It is sold by most druggists in the bazaars. *Roxb. Dr. Gibson.*

(490) **Pentatropis**

**microphylla** (*W. & A.*) Nat. Ord. ASCLEPIACEÆ.

**Pentandria Digynia.** *Sex: Syst:*

Perpadagum, MAL.

| Poola-palla, TEL.

DESCR: Perennial, twining: leaves opposite, cordate, slightly acute, smooth, entire, fleshy: racemes lateral, sessile, few-flowered: flowers small, stellate, on long pedicels, greenish-red: corolla flat, 5-cleft: follicles lanceolar, flat on the inside, margins sharp, deeply and irregularly furrowed. *Fl.* July—Sept.—*Wight's Contrib.* p. 52.—*Wight's Icon.* t. 352.—*Asclepias microphylla*. *Roxb. fl. Ind.* II. 35.—*A. tenuiflora*, *Roxb. E. I. C. Mus.*—*Oxystelma caudata*, *Herb. Ham.*—*Rheede.* IX. t. 17.—Coromandel in hedges. Banks of the Jumna.

USES, &c. The juice of the leaves mixed with lime juice is given to infants in stomachic complaints and spasmodic fevers. The same mixed with oil is applied externally to sore eyes. *Rheede.*

**Phœnix farinifera** (Roxb.) Nat. Ord. PALMACEÆ.

Dioecia Hexandria. Sex: Syst:

Chiruta-ita, TEL.  
Eentha, MAL.

Eethie, TAM.

DESCR: Shrub 2-3 feet: leaves pinnate: leaflets long narrow, pointed: spathe axillary, one valved: spadix erect, much ramified: branches simple, spreading: *male* flowers, calyx 3-toothed: petals 3: stamens 6: *female* flowers, petals 3: berry black, shining. *Fl.* Jan.—Feb.—*Roxb. fl. Ind.* III. 785.—*Cor.* I. t. 74.—P. pusilla, *Gœrtn.*—Sandy situations and plains in the Deccan. Travancore.

USES, &c. The sweet pulp of the seeds of this dwarf species of late palm is eaten by the natives. The leaflets are made into mats and the petioles into baskets. A large quantity of farinaceous substance, which is found in the small stem is used as food in times of scarcity. In order to separate it from the numerous white fibres in which it is enclosed, the stem is split into 6 or 8 pieces dried, beaten in mortars and then sifted: this is then boiled to a thick gruel. It is not so nutritive as common sago, and it has a bitter taste. A better preparation might make it more deserving of attention. *Roxb.*

(492) **Phœnix paludosa**\* (*Roxb.*) Do.

Do.

Hintal, BENG.

DESCR: Small shrub 6-8 feet: trunk annulated at the base: pinnæ solitary, bifarious, ensiform, acuminate.—*Roxb. fl. Ind.* III. 789.—Sunderbunds.

USES, &c. This palm forms a striking feature of those impenetrable woods which cover vast tracts of the country, known as the Sunderbunds, at the mouth of the Hoogly. It is easily recognised by its flat solitary pinnæ, and the shape of its fruit which is sessile, on thick knobs pointing downwards, first yellow, then red, lastly black-purple, oval. "The trunks of the smaller trees serve for walking sticks and the natives have an idea that snakes get out of the way of any person having such a staff. The larger ones serve for rafters to houses and the leaves for thatch. It is an elegant palm and well adapted for bank scenery." *Roxb.*

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\* This elegant little palm is characteristic of the Sunderbunds.

(493) **Phoenix sylvestris** (Roxb.) Nat. Ord. PALMACEÆ.

Dioecia Hexandria. Sex: Syst:

Wild-date, ENG.  
Khajoor, BENG.  
Eetchum-pannay, TAM.Eeta, TEL.  
Seyndie, HIND.

DESCR: Height 30-40 feet: fronds 10-15 feet long: petioles compressed towards the apex with a few short spines at the base: pinnæ numerous, densely fasciated, ensiform, rigid: *male* spadix 2-3 feet long: spathe of the same length, separating into 2 valves: spikes numerous towards the apex of the peduncle, 4-6 inches long; slender, very flexuose: calyx cup-shaped, 3-toothed: petals longer than the calyx, ridged and furrowed on the inside: *female* spikes  $1\frac{1}{2}$  feet long not bearing flowers throughout; the lower 4-6 inches: flowers distant: petals 3, very broad: style recurved: fruit scattered on long pendulous spikes, roundish. *Fl.* March.—*Roxb. fl. Ind.* III. 787.—*Elate sylvestris*, Linn.—*Rheede* III. 22—25.  
—Common all over India.

USES, &c. This tree yields Palm-wine. But free extraction destroys the appearance and fertility of the tree, the fruit of those that have been cut for drawing off the juice being very small. The mode of drawing off the juice is, by removing the lower leaves and their sheaths and cutting a notch into the pith of the tree near the top, whence it issues and is conducted by a small channel made of a bit of the Palmyra palm-leaf into a pot suspended to receive it. On the Coast of Coromandel this palm juice is either drunk fresh from the tree, or boiled down into sugar, or fermented for distillation, when it gives out a large portion of ardent spirit, commonly called *Paria-arak* on the Coast of Coromandel. There, as well as in Guzerat, and especially in Bengal, the *Khajūr* is the only tree whose sap is much employed for boiling down to sugar, mixed more or less with the juice of the sugar-cane. At the age of from 7—10 years, when the trunk of the trees will be about 4 feet in height, they begin to yield juice, and continue productive for 20 or 25 years. It is extracted from November till February, during which period, each tree is reckoned to yield from 120 to 240 pints of juice, which averages 180 pints. Every 12 pints or pounds is boiled down to one of *Goor* or *Jagari*, and  $\frac{1}{4}$  of this, yield one of good powdered sugar, so that the average produce of each tree is about 7 or 8 pounds of sugar annually. This date sugar is not so much esteemed as cane-sugar, and sells for about one-fourth less.

A further description is given in Martin's East Indies, where he says, "a tree is fit for being cut when 10 years old, and lasts about 20 years more, during which time every other year, a notch is cut



into the stem just under the new leaves that annually shoot from the extremity. The notches are made alternately on opposite sides of the stem. The upper cut is horizontal, the lower slopes gradually inward from a point at the bottom until it meets the upper, and a leaf at this point collects into a pot, the juice that exudes. The season commences about the beginning of October, and lasts until about the end of April; after the first commencement so long as the cut bleeds, a very thin slice is daily taken from the surface. In from two to seven days the bleeding stops, the tree is allowed an equal number of days rest, and is then cut again giving daily two seers of juice. The juice when fresh is very sweet with somewhat the flavour of the water contained in a young coconut. This is slightly bitter and astringent, but at the same time has somewhat of a nauseous smell. Owing to the coolness of the season it does not readily ferment. It is therefore collected in large pots, a little ( $\frac{1}{8}$ ) old fermented juice is added, and it is exposed to the sun for about three hours, when the process is complete. A tree gives annually about 64 seers of juice or bleeds about 32 days. No sugar is made from the juice,\*  $\frac{1}{2}$  seer or a pint of the fermented juice makes some people drunk, and few can stand double the quantity. Mats for sleeping on are made of the leaves, and are reckoned the best used in the districts, and also baskets from the leaf stalks, &c." The latter are twisted into ropes, and employed for drawing water from wells in Bellary, and other places. The natives chew the fruit in the same manner as they do the areca-nut with the betel-leaf and chunam.—*Roxb. Royle. fib. plants. Martin's East Indies. Simmonds.*

(494) **Pharbitis Nil** (*Choisy*) Nat. Ord. CONVULVULACEÆ.

**Pentandria Monogynia.** *Sex; Syst:*

Neel-kalme, BENG.

DESCR: Annual, twining, hairy: leaves alternate, cordate, 3-lobed, intermediate lobe dilated at the base, downy: peduncles axillary 2-3 flowered, usually longer than the petioles: sepals ovate lanceolate, hispid at the base: flowers pale-blue, expanding in the morning and closing during the day. *Fl.* July—September.—*Don's. Mill.* IV. 262.—*Convolvulus Nil. Linn.*—*Ipomœa Nil. Roth.*—*I. cœrulea, Koen.*—*Roxb. fl. Ind.* I. 501. *ed. Car.* II. 91.—Common in most parts of India.

USES, &c. The seeds are sold in the bazaars under the name of *Kala-dana* as an effectual and safe cathartic. Thirty to forty grains of the seeds previously roasted gently, and pulverised, make a sufficient dose for an adult. This plant is a very ornamental creeper in gardens for trellis-work. *Roxb.*

\* This refers to Bengal.

(495) **Phaseolus Mungo** (Linn.) Nat. Ord. LÆGUMINOSÆ.**Diadelphia Decandria**, *Sex: Syst.*

Green Gram, ENG.

Moong, HIND.

Kali-moong, Kherooya, Bulat, BENG.

Pucha-payaroo, Ooladoo, TAM.

Woothooloo, Pessaloo, TEL.

**DESCR**: Annual, nearly erect, hairy: leaves pinnately trifoliolate: leaflets broadly ovate or rhomboid, entire: peduncles at first shorter, afterwards longer than the petioles: racemes axillary: corolla papilionaceous: flowers in a kind of cylindrical head: keel twisted to the left with a short spur near the base on the left: legume horizontal, cylindrical, slender, hairy, 6-15 seeded: seeds striated: flowers greenish yellow. *Fl.* December—January.—*W. & A. prod.* I. 245.—*Roxb. fl. Ind.* III. 292.—*P. hirtus Retz.*—*P. Max. Roxb. fl. Ind.* III. 295.—*Rheede VIII. t. 50.*—Cultivated.

**USES, &c.** This is extensively cultivated by the natives to whom the pulse is of great importance especially in times of famine. There are several varieties, one of which has dark coloured seeds and is called Black gram. Large quantities are annually exported from Madras, and shipped chiefly for Pegu, Bengal, Bombay, Mauritius, and other places. *Comm. prod. Mad. pres. Roxb.*

(496) **Phaseolus rostratus** (Wall.) Do.

Do.

Katon-paera, MAL.  
Bun-burbutee, BENG.Karalsana, TEL.  
Hullounda, HIND.

**DESCR**: Perennial, twining, nearly glabrous: leaves pinnately trifoliolate: corolla papilionaceous: leaflets ovate, acute: racemes axillary on long peduncles, few flowered, shorter than the leaves: flowers in pairs: æ variously twisted: keel with a long spirally twisted beak: legume pendulous, flat, curved, long-mucronate, many seeded, flowers large, deep rose-purple. *Fl.* Dec.—Jan.—*Wight's Icon. t. 34.*—*W. & A. prod.* I. 244.—*Wall. pl. As. rar. t. 63.*—*P. alatus, Roxb. fl. Ind.* III. 288.—*P. amarus, Roxb. in E. I. O. Mus.*—*Rheede VIII. t. 42.*—Circars. Malabar.

**USES, &c.** The tuberous roots are eaten by the natives. The whole plant pulverised and boiled with sugar and milk, is given in gonorrhœa. Also in a decoction of rice water, in flatulency and diabetes. The root scraped and mixed with sugar, sandal-wood and fresh butter is made into a liniment for sore eyes. *Rheede. J. Grah.*

(497) **Phaseolus Roxburghii** (W. & A.) Do.Mash-kulay, BENG.  
Minoomooloo, TEL.

Moong Thikeree, HIND.

**DESCR**: Annual, diffuse: leaves pinnately trifoliolate, hairy; leaflets ovate, acuminate, slightly repand, but not lobed: peduncles erect, shorter than the petioles: flowers somewhat capitate: keel twisted to the left with a very long horn near the base on the left side: legumes very hairy, cylindrical, few-seeded, nearly erect: seeds smooth, somewhat truncated at both ends: flowers yellow. *Fl. Dec.*—January.—*W. & A. prod.* I. 246.—*P. radiatus*, *Roxb. fl. Ind.* III. 296. (not Linn.)—*P. minoomoo*, *Roxb. E. I. C. Mus.*—Circars. Travancore. Malabar.

**USES, &c.** There are two other varieties with black and green seeds respectively. This is the most esteemed of all the leguminous plants, and the pulse bears 5 the highest price. Of the meal, the Natives make bread for many of their religious ceremonies. Its produce is about thirty-fold. Cattle are very fond of the straw. The root is said by Dr. Royle to contain a narcotic principle. *Roxb.*

(498) **Phaseolus trilobus** (Ait.) Do.

Do.

Mooganea, BENG.  
Pilli-pessara, TEL.

Triangguli, HIND.

**DESCR**: Herbaceous, procumbent, diffuse: petioles elongated: leaves pinnately trifoliolate: leaves much shorter than the petioles: roundish and entire, 3-lobed: middle lobe obovate, narrower towards the base: peduncles elongated, ascending: flowers few, small, capitate, yellow: legume cylindrical, glabrous or slightly hairy. *Fl. Dec.*—Jan.—*W. & A. prod.* I. 246.—*Wight's Icon.* t. 94.—*Roxb. fl. Ind.* III. 298.—*Glycine triloba*, *Linn. mant.*—*Dolichos trilobus*, *DC. Burm. Ind.*—*D. stipulaceus*, *Lam. Enc.*—Common in the Deccan and Bengal.

**USES, &c.** There are several varieties. The plant is cultivated for its seeds, which are eaten by the poorer classes. It affords good fodder. Ainslie states that the plant in Behar is given by the Vytians in decoction, in cases of irregular fever. *Roxb. Ainslie.*

(499) **Phaseolus trinervius** (Heyne.) Do.

Do.

Putsja paera, MAL.

DESCR: Twining: branches and petioles covered with long spreading or deflexed hairs: leaves pinnately trifoliolate: leaflets of rather a hard texture, ovate, acuminate, somewhat obtusely lobed at the base: young ones covered with long shining hairs, densely ciliated with short brownish hairs: peduncles elongated, straight, slightly hairy, much longer than the leaves: flowers forming a kind of cylindrical head: legume horizontal, cylindrical, hairy: flowers yellow. *Fl.* August—September.—*W. & A. prod.* 1. 245.—*Rheede* VIII. *t.* 37.—Malabar.

USES, &c. The whole of the plant in conjunction with other ingredients is used in various ways in the bites of serpents. The bark of the root is used in rheumatism in decoction and also is applied in leprosy and ulcerous affections. *Rheede.*

(500) **Phyllanthus**

**Maderaspatensis** (Linn.) N. O. EUPHORBIACEÆ.

**Monœcia Monadelphia.** *Sex: Syst:*

Neela cadambo, TAM.

| Nulla userekaf, TEL.

DESCR: Annual, 2-3 feet: leaves narrow, cuneate: calyx of female flowers 6-toothed, obtuse: of male flowers 5-toothed: flowers axillary, small, greenish. *Fl.* Nearly all the year.—*Spreng. Syst.* III. 21.—*Roxb. fl. Ind.* III. 654.—*Wight's Icon. t.* 1895.—Peninsula. Bengal. Madras.

USES, &c. The leaves in infusion are given as a drink in headaches. The plant is somewhat astringent. *Ainslie.*

(501) **Phyllanthus multiflorus** (Willd.) Do.

Do.

Poola vayr puttay, TAM.  
Nella-pooroogoodoo, TEL.

| Katou niruri, MAL.

DESCR: Shrubby: primary branches virgate, young shoots pubescent: floriferous branchlets angular: leaves nearly oval, obtuse, bifarious: flowers axillary, aggregated, several males and usually 1-female: male flowers purplish: berries 8-12 seeded, dark

purple or black, soft and pulpy, sweet tasted. *Fl.* Nearly all the year.—*Anisonema multiflora*. *R. W.*—*Wight's Icon. t.* 1899.—*Roxb. fl. Ind.* III. 664.—*Rhamnus Zeylanicus*, *Burm. Zeyl.*—*Rheede X. t.* 27.—Coromandel. Concans. Bengal.

USES, &c. A common shrub near water, climbing if it has the support of bushes. The root which is sold in the bazars is about a foot long and 2 inches thick, dark outside and sweetish tasted. It is considered alterative and attenuant, and is given in decoction, about four ounces or more twice daily. The bark is used for dyeing a reddish brown. *Ainslie. Wight.*

(502) **Phyllanthus niruri** (*Linn.*) Do.

*Do.*

Kirjaneilie, MAL.  
Sada hajur-muni, BENG.  
Kilanelly, TAM.

Neela-ooshireker, TEL.  
Bheen ounlah, DUK.

DESCR: Annual, erect, ramous: branches herbaceous, ascending: floriferous branchlets filiform: leaves elliptic, mucronate, entire, glabrous: flowers axillary: *male* flowers minute, two or three with one longer pedicelled: *female* in each axil, terminating in three transverse anthers: capsule globose, glabrous, 3-angled with 2 seeds in each cell: seed triangular: flowers minute, greenish. *Fl.* Nearly all the year.—*Wight's Icon. t.* 1894.—*Roxb. fl. Ind.* III. 659.—*Urinaria Indica*, *Burm. Zeyl.*—*Rheede X. t.* 15.—Peninsula. Travancore. Bengal.

USES, &c. The root, leaves and young shoots are used medicinally as deobstruent, and diuretic: the two first in powder or decoction in jaundice or bilious complaints: the latter in infusion in dysentery. The leaves which are bitter are a good stomachic. The fresh root is given in jaundice. Half an ounce rubbed up in a cup of milk and given morning and evening will complete the cure in a few days without any sensible operation of the medicine. The juice of the stem mixed with oil is employed in ophthalmia. The leaves and root pulverised and made into poultice with rice water are said to lessen œdematous swelling, ulcers, &c. *Roxb. Ainslie. Rheede.*

(503) **Phyllanthus simplex** (*Retz.*) Do.

*Do.*

USES, &c. The fresh leaves bruised and mixed with butter-milk, are used by the Natives to cure itch in children. *Roxb.*

(504) **Phyllanthus urinaria** (Linn.) Do.

Do.

Tsieru-kuganeli, MAL.

DESCR: Annual, herbaceous, stem 1-foot, diffuse, hispid: leaves numerous: leaflets ovate-lanceolate, hairy: flowers aggregated, axillary sessile: capsule 3-cornered, 3-valved, 3-grained: stem, leaves, and calyx reddish: flowers small, greenish. *Fl.* Nearly all the year.—*Miller's Dict.*—*Roxb. fl. Ind.* III. 660.—*Rheede X. t.* 16.—Peninsula. Bengal.

USES, &c. This plant is said to be powerfully diuretic, hence the specific name. *Ainslie.*

(505) **Physalis somnifera**

var: **flexuosa** (Nees) N. O. SOLANACEÆ.

**Pentandria Monogynia.** Sex: Syst:

Winter Cherry, ENG.  
Pevetti, MAL.  
Penerroo, TEL.

Asgund, DUK.  
Ashwa-gunda, BENG.  
Amkoolang, TAM.

DESCR: Perennial, 2-3 feet: stem 2-forked, flexuous: leaves ovate, entire, in pairs, pubescent: calyx 5-toothed: segments equal to the length of the tube: flowers axillary, crowded, nearly sessile: corolla campanulate, yellowish-green: berry small, red: size of a pea, covered with a membranaceous, angular, inflated calyx. *Fl.* Nearly all the year.—*Don's Mill.* IV. 447.—*Wight's Icon. t.* 853.—*Physalis flexuosa*, Linn.—*Willd.*—*Roxb. fl. Ind.* I. 561.—*ed. Car.* II. 240.—*Rheede IV. t.* 55.—Coromandel. Concans. Travancore. Bengal.

USES, &c. The root is said to have deobstruent and diuretic properties. The leaves moistened with warm castor-oil are useful, externally applied in cases of carbuncle. They are very bitter and are given in infusion in fevers. The seeds are employed in the coagulation of milk in making butter. The fruit is diuretic. The root and leaves are powerfully narcotic and the latter is applied to inflamed tumours, and the former in obstinate ulcers, and rheumatic swellings of the joints, being mixed with dried ginger and so applied. The Telinga physicians reckon the roots alexipharmic. *Roxb. Ainslie. Pers. obs.*

(506) **Piper nigrum** (*Linn.*) Nat. Ord. PIPERACEÆ.**Diandria Trigynia.** *Sex : Syst :*

Black-pepper vine, **ENG.**  
 Molago-codi, **MAL.**  
 Molagoo-vully, **TAM.**  
 Choca, **DUK.**

Moloovoo-kodi, **TEL.**  
 Kala-mirch, **HIND.**  
 Golmurich, **BENG.**

**DESCR :** Stem shrubby, climbing, rooting, round : leaves coriaceous, glabrous, pale glaucous beneath, adult ones revolute on the margins, the lower ones roundish-ovate, about equal sided, slightly cordate or truncated at the base, 7-9 nerved : upper ones ovate-elliptic or elliptic, usually unequal sided, acutely acuminate, 7-5 nerved : catkins hermaphrodite or female, filiform, pendulous, shortly peduncled, shorter than the leaves : berries globose, red when ripe : floriferous calycul in the hermaphrodite, 4-lobed.—*Wight's Icon.* 1934.—*Rorb. fl. Ind.* I. 150.—*ed Car.* I. 153.—*Rheede VII.* t. 12.—Malabar forests. N. Circars.

**USES, &c.** The black-pepper vine is indigenous to the forests of Malabar and Travancore. For centuries pepper has been an article of exportation to European countries from the Western Coast of India. It was an article of the greatest luxury to the Romans during the Empire, and is frequently alluded to by Historians. Pliny states its price in the Roman market as being 4s. 9d. a lb. in English money. Persius gives it the epithet *sacrum*, as it were a thing to set a store by, so much was it esteemed. Even in later ages, so valuable an article of commerce, was it considered, that when Attila was besieging Rome in the 5th century he particularly named among other things in the ransom for the city about 3000 lbs. of pepper. Although a product of many countries in the East, that which comes from Malabar is acknowledged to be the best.

Its cultivation is very simple, and is effected by cuttings or suckers put down before the commencement of the rains in June. The soil should be rich, but if too much moisture be allowed to accumulate near the roots, the young plants are apt to rot. In three years the vine begins to bear. They are planted chiefly in hilly districts, but thrive well enough in the low country in the moist climate of Malabar. They are usually planted at the base of trees which have rough or prickly bark, such as the jack, the erythrina, cashewnut, mango tree, and others of similar description. They will climb about 20 or 30 feet, but are purposely kept lower than that. During their growth it is requisite to remove all suckers, and the vine should be pruned, thinned and kept clean of weeds. After the berries have been gathered they are dried on mats in

the sun, turning from red to black. They must be plucked before they are quite ripe, and if too early they will spoil. White pepper is the same fruit freed from its outer skin, the ripe berries being macerated in water for the purpose. In this latter state they are smaller, of greyish white colour, and have a less aromatic or pungent taste. The pepper vine is very common in the hilly districts of Travancore, especially in the Cottayam, Meenachel and Chenganacherry districts, where at an average calculation about 5000 candies are produced annually. It is one of the Sircar monopolies.

Pepper contains an acrid soft resin, volatile oil, piperin, gum, bassorine, malic and tartaric acids, &c. The odour being probably due to the volatile oil, and the pungent taste to the resin. The berries medicinally used are given as stimulant and stomachic, and when toasted have been employed successfully in stopping vomiting in cases of Cholera. The root is used as a tonic, stimulant and cordial. A liniment is also prepared with them of use in chronic rheumatism. The watery infusion has been of use as a gargle in relaxation of the uvula. As a seasoner of food, pepper is well known for its excellent stomachic qualities. An infusion of the seeds is given as an antidote to arsenic, and the juice of the leaves boiled in oil externally in scabies. Pepper in over doses acts as a poison, by over exerting the inflammation of the stomach, and its acting powerfully on the nervous system. It is known to be a poison to hogs. The distilled oil has very little acrimony. A tincture made in rectified spirit is extremely hot and fiery. Pepper has been successfully used in vertigo, and paralytic and arthritic disorders. The greatest quantity of pepper comes from Sumatra. The annual produce of that Island in 1842 was 30,000,000 lbs. The duty on pepper in England is 6*d.* per lb. the wholesale price being 4*d.* per lb. White pepper varies from nine pence to one shilling per lb. The imports into the United kingdom from the various countries of the East were in

	Import lbs.	Consumption.
1850.....	8,023,319 .....	3,170,883
1851.....	3,996,496 .....	3,303,403
1852 .....	6,641,699 .....	3,524,501

It may not be irrelevant here to notice the *P. trioicum* (Roxb.) which both Dr. Wight and Miquel consider to be the original type of the *P. nigrum*, and from which it is scarcely distinct as a species. The question will be set at rest by future Botanists. The species in question was first discovered by Dr. Roxburgh, growing wild in the hills North of Samulcottah, where it is called in Tellogoo the *Murial-tiga*. It was growing plentifully about every valley among the hills delighting in a moist rich soil, and well shaded by trees; the flowers appearing in September and October,



and the berries ripening in March. Dr. R. commenced a large plantation, and in 1789 it contained about 40 or 50,000 pepper vines, occupying about 50 acres of land. The produce was great, about 1000 vines yielding from 500 to 1000 lbs. of berries. He discovered that the pepper of the female vines did not ripen properly, but dropped while green, and that when dried had not the pungency of the common pepper, whereas the pepper of those plants which had the hermaphrodite and female flowers. mixed on the same ament was exceedingly pungent and was reckoned by the merchants equal to the best Malabar pepper. *Roxb. Penny Cycl. Simmonds. Wight. Ainslie.*

(507) **Pistia stratiotes** (*Linn.*) Nat. Ord. PISTIACEÆ.

**Monadelphia Octandria.** *Sex: Syst:*

Kodda-pail, MAI  
Agasatamaray, TAM.  
Antakji-tamara, TEL.

Unter-ghungha, DUK.  
Toka-puna, HIND.

**DESCR:** Stemless, floating: roots numerous, fibrous: leaves subsessile, wedge-shaped at the base, elliptic or obovate, alternate at the base, glaucous on the upper surface, radiate-veined, about 20, spreading out: central leaves smaller than the outer ones: inner ones erect, tomentose: fibres long terminated by other plants: flowers axillary, solitary, erect, on short peduncles, white. *Fl.* April.—*Roxb. fl. Ind.* III. 131.—*Miller's Dict.* II.—*Jacq. Amer.* 234.—*Swartz obs.* 343.—*Rheede* XI. t. 32.—Tanks and ditches everywhere.

**USES, &c.** This plant is common in tanks and ditches in this country. Adamson affirms in his history of Senegal, that the primary root is fixed strongly in the bank. It was suggested by Jacquin that perhaps the young plant may be fixed at first and break loose afterwards. The plant is cooling and demulcent and is given in dysuria. The leaves are made into poultices and applied to hæmorrhoids. In Jamaica, according to Browne, it impregnates the water in hot dry weather with its particles to such a degree as to give rise to the bloody flux. The leaves mixed with rice and coconut milk are given in dysentery, and with rose-water and sugar in coughs and asthma. The root is laxative and emollient. *Rheede. Ainslie. &c.*

(508) **Plumbago rosea** (*Linn.*) Nat. Ord. PLUMBAGINACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Rose-coloured Leadwort, ENG.  
Schettie codivalie or Choovonda-  
coduvalie, MAL.  
Shencodie vaylie, TAM.

Yerracithra moolum, TEL.  
Lal-chitra, DUK.  
Rukto chita, BENG.

**DESCR:** Shrubby, perennial, stems jointed, smooth, flexuous:

branches nearly bifarious : leaves alternate, ovate, waved, smooth, entire : petioles short, stem clasping, channelled : raceme axillary and terminal, smooth : flowers bright red. *Fl.* March—July.—*Roxb. fl. Ind.* I. 463.—*ed. Car.* II. 38.—*Rheede* XII t. 9.—Peninsula. Common in gardens.

**USES, &c.** The root when bruised is acrid and stimulating : and when mixed with oil is used externally in rheumatic and paralytic affections. It is also given internally for the same complaints. In Java it is used for the purpose of blistering, exciting great inflammation, and producing less effusion than cantharides. Also a good remedy in ulcers, cutaneous diseases, rheumatism and leprosy. The leaves made into plasters are said by the Natives to be a good application to buboes and incipient abscesses.  
*Horsfield. Pers. obs.*

(509) **Plumbago Zeylanica** (*Linn.*)

*Do.*

Tumba-codivælie, MAL.		Chita, HIND.
Chitramoolum or Kodivaylie, TAM.		Chitra, BENG.
Chitturmal, DUK.		

**DESCR:** Perennial, shrubby : stems jointed, smooth, branches nearly bifarious : leaves alternate, ovate, waved, smooth, entire : racemes axillary, and terminal, covered with much glutinous hair : outer bract much larger than the lateral ones, glutinous : flowers pure white. *Fl.* Nearly all the year.—*Roxb. fl. Ind.* I. 463.—*ed. Car.* II. 38.—*Rheede* X. t. 8.—Courtallum. Travancore. Concans. Bengal.

**USES, &c.** The fresh bark bruised is made into a paste, mixed with rice-conjee and applied to buboes. It acts as a vesicatory. *Wight* says the Natives believe that the root reduced to powder and administered during pregnancy, will cause abortion. *Ainslie. Wight.*

(510) **Pæderia foetida** (*Linn.*) Nat. Ord. CINCHONACEÆ.

**Pentandria Monogynia** *Sex: Syst:*

Gundhalee, HIND.

| Gundo-bhadulee, BENG.

**DESCR:** Climbing : leaves opposite, oblong, or lanceolate, cordate at the base, glabrous : paucies axillary and opposite, or terminal : flowers sessile along the ultimate divisions : berry ovate, somewhat compressed, 2-celled, 2-seeded : calyx 5-toothed : corolla infundibuliform, hairy inside, 5-lobed : stamens almost sessile on

the middle of the tube : flowers small, white. *Fl.* December—January.—*W. & A. prod.* I. 424.—*Roxb. fl. Ind.* I. 683.—*ed Car.* II 517.—*Psychotria volubilis*, *Roxb. in E. I. C. Mus.*—*Apocynum foetidum*, *Burm. Ind.*—Peninsula. Bengal.

USES, &c. The whole plant when bruised has a fetid smell. The roots are used as emetic by the Hindoos. *Roxb.*

(511) **Pogostemon Patchouli** (*Pellet.*) N. O. LAMIACEÆ.

**Didynamia Gymnospermia** *Sex: Syst:*

Cottam, MAL.  
Kottim, TAM.

Pucha-pat or Patchouli, BENG.

DESCR: Suffruticose, 2-3 feet; pubescent: stems ascending: leaves petioled, rhombo-ovate, slightly obtuse, crenato-dentate: spikes terminal and axillary, densely crowded with flowers interrupted at the base: calyx hirsute: segments lanceolate: filaments bearded: flowers white with red stamens and yellow anthers.—*Hooker's Journ. of Bot.* I. 329.—*Benth. in DC. prod.* XII. 153. *P. intermedius*, *Benth. in Wall. cat. n.* 2327.—*Rheede X. t.* 77. —Silhet.

USES, &c. The true identification of this plant was long a matter of discussion among Botanists, but the subject has been set at rest by Sir W. Hooker, who managed to raise the plant in the Botanic gardens at Kew and which flowered there in 1849. It appears to be a native of Silhet, Penang, and the Malay Peninsula, but the dried flowering spikes and leaves of the plant, which are used, are sold in every bazar in Hindoostan. From the few scattered notices of this celebrated perfume it would appear that it is exported in great quantities to Europe and sold in all perfumers' shops. The odour is most powerful, more so perhaps than that derived from any other plant. In its pure state it has a kind of musty odour analogous to *Lycopodium*, or as some say, smelling of 'old Coats.' Chinese or Indian ink is scented by some admixture of it. Its introduction into Europe as a perfume was singular enough, accounted for in the following manner.

A few years ago, real Indian shawls bore an extravagant price, and purchasers distinguished them by their odour; in fact they were perfumed with Patchouly. The French manufacturers had for some time successfully imitated the Indian fabric, but could not impart the odour. At length they discovered the secret, and began to import this plant to perfume articles of their make, and thus palm off home spun shawls as real Indian ones. From this origin

the perfumers have brought it into use. The leaves powdered and put into muslin bags prevent cloths from being attacked by moths.

Dr. Wallich states that a native friend of his told him that the leaf is largely imported by Mogul Merchants, that it is used as an ingredient in Tobacco for smoking and for scenting the hair of women, and that the essential oil is in common use among the superior classes of the Natives for imparting the peculiar fragrance of the leaf to clothes. It is exported in great quantities from Penang. The Arab Merchants buy it chiefly, employing it for stuffing mattresses and pillows, asserting that it is very efficacious in preventing contagion and prolonging life. For these purposes no other preparation is required, save simply drying the plant in the sun, taking care not to dry it too much, lest the leaves become too brittle for packing. In Bengal it has cost Rs. 11-8 per maund, but the price varies. It has been sold as low as 6 Rupees. The drug has been exported from China to New York and from thence to England. The volatile oil is procured by distillation. The *Sachets de Patchouli*, which are sold in the shops consist of the herb coarsely powdered, mixed with cotton root and folded in paper. These are placed in drawers and cupboards to drive away moth and insects. The *P. Heyneanum*, (Benth) is probably merely a variety with larger spikes and more drooping in habit. This plant is figured in Wallich *Pl. As. Res. I. t. 31*. J. Graham states that it is found wild in the Concans. Rheedee's synonym probably is the *P. Heyneanum*, which the Natives use for perfuming purposes. *Hooker's Journ. of Bot. Pharm. Jour. VIII. 574*, and *IX. 282*. *Wallich in Med. Phys. Soc. Trans. Plant As. Rar. Simmonds. Presse's art of Perfumery.*

(512) **Poinciana pulcherrima** (Linn.) N. O. LEGUMINOSÆ

**Decandria Monogynia.** *Sex: Syst:*

Barbadoes Flowerfence, ENG.  
Tsetti mandarum, MAL.  
Myle konney, Komri, TAM.

Khurish churin, HIND.  
Krishna choora, BENG.  
Reyla, TEL.

DESCR: Shrub 8-10 feet, armed: sepals 5, obtuse, unequal, lower one vaulted: aestivation imbricative: leaves bipinnate: leaflets obovate-oblong, retuse or emarginate: calyx glabrous on both sides: petals 5, fringed, on long claws: the upper one shaped differently from the others: racemes terminal, corymbiform: style very long: legume 2-valved, several seeded: flowers orange, variegated with crimson. *Fl.* Nearly all the year.—*W. & A. prod. I. 282*.—*Roxb. fl. Ind. II. 355*.—*Cæsalpinia pulcherrima, Swartz. obs.—Rheedee VI. t. I.*—Peninsula. Common in gardens.

**USES, &c.** All parts of this plant are thought to be powerfully emmenagogue, and are frequently used for that purpose among the Negroes in the W. Indies. It makes a good hedge plant and is very ornamental in gardens from the handsome appearance of its flowers. The roots are acid and tonic and are even said to be poisonous. A decoction of the leaves and flowers has been employed with success in fevers in the W. Indies. The wood makes the best of all charcoal. The leaves are said to be purgative, and have been used as a substitute for Senna. The seeds in powder are employed as a remedy in colic pains. *Ainslie. Lindley. Macfadgen. Browne's Hist. of Jamaica.*

(513) **Polanisia felina** (DC.) Nat. Ord. CAPPARIDACEÆ.

**Polyandria Monogynia.** Sex: Syst:

Aria-veela, MAL.

**DESCR:** Small plant 1-foot or more, thickly covered, especially the leaves, with short harsh prickly hairs: leaves trifoliolate; leaflets broadly obovate, cuneate, shorter than the petiole: siliqua oblong-linear, sessile, suddenly attenuated into the style, about the length of the peduncle: flowers small, red.—*W. & A. prod.* I. 22.—*Cleome felina, Linn.—Rheede IX. t. 23.*—Courtallum.

**USES, &c.** The leaves are rough and pointed at the end on which account they have been likened to a cat's tongue. This species is more rare than the others. The leaves are tonic, and expectorant, and are used in flatulency. Their juice mixed with oil is a remedy in car-ache. *Rheede.*

(514) **Polanisia icosandra** (W. & A.) Do.

*Do.*

Nayavaylie or Nahi Kuddagho, |  
TAM.

Kat-kuddagho, MAL.  
Iloorhoorya, HIND.

**DESCR:** Small plant, 2-3 feet: stem covered with viscid glandular hairs: leaves 3-5-foliolate; leaflets obovate-cuneate or oblong, pubescent, scarcely longer than the petiole: siliqua terete, striated, rough with glandular hairs, sessile, acuminate: flowers small, yellow. *Fl.* Nearly all the year.—*W. & A. prod.* I. 22.—*Wight's Icon. t. 2.*—*P. viscosa, DC. Wall.*—*Cleome icosandra, Linn.*—*C. dodecandra, Linn* (partly)—*C. viscosa, Linn.*—Peninsula. Bengal.

Uses, &c. This plant has an acrid taste, something like mustard, and is eaten by the Natives among other herbs as a salad. The seeds are pungent and are considered anthelmintic and carminative. The leaves bruised and applied to the skin act as a sinapism. The root is used as a vermifuge in the United States. The leaves boiled in ghee are applied to recent wounds, and the juice to ulcers. The seeds are occasionally given internally in fevers and diarrhoea. *Ainslie. Lindley. Pers. obs.*

(515) **Polygonum barbatum** (Linn.) N. O. POLYGONACEÆ.

**Octandria Trigynia.** Sex: Syst:

Velutta-modela-mucu, MAL.  
Aat-alarie, TAM.

Kunda-mallier, TEL.

DESCR: Stems several, erect, slender, smooth, 3-4 feet, joints slightly swelled: leaves lanceolar, smooth: racemes terminal, long, short peduncled: fascicles remote: flowers rose-coloured, numerous: seeds triangular. *Fl.* August—September.—*Roxb. fl. Ind.* II. 289.—*Spreng. Syst.* II. 257.—*Wight's Icon. t.* 1798—Peninsula. Bengal. Malabar.

USES, &c. The leaves are used in infusion in colic. The seeds are carminative. Cattle eat it greedily. *Ainslie. Roxb.*

(516) **Pongamia glabra** (Vent.) N. O. LEGUMINOSÆ.

**Monadelphia Decandria.** Sex: Syst:

Pongam, MAL.  
Poongu marum, TAM.  
Kanoogoo, TEL.

Kurung, HIND.  
Kurunja, BENG.

DESCR: Tree: leaves unequally pinnated: leaflets opposite, 2-3 pairs, ovate, acuminate, glabrous: racemes axillary, many-flowered, about  $\frac{1}{2}$  the length of the leaves: pedicels in pairs: vexillum with 2 callosities at the base of the limb and decurrent along the claw: legume oblong, nearly sessile, thick and somewhat woody, with a short recurved beak, tumid along both sutures: calyx cup-shaped, red: corolla papilionaceous, white. *Fl.* April—May.—*W. & A. prod.* I. 262.—*Wight's Icon. t.* 59.—*Galedupa Indica, Lam. enc.*—*Roxb. fl. Ind.* III. 239.—*Dolichos arborea, Roxb. in E. I. C. Mus.*—*Robinia mitis, Linn.*—*Dalbergia arborea, Willd.*—*Rhede VI. t.* 3.—*Coromandel. Concans. Travancore.* Bengal.

USES, &c. The wood, which is light, white and firm is used for a variety of economical purposes. The leaves are eaten by cattle. The seeds yield by expression a fixed oil which the Natives use externally in eruptive diseases. Also in lamps among the poorer classes. *Roxb.*

(517) **Pontedera vaginalis** (*Linn.*) N. O. PONTEDERACEÆ.

**Hexandria Monogynia.** *Sex: Syst:*

Carim-gala, MAL.  
Nirocancha, TEL.

Nouka, BENG.

DESCR: Root perennial, creeping: leaves radical, narrow-cordate, pointed, entire, smooth; petioles sub-erect, tapering, fistulous: raceme-bearing ones tumid about the middle, opening like a spathe near the base: other ones enlarged into a sheath embracing the exterior leaves: raceme 6-12 flowered: petals 6, three exterior ones smaller, oblong: flowers bright blue. *Fl.* August—October.—*Roxb. fl. Ind.* II. 121.—*Cor.* II. t. 110.—*Rheede* XI. t. 44.—Coromandel. Concans. Bengal.

USES, &c. This plant is found on the borders of tanks or marshy places. In decoction with oil it is rubbed on the temples in eye complaints. The bark of root pulverised taken with sugar is given internally in asthma. The root simply masticated is a remedy in tooth-ache. *Rheede.*

(518) **Portulaca oleracea** (*Linn.*) N. O. PORTULACACEÆ.

**Decandria Monogynia.** *Sex: Syst:*

Common purslane, ENG.  
Puropoo keray, Corie kearay, TAM.  
Karie cheera, MAL.

Lonia, HIND.  
Buro-looniya, BENG.  
Pedda pall kuru, TEL.

DESCR: Annual, herbaceous, diffuse: leaves scattered, entire, cuneiform, fleshy: axils and joints naked: flowers sessile: petals 5: flowers small, yellow: capsule 1 celled: seeds numerous. *Fl.* August—September.—*W. & A. prod.* I. 356.—*Roxb. fl. Ind.* II. 463.—*Rheede* X. t. 36.—Common everywhere.

USES, &c. This plant is common to both Indies and there are varieties in Europe and America. In Jamaica it is given as a cooling medicine in fevers. Bruised and applied to the temples it allays heat, and such pains as occasion want of rest and sleep. *Ainalie.*

(519) **Portulaca quadrifida** (Linn.) Do.

Do.

Passellee keeray, TAM.  
Cholee, DUK.Sun pail kura, TEL.  
Neelacheera, MAL.

DESCR : Annual, diffuse, creeping, joints and axils hairy : leaves oblong, fleshy, entire, flat : flowers terminal, nearly sessile, surrounded by four leaves : petals 4 : stamens 8-12 : flowers small, yellow. *Fl.* August—September.—*W. & A. prod.* I. 356.—*P. quadrifida*, *Linn. mant.*—*Roxb. fl. Ind.* II. 464.—*P. repens*, *Roxb. E. I. O. Mus.*—*P. meridiana*, *Linn. suppl.*—*Roxb. fl. Ind.* II. 463.—*Illecebrum verticillatum*, *Burm. Ind.*—*Rheede X. t.* 31.—Peninsula.

USES, &c. According to Roxburgh this species is reckoned unwholesome and apt to produce stupefaction. The fresh leaves bruised are applied externally in erysipelas, and an infusion of them as a diuretic in dysuria : also internally in hæmorrhage. Wight says that he could perceive no difference between the two varieties except that according to Roxburgh's statement the flowers of the *P. quadrifida* expand at noon and continue open till sunset ; but that *P. meridiana*, is much used as a pot herb, and that its flowers open at noon and shut at two. *Wight. Roxb.*

(520) **Premna integrifolia** (Roxb.) N. O. VERBENACEÆ.**Didynamia Angiospermia.** *Sex: Syst:*Appel, MAL.  
Moonee-keeray, TAM.

Ghebboonellie, TEL.

DESCR : Arboreous, the trunk and older branches armed with opposite spines : unarmed ramuli, panicles and petioles pubescent : leaves short-petioled, ovate or oval, shortly and obtusely acuminate, rounded towards the base, entire, or crenato-dentate, the adult one glabrous on both sides, shining above, dull opaque beneath : panicles terminal, loosely corymbose : calyx bilabiate : the upper lip acutely bidentate, inferior oftener entire : tube of the corolla cylindrical, twice the length of the calyx : flowers small, greenish. *Fl.* April—May—*Wight's Icon. t.* 1469.—*Roxb. fl. Ind.* III. 81.—Schauer in *DC.* under *P. serratifolia*.—*P. hircina*. *Buch. nss*—*Cornutia corymbosa*, *Burm. Ind.*—*Rheede I. t.* 53.—Coromandel. Bombay.



**USES, &c.** A small tree, not unfrequently met with on the plains of India, especially towards the coast. The flowers which, but for their mass, forming large corymbs somewhat resembling the Elder, would be sufficiently inconspicuous, exhale a heavy disagreeable smell, and with their pedicels are slightly be-dewed with a viscid secretion. The root is given in decoctions as a cordial and stomachic in fevers, also the leaves, according to Rheede, beaten up with pepper and drunk in cold and fevers. The latter are also eaten by the Natives on the Coromandel Coast. The whole plant is given in decoction for pains in the head and body as well as in rheumatism. The root boiled in salt water is used in gout externally applied. *Wight. Ainslie. Rheede.*

(521) **Premna latifolia** (*Roxb.*) Do.

*Do.*

Pedda-nella-kura, TEL.

**DESCR :** Tree : leaves round, cordate, entire, smooth : corymbs axillary and terminal : throat of corolla woolly : flowers dirty yellow : drupe size of a pea, erect, wrinkled, 4-celled. *Roxb. fl. Ind. III. 76.*—*Wight's Icon. t. 869.*—Coromandel.

**USES, &c.** The wood is white and firm, and is used for many economical purposes. The leaves have a strong, but not disagreeable odour, and are eaten by the natives in their curries. The leaves of the *P. esculenta*, a native of Chittagong, are used medicinally by the people of that country. *Roxb.*

(522) **Premna tomentosa** (*Willd.*) Do.

*Do.*

**DESCR :** Small tree : ramuli, young leaves and cymes everywhere tomentose : leaves petioled, ovate or ovate-oblong, long-acuminate, entire, venoso-rugous, stellato-pubescent on both sides, sparingly above, copiously beneath : panicles large, terminal, many flowered, compact : flowers small, white. *Wight's Icon. t. 1468.*—Circular mountains. Travancore.

**USES, &c.** A common shrub, or small tree in the Coimbatore districts, flowering during the hot season. Leaves have a pale yellowish green pubescence, with which all the young parts are clothed. The wood is hard and close grained, of a brownish yellow colour well fitted for ornamental purposes. *Wight. Jury Rep.*

(523) **Prosopis spicigera** (Linn.) N. O. LEGUMINOSÆ.**Polygamia Monœcia.** Sex: SystParumbay, TAM.  
Chamee, TEL.

Shumee, BENG.

DESCR: Somewhat arboreous, armed with scattered prickles, occasionally wanting: leaves rarely simply pinnated, usually bipinnate with 1-2 pair of pinnæ: leaflets 7-10 pair, oblong, linear, obtuse, glabrous: spikes axillary, several together, elongated, filiform: legumes cylindric, filled with mealy pulp: calyx 5-toothed: petals 5, distinct: flowers small, yellow. *Fl.* December—February.—*W. & A. prod.* I. 271.—*Roxb. Cor.* I. t. 68.—*P. spicata*, *Burm. Ind.*—*Adenanthera aculeata.*—*Roxb. fl. Ind.* II 371.—Coromandel. Guzerat. Delhi.

USES, &c. In Mysore this tree attains a large size. The timber is strong, hard, straight grained and easily worked. The pods contain a great quantity of mealy sweetish substance which the natives eat. *Roxb. Jury Rep.*

(524) **Psidium pomiferum** (Linn.) N. O. MYRTACEÆ.**Æcosandria Monogynia.** Sex: Syst:Red guava, ENG.  
Lal-peyara, BENG.Malacka pela, MAL.  
Lal-sufriam, HIND.

DESCR: Arborescent: branchlets 4-angled: leaves opposite, quite entire, oval or oblong-lanceolate, pubescent beneath: calyx 5-cleft: petals 5: peduncles 3 or many flowered: fruit globose: flowers white, fragrant. *Fl.* December—January.—*W. & A. prod.* I. 328.—*Roxb. fl. Ind.* II. 480.—*Rheede* III. t. 35.—Malabar Cultivated in gardens.

USES, &c. This is a larger tree than the white guava. Many people think the fruit inferior to the latter. The fruit is somewhat astringent, this is probably improved by proper cultivation. The root and young leaves are astringent and are esteemed useful in strengthening the stomach. *Don.*

(525) **Psidium pyriferum** (Linn.) Do.

Do.

White guava, ENG.  
Pela, MAL.  
Peyara, BENG.Soopëriam, HIND.  
Jam, DUK.

DESCR: Arborescent: branchlets 4-angled: leaves opposite,

elliptical, quite entire, slightly acute, marked by the prominent nerves, densely pubescent beneath : peduncles axillary : pedicels 1-flowered : fruit turbinate, crowned with the calyx : petals 5 : flowers white, fragrant. *Fl.* November—December.—*W. & A. prod.* I. 328.—*Roxb. fl. Ind.* II. 480.—*Guaiava pyriformis, Gærtn.*—*Rheede* III. t. 84. —Malabar. Cultivated in gardens.

**USES, &c.** The white guava is the best. The wood is very hard and tough. The pulp of the fruits is sweet, and very grateful to the palate. It is used as a dessert fruit, and preserved in sugar, and guava jelly makes an excellent conserve. A bath made from the leaves is given as a sudorific in fevers. The bark and root used in decoction in visceral obstructions, dropsy and jaundice. The fruit steeped in wine vinegar is given in diarrhoea and dysentery. If eaten too freely when ripe the fruit is slightly laxative. *Rheede. Veg. subst. Pers. obs.*

(526) **Psoralea corylifolia** (*Linn.*) N. O. LEGUMINOSÆ.

**Diadelphis Decandria.** *Sex: Syst:*

Kaurkoal, MAL.  
Karpogum, TAM.  
Hakooch, BENG.

Bapunga, TEL.  
Bawchan, DUK.

**DESCR:** Herbaceous, erect, 2-feet : leaves simple, roundish-ovate, repand-toothed : racemes dense, spikelike, usually short, on long axillary solitary peduncles, pedicels much shorter than the calyx, about 3 together from each bractea : sepals 5 : legume the length of the calyx, 1-seeded, indehiscent : flowers violaceous or pale-flesh coloured. *Fl.* July—August.—*W. & A. prod.* I. 198.—*Roxb. fl. Ind.* III. 387.—*Trifolium unifolium, Forsk.*—*Burm. Ind. t. 49.*—Peninsula. Bengal.

**USES, &c.** The seeds which are somewhat ovate, and of a dark brown colour, have an aromatic and slightly bitter taste. The natives prescribe them as stomachic and deobstruent, and also use them in cases of leprosy, and other cutaneous affections. *Ainslie.*

(527) **Pterocarpus dalbergioides** (*Roxb.*) Nat. Ord. LEGUMINOSÆ.

**Diadelphis Decandria.** *Sex: Syst:*

Andaman red wood tree, ENG.

**DESCR:** Tree 40-feet, leaves unequally pinnated : leaflets about 9, alternate, ovate-lanceolate, glabrous : panicles terminal, much

branched : calyx 5-cleft : corolla papilionaceous : petals long-clawed, curled and waved on the margins : stamens diadelphous from the base upwards : legume long-stalked, surrounded by a membranaceous wing, 1 or 2-seeded : flowers yellow, fragrant. *Fl.* June—July.—*W. & A. prod.* I. 267.—*Wight's Icon.* t. 246.—*Roxb. fl. Ind.* III. 236.—Cultivated.

USES, &c. The timber has somewhat the appearance of mahogany, but coarser in grain. The root is beautifully variegated, close-grained and darker coloured than the rest of the tree. Roxburgh says the tree is a native of the Andaman islands.

(528) **Pterocarpus marsupium\*** (*Roxb.*) Do.

*Do.*

Karinthagara, MAL.  
Vengay, TAM.

Peet-shola, HIND.  
Yegis, TEL.

DESCR : Tree 40–80 feet : leaves unequally pinnated : leaflets 5–7 alternate, elliptical, usually deeply emarginate, glabrous : panicles terminal : calyx 5-cleft : corolla papilionaceous : petals long-clawed, waved or curled on the margins : stamens combined into a sheath, split down to the base on one side, and half way down the other : legume long-stalked, surrounded by a membranaceous wing, 1 or rarely 2 seeded : flowers pale yellow. *Fl.* August—September.—*W. & A. prod.* I. 266.—*Roxb. fl. Ind.* III. 234.—*Cor.* II. t. 116.—*P. bilobus*, *Don's Mill.* II. 376.—*Rheede* VI. t. 25.—Neilgherries. Concans. Travancore.

USES, &c. A reddish gum resin exudes from the bark of this tree known as one of the gum *Kinos* of commerce. It becomes very brittle on hardening and is very astringent. It is exported in considerable quantities from Malabar. The wood is employed for house building purposes and is little inferior to Teak. *Roxb. Ainslie. Dr. Gibson.*

(529) **Pterocarpus santalinus** (*Linn.*) Do.

*Do.*

Red sandal wood, ENG.  
Ooruttah chundanum, MAL.  
Segapoo shandanum, TAM.  
Kuchandanum, TEL.

Lalchundend, DUK.  
Rukhto chandun, HIND.  
Ruckta chandana, BENG.

DESCR : Tree 60 feet or more : leaves unequally pinnated :

\*The origin of E. I. kino was long unknown, the history of the discovery will be found in an interesting paper by Dr. Royle. See *Pharm. Jour.* IV. 510, and V. 498.

calyx 5-cleft : corolla papilionaceous : leaflets 8, roundish, retuse : racemes axillary, simple or branched ; petals long-clawed, waved or curled on the margins : stamens triadelphous, (5, 4, and 1,) legume 1-seeded, slightly membranaceous, waved : flowers yellow, streaked with red. *W. & A. prod.* I. 266.—*Roxb. fl. Ind.* III. 234.—Coromandel. Paulghaut mountains.

**USES, &c.** The wood is dark red with black veins, close, capable of good polish and sinking in water. It is known in commerce as the \**Red sandal wood*, which is used chiefly by dyers and colour manufacturers. Also employed to colour several official preparations such as the compound tincture of lavender, &c. This deep red colouring matter is apparently of a resinous nature. It forms beautifully coloured precipitates with many metallic solutions. It also yields a kind of dragon's blood. The wood powdered and mixed with oil is used for bathing and purifying the skin. Also given internally in hæmorrhages in powders, ground up with milk ; and externally is mixed with honey in cases of scabies. Also in certain cases of ophthalmia and sore eyes beaten up into a paste and applied to the eyes. *Roxb. Ainslie. Lindl.*

(530) **Ptychotis ajowan** (DC.) Nat. Ord. APIACEÆ.

**Pentandria Digynia.** *Sex: Syst:*

Bishops-weed seed, ENG.  
Ajwan, HIND.

Womum, TAM.  
Boro-joan, BENG.

**DESCR:** Annual : stem erect, dichotomous : calyx 5-toothed : leaves few, cut into numerous linear or filiform segments : the uppermost simply pinnate : umbel 7-9 rayed : involucre few-leaved : leaflets linear, entire : fruit strongly ribbed, covered with small blunt tubercles : flowers white. *Fl.* December—January.—*W. & A. prod.* I. 368.—*Wight's Icon. t.* 566.—*Ligusticum ajowan, Flem.*—*Roxb. fl. Ind.* II. 91.—*Athamantha adjowan, Wall.*—Cultivated all over India.

**USES, &c.** The seeds have an aromatic smell and a warm pungent taste, they are much used by the natives for medicinal and culinary purposes. They are small plants of the Umbelliferous order, and are to be met with in every market of India. *Roxb.*

\* Large quantities of red sandal-wood are exported from Madras, the billets being brought in from the low hills near Pulicat ; in Royle's *Materia Medica* the Station is erroneously printed Paulghaut, where the tree does not occur. The quantity exported in the year 1855-56 was 1,17,868 cwts. Value Rupees 1,45,805.

(531) **Pueraria tuberosa** (DC.) N. O. LEGUMINOSÆ.**Diadelphia Decandria.** *Sex: Syst:*

Daree, Goomodee, TEL.

DESCR: Twining shrub: root tuberous, very large: leaves trifoliolate, leaflets roundish, pubescent above, beneath silky-vil-  
lous: racemes simple or branched, the length of the leaves: flow-  
ers in threes: legume very hairy, linear, pointed, 2-6 seeded  
much contracted between the seeds: flowers blue. *Fl.* March—  
April.—*W. & A. prod.* I. 205.—*Wight's Icon. t.* 412.—*Hedysa-  
rum tuberosum, Roxb. fl. Ind.* III. 363.—Circars. [Malabar  
Hills.

USES, &c. A rare species, according to Roxburgh; a native of  
vallyes far up amongst the mountains. Its leaves are decidu-  
ous about the beginning of the cold season. Cataplasms are  
made from the large tuberous roots used by the natives to reduce  
swellings in the joints. *Roxb.*

(532) **Punica granatum** (Linn.) N. O. MYRTACEÆ.**Icosandria Monogynia.** *Sex: Syst:*

Pomegranate tree, ENG.  
Madalum or Magilam, TAM.  
Madala, MAL.

Dadima, TEL.  
Anar, Darim, HIND.  
Dalim or Darim, BENG.

DESCR: Tree 15-20 feet: leaves opposite, oblong-lanceolate  
calyx 5-cleft: petals 5: fruit globose crowned by the tubular  
limb of the calyx: seeds numerous, covered with a pellucid pulp:  
flowers nearly sessile, scarlet. *Fl.* Nearly all the year.—*W. &  
A. prod.* I. 327.—*Wight's Ill.* II. 99.—*Don's Mill.* II. 653.—  
*Roxb. fl. Ind.* II. 499.—Cultivated.

USES, &c. The pomegranate, according to Pliny is a native  
of Carthage as its name would denote. It is now common in  
Barbary, France and Southern Europe, and has become natu-  
ralized in this as well as many other countries of the East  
to which it has migrated. Royle states that it may be  
seen growing wild in the Himalayahs. The rind of the fruit and  
the flowers are the parts used medicinally. They are both  
powerfully astringent, and are employed successfully as gar-  
gles, in diarrhoea, &c. The pulp is sub-acid, quenching thirst, and  
gently laxative. The bark of the root is a remedy for tape-worm  
given in decoction. It sickens the stomach but seldom fails to de-  
stroy the worm. The Jews employ the fruit in their religious

ceremonies. The bark was formerly employed in dyeing leather, the yellow morocco of Tunis being still tinted with an extract from it. The flowers also were used to dye cloth a light red. The tree is easily propagated by cuttings. The longevity of the tree is said to be remarkable, some at Versailles being nearly 200 years old. There are several varieties, those with the yellow-flowers being most rare. *Don. Ainslie. Royle. Veg. subst.*

(533) **Pyrrhosia Horsfieldii** (*Blume.*) N. O. MYRISTICACEÆ.

**Diœcia Monœlphia.** *Sex: Syst:*

Wild nutmeg, ENG.

| Caat-jadica, TAM.

**DESCR:** Tree: leaves alternate, oblong, acute, veined rusty pubescent underneath: flowers capitate, panicled. *Spreng.—Wight's Icon. t. 1857.*—*Horsfieldia odorata, Willd.*—*Myristica Horsfieldia, Spreng.*—Travancore forests.

**USES, &c.** The mace of the wild nutmeg has not the same virtues of as that of the common one. Mixed with honey it is administered in coughs and pectoral affections but generally in combination with other ingredients. *Pers. obs.*

(534) **Putrangiva**

**Roxburghii** (*Wall.*) Nat. Ord. EUPHORBIACEÆ.

**Diœcia Pentandria.** *Sex: Syst:*

Wild-olive, ENG.  
Kudra-juree, TEL.

| Pongolam, MAL.

**DESCR:** Tree: leaves alternate, narrow oblong serrulate: flowers triandrous, small, yellowish-white: drupe ovate, size of a gooseberry. *Fl. March—April.—Wight's Icon. t. 1876.—J. Grah. cat. 196.—Royle Ill. t. 100.—Nageia putranjiva, Roxb. fl. Ind. III. 766.—Rheede VII. t. 59.*—Coromandel mountains. Concans. Oude. Belgaum. Base of the Himalayahs.

**USES, &c.** This is an ornamental tree and worthy of being planted in gardens. The wood is white, close grained and very hard. *Rheede* says that it has virtues in driving away colds, fevers, &c. This plant was referred to the order Myricaceæ both by *Wallich* and *Royle*, but there is no longer any doubt that it belongs to the order as above given. *Roxb. J. Grah. Ainslie.*

## R.

(535) **Randia dumetorum** (*Lam.*) Nat. Ord. CINCHONACEÆ.**Pentandria Monogynia.** *Sex* : *Syst* :Marukarung, TAM.  
Mangha, TEL.

Myn, HIND.

DESCR : Shrub 6–10 feet, armed : spines opposite : leaves almost sessile, oval, cuneate at the base, when young, slightly pubescent : flowers axillary, solitary, terminal on the young shoots, on short pedicels : calyx campanulate, 5 parted : lobes oblong : corolla hirsute on the outside : tube with a ring of dense hairs inside near the base : fruit usually globose, sometimes oblong, crowned with the limb of the calyx, 2 celled, many seeded : flowers white. *Fl.* April.—*W. & A. prod.* I. 396.—*Don's Mill.* III. 500.—*Wight's Icon.* t. 580.—*Gardenia dumetorum*, *Retz.*—*Roxb. Cor.* II. t. 136.—*G. spinosa*, *Linn. Suppl.*—*Posoqueria dumetorum*, *Roxb. fl. Ind.* I. 713.—*ed. Car.* II. 564.—*Ceriscus Malabaricus*, *Gærtn.*—Coromandel. Mahableshtar.

USES, &c. According to Dr. Wight the habit of this plant is extremely variable, as it grows in a poor or rich soil. The size of the fruit varies from that of a small cherry to as large as a walnut. The shrub is employed for fences in the places of its natural growth. The fruit bruised and thrown into ponds where fish are, they are soon intoxicated and seen floating. Fishermen frequently adopt this plan to catch fish ; nor are the latter less wholesome to eat afterwards. The fruit is used as an emetic. The bark of the root in infusion is used in the Southern Provinces as a nauseating Medicine. *Roxb.*



(586) **Ranunculus****sceleratus** (Linn.) N. O. RANUNCULACEÆ.**Polyandria Polygynia.** Sex: Syst:

DESCR: Annual 1-2 feet: stem erect, smooth, piped: leaves tripartite and ternate, with leaflets divided above, sessile, ternate and simple, smooth on both sides: flowers terminal, small, yellow: calyx spreading slightly woolly on the outside: seeds sessile on a cylindric receptacle, oval, laterally compressed. Fl. December—January.—R. Indicus, Roxb. fl. Ind. II. 671.—Bengal. Scinde.

USES, &c. Besides the *R. aquatilis*, (Linn.) a variety of which has been found about Saharunpore, this is the only species of crowfoot hitherto discovered in the plains of tropical India. The Natives have no name for it, nor do they use it. It is a very acrid plant: when applied fresh quickly producing a blister. It is a Native of Bengal where it appears in shady places during the cold season, a straggler from some temperate countries. Roxb. Wight.

(587) **Rhinacanthus communis** (Nees.) N. O. ACANTHACEÆ.**Diandria Monogynia.** Sex: Syst:

Nagamully, TAM.  
Pul-culli, Peelcolue, MAL.  
Nargamollay, TEL.

Palek-joohie, HIND.  
Jooi-pona, BENG.

DESCR: Shrub 4-5 feet: stem erect, green, shrubby: young shoots jointed: leaves opposite, broad lanceolate, short petioled, a little downy below, entire: panicles corymbiform, axillary and terminal, trichotomous: peduncles and pedicels short, round, a little downy: corolla with a long slender compressed tube: under lip broad, 3-cleft: upper one erect, linear, sides reflected, apex bifid: flowers small, white. Fl. March—April.—Wight's Icon. t. 464.—Roxb. fl. Ind. I. 120.—ed. Car. I. 121.—*Justicia Nasuta*, Linn.—*Rheede IX. t. 69.*——Travancore. Mahableswhar.

USES, &c. The fresh root and leaves bruised and mixed with lime juice are reckoned a useful remedy in ringworm and other cutaneous affections. Milk boiled on the root is reckoned aphrodisiacal by Native doctors, and as such is often employed. The roots are used in the bites of poisonous snakes. Ainslie. Roxb.

(538) **Ricinus communis** (Linn.) N. O. EUPHORBIAEAE.**Monoclea Monadelphia.** *See: Syst:*

Castor-oil plant, ENG.  
Sittamunak or Valluk, TAM.  
Citavanakoo, Avanak or Pan-  
diavanak, MAL.

Sittamindi, or Amidum, TEL.  
Erundie, DUK.  
Arend, HIND.  
Bherenda, BENG.

**DESCR:** Height 8–10 feet: root perennial: stem round, thick, jointed, channelled, glaucous, purplish red colour upwards: leaves alternate, large, deeply divided into 7 segments, on long tapering purplish stalks: spikes glaucous springing from the divisions of the branches: the *males* from the lower part of the spike, the *females* from the upper: capsules prickly: seeds oval, shining, black dotted with grey. *Fl.* Nearly all the year.—*Roxb. fl. Ind.* III. 689.—*R. speciosus*, *Burm. Ind.*—*Rheede.* II. t. 32.—Cultivated.

**USES, &c.** There are two varieties of the Castor-oil plant which are known respectively as *fructibus majoribus and minoribus*. The oil of the former differs from the medicinal Castor-oil in having a heavy disagreeable smell probably owing to the seeds being toasted previous to boiling, for the purpose of extracting the oil. The colour too is darker and the nature is more gross. The real Castor-oil used in medicine is from the small seeded variety. The lamp-oil of the former like the Castor-oil is of a purgative nature, but chiefly employed for lamps and in horse medicine. The mode of preparation is given in the report on the fixed vegetable oils sent to the Madras Exhibition as follows. “The seeds having been partially roasted over a charcoal fire, both to coagulate the albumen and to liquify the oil, are then pounded and boiled in water until the oil rises to the surface. The roasting process, however, gives it a deeper red colour and an empyreumatic odour. The price of this oil varies in different parts of the country from Rupees 1-10-0 to 3-13-6 per maund of 25 lbs., during the last six years the average amount of exports from Madras of this oil amounted to 27,561 gallons.” Castor-oil was known in very early times to the Egyptians and is mentioned in the second book of Herodotus. The plant is supposed to be indigenous to Barbary. In hot countries it is a perennial, in cold ones an annual or biennial plant. The skin of the seeds consists of three coverings and it was for a long time believed even by Humboldt, that the embryo of the seeds was the seat of the purgative principle alone, and that if that part were removed the seeds might safely be eaten. It has now however been proved that although the

active principle may exist in a greater quantity in the embryo, yet that it is found more or less throughout the entire seed. The use of the oil depends in a great degree upon several circumstances such as the mode of extraction, the maturity or otherwise of the seeds in the plant, from whence they are procured, and so on. Other seeds too are frequently mixed with them. The application of heat was formerly resorted to in the extraction of the oil, and is still occasionally used, though quite unnecessary. The following is the process given by Ainslie for making a fine kind of Castor-oil for domestic purposes. "Take five seers of the small Castor-oil nuts and soak them for one night in cold water; next morning strain the water off and put the nuts into more water and boil them in it for two hours, then strain off. The nuts are then to be dried in the sun for 8 days after which to be well bruised in a mortar. Add to the nuts thus bruised 10 measures of water and put on to boil, stirring it all the time until all the oil appears at the top: then carefully strained off and being allowed to cool it will be fit for use. The quantity of nuts mentioned in the above recipe should yield one bottle of oil. If cocoanut water be used instead of common water the oil has a paler and finer colour."

Another way of preparing the oil is given in the report of the Juries on the fixed vegetable oils sent to the Madras Exhibition. "The fresh seeds after having been sifted and cleaned from dust, stones, and extraneous matters are slightly crushed between two rollers, freed by hand from husks and coloured grains, and enclosed in clean gunny. They then receive a slight pressure in an oblong mould which gives a uniform shape and density to the packets of seed. The "Bricks" as they are technically called, are then placed alternately with plates of sheet iron in the ordinary screw or hydraulic press. The oil thus procured is received in clean tin pans, and water in the proportion of a pint to a gallon of oil being added, the whole is boiled until the water has evaporated, the mucilage will be found to have subsided and encrusted at the bottom of the pan, whilst the albumen solidified by the heat, forms a white layer between the oil and the water. Great care must be taken on removing the pan from the fire, the instant the whole of the water has evaporated, which may be known by the bubbles having ceased, for if allowed to remain longer, the oil which has hitherto been of the temperature of boiling water or  $212^{\circ}$ , suddenly rises to that of oil or nearly  $600^{\circ}$ , thereby heightening the colour and communicating an empyreumatic taste and odour. The oil is then filtered through blanket, flannel, or American drill, and put into cans for exportation. It is usually of a light straw colour, sometimes approaching to a greenish tinge. The cleaned seeds yield from 47 to 50 per cent. of oil, worth in England from 4d. to 6d. per lb."

## ROSTELLARIA.

In France the fresh seeds are bruised and then put into a cold press. The oil thus expressed is allowed to stand some time to permit the albumen, mucilage, &c., to subside, or it is filtered to separate them more rapidly. The produce is equal to  $\frac{1}{4}$  of the seeds employed and the oil possesses all its natural qualities. The oils made in France and Italy are much weaker than those procured from tropical countries. Another mode of obtaining the oil is to macerate the bruised seeds in cold alcohol by which 6oz. of oil are procured from every lb. of the seeds. Castor-oil is soluble in pure sulphuric ether and alcohol. It also combines easily with alkaline leys by which is formed a test of its purity. It is one of the best ways of overcoming the repulsive taste by mixing the oil with an alkaline ley, which alters the appearance of the oil but does not destroy its purgative powers. Other ways of rendering the oil less unpleasant are by using lime juice, orange peel, coffee, gin, or an emulsion of the yolk of egg. Castor-oil is a mild laxative medicine; and among the Hindoos is used as a remedy in cutaneous affections externally applied. It is particularly recommended in rheumatism, lumbago, and habitual constipation, piles, and other diseases of the rectum. Alone or mixed with turpentine it is efficacious in expelling worms. Air should always be excluded to prevent rancidity although when rancid, it may be purified by calcined magnesia. The bark of the root is a powerful purgative and when made into a ball about the size of a lime in conjunction with chillies and tobacco leaves is an excellent remedy for gripes in horses. In Jamaica the oil is considered a valuable external remedy in cramps, pains arising from cold, &c. The leaves heated and applied to the breasts and kept on for 12 or 24 hours will not fail to bring abundance of milk after child-birth. The same applied to the abdomen will promote the menstrual discharge. The seeds are used by the dyers to mix with colours and render them permanent. The leaves are a favorite food of some silk-worms.

The average amount of export of Castor-oil from Madras for 1849-53 amounted to 11,325 gallons. The chief quantities however for the London markets are shipped from Calcutta and Bombay. The imports from India in 1840-43 were 3,267,972 lbs. In 1841, 12,406 maunds of Castor-oil were shipped from Calcutta alone, and 7,906 maunds in 1842. *Ainslie. Simmonds. Penny. Cytol. Jury Rep. Pers. obs.*

(589) **Rostellaria procumbens (Nees.) N. O. ACANTHACEÆ.**

**Diandria Monogynia. Ser: Syst:**

Nereipoottie, TAM.

Nakapootta chittoo, TEL.

**DESCR:** Shrub 7-8 feet: stem spreading, jointed, 5-angled, often rooting at the joints: leaves linear, lanceolate, opposite, sub-

sessile, entire, a little downy : spikes terminal, erect, four-sided : flowers opposite, decussate, rose-coloured : upper divisions of calyx very minute : tube of corolla short : upper lip erect, 2-cleft : under lip broad, 3-parted : capsule four-seeded : 2 in each cell. *Fl.* Nearly all the year.—*Wight's Icon. t.* 1589.—*Roxb. fl. Ind. I.* 132.—*ed. Car. I.* 133.—*Justicia procumbens, Linn.*—Peninsula

USES, &c. This shrub is very common on pasture ground on the Coromandel Coast. The juice of the leaves squeezed into the eyes is a remedy in ophthalmia. *Ainslie. Roxb.*

(540) **Rottlera tinctoria\*** (*Roxb.*) Nat. Ord. EUPHORBACEÆ.

**Diacia Icosandria.** *Sex: Syst:*

Ponnagam, MAL.  
Capilapodie, TAM.  
Vassuntagunda, TEL.

Camul, HIND.  
Toong, BENG.

DESCR: Tree middling size : leaves alternate, oblong, acuminate, entire, 3-nerved, glabrous above, pubescent below : petioles pubescent : racemes axillary, single, or terminal ones compound : flowers scattered : *male* tree, calyx 2-cleft : sepals reflected : corolla none : stamens inserted into the base of the calyx ; *female* tree, calyx 4-toothed : styles 3, feathery : capsule roundish 3-furrowed, 3-celled, 3-valved, size of a pea covered with red powder : seeds solitary.—*Roxb. Cor. II.* 168.—*fl. Ind. III.* 827.—*Rheede V. t.* 21.—Concans. Travancore. Coromandel. Mysore.

USES, &c. The mealy powder covering the capsules yields a dye called *Kamila* dye, which is used as a vermifuge, and whose action according to Dr. Royle depends on the minute stellate hairs found in the powder. *Kamila* is the powder rubbed off the capsules and which is also found, though in smaller quantities on the leaves and stalks of the plant. The powder is of a rich red colour, and has a heavy odour. The dye is used all over India especially for silk to which it imparts a fine yellow colour. It is rarely used for cotton. When the capsules are ripe in February or March they are gathered ; the red powder is carefully brushed off and collected for sale, no preparation being necessary. This substance is scarcely acted on by water and has no particular taste. To spirit it gives a rich deep orange, inclining to red. Neither spirit nor alkaline solution dissolve it, for the minute grains of powder are seen

\*For a careful report on the colouring matter—see Anderson in *Ed. Phil Jour.* April 1858, and for its vermifuge properties—see *Indian Annals of Medical Science.*

adhering to the sides of the vessels if shaken, about the size of small grains of sand. Alum added to the alkaline infusion renders the colour more bright and permanent. The Hindoo silk dyers use the following method. Four parts of powder, one of powdered alum, two of salts of soda (sold in the Bazaars) rubbed well together with a small quantity of oil of sesamum. When well mixed it is boiled in water proportionate to the silk to be dyed and kept boiling smartly according to the shade required, turning the silk frequently to render the colour uniform. The leaves and fruit beaten up with honey are made into a poultice applied to bites of poisonous animals. Of the dye which is called *Cupela-Rung* in Hindustanee the Jurors at the Madras Exhibition reported as follows. "The tree is widely spread over the Madras Presidency, and large supplies of the dye might be easily obtained. The colouring matter does not require a mordant, all that is necessary being to mix it with water containing about half its weight of carbonate of soda. On silk the colour is a rich flame or orange tint of great beauty and extreme stability," and "the fact that the material supplied by commerce, contains between 70 and 80 per cent. of real colouring matter ought to induce the silk dyers of this country to turn their attention to it." *Rheede. Roxb. Jury Rep.*

(541) **Rubia cordifolia** (Linn.) Nat. Ord. CINCHONACEÆ.

**Tetrandria Digynia.** *Sex: Syst:*

Bengal Madder, ENG.  
Manjittee or Sawil codie, TAM.  
Mandestie, TEL.

Munjith, aroona, BENG.  
Poout, MAL.  
Munjittee, HIND.

DESCR: Herbaceous: stem rough with prickles on the angles, rarely smooth: leaves in fours, long-petioled, oblong or ovate, acute, more or less cordate, 3-7 nerved: margins, middle nerve and petioles rough with minute prickles: calyx tube ovate-globose: panicles in the upper axils peduncled, trichotomous: bracts opposite not forming an involucre: flowers usually 5-cleft, whitish: berries red, or black. *W. & A. prod.* I. 442.—*R. Munjista, Roxb. fl. Ind.* I. 374.—*ed. Car.* I. 383.—*Wight's Icon t.* 187.—*R. Munjith, Desv. Journ. Bot.*—*R. secunda, Moon Cat. Cyl.*—Dindigul. Neilgherries.

USES, &c. There are varieties of this plant with glabrous, hairy, narrower or broader leaves, and disposed 8 in a whorl. The plant yields a red dye. An infusion made from the root is prescribed by the Hakeems as a grateful deobstruent drink in cases of scanty lochial discharge. The plant would appear to be chiefly produced in Kuchar, and the root is in great demand in the adjacent countries for dyeing coarse cloths and stuffs red: the Nepaulese barter it for

rock salt and borax. The fibres of the root are exported to Europe, but have not been used medicinally except as above related. Its use as a dye-stuff is increasing yearly, and it is well worth the attention of dyers. It is cultivated in Assam, Nepaul, Bombay and other parts of this country. In 1841, the exports from Calcutta, were 2328 maunds. The price in the London market ranges from 20 to 30 shillings the cwt. *Simmonds. Ainslie.*

(542) **Rungia repens** (*Nees.*) Nat. Ord. ACANTHACEÆ.

**Diandria Monogynia.** *Sex: Syst:*

Kadaga saleh, TAM.

**DESCR:** Shrub 2 feet: stems creeping, diffuse, smooth, jointed, sometimes rooting at the joints: leaves opposite, lanceolate, on short petioles, entire, acuminate: bracts in four rows ovate, nerveless: margin broad, silvery, sub-ciliate: calyx with two minute separate bracts: spikes axillary: flowers pale rose. *Fl.* Nearly all the year—*Wight's Icon. t.* 465.—*Roxb. Cor. II. t.* 152.—*f. Ind. I.* 132.—*ed. Car. I.* 133.—*Justicia repens, Linn.*—*Diclip-tera retusa, Juss.*—*D. repens, Roem. and Schult.*—Peninsula.

**Uses, &c.** The leaves resemble those of the Thyme in appearance, and taste: the fresh leaves bruised and mixed with Castor-oil are given as an application in *tinea capitis*. The whole plant dried and pulverised is given in doses from 4 to 12 drachms in fevers, coughs, and even in bites of snakes and other venomous reptiles. Also considered a vermifuge. *Ainslie. Pers. obs.*

## S.

(543) **Saccharum fuscum** (Roxb.) N. O. GRAMINACEÆ.

Triandria Digynia, Sw: Syst:

Khuree or Pata Khuree, BENG.

DESCR: Culms erect, 5-8 feet, hairy near the top: leaves sheathing, linear lanceolate, smooth: margins of sheaths fringed with much soft hairs: panicles 1-2 feet, erect, verticilled, except towards the apex: ramifications compound: flowers paired, one short pedicelled, the other longer, both hermaphrodite: calyx margin ciliated: corolla 3-valved, valves ciliated: seed long, oboval, brown, smooth. *Fl.* July—September.—*Roxb. fl. Ind.* I. 236.—*ed. Car.* I. *Syst.* I. 281.—Bengal.

USES, &c. The natives make their pens of the culms of this species and use them for a screen and light fences. The *S. procerum*, (Roxb.) is used for the same purposes. *Roxb.*

(544) **Saccharum munja** (Roxb.) Do.

Do.

Munja, HIND.

DESCR: Culms straight, 8-12 feet, smooth: leaves channelled, long, linear, white nerved, hispid at the base inside: panicles large, oblong, spreading: ramifications verticilled: flowers hermaphrodite: corolla 2-valved.—*Roxb. fl. Ind.* I. 246.—*ed. Car.* I. 250.—Benares.

USES, &c. The leaves twisted into ropes are used for Persian wheels, tying up cattle, and as tow ropes by the boatmen at Benares. On the Indus the boatmen always use them for rigging their vessels. Their strength is very great as proved by being used to drag their largest boats against the full force of the stream. It is not injured by the action of fresh water. The reed grows abundantly on the banks of the river. The upper leaves, about a foot or so in length are preferred and collected: and having been made up into bundles are so kept for use. *Royle.*



(545) *Saccharum officinarum* (Linn)

Do.

Do.

Common Sugar-cane, ENG.  
 Karimba, MAL.  
 Karoomboo, TAM.

Cherukoo bodi, TEL.  
 Ook, BENG.  
 Uch, HIND.

**DESCR :** Culm 6-12 feet, panicles terminal, spreading, erect, oblong, 1-3 feet long, of a grey colour from the large quantity of long soft hairs surrounding the flowers: ramifications alternate, very ramous, expanding: flowers hermaphrodite in pairs, one sessile the other pedicelled: calyx 2-leaved, smooth: corolla 1-valved, membranaceous, rose-coloured. *Fl.* July—September.—*Roxb. fl. Ind.* I. 237.—*ed. Car.* I. 242.—Cultivated in most parts of India.

**USES, &c.** There is every reason to believe that sugar was manufactured from the cane in India in very early ages, and that the Greek word *Saccharon* was employed for this identical product and not for Tabasheer as formerly supposed. From the Arab *Sukkur* the Persian *Shukkar* and Sanscrit *Sarkara* our word sugar is evidently derived. Herodotus certainly alludes to sugar in his fourth book when he talks of 'honey made by the hand of Confectioners' and he is the earliest writer who mentions it. Theophrastus talks of honey made from canes; but Dioscorides who flourished in the reign of Nero was the first Greek writer who used the word *Saccharon*. He says "there is a sort of concreted honey which is called sugar found upon canes in India and Arabia Felix: it is a consistence like salt and is brittle between the teeth like salt." Pliny also speaks of sugar brought from this country. It was certainly an article of commerce at the commencement of the Christian era though the early Greek and Roman writers seem to have been imperfectly acquainted with its origin. Its first appearance in Europe is not exactly known though it was introduced by the Saracens into Sicily and was known at Venice in 990, A. D. From Sicily it soon spread to all countries of the old world.

The sugar cane is now cultivated over most parts of India, the estimated annual produce of sugar being about a million tons. In a report upon the sugar cultivation made by desire of the E. I. Company some years ago, it was stated that the three following kinds were cultivated.

- 1st The *Kajooli* or purple coloured cane. This grows on dry lands in Bengal. It yields a sweet and rich juice of a darkish colour, but sparingly, and is hard to press.

- 2d. The *Pooros*, or light coloured cane. This is deeper yellow when ripe. It grows on richer soil than the former but the juice is less rich and of a softer nature.
- 3d. The *Kulloor* or white cane. This grows in moist swampy lands where the other two will not succeed. It yields a less strong sugar than the former and has a more watery juice. It is more cultivated than the others.

According to Dr. Buchanan there are four kinds known in Mysore, namely, the *Restali*, the native sugar of Mysore, and the *Puttaputti*, from which alone the natives extract sugar and which yields the best Jaggery. The 2 others are the *Maracabo* and *Cuttajcabo*.

The season of planting is soon after the commencement of the rains in whatever districts the cane may be cultivated, the chief requisites being frequent ploughing of the soil, much manuring, careful removal of weeds, and in those varieties requiring much moisture, the land must occasionally be artificially watered. Dr. Roxburgh has given the following account of the cultivation of the *Pooros* or common yellow cane in the Rajamundry Circars.

“The land is first well ploughed during the month of April and beginning of May. The field is then flooded from the river if there is not sufficient rain; the upper part of the cane is then cut into two lengths of one or two joints each, (the lower part of the same canes are employed to make sugar from) these are placed over the wet fields, at about fifteen or eighteen inches asunder in rows, the rows about four feet from one another, and trod under the soft wet surface with the foot; in six days after the planting the field is again flooded, if there has not been rain. In about eight days more the shoots appear; the land is soon after slightly hoed, and weeded. A month after the planting, some rotten chaff or other such manure, is scattered about the young plants. Every ten or fifteen days, if there be not sufficient rain, the field is watered; two months from the planting, some stronger manure is strewed about the plants; and every fifteen or twenty days the field is slightly hoed and the weeds rooted out.

During the wet season, drains must be made, to carry off the superabundant water. By August or September, the cane will be from three to five feet high; in each shoot, the produce of every cutting, which may contain from three to six canes, a straight bamboo is struck into the earth, in the centre; to this the canes are tied by their leaves. In this country the leaves are never stript from the cane, but as they wither are tied round them. This must impede the free circulation of air, which may be conceived hurtful. In January, viz. between nine and ten months from

the time they were planted, the cane, when stripped of its leaves and the useless top cut off, will be about as thick as a good stout walking cane, and from four to six feet long; they then begin to cut the cane, express the juice, and boil the sugar which is with the natives here a very simple process; a small mill turned by cattle, squeezes the cane and one boiler boils it." Either a too wet or too dry season is injurious to the sugar cane; in the former case the quantity of Saccharine juice is much diminished. The crops suffer much from the depredations of wild animals, particularly elephants, wild hogs, jackals, besides caterpillars and worms. White ants are also very destructive. "As a remedy against the attacks of the ants the following recipe has been proposed:—

" Assafœtida, 8 chittacks.

Mustard seed cake, 8 seers.

Putrid fish, 4 seers.

Bruised butch root, 2 seers; or muddur, 2 seers.

Mix the above together in a large vessel, with water sufficient to make them into the thickness of curds; then steep each slip of cane in it for half an hour before planting; and, lastly, water the lines three times previous to setting the cane, by irrigating the water course with water mixed up with bruised butch root, or muddar if the former be not procurable.

A very effectual mode of destroying the white ant, is by mixing a small quantity of arsenic with a few ounces of burned bread, pulverised flour or oatmeal, moistened with molasses, and placing pieces of the dough thus made, each about the size of a turkey's egg, on a flat board, and covered over with a wooden bowl, in several parts of the plantations. The ants soon take possession of these, and the poison has continuous effect, for the ants which die are eaten by those which succeed them. They are said to be driven from a soil by frequently hoeing it. They are found to prevail most upon newly broken up lands.

In Central India, the penetration of the white ants into the interior of the sets, and the consequent destruction of the latter, is prevented by dipping each end into buttermilk, assafœtida, and powdered mustard seed, mixed into a thick compound." (*Simmonds.*)

There are different processes for separating the sugar from the cane juice in different countries. The following is the method which obtains in the East Indies. 'The liquor, after being strained so as to separate the coarser feculencies, is boiled down in a range of open boilers heated by a long flue, into a thick inspissate juice, the scum which rises during the operation being removed. When it is sufficiently evaporated, it is removed into earthen pots to cool, and in these it becomes a dark coloured, soft, viscid mass, called *goor*, or *jaggery*. Sometimes a little quick lime is

added to the juice before boiling, which, by partly clarifying it, renders it capable of being formed into cakes or lumps. In general, however, if intended for subsequent clarification, the juice is merely boiled down, and sold in pots, in a granular honey-like state, to the boilers or refiners. These separate much of the molasses or uncrystallizable part of the juice, by putting the geor into a coarse cloth and subjecting it to pressure. The sugar, which in this state is called *shuckar* or *khand*, is further purified by boiling it with water, with the addition of an alkaline solution and a quantity of milk. When this has been continued until scum no longer rises upon the liquor, it is evaporated, and sometimes strained, and afterwards transferred to earthen pots or jars, wide at the top, but coming to a point at the bottom, which is perforated with a small hole, that, at the commencement of the operation, is stopped with the stem of a plantain leaf. After it has been left for a few days to granulate, the holes in the pots are unstopped, and the molasses drains off into vessels placed to receive it.\* The sugar is rendered still purer and whiter by covering it with the moist leaves of some succulent aquatic plant,\* the moisture from which drains slowly through the sugar and carries with it the dark-coloured molasses. After several days, the leaves are removed, and the upper part of the sugar, which has been most purified, is taken away and dried in the sun. Fresh leaves are then added, by which another layer of sugar is whitened in like manner; and the operation is repeated until the whole mass is refined. The sugar thus prepared is called *chensee*, and is that which is commonly sent to England. (*Penny Cycl.*)

In regard to quantity and the purity of its sugar the cane is preferred to any other plant containing saccharine juice. Six to eight pounds of the latter yield 1 lb. of raw sugar, and when properly ripe 16 to 20 bandy loads of canes, ought to yield a hhd. of sugar. Sugar when simply sucked from the cane is highly nutritious. In the West Indies immense quantities of the cane are consumed in this way and it has often been remarked how singularly the condition of the Negroes becomes changed during the cane harvest, when they become far more plump and healthy than they are at other seasons. The alimentary properties of sugar are much lessened by crystallization. The common brown sugar is more nutritious than what has been refined. To persons disposed to dyspepsia and bilious habits, sugar in excess become more hurtful than otherwise and as Dr. Prout observes, "the derangement or partial suspension of the power of converting the saccharine principle in man into the albuminous or oleaginous, not only constitutes a formidable species of dyspepsia, but the unassimilated saccharine matter in passing through the kidney gives occasion to

\* *Vallisneria spiralis* and *Hydrilla verticillata* are employed by sugar-refiners for this purpose.

the disease termed diabetes." Now in the blood of a person in perfect health scarcely any sugar exists, whereas during the disease above named it will be found abundantly in the system. Sugar, therefore, whether in the shape of fruit or in whatever form should be entirely avoided by persons in that condition and only taken in moderation by persons suffering from bilious habits.

Sugar when concentrated is highly antiseptic and from a knowledge of its possessing this principle it is frequently employed in the preservation of vegetable, animal, and medicinal substances. Dried fruits are often preserved a longer time by reason of the sugar contained in them. In cases of poisoning by copper, arsenic, or corrosive sublimate, sugar has been successfully employed as an antidote, and white sugar finely pulverised is occasionally sprinkled upon ulcers with unhealthy granulations. The Hindoos set a great value upon sugar and in medicine it is considered by them as nutritious, pectoral, and anthelmintic.

The average annual quantity of cane sugar imported into the markets of the civilised world at the present time may be taken at 1,500,000 tons, exclusive of what is made for consumption in the several countries where the canes grow, and this would probably amount to another million. The local consumption in this country was roughly estimated in 1844 at 500,000 tons, an amount in fact far below the mark. In 1848-51 were imported into Great Britain from the East India 78,286 tons. *Simmonds. Penny Cyc. &c.*

(546) **Saccharum sara** (*Roxb.*) Do.

*Do.*

Penreed grass, ENG.

| Shur or saro, BENG.

DESCR: Culms perennial, erect, 6-16 feet, smooth; very strong: lower leaves 4-8 feet long, narrow; upper ones shorter, broader, tapering from the base to a fine acumination, concave above, with hispid margin: sheaths 12-18 inches long, with a tuft of hair above their mouths on the inside: panicles dense, open when in flower, condensed when in seed: ramification decomposed, the inferior ones alternate, superior ones sub-verticilled generally with their sharp angles armed with stiff bristles and covered with white silky hairs: flowers paired, one sessile, the other pedicelled: calyx 2 valved, clothed with long silky hairs: corolla 3-valved, fringed.—*Roxb. fl. Ind. I. 244.—ed Car. I. 249.—Bengal.*

**USES, &c.** Ropes made from the leaves are employed by the boatmen about Allahabad and Mirzapore as tow lines. These ropes are reckoned very strong and durable even when exposed to the action of water. They are first beaten to a rough fibre and then twisted into ropes. The pens made from these reeds are exported to a small amount from Madras and are sent chiefly to Bombay.—*Royle. Comm. prod. Mad. Pres.*

(547) **Saccharum spontaneum** (Linn.)

Do.

*Do.*Thatch Grass, ENG.  
Relloogaddy, TEL.Kagara, HIND.  
Kash, BENG.

**DESCR:** Root perennial; culms annual, erect, leafy, round: leaves sheathing, remarkably long and narrow: margins hispid: mouths of the sheaths woolly: panicles terminal, spreading, erect, 1-2 feet long, composed of verticilled filiform, simple (except the lower verticil or two) spiked as racemes: flowers paired, one pedicelled and the other sessile: calyx 2-leaved, margins ciliate, surrounded with soft silvery hairs: corolla 1-valved, ciliate, membranaceous: stigma feathery, purple.—*Roxb. fl. Ind. I. 235.—ed. Car. I. 240.—S. biflorum, Forsk.—Imperata spontanea, Rom. & Sch.—*Peninsula. Bengal.

**USES:** The leaves of this species make good mats for various purposes, and are also used for thatching houses. Buffaloes are fed on the grass. It grows on the banks of rivers, in hedges, and on moist uncultivated lands. The immense quantity of long bright silver coloured wool which surrounds the base of the flowers gives this species, a most conspicuous and gaudy appearance. On the banks of the Irrawady, this tall grass is very abundant, and forms a striking object in the landscape. *Roxb.*

(548) **Salicornia brachiata** (Roxb.) N. O. CHENOPODIACEÆ.**Monandria Monogynia.** Sex: Syst:

Quoiloo, TEL.

**DESCR:** Perennial: stems erect: branches numerous, decussate: joints clubbed: spikes cylindrical: flowers greenish, conspicuous, 3-fold, opposite. *Fl.* All the year.—*Roxb. fl. Ind. I. 84.—ed. Car. I. 82.—Wight's Icon. t. 738.—*Coromandel. Sunderbunds.

**USES, &c.** This plant grows plentifully on low wet ground generally such as is overflowed by the spring tides. It yields a Barilla for soap and glass. This species grows so abundantly on the Coasts of

India that by incineration the plant might supply Barilla enough for the whole world. The *sejje muttie* of the bazaars, a coarse kind of Barilla, is procured by the incineration of unknown plants, growing on the shores of the salt lakes which are scattered through the Indian deserts. *Royle. Roxb.*

(549) **Salicornia Indica** (*Willd.*) Do.

*Do.*

Quoia pipali, TEL.

Jodoo-palung, BENG.

DESCR: Perennial, diffuse: joints gibbous: spikes cylindrical: flowers hidden: floral joints very short: flowers inconspicuous, three-fold, hid by the upper margin of the next floral leaf below: calyx a flask-like fleshy substance without style or stamen.—*Wight's Icon. t. 737.—Roxb. fl. Ind. I. 85.—ed. Car. I. 83—*Coromandel. Bombay. Sunderbunds.

&c. This yields a Barilla for soap and glass. It is abundant on the Western Coast but not so frequently met with in the South. It is pickled by the natives. *Roxb.*

(550) **Salmalia**

**Malabarica** (*Schott and Endl.*) N. O. STERCULIACEÆ.

**Monodelphia Polyandria** *Sex: Syst:*

\* Red cotton tree, ENG.  
Moul elavou, MAL.  
Elayum marum, TAM.

Rukto Shimool, BENG.  
Buraga, TEL.

DESCR: Large tree: trunk prickly: leaves palmate: leaflets 5-7, quite entire, acuminate at both ends: calyx campanulate: petals 5, united and somewhat connected at the base with the column of stamens: fruit oblong, 5-celled, 5-valved: seeds embedded in silky cotton: flowers large deep red, or white. *Fl.* Feb.—March.—*W.*

I. 61. (under Bombax) Bombax Malabaricum, DC.—*J.* I. t. 29.—*B. heptaphyllum, Cav.—Roxb. fl. Ind. III. 167.—Cor. III. 247.—B. ceiba, Burm. fl. Ind.—Gossampinus rubra, Ham. in Linn. Soc. Trans.—Rheede III. t. 52.—*Courtallum. Malabar. Peninsula generally.

USES, &c. The flowers spring laterally from the trunk or branches either singly or several together. In Java, the bark of the root

## SALSOLA.

is used as an emetic. The wood which is white, light and spongy is used for small boats and floats. The bark of the root powdered and mixed with lime juice and made into a liniment will check inflammation. The sweet honey like substance found in the flowers mixed up with tamarind leaves is given as a laxative in bowel complaints. *Rheede. Wight.*

(551) **Salsola Indica** (*Willd.*) Nat. Ord. CHENOPODIACEÆ.

**Pentandria Digynia.** *Sex: Syst:*

Yella-kura, TEL.

**DESCR:** Stems perennial, erect, branching out into many diffuse, alternate ramifications: leaves scattered round the branchlets, erect, approximate, sessile, linear, semi-cylindric; coloured in the older plants: spikes terminal, erect, compound or paniced, leafy: flowers minute, greenish, aggregate in the axils of the floral leaves: calyx 5-cleft: segments concave within, with a slightly membranaceous margins. *Fl.* Nearly all the year.—*Roxb. fl. Ind. II. 62.*—Coast of Coromandel. Salsette. Sunderbunds.

**USES, &c.** The leaves are eaten by the natives where the plant grows and considered very wholesome. This species is found in moist situations on the sea coast. *Roxb.*

(552) **Salsola nudiflora** (*Willd.*) Do.

*Do.*

Rawa-kada, TEL.

**DESCR:** Stems perennial, many, spreading close upon and often rooting, extremities of the branches ascending; young parts smooth and coloured reddish: leaves alternate, sessile, linear, fleshy: spikes terminal, erect, very long, compound, leafless: flowers very small, greenish, numerous, fascicled. *Fl.* Nearly all the year.—*Roxb. fl. Ind. II. 60.*—Shores of Coromandel. Sunderbunds. Travancore.

**USES, &c.** This species yields a kind of Barilla used for making soap and glass. It is common in salt barren land near the sea. The natives gather it for fuel; but do not appear to eat it from its very saline taste. *Roxb.*



(553) **Salvadora Persica** (Linn.) N. O. SALVADORACEÆ.**Tetrandria Monogynia.** Ser: Syst:

Ooghai, TAM.

| Ghoonia, Pedda-warago-wenki, TEL.

**DESCR:** Tree 8-10 feet: bark very scabrous: branches numerous, spreading, pendulous at their extremities: leaves opposite, petioled, oval or oblong, entire, very smooth, shining on both surfaces, veinless: panicles terminal and from the exterior axils: flowers small, numerous, greenish-yellow: berry minute, smooth, red, juicy, 1-seeded: calyx 4 toothed, corolla 1-petalled. *Fl.* Nearly all the year.—*Roxb. fl. Ind. I.* 389.—*ed. Car. I.* 404.—*Cor. I.* 26.—*Wight's Icon. t.* 161.—*Rivina paniculata*, Linn.—*Cissus arborea*, Forsk.—Circars, near the Sea. Both Conkans.

**USES, &c.** This is not a common tree. The bark is recommended by the Vytians in decoction in cases of low fevers, and as a tonic and stimulant in Amenorrhœa. The bark of the root, which is very acrid, when fresh bruised acts as a vesicatory. The berries are aromatic and taste like garden cress. It grows equally well in any soil and produces flower and fruit all the year round. Royle considers this to be the Mustard Tree of Scripture. *Roxb. Ainslie.*

(554) **Samadera Indica** (Gærtn.) Nat. Ord. SIMARUBACEÆ.**Octandria Monogynia.** Ser: Syst:

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Karinghota, MAL.

**DESCR:** Tree 30-35 feet: leaves alternate, oblong, elliptical, very long: calycine segments 4-5 each, marked with an external gland: petals 5, longer than the calyx: flower bearing peduncles longer than the leaves, pendulous, compressed, axillary or terminal, divided at the apex into a small umbel: drupe with a thick pericarp: flowers yellowish white. *Fl.* December—February.—*W. & A. prod. I.* 151.—*Niota pentapetala*, Poir. *enc. meth.*—*DC. N. tetrapetala*, Wall. (not Lam.) N. Lamarckiana, Blume.—*Vitmannia elliptica*, Vahl.—*Rheede VI. t.* 18.—Conkans. Balghotty in Cochin. Travancore.

**USES, &c.** This tree grows abundantly in Travancore and Cochin, and is propagated easily from seeds. The bark has febrifugal properties and is used by the Natives for this purpose. An oil is extracted from the kernels of the fruit which is extensively used in rheumatism on the Western Coast and is procurable in the Bazaars. In Erysipelas the leaves bruised are externally applied. Their juice boiled up with oil is given as a liniment in psydrcia. *Rheede. Pers. obs.*

(555) **Sansevieria Zeylanica** (*Willd.*) N. O. LILIACEÆ.

**Hexandria Monogynia. Sex: Syst:**

Bowstring Hemp, ENG.  
Marool, TAM.

Moorgalie, DUK.  
Chaga, Sága, TEL.

**DESCR:** Stemless: roots perennial: leaves radical, exterior ones shorter, spreading, and more broad; interior ones nearly erect, 1-4 feet long, semi-cylindric, grooved on the upper side, sharply acuminate at the apex, somewhat striated, smooth: scapes rising from the centre of the leaves, 1-2 feet long, erect, with four or five alternate sheaths, between the raceme or flower bearing part and the base: racemes erect, about as long or longer than the scape below the flowers, striated, smooth: flowers greenish white, erect, fascicled, 4-6 together: pedicles short, 1-flowered: corolla 1-petalled, funnel shaped: calyx none. *Fl.* August—September.—*Roxb. fl. Ind.* II 161.—*Cor.* II. 184.—*S. Roxburghiana, Schult.*—Bengal. Peninsula. Dindigul Hills.

**USES, &c.** This species is probably not different from the *S. Roxburghiana* though some Botanists have separated the two species. The present one is well known for the excellent fibres it yields. It is easily propagated by cuttings and thrives in almost any soil, throwing up abundance of fresh rootshoots and thus extending itself in every direction.

The method of preparing the fibres usually adopted by the Natives is to steep the leaves, which are 3 or 4 feet long, in water for several days, in order that the pulpy part may rot. The fibres are then easily separated, but putting them in water is apt to discolour them. In other cases they are first beaten to separate the fibres more easily and placed on a board and scraped with a piece of rough stick or iron till all the pulp is removed. For every 40lbs. of the fresh leaves, Dr. Roxburgh obtained

about 1lb. of the clean fibre, and he reckoned that two crops might be easily calculated upon where they are planted for the sake of these fibres. In 1831, the plant was discovered in the neighbourhood of Cuttack by the Rev. Mr. Garrow, and its fine qualities brought to light as will be seen by the following notice quoted by Dr. Royle. 'In the course of a short time afterwards he discovered a short species of Aloe, growing wildly and profusely in all the moist woods of the neighbourhood, which the Natives called *Moorgabbee*. On experiment, this plant produced a most beautiful fibre, as soft and as fine as human hair, but possessing, notwithstanding, extraordinary strength and tenacity. He derived a great quantity of flax from this plant, which, when portioned off in hanks, bore a strict resemblance to raw silk; indeed, side by side, the difference could not be distinguished. It was this article that first induced the writer to turn his attention to the manufacture of cloth. He engaged two Native weavers to construct a narrow loom for this purpose. They at first found some difficulty in the undertaking, but in the course of four or five days they produced as fine a piece of cloth as was ever beheld.'

The Moorva fibre is very soft, silky and pliant, especially if well prepared, more resembling that of the pine-apple than any other. The fibres are used for ropes, twine, thread, bowstrings and cord, they are considered valuable for the manufacture of paper and are used for that purpose at Trichinopoly. Regarding the comparative strength of the Moorva fibre, Dr. Roxburgh had a line four feet long which bore a weight of 120 lbs. a cord of similar size made of Russian Hemp breaking at 105. In other experiments the fibre in an untwisted state bore 280lbs. and Agave fibre only 270.

This is certainly a plant deserving every attention for the sake of its fibre. Its easy propagation, its general distribution over the country, the simple process of preparing the fibre, and the variety of uses to which it can be applied, whether for rope, paper, cloth or other purpose, render it valuable in every way.

The root is prescribed by Native Doctors as an electuary in coughs and consumption. The juice of the tender shoots is given to children in cases of phlegm to clear the throat.

The *S. lanuginosa*, the *Katou-kapolof* Rheede (XI. t. 42) is a closely allied species. The leaves of the latter bruised are a good remedy in ophthalmia and suffusion of the eyes, being rubbed on the parts. The whole plant boiled in oil and butter is also a good external remedy in eye complaints. The decoction of the root mixed with gingeley oil is prescribed in gonorrhœa. *Rheede. Royle Fib. plant. Roxb. Ainslie. Pers. eds.*

(556) **Santalum album** (Linn.) Nat. Ord. SANTALACEÆ.**Tetrandria Monogynia.** *Sex: Syst:*

Sandal-wood, ENG.

Chandanum, TEL.

Chandanum, TAM.

Sundal, DUK.

Tajandana-marum,

Chundoie, HIND.

**DESCR:** Tree 20-25 feet: branches numerous, much dividing and spreading and forming nearly spherical heads: leaves opposite on short petioles, oblong, smooth, entire, glaucous below: thyrse axillary and terminal, shorter than the leaves: pedicels opposite, lower pair of each thyrse usually 3-flowered: flowers numerous, small, first straw-coloured, afterwards deep ferruginous purple, inodorous: calyx campanulate, 4-cleft: corolla none: berry round, smooth, black when ripe, succulent, crowned with the calyx, 1-celled: nut solitary. *Fl.* Nearly all the year.—*Roxb. fl. Ind.* I. 442.—*ed Car.* I. 462.—Border of Wynaad. Peninsula. Mysore.

**USES, &c.** This tree yields the Sandal-wood of commerce, which is usually cut into billets and disposed of in that state. It is burnt to perfume temples and dwelling houses. Reduced to powder it enters into a composition for marking the forehead. The powder is supposed to possess sedative and cooling properties, and on that account is prescribed in fever and gonorrhœa. In cases of thirst it is taken in cocoa-nut-water, and the natives use it in bathing to cool the body. The Mahomedans express a precious oil from the moist yellow part of the wood which they value as a perfume. The same tree yields both the white and yellow Sandal-wood, the last being the inner part of the tree and is very hard and fragrant especially near the root. The powdered wood mixed with butter is applied to the head in head-aches. Internally it is given in fevers and bilious affections, and externally in prickly heat and cutaneous eruptions.

Large quantities of Sandal-wood oil are annually exported from Madras. In 1852-56 the value amounted to two and a half lacs of Rupees. This was sent chiefly to Bombay, Bengal and the Persian Gulf; of the wood too the exports are considerable, the total value exported in 1852-56 having amounted to Rs. 588,157; chiefly shipped for Bombay, Bengal, Pegue, and Persian Gulf. *J. Grah. Comm. prod. Mad. Pres. Pers. obs.*

(557) **Sapindus detergens** (Roxb.) N. O. SAPINDACEÆ.**Oetandria Monogynia** *Sex: Syst:*

Reetha, HIND. and BENG.

**DESCR:** Tree 20 feet: bark smooth, ash-coloured: leaves alter-

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For the growth and management of the Sandal-wood tree, see Buchanan's *Jour. passim.*

nate, about the ends of the branchlets alternately pinnate : leaflets 4-6 pairs, obliquely lanceolate, oblong, smooth on both sides : petioles flexuose, smooth : panicles terminal and from the exterior axils, diffuse, with compound ramifications : calyx 5-cleft : petals 5, equal, regular : drupes solitary, 1-celled, sub-globular, very smooth, yellow with a large margin round the base on the outside : flowers small, white. *Fl.* March—April.—*Roxb. fl. Ind.* II. 280.—Bengal.

**USES, &c.** The Hindoos use the pulp of the fruit for washing linen. Several of the species are used for the same purpose instead of soap, owing to the presence of the vegetable principle called *Saponine*. The root and bark too of many species are said to be saponaceous. *Roxb. Royle.*

(558) **Sapindus emarginatus** (*Vahl.*) Do.

*Do.*

Soapnut tree, ENG.  
Poovandie, or ponnanga, TAM.  
Ritah, DUK.

Konkoodoo, TEL.  
Buro-reetha, BENG.  
Rarak, MAL.

**DESCR :** Tree middling size : petiole pubescent : leaves abruptly pinnate : leaflets 2-3 pairs, oblong, retuse or emarginate, entire, upper side glabrous, very downy on the under side ; racemes in terminal panicles ; calyx segments 5, oblong : petals 5 oval : outside densely hairy ; margin very woolly ; inside nearly glabrous or with a few scattered hairs about the middle : ovary densely hairy : fruit 1-4, generally 3-lobed, lobes very hairy on the inside at the insertion of the seeds : flowers small, white. *Fl.* October—November.—*W. & A. prod.* I. 111.—*Wight's Ill.* I. t. 51.—*Roxb. fl. Ind.* II. 279.—Bengal.

**USES, &c.** The capsule is considered by the Vytians to be expectorant and is prescribed in humoral asthma. It also has a detergent quality when bruised, forming suds if agitated in hot water. The natives use this as a soap for washing the hair, silk, &c. The seeds are said to be applied to the mouth of persons in epileptic fits with success. Dr. Wight had never seen the tree in the Peninsula, and remarks that it is only distinguishable from *S. detergens* (*Roxb.*) by the leaflets being glabrous on both sides, and from 4 to 6 pair. *Ainslie. Wight.*

(559) **Sapindus laurifolius** (Vahl.) Do.

Do.

Purinsji or Urinji, MAL.

DESCR : Tree : leaves alternate, abruptly pinnate : leaflets 3-pairs, obliquely ovate-lanceolate, tapering at the apex, entire, smooth on both sides : veins prominent, whitish : panicles terminal and large, very ramous : flowers numerous, small, short pedicelled, dull white, calyx 5-cleft : segments oval, villous on the outside : petals 5, lanceolar without glands or scales, woolly on the inside, clothed on the outside with adpressed brown hairs : berries three, globular, united when ripe, soft, yellowish-green, slightly scattered with brown hairs : seed round obovate. *Fl.* December.—*Roxb. fl. Ind.* II. 278.—*W. & A. prod.* I. 111.—*S. acuta*, *Roxb in E. I. C. Mus.*—*S. trifoliata*, *Linn.*—*Rheede* IV. t. 19.—Peninsula. Malabar.

USES, &c. The berries are saponaceous as in the other species. Harps and combs are made from the wood. The fruit in infusion or decoction is given for colic. A bath made with the leaves is given in rheumatism and the same with fresh ginger and cummin seed mixed with water is administered in flatulency. The root in infusion with rice is used in paralysis and pains in the joints. *Rheede.*

(560) **Sapindus rubiginosus** (Roxb.) Do.

Do.

Iskee-rashee, TEL.

DESCR : Tree 20 feet : young parts clothed with a dense rusty pubescence : leaves abruptly pinnate : leaflets 4-6 pairs, oblong, lanceolate, acuminate, quite entire, slightly hairy on the underside : racemes in terminal panicles : calyx unequal, 5-partite : petals 4, glabrous, with a distinct unguis : limb cordate oblong : scale attached to the petals by the margin, very woolly, with a woolly cristate appendage at its back : ovary deeply 3-lobed : hairy : fruit 1-2 (or 3,) oblong berries : flowers small, white. *Fl.* March—April.—*W. & A. prod.* I. 112.—*Roxb. Cor. I. t.* 62 ;—*fl. Ind.* II. 282.—*S. fraxinifolius*, *DC.*—*Moulinisia rubiginosa*, *G. Don.*—Circar mountains. Peninsula. Bengal.

USES, &c. The wood is useful for various purposes, being strong and durable ; towards the centre it is of a chocolate colour. The leaves resemble those of the ash, and are very soft to the touch. *J. Grah. Roxb.*

(561) **Saptium Indicum** (*Willd.*) N. O. EUPHORBIACEÆ.

**Monœcia Monadelphica** *Sex: Syst:*

Bengieri, MAL.

| Hoorooya, BENG.

DESCR: Small tree : branches pendulous : leaves alternate, lanceolate, serrate : *male* flowers on terminal aments with *female* flowers at the base : fruit round, hard, size of a nutmeg, 3-celled ; cells 1 seeded : flowers small, greenish. *Fl.* Nearly all the year. *Wight's Icon. t.* 1950.—*J. Grah. cat.*—*Roxb. fl. Ind.* III. 692.—*Rheede IV. t.* 51.—South Concan. Coromandel. Sunderbunds.

USES, &c. The seeds are poisonous and are used to intoxicate fish. The thick bark of the fruit or pericarp if wounded exudes white, acrid, burning tears, which if applied to the mouth inflame and cause the integuments to swell, not unfrequently causing death. The leaves pulverised are applied to ulcers. *Rheede. Roxb.*

(562) **Sarcostemma**

**brevistigma** (*W. & A.*) N. O. ASCLEPIACEÆ.

**Pentandria Digynia.** *Sex: Syst:*

Tiga tshomoodoo, TEL.

| Bramee, Shomluta, BENG.

DESCR: Twining : leafless : umbels terminal or terminating the short lateral branches : calyx and pedicels glabrous : outer stamaneous corona 10-plicate, 10-crenate : leaflets of inner corona gibbous on the back, equal to the gynostegium : flowers small, white. *Fl.* June.—Aug.—*W. & A. Contrib.* p. 59.—*Don's Mill.* IV. 156.—*Wight's Icon. t.* 595.—*S. viminalis*, *Wall.*—*Asclepias acida*, *Roxb. fl. Ind.* II. 31.—*A. aphylla*, *Roxb. in cost. merc. t. or*—Coromandel.

USES, &c. Bundles of this plant put into the trough of the well, from which a Sugar-cane field is watered, together with a bag of common salt will extirpate white ants and the water so impregnated will destroy the ants without injuring the Sugar-

cane. The plant yields a quantity of milky juice but of such a mild nature, that travellers will often suck the tender shoots to allay thirst. *Roxb. Gibson.*

(563) **Sarcostigma Kleinii** (*W. & A.*) N. O. THYMELACEÆ.  
**Pentandria Monogynia.** *Sex: Syst:*

DESCR: Climbing shrub, branched: leaves alternate, short petioled, oblong oval, acuminate, coriaceous, glabrous: racemes usually paired, axillary, very long, interrupted: flowers forming numerous sessile fascicles, without pedicels: fruit an oval, somewhat flattened nut about an inch long and half an inch broad.—*Wight's Icon. t. 1854.*—Travancore.

USES, &c. This plant yields a highly esteemed medicinal oil, (*Adul* or *Odul*) much used on the Western Coast for rheumatism. *Jury. Rep.*

(564) **Scævola**  
**Bela-modagam** (*Linn.*) N. O. GOODENIACEÆ.  
*Bela Modagam, MAL.*

DESCR: Shrub or small tree: 10–15 feet: leaves alternate, sub-sessile, saddle-shaped, long-obovate, margins entire from the middle to the base, obscurely serrate above, smooth, shining, green on both sides, woolly at the base in the inside: peduncles axillary, 2–3 chotomous, much shorter than the leaves: calyx 5-sepalled: segments rather remote, erect: corolla tube much longer than the calyx, split its whole length, having the appearance of half a flower: mouth villous in the inside; petals 5, membranaceous, and slightly villous: filaments at first erect, then curled back round the base of the tube of the corolla, pinkish: style length of the tube, recurved with a very hairy ciliated stigma: drupe size of a gooseberry, white when ripe: nut 2 celled, dark brown, wrinkled: seeds one: flowers white, fragrant. *Fl.* Nearly all the year.—*Roxb. fl. Ind. I. 527.*—*ed. Car. II. 146.*—*Rheede. IV. t. 59.*—Cultivated in gardens in Travancore.

USES, &c. This shrub, so conspicuous with its dark shining green leaves, is common in gardens in Travancore, and probably elsewhere on the Western Coast. I am inclined to think it is not a distinct species from the *S. Taccada* (*Roxb.*), which is given as indigenous to the sea shores of the Moluccas and Malay Islands,



the habit of the plant is modified by the circumstances of soil and climate. Rumphius calls it a shrub, and Rheede designates this plant as "arbor speciosa et que præcelsa." In Travancore, I have known the plant growing to a height of 15 or 20 feet, and have availed myself partly of Roxburgh's description of *S. Taccada*, but added part from my own personal observation, as I think the saddle shaped form of the leaves is a peculiar characteristic. The natives string the berries in beads. The leaves made into a poultice are powerfully emollient in tumors. Boiled in water a drink is prepared from them and administered internally to excite the flow of urine and in lochial obstructions. *Rheede. Pers. obs.*

(565) **Schleichera trijuga** (*Willd.*) N. O. SAPINDACEÆ.

**Octandria Monogynia.** *Sex: Syst:*

Poo-marum, TAM.

| May, Roatangha, TEL.

DESCR: Tree 20 feet: leaves abruptly pinnate: leaflets opposite, about 3 pairs, oblong or broadly lanceolate, quite entire, nearly glabrous: calyx 5-cleft: petals none: racemes axillary or below the leaves, round the base of the young shoots, solitary, simple or compound: drupe globose, pointed, with a dry pericarp: seeds 1-2, rarely 3, covered with a pulpy aril: flowers small, greenish. *Fl.* Feb.—March.—*W. & A. prod.* I. 114.—*Roxb. fl. Ind.* II. 277.—*Melicocca trijuga*, *Juss. DC.*—*Stadmannia trijuga*, *Spr. Syst.*—*Cussambium pubescens*, *Ham. in Wern. trans.*—Coromandel. Common on the Ghauts.

USES, &c. Dr. Wight remarks the shape of the leaflets varies on the same tree. All our specimens have the fruit more or less furnished with stout prickles. The petioles are usually pubescent. Lamp-oil is expressed from the seeds in Malabar, and the fruit is eaten by the natives. The bark is astringent; rubbed up with oil, the natives use it as a remedy in itch. The wood is hard, and is employed for a variety of useful purposes (Sugar-mills). *Roxb. J. Grak.*

(566) **Schmidella serrata** (*DC.*) Nat. Ord. SAPINDACEÆ.

**Octandria Monogynia.** *Sex: Syst:*

Taualkoa, TEL.

| Rakhul-phul, HIND.

DESCR: Tree 12 feet: leaves trifoliolate: leaflets stalked, ovate or oblong, acute, serrated: younger ones glabrous, or pubescent beneath and on the nerves: older ones with a glandular tuft of hairs in the axils of the nerves: calyx 5-parted: segments unequal:

petals 4, cuneate, with a scale bearing a tuft of hairs above the unguis : racemes axillary, solitary, simple : flowers white : ovary hairy, 2-lobed : fruit baccate. *Fl.* Aug.—Oct.—*W. and A. prod.* I, 110.—*Ornitrophe serrata*, *Roxb. Cor.* I. t. 61; *f. Ind.* II. 266.—(var.)—Coromandel. Bengal.

USES, &c. There are several varieties of this species which have apparently given rise to some difference of opinion among Botanists. The fruit is small and red, and is eaten when ripe by the natives. The root is astringent, and given by the Telinga doctors in diarrhoea. *Roxb.*

(567) **Schrebera swietenoides** (*Roxb.*) N. O. BIGNONIACEÆ.

**Diandria Monogynia.** *Sex: Syst:*

Weaver's Beam tree, ENG.  
Mogalinga marum, TAM.

Muccadi-chettoo, TEL.

DESCR: Large tree : leaves nearly opposite, impari-pinnate, about a foot long, leaflets 3-4 pair, opposite, obliquely ovate or cordate, entire, pointed, smooth on both sides, the lower ones largest : calyx tubular, bilabiate : corolla salver-shaped with cylindrical tube and 3 times larger than the calyx : segments 5-7, curved, truncated : capsule large, pear-shaped, scabrous, very hard, 2-celled, opening from the apex : seeds 4 in each cell, compressed and with a long membranaceous wing : panicles terminal, trichotomous : flowers small, white and brown variegated, very fragrant at night. *Fl.* March—April.—*Roxb. f. Ind.* I. 109 ; *ed. Car.* I. 109.—*Cor.* II. t. 101.—Circar mountains.

USES, &c. A large timber tree. The wood is of a grey colour, close grained, hard and durable. It is used for a great variety of purposes. Being less liable to warp than most other woods. It is employed by weavers chiefly for the beams of the loom, not being liable to bend or warp. *Roxb.*

(568) **Scilla Indica** (*Roxb.*) Nat. Ord. LILIACEÆ.

**Hexandria Monogynia.** *Sex: Syst:*

Indian Squill, ENG.  
Nurrivungayum, TAM.  
Addivi-talla-guddaloo, TEL.

Junglie pias, HIND.  
Kanda, BENG.

DESCR: Bulb perennial, truncated, white, about the size of a large apple : leaves numerous, radical, ensiform, nearly flat, smooth,

6-18 inches in length : scape erect, round, smooth and including the raceme about 2-3 feet in length : raceme erect, very long : flowers remote, long pedicelled drooping. *Fl.* March—April.—*Roxb. fl. Ind.* II. 147.—*Urginea Indica*, *Wight's Icon. t.* 2068. —Sandy shores in Malabar. Covellum near Trevandrum.

**USES, &c.** The bulbous roots of this plant resemble in their appearance and qualities the root of the true squill (*Urginea maritima*) being equally nauseous and bitter. It is not so large nor so round as the latter, but it has similar fleshy scales. It is chiefly used by farriers for horses in cases of strangury and fever ; it grows in abundance in waste sandy situations in Lower India especially near the sea. The bulb burnt is externally applied to the soles of the feet when suffering from any burning sensation. *Ainslie. Pers. obs.*

(569) **Scindapsus officinalis** (*Schott.*) Nat. Ord. ARACEÆ.

**Tetrandria Monogynia.** *Sex: Syst:*

Attie-tippillie, TAM.  
Guj-pippul, BENG.

Auna tippillie, MAL.

**DESCR :** Perennial, epiphytic, stems rooting : leaves alternate, sub-bifarious, oblong-cordate, entire, smooth on both sides : petioles sheathing, channelled : peduncles terminal, solitary, smooth, erect when in flower : spathe sub-cylindric, greenish without, pale yellow within : apex filiform : spadix sub-cylindric, equalling the spathes, pale greenish, dotted with the dark coloured stigmas : berries seeded, arillate at the base. *Fl.* July—August.—*Wight's Icon. t.* 778—*Pothos officinalis*, *Roxb. fl. Ind.* I. 481.—*ed. Car.* I. 2.—*Spreng. Syst.* III. 766.—Bengal. Calicut.

**USES, &c.** At Midnapore this plant is cultivated for its fruit, which is cut into transverse pieces, dried and used medicinally.

(570) **Scindapsus pertusus** (*Schott*) Do.

*Do.*

Eelettadi maravara, MAL.

**DESCR :** Climbing, perennial, sub-parasitical: leaves alternate, cordate, smooth, generally perforated with linear oblong holes on one side, and on the other passing through the margin as in the pinatifid leaves ; 12-18 inches long : petioles as long as the leaves,

deeply channelled : scape short : spathes gibbous, a little longer than the spadix, cylindric, covered with the fructification.—*Wight's Icon. t.* 781.—*Roxb. fl. Ind. I.* 434.—*ed. Car. I.* 455.—*Rheede XII. t.* 21, 22.—Coromandel mountains. S. Conkans. Travancore.

USES, &c. This singular looking plant is common in the jungles between Quilon and Courtallum. The pericarp is used in leprosy and scabies, generally combined with other ingredients and in infusion for cough and rheumatism. *Pers. obs. Rheede.*

(571) **Semecarpus Anacardium** (Linn.) ANACARDIACEÆ.

**Polygamia Diœcia.** *Sex: Syst:*

Marking nut, ENG.  
Shyang-cottay, TAM.  
Kampira, MAL.

Neela jeedie, Jeedi-ghenzaloo, TEL.  
Bheela, HIND.  
Bhilawa, DUK.

DESCR: Tree 50 feet : leaves entire, cuneate-obovate, rounded at the apex, whitish beneath, but not downy : calyx flat, 5-cleft : petals 5, sessile, spreading : flowers panicled, terminal, branched : fruit sessile, cordate-ovate with a slight notch on one side under the apex : flowers small, green. *Fl.* May—July.—*W. & A. prod. I.* 168.—*Wight's Icon. t.* 558.—*Don's. Mill. II.* 63.—*Roxb. Cor. I. t.* 12.—*fl. Ind. II.* 83.—*S. cuneifolium, Wall.*—*Anacardium latifolium, Lam. Enc.*—*A. officinarum, Gœrtn.*—Conkans. Coromandel. Courtallum. Goozerat. Bengal. Travancore.

USES, &c. The receptacle of the fruit when ripe is yellow, about the size of the nut which is black. The latter contains the black corrosive resinous juice so well known. The wood of the tree is of no use, not only on account of its softness but also because it contains much acrid juice, which renders it dangerous to cut down and work upon. The fleshy receptacles on which the seeds rest are roasted and eaten by the natives. The kernels are rarely eaten. The green fruit well pounded into a pulp makes good bird-lime. The pure black acrid juice of the shell is employed by the natives to remove rheumatic pains, aches and sprains : in tender constitutions it often produces inflammation and swelling. It is employed by the Telinga Physicians in the cure of almost every kind of venereal complaint. It is in general use for marking cotton cloths : the colour is improved and prevented from running by

the mixture of a little quick-lime and water. The juice is not soluble in water, and only diffusible in spirits of wine. It sinks in expressed oils but unites perfectly with them. The acrid juice of the shells is given in small doses in leprous and scrofulous affections. An oil is also prepared from the kernels used externally in rheumatism and sprains: undiluted it acts as a blister. The juice of the nut should always be cautiously handled. Dr. Wight has remarked that "*S. cuneifolium*, Roxb. has the leaves tomentose beneath, and the nut with the one side nearly straight while the other is curved. Roxburgh says, moreover, the latter is a native of the mountains north of Hindoostan, the heat of Bengal being too great for it." *Ainslie, Roxb.*

(572) **Sesamum Indicum** (Linn.) Nat. Ord. PEDALIACEÆ.

**Didynamia Angiospermia.** Sex: Syst:

Gingeley oil plant, ENG.  
Yelloo cheddie, TAM.  
Noowooloo, TEL.

Bareek-till, DUK.  
Schit-eloo, MAL.  
Til, BENG.

**DESCR.:** Annual 2-3 feet: leaves ovate-oblong, entire: calyx 5-parted: corolla with a short tube and campanulate throat: flowers axillary, solitary: corolla dirty white or pale red: capsule oblong, tetragonal, 4-celled: seeds numerous. *Fl. July.*—*Dons. Mill.* IV. 234.—*Roxb. fl. Ind.* III. 100.—*S. orientale*, Linn.—*S. trifoliatum*, Mill. *Dict.*—*S. luteum*, Retz.—*S. laciniatum*, Willd.—*Rheede IX. t. 54-55.*—Cultivated in India.

**USES, &c.** The oil known as the *gingilie-oil* is expressed from the seeds, and is one of the most valuable of Indian vegetable oils. It will keep for many years without becoming rancid either in smell or taste; after a time it becomes so mild as to be used as a substitute for sweet-oil in salads. In Japan where they have no butter, they use the oil for frying fish and other things; also as a varnish and medicinally as a resolvent and emollient. The plant is cultivated to a great extent in every part of the Peninsula. The following mode of preparation is given in the Jury Reports of the Madras Exhibition. "The method sometimes adopted is that of throwing the fresh seeds, without any cleansing process, into the common mill, and expressing in the usual way. The oil thus becomes mixed with a large portion of the coloring matter of the epidermis of the seed, and is neither so pleasant to the eye, nor so agreeable to the taste, as that obtained by first repeatedly washing the seeds in cold water, or by boiling them for a short time, until the whole of the reddish brown coloring matter is removed, and the seeds have become perfectly white. They are

then dried in the sun and the oil expressed as usual. This process yields 40 to 44 per cent. of a very pale, straw coloured, sweet smelling oil, and excellent substitute for olive-oil.

There are two varieties of seeds known in commerce, one white and the other black, the plant bearing white seeds is not so common as the other one. The *Kala-til* or black seed must not be confounded with that of the *Guizotia oleifera* to which the same name is applied. It is said that the fragrance of the oil is much weaker when the plant has been sown in too moist a soil. The plant has a very general distribution, and the oil is procured and used in Egypt, China, Cashmere, and the West Indies. In the Rajahmundry District, the seed is sown in the month of March, after the rice crop and is irrigated twice, once at sowing and once afterwards. The seed which is black is called first sort gingeley, from the fact of its yielding the largest per centage of oil, ripens in May, and sells at the rate of rupees 60 per candy of 500 lbs. The oil obtained from both varieties, sells at the same price, viz. rupees 2-14-0 to 3 per maund of 25 lbs. according to quality.

Second sort gingeley is sown in June and produces a red seed. The plant although a little larger resembles in most respects the former, it has, however, a somewhat longer leaf, and the flower differs a shade or two in colour. A candy of 500 lbs. of this seed sells at rupees 57-8-0. The price of the oil is the same as that of gingeley. 'The fixed or expressed oil besides being eaten by the natives is used medicinally and considered to possess emmenagogue virtues. It possesses such qualities as fairly entitle it to introduction into Europe: and if divested of its mucilage, it might perhaps compete with oil of olives, at least for medicinal purposes, and could be raised in any quantity in the British Indian Presidencies. It is sufficiently free from smell to admit of being made the medium for extracting the perfume of the jasmine, the tuberose, narcissus, camomile, and of the yellow rose. The process is managed by adding one weight of flowers to three weights of oil in a bottle which being corked is exposed to the rays of the sun for forty days, when the oil is supposed to be sufficiently impregnated for use. This oil, under the name of gingeley oil, is used in India to adulterate oil of almonds.'

The seeds are toasted and ground into meal and so eaten by the Hindoos. It is externally used in rheumatism, also in the process of dyeing silk a pale orange colour.

Sesamum seed contain about 45 per cent. of oil. The Ramtil seeds only 34 per cent. The price of the oil varies in different districts, but the average price is from 3 to 4 rupees a maund. In

England its value is about £ 47-10 a ton. In 1852-53 the export of the seeds from Madras was

	Seeds Cwt.	Oil Gals.
France.....	287,225	.....
United Kingdom.....	12,713	42,043
Ceylon.....	590	2,968
Bombay.....	113	.....
Pegue.....	741	19,698
Travancore.....	148	.....
Malacca.....	33	3,593
Mauritius and Bourbon.....	.....	4,232
Bengal.....	.....	46

*Jury Rep. Simmonds. Roxb. Ainslie.*

(573) **Sesbania Egyptiaca** (*Pers.*) Nat. Ord. LEGUMINOSÆ.

**Diadelphia Decandria.** *Sex: Syst:*

Carum chembai, TAM.  
Kedangu, MAL.  
Suiminta, TEL.

Byojainti, BENG.  
Jait, HIND.

**DESCR:** Small tree, unarmed: leaves abruptly pinnate about three times longer than broad: leaflets 10-18 pairs, oblong-linear, obtuse, slightly mucronate: racemes axillary, lax, pendulous, about the length of the leaves, 3-12 flowered: legumes linear, slender, much contracted between the seeds, twisting when ripe: calyx 5 cleft: corolla papilionaceous: keel obtuse: petals distinct at the base: flowers yellow. *Fl.* Nearly all the year.—*W. & A. prod.* I. 214.—*Wight's Icon.* t. 32.—*Spr. Syst.* III. 272.—*Æschynomene* Sesban, *Linn.*—*Roxb. fl. Ind.* III. 332.—*Æ.* Indica, *Burm. Ind.*—*Coronilla* Sesban, *Willd.*

- a. *Æschynomene* Suyminta, *Roxb. in E. I. C. Mus. Rheede* VI. t. 27.  
b. Sesban, *Roxb. E. I. C. Mus.*—*Burm. Zeyl.*—Peninsula Bengal.

**USES, &c.** There are two varieties, one the *S. bicolor* which has leaflets 15-18 pairs, flowers orange and vexillum purple on the outside, and the other, *S. concolor*, leaflets 10-12 pairs: vexillum yellow speckled with black dots and lines.

The leaves are much used by the natives as poultices to promote suppuration. The wood makes excellent charcoal in the manufacture of gunpowder. In the plains of the Deccan the tree is cultivated and used as a substitute for Bamboos. *Gibson. Roxb.*

(574) **Sethia indica** (DC.) Nat. Ord. ERYTHROXYLACEÆ.

**Decandria Monogynia.** Sex: Syst:

Tevadarum, Semmanatty, TAM. | Adevi gerents, TEL.  
Dewadar, DUK.

**DESCR:** Small tree: petals 5: leaves alternate, obovate or oblong, obtuse, cuneate at the base, feather-nerved, reticulated with veins, under side pale: pedicels axillary, 1-3, about twice as long as the petiole, 1-flowered: calyx 5-lobed: styles combined nearly to the apex, longer than the stamens; drupes oblong, triangular, 3-celled; 2 of the cells small, abortive, and without seeds, flowers small, greenish. *Fl.* July—December.—*W. & A. prod.* I. 106.—*Wight's Ill.* I. t. 48.—*Erythroxyton monogynum, Roxb. Cor.* I. t. 88; *fl. Ind.* II. 449.—*Spr. Syst.* II. 391.—*Circars.* Travancore mountains. Mysore. Malabar.

**USES, &c.** The timber is flesh coloured, and is considered excellent for the size of the tree. The wood is so fragrant as to be used in Mysore instead of sandal-wood. An empyreumatic oil of a reddish brown colour is procured from it. The young leaves and tender shoots are reckoned refrigerant. Bruised and mixed with gingeley oil they are applied as a liniment to the head. The bark is occasionally administered in infusion as a tonic. *Ainslie. Browne's Jamaica. Lindley. Jury Rep.*

(575) **Shorea robusta** (Roxb.) Nat. Ord. DIPTERACEÆ.

**Polyandria Monogynia.** Sex: Syst:

Sal, HIND. and BENG.

**DESCR:** Tree 100—150 feet: calyx 5-sepalled, afterwards enlarging into long wings: petals 5, twisted in the bud, rather silky outside: leaves cordate-oblong, entire, on short petioles: calyx pubescent as well as the branches of the panicles: panicles terminal and axillary: ovary 3-celled: cells 2-seeded: seeds single: flowers yellow. *Fl.* March—April.—*Don's Mill.* I. 813.—*Roxb. Cor.* III. t. 212; *fl. Ind.* II. 615.—Foot of the Himalayahs. Orissa.



**Uses, &c.** The wood of this tree is in very general use in Bengal for beams, rafters, gun carriages, and for various other economical purposes. It is close grained and heavy, but does not appear to be very durable, and on that account inferior to teak, but in strength it surpasses the latter, and deserves to be considered the second best timber tree in India. It yields a large quantity of resin dammer known as the *Ral* or *Dhooma*, which is extensively used as a substitute for pitch, in the marine yard. It is also burnt for incense in Hindoo temples. Royle observed these trees forming extensive forests of themselves frequently unmixed with any other tree. *Roxb. Royle.*

(576) **Sida acuta** (*Burm.*) Nat. Ord. MALVACEÆ.

**Monadelphica Polyandria** *Sw: Syst:*

Malay-taynghie or Arroca-manopondoo, Vishaboddee, TEL.  
TAM. Tsjeru-parua, MAL.  
Kureta, BENG.

**DESCR:** Shrub 4-6 feet: calyx 5 cleft, without involucre: leaves narrow lanceolate, acuminate, slightly sprinkled with bristly hairs on the nerves beneath, coarsely simple serrated: pedicels axillary, solitary, not shorter than the petioles, jointed about the middle, sometimes arranged in a short axillary almost leafless branch: carpels 5-9, birostrate: flowers yellow. *Fl.* Aug.—Decr.—*W. & A. prod.* I. 57.—*Wight's Icon. t.* 95.—*Spr. Syst.* III. 110.—*S. lanceolata, Retz.*—*S. Stauntoniana, DC.*—*S. scoparia, Lour.*—*Rheede. X. t.* 53.—Peninsula. Bengal.

**USES &c;** The root is bitter and is given in infusion in conjunction with ginger in intermittent fevers. The Hindoos consider it a valuable stomachic, and a useful remedy in chronic bowel complaints. The leaves made warm and moistened with gingeley oil are employed to hasten suppuration. The juice of the leaves mixed with honey is given in dysentery and pains in the chest, and is said to be a remedy in snake bites. *Pers. obs. Ainslie.*

(577) **Sida retusa** (*Linn.*) Do.

*Do.*

Karun-toothie, TAM.

Kurun-thodee, MAL.

**DESCR:** Shrub: leaves obovate, retuse, toothed towards the apex: under side hoary with short tomentum: pedicels axillary, 1-flowered, about as long as the leaves, jointed about the middle: carpels 7-10, birostrate: flowers small, yellow. *Fl.* Aug.—Decr.—*W. & A. prod.* I. 58.—*Roxb. fl. Ind.* III. 175.—*Spr. Syst.* III. 111.—*Roxb. in E. I. C. Mus.*—*Rheede. X. t.* 18.—Travancore. Malabar. Bengal.

USES, &c. The root boiled in oil is used externally and internally in rheumatism. The leaves are used for washing the head.  
*Pers. obs.*

(578) **Sida rhomboidea** (Roxb.). Do.

Swet-baryala, BENG.

Sufed-baryala, HIND.

DESCR: Shrub: leaves rhomboid-lanceolate, serrated: under side hoary with short tomentum: pedicels more than half the length of the leaf, jointed at the very base, axillary, solitary, usually collected into leafy corymbs at the extremity of the branches: carpels 8-11, slightly bicuspidate: flowers smallish, pale yellow. *Fl. Aug.—Decr.—W. & A. prod. I. 57.—Roxb. fl. Ind. III. 176. Roxb. H. B.—Spr. Syst. III. 117.—S. rhombifolia, Wall.—Negapatam. Coromandel. Assam. Cultivated.*

USES, &c. The bark yields abundant delicate, flaxy fibres. A line after exposure to wet and the sun for 10 days bore 400 lbs. The *S. rhombifolia*, Roxb. is a native of Bengal and also yields fibres.

(579) **Sinapis ramosa** (Roxb.) Nat. Ord. BRASSICACEÆ.

**Tetradynamia Siliquosa.** *Sex: Syst:*

Indian Mustard, ENG.  
Racc, BENG.

Kudaghoo, TAM.  
Kadooga, MAL.

USES, &c. The seeds are much used as a condiment. This as well as other species the *S. glauca*, *S. dichotoma*, *S. juncea* and others, are extensively cultivated for the oil yielded by their seeds, as well for dietetical purposes. Mustard oil is reckoned the best kind for anointing the body which it is supposed to invigorate. It is used as a rubefacient. The oil is not exported; of the seeds in 1852-53 about cwt. 16,075 were exported from Madras. *Jury Rep.*

(580) **Smilax ovalifolia** (Roxb.) Nat. Ord. SMILACEÆ.

**Diœcia Hexandria.** *Sex: Syst:*

Carivilandi, MAL.  
Koomurki, BENG.

Kunda gurvatiga, TEL.

DESCR: Stem cylindrical: leaves unarmed, oval, smooth, 5-7 nerved: petioles tendril-bearing: umbels compound: flowers small greenish. *Fl. May—June.—Wight's Icon. t. 809.—Roxb. fl. Ind. III. 794.—Rheede VII: t. 81.—Circars in hedges and Forests. Travancore.*

**USES, &c.** This plant possesses apparently all the virtues of the true Sarsaparilla. The root is cephalic, mixed with ginger, cucumber, and oil, and so applied to the head. Another way is by mixing it with liquorice, bark of the *Strychnos N. vomica*, and tamarind juice, and oil. The bulb of the root mixed with cucumber is given in catarrh. *Rheede. Pers. obs.*

(581) **Solanum ferox** (*Linn.*) Nat. Ord. SOLANACEÆ.

**Pentandria Monogynia. Sex: Syst:**

Ana-choonday, TAM.  
Ana-chunda, MAL.

Ram-begoon, BENG.

**DESCR:** Shrub 2-3 feet: root perennial: branchlets rising from the axils of the smallest leaves, downy, armed with numerous erect spines: leaves twin, obcordate, sinuately angular: upper surface covered with soft hairs, under whitish: nerves and veins armed with strong straight prickles: petioles hairy, prickly: larger ones partly coloured: umbels generally opposite, and below the leaves, few flowered: peduncles and pedicels hairy unarmed: flowers large, white: calyx and corolla hairy: berries yellow, size of a nutmeg, round, covered with hairs, 4-celled. *Fl.* August—October.—*Wight's Icon. t.* 1,399, 1,400.—*Roxb. fl. Ind. ed. Car. II.* 253.—*S. involucratum, Bl.*—*S. lasiocarpum, Dun.*—*S. hirsutum, Roxb. fl. Ind. I.* 571.—*S. mammosum, Lour.*—*Rheede. II. t.* 35.—Coromandel. Travancore. Bengal. S. Concan.

**USES, &c.** This is a scarce plant. An infusion of the root is given in acute rheumatism attended by fever. *Pers. obs.*

(582) **Solanum Indicum** (*Linn.*)<sup>\*</sup> Do.

Do.

Indian night shade, ENG.  
Moollie, TAM.  
Tella mulaka, TEL.

Kolsi, DUK.  
Cheruchunda, MAL.  
Byakoor, BENG.

**DESCR:** Shrub, armed; prickles of stem compressed, recurved: leaves solitary, or twin, oblong or ovate, tomentose, discoloured sinuately lobed, unequal at the base, prickly on both surfaces: racemes interfoliaceous: calyx prickly: segments reflexed: berries globose: corolla deeply 5-cleft, blue: berries orange-yellow. *Fl.* Nearly all the year.—*Wight's Icon. t.* 346.—*Don's Mill. IV.* 433.—*Roxb. fl. Ind. I.* 570.—*ed. Car. II.* 252—*S. violaceum, Jacq.*—*S. canescens, Bl.*—*Rheede. II. t.* 36.—All over India.

**USES, &c.** The root is used by Indian doctors in cases of dysuria and ischuria in the form of decoction. It is said to possess strong exciting qualities, if taken internally, and is employed in difficult parturition. It is also used in toothache. There are varieties of the plant differing chiefly in the shape of the leaves. An infusion of the root is given in fevers and coughs and the juice of leaves boiled with the juice of fresh ginger is administered to stop vomiting. The leaves and fruit mixed with a little sugar are rubbed on the body in itch. *Rheede. Ainslie. Horsf. Rumph. Pers. obs.*

(583) **Solanum Jacquini** (*Willd.*) Do.

*Do.*

Cundunghatree, TAM.  
Van-kuda or Nella Mollunga, TEL.

Kootaya, HIND.  
Chudra Kanta-karee, BENG.

**DESCR:** Procumbent: diffuse: prickly: leaves sinuately pinnatifid, prickly on both surfaces with naked margins: racemes simple, which as well as the calyx are prickly: corolla bluish-purple. *Fl.* All the year.—*Don's Mill.* IV. 437.—*Wight's Icon.* t. 1401.—Coromandel. Travancore.

The varieties are

- a. Fruit larger, plant less armed. *S. diffusum*, *Roxb. fl. Ind.* I. 568.—*ed. Car.* II. 250.—*S. xanthocarpum*, *Willd. Roem. and Schult.*—Coromandel. Deccan.
- b. Fruit smaller: plant strongly armed. *S. Jacquini*, *Willd.—Roxb. fl. Ind.* I. 569.—*ed. Car.* II. 251.—*S. Virginianum*, *Jacq.* (not *Linn*)—Kanta-karee. Flowers bright blue.—Bengal.

**USES, &c.** The fruit is bitter and sub-acid, considered as an expectorant by the natives and given by them in coughs and consumptive complaints: also, in decoction in humoral asthma. In the West Indies the juice of the berry is used in cases of sore throat. The fruits are much esteemed by the natives who eat them in their curries. For this purpose the plant is cultivated in the Circars. *Rheede* says the berries are good for the digestion. The roots beaten up and mixed with wine are given to check vomiting. *Ainslie. Rheede. Roxb.*

(584) **Solanum melongena** (*Linn.*) Do.

*Do.*

The Brinjal or Egg-plant, ENG.  
Valoothala, MAL.

Valoothalay, TAM.  
Wankai, TEL.

**DESCR:** Perennial: stem clothed with stellate tomentum

leaves ovate, unequal at the base, angularly sinuated, downy : flowering peduncles solitary, reflexed : calyx prickly, campanulate : segments linear lanceolate : corolla violaceous, 6-9 cleft, marked by a yellow star inside : fruit oval, smooth. *Fl.* Nearly all the year.—*Don's Mill.* IV. 432.

The varieties are

- a. Stem, leaves, and calyxes, unarmed or nearly so. (*Solanum ovigerum*, *Dun. Rom. and Sch.*;—*S. Melongena*, *Linn.*—*Willd. Roxb. fl. Ind.* I. 566.—*ed. Car.* II. 248;—*S. pseudo-undatum*, *Bl.*) Begoon. *Beng.* Brinjal, Egg plant, *Eng.* Bangan, *Hind.* Wankai, *Tel.* All over India. *Fl.* largish, violet.
- b. Stem, leaves, and calyxes more or less aculeate. (*Solanum esculentum*, *Dun.*;—*S. Melongena*, *Linn. suppl.*—*S. insanum*, *Linn. Willd.*—(not *Roxb.*)—*S. longum*, *Roxb. Fl. Ind.* I. 567.—*ed. Car.* II. 248.—*Neelavaloothana*, *Rheede. X. t.* 74.)—*Kooli-begoon*, *Beng.* Long Brinjal. *Fl.* largish, bright bluish-purple.

The fruit of each of these varieties is either ovate-oblong or oblong, violet or white; or globular (larger and smaller,) violet; or more and less globular, white, or white striped on a violet ground.

• *Uses, &c.* The Brinjal is universally cultivated in India as an esculent vegetable, belonging to an order of plants remarkable for their poisonous as well as harmless qualities. On this subject *Dr. Lindley* has well remarked. "The leaves of all are narcotic and exciting, but in different degrees, from the *Atropa Belladonna* which causes vertigo, convulsions, and vomiting, the well known Tobacco, which will frequently produce the first and last of these symptoms, the Henbane and Stramonium, down to some of the *Solanum* tribe, the leaves of which are used as kitchen herbs. It is in the fruit that the greatest diversity of character exists. *Atropa Belladonna*, *Solanum nigrum*, and others are highly dangerous poisons; *Stramonium*, *Henbane*, and *Physalis* are narcotic, the fruit of *Physalis Alkekengi* is diuretic; that of *Capsicum* is pungent and even acrid, some species of *Physalis* are sub-acid, and so wholesome as to be eaten with impunity, (f. ex. the well known *Tepariga*;) and finally the Egg-plant, (*Solanum Melongena*, *Brinjal*.) and all the Tomato tribe of *Solanum*, yield fruits which are common articles of cookery. It is stated that the poisonous

species derive their properties from the presence of a pulpy matter which surrounds the seeds ; and that the wholesome kinds are destitute of this, the pulp consisting only of what Botanists call the sarcocarp, that is to say, the centre of the rind, in a more or less succulent state. It must also be remembered, that if the fruit of the Egg-plant is eatable, it only becomes so after undergoing a peculiar process, by which all its bitter acrid matter is removed, and that the Tomato is always exposed to heat before it is eaten." Rheede states that the oil of the seeds of the Brinjal taken with opium is a vehement poison, to which the leaves bruised and mixed with water, are an antidote. The juice is given to cattle when suffering from internal abscess. The fruit punctured with a needle and boiled in gingeley oil, is a remedy in tooth-ache. *Rheede. Lindley.*

(585) **Solanum trilobatum** (*Linn.*) Do.

*Do.*

Toodavullay, TAM.

Moondla moosteh, Oochinta Kura,  
TEL.

DESCR : Climbing shrub : stem armed with numerous very sharp recurved prickles : leaves remote, panduriformly 3-5 lobed, smooth on both sides : petioles and veins armed : peduncles prickly, leaf opposed, solitary, few flowered, terminal and axillary : corolla deeply 5-cleft, bluish-purple : berries small globose, red, drooping. *Fl.* Nearly all the year.—*Don's Mill.* IV. 437.—*Wight's Icon. t.* 854.—*Roxb. fl. Ind.* I. 571.—*ed. Car.* II. 253.—*S. acetosæfolium, Lam.*—Deccan. Cape Comorin.

USES, &c. The root, leaves, and tender shoots are all used medicinally. The two first in decoction or powder in consumptive complaints : the leaves are eaten by the Hindoos. The berries and flowers are given internally in decoction for coughs. *Ainslie.*

(586) **Solanum verbascifolium** (*Linn.*) Do.

*Do.*

Mullum Choonday, MAL.  
Mallum Choondie, TAM

Rusa-ghedi-maun, TEL.  
Urusa, BENG.

DESCR : Shrub 6-7 feet : calyx and corolla 5-cleft : leaves alternate, ovate-oblong, acuminate, quite entire, tomentose, white beneath, no leaves in the axils ; corymbs nearly terminal, dichotomous : corolla small, white : berries size of small cherries, green.

*Fl.* April—July.—*Wight's Icon. t.* 1398.—*Don's Mill.* IV. 415.—*S. pubescens*, *Roxb. fl. Ind.* I. 564.—*ed. Car.* II. 244.—(not *Willd.*)—All over India. Travancore.

USES, &c. Every part of this plant is clothed with powdery white tomentum. The Natives put the berries in curries. It is brought from the jungles for that purpose and cultivated in gardens. Roxburgh states that in the Circars it grows to be a small tree with a thick shady head. *Roxb. Per. obs.*

(587) **Sonneratia acida** (*Linn.*) Nat. Ord. MYRTACEÆ.

**Icosandria Monogynia.** *Sex: Syst:*

Blatti, MAL.

| Orchaka, BENG.

DESCR: Small tree: leaves opposite, oval-oblong, quite entire, thick, veinless: branchlets drooping, 4-angled: calyx campanulate: petals 6, narrow-lanceolate: fruit a berry, nearly globose, many celled: seeds numerous surrounded with a fleshy pulp, curved: flowers in threes or sometimes solitary, large, purple. *Fl.* April—May.—*W. & A. prod.* I. 327.—*Wight's Icon. t.* 340.—*Roxb. fl. Ind.* II. 506.—*Spr. Syst.* II. 493.—*Rhizophora caseolaris*, *Linn.*—*Rheede.* III. t. 40.—Malabar. Sunderbunds. Delta of Indus.

USES, &c. It is said that the wood of this tree is the best substitute for coal in steamers. The tree grows in great quantities in the Delta of the river Indus. It grows also in Malabar on the banks of tidal backwaters. The Natives eat the fruit mixed with other food: it is said to be cooling. The bruised leaves are applied to the head in delirious fevers. *Rheede. J. Grah.*

(588) **Sophora tomentosa** (*Linn.*) Nat. Ord. LEGUMINOSÆ.

**Decandria Monogynia.** *Sex: Syst:*

DESCR: Shrub or small tree: calyx 5-toothed, tomentose: leaves irregularly pinnated: leaflets 15-19, oval-roundish, very obtuse, covered on both sides with hoary tomentum: racemes terminal: legumes moniliform, not winged, many seeded: flowers bright yellow, fragrant. *Fl.* June—July.—*W. & A. prod.* I. 179.—*Roxb. fl. Ind.* II. 316.—*S. occidentalis*, *Linn. sp.*—Peninsula. Cultivated in gardens.

USES, &c. The seeds are very bitter and are administered in cholera, dose 3 or 4, rubbed up with water. A cold infusion of the root is said to be a specific in spurious pleuritis. *Rumphius*.

(589) **Sorghum vulgare** (*Pers.*) Nat. Ord. GRAMINACEÆ.

**Triandria Digynia.** *Sex: Syst:*

Great Millet, ENG.  
Jonna, TEL.

Cholum, TAM.  
Jowari, BENG.

DESCR: Culms erect: panicles contracted, dense: hermaphrodite: calyxes hairy: corolla 3-valved, awned.—*Roxb fl. Ind.* I. 269.—*ed. Car.* II. 273.—*S. commune*, *Beauv.*—*Holcus sorghum*, *Linn.*—*H. Durra*, *Forsk.*—*Andropogon Sorghum*, *Brot.*—Cultivated.

USES, &c. This species is cultivated for its grain which is much is used as food. The produce in good soil is often upwards of a hundred fold. Cattle are very fond of the straw; the latter is also a substitute for forage for horses, when gram is not obtainable. The *S. bicolor*, (*Willd.*) is also used for the same purposes. *J. Grak. Roxb.*

(590) **Soymida febrifuga** (*Juss.*) Nat. Ord. CEDRELACEÆ.

**Monadelphia Decandria,** *Sex: Syst:*

Red-Wood Tree, ENG.  
Shem-marum, Woond-marum, TAM.  
Soimida, TEL.

Rohana, HIND.  
Rohun, BENG.

DESCR: Tree 60 feet: petals 5-shortly unguiculate: calyx 5-toothed: leaves abruptly pinnate: leaflets opposite, 3-6 pair, oval-oblong, obtuse: panicles terminal or axillary from the upper leaves: capsules 5-celled: seeds numerous winged: flowers small, greenish-white. *Fl.* March—April.—*W. & A. prod.* I. 122.—*Swietenia febrifuga*, *Roxb. Cor.* I. t. 17; *fl. Ind.* II. 398.—Central and Southern Provinces. Guzerat.

USES, &c. The wood of this tree is of a dull-red colour, remarkably hard and heavy: it is reckoned by the natives the most durable of woods, on which account it is greatly used in their temples for wood work. The bark is internally of a light-red colour, a decoction of it dyes brown of various shades according as the cloth is prepared. It has a bitter and astringent taste but not nauseous or disagreeable, and may be used in the same way as Peruvian bark. The bark is a good tonic in intermittent fevers, but if taken in too large quantities is apt to derange the nervous system occasioning



vertigo and stupor. The virtues of the bark are extracted by water both in infusion and decoction : but the tincture is perhaps the most valuable of all its preparations, when the bark is as good as a stomachic. *Ainslie. Roxb.*

(591) **Spathodea Rheedii** (*Spreng.*) N. O. BIGNONIACEÆ.

**Didynamia Angiospermia.** *Sex : Syst :*

Woody, Tel.

Nir pongelion, MAL.

**DESCR :** Small tree : leaves unequally pinnate, downy : leaflets 3-7-pairs roundish : racemes terminal, erect : calyx spathaceous : flowers pure white with a long tube and plaited border : pod about a foot long, linear, twisted, pendulous. *Fl.* May-June.—*Wight's Icon. t.* 1339.—*J. Grak. Cat.* 125.—*Bignonia spathacea, Roxb. Cor. II. t.* 144 ; *fl. Ind. III.* 103.—*B. falcata, Koen. MSS. Don's Mill. IV.* 222.—*Rheede. VI. t.* 29.—Bombay. In gardens. Khandalla Ghauts. Malabar.

**USES, &c.** Nets are made from the fibres of the branches and roots, and a red decoction prepared from the root, the fishermen say, preserves the nets. The kernels mixed with dried ginger rubbed with fruit and the root of Pavetta is given in spasmodic affections, and make a good liniment applied to the parts affected. *Rheede.*

(592) **Spathodea Roxburghii** (*Spreng.*) Do.

*Do.*

**DESCR :** Large tree : leaves 3 in a whorl, or scattered, imparipinnate : leaflets 4-5 pairs, serrated, smooth : panicles erect, terminal, downy, many flowered : fruit narrow, 4-celled : calyx spathaceous, generally 2-parted, upper lip 2-cleft, very downy : flowers large, rose-coloured, very fragrant : limb of corolla with edges waved : seeds membranaceous. *Fl.* Feb.—March.—*Don's Mill. IV.* 223.—*Bignonia quadrilocularis, Roxb. Cor. II. t.* 145.—*fl. Ind. III.* 107.—Circular mountains. Bombay. S. Mahratta Country.

**USES, &c.** The wood is employed for various economical purposes. This species is remarkable for its serrated leaves. *Roxb.*

(593) **Spondias mangifera** (*Pers.*) Nat. Ord. ANACARDIACEÆ.**Decandria Pentagynia**    *Sex: Syst:*

Hog-plum, or Wild Mango, ENG.  
 Caat maavu, TAM.  
 Adivie mamadie, Amatum, TEL.

Cat-ambolom, MAL.  
 Junglie-am, DUK.  
 Amna, BENG.

DESCR: Large tree: calyx small, 5-cleft: petals 5, spreading: leaves alternate, unequally pinnated: leaflets 4-5 pairs, ovate or elliptic-oblong, oblique at the base, entire, glabrous: panicles axillary and terminal, diffuse: drupe oval, yellow: nut oblong, very hard: flowers small white. *Fl.* March.—*W. & A. prod.* I. 173.—*Roxb. fl. Ind.* II. 451—S. Amara, *Lam.*—S. paniculata, *Roxb. in E. I. C. mus.*—*Mangifera pinnata*, *Kæn. Linn. supp.* (not *Lam.*)—*Poupartia mangifera*, *Blume*—*Rheede.* I. t. 50.—Bengal. Peninsula. Travancore.

USES, &c. The fruit is eaten when ripe. It is of a yellowish green colour. Before ripening it makes excellent pickles. A mild insipid gum exudes from the bark. *Rheede* says the leaves are agreeably acid and also that on the Malabar Coast the root is considered as emmenagogue. The bark is used in dysentery and a decoction of the wood in gonorrhœa. The juice of the leaves bruised mixed with the fruit is given in ear-ache. *Rheede.*

(594) **Spermacoce hispida** (*Linn.*) Nat. Ord. CINCHONACEÆ.**Tetrandria Monogynia**    *Sex: Syst:*

Shaggy Button Weed, ENG.  
 Nuttee choorie, TAM.

Thartavel, MAL.  
 Madana, TEL.

DESCR: Plant 1½ foot, herbaceous, diffuse hairy: leaves from obovate-oblong to roundish, somewhat mucronate, flattish or waved; bristles of stipules longer than the hirsute sheath: flowers axillary, 1-4 together, sessile: tube of corolla rather wide: fruit hirsute or villous, oval, crowned with the 4-calycine-teeth: flowers small purplish. *Fl.* Nearly all the year.—*W. & A. prod.* I. 438.—*Roxb. fl. Ind.* I. 373. *ed. Car.* I. 379—S. hirta, *Rottl.*—S. scabra, *Willd.*—*Rheede* IX. t. 76.—Peninsula. Travancore. Bengal.

USES, &c. The root, which is not unlike Sarsaparilla in taste is employed for similar purposes, viz., as an alterative and purifier of the blood. It is given in decoction. *Ainslie.*

(595) **Sphaeranthus hirtus** (*Burm.*) Nat. Ord. ASTERACEÆ.**Syngenesia Segregata** Sex: Syst:Kottang-Karundie, TAM.  
Adaca majyen, MAL.  
Bodatarum, TEL.Moondie, DUK.  
Chagul-nudie, BENG.

DESCR: Small plant with herbaceous stem, leaves lanceolate, serrate, alternate: peduncles curled: flowers solitary, terminal, subglobose, purplish red. *Fl.* Nearly all the year.—*Wight's Icon t.* 1094.—*Miller's Dict.*—*S. mollis*, *Roxb. fl. Ind.* III. 446. *Rheede mal.* X. t. 43.—Peninsula. Common on the banks of rice fields.

USES, &c The whole plant according to Rheede, (except the root,) is used in decoction in stomach complaints, especially if mixed with pulverised cummin seeds: also mixed with honey it is used in coughs. A liniment is made from it externally applied in scabies and other cutaneous complaints. The seeds are considered as antheimintic and are prescribed in powders. The root powdered is stomachic and the bark of the same ground small and mixed with whey is a valuable remedy for piles. In Java the plant is reckoned a useful diuretic. *Ainslie. Rheede.*

(596) **Sterculia foetida** (*Linn.*) N. O. STERCULIACEÆ.**Monœcia Monadelphica.** Sex: Syst:Kudrapdukku,  
Peenaree marum, TAM.

Jungle-baddam, BENG.

DESCR: Tree: leaves compound, peltate; leaflets 7-9, oblong, lanceolate, acuminate; young ones slightly pubescent: flowers paniced: calyx deeply divided, segments lanceolate, slightly velvety within: carpels oblong, many-seeded: flowers brownish tinged with red at the base, very fetid. *Fl.* March.—*W. & A. prod.* I. 63.—*Roxb. fl. Ind.* III. 154.—*Wight's Icon.* t. 181, 364.—Peninsula. Bengal. Travancore.

USES, &c. Every part of this tree has a most unpleasant smell when bruised and cut. The wood is pale, lasting, and does not split: it is therefore suitable for the turner, and if well varnished makes handsome vases, &c. The leaves and bark are aperient, repellent, diuretic and diaphoretic. The seeds are oily, and if swallowed incautiously they bring on nausea and vertigo. Horsfield says a decoction of the capsule is mucilaginous and astringent. The seeds if roasted are edible. It is a most useful tree, and furnishes some of the masts known as *Poon-spars*. *J. Grah. Ainslie. Roxb.*

(597) **Sterculia guttata** (Roxb.) Do.

Do.

Pee marum, TAM.

Ramenapoo-marum, MAL.

DESCR: Tree 70 feet: leaves between broadly and oblong-ovate, entire, obtuse, or with sudden acumination, prominently nerved and veined beneath: young leaves densely pubescent: racemes somewhat fasciated: pedicels short: calyx deeply 5-cleft, tomentose; segments lanceolate, distinct: flowers yellow. *Fl.* December.—*W. & A. prod.* I. 62.—*Wight's Icon.* II. t. 487.—*Roxb. fl. Ind.* III. 148.—*Rheede* IV. t. 61.—Peninsula.

USES, &c. The root is aromatic. The bark of the young parts of this tree is converted by the Natives of the Western Coast into a flaxy substance of which they make a sort of clothing and cordage. The inner bark being very tough and pliable. "The bark is not used till the 10th year, the tree is felled, branches lopped, trunk cut into pieces of 6 feet long, a perpendicular incision made in each, the bark opened, taken off entire, chopped, washed and dried in the sun." In this state it is used for clothing. The fibres of the bark are well adapted for cordage. *Royle.*

(598) **Sterculia urens** (Roxb.) Do.

Do.

Kavalee, TEL.  
Vellay Bootalli, TAM.

Bulee, HIND.

DESCR: Tree: leaves palmately 5-lobed, soft velvety beneath lobes acuminate, entire: calyx campanulate: panicles terminal: carpels ovate, hispid with rigid bristly hairs, pubescent within: seeds several in each carpel: flowers small, yellow. *Fl.* February—March.—*W. & A. prod.* I. 63.—*Roxb. fl. Ind.* III. 145.—*Cor.* I. t. 24.—Courtallum. Concans.

USES, &c. The wood is soft and spongy. It is used to make Hindoo guitars. The bark is very astringent, and tinges the saliva reddish. The seeds are roasted and eaten. The bark yields a gum resembling Tragacanth, and is used as a substitute for it. The seeds are said to be cathartic. A kind of Coffee may be made from them. *Gibson. Roxb.*

- (599) \***Sterculia villosa** (Roxb.) Do.  
Do.

DESCR: Tree: leaves deeply and palmately 5-7 lobed; underside soft velvety: lobes acuminate, deeply toothed: calyx 5-partite, patent: carpels coriaceous, rough with stellate pubescence: flowers small, pale yellow scarlet. *Fl. March.*—*W. & A. prod.* I. 63.—*Roxb. fl. Ind.* III. 153.—Peninsula. Assam.

USES, &c. Bags and ropes are made of the fibrous bark. The bark is easily stripped off the whole length of the tree: finer ropes are made from the inner bark, not injured by wet and besides being strong and durable. *Royle.*

- (600) **Strychnos colubrina** (Linn.) N. O. LOGANIACEÆ.

**Pentandria Monogynia. Sex: Syst:**

Snakewood tree, ENG.		Nagamusadi, TEL.
Modira-caniram, MAL.		Koochila-luta, BENG.

DESCR: Climbing shrub: calyx 5-parted: corolla tubular with a 5-parted spreading limb: leaves opposite; from oval to oblong, bluntly acuminate, 3-nerved: berries globose, pulpy, many seeded: tendrils lateral, simple: corymbs terminal, composed of 2-3 pairs of villous branches: flowers small, greenish yellow: berry as large as an orange: rind yellowish.—*Wight's Icon.* t. 434. *Don's Mill.* IV. 65.—*Roxb. fl. Ind.* I. 577.—*ed. Car.* II. 265.—*Rheede* VIII. t. 24.—Malabar.

USES, &c. This species yields the real or at least one sort of *Lignum Colubrinum*. The wood is esteemed by the Telinga doctors as an infallible remedy in the bite of the *Naga* snake, as well as for that of every other venomous serpent. It is applied both externally and internally. It is also given in substance for the cure of intermitten fevers. The tree is called by the Telingas *Nagamusadi* or *Tansoopaum*, the latter word in their language means the *Cobra-de-Capella* or *Coluber-naga* of Linnæus, *Tansoo* means dancing, and *paum* a serpent, this sort being famous for erecting its head and moving it from side to side at the sound of music. In Java, the plant is used in intermitten fevers, as an anthelmintic, and externally in cutaneous diseases especially for alleviating the pain attending the swelling in the confluent small-pox. An excellent bitter tincture is prepared from it by the Malays. Some say it has purgative qualities the part used being the root which is woody and covered with iron-coloured bark. The root rubbed up with pepper is given in diarrhœa and stomach complaints. Leaves boiled with ginger and milk to the consistence of an ointment is a good

\*This plant yields the valuable Elephant Ropes used in the Anamallay Forests.

external application in rheumatism. *Ainslie. Horsfield. Rheede. Roxb.*

(601) **Strychnos Nux vomica** (Linn.)

Do.

Do.

Vomit-nut or Poison-nut tree,  
Yettie-marum, TAM.  
Cariram, MAL.

Moostighanga, Musadi, TEL.  
Coochla, DUK. or HIND.

DESCR: Tree, middling size: leaves opposite, smooth: shining, 3-5 nerved, oval: calyx 5 parted: corolla ovate, tubular, funnel-shaped: flowers small, greenish white, collected into terminal corymbs: berry round, smooth size of a small apple, orange coloured, when ripe, many seeded: pulpy. *Fl.* December—January.—*Don's Mill.* IV. 65.—*Roxb. Cor.* I. 4; *fl. Ind.* I. 575—*ed. Car.* II. 262.—*Rheede I. t.* 37.—Coromandel. Travancore.

USES, &c. The wood of this tree being hard and durable is used for many purposes. It is exceedingly bitter, particularly that of the root, which is used in the cure of intermittent fevers, and the bites of venomous snakes. The seeds are employed in the distillation of country spirits, to render them more intoxicating. The pulp of the fruit is harmless. Birds eat it greedily. *Nux Vomica* is one of the narcotico-acrid class of poisons, and seems to act directly upon the spinal cord. Mr. Duprey has ascertained that by numerous experiments the fruit of *Feuillea cordifolia* is a powerful antidote against this and other vegetable poisons. *N. Vomica* has for a long time been known as a powerful medicine, and is employed in a variety of diseases. It has been effectually used in paralysis as it acts upon the spinal marrow without affecting the brain. It is also given in partial or general palsies and various kinds of local and general debility. *Strychnine* is a preparation of *N. vomica*. The Vytians say that the seeds will produce mental derangement or death itself if an overdose be taken. The nut when finely pounded and mixed with margosa-oil is considered tonic and astringent given in minute doses. They recommend it in chronic rheumatism and blended with white of egg they employ it as a repellent. The seeds are given in leprosy, paralysis, and bites of venomous serpents: and are used by the lower Natives as a stimulant, like opium, in very small doses. A decoction of the leaves externally in paralysis and rheumatic swelling of the joints. The root is useful in gout if the part affected is rubbed. The decoction is also in vertigo and in bilious complaints. The bark mixed in rice water is antibilious. The leaves are given in decoction for rheumatism, and for catarrh applied externally. The juice from the leaves expressed and given in decoction is good for head-ache. If taken internally it is poisonous. The seeds of the

fruit if taken for two years one or two every day have the effect of rendering innoxious bites of poisonous Cobras. They are occasionally exported from Madras. *Ainslie. Don. Rheede.*

(602) **Strychnos potatorum** (Linn.)

Do.

Do.

Clearing nut tree, ENG.  
Tettan-cottay marum, TAM.  
Tettamparel marum, MAL.

Tailla ghenjaloo, Induga, TEL.  
Ner mullie, BENG. and HIND.

**DESCR:** Tree: calyx 5 parted: corolla funnel-shaped: leaves opposite, from ovate to oval, glabrous, pointed: bark deeply cracked: corymbs form the tops of the old shoots round the base of the new ones, bearing in ternary order, many small, greenish-yellow fragrant flowers: berry shining, black when ripe, 1-seeded. *Fl.* April.—May — *Don's Mill.* IV. 65.—*Roxb. fl. Ind.* I. 576 — *ed. Car.* II. 263.—*Cor.* I. t. 5.—Mountains and Forests of the Peninsula.

**USES, &c.** The wood is hard and durable and used for many economical purposes. The pulp of the fruit, when ripe, is eaten by the natives. The ripe seeds are dried, and sold in the bazaars to clear muddy water. One of the seeds is well rubbed for a minute or two round the inside of the chatty or vessel containing the water, which is then left to settle; in a short time the impurities fall to the bottom, leaving the water clear and perfectly wholesome. They are easier to be obtained than alum, and are probably less hurtful to the constitution. The fruit is reckoned emetic by the native doctors in S. India given in powder. The seeds in powder mixed with honey are applied to boils to hasten suppuration: also with milk in sore eyes. *Ainslie. Roxb. Pers. obs.*

(603) **Stylocoryne Webera** (A. Rich.) N. O. CINCHONACEÆ.

**Pentandria Monogynia. Sex: Syst:**

Cupi, MAL.

Commi, TEL.

**DESCR:** Shrub, glabrous: leaves lanceolate-oblong, shining: corymbs trichotomous, terminal: calyx 5-cleft: tube of corolla short, twice the length of the calyx-tube, widened and bearded at the mouth: segments of limb recurved, villous at the base along the middle, about twice as long as the tube: berry 2-celled: cells 4-8 seeded: flowers small white afterwards cream-coloured, fragrant. *Fl.* March—May.—*W. & A. prod.* I. 401.—

*Wight's Icon. t. 309, 584.*—*Webera corymbosa, Willd.—Roxb. fl. Ind. I. 696.—ed. Car. II. 533.*—*Canthium corymbosum, Pers.*—*Rondeletia Asiatica, Linn.*—*Cupia corymbosa, DC.*—*Gardenia Pavetta, Roxb. in E. I. C. mus.*—*Tarenna Zeylanica, Gärtn.*—*Pavetta Wightiana, Wall.*—*Ixora alba, Herb. Sm.—Rheede II. t. 28.*—Coromandel. Malabar. Concan.

USES, &c. The young shoots are frequently covered with a resinous exudation. The leaves and fruit bruised and mixed with milk are applied as a good remedy in pustular eruptions of the fingers and toes. *Rheede.*

(604) **Syzygium Jambolanum** (DC.) N. O. MYRTACEÆ.

**Icosandria Monogynia. Sex: Syst:**

Nawel, TAM.  
Perin-njara, MAL.  
Jamooh, HIND.

Kallajam, BENG.  
Naredoo, TEL.

DESCR: Tree: leaves oval or oblong, more or less acuminate or obtuse, feather-nerved, coriaceous: cymes paniced, lax, usually lateral on the former year's branches, occasionally axillary or terminal: calyx shortly turbinate, truncated: berry olive-shaped, often oblique: flowers small white. *Fl. March.—W. & A. prod. I. 329.—Wight's Icon. t. 535, 553.*—*Eugenia Jambolana, Lam.—Wight's Ill. II. p. 16.—Roxb. fl. Ind. II. 484.*—*S. caryophyllifolium, DC.—E. caryophyllifolia, Lam. (not Roxb.)—Rheede V. t. 29.*—Peninsula. Bengal. Tinnevely.

USES, &c. The fruit is eatable. The whole tree has astringent properties, and the leaves and bark are used in Indian medicine. The timber is fine, hard, and close grained. The bark dyes excellent durable browns of various shades according to the mordant employed, or the strength of the decoction. *Roxb. Wight.*



## T.

(605) **Tabernaemontana****coronaria** (*R. Br.*) Nat. Ord. APOCYNACEÆ.**Icosandria Monogynia.** *Sex: Syst:*Nandiaer-vatam, TAM.  
Phirki-tugur, BENG.

Nandiaer-vatam, MAL.

**DESCR:** Shrub 6-8 feet : leaves opposite, spreading, lanceolar, smooth, shining deep green : margins slightly waved : stipules axillary : peduncles generally solitary, from the divisions of the branchlets, 1-2 inches long, 1-8 flowered : flowers pure white, yellow within the tube, fragrant : calyx 5 toothed corolla funnel shaped : tube contracted towards the mouth and crowned with small yellow glands : segments obliquely ovate, curled at the margins : stamens inserted rather below the middle of the tube : foli-oles spreading and recurved singly, 1-3 inches long : seeds 3-6 striated, each enclosed in pulpy aril. *Fl.* Nearly all the year.—*Wight's Icon.* II. t. 477.—*Roxb. fl. Ind.* II. 23.—*T. divaricata*, *R. Br.*—*Nerium coronarium*, *Ait.*—*N. divaricatum*, *Lin. fl. Zeyl.*—*Rheede* II. 55.—Peninsula. Bengal.

**USES, &c.** There is a variety with double flowers, which are very fragrant at night. It is more common in gardens than the single one. The juice of the flowers mixed with oil is good for sore eyes and the root chewed in the mouth is a remedy for tooth-ache. The root also if bruised and mixed with water is given as a vermifuge and mixed with lime juice the natives apply it to the eye in dimness of sight. *Rheede.*

(606) **Tabernaemontana crispa** (*Roxb.*) N. O. APOCYNACEÆ.**Pentandria Monogynia.** *Sex: Syst:*

Curutu pala, MAL.

**DESCR:** Shrub : leaves opposite, oblong, pointed, shining above, waved, smooth : branches dichotomous : peduncles springing from

the divisions of the branchlets, solitary, few flowered; calyx 5 cleft; segments of the corolla falcate, curled: flowers pure white, slightly fragrant: follicles twin, recurved: dehiscent, orange coloured: tube of corolla gibbous above the middle, and there the stamens are inserted: seeds numerous inclosed each in its own aril. *Fl.* Nearly all the year.—*Wight's Icon.* II. t. 470.—*Roxb. fl. Ind.* II. 24.—*Don's Mill.* IV. 81.—*T. alternifolia*, *Linn.*—*Rheede* I. t. 46.—Coromandel. Travancore.

**USES, &c.** This is a common species found along the road sides at Trevandrum and elsewhere in Travancore. The bark of the root infused in warm water is said to stop flux and given with milk is good in dysentery: rubbed up with water and applied to boils it will reduce them. *Rheede.*

(607) **Tacca pinnatifida** (*Forsk.*) Nat. Ord. TACCACEÆ.

*Hexandria Monogynia.* Sex: Syst:

Carachunay, TAM.  
Kunda, DUK.

Cunda, TEL.

**DESCR:** Root tuberous, perennial, very large, round and smoothish with a few fibres issuing from the surface: leaves radical, 3-parted: divisions 2-3 partite, and alternately pinnatifid: margins waved: petioles slightly grooved, 1-3 feet long: scapes radical, round, smooth, slightly grooved, and striped with darker and paler green: umbels consisting of 10-40 long-pedicelled, drooping, greenish flowers intermixed with as many long drooping bracts: involucrel 6-12 leaved: leaflets lanceolate, recurved, beautifully marked with pale purple veins: calyx globose, fleshy, 6-cleft: segments incurved, green with purplish margins: corolla none. *Fl.* June—August.—*Roxb. fl. Ind.* II, 172.—*T. pinnatifolia*, *Gaertn.* —Concans. Parell Hills, Bombay.

**USES, &c.** The root is intensely bitter when raw but yielding a great quantity of white fecula, of which the best flour for confectionary, &c. is made. In the South Sea Islands where every kind of grain disappears, its place is partly supplied by these fleshy tubers. The fecula much resembles arrowroot and is very nutritive. It possesses a considerable degree of acrimony, says Ainslie and requires frequent washing in cold water previous to being dressed. In Travancore, where the root grows to a large size and is called *Chanay kalungoo* it is much eaten by the natives who mix some agreeable acids with it to subdue its natural pungency. *Roxb. Ainsl.*

**(808) Tamarindus Indica (Linn.) Nat. Ord. LEGUMINOSÆ.****Monodelphia Decandra, Sw: Syst:**

Tamarind or Indian Date, ENG. |

Chinta-chettu, TEL.

Poolie, TAG.

Umbli, HIND. or DUK.

Balam Poolie, MAL.

**DESCR :** Tree 80 feet : calyx limb bilabiate, reflexed : petals 3, alternate with the segments of the upper lip of the calyx : seven short stamens all sterile, the others longer fertile : leaves abruptly pinnated : leaflets numerous : legumes linear more or less curved, 1-celled, many seeded : seeds compressed, bluntly 4-angled : flowers in racemes with straw-coloured calyx and yellow petals streaked with red, purple filaments and brown anthers. *Fl.* May.—June.—*W. & A. prod.* I. 285.—*Roxb. fl. Ind.* III. 215.—*T. occidentalis, Gærtn.*—*Rheede.* I. 23.—Peninsula. Bengal.

**USES, &c.** The timber is heavy, firm and hard, and is converted to many useful purposes in building. The pulp of the pods is used both in food and in medicine. It has a pleasant juice which contains a larger proportion of acid with the saccharine matter than is usually found in acid fruit. Tamarinds are preserved in two ways, first by throwing hot sugar from the boiler on the ripe pulp, but a better way is to put alternate layers of tamarinds and powdered sugar into a stone jar. By this means they preserve their colour and taste better. Tamarinds contain sugar, mucilage, citric acid, tartaric and malic acids. In medicine, the pulp of the Tamarinds taken in quantity of half an ounce or more, proves gently laxative and stomachic, and at the same time quenches the thirst. It increases the action of the sweet purgatives Cassia and Mauna, and weakens that of resinous cathartics. The seed is sometimes given by the Vytians in cases of dysentery and also as a tonic and in the form of an electuary. In times of scarcity the poor eat the tamarind stones after being roasted, and soaked for a few hours in water, the dark outer skin comes off, they are then boiled or fried. In Ceylon, a confection prepared with the flowers is supposed to have virtue in obstructions of liver and spleen. A decoction of the acid leaves of the tree is employed externally in cases requiring repellent fomentation. They are also used for preparing collyria and taken internally are supposed a remedy in jaundice. The natives have a prejudice against sleeping under the tree and the acid damp does certainly affect the cloth of tents if they are pitched under them for any length of time. Many plants do not grow under its shade, but it is a mistake to suppose that this applies to all herbs and shrubs. In sore throat the pulp has been found beneficial as a powerful cleanser. The gum redu-

oed to fine powder is applied to ulcers; the leaves in infusion to country sore eyes and foul ulcers. An infusion of them is also used in Bengal, in preparing a fine fixed yellow dye, to give those silks a green colour which have been previously dyed with indigo. Used also simply as a red dye for woollen stuffs. In ~~S~~India a strong infusion of the fruit mixed with sea salt is used by silver smiths in preparing a mixture for cleaning and brightening silver. The stones reduced to fine powder and made into thick paste with water, have the property when applied to the skin of promoting suppuration in indolent boils. The same powder boiled into a paste with thin glue forms one of the strongest wood cements. The tree is one of those preferred for making charcoal for gun powder. The total value of the export of tamarinds from Madras in 1852-56 amounted to Rs. 789,056 and were chiefly sent to the Arabian Gulf, Pegu, Mauritius, Bengal and Ceylon. *Ainslie. Don. Thornton. Pers. obs. Com. prod. Mad. Pres.*

(609) **Tamarix Gallica** (Linn.) N. O. TAMARICACEÆ.

**Pentandria Trigynia.** *Sex: Syst:*

Indian Tamarix, ENG.

Jahoo, BENG.

**DESCR:** Shrub; 6-feet: sepals 5: petals 5: young branches glabrous: leaves amplexicaul, glabrous: torus 10-toothed: leaves ovate, acute, with white edges: spikes elongated, straight, paniced: capsules attenuated: flowers small, rose-coloured. *Fl.* July—Aug—*W. & A. prod.* I. 40.—*Wight's Ill.* I. t. 24. f. 1.—*Don's Mill.* II. 726.—*T. Gallica, var. Indica, Ehrenb.*—*T. Indica, Roxb. and Willd.*—*Roxb. fl. Ind.* II. 100.—*T. epacroides, Sm.*—Coromandel. Banks of the Indus and Ganges.

**USES, &c.** The twigs of this shrub are considered astrigent, and are valuable for the galls which are formed on the plant, and which are used for dyeing and in medicine. The ashes of the shrub when it grows near the sea are remarkable for containing quantity of sulphate of soda and cannot be used as a ley for washing as they coagulate soap. When grown in sweet soil they are free from soda. *Royle. Wight.*

(610) **Tectona grandis** (Linn.) Nat. Ord. VERBENACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Teak tree, ENG.  
Theka or Tekka, MAL.  
Thakoo marum, TAM.

Teka,  
Segoon, BENG.

**DESCR:** Large tree, with an ash-coloured and scaly bark:

(608) **Tamarindus Indica** (Linn.) Nat. Ord. LEGUMINOSÆ.

Monadelphia Decandria, Sex: Syst:

Tamarind or Indian Date, ENG.  
Poole, TAM.  
Balam Poole, MAL.Chinta-chettu, TEL.  
Umbil, HIND. or DUK.

DESCR: Tree 80 feet: calyx limb bilabiate, reflexed: petals 3, alternate with the segments of the upper lip of the calyx: seven short stamens all sterile, the others longer fertile: leaves abruptly pinnated: leaflets numerous: legumes linear more or less curved, 1-celled, many seeded: seeds compressed, bluntly 4-angled: flowers in racemes with straw-coloured calyx and yellow petals streaked with red, purple filaments and brown anthers. *Fl.* May.—June.—*W. & A. prod.* I. 285.—*Roxb. fl. Ind.* III. 215.—*T. occidentalis*, *Gærtn.*—*Rheede.* I. 23.—Peninsula. Bengal.

USES, &c. The timber is heavy, firm and hard, and is converted to many useful purposes in building. The pulp of the pods is used both in food and in medicine. It has a pleasant juice which contains a larger proportion of acid with the saccharine matter than is usually found in acid fruit. Tamarinds are preserved in two ways, first by throwing hot sugar from the boiler on the ripe pulp, but a better way is to put alternate layers of tamarinds and powdered sugar into a stone jar. By this means they preserve their colour and taste better. Tamarinds contain sugar, mucilage, citric acid, tartaric and malic acids. In medicine, the pulp of the Tamarinds taken in quantity of half an ounce or more, proves gently laxative and stomachic, and at the same time quenches the thirst. It increases the action of the sweet purgatives Cassia and Maana, and weakens that of resinous cathartics. The seed is sometimes given by the Vytians in cases of dysentery and also as a tonic and in the form of an electuary. In times of scarcity the poor eat the tamarind stones after being roasted, and soaked for a few hours in water, the dark outer skin comes off, they are then boiled or fried. In Ceylon, a confection prepared with the flowers is supposed to have virtue in obstructions of liver and spleen. A decoction of the acid leaves of the tree is employed externally in cases requiring repellent fomentation. They are also used for preparing collyria and taken internally are supposed a remedy in jaundice. The natives have a prejudice against sleeping under the tree and the acid damp does certainly affect the cloth of tents if they are pitched under them for any length of time. Many plants do not grow under its shade, but it is a mistake to suppose that this applies to all herbs and shrubs. In sore throat the pulp has been found beneficial as a powerful cleanser. The gum redu-

ced to fine powder is applied to ulcers; the leaves in infusion to country sore eyes and foul ulcers. An infusion of them is also used in Bengal, in preparing a fine fixed yellow dye, to give those silks a green colour which have been previously dyed with indigo. Used also simply as a red dye for woollen stuffs. In *Sumdria* a strong infusion of the fruit mixed with sea salt is used by silver smiths in preparing a mixture for cleaning and brightening silver. The stones reduced to fine powder and made into thick paste with water, have the property when applied to the skin of promoting suppuration in indolent boils. The same powder boiled into a paste with thin glue forms one of the strongest wood cements. The tree is one of those preferred for making charcoal for gun powder. The total value of the export of tamarinds from Madras in 1852-56 amounted to Rs. 789,056 and were chiefly sent to the Arabian Gulf, Pegu, Mauritius, Bengal and Ceylon. *Ainslie. Don. Thornton. Pers. obs. Com. prod. Mad. Pres.*

(609) **Tamarix Gallica** (Linn.) N. O. TAMARICACEÆ.

**Pentandria Trigynia.** *Sex: Syst:*

Indian Tamarix, ENG.

Jahoo, BENG.

**DESCR:** Shrub; 6-feet: sepals 5: petals 5: young branches glabrous: leaves amplexicaul, glabrous: torus 10-toothed: leaves ovate, acute, with white edges: spikes elongated, straight, paniced: capsules attenuated: flowers small, rose-coloured. *Fl.* July—Aug—*W. & A. prod.* I. 40.—*Wight's Ill.* I. t. 24. f. 1.—*Don's Mill.* II. 726.—*T. Gallica, var. Indica, Ehrenb.*—*T. Indica, Roxb. and Willd.*—*Roxb. fl. Ind.* II. 100.—*T. epacroides, Sm.*—*Co-romandel.* Banks of the Indus and Ganges.

**USES, &c.** The twigs of this shrub are considered astringent, and are valuable for the galls which are formed on the plant, and which are used for dyeing and in medicine. The ashes of the shrub when it grows near the sea are remarkable for containing quantity of sulphate of soda and cannot be used as a ley for washing as they coagulate soap. When grown in sweet soil they are free from soda. *Royle. Wight.*

(610) **Tectona grandis** (Linn.) Nat. Ord. VERBENACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Teak tree, ENG.

Theka or Tekka, MAL.

Thaikoo marum, TAM.

Teka, TEL.

Segoon, BENG.

**DESCR:** Large tree, with an ash-coloured and scaly bark:

young shoots 4 sided, channelled : leaves opposite, oval, scabrous above, whitish and downy beneath : panicles terminal, large cross-armed : divisions dichotomous with a sessile fertile flower in each cleft, the whole covered with a coloured farina : peduncles quadrangular, sides deeply channelled : flowers numerous, small, white : calyx and corolla 5-6 cleft : stamens often six : ovary round, hairy, 4-celled : cells 1-seeded : nut very hard. *Fl.* June—August.—*Roxb. Cor.* I. t. 6.—*fl. Ind.* I. 600.—*ed. Car* II. 346.—*Theka, Lam.* III.—*Rheede.* IV. t. 27.—Banks of the Taptee and Godavery. Malabar. Concans. Bundelcund.

USES, &c. The teak is perhaps the most useful of all the timber trees of the Indian Peninsula. Its strength and durability are well known. For house-building it is the best of woods when it can be procured, owing to its resisting the attacks of white ants from the oily nature of the wood. It is however an expensive kind of timber and except in those countries where it is plentiful, the price is too great to allow of its being used for ordinary purposes. Great quantities are used on the Western Coast for ship-building for which it is superior to any other kinds of wood. The Malabar teak is reckoned better than any other. It grows best by the sides of rivers and though not extensively distributed is found in detached clumps rather than scattered among other trees. In the mountains of Bundelcund it is a very moderate sized tree. Extensive forests of teak are found in Pegu and the banks of the Irrawaddy. The tree requires 60 to 80 years to reach a proper age and maturity to fit it for ship-building. After the best straight timber has been taken the crooked pieces called *Shin-logs* are used for many useful purposes. Teak does not injure iron and is not liable to shrink in width.

Much valuable information respecting Teak may be found in Dr. Falconer's Report upon the Teak Forests of the Tenasserim Provinces. Among other remarks he states "Malabar Teak is by common consent ranked higher for ship-building than Tenasserim or Pegu timber. The cause of its greater durability and power of resisting dry-rot appears to depend chiefly on its more oily or resinous quality and the greater density arising from its slow growth on the sides of hills. The Teak, in favourable ground shoots up rapidly during the first 8 or 10 years. I have cut down a young tree measuring 25 feet in height with a slender stem of 11 inches in girth near the base, which showed 8 concentric rings indicating 8 years of age. After this the growth is much slower, and the tree does not attain the timber size of 6 to 8 feet in girth under from 80 to 100 years, varying greatly according to situation, soil and exposure. The seeds ought to be collected off the trees

before shedding in the month of January, when fully ripe, and sown in narrow raised beds, carefully prepared as nurseries early in March. The plan of sowing which has proved so successful with Mr. Conolly at Nelumboor in Malabar ought to be adopted in preference to all others, as it is found upon experience, viz., steeping the nuts in water for 36 hours, then sowing them in holes, 4 inches apart, about half an inch under the surface, and covering the beds with straw and grass litter, so as to prevent evaporation. The beds thus prepared to be gently watered every evening so as to keep the soil constantly moist around the nuts, which will sprout in from 4 to 8 weeks, that is to say, such of them as are capable of germination. Mr. Conolly's Memorandum states a shorter period, probably caused by the preliminary steeping. In order to guard against accident from over soaking at the outset, in the Tenasserim nurseries half of the nuts might be sown dry. A little experience would soon indicate which plan was the best.

In selecting the nuts, the largest and best formed to be chosen and for every 1,000 seedlings required, 30 or 40,000 nuts ought to be put in the ground so as to allow a wide margin for failures in germination, and for the selection of good plants. Where two or three stems sprout from the same nut such plants ought to be rejected, if the nursery is well filled, or the superfluous shoots lopped off, leaving only one to grow. If the sowing has been well managed, the plants will have attained from 4 to 6 inches early in the rains, when they ought at once to be transplanted into the holes prepared for their reception. Repeated transplantation are injurious to the vigour of a seedling besides being additionally expensive."

Again in the Reports made to Government regarding the Madras and Bombay forests, it is stated. "The principal forest districts are those of Malabar, Canara, Travancore and Goojerat on the Western Coast of the Peninsula of Hindostan. There are also in the neighbourhood of Rajahmundry, on the Eastern side of the Peninsula extensive forests which stretch inland in a Westerly direction towards the Territories of the Nizam." Mr. Monro formerly Resident in Travancore says—"The Teak tree shoots up for the first seven or eight years remarkably fast till it attains the height of 12 or 15 feet, after which its growth is uncommonly slow and it does not attain the rise of the 6th class log even in the most favourable situation till it is about 35 or 40 years old; a 5th class takes about 50 years, a 4th about 60, a 3d about 70 or 80, a 2d about 90, and 1st class takes about 100 to 120 years." The Teak which grows on the sides and tops of mountains is far superior to that which grows in the black heavy soil of the low-grounds, and though it takes a longer time to attain the same dimensions as the other, yet in strength and durability it is generally superior.



That which grows in the valleys is by no means to be despised and only yields in quality to the mountain timber.

Captain Harris gives the following description of the method of preparing the timber. "On the opening of the season the tree is sawed through above the roots and left in that state for a time to absorb the sap, then felled to the ground and trimmed into shape; here it may be left one or two seasons, or is at once dragged by elephants to the bank of rivers and finally floated down to the sea on the first rise of its waters. In Malabar the timber merchants who purchase the trees have them felled and conveyed to the adjacent streams, down which they are taken to the markets on the coast where an inland duty of five per cent. is levied. From this depôt the Bombay or foreign merchant exports it, at an enormous profit to the coast dealer who then pays an additional three per cent. or in all a duty of eight per cent. per candy, on its leaving the coast." This duty is levied on an assessment of the article on the average of 9½ rupees the candy, the first class timber being assessed at 12 rupees, the second at 9 rupees, and the third class at 8 rupees the candy. The revenue derived from this source by the Madras Government, it was stated, (in 1837) was about 27,000 rupees annually on an export of about 35,000 candies. The exports of Teak wood from Madras in 4 years ending in 1856, amounted to rupees 8,45,842 chiefly to Bombay, Arabian Gulf and Scinde.

From the tender leaves a purple colour is extracted which is used as a dye for silk and cotton cloths. The tender leaves are eaten and a syrup made from them boiled with sugar is given in aphtha. The flowers boiled with honey are administered in dropsy. From the young fruits bruised an ointment is made said to be very useful in herpes. *Rheede. Roxb. Dr. Falconer's Reports. Reports on Madras and Bombay forests in Government Selections.*

(611) **Tephrosia purpurea** (*Pers.*) N. O. LEGUMINOSÆ.

**Diadelphia Decandria.** *Sex: Syst:*

\* Cast-kolingia, TAM.  
Bun-neel, BENG.

Colinil, MAL.

**DESCR:** Shrub, erect, much branched: branches glabrous, or slightly villous: leaves pinnated: leaflets cuneate-oblong or lanceolate, glabrous above more or less pubescent below: racemes leaf-opposed, often longer than the leaves, many-flowered: flowers 2-3 together: calyx pubescent \* segments subulate: corolla about 3 times the length of the calyx tube: vexillum silky, bent back from near its base: legumes slightly compressed, linear, slightly falcate,

obtuse with a short point, pubescent or glabrous: flowers small purple. *Fl.* August—September.—*W. & A. prod.* I. 213.—*a*; leaflets cuneate, retuse.—*T. purpurea*, *Pera.*—*T. stricta*, *Grak. in Wall.*—*T. lanceæfolia*, *Link.*—*Galega purpurea*, *Linn.*—*Roxb. fl. Ind.* III. 386.—*G. Colonila*, *Ham. in Linn. Soc. trans.*—*G. sericea*, *Ham.*—*G. tinctoria*, *Lam.* (not *Linn.*)—*Rheede Mal.* I. t. 55.—*b*; leaflets oblong-lanceolate.—*T. lanceolata*, *Graham. in Wall.*—*Galega lanceæfolia*, *Roxb. fl. Ind.* III. 386.—*G. cœrulea herb.* *Rottl.*—*a.* very common. *b.* Circars.

USES, &c. The roots beaten up and mixed with arrack are applied to swollen gums and affections of the mouth. The roots are bitter and are given in decoction for dyspepsia and in infusion to check vomiting. The juice extracted from the plant and mixed with honey is applied to pustular eruptions of the face. The root bruised, boiled with cocanut milk and made into an ointment is given in elephantiasis. *Rheede. Roxb.*

(612) **Terminalia angustifolia** (*Jacq.*) N.O. COMBRETACEÆ.

**Polygamia Monœcia.** *Sex: Syst:*

DESCR: Tree 30–40 feet: calyx campanulate, 5-cleft: petals none: leaves alternate linear-lanceolate, attenuated at both ends crowded at the ends of the branches: under side and petioles pubescent or hairy: drupe compressed, 2-winged, gibbous on one side: stamens in two rows: seed almond like: flowers spiked, small, green, odoriferous. *Fl.* March—April.—*W. & A. prod.* I. 312.—*Don's Mill.* II. 657.—*T. Benzoin*, *Linn.*—*Croton Benzoe*, *Linn. mant.*—*Catappa Benzoin*, *Gærtn.*—Peninsula.

USES, &c. This tree produces one kind of benzoin. It is procured by wounding the tree: and is composed of large white and light brown pieces easily broken between the hands. When gently dried it forms a white powder formerly in great request as a cosmetic. It has a most agreeable scent. But the most striking ingredient of this resin is the *Benzidic acid*. In the churches in Mauritius this benzoin is used as incense. The fruit is used like that of *T. chebula*. *Royle.*

(618) **Terminalia Bellerica** (Roxb.) Do.

Do.

Tani-kai, TAM.  
Tani, MAL.Bahura, BENG.  
Toandee, Tadi, TEL.

**DESCR:** Tree 100 feet: leaves about the extremities of the branchlets, long-petioled, obovate, quite entire, glabrous: spikes axillary, solitary, almost as long as the leaves: bisexual flowers sessile: male shortly pedicellate: drupe obovate, obscurely 5-angled, fleshy, covered with greyish silky down: flowers fetid small greyish green. *Fl.* March—April.—*W. & A. prod.* I. 313.—*Wight's Ill.* I. t. 91.—*Roxb. fl. Ind.* II. 431.—*Cor.* II. t. 198.—*T. punctata*, *Roth.*—*Myrobalanus Bellerica*, *Breyn.*—*Rheede Mal.* IV. t. 10—Peninsula. Bengal.

**USES, &c.** A quantity of insipid gum like gum-arabic issues from this tree when wounded. The kernel of the nut is said to intoxicate, if eaten in great quantity. The fruit of the Beleric myrobalan (for so it is called) in its dried state, is larger than a gall-nut but not so regular in shape. The taste is astringent and it is sometimes used medicinally by the natives. The kernel of the nut mixed with honey is given in certain cases of ophthalmia. The wood is white and durable, good for working purposes, large chests and ship building. An oil is expressed from the seeds used for strengthening the hair. The juice of the bark and root is given in decoction with rice and milk in colic. *Rheede. Roxb. Ainslie.*

(614) **Terminalia Catappa** (Linn.) Do.

Do.

Indian almond, ENG.  
Nattoo vadamcottay, TAM.  
Adamarum, MAL.Vadam, TEL.  
Badamia-hindie, DUK.  
Badam, BENG.

**DESCR:** Tree 50 feet: leaves about the extremities of the branchlets, short petioled, obovate slightly cordate at the base, a little repand, with a larger gland beneath on either side the midrib near the base: racemes axillary, solitary, simple, shorter than the leaves: drupe compressed, oval, with elevated margins, convex on both sides: flowers small, purplish-green. *Fl.* March—April.—*W. & A. prod.* I. 313.—*a*, leaves softly pubescent beneath—*T. Catappa*, *Linn. mant.*—*Rheede* IV. t. 3, 4.—*b*: adult leaves

glabrous on both sides—*T. Catappa* *Roxb. fl. Ind.* II. 430.—*Wight's Icon.* t. 172.—*T. Moluccana*, *Lam.*—*T. myrobalana*, *Roth.*—*T. subcordata*, *Willd.*—*T. intermedia*, *Spr. Syst.* II. 359.—*Juglans Catappa*, *Lour.*—Peninsula. Bengal. Travancore.

Uses, &c. The kernel of the nuts has the taste of an almond and may be used for the same purposes but does not contain so much oil. The tree is handsome and ornamental, and answers well for avenues. The timber is light but lasting, and is useful for many purposes. The bark and leaves yield a black pigment with which the natives dye their teeth and make Indian ink. The oil which is expressed from the seeds is edible and pleasant tasted. To extract the oil, the fruit is gathered and allowed to dry in the sun for a few days, when the kernels are cleaned and bruised in a mill. Six seers of almonds will produce 3 pukka seers of oil. The oil cake is good for feeding pigs, &c. The colour of the oil is a deep straw. Rheedé says the tree bears fruit 3 times a year on the Malabar Coast. The levers of Pakottahs are usually made of the timber of this tree. Tussah-silk worms feed on the leaves. The oil is very like European Almond oil both in taste and smell but becomes turbid by keeping. It only requires care and attention in its preparation to render it of greater commercial value and importance. The juice of the leaves with infusion of rice is given for bile, head-ache and colic pains. From the young leaves and milk of the nut an ointment is made and applied medicinally in scabies, leprosy, and similar cutaneous affections. *Rheedé. Ainslie.*

(615) **Terminalia Chebula** (*Retz.*) Do.

*Do.*

Kadukai-marum, TAM.  
Kodorka-marum, MAL.  
Karakala, TEL.

Huldah, DUK.  
Hor or Hara, HIND.  
Haree-tukee, BENG.

DESCR: Tree 40-50 feet: leaves nearly opposite, shortly petioled, ovate oblong, obtuse or cordate at the base, quite entire, when young clothed with glossy silky hairs, particularly above adult ones glabrous, sometimes glaucous, upper surface inconspicuously dotted, under closely reticulated with purplish veins: glands one on each side at the apex of the petiole: spikes terminal, often paniced: drupes oval, glabrous: nut irregularly and obscurely 5-furrowed: flowers small whitish fetid. *Fl.* March—April.—*W. & A. prod.* I. 318.—*Roxb. fl. Ind.* II. 438.—*Cor* II. t. 107.—*T. reticulata*, *Roth.*—*T. myrobalanus citrina*, *Koen.*—Peninsula. Bengal.

USES, &c. The outer coat of the fruit of this tree mixed with sulphate of Iron makes a very durable ink. The galls are found on the leaves and are produced by insects puncturing the tender leaves. With them and alum the best and most durable yellow is dyed, and in conjunction with ferruginous mud, black is procured from them. The fruit is very astringent and on that account much used by the Hindoos in their arts and manufacture. The kadukai (*gall-nuts*) well rubbed with an equal proportion of catechu is used in aphthous complaints: and considered a valuable remedy. The unripe dried fruits which is the Indian or black myrobolan (koroovillah-cadookai, *Tam.* and *Mal.*) of old writers, and which is sold in the Northern Provinces in Bengal, are recommended as purgative by the Natives. The fruit mixed with honey is given in infusion, in dropsy and diabetes, and hemorrhoidal affections and externally in cases of sore-eyes, &c. *Don.* *Ainslie.*

(616) **Terminalia coriacea** (*W. & A.*) Do.

*Do.*

Kara-maradoo, TAM.

Mutti, CAN.

DESCR: Tree: bark deeply cracked: leaves nearly opposite, short-petioled, coriaceous, oval, cordate at the base, hard above, hoary and soft beneath, 1-2 sessile glands at or near the base of the mid-rib: spikes paniced: nut hoary: flowers small, dull yellow. *Fl.* July.—*W. & A. prod.* I. 315.—Pentaptera coriacea, *Roxb. fl. Ind.* II. 438.—Coromandel mountains.

USES, &c. A large tree yielding strong hard and heavy timber. It is much used for making the solid wheels of buffaloe carts, and for Railway sleepers.

(617) **Terminalia glabra** (*W. & A.*) Do.

*Do.*

Tella-madoo, TEL\*

DESCR: Tree: bark smooth: leaves nearly opposite, narrow-oblong, obtuse or acute at the apex, glabrous on both sides, often reddish beneath, with some nearly sessile glands near the base of the mid-rib: spikes terminal: drupe ovate with 5-7 equal longitudinal wings. *Fl.* May—April.—*W. & A. prod.* I. 314.—*T. crenulata*, *Both.*—Pentaptera glabra, *Roxb. fl. Ind.* II. 440.—*P. obovata*, *DC.*—Peninsula. Silhet. Monghyr.

USES, &c. A valuable timber tree with a large and lofty trunk. *Roxb.*

(618) **Terminalia paniculata** (*W. & A.*) Do.

*Do.*

Pekara, TAM.

| Neemeeri, TEL.

DESCR: Tree 40-feet: branches diverging: leaves nearly opposite, linear-oblong, with a cordate base, acute or obtuse at the apex, entire, coriaceous, rugose above, with sessile glands beneath near the base: spikes forming a compound panicle: drupe coriaceous with 1 large and 2 small wings: flowers small. *Fl.* Nov.—Dec.—*W. & A. prod.* I. 315.—*Pentaptera paniculata*, *Roxb. fl. Ind.* II. 442.—Malabar. Valleys of the Concan.

USES, &c. This is a fine stout timber tree. The wood is improved by being kept under water for a time. The bark contains tannin. *Roxb.*

(619) **Terminalia tomentosa** (*W. & A.*) Do.

*Do.*

Nella-madoo, TEL.  
Aana, HIND.

| Peea-sal or Usan, BENG.

DESCR: Tree: bark deeply cracked: leaves nearly opposite, linear-oblong, somewhat cordate at the base, pubescent but finally glabrous above, tomentose or pubescent beneath, with thick stalked turbinate glands on the mid-rib near the base: fruit glabrous: spikes disposed in a brachiate panicle: flowers small, greenish-white. *Fl.* April—June.—*W. & A. prod.* I. 314.—*Wight's Icon.* t. 195.—*T. elliptica*, *Willd.*—*T. alata*, *Roth.*—*Pentaptera tomentosa*, *Roxb. fl. Ind.* II. 440.—Concan. Oude. Monghyr.

USES, &c. The timber is valuable and is much used for making shafts of gigs, and other things where toughness of fibre is required. The bark is astringent and used for dyeing black. *Roxb.*

(620) **Tetranthera monopetala** (*Roxb.*) N. O. LAURACEÆ.

*Discia Monocandria* *Sw: Syst:*

Narra mamady, TEL.

| Buro kookoorchitta, BENG.

DESCR: Tree middling size: leaves alternate, short-petioled, oblong, entire, smooth on the upper surface, pubescent beneath: flowers male and female: peduncles axillary, numerous, short:

flowers small yellowish green. *Fl.* May—June.—*Roxb. Cor.* II. t. 148.—*fl. Ind.* III. 821.—Peninsula. Bengal. Oude.

USES, &c. The bark is mildly astringent and has balsamic properties. It is used by the hill people in diarrhoea and is also applied to wounds and bruises. The leaves are given to silkworms. They have a smell of cinnamon if bruised. *Ainslie. J. Gráh.*

(621) ***Thespesia populnea* (Lam.)** Nat. Ord. MALVACEÆ.

**Monodelphia Polyandria.** *Sex: Syst:*

Portia Tree, ENG.  
Porsung or Pooarasoo, TAM.  
Parsippu.

Poresh, BENG.  
Ghengheravie, TEL.  
Parish, DUK.

DESCR: Tree: leaves roundish cordate, acuminate, quite entire, 5-7 nerved, sprinkled beneath with small rusty scales: calyx truncated: involucre 3-leaved: capsule 5-celled, coriaceous: cells about 4-seeded: flowers yellow with a dark blood coloured eye. *Fl.* Nearly all the year.—*W. & A. prod.* I. 54.—*Wight's Icon.* t. 8.—*Hibiscus populneus*, *Linn.*—*Roxb. fl. Ind.* III. 190.—*Malvaviscus populneus*, *Gærtn.*—*Rheede* I. t. 29.—Travancore. Courtalium. Bengal.

USES, &c. The wood is used for making rollers and other purposes where closeness of grain is required. It is also an excellent wood for gun stocks. The capsule is filled with a yellow pigment like liquid gamboge which is a good external application in scabies and other cutaneous diseases, the juice being simply applied to the parts affected. The bark boiled in water is used as a wash for the same purposes with the best effect. The bark in decoction is given as an alterative internally. The Cingalese dye yellow with the capsules. The tree is remarkable for its easy and rapid growth from cuttings. It is frequently used on this account as a tree for road-side avenues. *Ainslie. J. Gráh. Pers. obs.*

(622) ***Thevetia nereifolia*\*** (*Juss.*) Nat. Ord. APOCYNACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Exile tree, ENG.

DESCR: Tree 12 feet: leaves linear, entire, almost veinless, glabrous: calyx 5 cleft; segments ovate lanceolate, acute, 3 times shorter than the tube of the corolla: peduncles extra-axillary at

\* For a case of poisoning by the seeds of this plant, see *Madras Journal of Science and Literature.* Vol. XIX. p. 140.

the tops of the branches, 1-flowered : corolla funnel shaped : tube hairy inside : flowers yellow, fragrant : drupe half orbicular, truncated at the apex, 2-celled : cells bipartite. *Fl.* Nearly all the year.—*Cerbera Thevetia*, *Don's Mill.* IV. 97.—Domesticated in India.

**USES, &c.** This pretty shrub is a native of South America and the West Indies but has long been naturalised in India. An oil is extracted from the kernels of nuts. It is of a clear bright yellow colour, but its uses and properties are as yet undetermined. The milk of the tree is highly venomous. Its bitter and cathartic bark is reported to be a powerful febrifuge, 2 grains only being affirmed to be equal to an ordinary dose of Cinchona. *Lindley. Jury. Rep. Mad. Ex.*

(623) **Tiaridium Indicum** (*Salm.*) N. O. EMBETIACEÆ.

*Do.*

Indian Turnsole, ENG.  
Tayl-modukhoo, TAM.  
Benapatsja, MAL.

Tayl-munnie, TEL.  
Hatee-shooro, BENG.

**DESCR :** Annual, 1-foot : stem hairy : leaves generally alternate, petioled, cordate, wrinkled, curled at the margins : spikes leaf-opposed, solitary, peduncled, longer than the leaves : flowers sessile, minute in two rows on the upper sides of the spikes : corolla longer than the calyx : tube gibbous : flowers small, lilac-bluish. *Fl.* April—November.—*Roxb. fl. Ind.* I. 454.—*ed. Car.* II. 1.—*Heliotropium Indicum*, *Linn.*—*H. cordifolium*, *Moench.*—*Rheede X. t.* 48.—Travancore. Chittagong.

**USES, &c.** This is commonly to be met with in rubbish and out of the way corners, in rich and rank soils. The plant is astringent. The juice of the leaves is applied to gum boils and pimples on the face and also in certain cases of ophthalmia. In Jamaica it is used to clean and consolidate wounds and ulcers and boiled with Castor oil it is of use in the stings or bites of poisonous animals. It is said by Martius to allay inflammation with undoubted advantage. *Ainslie. Lindley. Browne's History of Jamaica.*

(624) **Toddalia aculeata** (*Pers.*) N. O. XANTHOXYLACEÆ.

**Monoclea Pentandria** *Sw. Syst :*

Moolacarnay-marum, TAM.  
Conda-cashinda, TEL.

Kaka-toddali, MAL.

**DESCR :** Shrub 6 feet : stem and branches prickly : leaflets sea-



side, from oblong to broad-lanceolate, crenulate, glabrous: midrib beneath and petioles prickly or occasionally unarmed: racemes simple or compound: fruit 5-furrowed with 3-5 perfect cells: petals 5, spreading: leaves alternate, digitately trifoliate: flowers small, white, fragrant.—*W. & A. prod.* I. 149.—*Don's Mill.* I. 805.—*T. Asiatica*, *Lam.*—*T. nitida*, *Lam. Ill.*—*T. rubricaulis*, *Willd.*—*Scopolia aculeata*, *Sm. ic.*—*Spr. Syst*—*Roxb. fl. Ind.* I. 616.—*ed. Car.* II. 374.—*Paullinia Asiatica*, *Linn.*—*Rheede V. t.* 41.—*Coromandel. Malabar. Concan.*

**USES, &c** This a very common bush on the Coromandel Coast, frequently found in hedges and under trees. All the parts are reckoned febrifugal. The bark of the root is given in remittent jungle fevers. The fresh leaves are eaten raw in stomach complaints. The ripe berries are as pungent as pepper, and make excellent pickles. The whole plant is reckoned a valuable stimulant and has a strong pungent taste, especially the root. A liniment good in rheumatism is made from the root and green fruit fried in oil. *Rheede. Roxb.*

(625) **Torenia cordifolia** (*Roxb.*) N. O. SCROPHULARIACEÆ.

**Didynamia Angiospermia. Sex: Syst:**

Kakapoo, MAL.

**DESCR:** Annual, spreading: stem tetragonal: leaves opposite, ovate-cordate: calyx ovate, rounded at the base, broadly 5 winged: peduncles axillary subfascic or solitary; corolla twice the length of the calyx, bluish purple. *Fl.* All the year.—*Don's Mill.* IV. 550.—*Roxb. fl. Ind.* III. 95.—*Cor.* II. 161.—*Rheede IX. t.* 68.—*Circars. S. Concan. Bengal.*

**USES, &c.** There are several varieties of this pretty plant. *Rheede* says the juice of the leaves is considered a good remedy in gonorrhœa on the Malabar Coast. The most common in Travancore has the tube of the corolla bright yellow and the lip and throat darkish purple, while the species most common about the Sispara Ghaut on the Neilgherries, has the corolla entirely dark purple. *Per. obs.*

(626) **Tragia cannabina** (Linn.) N. O. F**Monoecia Triandria.** *New Syst :*Sirroo-canchorie, TAM.  
Kanch koorie, DUK.

Trinuadoolagondie, TEL.

**DESCR :** Annual : stem twining, hispid : leaves hairy, stinging, 3-parted lanceolate, petioled : peduncles lateral, solitary, 1-flowered, the length of the leaves : flowers small, yellowish. *Fl.* August—Sept.—*Roxb. fl. Ind.* III. 575.—Coromandel. Bengal. Travancore.

**USES, &c.** The hairs of this plant sting like the common nettle. The root is considered diaphoretic and is prescribed in decoction as an alterative : also in infusion in ardent fevers. *Ainslie.*

(627) **Tragia involucrata** (Linn.) Do.

Do.

Canchoorie, TAM.  
Doolaghondi, TEL.Schorigenam, MAL.  
Bichitee, BENG.

**DESCR :** Annual, twining : leaves oblong, lanceolate, acute, sharply serrated, alternate closely covered with stinging hairs : *female* bracts 5-leaved, pinnated : flowers axillary in small clusters several together on the same foot-stalk : upper ones male, under ones female : flowers small, greenish. *Fl.* Nearly all the year.—*Roxb. fl. Ind.* III. 576.—*Rheede.* II. t. 39.—Peninsula. Bengal. Malabar.

**USES, &c.** The root is used medicinally as an alterative in old venereal complaints. The juice of the same mixed with cow's milk and sugar is given as a drink in fevers and itch. The root in decoction is administered internally against suppression of urine. *Ainslie. Rheede.*

(628) **Trapa bispinosa** (Roxb.) Nat. Ord. HALORAGACEÆ.**Tetrandria Monogynia.** *New Syst :*Panes phul, HIND.  
Singhara, BENG.

Karim pola, MAL.

**DESCR :** Herbaceous, floating : upper leaves and petioles tomentose beneath ; lower leaves opposite, others alternate ; floating leaves rather quadrate, serrulately toothed : calyx villous, limb 4 partite : petals 4 : crown of the ovary 8-furrowed, the margins

curled : fruit 2-horned : horns opposite, conical, very sharp, barbed backwards : petioles furnished with a large bladder in the middle : ovary 2-celled, surrounded by a cap-shaped crown : flowers smallish white. *Fl.* May—June.—*W. & A. prod.* I 337.—*Don's Mill.* II. 700.—*Roxb. fl. Ind.* I. 428.—*ed. Car.* I. 449.—*Cor.* III. 234.—*Rheede.* XI. t. 83.—Peninsula. Bengal.

**USES, &c.** The seeds contain a great quantity of fecula and are eaten by the natives. In Guzerat they form an important article of food. During the Hooly festival a red dye is made from the fruit, mixed with a yellow dye from the flowers of the *Butea frondosa*. Col. Sleeman has given the following interesting account of this plant in his travels in the North Western Provinces.

Here, as in most other parts of India the tanks get spoiled by the water chesnut (*Singhara*), which is everywhere as regularly planted and cultivated in fields under a large surface of water as wheat or barley is on the dry plains. It is cultivated by a class of men called Dheemurs who are everywhere fishermen and palankeen bearers ; and they keep boats for the planting, weeding and gathering the *Singhara*. The holdings or tenements of each cultivator are marked out carefully on the surface of the water by long bamboos stuck up in it : and they pay so much the acre for the portion they till. The long straws of the plants reach up to the surface of the water, upon which float their green leaves ; and their pure white flowers expand beautifully among them in the latter part of the afternoon. The nut grows under the water after the flowers decay, and is of a triangular shape, and covered with a tough brown integument adhering strongly to the kernel, which is white esculent, and of a fine cartilaginous texture. The people are very fond of these nuts, and they are carried often upon bullock's backs two or three hundred miles to market. They ripen in the latter end of the rains or in September and are eatable till the end of November. The rent paid for an ordinary tank by the cultivator is about one hundred rupees a year. I have known two hundred rupees to be paid for a very large one and even three hundred, or thirty pounds a year. But the mud increases so rapidly from this cultivation, that it soon destroys all reservoirs in which it is permitted ; and where it is thought desirable to keep up the tank for the sake of the water, it should be carefully prohibited. *Roxb. Col. Sleeman's Rambles.*

(629) **Trewia nudiflora** (Linn.) Nat. Ord. EUPHORBIACEÆ.

**Diœcia Polyandria.** *See : Syst :*

Canschi, MAL.

**DESCR :** Tree : leaves opposite, cordate, long-petioled, deci-

duous : male flowers in pendulous racemes. *Fl.* Feb.—March.—  
*Wight's Icon. t.* 1870-71.—*J. Grah. Cat.—Roxb. fl. Ind.* III.  
 887.—*Tetragastris ossea, Gaertn.—Rheede. I. t.* 42.—Bombay.  
 Circars.

USES, &c. The root in decoction is given in reducing swellings  
 of the body. An ointment is also made from it externally applied  
 in gout. *Rheede.*

(630) **Trianthena decandra** (Linn.) N. O. PORTULACACEÆ.

**Decandria Monogynia.** *Sex : Syst :*

Vallay-Sharunnay, TAM.  
 Tella Ghaljeroo, TEL.

Gada buni, BENG.  
 Bhees Khupra, DUK.

DESCR : Annual : stems diffuse, prostrate, glabrous or pubes-  
 cent on the upper side : leaves opposite elliptic, obtuse or acute,  
 petioled, entire, one of each pair a little larger than the other :  
 petioles dilated at the margins : flowers several, pedicelled on a  
 short peduncle, sepals membranaceous on the margin : stamens  
 10-12 : style bipartite : capsule 4-seeded, with a spurious dissepiment ;  
 lid slightly 2-lobed at the apex, nearly closed below, nut-  
 like, and containing 2 seeds : flowers small, greenish white. *Fl.*  
 Nearly all the year.—*W. & A. prod.* I. 355.—*Wight's Icon. t.*  
 296.—*Spr. Syst.* II. 381.—*Roxb. fl. Ind.* II. 444.—*Zaleyia decandra,*  
*Burm. Ind. t.* 31. *f.* 3.—Bengal. Peninsula.

USES, &c. The root is light brown outside and white within.  
 It is aperient, and said to be useful in hepatitis and asthma. The  
 bark of the root in decoction is also given as an aperient. *Ainslie.*

(631) **Trianthena obcordata** (Roxb.) Do.

*Do.*

Sharunnay, TAM.  
 Gheljahroo, TEL.

Nasurjanghi, DUK.  
 Sabuni, BENG.

DESCR : Perennial : stems diffuse, prostrate, slightly pubescent  
 on the upper side : leaves, one of each pair larger and obovate or  
 obcordate, the other smaller and oblong : flowers solitary, sessile,  
 nearly concealed within the broad sheath of the petioles : stamens  
 15-20 : capsule 6-8 seeded : lid concave with two spreading teeth,  
 nearly enclosed at the bottom, including one seed : flowers small,

greenish-white. *Fl.* Nearly all the year.—*W. & A. prod.* I. 355.—*Wight's Icon.* t. 288.—*Roxb. fl. Ind.* II. 445.—*T. monogyna*, *Roxb. in E. I. O. mus.*—*T. pentandra*, *var. obcordata*, *DC.*—Coromandel. Bengal.

USES, &c. The root which is bitter and nauseous is given in powder in combination with ginger as a cathartic: when taken fresh it is somewhat sweet. The leaves and tender tops are eaten by the natives. *Roxb. Ainslie.*

(632) **Tribulus lanuginosus** (*Linn.*) N. O. ZYGOPHYLLACEÆ.

**Decandria Monogynia.** *See: Syst:*

Nerinjie, TAM.  
Neringil, MAL.  
Gokoroo, DUK.

Palleroo,  
Gokhoor, BENG.

DESCR: Trailing: leaves opposite, abruptly pinnated: leaflets about 5-6 pair, nearly equal, with a close-pressed villous pubescence: peduncles shorter than the leaf: flowers axillary on short peduncles: calyx deeply 5-partite: petals 5, broad, obtuse, fruit 5-coccous: cocci each with 2 prickles: flowers large, bright yellow, sweet-scented. *Fl.* All the year.—*W. & A. prod.* I. 145.—*Roxb. fl. Ind.* II. 401.—*Wight's Icon.* I. t. 98.—*J. Grah. cat.* 35.—*Spr. Syst.* II. 325.—Coromandel. Deccan. Bengal. Travancore.

USES, &c. There is a variety common in the Southern parts of the Peninsula with red flowers called in Tamil *Yerra-Pulleroo*, whose leaves have the smell of cloves. Of the present one the leaves and root are said by the natives to possess diuretic qualities: and are prescribed in decoction. The seeds powdered are given in infusion to increase the urinary discharge and are also used in dropsy and gonorrhœa. *Ainslie.*

(633) **Trichosanthes**

**cucumerina** (*Linn.*) Nat. Ord. CUCURBITACEÆ.

**Monœcia Monodelphia.** *See: Syst:*

Podavaïam, MAL.  
Pepodel or Poodel, TAM.

Chaynd-potia, TEL.  
Bunputol, BENG.

DESCR: Annual, climbing: leaves broadly cordate, 8-7 angled, toothed or serrated, pubescent or glabrous: tendrils 3-cleft: *male* flowers disposed in something like umbels: *female* ones, solitary on short peduncles, often from the same axils as the males: fruit

ovate, pointed : petals 5, ciliated : calyx 5-cleft : flowers small, white. *Fl.* Aug.—Decr.—*W. & A. prod.* I. 350.—*Roxb. fl. Ind.* III. 702.—*a* ; leaves angled, repandly toothed.—*T. cucumerina*, *Linn. DC. prod.* III. 315.—*Rheede. Mal.* VIII. t. 15.—*b* ; leaves lobed, lobes obovate or rounded, toothed.—*T. laciniosa*, *herb. Madr.*—Peninsula. Bengal.

USES, &c. The seeds are reputed good in disorders of the stomach on the Malabar Coast. The unripe fruit is very bitter but is eaten by the natives in their curries. The tender shoots and dried capsules are very bitter and aperient, and are reckoned among the laxative medicines by the Hindoos. They are used in infusion. In decoction with sugar they are given to assist digestion. The seeds are anti-febrile and anthelmintic. The juice of the leaves expressed is emetic, and that of the root drunk in the quantity of 2 oz. for a dose is very purgative. The stalk in decoction is expectorant.

One species, the *T. cordata* (*Roxb.*), found on the banks of the Megna where the inhabitants use the root as a substitute for Columba-root. It has been sent to England as the real Columba of Mozambique. *Ainslie. Rheede. Roxb.*

(634) **Trichosanthes palmata** (*Roxb.*) Do.

Do

Ancoruthay, TAM.

| Abuva, TEL.

DESCR: Climbing : leaves palmately-lobed, toothed : tendrils 3-cleft : male flowers racemose : female ones solitary in the same axils as the male or occasionally racemose : calyx 5-cleft : segments deeply toothed or serrated : corolla fringed, 5-petalled : fruit globose : flowers large, white. *Fl.* August—September.—*W. & A. prod.* I. 350.—*a* ; leaves glabrous, sometimes slightly scabrous, deeply lobed ; the lobes sometimes again lobed and with the segments narrow linear-lanceolate.—*b* ; leaves glabrous or slightly scabrous, palmately lobed ; lobes broad-lanceolate or oblong, entire or again lobed.—*T. palmata*, *Roxb. fl. Ind.* III. 704.—*T. kakinonda*, *Roxb. in B. I. C. mus.*—*T. laciniosa*, *Wight.*—*T. anguina*, *Wall.*—*Modecca bracteata*, *Lam.*—*Spr. Syst.* III. 45.—*c* ; leaves palmately lobed, pubescent (when young) on the under side : lobes ovate or oblong.—*T. cucumerina*, *Rottl.*—*T. cordata*, *Wall.*—Bengal. Dhayra Dhoon. Peninsula.

USES, &c. The fruit mixed with cocoanut oil is a specific in ear-ache : but it is not eatable being considered poisonous by the natives. The root too is reckoned poisonous. It is however used in diseases of cattle, such as inflammation of the lungs, &c. *Wight. Roxb.*

(685) **Tylophora****asthmatica** (*W. & A.*) N. O. ASCLEPIACEÆ.**Pentandria Dygynia.** *Sex: Syst:*Untomool, BENG.  
Kaka-pulla, TEL.

Codegam, Coorinja, TAM.

DESCR: Twining: leaves opposite, ovate-roundish, acuminate, cordate at the base, glabrous above, downy beneath: peduncles short with 2-3 sessile few flowered umbels: flowers rather large on long pedicels, externally pale green with a faint tinge of purple, internally light purple; corolla 5-parted: follicles glabrous, divaricate: leaflets of corona fleshy clasping the base of the gynostegium. *Fl.* All the year.—*Don's Mill.* IV. 130.—*Wight's contri. p.* 51.—*Wight's Icon. t.* 1277.—*Asclepias asthmatica, Roxb. fl. Ind.* II. 33.—*A. vomitoria, Koen.*—*Cynanchum Ipecacuanha, Willd.*—*C. vomitorium, Lam.*—*C. viridiflorum, Sims. Bot. Mag.*—*Hoya planiflora, Wall. asclep.*—*Thlopoora pubescent, Wall.*—Peninsula. Bengal. Mysore.

USES, &c. A very abundant and widely diffused plant to be met with in nearly all situations and in flower at all seasons. Though easily recognized, it is from its liability to variation difficult to define. In the recent state it is most readily distinguished from a nearly allied species, by its reddish or dull pink coloured flowers, and the toothed leaflets of the crown, the other having greenish flowers, and obtusely rounded, edentate coronal leaflets. The roots partake in an eminent degree of the properties of *Ipecacuanha*, and are good remedy in dysentery. Dr. Roxburgh often prescribed this remedy himself, and found it answer as well as the latter. Given in a pretty large dose, it answers as an emetic, in smaller, often repeated doses as a cathartic, and in both ways effectually; the natives also employ it as an emetic, by rubbing upon a stone 3-4 inches of the fresh root, and mixing it with a little water for a dose. It generally purges at the same time. *Wight. Roxb.*

(636) **Typha elephantina** (Roxb.) Nat. Ord. TYPHACEÆ.

**Monœcia Triandria** Sex: Syst:

Elephant grass, ENG.

Hogla, BENG.

DESCR: Culms round, smooth, glossy, jointed at the insertion of the leaves, 6-10 feet. *Fl.* August—September.—*Roxb. fl. Ind.* III. 566.—*J. Grah. Cat.* 227.—Margins of tanks and beds of rivers. Concans. Peninsula.

USES, &c. Elephants are fond of this grass. It is of great importance for binding the soil on the banks of the Indus with its long tortuous roots of which great care is taken, when the culms are cut down to make matting of. They are also tied in bundles, and used as buoys to swim with like sedges in England. The pollen of the flowers is abundant and if a light be applied to it a flash of fire is produced. There is another species the *T. angustifolia* (Linn.) the leaves of which are used for making mats. *Roxb. J. Grah.*

(637) **Typhonium Orixense** (Schott) Nat. Ord. ARACEÆ.

**Monœcia Polyandria**, Sex: Syst:

Ghet-kuchoo, BENG.

DESCR: Stemless: leaves three lobed: flowers sub-sessile: spathe ample, erect, longer than the spadix; filaments long and often ramous: flowers small. *Fl.* August.—*Arum Orixense. Roxb. fl. Ind.* III. 503.—*A. trilobatum, Lour.* (not Linn) *Wight's Icon. t.* 801.—Peninsula. Bengal.

USES, &c. A native of shady mango groves near Samulcottah where the soil is pretty rich and fertile, flowering time the beginning of the rains. The roots are exceedingly acrid and are applied as cataplasms to discuss schirrhous tumours. *Roxb. Wight.*



## U

(688) **Ulmus integrifolia** (Roxb.) Nat. Ord. ULMACEÆ,

**Pentandria Digynia.** Sex: Syst:

Indian Elm, ENG.

Naulie, TEL.

DESCR: Large tree: leaves alternate, ovate or cordate, entire, glabrous, shortly petioled, deciduous: flowers hermaphrodite and male mixed; hermaphrodite flowers, calyx 4-6 lobed, leaflets spreading, oval: stamens 7-9; pistils 2: capsule 1-celled 1-valved, indehiscent. The first part of the flowers that appears is the reddish anthers, next the calyx increases and becomes visible, but is always very minute and if not looked for may pass unperceived. *Fl.* November—March.—*Roxb. fl. Ind.* II. 68.—*Cor.* I. t. 78.—*Wight's Icon.* t. 1968.—Circular mountains. Foot of the Himalayahs. Ghauts near Arcot.

USES, &c. The timber is of good quality and employed for various purposes as carts, door-frames &c. The forks of the branches are used by the natives to protect their straw against cattle. *Roxb. J. Grah.*

(689) **Urena lobata** (Linn) Nat. Ord. MALVACEÆ.

**Monadelphia Polyandria.** Sex: Syst:

Bun-kra, BENG.

DESCR: Herbaceous: leaves roundish with 3 or more short obtuse lobes, more or less velvety, 5-7 nerved, with 1-3 glands on the nerves: segments of involucre 5, oblong lanceolate, equal to the expanded calyx: carpels densely pubescent, echinate: flowers middle-sized, rose-coloured. *Fl.* August—October.—*W. & A. prod.* I. 46.—*Roxb. fl. Ind.* III. 182.—Peninsula. Bengal.

USES, &c. This is a common shrub in the Peninsula generally found in waste places during the rain. It abounds in strong fibres which are considered a fair substitute for flax. *Royle.*

(640) **Urena sinuata** (Linn) Do.

Do.

Kungia, BENG.

**DESCR:** Perennial: leaves divided into 5 or 8 lobes beyond their middle, serrated, beneath with 1-3 glands on the nerves, pale with hoary pubescence: lobes dilated upwards and again lobed: segments of the involucre linear lanceolate: carpels pubescent, echinated: flowers small, rose-coloured. *Fl.* August—October.—*W. & A. prod.* I. 46.—*Roxb. fl. Ind.* III. 182.—Bengal.

**USES, &c.** The fibres of the bark are very tough and seem well adapted for making cordage. They are stated by Royle to make a good substitute for flax. *J. Grah.*

(641) **Urtica heterophylla** (Roxb.) Nat. Ord. URTICACEÆ.

**Monœcia Tetrandria.** *Sex: Syst:*

Neilgherry Nettle, ENG.

Ana schofinegam, MAL.

**DESCR:** Annual, erect: leaves alternate, long petioled, serrated covered with stinging hairs: flowers small green. *Fl.* August—October.—*J. Grah.*—*Roxb. fl. Ind.* III. 586.—*Rheede.* II. t. 41.—*U. palmata, Forsk.*—*Wight's Icon. t.* 687, 1976.—Cancans. Coromandel.

**USES, &c.** The bark abounds in fine white glossy fibres. The leaves if touched produce a most intense pain like the English stinging nettle. The plant has a wide distribution being found in Assam and Burmah as well as in Malabar. In the former country the fibre is much used in the manufacture of cloth. The plant grows quickly from seeds. On the Neilgheries the fibres are prepared by first boiling them. Dr. Wight says of it, that "it produces a beautifully fine and soft flax like fibre, which, the Todawars use as a thread material, and if well prepared, fitted to compete with flax for the manufacture of even very fine textile fabrics." There are several other species of the nettle tribe but they are found chiefly in Assam and the countries East of Bengal. One species the *U. tuberosa*, Roxburgh has tuberous roots which are very nutritious and are eaten by the natives. *Royle. Rox- Wight.*

(642) **Uvaria narum** (*Wall*) Nat. Ord. ANONACEÆ.

**Polyandria Polygynia.** *Sex: Syst:*

Narum-panel, MAL.

DESCR: Climbing shrub: leaves oblong-lanceolate: flower-bearing shoots lateral, leafy: peduncles solitary, terminal, calycine lobes roundish-ovate: petals equal, roundish ovate, concave, curved: carpels numerous, glabrous on long stalks: seeds about 4, flat, smooth, shining: flowers at first brownish green, but at length becoming reddish: anthers yellow.—*W. & A. prod.* I. 9.—*Don's Mill.* I. 98.—U. Zeylanica, *Lam.* (not *Linn.*)—*Unona Narum, DC.*—*Rheede* II. t. 19.—Travancore.

USES, &c. An unctuous secretion exudes from the anthers. There is a sweet scented greenish oil obtained from the roots by distillation in Malabar, which as well as the root itself is used in various diseases. The roots are fragrant and aromatic and are used in fevers and hepatic diseases. Bruised in salt water and rubbed on the skin they are applied to several cutaneous diseases. *Rheede.*

## V.

(648) **Vateria Indica\*** (Linn.) Nat. Ord. DIPTERACEÆ.**Polyandria Monogynia.** Sex: Syst:

Indian Copal, Piney Varnish or White Dammer tree, ENG. Dupadamara, TEL.	Koondricum, Velli Koondricum, TAM Vella Koodricum, Peinimarum, MAL.
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**DESCR:** Tree, 80 feet, calyx 5-cleft: segments oblong, not enlarged when in fruit: petals 5, oval, emarginate, scarcely longer than the calyx: leaves alternate, oblong, entire, coriaceous, glabrous: panicles terminal: flowers white: anthers yellow, capsule 3-valved, 1-celled: seed solitary. *Fl.* January—March.—*W. & A. prod.* I. 83.—*Don's Mill*, I. 814.—*Roxb. fl. Ind.* II. 603.—*Cor.* III. t. 288.—*Elæocarpus copalliferus*, *Retz.*—*Rheede* IV. t. 15.—Travancore. Malabar.

**USES, &c.** This tree yields the Piney-gum resin, an excellent varnish resembling copal. It is procured by cutting a notch in the tree, sloping inwards and downwards, from which the resinous juice runs and is soon hardened by exposure to the air. It is usual when applying it as a varnish to apply the resin before it hardens, otherwise to melt it by a slow heat and mix with boiling linseed oil. It is very useful for carriages\* and furniture. A spirit varnish is prepared by reducing to powder about six parts of Piney and one of camphor and then adding hot alcohol sufficient to dissolve the mixed powder. Alcohol will not dissolve Piney without the camphor, but once dissolved retains it in solution. The varnish thus prepared is good for varnishing picture, &c., but before being used requires to be gently heated to evaporate the camphor, which otherwise would produce a roughness on the picture in consequence of its subsequent evaporations. In addition to these uses it is made into candles on the Malabar Coast diffusing an agreeable fragrance and giving a clear light and little smoke. For making them the fluid resin may either

\* This tree forms beautiful avenues in Malabar and Canara, the foliage is dense and the blossom very fragrant. It was a favorite with the ancient Rajahs, and there are magnificent old trees near Bednore.

be ran into moulds or be rolled, while yet soft, into the required shape. The true gum copal is not from this tree, but it generally goes under that name in India. The gum is also useful for varnishing anatomical preparations, the best specimens of the gum are employed as ornaments under the name of Amber (*Kehroba*) to which it bears exterior resemblance. When recent it is found from pale green to a deep amber colour with all the intermediate shades. Gum boiled in oil, applied in rheumatic swellings of the joints. Mixed with gingeley oil, a good specific in gonorrhœa, dose 4 drachms twice daily: also in plaster to chronic ulcers. The bark which is bitter and astringent is said to retard fermentation and on that account chips are used in Ceylon when preparing jaggery from the toddy, which are thrown in the vessel to prevent fermentation taking place. The timber is used for masts and for small vessels being proof against the *teredo navalis*. The kernels bruised with warm water are administered to take away nausea and vomiting. A vulnerary balsam is made of the resin mixed with oil: pulverised and mixed with other ingredients it is given in virulent gonorrhœa and venereal complaints. *Rheede. Roxb. Wight.*

(644) **Vatica laccifera** (*W. & A.*) Nat. Ord. DIPTERACEÆ.

**Polyandria Monogynia.** *Sex: Syst:*

Talura, TAM.

DESCR: Large tree: leaves entire, coriaceous, oblong, often emarginate at the base: sepals 5, enlarging afterwards into wings: petals 5: panicles numerous from the axils of the former leaves: ovary 3-celled: seeds solitary: flowers yellow. *Fl. March—April.—W. & A. prod. I. 84.—Wight's Icon. t. 164.—Shorea Talura, Roxb. H. B; fl. Ind. II. 618.—S. laccifera, Heyne.—S. robusta, Roth (not Roxb.)—Saul Tallarea, Roxb. in E. I. C. mus.—Naickenary pass. Nundidroog. Palghat mountains.*

USES, &c. This is a large timber tree much used in those parts of the country where it grows. *Roxb.*

(645) **Vatica Tumbugaia** (*W. & A.*) Do.

*Do.*

Tumbugai, TAM.

DESCR: Large tree: leaves ovate-cordate, long-petioled: panicles terminal: stamens about 100 with bearded anthers: sepals enlarging into wings: flowers yellow. *Fl. March—April—*

*W. & A. prod.* I. 84.—*Wight's Icon.* I. t. 27.—Shorea Tumbugaia, *Roxb. fl. Ind.* II. 617.—Saul Tumbugaia, *Roxb. in E. I. C. mus.*—Palghaut mountains.

USES, &c. This is a large tree yielding valuable and excellent timber. It yields a quantity of Dammer resin. *Roxb.*

(646) **Vernonia anthelmintica** (*Willd.*) N. O. ASTERACEÆ.

**Syngonesia Polygamia.** seq: *Sex: Syst:*

Purple Flea-bane, ENG.  
Caat-siragum, TAM.  
Catta-seragam, MAL.  
Adavie-zeela-kura, TEL.

Kali-zeerie, DUK.  
Buckche, HIND.  
Som-raj, BENG.

DESCR: Annual: stem erect, roundish, slightly tomentose: leaves alternate, serrate, narrowing at the base into the petioles: calyx ovate: corolla consisting of 20 or more hermaphrodite florets: flowers in panicles at the end of the branches on long peduncles thickening towards the flowers: a solitary peduncle terminates the stalk: flowers purplish. *Fl.* November—December.—*Serratula anthelmintica*, *Roxb. fl. Ind.* III. 405.—*Conyza anthelmintica*, *Linn.*—*Baccharoides anthelmintica*, *Moench.*—*Ascaridia indica*, *Cass.*—*Rheede* II. t. 24.—Peninsula. Bengal.

USES, &c. The seeds are very bitter and are considered powerfully anthelmintic and diuretic and are also an ingredient of a compound powder prescribed in snake bites. An infusion of them is given on the Malabar Coast for coughs and in cases of flatulency. Reduced to powder and mixed with lime juice they are used to expel pediculi from the hair: also mixed with oil is used in scabies. The juice of the leaf is given in discharges from nostrils. *Rheede. Ainslie.*

(647) **Vernonia cinerea** (*Less.*) Do.

*Do.*

Ash coloured Flea-bane, ENG.  
Seera-Shengalanear, Naidsetue, TAM.  
Gherutti Kama, TEL.

Poovankooroonnal, MAL.  
Chota Koksini, BENG.

DESCR: Annual: leaves oblong, flowers panicled: corolla light-purple, cylindrical, twice the length of the calyx. *Fl.* January—March.—*Serratula cinerea*, *Roxb. fl. Ind.* III. 406.—

*Conyza cinerea*, Linn.—*C. purpurea*, Forst.—*Conyza mollis* Willd.—*Rheede* X. t. 64.—Coromandel. Malabar. Bengal.

USES, &c. The whole plant used in decoctions by the natives to promote perspiration in fevers. *Ainslie*.

(648) **Villarsia Indica** (*Vent.*) GENTIANACEÆ.

**Pentandria Monogynia.** *Sex: Syst:*

Indian Buck bean, ENG.  
Nedel-ampel, TAM.  
Nedel-ampel, MAL.

Antara-tamara, TEL.  
Chooli, BENG. and HIND.

DESCR: Floating: leaves reniformly orbicular, coriaceous, repand, 3 or many nerved, scabrous from Scrobicles beneath: pedicels elongated, umbellate from the tops of the petioles: corolla with a yellow tube: segments white, hairy at the top: capsule round, crustaceous, 1 celled: seeds globose, echinated. *Fl.* May—August.—*Don's Mill* IV. 168.—*Hook Bot. Misc.* III. t. 30.—*Menyanthes Indica*, Linn.—*Roxb. fl. Ind.* I. 460.—*ed. Car.* II. 31.—*Rheede* XI. t. 28.—Peninsula. Bengal.

USES, &c. This is a floating plant found in fresh water lakes and tanks. The tuberous root which is mucilaginous and demulcent is used medicinally in pills, and the whole plant boiled and mixed with butter is given internally in the bites of the Cobra. *Ainslie. Rheede.*

(649) **Vitex alata** (*Roxb.*) Nat. Ord. VERBENACEÆ.

**Didynamia Angiosperma.** *Sex: Syst:*

Mail elon, MAL.

DESCR: Small tree: leaves ternate: petioles winged: panicles axillary: flowers pale yellow tinged with blue. *Fl.* April—May.—*J. Grak. cat.*—*Roxb. fl. Ind.* III. 72.—*Rheede* V. t. 1.—South Mahratta Country. Chittagong. Malabar.

USES, &c. This tree yields a good timber. The bark and leaves rubbed and boiled in infusion of rice and made into a plaster is used to allay pains after childbirth, expelling secundines left in the uterus. The juice from the green bark mixed with coconut milk is given in diarrhœa and colic. *Rheede.*

(650) **Vitex altissima** (Roxb.) Do.

Do.

DESCR: Large tree: branchlets tetragonous, channelled, with the petioles and back of the leaves whitish-woolly: leaves long-petioled, trifoliolate: leaflets elliptic-oblong, slightly acuminate at both ends, sub-sessile, entire, finely pubescent, and at length glabrous above: panicles terminal, compound, spreading, pyramidal, white with dense tomentum: cymes sub-sessile, compact, minutely bracteolate, interruptedly verticelled: calyx 5-lobed: corolla small, the inferior lip straightish, somewhat woolly: flowers white tinged with blue. *Fl.* May—September.—*Wight's Icon.* t. 1466.—*Roxb. fl. Ind.* III. 71.—Mountains of Coromandel. Goalpara.

USES, &c. A large tree, somewhat common in subalpine forests. The timber is hard and durable. Rheede states that the leaves boiled in infusion of rice and mixed with pepper are given in bites of poisonous reptiles. *Rheede. Wight.*

(651) **Vitex arborea** (Roxb.) Do.

Do.

Caatu-maillaloo, MAL.

| Boosee, TEL.

DESCR: Tree: branchlets 4-sided, channelled and with the petioles and young leaves pubescent or slightly tomentose: leaves long, petioled, 3-5 foliolate: leaflets elliptic or ovate-oblong, rounded at the base, sub-sessile, coriaceous, glabrous, shining above pale finely puberulous beneath: panicles whitish, powdery tomentose, terminal, compound, compact: cymes interspersed with foliaceous bracts longer than the calyx: calyx cyathiform, sinuately 5-toothed: corolla twice the length of the calyx, inflated: inferior lip straightish, villous at the base, flowers small blue. *Fl.* April.—*Wight's Icon.* t. 1465.—*Roxb. fl. Ind.* III. 73.—*Rheede V. t.* 2.—Courtallum.

USES, &c. This tree yields a good timber. When old it becomes chocolate-coloured and is useful for various economical purposes. *Roxb.*



(652) **Vitex Negundo** (Linn.) Do.

Do.

Five leaved chaste tree, ENG.  
Vellay Noochie, TAM.  
Ben-nochie, MAL.  
Wayala, TEL.

Shumbalie, DUK.  
Nisinda, HIND.  
Nishinda, BENG.

DESCR: Arboreous: stem twisted 10-feet: leaves digitate, quinate, opposite on longish petioles: leaflets lanceolate, entire, three larger petioled, two smaller sessile: panicles 2-branched: flowers blue, fragrant. *Fl.* April—June.—*Wight's Icon.* t. 519.—*Roxb. fl. Ind.* III. 70.—*V. paniculata Lam.*—*Roxb. fl. Ind.* III. 71.—*Rheede II. t.* 12.—Peninsula. Bengal. Deyra-Dhoon.

USES, &c. This species is similar in medicinal properties to the *V. trifolia*, but somewhat weaker, the root in decoction is a pleasant bitter and administered in cases of intermittent and typhus fevers. The leaves simply warmed are a good application in cases of rheumatism and sprains. The Mahomedans smoke the dried leaves in cases of headache and catarrh. The dried fruit is considered a vermifuge. A decoction of the aromatic leaves helps to form the warm bath for native women after delivery. The root in decoction is used for vermifuge and to reduce swellings in the body. The leaves are employed in weakness of the eyes and with the root mixed with rice water are good for healing ulcers. The tender leaves rubbed up with pepper made into small balls, are given two or three at a time when fever comes on. An ointment is made from the juice of the leaves used for promoting the growth of hair. *Ainslie. Rheede.*

(653) **Vitex trifolia** (Linn.) Do.

Do.

Three leaved chaste-tree or Indian  
privet, ENG.  
Neer-noochie, TAM.  
Cara-noochie, MAL.

Panee ki shumbalie, DUK.  
Neela vayalie, TEL.  
Nismdha, Seduari, HIND.

DESCR: Shrub 10-feet: leaves ternate and quinate: leaflets ovate, acute, entire, hoary beneath: panicle with a straight rachis: pedicels dichotomous: flowers terminal, racemose violet. *Fl.* April—May.—*Roxb. fl. Ind.* III. 69.—*Rheede II. t.* 11.—Coromandel. Concan. Deccan.

**USES, &c.** The leaves and young shoots are considered as powerfully discutient, and are used in fomentations or simply applied warm in cases of sprains, rheumatism, contusions, &c., also externally in diseases of the skin, and swellings: leaves powdered and taken with water are a cure for intermittent fevers; root, and a cataplasm of the leaves, are applied externally in rheumatism and local pains. The fruit is said by the Vytians to be nervine, cephalic and emmenagogue and is prescribed in powder in electuary and decoction. A clear sweet oil of a greenish colour is extracted from the root. The root mixed with warm water is used in gout. *Rheede. Roxb. Ainslie.*

(654) **Vitis Indica** (*Linn.*) N. O. VITACEÆ.

**Tetrandria Monogynia.** *Sex: Syst:*

Schembra-vulli, MAL.  
Amdhouka, HIND.

Amdouka, BENG.

**DESCR:** Climbing: branches, petioles and peduncles villous: leaves cordate, toothed, teeth tipped with a hardened gland: under side tomentose: upper floccose: petals 5, distinct: stamens 5: racemes peduncled, composed of lateral umbels nearly sessile along the rachis: peduncles cirrhiferous: flowers bisexual: ovary immersed in the elevated part of the torus: fruit globose, 1-2-seeded: flowers small, yellowish. *Fl.* March—April.—*W. & A. prod.* I. 131.—*Roxb. fl. Ind.* I. 660.—*ed. Car.* II. 473.—V. rugoso, *Wall.*—*Rheede* VII. t. 6.—Travancore.

**USES, &c.** The juice of the plant mixed with oil is applied to affections of the eyes. The root beaten up and mixed with oil and cocoanut milk is said to be a cure for carbuncles, pustules and boils, and the juice of the root mixed with sugar is cathartic. *Rheede.*

(655) **Vitis latifolia** (*Roxb.*) Do.

*Do.*

Schumambu valli, MAL.

**DESCR:** Climbing: branches glabrous: leaves simple, roundish-cordate, with 3-7 acute angles, sometimes palmate, serrated, unexpanded ones tomentose, adult ones glabrous, prominently nerved beneath: racemes pubescent, compound, peduncled: flower-bearing peduncles partly cirrhiferous: flowers bisexual: petals 5 distinct: ovary immersed in the elevated part of the torus, 10-furrowed at

the apex : fruit globose size of a black currant : flowers small ; reddish brown. *Fl.* May—June—*W. & A. prod.* I. 130.—*Roxb. fl. Ind.* I. 661.—*ed. Car.* II. 474.—*Rheede* VII. t. 11.—Hills of Coromandel. Bengal. Travancore.

USES, &c. Rheede says this is a very famous shrub. Baskets are made from the leaves in which the Brahmins keep provisions. The juice boiled in oil, and made into the form of a plaster dissipates thick humours. A decoction with sugar is given in fever. Water distilled from the trunk also with sugar purifies the blood. The root rubbed and boiled in water is given in tooth-ache, and the bark is applied to indolent ulcers. *Rheede.*

(656) **Vitis quadrangularis** (*Wall.*) Do.

. Do.

Perundi codie, TAM.  
Tjangelam-parenda, MAL.

Nullerootigeh, TEL.  
Hasjora, BENG.

DESCR: Climbing ; glabrous : stem 4-angled, winged : stipules lunate, entire : leaves alternate, cordate-ovate, serrulated, short-petioled : umbels shortly peduncled : stamens 4 : petals 4, distinct : fruit globose, size of a large pea, very acrid, 1-celled, 1-seeded : flowers small, white. *Fl.* Aug.—Oct.—*W. & A. prod.* I. 125.—*Wight's Icon.* t. 51.—*Cissus quadrangularis*, *Linn.*—*Roxb. fl. Ind.* I. 407.—*ed. Car.* I. 426.—*Rheede* VII. t. 41.—Peninsula. Bengal. Travancore.

USES, &c. The leaves and young shoots when fresh are sometimes eaten by the natives and when dried and powdered are given in bowel affections. Forskal states that the Arabs when suffering from affections of the spine make beds of the stems. *Ainslie.*

(657) **Vitis setosa** (*Wall.*) Do.

Do.

Barabutsali, TEL.

DESCR: Climbing, clothed with scattered glandular bristly hairs, but otherwise glabrous : stem herbaceous : leaves succulent, trifoliate, without a common petiole ; leaflets stalked, roundish-ovate, or obovate, obtuse with numerous sharp serratures, cymes peduncled with divaricating branches : petals 4, distinct : stamens 4 : style conspicuous : berries red, ovoid, hairy, 1-seeded : flowers in

the rainy season. *W. & A. prod.* I. 127.—*Wight's Icon.* 170.—*Cissus setosus.*—*Roxb. fl. Ind.* I. 410—*ed. Car.* I. 428.—Rajahmundry. Mysore.

USES, &c. Every part of the plant is exceedingly acrid. The leaves toasted and oiled are applied to indolent tumours to bring them to suppuration. *Roxb.*

## W.

(658) **Wedella**  
**calendulacea** (Less.) Nat. Ord. ASTERACEÆ.**Syngenesia Polygamia, Sup. Sex: Syst:**Postaley-kaiantagei, TAM.  
Pee-cajoni, MAL. \*  
Patsoo-poola-goonta-galijeroo,  
TEL.Peelabhungra, DUK.  
Keshoorya, BENG.

DESCR: Perennial, herbaceous, creeping: leaves opposite, broad-lanceolate, obtuse, entire: peduncles axillary: flowers bright yellow. *Fl.* Aug.—Jan.—*Wight's Icon. t.* 1107.—*Verbesina calendulacea*, Linn.—*Roxb. fl. Ind.* III. 440.—V. *Benghalensis*, Rich.—*Jageria calendulacea*, Spreng.—*Rheede X. t.* 42.—Coromandel. Concan. Bengal.

USES, &c. The leaves, seeds and flowers, which are aromatic to the taste are considered deobstruent, in decoction. The plant has a slightly camphoraceous taste. *Roxb.*

(659) **Willughbela edulis** (Roxb.) Nat. Ord. APOCYNACEÆ.**Pentandria Monogynia. Sex: Syst:**

Luti-am, BENG.

DESCR: Climbing: calyx 5-parted, small: corolla salver-shaped with the tube thicker about the centre, 5-cleft, segments oblique: leaves opposite, elliptic-oblong, acuminate, obtuse, with parallel veins: peduncles cymose, axillary, shorter than the petioles: flowers pale pink: berry very large, globular, 1-celled, many seeded. *Fl.* June—Aug.—*Don's Mill.* IV. 101.—*Roxb. fl. Ind.* II. 57.—Chittagong.

USES, &c. The milky viscid juice which flows from every part of this plant is converted on exposure to the atmosphere to an inferior kind of Caoutchouc. The fruit is eatable. *Roxb.*

(660) **Wrightia****antidysenterica** (*R. Br.*) Nat. Ord. **APOCYNACEÆ.****Pentandria Monogynia.** *Sex: Syst:*

Veppalei, TAM.

|

Codaga-palla, TEL.

**DESCR:** Shrub, 6-10 feet : calyx 5-parted : corolla salver-shaped, six times longer than the calyx : throat crowned by ten divided scales : leaves opposite, obovate-oblong, short acuminate, glabrous : corymbs nearly terminal : flowers white, sweet scented : follicles distinct. *Fl.* March.—April.—*Dons. Mill.* IV. 85.—*Nerium antidysentericum*, *Linn.*—*Rheede I. t.* 47.—Hilly parts of the Concan.

**USES, &c.** The wood which is light-coloured is useful for cabinets and other elegant furniture. The bark is reputed to be a specific in dysentery and bowel complaints, and is the *Conessi bark* of the *Materia Medica*. It is astringent and febrifuge. The seeds are also used medicinally, being boiled in milk and given in hemorrhoids and dysentery and in decoction in fever and gout. The root rubbed up and mixed with rice water, is given in sore throat, a lotion of the same being applied to the neck. It is also used externally in rheumatic complaints and tooth-ache. A medicinal oil is procured from the seeds. *Rheede. Roxb. Jury Rep.*

(661) **Wrightia tinctoria** (*R. Br.*)

Do.

\* Do.

Chite-ancaloo, TEL.

**DESCR:** Shrub 10-15 feet : leaves elliptic-lanceolate or ovate-oblong, acuminate, glabrous : panicles terminal, branches and corymbs divaricate : tube of corolla twice as long as the calyx : follicles distinct, but united at the apex : flowers white, fragrant,  $1\frac{1}{2}$  inch in diameter when expanded. *Fl.* March—May.—*Don's Mill.* IV. 86.—*Wight's Icon.* II. t. 444.—*Nerium tinctorium*, *Roxb. fl. Ind.* II. 4.—Coromandel.

**USES, &c.** The wood is white, close-grained and handsome in appearance, looking like ivory. Much used for ornamental and useful purposes. The fresh leaves when well chewed are very pungent, and are said quickly to remove the pain of tooth-ache. They lose their property by drying. A kind of Indigo is prepared from the leaves. This is known as *pala-indigo*, for which a prize was awarded to Mr. Fisher of Salem. *Wight. Roxb. Jury Reports.*

(662) **Wrightia tomentosa** (*Rom. et. Sch.*) Do.

*Do.*

Nelam-pala, MAL.

DESCR: Tree: leaves oblong, acuminate, downy: corymbs terminal, small; tube of corolla longer than the calyx: corona fleshy, lacerated into obtuse segments: follicles distinct: branches downy: flowers with a white corolla and orange coloured corona. *Fl.* May—June.—*Don's Mill.* IV. 86.—*Wight's Icon.* II. t. 443.—*Nerium tomentosum*, *Roxb. fl. Ind.* II. 6.—*Rheede* IX. t. 3, 4.—Circar. Concans.

USES, &c. A yellow juice flows from this plant which mixed with water forms a good yellow dye. Some cloths that had been dyed with it had preserved their colour as bright and as fresh, as at first, for two years. A bath from the leaves and bark is given in rheumatism and fevers. From the smooth bark of the roots a globule made about the size of an areca-nut, is given as a certain remedy in snake bites. *Rheede. Roxb.*

## - X.

(663) **Xanthochymus pictorius** (*Roxb.*) N. O. CLUSIACEÆ.**Polyadelphia Polyandria.** *Sex* : *Syst* :

Dampel, HIND.

| Iwara-memadée, TEL.

**DESCR** : Tree 40-feet : leaves linear-lanceolate, shining : calyx 5 sepals, unequal : petals 5, deciduous, alternating with the sepals : flowers lateral, fascicled, all bisexual : ovary 5-celled : fruit ovate, pointed, yellow, 1-4 seeded : flowers white. *Fl.* April—June.—*W. & A. prod.* I. 102.—*Don's Mill.* I. 620.—*Roxb. fl. Ind.* II. 638.—*Cor.* II. t. 196.—*Stalagmitis pictorius*, *G. Don.*—Concan.

**USES, &c.** The fine yellow fruits, something like an orange, are eaten by the natives, and are very palatable. They might be much improved by cultivation. The fruit when full grown, but not ripe, yields a quantity of yellow, resinous, acrid gum like gamboge, of the consistence of rich cream. It makes a pretty good water-colour either by itself as a yellow or in mixture with other colour to form green. It is imperfectly soluble in spirit and still less so in water : alkaline salt enables the water to dissolve more of the gum *Roxb.*

(664) **Xanthoxylon Rhetsa** (*DC.*) N. O. XANTHOXYLACEÆ.**Diœcia Tetrandria.** *Sex* : *Syst* :

Moolleela, MAL.

| Rhetsa-maum, TEL.

**DESCR** : Tree 50-feet : every where armed with prickles : bark corky : leaves alternate, equally pinnated : leaflets 8-16 pair, lanceolate, unequal-sided, entire ; glabrous : panicles terminal : petals and stamens four : capsule sessile, solitary, globose : seeds solitary, round, glossy black : flowers small yellow : capsule 1-celled. *Fl.* Oct.—Nov.—*W. & A. prod.* I. 148.—*Don's Mill.* I. 802.—*Fagara Rhetsa*, *Roxb. fl. Ind.* I. 417.—*ed. Car.* I. 438.—*Rheede V. t. 34.*—Coromandel mountains.



USES, &c. The unripe capsules are like small berries ; they are gratefully aromatic and taste like the skin of a fresh orange. The ripe seeds taste like pepper and are used as a substitute. The specific name *Rhetsa* means in Telogoo a committee, or select assembly. Under the shade of this tree the hill people assemble to examine, agitate and determine public affairs, deliver discourses, &c. The bark is aromatic ; put in food as a condiment instead of limes and pepper it is cooked with sugar or honey and taken to strengthen the stomach and mixed with onions, mustard-seed, and ginger, makes a good pickle. Berries acid and succulent. *Rheede. Roxb.*

(665) **Ximenia Americana** (*Linn.*) Nat. Ord. OLACINÆ.

**Octandria Monogynia.** *Sex : Syst :*

Oora-nechra, TEL.

DESCR : Shrub 15-feet : calyx small, 4-cleft : petals 4, very hairy inside : thorns axillary or terminating the branchlets, solitary, bearing occasionally leaves or flowers, or even smaller thorns : leaves alternate, oval, emarginate : peduncles 4-6 flowered : drupe oval ; flesh thick : nut crustaceous : flowers small, dull white, fragrant. *Fl.* June—Sept.—*W. & A. prod.* I. 89 —*Don's Mill.* I. 581.—*Roxb. fl. Ind.* II. 252.—*X. Russelliana, Wall.*—Circars.

USES, &c. The yellow fruit which is about the size of a pigeon's egg, is of a somewhat acid and sour taste and is eaten by the natives. The kernels taste like fresh filberts. The rind is bitter and astringent : the fleshy parts are used as a purgative. The wood is of a yellow colour, somewhat like sandal-wood, and its powder is used by the Brahmans on the Coromandel Coast in their religious ceremonies. *Roxb.*

(666) **Xyris Indica** (*Linn.*) Nat. Ord. XYRIDACEÆ.

**Triandria Monogynia.** *Sex : Syst :*

Kotsjelleti-pullu, MAL.  
Cheena, BENG.

| Dali doob, BENG.

DESCR : Annual, 1-foot : leaves radical, ensiform, on one edge slit into a sheath for the scape, pointed, smooth : head globular ; scales roundish : scape naked, round, striated, the length of the leaves, each supporting a round, flower-bearing head : calyx 3-leaved : petals 3, unguiculate with oval crenate borders, just rising

above the scales : flowers bright yellow. *Fl.* November—December.—*J. Grah. Roxb. fl. Ind.* I. 179.—*ed. Car* I. 183.—*Rheede IX. t.* 71.—S. Concan. Coromandel. Malabar.

**USES, &c.** The juice of the leaves mixed with vinegar is applied externally in cases of itch. The leaves and root boiled in oil are considered useful in leprosy on the Malabar Coast. In Bengal the plant is reckoned of great value as an easy and certain cure for ringworm. *Roxb.*

## Z

(667) **Zanonia Indica** (*Linn.*) Nat. Ord. CUCURBITACEÆ.

**Diœcia Pentandria.** *Sex: Syst:*

**DESCR:** Climbing: leaves alternate, elliptical, acute, slightly cordate at the base: racemes axillary: fruit oblong, elongated tapering from the apex of the base, slightly 3-angled: *Male flowers*, calyx 3-lobed: petals 5, patent: *Female flowers*, limb of calyx 5-lobed: corolla as in the male: tendrils axillary:—*W. & A. prod.* I 340.—*Rheede VIII. t. 47, 48.*—Always near Cochin. Malabar.

**USES, &c.** The leaves are used for making baths which are recommended in nervous complaints, &c. Sometimes beaten up with cow's milk and fresh butter they are applied as antispasmodic liniments. The dried oblong capsules open at the top are very singular in their appearance. The only place I have met with the plant is at Alway about 14 miles from Cochin on the river side. It climbs to the tops of the loftiest trees. *Rheede. Pers. obs.*

(668) **Zapania nodiflora** (*Linn.*) Nat. Ord. VERBENACEÆ.

**Didynamia Angiospermia.** *Sex: Syst:*

Podotalle, TAM.

Bokena, TEL.

Baleya eetheecannee, MAL.

Bhoocokra, HIND.

Chota okra, BENG.

**DESCR:** Annual, creeping; roughish stem with adpressed biacuminate hairs: stem herbaceous, filiform, ramos, procumbent, rooting at the joints and ascending: leaves cuneate-spathulate, entire at the base, above rounded, obtuse, or sub-acute, equally and sharply serrated, obsolete veined, flat: peduncles axillary, solitary, filiform, exserted: capitula ovoid and at length cylindrical: calyx two-parted, slightly bicarinate: carinæ puberulous: flowers small white. *Fl.* All the year.—*Wight's Icon.* IV. t. 1463.—*Lippia repens*, *Spreng.*—*L. nodiflora*, *Rich.*—*L. sarmentosa*, *Spreng.*—*Verbena cuneata*, *Willd.*—*V. nodiflora*, *Linn.*—*Burm. Ind.*—*Rheede X. t. 47.*—Streams and banks of rivers in South India.

USES, &c. The leaves and young shoots which are very bitter and astringent are given to children in indigestion and diarrhoea. They are also occasionally recommended as a drink for women after lying-in. *Ainslie*.

(669) **Zingiber officinale** (*Roscoe*.) Nat. Ord. ZINGIBERACEÆ.

**Monandria Monogynia.** *Sex: Syst:*

Common Ginger, ENG.  
Ingie, TAM.  
Ischi, MAL.

Ullum, TEL.  
Sonth, HIND.  
Udruck, Ada, BENG.

DESCR: Rhizome tuberous, biennial; stems erect and oblique invested by the smooth sheaths of the leaves; generally 3 or 4 feet high, and annual: leaves sub-sessile on their long sheaths, bifarious linear lanceolate, very smooth above, and nearly so underneath; sheaths smooth, crowned with a bifid ligula; scapes radical, solitary, a little removed from the stems, 6-12 inches high, enveloped in a few obtuse sheaths, the uppermost of which sometimes end in tolerably long leaves: spikes oblong, the size of a man's thumb. Exterior bracts imbricated, 1-flowered, obovate, smooth, membranous at the edge, faintly striated lengthwise; interior enveloping the ovary, calyx and the greater part of the tube of the corolla: flowers small; calyx tubular, opening on one side, 3-toothed: corolla with a double limb; outer of 3, nearly equal, oblong segments; inner a 3-lobed lip, of a dark purple colour: ovary oval, 3 celled, with many ovules in each; style filiform. *Fl.* August—October.—*Roxb. fl. Ind.* I. 47.—*ed. Car.* I. 46.—*Amomum Zingiber, Linn.*—*Rheede.* XI. t. 12.—Cultivated over all the warmer parts of Asia.

USES, &c. The Ginger plant is extensively cultivated in India from the Himalayahs to Cape Comorin. In the former mountains it is successfully reared at elevations of 4 or 5,000 feet, requiring a moist soil. The seeds are seldom perfected on account of the great increase of the roots. These roots or rhizomes have a pleasant aromatic odour. When old they are scalded, scraped and dried and are then the white Ginger of the shops: if scalded without being scraped, the black Ginger. It is not exactly known to what country the Ginger plant is indigenous, though *Ainslie* states it to be a native of China, while *Joebel* asserts that it is a native of Guinea.

It is still considered doubtful whether the black and white Ginger are not produced by different varieties of the plant. *Rumphius* asserts positively that there are two distinct plants, the white, and

the red, and Dr. Wright has stated in the London Medical Journal, that two sorts, namely, the white and black are cultivated in Jamaica. The following account of its cultivation is given in Simmond's Commercial products. "The Malabar ginger exported from Calicut is the produce of the district of Shernaad, situated to the south of Calicut; a place chiefly inhabited by Moplas, who look upon the ginger cultivation as a most valuable and profitable trade, which in fact it is. The soil of Shernaad is so very luxuriant and so well suited for the cultivation of ginger that it is reckoned the best, and in fact the only place in Malabar where ginger grows and thrives to perfection. Gravelly grounds are considered unfit; the same may be said of swampy ones, and whilst the former check the growth of the ginger, the latter tend in a great measure to rot the root, thus the only suitable kind of soil is that which, being red earth, is yet free from gravel, and the soil good and heavy. The cultivation generally commences about the middle of May, after the ground has undergone a thorough process of ploughing, harrowing, &c.

At the commencement of the monsoon beds of ten or twelve feet long by three or four feet wide are formed, and in these beds small holes are dug at three fourths to one foot apart, which are filled with manure. The roots, hitherto carefully buried under sheds, are dug out, the good ones picked from those which are affected by the moisture, or any other concomitant of a half-year's exclusion from the atmosphere, and the process of clipping them into suitable sizes for planting performed by cutting the ginger into pieces of an inch and a half to two inches long. These are then buried in the holes, which have been previously manured and the whole of the beds are then covered with a good thick layer of green leaves, which, whilst they serve as manure, also contribute to keep the beds from unnecessary dampness, which might otherwise be occasioned by the heavy falls of rain during the months of June and July. Rain is essentially requisite for the growth of the ginger; it is also however necessary, that the beds be constantly kept from inundation, which, if not carefully attended to, the crop is entirely ruined; great precaution is therefore taken in forming drains between the beds, letting water out, thus preventing a superfluity. On account of the great tendency some kinds of leaves have to breed worms and insects, strict care is observed in the choosing of them and none but the particular kinds used in manuring ginger are taken in, lest the wrong ones might fetch in worms, which, if once in the beds, no remedy can be resorted to successfully to destroy them; thus they in a very short time ruin the crop. Worms bred from the leaves laid on the soil, though highly destructive, are not so pernicious to ginger cultivation as those which proceed from the effect of the soil. The former kind, whilst they destroy the beds in which they once appear do not spread themselves to the other beds be they ever so close, but the latter kind must of course

be found in almost all the beds, as they do not proceed from accidental causes, but from the nature of the soil. In cases like these, the whole crop is oftentimes ruined, and the cultivations are there subjected to heavy losses."

The rhizomes when first dug up are red internally and when procured fresh and young are preserved in sugar constituting the preserved ginger of the shops. Essence of ginger is made by steeping ginger in alcohol. With regard to its medical uses, ginger from its stimulant and carminative properties is used in tooth-aches, gout, rheumatism of the jaws and relaxed uvula with good effect, and the essence of ginger is said to promote digestion. The action of ginger is said to act powerfully on the mucous membrane though its effects are not always so decided on the remoter organs as on those into which it comes into immediate contact. Beneficial results have been arrived at when it has been administered in pulmonary and catarrhal affections. Head-aches have also been frequently relieved by the application of ginger poultices to the forehead. The native doctors recommend it in a variety of ways externally in paralysis and rheumatism, and internally with other ingredients in intermittent fevers. Dry or white ginger is called *Sookhoo* in Tamil and *Sontk* in Dukanie and the green ginger is *Injee* in Tamil and *Udruck* in Dukhanie. The ginger from Malabar is reckoned superior to any other.

The exports of dry ginger by land in 1856 from Trevandrum were  $327\frac{3}{8}$  candies valued at Rupees 13,706, Annas 11, and fresh ginger 62 candies valued at Rupees 887, Annas 5. The exports of dry ginger by sea in 1856 from Trevandrum were  $1,957\frac{1}{2}$  candies valued at Rs. 1,09,911 As. 3. The export of ginger by sea from Madras in four years ending in 1856 were 80,512 cwt. valued at Rs. 5,87,780. The total quantity of ginger imported into England from both Indies in three years ending 1852, amounted to 89,928 cwt. *Ainslie. Simmonds. Penny Cycl.*

(670) **Zizyphus glabrata** (Heyne.) Nat. Ord. RHAMNACEÆ.

**Pentandria Digynia.** Sex : Syst :

Carokoova, TAM.

Kakoopala, TEL.

DESCR : Tree 20 feet, unarmed : leaves alternate, ovate oblong, obtuse, crenate-serrated, glabrous, 3-nerved : cymes axillary, scarcely longer than the petioles, few-flowered ; drupe turbinate, yellow, with a soft gelatinous pulp : calyx 5-cleft : petals obovate, unguiculate : styles 2, nearly distinct, ovary 2-celled : nut hard and thick, rugose, obovate, flattened, 1-2 celled : flowers small, greenish yellow. *Fl.* April—May.—*W. & A. prod.* I. 162.—*Wight's Icon. t.* 282.—*Zizyphus trinervia*, *Don's Mill.* II. 25.—*Roeb. fl.*

*Ind.* I. 608.—*ed. Car.* II. 354. (not Poir.)—*Z. trinervia*, *b. Roth.*  
—Mysore.

USES, &c. A decoction of the leaves is given to purify the blood in cases of cachexia. *Ainslie.*

(671) **Zizyphus jujuba** (*Lam.*) Do.

*Do.*

Jujube tree, ENG.  
Eledie, TAM.  
Perintoddali or Elentha, MAL.

Reygoe, TEL.  
Bayr, DUK.  
Kool, BENG.

DESCR: Small tree 16 feet: stipulary prickles short, in pairs or solitary, often wanting, especially on the young branches: leaves elliptical or oblong, sometimes coarsely toothed at the apex, serrulated, acutish or obtuse or slightly cordate at the base: upper side glabrous; under side as well as young branches and petioles covered with dense tawny tomentum: cymes sessile or very shortly peduncled: ovary 2-celled: styles 2; united to the middle: drupe spherical, yellow when ripe: nut rugose, 2 celled: flowers greenish yellow. *Fl.* August—October.—*W. & A. prod.* I. 162.—*Wight's Icon. t.* 99.—*Roxb. fl. Ind.* I. 608.—*ed. Car.* II. 357.—*Z. trinervia*, *a, Roth.*—*Z. Mauritiana*, *Wall.*—*Z. Sororia*, *Schult.*—*Rhamnus Jujuba*, *Linn.*—*Rheede.* IV. *t.* 41.—Peninsula, Bengal. Travancore.

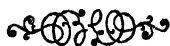
USES, &c. The fruit is eatable. It is sweet and mealy. The bark is used in the Moluccas in cases of diarrhoea, and to strengthen the stomach. It has astringent properties. Root prescribed in decoction in conjunction with seeds as a drink in fevers but perhaps not of much value. There is a variety of this tree which produces a long fruit, which is excellent to the taste called in Bengal *Narikela-Kool*. Seeds given internally with other ingredients to allay irritation in the throat, coughs, &c. Also mixed with buttermilk in bilious affections and externally mixed with oil in rheumatism. Bark of root powdered and mixed with oil applied to ulcers. It is from the wood of this tree that the native sandals are usually made. Leaves are used to polish gems. A drink prepared from the leaves boiled in milk is given in virulent gonorrhoea: leaves boiled and applied to the navel in the form of a plaster take away dysuria and strangury. Juice of root with castor-oil seeds purgative in bad stomach complaints. Root powdered with rice and butter as a poultice to the head in delirium and as a seporific. *Ainslie. Rheede.*

(672) **Zizyphus xylopyra** (Willd.) Do.

Do.

**DESCR :** Tree : stipulary prickles solitary, or in pairs, or wanting : leaves alternate, broadly elliptical, or orbicular, slightly cordate at the base, serrulated ; under side pale, softly pubescent, finely reticulated : upper side pubescent when young : cymes short : ovary 3-celled : styles 3, united below : drupe turbinate, nut globose, hard, slightly rugose, 3-celled : flowers greenish yellow. *Fl.* August—October.—*W. & A. prod.* I. 162.—*Roxb. fl. Ind.* I. 611—*ed. Car.* II. 360.—*Z. elliptica*, *Roxb. fl. Ind.* I. 610—*ed. Car.* II. 359.—*Z. Caracutta*, *Roxb. fl. Ind.* I. 612.—*ed. Car.* II. 361.—*Z. rotundifolia*, *Roth.*—*Z. orbicularis*, *Schult.*—*Rhamnus Xylopyrus*, *Retz.*—Courtallum. Cochin. S. India generally.

**USES, &c.** Cattle eat the young shoots and leaves. The kernels are edible and taste like filberts. The wood is yellowish or orange-coloured, very hard and durable, and not heavy. Fruit is much used by shoemakers to blacken leather and to make blacking. Wight remarks that this species may always be recognized by the leaves being pale and soft beneath, and the ovary 3-celled. *Gibson. Wight.*







GLOSSARY  
OF  
**BOTANICAL TERMS**

USED IN THIS WORK

CHIEFLY COMPILED FROM

DON, LINDLEY, AND BALFOUR.

**A.**

- Abortion* ..... The non formation of a plant which theoretically should be present : an incomplete formation.
- Abortive* ..... Imperfectly developed.
- Abrupt* ..... Suddenly terminating.
- Accrescent* ..... Growing larger after flowering.
- Accumbent* ..... Lying against anything in distinction to incumbent.
- Acerose* ..... Needle shaped.
- Achanium* ..... Any small brittle seed-like fruit, such as Linnæus calls a naked seed.
- Achlamydeous* ..... Having no floral envelopes.
- Abruptly-pinnate* ..... Leaves pinnate without a terminal or odd leaflet.
- Acicular* ..... Needle shaped.
- Acinaciform* ... Shaped like a scimitar.
- Aculeate* ..... Armed with prickles.
- Aculeus* ..... A prickle.
- Acutangular* ..... Having sharp or acute angles.
- Acuminate* ..... Having a taper point.
- Acuminately-cuspidate* ... Taper-pointed, and ending in a bristle.
- Acute* ..... Sharp-pointed.
- Adnate*... ..... Adhering to any thing; anthers are said to be adnate when they are attached to the filament by their whole length.
- Æstivation*..... The calyx and corolla of a flower is said to be in-æstivation when in the bud before expansion.
- Agglomerate* ..... Collected into a heap or head.
- Aggregate*..... Gathered together, usually applied to the inflorescence.
- Ala*..... Wing. One of the lateral petals of a papilionaceous flower and membranous appendages of the fruit.
- Albumen* ..... The substance under the inner coat of the testa of seeds surrounding the embryo ; it is sometimes absent.

- Alternate*.....Applied to leaves in contradistinction to opposite.
- Amentum*.....A catkin. A deciduous spike of unisexual apetalous flowers.
- Amplexicaul*.....Embracing; as when a leaf clasps a stem with its base.
- Anfractuose*.....Wavy or sinuous.
- Angular*.....Having angles or forming angles.
- Annual*.....Flowering and fruiting in the same year in which it is raised from seed.
- Annular*.....Circular; producing a ring.
- Anthelmintic*.....Capable of killing worms.
- Antheriferous*.....Bearing anthers.
- Anthers*.....The male parts of a flower containing the fecundating matter.
- Antiseptic*.....Efficacious against putrefaction.
- Apetalous*.....Without petals.
- Apex*.....The summit.
- Aphthous*.....Resembling something covered with little ulcers.
- Apiculate*.....Terminating in a little point springing abruptly.
- Appressed*.....Pressed close to anything: hairs lying flat upon the surface of a leaf or stem are said to be appressed.
- Approximate*.....Near together.
- Apterous*.....Without wings.
- Arboreous*.....Being a tree as distinguished from frutescent.
- Arcuate*.....Curved or bent like a bow.
- Aril*.....A peculiar substance covering the seeds.
- Areolate*.....Divided into distinct angular spaces.
- Arillate*.....Having that peculiar appendage called the aril.
- Aristate*.....Having a beard or awn, as the glumes of barley, a term only applied to seeds.
- Articulate*.....Having joints.
- Ascendent or Ascending*...At first trailing on the ground then rising erect, forming a curve.
- Attenuated*.....Tapering gradually to a point.
- Auriculated*.....Having ear-like appendages.
- Auricles*.....Ear-like appendages.
- Auriculately sagittate*.....Eared at the base, so as to give the leaf the appearance of the head of an arrow.
- Awl-shaped*.....Narrow pointed, resembling an awl.
- Awned*.....Terminating in an awn or sharp point.
- Awns*.....The beard of corn or any thing else.
- Azil*.....The angle formed by the union of the leaf and stem.
- Axillary*.....Placed in the axils.
- Axis*.....The line real or imaginary, that passes through anything, usually applied to the central placenta of fruits; the axis of a spike of flowers is the stem to which the flowers are attached.

**B.**

- Bacca*.....A berry; is a unilocular fruit having a soft outer covering and seeds immersed in pulp.
- Baccate*.....Fleshy.
- Berry*.....A fleshy fruit containing many seeds.
- Biacuminatè*.....Having two diverging points.
- Bibracteolate*.....Furnished with two small bractæas.
- Bibracteate*.....Furnished with two bractæas.

- Biconjugate*..... When each of two secondary petioles bears a pair of leaflets.
- Bicuspidate*..... Having two points.
- Bidentate*..... Having two teeth.
- Bifarious*..... Anything placed in two opposite rows.
- Bifariously imbricated*..... Anything placed in two opposite rows, as well as being laid over each other, like the tiles of a house.
- Bifid*..... Divided at the top in two parts: two cleft.
- Bifoliate*..... Having two leaves or leaflets.
- Bifurcate*..... Having two forks.
- Biglandular*..... Having two glands.
- Bilabiate*..... Having two lips.
- Bilobed*..... Divided into two lobes.
- Bilocular*..... Containing two cells.
- Bipartite*..... Divided into two parts.
- Bipinnate*..... Twice pinnate.
- Bipinnatifid*..... Twice pinnatifid.
- Biplicate*..... Having two plaits.
- Bis*..... Twice, in composition Bi.
- Brachiate*..... Having arms or branches usually placed opposite to each other nearly at right angles with the main stem and crossing each other alternately.
- Bracteate*..... Having bracteas.
- Bracteolate*..... Having small bracteas.
- Bracteoles*..... Small bracteas.
- Bracts*..... Small leaves placed near the calyx on the peduncle or pedicel.
- Branchlets*..... Small branches.
- Bristles*..... Stiff hairs.
- Bulbs*..... Underground buds, resembling roots, consisting of numerous fleshy scales placed one over the other.

## C.

- Caducous*..... Falling off soon.
- Cæspitose*..... Growing in little tufts.
- Calcarate*..... Spurred or having a spur.
- Calceiform*..... Formed like a little shoe.
- Callose*..... Callous, hardened.
- Calyciform*..... Formed like a calyx.
- Calycine*..... Of or belonging to the calyx.
- Calyculate*..... Having bracteas so placed as to resemble an external or additional calyx.
- Calyptriform*..... Shaped like an extinguisher.
- Calyx*..... The outer envelope of a flower as the corolla is the inner.
- Campanulate*..... Shaped like a bell.
- Canescent*..... Hoary approaching to white.
- Capillary*..... Very slender, resembling a hair.
- Capitate*..... Growing in a head: a stigma is said to be capitate when it is large, round and blunt.
- Capituli*..... Small heads.
- Capsule*..... A dry fruit.
- Capsular*..... Like a capsule.
- Carinate*..... Keel shaped.
- Carpel*..... The small parts of which compound fruits are formed as those of *Ranunculus*, *Pœonia* and *Aconitum*.

- Catkin*.....Inflorescence of the Natural Order Amentaceae, as the Willow.
- Caudate*.....Tailed, having a process like a tail.
- Caulescent*.....Acquiring a stem, having a kind of stem.
- Cellular*.....Composed of cells.
- Cell*.....The hollow part of a capsule in which the seeds are lodged, and the part of anthers which contain pollen.
- Cernuous*.....Nodding, drooping, or pendulous.
- Channelled*.....Having a channel or channels.
- Ciliated*.....Surrounded by hairs like those of the eyelash.
- Cinereous*.....Ash coloured, grey.
- Circinate*.....Curled round like a sharp crook, to make a circle.
- Cirrhose*.....Tendrilled, having tendrils or claspers as the pea.
- Cirrhiferous*.....Bearing tendrils or claspers.
- Claws*.....The unguis of petals, the narrow end.
- Cleft*.....Divided, but not exactly to the base: split.
- Cochleate*.....Twisted so as to resemble the shell of a snail.
- Coma*.....A tuft of hairs or bract occurring beyond the inflorescence.
- Compound*.....Used in botany to express the union of several things in one; thus a compound umbel is formed by several simple umbels: if above one, it is always called compound; a compound flower by several simple flowers; a compound leaf by several smaller leaflets.
- Compressed*.....Pressed together, and flattened laterally or lengthwise.
- Cone*.....A dry fruit formed by bracts covering naked seeds.
- Conjugate*.....Joined by pairs, chiefly applied to leaves.
- Connate*.....Joined together at the base; when two opposite leaves are joined together at the base, with the stem running through the centre of the joined part, it is called a connate leaf.
- } ; close together.
- Convolute*.....Rolled together, or over each other.
- Cordate*.....Formed like a heart.
- Coriaceous*.....The consistence of leather, thick and tough.
- Corolla*.....The inner envelope of a flower; the coloured part of a flower, composed of a petal or petals. The term is only applied when the calyx is present; otherwise it is called perianth.
- Corniculate*.....Having processes like small horns.
- Corona*.....Literally a crown; applied in botany to the crown like cup, which is found at the orifice of the tube of the corolla in Narcissus or other flowers.
- Corrugate*.....Wrinkled or shrivelled.
- Corticate*.....Like bark.
- Corymb*.....A raceme or panicle in which the stalks of the lower flowers are longer than those of the upper, so that the flowers themselves are all on the same level.
- Corymbose*.....Formed or arranged in the manner of a corymb.
- Costate*.....Ribbed: any longitudinal elevations.
- Creeping*.....Spread upon the ground and rooting at the joints.
- Crenate or Crenated*.....Having round notches.
- Crenulate*.....Full of small round notches.
- Crenately-serrated*  
*Crenate-serrate or*  
*Serrated*.....} With notched serratures; that is to say, something between crenated and serrated.

- Cucullate* ..... A leaf is said to be cucullate when its edge is curved inwards in such a manner as to represent the cowl or hood of a monk.
- Oulm* ..... The stem of Grasses, Scitamineous plants and the like.
- Cuneate-obovate* ..... } A form between obovate and wedge-shaped and between egg-shaped and wedge-shaped.
- Cuneate-ovate* ..... }
- Cuneate* ..... } Wedge-shaped, the broadest end uppermost tapering to the base.
- Cuneated* ..... }
- Cuneiform* ..... } Between wedge-shaped and egg-shaped.
- Cuneiform-ovate* ..... }
- Cuneately-lanceolate* ..... Between wedge-shaped and lanceolate.
- Cuspidate* ..... When a leaf suddenly tapers to a point it is so called.
- Cuspidately-serrated* ..... When serratures end abruptly in a point they are so called.
- Cuticle* ..... The scarf, skin, or epidermis.
- Cyathiform* ..... Cup-shaped, concave.
- Cymbiform* ..... Having the shape of a boat.
- Cyme* ..... A mode of inflorescence resembling a flattened panicle, as that of the elder.
- Cymose* ..... Flowering in cymes.

**D.**

- Deciduous* ..... Finally falling off ; as the calyx and corolla of crucifers.
- Declinate* ..... Bent downwards.
- Decomound* ..... Having various compound divisions or ramifications.
- Decreasingly-pinnate* ..... When leaflets diminish insensibly in size from the base of the leaf to its apex.
- Decumbent* ..... Reclining upon the earth and rising again from it.
- Decussate* ..... Arranged in pairs that alternately cross each other.
- Deflexed* ..... Bent downwards.
- Deformation* ..... An alteration on the usual form of an organ by accident or otherwise
- Dehiscence* ..... The act of splitting into regular parts or in some manner dependent upon organic structure.
- Dentate* ..... Toothed, having short triangular divisions of the margin.
- Denticulate* ..... Finely toothed.
- Depressed* ..... Broad and dwarf, as if instead of lengthening perpendicularly, growth had taken place horizontally.
- Descending* ..... Having a direction gradually downwards.
- Dichlamydeous* ..... Having both calyx and corolla.
- Dichotomous* ..... Having the divisions always in pairs ; a term equally applied to branches, or veins or forks.
- Diclinous* ..... Having the stamens in one flower and the pistil in another.
- Dicocous* ..... Splitting into two cocci.
- Digitate* ..... When several distinct leaflets radiate from the point of a leaf stalk.
- Diffuse* ..... Spreading widely.
- Digitato-pinnate* ..... When the leaflets of a digitate leaf are pinnate.
- Digiti-nerved* ..... When the ribs of a leaf radiate from the top of the petiole.
- Dimidiate* ..... When one half an organ is so much smaller than the other as to seem as if missing. Hardly different from oblique, except in degree. Also slit half way up.

- Dioicous, Dioicus*.....When the sexes of a plant are borne in different flowers by distinct individuals.
- Dipetalous*.....Consisting of two petals.
- Diphyllous*.....Two leaved.
- Discoidal*.....Orbicular, with perceptible thickness, slightly convex and a round border.
- Disk*.....An organ intervening between the stamens and ovary ; it assumes many forms, the most common of which is a ring or scales.
- Dissected*.....Cut into many deep lobes.
- Dissepiments*.....The partition in a fruit caused by the adhesion of the sides of carpellary leaves.
- Distichous*.....When parts are arranged in two rows, the one opposite to the other.
- Distinct*.....Separate from.
- Divaricating*.....Straggling, spreading abruptly and at an obtuse angle.
- Dolabriform*.....Fleshy nearly straight, somewhat terete at the base, compressed towards the upper end, one border thick and straight, the other enlarged, convex and thin.
- Dorsal*.....Fixed upon the back of anything.
- Dotted*.....Furnished with transparent receptacles of oil looking like dots ; marked with punctures.
- Downy*.....Covered with very short, weak, close hairs.
- Drupe (adj: Drupaceous)* A fleshy or succulent fruit, with a bony putamen or lining as a plum.
- Duplex*.....Double.

## E.

- Eared*.....Having two small rounded lobes at the base.
- Ebracteate*.....Having no bracts.
- Edentate*.....Not having any teeth.
- Edged*.....When one colour is surrounded by a very narrow rim of another.
- Eglandulose*.....Not having any glands.
- Echinate*.....Furnished with numerous rigid hairs or straight prickles.
- Elliptical*.....A flat body which is oval and acute at each end.
- Elongated*.....Lengthened or stretched out, as it were.
- Emarginate*.....Having a notch at the end, as if a piece had been taken out.
- Embryo*.....The rudimentary plant engendered within a seed by the action of pollen.
- Endocarp*.....The lining of a carpel, the inner surface of a fruit representing at that time the upper surface of a carpellary leaf. The stone of a cherry is its endocarp.
- Endogenous*.....Growing by the addition of new wood to the centre of the stem.
- Ensiform*.....Quite straight, with the point acute, like the blade of a broad sword or the leaf of an Iris.
- Entire*.....Having no kind of marginal divisions: also, nearly destitute of marginal division and not pinnatifid.
- Epicarp*.....The outer-most layer of the pericarp corresponding with the under side of the carpellary leaf.
- Epidermis*.....The true skin of a plant below the cuticle.

- Epiphyte*.....Plants which grow upon the surface of others, as many Mosses and Orchids.
- Equally-pinnate*.....When petioles of a pinnate leaf is terminated by neither leaflet nor tendril.
- Eroded*.....Having the margin irregularly toothed, as if bitten by an animal.
- Estivation*.....The manner in which the parts are arranged in a flower bud.
- Etiolated*.....Deprived of colour by being kept in the dark ; blanched.
- Exalbuminous*.....Having no albumen.
- Exogenous*.....Growing by the addition to the outer parts of the stem.
- Exserted*.....Projecting beyond the orifice of an organ.
- Extra*.....On the outside of, or beyond ; as Extra-axillaries is beyond the axil.

**F.**

- Falcate*.....Plane and curved, with parallel edges like the blade of a reaper's sickle.
- Fan-shaped*.....Plaited like a fan ; as the leaf of *Borassus flabelliformis*.
- Farinaceous*.....Having the texture of flour as the albumen of wheat.
- Fasciated*.....When a stem becomes much flattened instead of retaining its usual cylindrical figure.
- Fascicle*.....
- Fascicled*.....
- Fasciculate*.....} When several similar things proceed from a common point.
- Feather-veined*.....Having veins which proceed from a midrib at an acute angle.
- Feathery*.....Consisting of long hairs which are themselves hairy.
- Fibrous*.....Containing a great proportion of woody fibre as the rind of a cocoanut.
- Fiddle-shaped*.....Obovate with one or two deep recesses, or indentations on each side.
- Filament*.....The stalk of the anther. Any kind of thread-shaped body.
- Filiform*.....Slender like a thread.
- Fimbriated*.....Having the margin bordered by long slender processes.
- Fistular*.....
- Fistulous*.....} This is said of a cylindrical or terete body which is hollow but closed at each end.
- Flagelliform*.....Long taper and supple like the thong of a whip.
- Flexuose*.....Zig-zag, having a wavy direction gently bending alternately inwards and outwards.
- Floccose*.....Covered with close hairs, which fall away in little tufts.
- Floral*.....Of or belonging to the flower.
- Florets*.....When many small flowers are collected in clusters or heads, each flower is called a floret.
- Foliaceous*.....Having the texture or form of a leaf.
- Foliolate* (adj. *Foliolate*).....A leaflet. The secondary division of a compound leaf.
- Follicle*.....A kind of fruit of a single carpel, dehiscing by the ventral suture only.
- Fovea*.....A small excavation or pit. *Foveate*, pitted.
- Free*.....Not adhering to anything else; not adnate to any other body.



- Fraud*.....A combination of leaf and stem, as in many Algae and Liverworts; also improperly applied to a leaf which bears reproductive bodies as that of dorsiferous Ferns. Linnæus applied it to Palm leaves and so destroyed its meaning.
- Frutex* (adj. *Fruticose*)...A shrub, a woody plant which does not form a trunk but divides into branches nearly down to the ground.
- Furcate*.....Having long terminal lobes, like the prongs of a fork.
- Funnel-shaped*.....A calyx or corolla or other organ, in which the tube is obconical gradually enlarging upwards into the limb, so that the whole resembles a funnel.
- Furrowed*.....Marked by longitudinal channels.
- Fusiform*.....Thick, tapering to each end; as the root of the long Radish. Sometimes conical roots are called fusiform.

## G.

- Gibbous*.....More convex or tumid at one place than another.
- Glabrous*.....Smooth. Having no hairs.
- Glandular*.....Covered with hairs bearing glands upon their tops.
- Glands*.....Wart like swellings found on the surface of plants or at one end of their hairs.
- Glaucous*.....Covered with a fine bloom.
- Globose*.....Forming nearly a true sphere.
- Glomerate*.....Collected into close heads or parcels.
- Glume*.....The exterior series of the scales which constitute the flowers of a Grass.
- Glutinous*.....Covered with a sticky exudation.
- Granular*.....Divided into little knobs or knots.
- Gynæcium*.....The pistil, and all that belongs to it.
- Gynandrous*.....Having the stamens and style and ovary all blended into one common body.

## H.

- Habitat*.....The situation in which a plant grows in a wild state.
- Hastate*.....Shaped like a spear.
- Heart-shaped*.....See, Cordate.
- Herbaceous*.....Merely green, or thin, green and cellular as the tissue of membranous leaves. Also producing an annual stem from a perennial root.
- Hermaphrodite*.....Containing both stamens and pistils.
- Hirsute*.....Hairy.
- Hispid*.....Covered with very long harsh hairs.
- Hypocrateriform*.....An organ of which the tube is long and slender and the limb flat.
- Hypogynous*.....Growing from below the base of the ovary.

## I.

- Imbricated*.....When bodies overlap each other.
- Imbricative*.....Overlapping at the edge only; a term of aestivation.
- Imparipinnate*.....When the petioles of a pinnate leaf is terminated by a single leaflet.
- Inciso-serrate*.....Having very deep slashed serratures.
- Inciso-dentate*.....Having slashed toothings.

- Inclining*..... Falling back considerably from the horizontal line.  
*Included*..... Enclosed in anything.  
*Incurved*..... Curved inwards.  
*Indehiscent*..... Not splitting in a definite manner when ripe.  
*Inferior*..... Growing below some other organ; an inferior calyx grows below the ovary; an inferior ovary grows, or seems to grow, below a calyx.  
*Inflated*..... Thin membranous, slightly transparent, swelling equally as if inflated with air.  
*Inflorescence*..... The manner in which the flowers are arranged.  
*Infundibuliform*..... See Funnel-shaped.  
*Insertion*..... The manner in which one part is inserted into or adheres to, or originates from another.  
*Internode*..... The space which intervenes between two nodes.  
*Interrupted*..... When any symmetrical arrangement is destroyed by local causes; a leaf is interruptedly pinnated when some of the pinnæ are much smaller than the others or wholly wanting.  
*Involucel*..... A diminutive of Involucre; a secondary involucre, usually not containing more than one or two flowers.  
*Involucrate*..... Having an involucre.  
*Involucre*..... A ring or rings of bracts surrounding several flowers.  
*Involute*..... When edges are rolled inwards on each side.  
*Irregular*..... Having the parts which constitute one series of a flower dissimilar in size or form.

**J.**

- Jointed*..... Falling in pieces at the joints or separating readily there, or furnished with a distinct joint.

**K.**

- Keel, Keeled*..... Formed in the manner of the keel of a boat.

**L.**

- Labiate*..... A term applied to a monopetalous calyx or corolla which is separated into two unequal divisions, the one anterior, and the other posterior, with respect to the axis.  
*Lacerated*..... Irregularly divided by deep incisions.  
*Laciniate*..... Slashed. A deep taper-pointed incision.  
*Lamella, Lamellar*..... A plate or thin part such as is found at the end of any styles.  
*Lamina*..... The blade of a leaf; that expanded part which terminates the petiole if there be one.  
*Lanceolate*..... Narrowly elliptical, tapering to each end.  
*Lanceolate-hastate*..... A hastate leaf whose principal lobe is lanceolate.  
*Lanceolate-sagittate*..... A sagittate leaf whose principal form is lanceolate.  
*Lateral*..... Fixed near or upon the side of anything.  
*Leaflet*..... One of the divisions of a compound leaf.  
*Leafstalk*..... The unexpanded base of a leaf connecting it with the stem.  
*Legume*..... The fruit of leguminous plants; a solitary two valved carpel, bearing its seeds on the ventral suture only.

- Ligulate* ..... Strap-shaped florets, as in Dandelion.  
*Limb* ..... The flat expanded part of a petal.  
*Linear* ..... Narrow, short, with the two margins parallel.  
*Loculicidal* ..... The mode of dehiscence which consists in ripened carpels splitting or dehiscing through their backs.  
*Lobe* ..... Large divisions of a leaf or any other organ ; often applied to the divisions of the anther.  
*Lunate* ..... Crescent shaped.

**M.**

- Marginate* ..... Furnished with an edge of a different texture from the remainder of the body.  
*Membranous* ..... } Thin and semitransparent like a fine membrane.  
*Membranaceous* ..... }  
*Meri carp* ..... One of the half fruits of an Umbellifer : it is a carpel ripened and separated from a common axis or growing points.  
*Mesocarp* ..... Middle covering of the fruit.  
*Moniliform* ..... Necklace-shaped, cylindrical or terete and contracted at regular intervals.  
*Monochlamydeous* ..... Having but one floral envelope.  
*Monocotyledonous* ..... Having only one cotyledon, or if two are present then having one much smaller than the other and on a different level.  
*Monopetalous* ..... Having all the petals united by their edges.  
*Monosepalous* ..... Having the sepals all united into one body by their edges.  
*Mucous* ..... Covered with a slimy secretion, or with a coat that is readily soluble in water and becomes slimy.  
*Mucronate* ..... Abruptly terminated by a hard short point.  
*Muricated* ..... Furnished with numerous short hard excrescences.  
*Multifid* ..... Cut half way into many segments.

**N.**

- Naked-seeds* ..... Seeds having no pericarpial covering as in Conifers and Cycads.  
*Needle-shaped* ..... Linear, rigid, tapering to a fine point from a narrow base.  
*Nerves* ..... The ribs or principal veins of a leaf.  
*Nodose, Nodulose* ..... Knotted; an irregular form of necklace-shaped; chiefly applied to roots.  
*Nuculanium* ..... Applied to the fruit of the Medlar. Having nucules, sometimes applied to the Grape. The nucule is the hard carpel in the Medlar.  
*Nut* ..... A hard indehiscent pericarp, usually containing only one seed.

**O.**

- Obcordate* ..... Inversely heart-shaped, that is with the divisions of the heart at the opposite end from the stalk.  
*Obsolete* ..... Imperfectly developed or abortive : applied to the calyx when it is in the form of a rim.  
*Oblong* ..... Elliptical obtuse at each end.  
*Obtuse* ..... Blunt or round ; thus, obtusely crenated, is when crenatures are quite round, and not at all pointed; obtusely-cut, when incisions are blunt.

- Obverse-lunate*.....Inversely crescent-shaped ; that is to say, with the horns of the crescent projecting forward instead of backwards.
- Obvolute*.....Margins of one leaf alternately over-lapping those of the leaf opposite to it.
- Opaque*.....The reverse of shining ; dull : not the reverse of transparent.
- Opposite*.....Placed on opposite sides of some other body or thing and on the same plane. Thus, when leaves are opposite, they are on opposite sides of the stem : when petals are opposite they are on opposite sides of the flowers ; and so on.
- Orbicular*.....Perfectly circular.
- Ovate*.....Oblong or elliptical, broadest at the lower end, so as to resemble the longitudinal section of an egg.
- Ovary*.....That part of the pistil which contains the ovules.
- Ovule*.....The young seed.

## P.

- Palmate*.....Having five lobes, the mid-ribs of which meet in a common point, so that the whole bears some resemblance to a human hand.
- Palmatifid*.....Cut half-way down in a palmate manner.
- Palmiform-palmatifid*.....When numerous ribs of a leaf are arranged as in the palmate form, radiating from the top of the petiole.
- Panduriform*.....Fiddle-shaped.
- Panicle*.....A branched raceme.
- Papilionaceous*.....Having such a corolla as that of the Pea.
- Pappus*.....The calyx of composites where that organ is reduced to a membrane or scales, or hairs or a mere rim.
- Parallel-nerved*.....Having the lateral ribs of a leaf straight. Also having the veins straight, and almost parallel but united at the summit, as in grasses.
- Parasitical*.....Growing into some other plant and deriving its food from its juice.
- Parietal*.....Growing to the walls or interior surface of an ovary.
- Parted-partite*.....Divided into a determinate number of segments which extend nearly to the base of the part to which they belong. Thus *bipartite* is parted in two, *tripartite* in three, and so on.
- Partitions*.....The deepest divisions into which a leaf can be cut without becoming compound.
- Patent*.....Spreading wide open ; as petals from the calyx.
- Pear-shaped*.....Obconical, with the sides a little contracted.
- Pectinate*.....The same as *Pinnatifid*, but the segments numerous close, and narrow like the teeth of a comb.
- Pedicel, Pedicellate*.....A peduncle of a second or higher order as in the raceme where the principal flowers-stalk is the peduncle ; and the lateral secondary ones are pedicels.
- Peduncle*.....The stalk of a flower.
- Peltate*.....Fixed to the stalk by the centre, or by some point distinctly within the margin.
- Peltatifid*.....A peltate leaf cut into sub-divisions.
- Peltinerved*.....Having ribs arranged as in a peltate leaf.
- Penicillate, Penicilliform*.....Resembling a camel's hair pencil : consisting of, or covered with hairs which are nearly parallel with each other. Sometimes marked with colour as if laid on in streaks with a camel's hair pencil.

- Pepo, Peponida* ..... The fruit of the melon cucumber and other Cucurbitaceous plants.
- Perennial* ..... Lasting for several years and yet flowering every year.
- Perfoliate* ..... When the two basal lobes of an amplexicaul leaf are united together, so that the stem appears to pass through the substance of the leaf.
- Perianth* ..... The calyx and corolla combined ; that is to say, when they look so much alike, that they cannot be readily distinguished.
- Pericarp* ..... The shell or rind of all fruits, taken as a whole ; when it separates into layers, each layer may have a different name, but the whole is still the pericarp.
- Perigynous* ..... Applied to the corolla and stamens when attached to the calyx.
- Persistent* ..... Not falling off, but remaining green until the part which bears it is wholly matured.
- Pertuse* ..... Having slits or lobes.
- Petals* ..... The divisions of the corolla, when they are not united to each other by their edges.
- Petaline, petaloid,*  
*Petal like* ..... } Having the colour and texture of a common petal.
- Petiole* ..... The stalk of a leaf.
- Petiole* ..... Inserted upon the petiole.
- Pilose* ..... Covered with hairs ; covered with somewhat erect, loose, distant hairs ; having the form of hairs.
- Pinnæ* ..... The primary divisions of a pinnated leaf ; its leaflets.
- Pinnate* ..... When simple leaflets are arranged on each side a common petiole.
- Pinnatifido-sinuate* ..... Pinnatifid with the segments sinuated.
- Pistil* ..... The female part of a flower, consisting of ovary, style, stigma and ovules.
- Pitcher-shaped* ..... The same as campanulate, but more contracted at the orifice, with an erect limb.
- Placenta* ..... The place or part on which ovules originate.
- Plicate* ..... Pliated lengthwise like a lady's fan.
- Pollen* ..... The powdery or other matter usually contained in the cells of an anther, by whose action on the stigma the fertilization of the ovules is accomplished.
- Polygamous* ..... Having on the same plant, some flowers male, others female, and other hermaphrodite.
- Polypetalous* ..... Having the petals perfectly distinct from each other.
- Pome* ..... An inferior fleshy, many-celled fruit like that of the apple.
- Præmorse* ..... The same as truncate, except that the termination is ragged and irregular, as if bitten off.
- Prickles* ..... Hard, conical, sharp elevations of the epidermis.
- Procumbent* ..... Lying flat upon the ground.
- Pubescence* ..... Short and soft hairs covering a surface which is hence called pubescent.
- Putamen* ..... The hard bony lining or stone of the fruit of many plants, as of the plum, cherry, &c.

## Q

- Quadrid* ..... Four cleft, cut down into four parts to about the middle.
- Quadripartite* ..... Deeply divided into four parts.

- Quinate*..... Growing in fives; as when a petiole bears five leaflets from the same point, it is then however digitate.  
 ..... When of five ribs, the four lateral spring from the middle one above its base.

**R.**

- Raceme*..... An inflorescence, in which the flowers are arranged singly on distinct pedicels, along a common axis.
- Rachis* ..... The divisions of the petiole of the leaves of ferns. Also the axis of an inflorescence.
- Radicle*..... Applied to leaves close to the ground clustered at the base of a flower stalk.
- Radiate* ..... Spreading from a common point, or from the circumference of a circle. Also forming apparent rays in the circumference of a circle by the enlargement of the exterior parts, as the outer florets in the umbels of many umbelliferous plants.
- Receptacle*..... The flattened end of the peduncle or rachis bearing numerous flowers in a head : applied also to the extremity of the peduncle or pedicel.
- Reclinate-reclining* ..... Bent down upon some other part. Falling gradually back from the perpendicular, as the branches of many trees.
- Recurved*..... Bent, but not rolled backwards.
- Reflexed*..... Curved backwards excessively.
- Regular* ..... Having all the parts of each series of a flower of a smaller form and size.
- Reniform*..... Kidney-shaped
- Repand*..... Having an uneven, slightly wavy or angular margin.
- Resupinate*..... Inverted in position by a twisting of the stalk, as the flowers of an orchis.
- Reticulate* ..... Having the appearance of network.
- Retuse*..... Terminating in a round end, the centre of which is depressed.
- Revolute*..... Rolled backwards, i. e. out of the direction ordinarily assumed by similar other bodies; as certain tendrils and the sides or ends of some leaves.
- Rhizome*..... A prostrate rooting stem, progressively throwing up leaves.
- Rhomboid*..... Oval, a little angular in the middle ; as the leaf of *Hibiscus rhombifolius*.
- Rib*..... The principal vein, or nerve which proceeds from the petiole of a leaf. Also any firm longitudinal elevation.
- Ringent*..... A labiate flower in which the upper lip is much arched.
- Rostrate*..... Peaked, having a long sharp point.
- Rotate*..... Resembling a wheel. A monopetalous corolla, with a spreading limb and very short tube.
- Rough, Roughish*..... Covered with little hard or sharp elevations which produce the sensation of roughness. Also applied to surfaces covered with coarse stiff hairs.
- Rugose* ..... Wrinkled.
- Runcinate* ..... A pinnatifid leaf with a triangular termination and sharp divisions pointing downwards.

## S.

- Saddle-shaped*..... Oblong with the sides hanging down like the laps of a saddle.
- Sagittate*..... Gradually enlarged at the base into two acute straight lobes, like the head of an arrow.
- Samara*..... An indehiscent fruit producing a membranous expansion, or wing from its back or end.
- Sarcocarp*..... The fleshy part of the pericarp lying between the epicarp and endocarp.
- Scabrous*..... Rough to the touch.
- Scales, Scaly*..... Small rudimentary closed pressed leaves resembling minute scales.
- Scandent*..... Climbing by whatever means except by twisting.
- Scapae*..... A long-naked, or nearly naked peduncle which rises up from the crown.
- Scarious*..... Having a thin, dry, shrivelled appearance.
- Scarred*..... Marked by the scars left by bodies that have fallen off.
- Scattered*..... Used in opposition to whorled or opposite, or ternate or similar terms.
- Scorpioid*..... An inflorescence which is rolled up towards one side in the manner of a crozier, unrolling as the flowers expand.
- Scrobiculate*..... Marked by little depressions.
- Secund*..... Having all the flowers or leaves or other organs turned towards the same side.
- Semicordate*..... Heart shaped on one side only.
- Semi-hastate*..... Hastate on one side only.
- Sepals*..... The divisions of the calyx.
- Septicidal*..... A mode of dehiscing in which the fruit is resolved into its component carpels, which split asunder through the dissepiments.
- Septum*..... A division in an ovary formed by the sides of the carpels.
- Serrature*..... The saw tothing at the edge of leaves and similar bodies.
- Serrate*..... Having sharp, straight-edged teeth pointing to the apex. When these teeth are themselves serrate, we say biserrate or duplicate-serrate and so on.
- Sessile*..... Sitting close upon the body that supports it without any sensible stalk.
- Setose*..... Covered with stiff hairs.
- Sheath*..... A part which is rolled round a stem or other body.
- Silicle*..... A siliqua about as broad as long or broader.
- Simple*..... Not consisting of several distinct parts.
- Sinuuate*..... Having the margin alternately uneven with deep concavities and convexities.
- Smooth*..... Free from asperities or hairs, or any sort of unevenness.
- Solitary*..... Growing single.
- Spadia*..... A branch or axis bearing numerous closely packed sessile flowers and enclosed in a spathe or spathes. A spike inclosed in a spathe.
- Spathaceous*..... Having the appearance of a spathe, or being furnished with one.
- Spathe*..... A large rolling over an inflorescence and guarding it while young.
- Spathulate*..... Oblong with the lower end very much attenuated.

- Spike* ..... An inflorescence consisting of flowers sessile on a long axis.
- Spike-compound* ..... A collection of spikes arranged in a racemose manner.
- Spikelet* ..... The small terminal collection of florets among grasses.
- Spine* ..... A stiff sharp-pointed body consisting of woody tissue covered with cellular tissue.
- Spreading* ..... Having a gradually outward direction, as petals from the ovary.
- Spur* ..... A hollow terete extension of some part of the flowers.
- Squarrose* ..... Covered with bodies which spread at right angles, or at a greater angle from the surface which bears them ; or being so arranged.
- Stamen* ..... The organ of the flower to which the pollen belongs.
- Staminal* ..... Consisting of stamens.
- Stellate, Stelliform* ..... Having a number of narrow divisions placed round the stem like the rays of a star.
- Stem* ..... The part of a plant which bears or has borne leaves or their rudiments ; the ascending axis of growth.
- Stem-clasping* ..... When the base of a leaf surrounds a stem.
- Stemless* ..... Having no visible or obvious stem.
- Stigma* ..... That surface of a style usually at its extremity to which the pollen adheres when it fertilises the ovules.
- Stipitate* ..... Elevated on a stalk which is neither a petiole nor a peduncle.
- Stipulary* ..... Of or belonging to, or standing in the place of stipules.
- Stipules* ..... Processes of various kinds arising from the base of a leaf and usually from its sides.
- Striated* ..... Marked by streaks.
- Strigose* ..... Covered with strigæ, i, e, sharp, close-pressed, rigid hairs.
- Stoloniferous* ..... Having creeping runners which root at the joints.
- Style* ..... The narrowed upper end of a carpellary leaf ; the part which bears stigma.
- Sub* ..... In composition, usually signifies somewhat, as subrotund, somewhat round.
- Subulate* ..... Shaped-like an awl.
- Succulent* ..... Very cellular and juicy, as the stems of *Stapelias*.
- Suffrutex* ..... An under-shrub. A shrub of small size and herbaceous at the ends of the roots, though woody at their base.
- Sulcate* ..... Furrowed.
- Superior* ..... Growing above any thing.
- Supra-axillary* ..... Growing above an axil.
- Supradecomposed* ..... Divided into a multitude of pieces. So much divided, that the number and mode of division cannot be precisely ascertained.
- Suture* ..... The parts where separated organs unite, or where the edges of a folded organ adhere.

## T.

- Tendril* ..... A twisting thread-like process by which one plant clings to another.
- Terete* ..... Tapering ; free from angles, cylindrical or nearly so.
- Terminal* ..... Proceeding from the end.



- Ternate*.....When three things are in opposition round a common axis. A whorl of three.
- Tetracoccus*.....Having four cells elastically dehiscent and separating.
- Thyrse*.....A panicle, whose principal diameter is in the middle between the base and apex.
- Tomentose*.....Covered with dense, rather rigid, short hairs so as to be sensibly perceptible to the touch.
- Tomentum*.....The down which produces the tomentose character.
- Trichotomous*.....Having the division always in threes.
- Tricoccus*.....A fruit consisting of three cocci or elastically dehiscent shells.
- Tridentate*.....Trident-pointed. When the point is truncated and has three indentations.
- Triennial*.....Lasting for three years.
- Trifid*.....Split half way into three parts.
- Trifoliolate*.....Bearing three leaflets from the same point.
- Tripartite*.....Parted to the base in three divisions.
- Triple-ribbed*.....} When of three ribs the two lateral ones emerge from  
*Triple-nerved*.....} the middle one a little above its base.
- Trumpet-shaped*.....Hollow, and dilated at one extremity like the end of a trumpet.
- Truncate*.....Terminating very abruptly as if a piece had been cut off.
- Tube*.....The part of a monosepalous calyx or monopetalous corolla, formed by the union of the edges of the sepals or petals. Also applied to adhesions of stamens.
- Tuber*.....A roundish under-ground succulent stem covered with buds from which new plants or tubes are produced.
- Tubercle*.....Simple roots which acquire a succulent condition become reservoirs of vegetable food and serve for propagation in consequence of being terminated by a bud. A little tuber.

## U.

- Umbel*.....An inflorescence in which the flowers expand centripetally and their stalks radiate from a common point.
- Unarmed*.....Having no spines, prickles, or other sharp projection.
- Undershrub*.....A woody plant of small size, the ends of whose branches perish every year.
- Undulate*.....Wavy; having an uneven alternately convex and concave margin or surface.
- Unequally-pinnated*.....Having a solitary leaflet at the end of a pinnated leaf.
- Unguiculate*.....A stem exclusively applied to petals, which have an unguis or stalk.
- Unguis*.....Half an inch or the length of the nail of the little finger. Also the stalk of a petal.
- Unilateral*.....One sided.
- Uninterrupted*.....Consisting of regularly increasing or diminishing parts, or of parts, all of the same size.
- Urceolate*.....The same as campanulate, but more contracted at the orifice, with a small limb.
- Utricle*.....A seed vessel consisting of a very thin loose pericarp enclosing a single seed.

**V.**

- Valvate*.....United by the margins only.  
*Ventricose*.....Swelling unequally on one side, as the corolla of many labiate and personate plants.  
*Vertebrate*.....Contracted at intervals, like the vertebræ of animals there being an articulation at each contraction as in some leaves.  
*Vertical*.....Placed in a direction from the base to the apex.  
*Verticillate*.....When several bodies form a ring round a common axis, as leaves round a stem, sepals, petals and stamens round an ovary.  
*Verticil*.....A whorl ; a ring of organs on the same plane.  
*Vexillum*.....The standard or fifth petal placed at the back of a papilionaceous corolla.  
*Villosity, Villous*.....Shagginess, a coating of long weak hairs.  
*Virgate*.....Twiggy : producing many weak branches.  
*Viscous*.....Clammy like bird-lime.  
*Volute*.....Rolled up in any way.

**W.**

- Warts*.....Hard or firm excrescences.  
*Waved*.....Wavy, see, *Undulate*.  
*Wedge-shaped*.....Cuneate.  
*Wheel-shaped*.....See *Rotate*.  
*Whip-shaped*.....See *Flagelliform*.  
*Whorl*.....A ring of organs all on the same plane.  
*Wings*.....The two lateral petals of a papilionaceous flower.



## THE LINNÆAN OR SEXUAL SYSTEM.

- CLASS 1. Monandria.....*Stamen* 1.  
 2. Diandria.....*Stamens* 2.  
 3. Triandria.....*Stamens* 3.  
 4. Tetrandria.....*Stamens* 4.  
 5. Pentandria.....*Stamens* 5.  
 6. Hexandria.....*Stamens* 6.  
 7. Heptandria....*Stamens* 7.  
 8. Octandria.....*Stamens* 8.  
 9. Enneandria...*Stamens* 9  
 10. Decandria .....*Stamens* 10.  
 11. Dodecandria...*Stamens* 12-19.  
 12. Icosandria.....*Stamens* 20 or more, perigynous.  
 13. Polyandria.....*Stamens* 20 or more, hypogynous.

*Orders.* Each of these classes is divided into orders, characterised by the number of styles or sessile stigmas. Monogynia signifies 1 *style*; Digynia, 2; Trigynia, 3; Tetragynia, 4; Pentagynia, 5; Hexagynia, 6; Heptagynia, 7; Octogynia, 8; Enneagynia, 9; Decagynia, 10; Dodecagynia, &c., about 12; Polygynia, a great many.

- CLASS 14. Didynamia...*Stamens* 4, two long and two short.  
*Orders.* 1. Gymnospermia, seeds apparently naked.  
 2. Angiospermia, seeds evidently in a seed-vessel.
- CLASS 15. Tetradynamia...*Stamens* 6, four long and two short.  
*Orders.* 1. Siliquosa, with a long pod.  
 2. Siliculosa, with a short pod or pouch.
- CLASS 16. Monadelphia—Filaments united into a cup or column.  
*Orders.* 1. Pentandria; 2. Decandria, &c., as before.

CLASS 17. Diadelphia—Filaments united into two parcels or fraternities.

*Orders.* 1. Hexandria, as before.

CLASS 18. Polyadelphia—Filaments united into more parcels than two.

*Orders.* 1. Dodecandria ; 2. Icosandria, &c., as before.

CLASS 19. Syngenesia—*Anthors* united into a tube.

*Orders.* 1. Monogamia, flowers solitary ; 2. Polygamia, flowers in heads. *Suborders* of the latter : 1. *Æqualis*, florets all equal ; 2. *Superflua*, florets of the disk complete, of the ray female ; 3. *Frustranea*, florets of the disk complete, of the ray neuter ; 4. *Necessaria*, florets of the disk male, of the ray female ; 5. *Segregata*, florets each with its own involucre.

CLASS 20. Gynandria—Stamens and styles consolidated.

*Orders.* 1. Monandria, &c., as before.

CLASS 21. Monœcia—Stamens in one flower, pistils in another, on the same plant.

*Orders.* 1. Monandria, &c., as before.

CLASS 22. Diœcia—Stamens in one flower, pistils in another, on different plants.

*Orders.* 1. Monandria, &c., as before.

CLASS 23. Polygamia—Stamens and pistils separate in some flowers, united in others, either on the same plant or on two or three different ones.

*Orders.* 1. Monœcia, &c., as before.

CLASS 24. Cryptogamia—no apparent flowers.

*Orders.* Filices, Musci, Hepaticæ, Algæ, Fungi. It comprehends all the plants now stationed among Thallogens and Acrogens, and commonly called flowerless.

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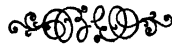
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## INDEX OF TAMIL SYNONYMS.

Aat-alarie... ..	.....	Polygonum barbatum.
Acha marum... ..	.....	Diospyros ebenaster.
Adatoday.....	.....	Adhatoda Vasica.
Addaley ..	.....	Jatropha glauca.
Addatina-palay....	.....	Aristolochia bracteata.
Agasatamaray.....	.....	Pistia stratiotes..
Agathee....	.....	Agati grandiflora.
Aglay.....	.....	Chickrassia tabularis.
Alavereisa ..	.....	Ficus Indica.
Alingie... ..	.....	Alangium decapetalum.
Alleeveray ...	.....	Linum usitatissimum.
Amkoolang... ..	.....	Physalis somnifera.
Ananeringie... ..	.....	Pedaliu murex.
Anasie... ..	.....	Ananassa sativa.
Ancoruttay... ..	.....	Trichosanthes palmata.
Anjelic... ..	.....	Arotocarpus hirsutus.
Anny... ..	.....	Odina Wodier.
Aralee... ..	.....	Nerium odorum.
Areka... ..	.....	Bauhinia parviflora
Atcha... ..	.....	..... racemosa.
Attie... ..	.....	Ficus racemosa.
Aumookeera... ..	.....	Physalis soinnifera.
Aunthooloopavay... ..	.....	Momordica dioica.
Auvarymotchy... ..	.....	Lablab vulgaris.
Aveemah-marum... ..	.....	Careya arborea.
Averie... ..	.....	Indigofera tinctoria.
Ayah-marum... ..	.....	Ulmus integrifolia.
Badam... ..	.....	Canarium commune.
Belamcanda... ..	.....	Pardanthus Chinensis.
Brumadundoo... ..	.....	Argemone Mexicana.
Caat-amunak... ..	.....	Jatropha Curcas.
Caat-aralie... ..	.....	Cerbera Odallam.
Caat-attie... ..	.....	Bauhinia tomentosa.
Caat-ellooppie... ..	.....	Terminalia Bellerica.
Caat-judicai... ..	.....	Pyrrhosia Horsfieldii.
Caat-karnay... ..	.....	Dracontium polyphyllum.
Caat-kolingie... ..	.....	Tephrosia purpurea.
Caat-mallica... ..	.....	Jasminum angustifolium.
Caat-morunghie... ..	.....	Ormocarpum sennoides.
Caat-noochie... ..	.....	Jatropha Curcas.
Caat-siragum... ..	.....	Conyza anthelmintica.
Cadala ..	.....	Cicer arietinum.
Cadali-pua... ..	.....	Egerstrœmia Reginæ.

Cadapum...	.....	<i>Barringtonia racemosa.</i>
Cairata or Nela-vembu...	.....	<i>Andrographis paniculata.</i>
Callumpottie...	.....	<i>Melastoma Malabaricum.</i>
Camachie pilloo...	.....	<i>Andropogon schœnanthus.</i>
Canchorie...	.....	<i>Tragia involuorata.</i>
Capoor kichlie...	.....	<i>Curcuma Zerumbet.</i>
Carachunay...	.....	<i>Tacca pinnatifida.</i>
Caray-cheddy...	.....	<i>Canthium parviflorum.</i>
Carinpana...	.....	<i>Borassus flabelliformis.</i>
Carin siragum...	.....	<i>Nigella sativa.</i>
Cadaga saleh...	.....	<i>Rungia repens.</i>
Carookoova...	.....	<i>Zizyphus trinervius.</i>
Caroo-noochie...	.....	<i>Gendarussa vulgaris.</i>
Carpoowoolandoo...	.....	<i>Cajanus Indicus.</i>
Carun chembai...	.....	<i>Sesbania Ægyptiaca.</i>
Carroy-eloo...	.....	<i>Guizotia oleifera.</i>
Casha-marum...	.....	<i>Memecylon tinctorium.</i>
Cassa-cassa...	.....	<i>Papaver somniferum.</i>
Castoorie-munjil...	.....	<i>Curcuma Zedoaria.</i>
Cat-korundoo.....	.....	<i>Atalantia monophylla.</i>
Cavatam-piloo...	.....	<i>Andropogon schœnanthus.</i>
Chadacula or Vella koondricum.....	.....	<i>Vateria Indica.</i>
Chandanum..	.....	<i>Santalum album.</i>
Chavuntha-aullee-thamaray...	.....	<i>Nymphœa rubra.</i>
Chemmanuthee...	.....	<i>Sethia Indica.</i>
Chembaga-novel...	.....	<i>Eugenia Jambosa.</i>
Cheppoo-neringie...	.....	<i>Indigofera enneaphylla.</i>
Chinampacthy-arisee...	.....	<i>Euphorbia thymifolia.</i>
Chiruparam.....	.....	<i>Riedleia corchorifolia.</i>
Chivan-amel podie...	.....	<i>Ophioxylon serpentinum.</i>
Choarkullie...	.....	<i>Soymida febrifuga.</i>
Citra-moolum...	.....	<i>Plumbago Zeylanica.</i>
Coomady...	.....	<i>Gmelina arborea.</i>
Codegam...	.....	<i>Tylophora asthmatica.</i>
Collum-covay...	.....	<i>Bryonia epigœa.</i>
Condu-munnie...	.....	<i>Abrus precatorius.</i>
Coorinja...	.....	<i>Tylophora asthmatica.</i>
Cooruingie...	.....	<i>Maba buxifolia.</i>
Coothera-poodookoo..	.....	<i>Sterculia fœtida.</i>
Cooti-vella...	.....	<i>Feronia elephantum.</i>
Corie-keeray.....	.....	<i>Portulaca oleracea.</i>
Coruttie ..	.....	<i>Trichosanthes palmata.</i>
Cottamillie.....	.....	<i>Coriandrum sativum.</i>
Covalum...	.....	<i>Ægle marmelos.</i>
Covay...	.....	<i>Coccinia Indica.</i>
Cundunghatrie	.....	<i>Solanum Jacquini.</i>
Cunja-koray...	.....	<i>Ocimum album.</i>
Curroo pallay...	.....	<i>Putranjiva Roxburghii.</i>
Currengalie.....	.....	<i>Acacia Sunda.</i>
Curray murdah...	.....	<i>Terminalia glabra.</i>
Curry-vaymboo ...	.....	<i>Garuga pinnata.</i>
Cury vayghay...	.....	<i>Acacia odoratissima</i>
Curvailam...	.....	<i>Acacia Arabica.</i>
Cutchay-cuttay...	.....	<i>Lagerstrœmia microcarpa.</i>



Devadarum.....	.....	.....	Sethia Indica.
Daduga... ..	.....	.....	Nauclea cordifolia.
Eethie... ..	.....	.....	Phoenix farinifera.
Eethum-panny... ..	.....	.....	Phoenix sylvestris.
Eettie or Vitty....	.....	.....	Dalbergia Sissoides.
Eitchie... ..	.....	.....	Ficus Tsiela.
Eelandei... ..	.....	.....	Zizyphus Jujuba.
Elavum... ..	.....	.....	Eriodendrom anfractuosum.
Ela-kullie... ..	.....	.....	Euphorbia Nivulia.
Eeloopei... ..	.....	.....	Bassia longifolia.
Erroopootoo.....	.....	.....	Dalbergia latifolia.
Eroovaloo... ..	.....	.....	Inga xylocarpa.
Erumbelie... ..	.....	.....	Maba buxifolia.
Ganja... ..	.....	.....	Cannabis sativa.
Injee... ..	.....	.....	Zingiber officinalis
Irumbillie... ..	.....	.....	Maba buxifolia
I-eeverally-coddy*..	.....	.....	Bryonia laciniosa
Kadagoo... ..	.....	.....	Sinapis ramosa
Kadukai... ..	.....	.....	Terminalia Chebula
Kaiantagerie... ..	.....	.....	Eclipta prostrata
Ka-ka-collie... ..	.....	.....	Anamirta cocculus
Karinga... ..	.....	.....	Gardenia gummifera
Karoo-oomattay... ..	.....	.....	Datura fastuosa
Karoo-velum... ..	.....	.....	Acacia Arabica
Karpoogum... ..	.....	.....	Psoralea corylifolia
Karpoora-wulliee... ..	.....	.....	Anisochilos carnosum
Karra-way-pillay... ..	.....	.....	Bergera Koenigii
Karunda-cathin-catchel... ..	.....	.....	Anamirta cocculus
Kassavoo... ..	.....	.....	Andropogon muricatum
Kat-kadooghoo... ..	.....	.....	Polanisia icosandra.
Kat-miella... ..	.....	.....	Vitex altissima.
Kat-jheerakum... ..	.....	.....	Vernonia anthemintica.
Kat-yelloomitch... ..	.....	.....	Atalantia monophylla.
Katon-kadali... ..	.....	.....	Osbeckia aspera.
Katsjula-kelenga... ..	.....	.....	Kæmpferia rotunda.
Kelwaragoo... ..	.....	.....	Eleusine Coracana.
Khoorapelum... ..	.....	.....	Cucumis sativa.
Kilanelle... ..	.....	.....	Phyllanthus Niruri.
Kiligillipie... ..	.....	.....	Crotalaria verrucosa.
Kitchlee... ..	.....	.....	Citrus decumana.
Koattay-nagum... ..	.....	.....	Eugenia Jambolanum.
Kodiveloee... ..	.....	.....	Acacia tomentosa.
Kodawah-porsh... ..	.....	.....	Chloroxylon Swietenia.
Kolcuttay-tek... ..	.....	.....	Premna tomentosa.
Klingie... ..	.....	.....	Tephrosia purpurea.
Kolunga-kovay... ..	.....	.....	Bryonia epigcea.
Konnay... ..	.....	.....	Cathartocarpus fistula.
Kooa... ..	.....	.....	Curcuma angustifolia.
Koodupelah... ..	.....	.....	Holarrhena Codaga.
Koolimitan... ..	.....	.....	Ocimum hirsutum.
Koopaymaynie... ..	.....	.....	Acalypha Indica.
Koothoo-kunden-kuthree... ..	.....	.....	Solanum Indicum.

Koray-pilloo... ..	.....	<i>Cyperus partenuis.</i>
Kotumullie... ..	.....	<i>Cassandrum sativum.</i>
Kottang-karunde... ..	.....	<i>Sphoranthus hirtus.</i>
Kreata... ..	.....	<i>Andrographis paniculata.</i>
Kromela... ..	.....	<i>Gmelina Asiatica.</i>
Kulleyum... ..	.....	<i>Odina Wodier.</i>
Kulli... ..	.....	<i>Euphorbia Tirucalli.</i>
Kursatan-kunnie... ..	.....	<i>Eclipta prostrata.</i>
Kuttalay... ..	.....	<i>Aloe litoralis or perfoliata.</i>
Kuthree... ..	.....	<i>Solanum melongena.</i>
Madalum... ..	.....	<i>Punica Granatum.</i>
Madoccare... ..	.....	<i>Randia dumetorum.</i>
Malay-auwarday... ..	.....	<i>Cassia tomentosa.</i>
Malay-taynghie... ..	.....	<i>Sida acuta.</i>
Manay-poongu... ..	.....	<i>Sapindus emarginatus.</i>
Mangittie... ..	.....	<i>Rubia cordifolia.</i>
Maradum... ..	.....	<i>Terminalia alata.</i>
Maravullie... ..	.....	<i>Manihot utilissima.</i>
Mangenatie... ..	.....	<i>Morinda umbellata.</i>
Marool... ..	.....	<i>Sansevieria Zeylanica.</i>
Maroodanie... ..	.....	<i>Lawsonia alba.</i>
Marukarunga... ..	.....	<i>Randia dumetorum</i>
Marshipaterie... ..	.....	<i>Grangea Maderaspatana.</i>
Mavelingum... ..	.....	<i>Cratogeomys Roxburghii or Nurvala.</i>
Meelapa... ..	.....	<i>Myriophyllum verticillatum.</i>
Meelagoo... ..	.....	<i>Piper nigrum</i>
Menthothe, Thunthothee... ..	.....	<i>Gloriosa superba.</i>
Mogalinga... ..	.....	<i>Schrebera Swietenoides.</i>
Molakaranay... ..	.....	<i>Toddalia aculeata</i>
Molam... ..	.....	<i>Cucumis Melo.</i>
Mollaghai... ..	.....	<i>Capsicum frutescens.</i>
Mooloovoo... ..	.....	<i>Piper nigrum.</i>
Moodocoothan... ..	.....	<i>Cardiospermum Halicacabum</i>
Mookaratay... ..	.....	<i>Boerhavia procumbens.</i>
Mookootty... ..	.....	" <i>repanda.</i>
Moolie... ..	.....	<i>Solanum Indicum.</i>
Moonacany marum... ..	.....	<i>Toddalia aculeata.</i>
Moonay... ..	.....	<i>Premna integrifolia.</i>
Moorunghi... ..	.....	<i>Moringa pterygosperma.</i>
Mootopolagum... ..	.....	<i>Pavonia odorata.</i>
Mooloovenga... ..	.....	<i>Briedelia spinosa.</i>
Moorkoo... ..	.....	<i>Erythrina Indica.</i>
Mootchie marum... ..	.....	Do.
Mundareh... ..	.....	<i>Bauhinia acuminata.</i>
Munjadumbay... ..	.....	<i>Nauclea cordifolia.</i>
Munja-pavuttay... ..	.....	<i>Morinda citrifolia.</i>
Murravetty... ..	.....	<i>Hydnocarpus inebrians.</i>
Nariecomarie... ..	.....	<i>Salsola nudiflora.</i>
Narvillie... ..	.....	<i>Cordia Rottii.</i>
Naree-payathencay... ..	.....	<i>Phaseolus trilobus.</i>
Nattoobadam... ..	.....	<i>Terminalia Catappa.</i>
Nawel... ..	.....	<i>Syzygium jambolanum.</i>
Nayavaylie... ..	.....	<i>Polanisia icosandra.</i>

Nayrvalum...	.....	Groton Tiglium.
Neela-theroovattay...	.....	Bauhinia purpurea.
Neela-vully-poochaddy...	.....	Pontederia vaginalis.
Neelum...	.....	Indigofera tinctoria.
Neeradimutoo...	.....	Hydnocarpus inebrians.*
Neer-cuddembay...	.....	Naucllea parviflora.
Neer-moolie...	.....	Asteracantha longifolia.
Neer-pirimie...	.....	Herpestis Monniera.
Nelapanie...	.....	Curculigo orchioides.
Nellie marum...	.....	Embllica officinalis.
Nelumbaly...	.....	Nerium tomentosum.
Nilavoolla...	.....	Feronia elephantum.
Nohle-talie...	.....	Antidesma alixaterium.
Noochie...	.....	Vitex Negundo.
Nuna-marum...	.....	Morinda umbellata.
Nundiavuthen...	.....	Tabernæmontana coronaria.
Nunjoonda ..	.....	Balanites Ægyptiaca.
Nunnaree...	.....	Hemidesmus Indicus.
Nurri-vungyum ..	.....	Scilla Indica.
Nuttei-choorie...	.....	Spermacece hispida.
Oogha marum...	.....	Salvadora Persica.
Ooppocaree-neer-mullee...	.....	Dilivaria ilicifolia.
Ooppu-lee-coddy...	.....	Pentatropis microphylla.
Oothamunnie...	.....	Dæmia extensa.
Paak-marum...	.....	Areca Catechu.
Padrie-marum...	.....	Bignonia chelonoides.
Pailce-marum...	.....	Careya arborea.
Pala marum...	.....	Wrightia tinctoria.
Paloo-paghel-kodi...	.....	Momordica dioica.
Pallæ...	.....	Mimusops hexandra.
Pana-woodachie...	.....	Calosantes Indica.
Panichee...	.....	Embryopteris glutinifera.
Panay-marum...	.....	Borassus flabelliformis.
Papputta...	.....	Pavetta Indica.
Paratie...	.....	Gossypium herbaceum.
Passalie-keeray...	.....	Portulaca quadrifida.
Patinga...	.....	Cæsalpinia Sappan.
Pavala poola...	.....	Melanthesa rhamnoides.
Pavutty...	.....	Pavetta Indica.
Paymoostey...	.....	Argyreia Malabarica.
Pecum cheddy...	.....	Luffa acutangula.
Peenathoo-marum...	.....	Sterculia foetida.
Peepul...	.....	Ficus religiosa.
Peeralhi...	.....	Epicarporus orientalis.
Peroonjooly...	.....	Hymenodictyon utile.
Peymaruttie...	.....	Anisomeles Malabarica.
Peypoodel...	.....	Trichosanthes cucumerina.
Peramottie...	.....	Pavonia odorata.
Peraretie...	.....	Alpinia Galanga.
Perinthothis...	.....	Abutilon Indicum.
Perumurundoo...	.....	Aristolochia Indica.
Peremaram...	.....	Ailanthus excelsus.
Perundei-codie...	.....	Vitis quadrangularis.

Pey-coomutie... ..	.....	<i>Citrullus Colocynthis.</i>
Pillah-murdoo... ..	.....	<i>Terminalia Chebula.</i>
Pinnay... ..	.....	<i>Calophyllum inophyllum.</i>
Pinneh... ..	.....	<i>Dillenia pentagyna.</i>
Pitcha... ..	.....	<i>Cucurbita Citrullus.</i>
Podoothalei... ..	.....	<i>Zapania nodiflora.</i>
Pokara... ..	.....	<i>Terminalia paniculata.</i>
Ponaverie... ..	.....	<i>Cassia Sophora.</i>
Pongum... ..	.....	<i>Dalbergia arborea.</i>
Poocanday-marum... ..	.....	<i>Sapindus emarginatus.</i>
Poochay-cotta-marum... ..	.....	Do.
Poodalum... ..	.....	<i>Trichosanthes anguina.</i>
Poola... ..	.....	<i>Phyllanthus multiflorus.</i>
Poola... ..	.....	<i>Bombax Malabarica.</i>
Pooliaray... ..	.....	<i>Oxalis corniculata.</i>
Poollya marum... ..	.....	<i>Tamarindus Indica.</i>
Poonay-kallie... ..	.....	<i>Mucuna prurita.</i>
Poongum marum... ..	.....	<i>Pongamia glabra.</i>
Poosheenie... ..	.....	<i>Cucurbita maxima.</i>
Pootta-tannim-marum... ..	.....	<i>Careya arborea.</i>
Poovoo marum... ..	.....	<i>Schleichera trijuga.</i>
Poovandie... ..	.....	<i>Sapindus emarginatus.</i>
Poorasum... ..	.....	<i>Butea frondosa.</i>
Portalay-kaiantagherie... ..	.....	<i>Wedelia calendulacea.</i>
Porsunga... ..	.....	<i>Thespesia populnea.</i>
Poupedyre... ..	.....	<i>Bignonia chelonoides.</i>
Pulang-kelunggu... ..	.....	<i>Curcuma Zerumbet.</i>
Puneer-marum... ..	.....	<i>Guettarda speciosa.</i>
Puppali... ..	.....	<i>Carica Papaya.</i>
Purpadagum... ..	.....	<i>Mollugo cerviana.</i>
Purrenbay... ..	.....	<i>Prosopis spicigera.</i>
Raie... ..	.....	<i>Sinapis ramosa.</i>
Sadda-coopie... ..	.....	<i>Anethum Sowa.</i>
Samutra-cheddei... ..	.....	<i>Argyrea speciosa.</i>
Sapatoo-cheddie... ..	.....	<i>Hibiscus Rosa-sinensis.</i>
Sarakoonnay... ..	.....	<i>Cathartocarpus fistula.</i>
Sawil-codie... ..	.....	<i>Rubia cordifolia.</i>
Sayawer... ..	.....	<i>Hedyotis umbellata.</i>
Seemie-aghatie... ..	.....	<i>Cassia alata.</i>
Seera-ahengalaneer... ..	.....	<i>Conyza cinerea.</i>
Segapoo-shundanum... ..	.....	<i>Pterocarpus santalinus.</i>
Selaonja... ..	.....	<i>Acacia odoratissima.</i>
Seloopay marum... ..	.....	<i>Elaeodendron Roxburghii.</i>
Sendoorkum... ..	.....	<i>Carthamus tinctorius.</i>
Sengaray... ..	.....	<i>Canthium parviflorum.</i>
Sepoo... ..	.....	<i>Dalbergia acuminata.</i>
Shadray-kullie... ..	.....	<i>Euphorbia antiquorum.</i>
Shakera-koomatie... ..	.....	<i>Cucurbita Citrullus.</i>
Shandanum... ..	.....	<i>Santalum album.</i>
Shangam-coopie... ..	.....	<i>Clerodendron inerme.</i>
Sharunnay... ..	.....	<i>Trianthema obcordata.</i>
Shayng-cottay... ..	.....	<i>Semecarpus Anacardium.</i>

Shayracet-coochie...	.....	Agathotes Chirayta.
Sheekay... ..	.....	Acacia concinna.
Sheendie-coodi... ..	.....	Cocculus cordifolius.
Shembagum... ..	.....	Michelia Champaca.
Shem-marum... ..	.....	Swietenia febrifuga.
Shemmoolie... ..	.....	Barleria prionitis.
Shen-codie-vaylie... ..	.....	Plumbago rosea.
Shevadie... ..	.....	Ipomoea Turpethum.
Shikroen... ..	.....	Acacia amara.
Sirroo-canchoorie... ..	.....	Tragia cannabina.
Sirroo-curuttei... ..	.....	Trichosanthes incisa.
Sirroo-eetchum... ..	.....	Phoenix farinifera.
Sirroo keeray... ..	.....	Amaranthus campestris.
Sirroo-kuttalay... ..	.....	Aloe perfoliata.
Sirroo-poolay... ..	.....	Ærva lanata.
Sittamoottie... ..	.....	Pavonia Zeylanica.
Sittamunak... ..	.....	Ricinus communis.
Sittapaladi... ..	.....	Euphorbia thymifolia.
Sukkaray-vullie... ..	.....	Batatas edulis.
Sukkunaroo-pilloo... ..	.....	Andropogon Iwarancusa.
Sumpungee marum... ..	.....	Michelia Champaca.
Sungoo... ..	.....	Monetia tetraacantha.
	.....	Cassia Tora.
	.....	Clerodendron phlomoides.
	.....	Vatica laccifera.
	.....	Nelumbium speciosum.
	.....	Ulmus integrifolia.
	.....	Lablab cultratus.
	.....	Terminalia Bellerica.
	.....	Asparagus sarmentosus.
	.....	Tiaridium Indicum.
	.....	Cocos nucifera.
	.....	Panicum Italicum.
	.....	Strychnos potatorum.
	.....	Sethia Indica.
	.....	Momordica Charantia.
	.....	Cucumis pubes.
	.....	Ocimum Basilicum.
	.....	Euphorbia Tirucalli.
	.....	Solanum trilobatum.
	.....	Ocimum sanctum.
	.....	Embryopteris glutinifera.
	.....	Bryonia callosa.
	.....	Cedrela Toona.
	.....	Mollugo spergula.
	.....	Cajanus Indicus.
	.....	Diospyros melanoxylon.
	.....	gyzygium Jambolanum.
	.....	Dalosanthes Indica.
	.....	Dicrostachys cinerea.
	.....	Acacia speciosa.
	.....	Feronia elephantum.
	.....	Musa sapientum.
Talura... ..	.....	
Tamaray... ..	.....	
Tambachi... ..	.....	
Tambatangai... ..	.....	
Tanikai... ..	.....	
Tanneer-vittang... ..	.....	
Tayl-kodokhoo... ..	.....	
Taynga... ..	.....	
Tenney... ..	.....	
Teitan-cottay... ..	.....	
Tevadarum... ..	.....	
Tholoo-pany... ..	.....	
Thoomootee... ..	.....	
Tirnoot-patchie... ..	.....	
Tirroocalli... ..	.....	
Toodoovallay... ..	.....	
Toolasee... ..	.....	
Toombi... ..	.....	
Toomuttikai... ..	.....	
Toon-marum... ..	.....	
Tooray... ..	.....	
Towaray... ..	.....	
Tumboli... ..	.....	
Turkolum... ..	.....	
Vaagmarum... ..	.....	
Vadoothala marum... ..	.....	
Vaghay... ..	.....	
Vala marum... ..	.....	
Valei... ..	.....	

Valumbiri...	.....	<i>Isora corylifolia.</i>
Vara-poola...	.....	<i>Plugges leucopyrus.</i>
Varie coomuttie...	.....	<i>Cucumis Colocynthis.</i>
Vassambo...	.....	<i>Acorus calamus aromaticus.</i>
Vatunghe...	.....	<i>Cesalpinia Sappan.</i>
Vaylla...	.....	<i>Gynandropsis pentaphylla.</i>
Vaylie-partie...	.....	<i>Dæmia extensa.</i>
Vaynghe...	.....	<i>Pterocarpus bilobus.</i>
Vaypum...	.....	<i>Azadirachta Indica.</i>
Vedathulie-marum...	.....	<i>Dichrostachys cinerea.</i>
Veda-vulley...	.....	<i>Acacia Farnesiana.</i>
Vedditale...	.....	<i>Dichrostachys cinerea.</i>
Veelnie...	.....	<i>Cratogeom Roxburghii.</i>
Vel-vlum...	.....	<i>Acacia leucophloea.</i>
Vela-padrie...	.....	<i>Bignonia chelonoides.</i>
Vellangay...	.....	<i>Feronia elephantum.</i>
Vellay-cittra-moolum...	.....	<i>Plumbago Zeylanica.</i>
Vella-naga...	.....	<i>Conocarpus latifolius.</i>
Vellay-coomattay...	.....	<i>Datura alba.</i>
Vellay-pootallie...	.....	<i>Sterculia urens.</i>
Vellay-sharunnay...	.....	<i>Trianthena orbocdata.</i>
Vellee-madenthay...	.....	<i>Muscenda frondosa.</i>
Velvaynghay...	.....	<i>Acacia speciosa.</i>
Ventakoo...	.....	<i>Lagerstroemia microcarpa.</i>
Vengay...	.....	<i>Pterocarpus marsupium.</i>
Veppalie...	.....	<i>Wrightia antidysenterica.</i>
Veshe-moonghie...	.....	<i>Crinum Asiaticum.</i>
Vettilei...	.....	<i>Chavica Betle.</i>
Vettelei-custoorie...	.....	<i>Abelmoschus moschatus.</i>
Vetti-vayr...	.....	<i>Andropogon muricatum.</i>
Voopoo-caree-neer-moollee...	.....	<i>Dilivaria ilicifolia.</i>
Vuckana marum...	.....	<i>Diospyros cordifolia.</i>
Vul-ademboo...	.....	<i>Calonyction grandiflorum.</i>
Vulamaram...	.....	<i>Feronia elephantum.</i>
Vullarie...	.....	<i>Hydrocotyle Asiatica.</i>
Vulvaylum...	.....	<i>Acacia ferruginea.</i>
Vummarum...	.....	<i>Swietenia chloroxylon.</i>
Vunny...	.....	<i>Prosopis spicigera.</i>
Vumparatie...	.....	<i>Gossypium herbaceum.</i>
Vutta-keloo-keloo-pay...	.....	<i>Crotalaria verrucosa.</i>
Vuttathamary...	.....	<i>Macaranga Indica.</i>
Wara-tara...	.....	<i>Dichrostachys cinerea.</i>
Wodachoe-marum...	.....	<i>Cluytia collina.</i>
Woodiam...	.....	<i>Odina Wodier.</i>
Woomamarum...	.....	<i>Melia sempervirens.</i>
Wodahullay...	.....	<i>Acacia Catechu.</i>
Woonjah-marum...	.....	<i>Acacia amara.</i>
Yeamskelung...	.....	<i>Dioscorea alata.</i>
Yaylersie, Yalum...	.....	<i>Elettaria Cardamomum.</i>
Yeroum...	.....	<i>Calotropis gigantea.</i>
Yellonday...	.....	<i>Zizyphus Jujuba.</i>
Yettie...	.....	<i>Strychnos Nux-vomica.</i>
Yerrugada...	.....	<i>Diospyros montana.</i>
Zolim-buriki...	.....	<i>Schleichera trijuga.</i>

## INDEX OF TELOOGOO SYNONYMS.

Ada...	.....	Bauhinia racemosa.
Adavi-pulla...	.....	Tricosanthes cucumerina.
Adavi-zeela-kara...	.....	Vernonia anthelmintica.
Adive-cunda...	.....	Dracontium polyphyllum.
Adivi-amida...	.....	Jatropha Curcas.
Adivigerenta...	.....	Sethia Indica.
Adive-malle...	.....	Jasminum angustifolium.
Addivetella guddaloo...	.....	Scilla Indica.
Agakara...	.....	Momordica dioica.
Agunda-pacoo...	.....	Ammannia vesicatoria.
Akasa-gherooda...	.....	Bryonia epigœa.
Ali...	.....	Linum usitatissimum.
Allu-batsalla...	.....	Basella alba.
Alla-galli-ghetsa...	.....	Crotalaria verrucosa.
Amidum...	.....	Ricinus communis.
Angakara...	.....	Momordica dioica.
Annamooloo...	.....	Lablab vulgaris.
Annapa-chicureay...	.....	Do. (a variety.)
Antara-tamara...	.....	Villarsia Indica.
Appakovay...	.....	Bryonia rostrata.
Arasum...	.....	Ficus religiosa.
Aretti...	.....	Musa sapientum.
Aroe...	.....	Bauhinia parviflora.
Attika-mamadie...	.....	Boerhavia diffusa.
Avagooda...	.....	Trichosanthes palmata.
Avisay...	.....	Agati grandiflora.
Avary...	.....	Cassia auriculata.
Awatum...	.....	Spondias mangifera.
Babassa...	.....	Hydrocotyle Asiatica.
Badide-chettu...	.....	Erythrina Indica.
Ballusookura...	.....	Canthium parviflorum.
Balusoo-chettoo...	.....	Webera tetrandra.
Bandi-gooroovindza...	.....	Adenantha pavonina.
Bapanaboori...	.....	Ehretia buxifolia.
Bapunga...	.....	Psoralea corylifolia.
Barinka...	.....	Epicarpurus orientalis.
Batsalikoora or Peddapailkura	.....	Portulaca quadrifida.
Biddrie-nana-beeum...	.....	Euphorbia thymifolia.
Billoo...	.....	Swietenia chloroxylon.
Billoo-gaddi...	.....	Saccharum spontaneum
Bilva...	.....	Cratœva Roxburghii.
Binda...	.....	Abelmoschus esculentus.
Bobra...	.....	Dolichos sinensis.
Bodatarum...	.....	Sphœranthus Indicus.
Boddama...	.....	Bryonia callosa.

Boma-papata or Commi...	.....	Stylocoryne Webera.
Bonta-jemooodoo... ..	.....	Euphorbia antiquorum.
Boeraga... ..	.....	Eriodendron anfractuosum.
Boarda-goomoodoo... ..	.....	Benincasa cerifera.
Boorgha... ..	.....	Bombax Malabaricum.
Boosee... ..	.....	Vitex arborea.
Botacadamie... ..	.....	Nauclea parviflora.
Bundaroo... ..	.....	Hymenodictyon excelsum.
Burong... ..	.....	Ficus rubescens.
Candaloo... ..	.....	Cajanus Indicus.
Carakaia... ..	.....	Terminalia Chebula.
Cassa-cassa... ..	.....	Papaver somniferum.
Chaga... ..	.....	Sansevieria Zeylanica.
Chayndpolla... ..	.....	Trichosanthes cucumerina.
Chendanum... ..	.....	Santalum album.
Cherivelloo... ..	.....	Hedyotis umbellata.
Chewka... ..	.....	Tamarindus Indica.
Chikai... ..	.....	Acacia concinna.
Chilta-rita... ..	.....	Phoenix farinifera.
Chinanghie... ..	.....	Lagerstromia parviflora.
Chini-kala-bunda... ..	.....	Aloe litoralis.
Chinta... ..	.....	Tamarindus Indica.
Chitankaloo... ..	.....	Wrightia tinctoria.
Chittle-bunda... ..	.....	Pavonia odorata.
Citra... ..	.....	Plumbago Zeylanica.
Condacashina... ..	.....	Toddalia aculeata.
Cooroo-vayroo... ..	.....	Andropogon muricatum.
Coraloo... ..	.....	Panicum Italicum.
Dadima... ..	.....	Punica Granatum.
Daduga... ..	.....	Nauclea cordifolia.
Darboojee... ..	.....	Cucurbita Citrullus.
Dasanie... ..	.....	Hibiscus Rosa sinensis.
Dellamadoo... ..	.....	Terminalia tomentosa.
Dewadari... ..	.....	Sethia Indica.
Dirishena... ..	.....	Acacia speciosa.
Donda ..	.....	Coccinia Indica.
Doolaghondi... ..	.....	Tragia involucrata.
Doolagovila... ..	.....	Aristolochia Indica.
Doolya-gunda... ..	.....	Tragia cannabina.
Doombrasticum... ..	.....	Alpinia Galanga.
Doosratiga... ..	.....	Cocculus villosus.
Doskai... ..	.....	Cucumis utilissimus.
Eesara... ..	.....	Aristolochia Indica.
Ellakoora... ..	.....	Salsola Indica.
Gadida-guda-purra... ..	.....	Aristolochia bracteata.
Ganja chettoo... ..	.....	Cannabis sativa.
Garga... ..	.....	Gardenia gummifera.
Goteakais... ..	.....	Guilandina Bonduc.
Ghebboonellie... ..	.....	Premna integrifolia.
Gherka... ..	.....	Cynodon Dactylon.



Ghelegeriata...	.....	Crotalaria verrucosa.
Ghelijehroo...	.....	Trianthesa obcordata.
Ghengheravie...	.....	Thespesia populnea.
Ghenneru...	.....	Nerium odorum.
Ghericha...	.....	Cynodon Dactylon.
Gherutti-kamma...	.....	Vernonia cinerea.
Gilatiga...	.....	Entada Puscœtha.
Gongkura...	.....	Hibiscus cannabinus.
Googoola...	.....	Boswellia glabra.
Goomadi...	.....	Gmelina parviflora.
Goontaghelinjeroo...	.....	Eclipta prostrata.
Goor-chi-kur...	.....	Cyamopsis psoraloides.
Goorie-ghenza...	.....	Abrus precatorius.
Gorinta...	.....	Lawsonia alba.
Gotti...	.....	Zizyphus xylopyrus.
Gumpina...	.....	Odina Wodier.
Induga...	.....	Strychnos potatorum.
Ippie, or Ippa...	.....	Bassia latifolia.
Jatuga...	.....	Dœmia extensa.
Kadami...	.....	Eriodendron anfractuosum.
Kadami...	.....	Barringtonia acutangula.
Kakichempoo...	.....	Anamirta cocculus.
Kakoopala...	.....	Zizyphus trinervius.
Kalichikai...	.....	Gulandina Bonduc.
Kalighootroo...	.....	Bignonia chelonoides.
Kamachie-kusoo...	.....	Andropogon schœnanthus.
Kanoogamnoo...	.....	Dalbergia arborea.
Kanrew...	.....	Flacourtia sepiaria.
Karalsana...	.....	Phaseolus rostratus.
Kari-vepa...	.....	Bergera Kœnigii.
Karneelee...	.....	Indigofera cœrulea.
Karpoorawallie...	.....	Lavandula carnosâ.
Karrivaympakoo...	.....	Bergera Kœnigii.
Kassavoo...	.....	Andropogon muricatum.
Kavalee...	.....	Sterculia urens.
Kakwoolimera...	.....	Diospyros cordifolia.
Keechlie...	.....	Curcuma Zerumbet.
Kristna-tamara...	.....	Canna Indica.
Khristna-tooloosee...	.....	Ocymum gratissimum.
Kodisha or Wodisha...	.....	Cluytia collina.
Kokta...	.....	Nymphaea edulis.
Komaretti...	.....	Musa paradisiaca.
Konda-rakis...	.....	Arum montanum.
Kond-garova-tiga...	.....	Smilax ovalifolia.
Kond-tangheroos...	.....	Inga xylocarpa.
Kooka-toolasie...	.....	Ocymum album.
Koosumba-chettoo...	.....	Carthamus tinctorius.
Kora or Koraloo...	.....	Panicum Italicum.
Koramaun...	.....	Briedelia spinosa.
Koteka...	.....	Nymphaea edulis.
Kour-gestum...	.....	Psoralea corylifolia.

Kuchandanum... ..	.....	<i>Pterocarpus santalinus.</i>
Kudra-juree... ..	.....	<i>Putranjiva Roxburghii.</i>
Kudookee or karaika... ..	.....	<i>Terminalia Chebula.</i>
Kukuma-dunda... ..	.....	<i>Bryonia rostrata.</i>
Kumbi... ..	.....	<i>Careya arborea.</i>
Kunda-amadoo... ..	.....	<i>Croton polyandrum.</i>
Kunda-kanumoo... ..	.....	<i>Saccharum exaltatum.</i>
Kunda-kashinda... ..	.....	<i>Cassia Sophora.</i>
Kunda-mallier... ..	.....	<i>Polygonum barbatum.</i>
Kunkoodoo... ..	.....	<i>Sapindus emarginatus.</i>
Kuruwehloo... ..	.....	<i>Anisochilus carnosus.</i>
Kustoori... ..	.....	<i>Acacia Farnesiana.</i>
Madana-burta-kada... ..	.....	<i>Spermacoce hispida.</i>
Maduga... ..	.....	<i>Butea frondosa.</i>
Mamadi... ..	.....	<i>Mangifera Indica.</i>
Mandestie... ..	.....	<i>Rubia cordifolia.</i>
Manga... ..	.....	<i>Randia dumetorum.</i>
Manoopala or Codaga-palla... ..	.....	<i>Wrightia antidysenterica.</i>
Mansni-kotta... ..	.....	<i>Adenantha pavonina.</i>
Maredoo... ..	.....	<i>Egle Marmelos.</i>
Maredoo... ..	.....	<i>Cratœva Roxburghii.</i>
Marri... ..	.....	<i>Ficus Indica.</i>
Matta-pal-tiga, Deo-kaachanam... ..	.....	<i>Batatas paniculatus.</i>
May, Roatanga... ..	.....	<i>Schleichera trijuga.</i>
May-di... ..	.....	<i>Ficus racemosa.</i>
Metta-tamara... ..	.....	<i>Cassia alata.</i>
Mirialoo... ..	.....	<i>Piper nigrum.</i>
Molghoodoo... ..	.....	<i>Morinda umbellata.</i>
Mondlamooosteh... ..	.....	<i>Solanum trilobatum.</i>
Moodooda... ..	.....	<i>Chloroxylon swietenia.</i>
Mooga-beerakoo... ..	.....	<i>Anisomeles Malabarica.</i>
Mookadi... ..	.....	<i>Schrebera Swietenoides.</i>
Moolloogorunteh... ..	.....	<i>Barleria prionitis.</i>
Moonaga... ..	.....	<i>Moringa pterygosperma.</i>
Moonigangari or Ghengheravie... ..	.....	<i>Thespesia populnea.</i>
Moostighenza... ..	.....	<i>Strychnos Nux-vomica.</i>
Moroeda or Chaurapuppoo	.....	<i>Buchanania latifolia.</i>
Morunga... ..	.....	<i>Moringa pterygosperma.</i>
Muddie... ..	.....	<i>Terminalia tomentosa.</i>
Muddie-ruba or Pedda Sodi	.....	<i>Eleusine stricta.</i>
Mugali... ..	.....	<i>Pandanus odoratissimus.</i>
Muncha-kunda... ..	.....	<i>Amorphophallus campanulatus.</i>
Musadi... ..	.....	<i>Strychnos Nux-vomica.</i>
Naga-dunda... ..	.....	<i>Bryonia epigœa.</i>
Narga-mollay... ..	.....	<i>Rhinacanthus communis.</i>
Nagara-mookutty... ..	.....	<i>Calonyction grandiflorum.</i>
Nagasara-madantoo... ..	.....	<i>Arundo Karka.</i>
Naga-pootta chettoo... ..	.....	<i>Rostellaria procumbens.</i>
Nakaru... ..	.....	<i>Cordia Myxa.</i>
Nalla-oopie... ..	.....	<i>Clerodendron inerme.</i>
Nallatatti gudda... ..	.....	<i>Curculigo orchioides.</i>

Nalla-useriki... ..	.....	Phyllanthus Madraspatensis.
Nama... ..	.....	Aponogeton monostachyon.
Naoroo... ..	.....	Premna tomentosa.
Narikadam... ..	.....	Cocos nucifera.
Narra-alhogi... ..	.....	Tetranthera Roxburghii.
Narra-mamadi... ..	.....	"    monopetala.
Naulie... ..	.....	Ulmus integrifolia.
Naylatunghadoo... ..	.....	Cassia elongata.
Neela-ooshirikeh... ..	.....	Phyllanthus Niruri.
Neepalam... ..	.....	Jatropha Curcas.
Neergoobie... ..	.....	Asteracantha longifolia.
Neerija... ..	.....	Elaeodendron Roxburghii.
Neeroeancha... ..	.....	Pontedera vaginalis.
Neeroo-toolusee... ..	.....	Ocimum Basilicum.
Neerwanga... ..	.....	Solanum Melongena.
Nela-ameda... ..	.....	Jatropha glauca.
Neelagoomadi... ..	.....	Gmelina Asiatica.
Nela-ponna... ..	.....	Cassia elongata.
Nella-gooliesinda... ..	.....	Cardiospermum Halicacabum.
Nella-jilledoo... ..	.....	Calotropis gigantea.
Nella-jeedie... ..	.....	Semecarpus Anacardium.
Nella-madoo... ..	.....	Terminalia tomentosa.
Nella mollunga... ..	.....	Solanum Jacquini.
Nella pessaloo... ..	.....	Phaseolus Mungo.
Nella-pippala... ..	.....	Zapania nodiflora.
Nella-pooroogoodoo... ..	.....	Phyllanthus multiflorus.
Nella-tooma... ..	.....	Acacia Arabica.
Nella-veno... ..	.....	Andrographis paniculata.
Nella-woolli-mera... ..	.....	Diospyros chloroxylon.
Nereddie... ..	.....	Syzygium Jambolanum.
Nimmeri... ..	.....	Terminalia paniculata.
Nitty-cashinda-kura... ..	.....	Cassia Sophora.
Noodhosa... ..	.....	Bryonia scabrella.
Nooni-papoota... ..	.....	Pavetta Indica.
Nugoo-benda... ..	.....	Abutilon Indicum.
Nulla-ghentana... ..	.....	Clitorea ternatea.
Nulla-vavielie... ..	.....	Gendarussa vulgaris.
Nullerootingeh... ..	.....	Vitis quadrangularis.
Oochinta-kura... ..	.....	Solanum trilobatum.
Oochi-useriki... ..	.....	Phyllanthus simplex.
Ooranechra... ..	.....	Ximenia Americana.
Ooteraynie... ..	.....	Achyranthes aspera.
Padda-nella-kura... ..	.....	Premna latifolia.
Palier-mankeni... ..	.....	Urena sinuata.
Palseeroo... ..	.....	Dalbergia paniculata.
Palta... ..	.....	Mimusops hexandra.
Palla-cadija or Codaga palla.	.....	Wrightia antidysenterica.
Palla-gorgi... ..	.....	Holostemma Rheedii.
Pampena... ..	.....	Calosanthus Indica.
Pachiman... ..	.....	Conocarpus acuminatus.
Pandiki... ..	.....	Kydia calycina.
Panasa... ..	.....	Artocarpus integrifolia.

Paputta...	...	.....	<i>Pavetta Indica.</i>
Passapoo...	...	.....	<i>Curcuma longa.</i>
Patalganni...	...	.....	<i>Ophyoxylon serpentinum.</i>
Patsoo-poolagoonta-galiijeero.	.....	.....	<i>Wedelia calendulacea.</i>
Pauncha-tiga...	... *	.....	<i>Cassyta filiformis.</i>
Peddasodi...	...	.....	<i>Eleusine stricta.</i>
Pedda-batsalla...	...	.....	<i>Basella cordifolia.</i>
Pedda doskay...	...	.....	<i>Cucumis Momordica.</i>
Pedda-manie...	...	.....	<i>Ailanthus excelsus.</i>
Pedda or Sun-pail-kura..	...	.....	<i>Portulaca quadrifida.</i>
Pedda-sooloo...	...	.....	<i>Eleusine stricta.</i>
Pedda-warago-wenki...	.....	.....	<i>Salvadora Persica.</i>
Peeliadagoo kaila...	...	.....	<i>Mucuna prurita.</i>
Peepul...	...	.....	<i>Piper longum.</i>
Peetooma...	...	.....	<i>Acacia Farnesiana.</i>
Penerru...	...	.....	<i>Physalis somnifera.</i>
Pilli-pessara...	...	.....	<i>Phaseolus trilobus.</i>
Pishanna...	...	.....	<i>Maba buxifolia.</i>
Pisinigha...	...	.....	<i>Clerodendron inerme.</i>
Poedelmaun...	...	.....	<i>Acacia Catechu.</i>
Pognada...	...	.....	<i>Mimusops Elengi.</i>
Poka...	...	.....	<i>Acacia catechu.</i>
Pollarie...	...	.....	<i>Antidesma pubescens.</i>
Ponassa...	..	.....	<i>Eleusine Coracana.</i>
Poola-palla...	...	.....	<i>Pentatropis microphylla.</i>
Poolie-chinta...	...	.....	<i>Oxalis corniculata.</i>
Ponna...	.	.....	<i>Calophyllum inophyllum.</i>
Poor..	...	.....	<i>Eriodendron anfractuosum.</i>
Pooragaddi...	..	.....	<i>Cyperus bulbosus.</i>
Poorusharatanum...	...	.....	<i>Ionidium suffruticosum.</i>
Pootsakaia...	...	.....	<i>Cucumis Colocynthis.</i>
Poti-kankara...	...	.....	<i>Momordica Charantia.</i>
Potu-galli-geetsa...	...	.....	<i>Crotalaria retusa.</i>
Pudda-kanrew...	...	.....	<i>Flacourtia sapida.</i>
Pukkie...	...	.....	<i>Epicarpurus orientalis.</i>
Purpatagum...	.....	.....	<i>Mollugo cerviana.</i>
Putri-budinga...	.....	.....	<i>Bryonia scabrella.</i>
Puttie...	...	.....	<i>Gossypium herbaceum.</i>
Pydee-tenghadoo...	...	.....	<i>Cassia Sophera.</i>
Quoia-pepali...	...	.....	<i>Salicornia Indica.</i>
Quoiloo...	...	.....	„ <i>brachiata.</i>
Raghie...	...	.....	<i>Ficus religiosa.</i>
Rassa-usereki...	.....	.....	<i>Cicca disticha.</i>
Rawa-kada...	.....	.....	<i>Salsola nudiflora.</i>
Ray...	.....	.....	<i>Ficus religiosa.</i>
Rela...	...	.....	<i>Cathartocarpus fistula.</i>
Rello-gaddi...	.....	.....	<i>Saccharum spontaneum.</i>
Reygeo...	...	.....	<i>Zizyphus Jujuba.</i>
Rhetsa-maun...	...	.....	<i>Xanthoxylon Rhetsa.</i>
Rusa-ghedi-maun...	..	.....	<i>Solanum verbascifolium.</i>
Sadanapa-vedroo...	...	.....	<i>Bambusa stricta.</i>

Sambrani-chittoo... ..	.....	Herpestis Monniera.
Samutra-patsa... ..	.....	Argyrea speciosa.
Scherallalli-badoo... ..	.....	Dalbergia scandens.
Seema-avisee or Metta-tamara .....	.....	Cassia alata.
Segapoo-shandanum.....	.....	Pterocarpus santalinus.
Sendu-beer-kai... ..	.....	Luffa amara.
Serinjie... ..	.....	Grislea tomentosa.
Shaestmantaka .. ..	.....	Cordia Sebestena.
Shama-kura... ..	.....	Colocasia antiquorum.
Shanamoo... ..	.....	Crotalaria juncea.
Sheeikaia... ..	.....	Acacia concinna.
Sheelasutto-coielloo.....	.....	Agathotes Chirayta.
Sheti-putsa... ..	.....	Cucumis Colocynthis.
Shieri-goomoodoo... ..	.....	Gmelina parviflora.
Shinduga... ..	.....	Acacia odoratissima.
Shamee or Chamee... ..	.....	Prosopis spicigera.
Suiminta... ..	.....	Sesbania Egyptiaca.
Sirimaun... ..	.....	Conocarpus latifolius.
Sodi... ..	.....	Eleusine Coracana.
Soogundapala... ..	.....	Hemidesmus Indicus.
Soimida... ..	.....	Soymida febrifuga.
Sompa... ..	.....	Anethum Sowa.
Sukkara velli... ..	.....	Batatas edulis.
Sunaga... ..	.....	Cicer arietinum.
Sundra... ..	.....	Acacia Sundra.
Tagada... ..	.....	Bignonia chelonoides.
Tagaree... ..	.....	Morinda tinctoria.
Talisha-putrie... ..	.....	Flacourtia cataphracta.
Tamalapakoo... ..	.....	Chavica Betle.
Tamida... ..	.....	Eleusine coracana.
Tanghedoo... ..	.....	Cassia auriculata.
Tantipoo... ..	.....	Cassia tora.
Tatie-kullo or Tadi... ..	.....	Borassus flabelliformis.
Tauliko... ..	.....	Schmidelia serrata.
Taylunnie... ..	.....	Tiaridium Indicum.
Tee-dunda .. ..	.....	Bryonia umbellata.
Teek... ..	.....	Tectona grandis.
Teeroogoo... ..	.....	Caryota urens.
Tella-barinka... ..	.....	Ficus Benjamina.
Tella-dintona... ..	.....	Clitoria ternatea.
Tella-gada... ..	.....	Diospyros tomentosa.
Tella-ghelijehroo... ..	.....	Trianthema obcordata.
Tella-jonna... ..	.....	Sorghum vulgare.
Tella-jelladoo... ..	.....	Calotropis gigantea.
Tella-kalwa... ..	.....	Nymphæa pubescens.
Tella-mulaka... ..	.....	Solanum Indicum.
Tella-poodugooda... ..	.....	Fluggea leucopyrus.
Tella-tagada... ..	.....	Ipomæa Turpethum.
Tella-tamara... ..	.....	Nelumbium speciosum.
Tella-tooma... ..	.....	Acacia leucophlæa.
Tella-vuppie... ..	.....	Monetia tetracantha.
Telaki... ..	.....	Clerodendron phlomoides.
Tenga, Tenkaia... ..	.....	Cocos nucifera.

Tenga... ..	.....	<i>Cordia Sebestena.</i>
Tiga-chemoodoo... ..	.....	<i>Sarcostemma acidum.</i>
Tiga-maduga... ..	.....	<i>Butea superba.</i>
Tiga-mushadi... ..	.....	<i>Cocculus acuminatus.</i>
Tippa-tingay... ..	.....	..... <i>cordifolius.</i>
Tipilie... ..	.....	<i>Chavica Roxburghii.</i>
Tirrooghoo-jemmoodoo... ..	.....	<i>Euphorbia Tirucalli.</i>
Toandee... ..	.....	<i>Terminalia Bellerica.</i>
Trinudoolagondie... ..	.....	<i>Tragia cannabina.</i>
Tsaroo-mamadi... ..	.....	<i>Buchanania latifolia.</i>
Tshama... ..	.....	<i>Colocasia nymphaeæfolia.</i>
Tsillaghenzaloo... ..	.....	<i>Strychnos potatorum.</i>
Tsinna-doolagondie... ..	.....	<i>Tragia cannabina.</i>
Tsinna-mootapolaghum... ..	.....	<i>Pavonia Zeylanica.</i>
Tsulla-ghedaloo... ..	.....	<i>Asparagus sarmentosus.</i>
Tucka-vepa... ..	.....	<i>Melia sempervirens.</i>
Tumbagai... ..	.....	<i>Vatica Tumbuggaia.</i>
Tumida... ..	.....	<i>Diospyros melanoxylon.</i>
Tumika... ..	.....	<i>Embryopteris glutinifera.</i>
Tunmakaia or Tella chickidikoya... ..	.....	<i>Lablab cultratus.</i>
Udivi-gorinta... ..	.....	<i>Sethia Indica.</i>
Udivi-mulli... ..	.....	<i>Jasminum latifolium.</i>
Udivi-nimma... ..	.....	<i>Atalantia monophylla.</i>
Ullum .. ..	.....	<i>Zingiber officinalis.</i>
Useriki... ..	.....	<i>Emblica officinalis.</i>
Uva... ..	.....	<i>Dillenia speciosa.</i>
Vadamvittiloo... ..	.....	<i>Terminalia Catappa.</i>
Vaivinta... ..	.....	<i>Gynandropsis pentaphylla.</i>
Vakil... ..	.....	<i>Andropogon muricatum.</i>
Valumberi-kaca... ..	.....	<i>Isora corylifolia.</i>
Vankuda... ..	.....	<i>Solanum Jacquini.</i>
Vasunta-gundha... ..	.....	<i>Rottlera tinctoria.</i>
Vaympa, Vaypum... ..	.....	<i>Azadirachta Indica.</i>
Vaympalie... ..	.....	<i>Tephrosia purpurea.</i>
Veduru... ..	.....	<i>Bambusa arundinacea.</i>
Velitsroo... ..	.....	<i>Dichrostachys cinerea.</i>
Vepoodipatsa... ..	.....	<i>Ocimum Basilicum.</i>
Veru-gudu-chawa... ..	.....	<i>Dalbergia latifolia.</i>
Vesha-moongaloo... ..	.....	<i>Crinum Asiaticum.</i>
Visha boddee... ..	.....	<i>Sida acuta.</i>
Vistnoocrandum... ..	.....	<i>Evolvulus alsinioides.</i>
Vadza... ..	.....	<i>Acorus calamus aromaticus.</i>
Vukka or Poka chettu... ..	.....	<i>Areca Catechu.</i>
Wakay... ..	.....	<i>Carissa Carandas.</i>
Wangkai... ..	.....	<i>Solanum Melongena.</i>
Wayalakoo... ..	.....	<i>Vitex Negundo.</i>
Woni... ..	.....	<i>Acacia ferruginea.</i>
Woodia... ..	.....	<i>Odina Wodier.</i>
Woolawaloo... ..	.....	<i>Dolichos biflorus.</i>
Woosherke... ..	.....	<i>Emblica officinalis.</i>

Yaylakooloo... ..	.....	Elettaria Cardamomum.
Yerra gudda...	.....	Diospyros montana.
Yerra-citra-moolum.....	.....	Plumbago rosea.
Yerra-tamaray... ..	.....	Nelumbium speciosum.
Yettie... ..	.....	Strychnos Nux vomica.
Yeltoor... ..	.....	Dichrostachys cinerea.

## INDEX OF MALAYALAM SYNONYMS.

Acatsja-vulli... ..	.....	<i>Cassyta filiformis</i>
Ada-kodien... ..	.....	<i>Holostemina Rheedii.</i>
Adaca-majyen... ..	.....	<i>Sphæranthus hirtus.</i>
Adamarum... ..		<i>Terminalia Catappa.</i>
Adamboe... ..		<i>Lagerstræmia Reginæ.</i>
Agati... ..		<i>Agati grandiflora.</i>
Ainpariti... ..		<i>Hibiscus Rosa sinensis.</i>
Akhrootie... ..		<i>Aleurites triloba.</i>
Alpam... ..		<i>Bragantia Wallichii.</i>
Ambalam... ..		<i>Spondias mangifera.</i>
Ambalay or Pazaja... ..	.....	<i>Carica Papaya.</i>
Ambel... ..	.....	<i>Nymphaea pubescens.</i>
Ameri or anil... ..	.....	<i>Indigofera tinctoria.</i>
Ampana... ..	.....	<i>Borassus flabelliformis.</i>
Amuthoo... ..	.....	<i>Cocculus cordifolius.</i>
Ana-schorigenam... ..	.....	<i>Urtica heterophylla.</i>
Ana-schovadi... ..	.....	<i>Elephantopus scaber.</i>
Ana-schunda... ..	.....	<i>Solanum ferox.</i>
Anavinga.....	.....	<i>Casearia Canziala.</i>
Angolam... ..	.....	<i>Alangium decapetalum.</i>
Anona marum... ..	.....	<i>Anona reticulata.</i>
Ansjeli... ..	.....	<i>Artocarpus hirsutus.</i>
Appel... ..	.....	<i>Premna integrifolia.</i>
Arealu... ..	.....	<i>Ficus religiosa.</i>
Aria-bepou... ..	.....	<i>Azadirachta Indica.</i>
Aria-veela... ..	.....	<i>Polanisia felina.</i>
Atta-marum... ..	.....	<i>Anona squamosa.</i>
Attialu... ..	.....	<i>Ficus racemosa.</i>
Atti-meeralou... ..	.....	<i>Ficus excelsa.</i>
Avankou... ..	.....	<i>Ricinus communis.</i>
Bahel schulli... ..	.....	<i>Asteracantha longifolia</i>
Bala... ..	.....	<i>Musa sapientum.</i>
Balam-pulli... ..	.....	<i>Tamarindus Indica.</i>
Bara-mareca... ..	.....	<i>Canavalia gladiata.</i>
Basaal... ..	.....	<i>Embelia Basaal.</i>
Beesha... ..	.....	<i>Beesha Rheedii.</i>
Beetla-codi... ..	.....	<i>Chavica Betle.</i>
Bel-ericu... ..	.....	<i>Calotropis gigantea (var alba.)</i>
Belam-canda-schularmani		<i>Pardanthus Chinensis.</i>



Beli-caraga...	.....	Cynodon Dactylon.
Belilla...	.....	Mussaenda frondosa.
Bella modagam...	.....	Scævola Bela-modagam.
Bellutta-tsjampkam...	.....	Mesua ferrea.
Beloeren, Payrin-toothe...	.....	Abutilon Indicum.
Bellutta areli...	.....	Nerium odorum.
Belutta polatali...	.....	Crinum Asiaticum.
Bem-nochi...	.....	Vitex Negundo.
Bem-pavel...	.....	Momordica dioica.
Bem-tamara...	.....	Nelumbium speciosum.
Benapatsja...	.....	Tiatridium Indicum.
Bengieiri...	.....	Sapium Indicum.
Bentheka...	.....	Lagertrœmia microcarpa.
Bilimbi...	.....	Averrhoa Bilimbi.
Biti...	.....	Dalbergia latifolia.
Blatti...	.....	Sonneratia acida.
Brami.....	.....	Herpestis Monniera.
Bupariti.....	.....	Thespesia populnea:
Caca-mullu...	.....	Pedaliium murex.
Caca-palam, or Bella schora	.....	Lagenaria vulgaris.
Cadapilava.	.....	Morinda citrifolia.
Cadelari...	.....	Achyranthes aspera.
Cadel-avanacu...	.....	Croton Tiglium.
Cadumbah, or Samudra-poo	.....	Barringtonia racembsa.
Cajumeam.....	.....	Eclipta erecta.
Caipa-schora.....	.....	Lagenaria vulgaris.
Cammetti.	.....	Excœcaria Cammettia.
Cariram.	.....	Strychnos nux vomica.
Canschenapou...	.....	Bauhinia tomentosa.
Canschi...	.....	Trewia nudiflora.
Capa-molaga...	.....	Capsicum frutescens.
Car-elu...	.....	Sesamum Indicum.
Cara-nochi...	.....	Vitex trifolia.
Caracaniram, or Kiriatha	.....	Andrographis paniculata.
Cara-veela...	.....	Gynandropsis pentaphylla.
Carambu...	.....	Ludwigia parviflora.
Careloe vengou, or Peru-mu- rundo...	.....	Aristolochia Indica.
Caretti...	.....	Guilandina Bonduc.
Cari-villandi...	.....	Smilax ovalifolia.
Carim-pana	.....	Borassus flabelliformis (female)
Carim corini	.....	Justicia Eebolium.
Carim-tumba	.....	Anisomeles Malabarica.
Carimgala	.....	Pontedera vaginalis.
Cattucarua	.....	Cinnamomum iners.
Cattu-carambu	.....	Jussiaea villosa.
Cattu-casturi	.....	Abelmoschus moschatus.
Cattu-scheragam	.....	Vernonia anthelmintica.
Cattu tirpali	.....	Chavica Roxburghii (var.)
Cattu paeru	.....	Phaseolus rostratus.
Cavooga or Adakoo...	.....	Areca Catechu.
Champacam	.....	Michelia Rheedii.

Chayrooka	.....	<i>Capparis Heyniana.</i>
Chunda`	.....	<i>Solanum Jacquini.</i>
Chovanna mandarum	.....	<i>Bauhinia variegata.</i>
Cit amerdu	.....	<i>Cocculus cordifolius.</i>
Codaga-pala	.....	<i>Wrightia antidysenterica.</i>
Codagam	.....	<i>Hydrocotyle Asiatica.</i>
Codda-panna	.....	<i>Corypha umbraculifera.</i>
Coddam-pulli	.....	<i>Hebradendron cambogioides.</i>
Codi avanacoe	.....	<i>Tragia chamoclea.</i>
Coletta veetla.	.....	<i>Barleria Prionitis.</i>
Colinil	.....	<i>Tephrosia purpurea.</i>
Conna	.....	<i>Cathartocarpus fistula.</i>
Corosinam	.....	<i>Torenia cordifolia.</i>
Covalam.	.....	<i>Egle Marmelos.</i>
Covel	.....	<i>Coccinia Indica.</i>
Cupameni	.....	<i>Acalypha Indica.</i>
Cupi	.....	<i>Stylocoryne Webera.</i>
Cumbulu	.....	<i>Gmelina arborea.</i>
Curutupala	.....	<i>Tabernaemontana crispa.</i>
Eentha.	.....	<i>Phoenix farinifera.</i>
Elacalli	.....	<i>Euphorbia nereifolia.</i>
Elettari or Yalum	.....	<i>Elettaria Cardamomum.</i>
Elengi	.....	<i>Mimusops Elengi.</i>
Elettadi maravara	.....	<i>Scindapus Pertusus.</i>
Entada	.....	<i>Entada pusaetha.</i>
Ericu	.....	<i>Calotropis gigantea.</i>
Erima pavel	.....	<i>Momordica dioica. (female.)</i>
Hummatu	.....	<i>Datura alba.</i>
Ily	.....	<i>Bambusa spinosa.</i>
Inschi or Inschikua	.....	<i>Zingiber officinalis.</i>
Isora-murri or Valumpiri	.....	<i>Isora corylifolia.</i>
Ittialu	.....	<i>Ficus Benjaminia.</i>
Itti-arealou	.....	<i>Ficus nitida.</i>
Kada-kandel	.....	<i>Lumnitzera racemosa.</i>
Kadali	.....	<i>Melastoma Malabathricum.</i>
Kadanacu or Leatavalla	.....	<i>Aloe perfoliata</i>
Kaida or Thala...	.....	<i>Pandanus odoratissimus.</i>
Kakatoddali	.....	<i>Toddalia aculeata.</i>
Kakapu	.....	<i>Torenia cordifolia.</i>
Kaka-valli	.....	<i>Mucuna gigantea.</i>
Kalengi-kanajava	.....	<i>Cannabis sativa.</i>
Kalisjam or Wodier marum	.....	<i>Odina Wodier.</i>
Kandel	.....	<i>Rhizophora gymnorhiza.</i>
Kapa-tsjaka or Pooreethee	.....	<i>Ananasa sativa</i>
Kapa-kelungu	.....	<i>Batatas paniculatus</i>
Kara-angolam	.....	<i>Alangium hexapetalum</i>
Kara tsjera	.....	<i>Portulaca oleracea</i>
Kari-bepon	.....	<i>Bergera Koenigii</i>
Kari-vetti	.....	<i>Olea dioica</i>
Karin-ghota	.....	<i>Samadera Indica</i>

Karin-tagera	.....	<i>Pterocarpus Marsupium.</i>
Kartive valli	.....	<i>Bryonia umbellata</i>
Kasjava marum	.....	<i>Memeeylon tinctorium.</i>
Katou indel	.....	<i>Phoenix sylvestris</i>
Katou tajaca	.....	<i>Nauclea purpurea.</i>
Katou kadali	.....	<i>Osbeckia aspera</i>
Katou-tsjeroe	.....	<i>Holigarna longifolia.</i>
Katou karua	.....	<i>Cinnamomum iners.</i>
Katou-mail-elon	.....	<i>Vitex altissima.</i>
Katou conna	.....	<i>Inga bigemina.</i>
Katou-inschikua	.....	<i>Zingiber Zerumbet.</i>
Katou-malnaregam	.....	<i>Atalantia monophylla.</i>
Katsjil kelengu	.....	<i>Dioscorea alata.</i>
Katsjoula-kelengu	.....	<i>Koempferia Galanga.</i>
Kattu-katsjil	.....	<i>Dioscorea bulbifera.</i>
Kattu-kelengu	.....	<i>Argyreia Malabarica.</i>
Kattu-klangu	.....	<i>Dioscorea aculeata.</i>
Katu-kurka	.....	<i>Anisochilos carnosum.</i>
Katu-tsjiregam-mulla	.....	<i>Jasminum hirsutum.</i>
Katu muren-kelengu	.....	<i>Dioscorea pentaphylla.</i>
Katu-uren	.....	<i>Sida cordifolia.</i>
Katu-bala	.....	<i>Canna Indica.</i>
Katu-kapel or Cadenaco	.....	<i>Sansevieria Zeylanica.</i>
Kaurkoal	.....	<i>Psoralea corylifolia.</i>
Kedanga	.....	<i>Sesbania Ægyptiaca</i>
Kirjaneli	.....	<i>Phyllanthus Niruri.</i>
Kodda-pail	.....	<i>Pistia stratiotes.</i>
Konni	.....	<i>Abrus precatorius.</i>
Kotsjiletti pullu	.....	<i>Xyris Indica.</i>
Kua	.....	<i>Curcuma Zerumbet.</i>
Kuddumul	.....	<i>Jasminum Sambac.</i>
Kurunthodee	.....	<i>Sida retusa.</i>
Mail-anschi	.....	<i>Lawsonia alba.</i>
Mail-elou	.....	<i>Vitex alata.</i>
Mala inschikua.	.....	<i>Alpinia Allughas.</i>
Malacca schambu	.....	<i>Eugenia Jambosa.</i>
Malacca-pela	.....	<i>Psidium pomiferum.</i>
Malankua	.....	<i>Koempferia rotunda.</i>
Mallam toddali	.....	<i>Celtis orientalis.</i>
Mandajadi	.....	<i>Adenantha pavonina.</i>
Manja-pumeram	.....	<i>Nyctanthes arbor tristis.</i>
Manjella kua	.....	<i>Curcuma longa.</i>
Manneli.	.....	<i>Indigofera aspalathoides.</i>
Manyl-kara	.....	<i>Mimusops Kauki.</i>
Mao, Man, Mangas	.....	<i>Mangifera Indica.</i>
Marotti	.....	<i>Hydnocarpus inebrians.</i>
Mendoni	.....	<i>Gloriosa superba.</i>
Modera canni	.....	<i>Hugonia mystax.</i>
Molagocodi	.....	<i>Piper nigrum.</i>
Moul-elavoo	.....	<i>Salmalia Malabarica.</i>
Mouliila	.....	<i>Xanthoxylon Rhetsa.</i>
Mouricon	.....	<i>Erythrina corollodendron or Indica.</i>
Mour ngou	.....	<i>Moringa pterygosperma.</i>

Mucca piri	.....	Bryonia scabrella.
Mudela-nilu-hummatu	.....	Datura fastuosa (var.)
Mu-kelengu	.....	Dioscorea sativa.
Mulen schena	.....	Amorphophallus campanulatus.
Mullen-belleri	.....	Cucumis sativus.
Naga-valli	.....	Bauhinia scandens.
Naga-dante, or Nela-amida	.....	Jatropha glauca. ?
Nai-corana	.....	Mucuna prurita.
Nala-tirtava	.....	Ocimum sanctum.
Nala-mulla	.....	Jasminum sambac.
Nandier-vatan	.....	Tabernaemontana coronaria.
Nansjera-patsja	.....	Hoya pendula.
Naru-mundi	.....	Hemidesmus Indicus.
Narum-panel	.....	Uvaria Narum.
Nati-schambu	.....	Eugenia Malabarica.
Natsjatam-civa	.....	Cocculus cordifolius.
Nehoemeca	.....	Bryonia laciniosa.
Nedel ambel	.....	Villarsia Indica.
Nedum schetti	.....	Memecylon amplexicaule.
Nela naregam	.....	Naregamia alata.
Nela tsjira	.....	Portulaca quadrifida.
Nelam-pata	.....	Grangea Maderaspatensis.
Nelem-pala	.....	Wrightia tomentosa.
Nelem parenda	.....	Ionidium suffruticosum.
Neli-pouli, or kamarang	.....	Averrhoa Carambola.
Neli tali, or kedangu	.....	Sesbania Ægyptiaca.
Nella-panna	.....	Curculigo orchoides.
Niir notsjil	.....	Clerodendron inerme.
Niir pongelion	.....	Bignonia spathacea.
Nila-hummatu	.....	Datura fastuosa.
Nila barudena, or Valoothala.	.....	Solanum Melongena.
Nili-camaram	.....	Embllica officinalis.
Nir-pongelion	.....	Spathodea Rheedii.
Neruri	.....	Phyllanthus Niruri.
Nituri or katou niruri	.....	"          multiflorus.
Noel-valli and Pannivalli	.....	Dalbergia scandens.
Noel-tali	.....	Antidesma Bunius.
Nureu kelengu	.....	Dioscorea pentaphylla.
Nyrvala	.....	Cratæva Roxburghii.
Odallam	.....	Cerbera Odallam.
Oepata	.....	Avicennia tomentosa.
Ooghai	.....	Salvadora Persica.
Oorelatamaray.	.....	Ionidium suffruticosum.
Oosingia	.....	Sapindus laurifolius.
Pada-valli or Pada kelengu	.....	Clypea Burmanni.
Padavara	.....	Morinda umbellata.
Padvalam	.....	Trichosanthes Cucumerina.
Padri marum	.....	Bignonia chelonoides.
Paeru	.....	Dolichos sinensis.
Paina-schullie	.....	Dilivaria ilicifolia.
Pajanelli, or Aulantha	.....	Calosanthos Indica.

Pala	.....	<i>Alstonia scholaria</i> .
Palega pajaneli	.....	<i>Calosanthos Indica</i> .
Pal-modeca	.....	<i>Batatas paniculatus</i> .
Pal-valli	.....	<i>Chonemorpha Malabarica</i> .
Panambu-valli	.....	<i>Flagellaria Indica</i> .
Panavera tjerana or karimpola	.....	<i>Trapa bispinosa</i> .
Pandi pavel	.....	<i>Momordica Charantia</i> .
Pania, panyala	.....	<i>Eriodendron anfractuosum</i> .
Panitsjica maram	.....	<i>Embryopteris glutinifera</i> .
Pariti or Tali pariti	.....	<i>Paritium tiliaceum</i> .
Parparam	.....	<i>Pentatropis macrophylla</i> .
Parua kelenga	.....	<i>Aponogeton monostachyon</i> .
Pavel	.....	<i>Momordica Charantia</i> .
Pienie marum	.....	<i>Vateria Indica</i> .
Pevetta or Mulleamothé	.....	<i>Pavetta Indica</i> .
Pee-tandale cotti	.....	<i>Crotalaria verrucosa</i> .
Pee-cajenneam	.....	<i>Wedelia calendulacea</i> .
Pee-raputhee	.....	<i>Bignoniâ scabrella</i> .
Pela	.....	<i>Psidium pyriferum</i> .
Pelou	.....	<i>Careya arborea</i> .
Penar-valli	.....	<i>Zanonia Indica</i> .
Peragu	.....	<i>Clerodendron infortunatum</i> .
Peralu	.....	<i>Ficus Indica</i> .
Perin teregam	.....	<i>Ficus conglomerata</i> .
Perin-toddali	.....	<i>Zizyphus Jujuba</i> .
Perin-njara	.....	<i>Syzygium Jambolanum</i> .
Perin niruri	.....	<i>Melanthesa turbinata</i> .
Perin-kaku valli	.....	<i>Entada Pusetha</i> .
Picina, or Peechengah	.....	<i>Luffa acutangula</i> .
Pitsjegam-mulla	.....	<i>Jasminum grandiflorum</i> ,
Plasa	.....	<i>Butea frondosa</i> .
Pœatsjetti	.....	<i>Gomphia angustifolia</i> .
Ponga	.....	<i>Dalbergia frondosa</i> .
Pongana or Minari	.....	<i>Pongamia glabra</i> .
Pongelion	.....	<i>Ailanthus Malabaricus</i> .
Pongolam	.....	<i>Putrangiva Roxburghii</i> .
Ponna	.....	<i>Calophyllum inophyllum</i> .
Pouagam	.....	<i>Rottlera tinctoria</i> .
Ponnam-tagera	.....	<i>Cassia Sophera</i> .
Poolee-yareelah	.....	<i>Oxalis corniculata</i> .
Potta-pullu	.....	<i>Cyperus inundatus</i> .
Poutalestjee	.....	<i>Lawsonia alba</i> .
Puam-cu-rundala	.....	<i>Conyza cinerea</i> .
Ful-colli	.....	<i>Rhinacanthus communis</i> .
Purinsjee	.....	<i>Sapindus laurifolius</i> .
Putsja-paeru	.....	<i>Phaseolus Mungo or radiatus</i> .
Ramacciam	.....	<i>Andropogon schœnanthus</i> .
Ramna pumaram	.....	<i>Sterculia guttata</i> .
Rava pou	.....	<i>Guettarda speciosa</i> .
Samstravadi	.....	<i>Barringtonia racemosa</i> .
Samudra-sjogam	.....	<i>Argyrea speciosa</i> .
Sehada-veli	.....	<i>Asparagus sarmentosus</i> .

Schadida-calli	.....	<i>Euphorbia antiquorum.</i>
Schakeri-schora	.....	<i>Cucurbita maxima.</i>
Schanga-cuspi	.....	<i>Clitoria ternatea.</i>
Schem-pariti	.....	<i>Hibiscus Rosa sinensis.</i>
Schembra-valli	.....	<i>Vitis Indica.</i>
Schena, or karuna	.....	<i>Amorphophallus campanulatus.</i>
Scherukatu-vallicaniram	.....	<i>Strychnos colubrina.</i>
Scheru-pula	.....	<i>Ærua lanata.</i>
Scheru-schunda	.....	<i>Solanum Indicum.</i>
Schetti	.....	<i>Ixora coccinea.</i>
Schetti-codiveli	.....	<i>Plumbago rosea.</i>
Schitelu	.....	<i>Sesamum orientale</i>
Schorigenam	.....	<i>Tragia involucrata.</i>
Schovanna adamboe	.....	<i>Ipomœa pes capræ.</i>
Schovanna modela-muccu	.....	<i>Polygonum glabrum.</i>
Schumambu valli	.....	<i>Vitis latifolia.</i>
Schunda pana	.....	<i>Caryota urens.</i>
Sjovanna amelpodii	.....	<i>Ophioxylon serpentinum.</i>
Sjovanna-pola-tali	.....	<i>Crinum latifolium.</i>
Soladi-turtava	.....	<i>Ocimum Basilicum.</i>
Syalita	.....	<i>Dillenia speciosa.</i>
Tagera	.....	<i>Cassia Tora.</i>
Talu-dama	.....	<i>Boerhavia diffusa.</i>
Tamara	.....	<i>Nelumbium speciosum.</i>
Tamara-tonga	.....	<i>Averrhoa Carambola.</i>
Tandale cotti	.....	<i>Crotalaria retusa.</i>
Tani	.....	<i>Terminalia Belerica.</i>
Tardavel	.....	<i>Spermacece hispida.</i>
Tengea	.....	<i>Cocos nucifera.</i>
Tenna	.....	<i>Panicum Italicum.</i>
Teregam	.....	<i>Ficus asperrima.</i>
Theka	.....	<i>Tectona grandis.</i>
Thora paerou	.....	<i>Cajanus Indicus.</i>
Tiru calli	.....	<i>Euphorbia Tirucalli.</i>
Todda panna	.....	<i>Cycas circinalis.</i>
Toddavaddie	.....	<i>Oxalis sensitiva.</i>
Tondi, Teregam	.....	<i>Callicarpa lanata.</i>
Tsjia pangam	.....	<i>Cœsalpinia Sappan.</i>
Tsjahala	.....	<i>Ficus venosa.</i>
Tsjaka maram	.....	<i>Artocarpus integrifolius.</i>
Tsjana kua	.....	<i>Costus speciosus.</i>
Tsjangelam parenda	.....	<i>Vitis quadrangularis.</i>
Tsjela	.....	<i>Ficus Tsiela.</i>
Tsjerou-ponna	.....	<i>Calophyllum Calaba.</i>
Tsjerou-theka	.....	<i>Clerodendron serratum.</i>
Tsjeru uren	.....	<i>Riedleia corchorifolia.</i>
Tsjeru cansjava	.....	<i>Cannabis sativa.</i>
Tsjeru jonganam pulla.	.....	<i>Mollugo spergula.</i>
Tsjeru parua	.....	<i>Sida acuta.</i>
Tsjeru tsjurel	.....	<i>Calamus Rotang.</i>
Tsjeru vallel	.....	<i>Hydrolea Zeylanica.</i>
Tsjetti mandarum	.....	<i>Poinciana pulcherrima.</i>
Tsjetti-pulli	.....	<i>Eleusine Coracana.</i>

Tsjoratti	.....	<i>Gomphia augustifolia.</i>
Tsjovanna-areli	.....	<i>Nerium odorum.</i>
Tumba codiveli	.....	<i>Plumbago Zeylanica.</i>
Ulinja	.....	<i>Cardiospermum Halicacabum.</i>
Uren, or kungia	.....	<i>Urena sinuata.</i>
Vaambu	.....	<i>Acorus calamus aromaticus.</i>
Vada kodi	.....	<i>Gendarussa vulgaris.</i>
Valli teregam	.....	<i>Ficus heterophylla.</i>
Valli-caniram	.....	<i>Cocculus acuminatus.</i>
Vallia-pira pitica	.....	<i>Vitis latifolia.</i>
Vallia capo molago	.....	<i>Capsicum frutescens.</i>
Vaygha kum	.....	<i>Lagerstroemia Regince.</i>
Vell elley, Belilla	.....	<i>Muscenda frondosa.</i>
Vella murce	.....	<i>Indigofera tinctoria.</i>
Veyngah	.....	<i>Dalbergia latifolia.</i>
Veyruh	.....	<i>Careya arborea.</i>
Vidimarum	.....	<i>Cordia Myxa.</i>
Vistnuclandi	.....	<i>Evolvulus alsinoides.</i>
Vukkah	.....	<i>Crotalaria juncea.</i>
Waga	.....	<i>Acacia odoratissima.</i>
Wetilla	.....	<i>Colocasia nymphocifolia.</i>
Wellia tagera	.....	<i>Cassia glauca.</i>

INDEX OF  
HINDOOSTANEE AND BENGALTEE SYNONYMS.

Ach, or Atchy	.....	B & H	Morinda tinctoria.
Ada, or adruck	..		Zingiber officinale.
Ada-beerna (or birni)	..	B	Herpestis Monniera.
Adas	..	H	Cicer arietinum.
Adruck	..		Zingiber officinale.
Agareh	..		Achyranthes aspera.
Agast	..		Agati grandiflora.
Agnee	..	B	Plumbago Zeylanica.
Agosthyo	..		Dillenia scabrella.
Agumerkee	..	H	Bryonia scabrella.
Agya-ghas	..	...	Andropogon Schœnanthus.
Ajwan	..	H	Ptychotis Ajowan.
Ak	..		Calotropis gigantea.
Akar-kanta	..		Alangium hexapetalum.
Akasha-vulle, Akash-bullee...	..	B	Cassyta filiformis.
Akhrot	..		Aleurites triloba.
Akola	..	H	Alangium hexapetalum.
Akund	..		Calotropis gigantea.
Al	..	H	Morinda citrifolia.
Alkooshi	..	B	Mucuna prurita.
Aloo	..		Solanum tuberosum.
Alsi	..	H	Linum usitatissimum.
Am	..	B & H	Mangifera Indica.
Amada	..	B	Curcuma Amada.
Ambara	..	H	Spondias mangifera.
Ambie-huldie	..		Curcuma Zedoaria.
Ambli	..	B & H	Tamarindus Indica.
Ambuj	..	H	Nelumbium speciosum.
Amdhouka	..		Vitis Indica.
Amla, Amlika	..	B & H	Emblica officinalis.
Amblee	..	B & H	Tamarindus Indica.
Amlej	..	H	Emblica officinalis.
Amlookee	..	B	Acacia stipulata.
Amoora	..		Amoora cucullata.
Amna	..	B & H	Spondias mangifera.
Amrool	..		Oxalis corniculata.
Amrut, Sooperium	..	H	Psidium pyrifermum.
Amultas	..		Cathartocarpus fistula.
Ananas	..	B & H	Ananas sativus.
Anar	..	H	Punica Granatum.
Anarush	..	B	Ananas sativus.
Ardenjou	..	H	Wrightia antidysenterica.
Anis	..	H	Adhatoda Vasica.



Anjeer	B	<i>Psidium pomiferum.</i>
Ananto-mool	...	<i>Hemidesmus Indicus.</i>
Antomoor	...	<i>Isora corylifolia.</i>
Aongra arooli	H	<i>Emblca officinalis.</i>
Apanga	B	<i>Achyranthes aspera.</i>
Aparajita	...	<i>Clitorea ternatea.</i>
Arbi	H	<i>Colocasia antiquorum.</i>
Arhukee, Toor	...	<i>Cajanus Indicus.</i>
Arishta	...	<i>Sapindus emarginatus.</i>
Arishto	B	<i>Melia Azadirachta.</i>
Arjoon	...	<i>Terminalia Arjuna.</i>
Ark		<i>Calotropis gigantea.</i>
Aroona		<i>Rubia cordifolia.</i>
Arunda or Arund	H	<i>Ricinus communis.</i>
Arus		<i>Adhatoda Vasica.</i>
Asan		<i>Terminalia alata, or glabra.</i>
Asganda	H	<i>Adhatoda Vasica.</i>
Ashoo-kuchoo	B	<i>Colocasia antiquorum.</i>
Asphota		<i>Clitorea ternatea.</i>
Ashwa-gunda	B	<i>Physalis somnifera.</i>
Ashwuth		<i>Ficus religiosa.</i>
Ata	B & H	<i>Anona squamosa.</i>
Atchy	H	<i>Morinda citrifolia.</i>
Atmagoopta-murkutee	B	<i>Mucuna prurita.</i>
Atta-jam		<i>Olea dioica.</i>
Baberung or Babreng	(B & H)	<i>Embelia Ribes.</i>
Babooitulse	B	<i>Ocimum Basilicum.</i>
Babula		<i>Acacia Arabica.</i>
Bacchi	H	<i>Vernonia anthelmintica.</i>
Bach		<i>Acorus Calamus aromaticus.</i>
Baclatul-humka		<i>Portulaca quadrifida.</i>
Bacul	B	<i>Mimusops Elengi.</i>
Bacumber		<i>Anisomeles ovata.</i>
Badamie or Badam	B & H	<i>Terminalia Catappa.</i>
Badanjam	H	<i>Solanum Melongena.</i>
Bag-achera, Baga-luta	B	<i>Cocculus acuminatus.</i>
Bagh-Cherenda	B & H	<i>Lablab cultratus.</i>
Bagh-ankara	B	<i>Alangium decapetalum.</i>
Bagoon or Begoon		<i>Solanum Melongena.</i>
Bagbherenda	H	<i>Jatropha Curcas.</i>
Bagh-Dharanda	B	Do.
Bahura		<i>Terminalia Bellerica.</i>
Baingan		<i>Solanum Melongena.</i>
Bair		<i>Zizyphus Jujuba.</i>
Bakas or Bakus	(B & H)	<i>Adhatoda Vasica.</i>
Bala	H	<i>Andropogon muricatum.</i>
Bala		<i>Sida rhombifolia.</i>
Balam-cira		<i>Cucumis sativus.</i>
Baltar		<i>Borassus flabelliformis.</i>
Bamunhatee	B	<i>Clerodendron siphonanthus.</i>
Ban	H	<i>Moringa pterygosperma.</i>
Ban-mallica	H	<i>Jasminum angustifolium.</i>
Bans or Bansh	B & H	<i>Bambusa arundinacea.</i>
Bar	H	<i>Ficus Bengalensis or Indica.</i>
Baral		<i>Artocarpus Lakoocha.</i>
Barna		<i>Cratoeva Roxburghii.</i>
Bartakoo		<i>Solanum Melongena.</i>

Basoka	.....	...	Adhatoda Vasica.
Bassana	.....	H	Agati grandiflora.
Bastra	.....	...	Callicarpa lanata.
Bat	.....	...	Ficus Indica.
Bator-neboo	.....	B & H	Citrus decumana.
Batoola	.....	...	Cicer arietinum.
Bebina	.....	H	Muscocda frondosa.
Bed	.....	...	Calamus Rotang.
Beedul	.....	B	Bauhinia purpurea.
Beel-jhun-jhun	.....	H	Crotalaria retusa.
Beel-paat	.....	...	.....
Beemboo	.....	B	Coccinia Indica.
Beertia	.....	...	Panicum Italicum.
Begpoora	.....	B & H	Citrus medica.
Behoor-bansh	.....	B	Bambusa spinosa.
Behura	.....	H	Terminalia Bellerica.
Bel	.....	B & H	Ægle Marmelos.
Bel	.....	H	Cratœva religiosa.
Bela	.....	...	Jasminum Sambac.
Bella-wine	.....	...	Semecarpus Anacardium.
Belpheol	.....	B	Jasminum Sambac.
Bena	.....	B & H	Andropogon muricatum.
Beri	.....	H	Zizyphus Jujuba.
Beshulyo-kurunee	.....	B	Cocculus cordifolius.
Beta or bet	.....	B & H	Calamus Rotang.
Bhair	.....	H	Zizyphus Jujuba.
Bhang	.....	...	Cannabis sativa.
Bhant	.....	B	Clerodendron infortunatum.
Bheela	.....	H	Semecarpus Anacardium.
Bherband	.....	...	Argemone Mexicana.
Bhimb	.....	...	Coccinia Indica.
Bhinda-tori or Bhindea	.....	...	Abelmoschus esculentus.
Bhoo-ada or Bhon-ada	.....	B	Abelmoschus esculentus.
Bhooe-komra	.....	H	Trichosanthes cordata.
Bhooi-chumpa	.....	B & H	Kœmpferia rotunda.
Bhooi-jamba	.....	B	Premna hirtacea.
Bhooin-koomra	.....	B & H	Batatas paniculatus.
Beooh-okra	.....	H	Zapania nodiflora.
Bhooi-sunn	.....	B	Crotalaria prostrata.
Bhorar	.....	...	Rhizophora Mangle.
Bhorenda	.....	...	Ricinus communis.
Bhuchampa	.....	H	Kœmpferia rotunda.
Bhungie	.....	...	Corchorus olitorius.
Bichittie	.....	B	Tragia involucrata.
Bichua	.....	H	Crotalaria juncea.
Bier	.....	...	Zizyphus Jujuba.
Bikh	.....	...	Aconitum.
Bina	.....	B & H	Avicennia tomentosa.
Bilimbi	.....	B	Averrhoa Bilimbi
Bil-jhunjhun.	.....	B	Crotalaria retusa.
Bincha	.....	...	Flacourtia sapida.
Birme	.....	H	Trichosanthes incisa.
Birmi	.....	...	Cratœva Tapa.
Bis or Bish	.....	B & H	Aconitum ferrox.
Bish-bansh	.....	H	Beesha Rheedj.
Bish-tarak	.....	...	Argyrea speciosa.
Bish-hupra	.....	...	Trianthema obovatum.
Bishumba	.....	...	Cucumis Colocynthis.
Biur	.....	H	Zizyphus Jujuba.

Blunjee Pat	.....	B	<i>Corchorus olitorius.</i>
Bokenakoo	..	H	<i>Zapania nodiflora.</i>
Bola	..	B & H	<i>Paritium tiliaceum.</i>
Bong	..	B	<i>Solanum Melongena.</i>
Booien-aoonlah	..	H	<i>Phyllanthus Niruri.</i>
Booien-kavite	..	...	<i>Feronia elephantum.</i>
Boot, Boot-kaley	..	B & H	<i>Cicer arietinum.</i>
Bora	..	H	<i>Dolichos Catjang.</i>
Boro-joan	..	B	<i>Ptychotis Ajowan.</i>
Boyra	..	...	<i>Terminalia Bellerica.</i>
Bramee	..	...	<i>Sarcostemma brevistigma.</i>
Breehuti	..	...	<i>Solanum ferox.</i>
Brinraj bungrah	..	H	<i>Eclipta erecta.</i>
Buckche	..	...	<i>Conyza anthemintica.</i>
Budam	..	..	<i>Terminalia Catappa.</i>
Budree	..	B	<i>Zyziphus Jujuba.</i>
Buhooari	..	...	<i>Cordia Myxa or latifolia.</i>
Buhura	..	B & H	<i>Terminalia Bellerica.</i>
Buko	..	B	<i>Agati grandiflora.</i>
Bukarjun, Bukayun	..	H	<i>Melia sempervirens.</i>
Bukool	..	B	<i>Mimusops Elengi.</i>
Bukkum	..	...	<i>Cesalpinia Sappan.</i>
Bulat	..	...	<i>Phaseolus Mungo.</i>
Bulee	..	H	<i>Sterculia urens.</i>
..	..	...	<i>Terminalia Bellerica.</i>
Bun-asarhoo	..	...	<i>Gossypium herbaceum.</i>
Bun-burbutee	..	B & H	<i>Phaseolus rostratus.</i>
Bun-gab	..	H	<i>Diospyros cordifolia.</i>
Bun-gumuk	..	...	<i>Cucumis pubescens.</i>
..	..	...	<i>Acorus Calamus aromaticus.</i>
Bun-joma	..	B & H	<i>Curcuma Zedoaria.</i>
Bun-joolee	..	...	<i>Clerodendron inerme.</i>
Bunkra	..	B	<i>Phyllanthus multiflorous.</i>
Bun-kuchoo	..	...	<i>Urena lobata.</i>
Bun-lubunga	..	B & H	<i>Colocasia antiquorum.</i>
Bun-mullika	..	B & H	<i>Ludwigia parviflora.</i>
Bun-murich	..	B	<i>Jasminum Sambac.</i>
Bun-marunga	..	...	<i>Ammannia vesicatoria.</i>
Bun-neel	..	...	<i>Oxalis sensitiva.</i>
Bun-okra	..	B & H	<i>Tephrosia purpurea.</i>
Bun-pat	..	B	<i>Urena lobata.</i>
Bunraj	..	...	<i>Corchorus olitorius.</i>
Bunputal	..	...	<i>Bauhinia racemosa.</i>
Bun-shim	..	...	<i>Trichosanthes cucumerina.</i>
Bun-sun	..	...	<i>Lablab vulgaris.</i>
Bunt	..	H	<i>Crotalaria verrucosa.</i>
Bur or But	..	B	<i>Cicer arietinum.</i>
Bura-chooli	..	B & H	<i>Ficus Indica.</i>
Bura-kanoor	..	...	<i>Villarsia Indica.</i>
Bura-kurella	..	H	<i>Crinum Asiaticum.</i>
Bura-leesora, Bhokur	..	...	<i>Momordica Charantia.</i>
Bura makhom-shim	..	B	<i>Cordia latifolia.</i>
Bura-phootica	..	...	<i>Canavalia gladiata.</i>
Burobet	..	...	<i>Melastoma Malabathricum.</i>
Buro-reetha	..	...	<i>Calamus fasciculatus.</i>
Buro-ruktokumbal	..	...	<i>Sapindus emarginatus.</i>
Buro-shial-kant	..	...	<i>Nymphœa rubra.</i>
Bura-tugur	..	...	<i>Argemone Mexicana.</i>
..	..	...	<i>Tabernœmontana coronaria.</i>

Bur-butee	.....	B & H	<i>Dolichos Sirfensis.</i>
Buro-buhooari	.....	B	<i>Cordia latifolia.</i>
Buroon	.....	...	<i>Cratœva Roxburghii.</i>
Burra ghokeroo	.....	B & H	<i>Petalium murex.</i>
Bursunga	.....	H	<i>Bergera Kœnigii.</i>
Burul	.....	...	<i>Artocarpus Lakoocha.</i>
But-moogra	.....	B	<i>Jasminum Sambac.</i>
Butt	.....	B & H	<i>Ficus religiosa.</i>
Butsnab	.....	B	<i>Aconitum ferox.</i>
Byajainti	.....	...	<i>Sesbania Egyptiaca.</i>
Byakool	.....	B & H	<i>Solanum Indicum.</i>
Bygun	.....	H	<i>Solanum melongena.</i>
Cachari	.....	H	<i>Cucumis pubescens.</i>
Cacri	.....	...	" <i>utilissimus.</i>
Cachalu	.....	...	<i>Colocasia antiquorum.</i>
Cachuar	.....	...	<i>Bauhinia variegata.</i>
Cachu	.....	...	<i>Colocasia antiquorum.</i>
Cachur	.....	...	<i>Curcuma Zerumbet.</i>
Cadu	.....	...	<i>Lagenaria vulgaris.</i>
Cadam	.....	...	<i>Nauclea parvifolia.</i>
Cahua	.....	H	<i>Pentaptera Arjuna.</i>
Cajur	.....	...	<i>Phoenix dactylifera.</i>
Caladana	.....	...	<i>Pharbitis Nil.</i>
Calâpnath	.....	...	<i>Andrographis paniculata.</i>
Calatulsi	.....	...	<i>Ocymum sanctum.</i>
Camal	.....	...	<i>Nelumbium speciosum.</i>
Camaha	.....	...	<i>Cucurbita Pepo.</i>
Camrhakh, Cumurunga	.....	...	<i>Averrhoa Carambola.</i>
Camul	.....	...	<i>Rottlera tinctoria.</i>
Cancra	.....	H	<i>Pavetta Indica.</i>
Caner	.....	...	<i>Nerium odorum.</i>
Cangan or Cangni	.....	...	<i>Panicum Italicum.</i>
Cantha-jathi	.....	B	<i>Barleria prionitis.</i>
Carang	.....	...	<i>Dalbergia arborea.</i>
Caranda, or Caranda	.....	...	<i>Carissa Carandas.</i>
Carbi	.....	...	<i>Sorghum vulgare.</i>
Carela	.....	...	<i>Momordica Charantia.</i>
Cariari	.....	H	<i>Gloriosa superba.</i>
Carna	.....	...	<i>Citrus medica.</i>
Cas	.....	...	<i>Saccharum spontaneum.</i>
Casandi	.....	...	<i>Cassia Sophora.</i>
Cat-caleji or catcaranja	.....	...	<i>Guilandina Bonduc.</i>
Catira	.....	...	<i>Sterculia urens.</i>
Cathal	.....	...	<i>Artocarpus integrifolia.</i>
Caua-thenthi	.....	...	<i>Clitoria ternatea.</i>
Caul	.....	...	<i>Nelumbium speciosum.</i>
Cawa	.....	...	<i>Pharlitis Nil.</i>
Chagul-bantee	.....	B	<i>Dœmia extensa,</i>
Chagulkooari	.....	...	<i>Ipomœa pes capre.</i>
Chagul-nadi	.....	...	<i>Sphœranthus hirtus.</i>
Chakan Tubunna	.....	...	<i>Celtis Orientalis.</i>
Chakotra	.....	H	<i>Citrus decumana.</i>
Chakoonda	.....	B	<i>Cassia Tora.</i>
Chakour	.....	H	<i>Cassia obtusifolia.</i>
Chala	.....	...	<i>Cicer arietinum.</i>
Chalita	.....	B & H	<i>Dillenia speciosa.</i>
Chambatt	.....	H	<i>Kœmpferia rotunda.</i>
Champa	.....	B & H	<i>Michelia Champaka.</i>

Champuka	.....	B & H	Michellia Champaca.
Chaplash	.....	H	} Artocarpus Chaplasha.
Chapalasha	.....	..	
Charkucha	.....	B	Colocasia antiquorum
Chatin	.....	..	Alstonia scholaris.
Chaya	.....	..	Ærta lanata.
Cheena	.....	B & H	Panicum miliaceum.
Chena-ghanri	.....	B	Xyris Indica.
Chenna	.....	H	Cicer arietinum.
Chela	.....	B & H	Alangium decapetalum.
Cheayti, Cheraita	.....	..	Agathotes Chirayta.
Cheretta	.....	B	"    Chirayta.
Chichinga	.....	..	Trichosanthes anguina.
Chichiria	.....	B & H	Achyranthes aspera.
Chil-binge	.....	H	Strychnos potatorum.
Chirchera	.....	..	Achyranthes aspera.
Chita	.....	..	Plumbago Zeylanica.
Chitra	.....	B	do.
Chitra or Chitta	.....	H	Berberis vulgaris.
Chittra	.....	B & H	Plumbago Zeylanica.
Chitturmool	.....	..	do.
Chooli	.....	B & H	Villarsia Indica.
Choopri-aloo	.....	..	Dioscorea globosa.
Chota-chiretta	.....	H	Cicendia hyssopifolia.
Choota-pushpa	.....	B	Melastoma aspera.
Chosa	.....	..	Papaver somniferum.
Chota-bish-tarlick	.....	B & H	Ipomœa speciosa.
Chota-chand	.....	H	Ophioxylon serpentinum.
Chota-jamb	.....	B	Eugenia caryophyllifolia.
Chota-kunwar	.....	H	Aloe littoralis.
Chota-phootika	.....	B	Osbeckia aspera.
Chota-soondhi	.....	..	Nymphœa esculenta.
Chouputeeya	.....	H	Kydia calycina.
Chowly	.....	..	Portulaca quadrifida.
Chudra kuntakaree	.....	B & H	Solanum Jacquini.
Chuhara	.....	H	Phoenix dactylifera.
Chukrasi	.....	..	Chickrassia tabularis.
Chumbeli	.....	..	Jasminum grandiflorum.
Chuna	.....	B	Cicer arietinum.
Chundra	.....	B & H	Ophioxylon serpentinum.
Chundra-moola	.....	B	Kœmpferia Galanga.
Chundruhasa	.....	..	Solanum ferox.
Chundruka	.....	..	Ophioxylon serpentinum.
Chuuduna	.....	B & H	Santalum album.
Chun-hattee	.....	H	Abrus precatorius.
Chutka	.....	B	Bauhinia acuminata.
Creat	.....	H	Andrographis paniculata.
Curayia	.....	..	Echites antidysenterica,
Cushmulla	.....	..	Odina Wodier.
Dadmari	.....	B	Ammannia vesicatoria.
Dadmenden	.....	H	Cassia alata.
Dadoo-murdun	.....	B	do.
Dal, Urur	.....	..	Cajanus Indicus.
Dalim	.....	..	Punica Granatum.
Darchini	.....	H	Cinnamomum iners.
Deb-dhanya	.....	..	Sorghum vulgare.
Decb-kanchum	.....	..	Bauhinia purpurea.

Dela	H	<i>Jasminum hirsutum.</i>
Dephul Dampel	B	<i>Xanthochymus pictorius.</i>
do.		<i>Artocarpus Lakoocha.</i>
Deshi-mullika.		<i>Jasminum Sambac.</i>
Dewudar	H	<i>Sethia Indica.</i>
Dhae phool		<i>Grislea tomentosa.</i>
Dhak		<i>Butea frondosa.</i>
Dhan	[B & H]	<i>Oryza sativa.</i>
Dhanattar	H	<i>Clitorea ternatea.</i>
Dhanga	...	<i>Coriandrum sativum.</i>
Dhangaphul	B	<i>Grislea tomentosa.</i>
Dhootoora	H	<i>Datura alba.</i>
Dhari		<i>Grislea tomentosa.</i>
Dhenroos or Dhendus	B & H]	<i>Abelmoschus esculentus.</i>
Dhol-sumoodra	B	<i>Leca macrophylla.</i>
Dhub		<i>Grislea tomentosa.</i>
Dhunya	[B & H]	<i>Coriandrum sativum.</i>
Dier	H	<i>Cocculus villosus.</i>
Dobutee-luta	B	<i>Ipomœa pes-caprae.</i>
Doob	H	<i>Cynodon Dactylon.</i>
Doobla	B	do.
Doodh-kulnee		<i>Ipomœa Turpethum.</i>
Doombur	H	<i>Ficus glomerata.</i>
Doorba	B	<i>Cynodon Dactylon.</i>
Dorle	H	<i>Solanum Jacquini.</i>
Duntee	B	<i>Croton polyandrum.</i>
Eesha-nungula	B	<i>Gloriosa superba.</i>
Elaich	H	<i>Elettaria Cardamomum.</i>
Elwa		<i>Aloc perfoliata.</i>
Falter	H	<i>Borassus flabelliformis.</i>
Faridbuti		<i>Cocculus villosus.</i>
Falsa		<i>Grewia Asiatica.</i>
Felfildraz		<i>Clavica Roxburghii.</i>
Felfilgird		<i>Piper nigrum.</i>
Feringie-datura		<i>Argemone Mexicana.</i>
Ficki-tagar	H	<i>Tabernœmontana coronaria.</i>
Fool-sola	B	<i>Æschynomena aspera.</i>
Feet	H	<i>Cucumis Momordica.</i>
Furrud		<i>Erythrina Indica.</i>
Gab	B & H]	<i>Embryopteris glutinifera.</i>
Gach-murich	B	<i>Capiscum annuum.</i>
Gadha-buni		<i>Trianthema decandra.</i>
Gadha-poorna		<i>Boerhavia procumbens.</i>
Gagandhool	H	<i>Pandanus odoratissimus.</i>
Gandar		<i>Andropogon muricatum.</i>
Gandbel		„ <i>Schenanthus.</i>
Ganja	B & H]	<i>Cannabis sativa.</i>
Ganjh	H	<i>Andropogon muricatum.</i>
Ganna		<i>Saccharum officinarum.</i>
Gawpurgec		<i>Bixa Orellana.</i>
Ghanur		<i>Cynodon Dactylon.</i>
Gheekoomar		<i>Aloe Indica.</i>
Ghinalita-pat	B	<i>Corchorus capsularis.</i>
Ghetchoo	H	<i>Aponogeton monostachyon.</i>
Ghet-kuchoo		<i>Typhonium Orixense.</i>

Ghicwar	.....	H	<i>Aloe perfoliata.</i>
Ghoosh	.....	B	<i>Luffa pentandra, or acutangula.</i>
Ghrita-koomaree	.....	B & H	<i>Aloe Indica.</i>
Ghunchi	.....	H	<i>Abrus precatorius.</i>
Ghunta	.....	B	<i>Bignonia suaveolens.</i>
Gilaunda	.....	H	<i>Bassia latifolia.</i>
Gila-gach	.....	B	<i>Entada Purcetha.</i>
Gima Shak	.....	...	<i>Mollugo Cerviana and Spergula.</i>
Gobhi	.....	...	<i>Cacalia sonchifolia.</i>
Gokhoor or Gokhyoor	.....	...	<i>Tribulus lanuginosus.</i>
Gokshura	.....	H	<i>Asteracantha longifolia.</i>
Gol-mirch	.....	...	<i>Piper nigrum.</i>
Gooa	.....	B	<i>Areca Catechu.</i>
Googul	.....	...	<i>Balsamodendron Agallocha.</i>
Gooula	.....	...	<i>Vitis latifolia.</i>
Gool	.....	...	<i>Cocculus cordifolius.</i>
Gooler	.....	H	<i>Ficus racemosa.</i>
Goolab-jamun	.....	...	<i>Eugenia Jambosa.</i>
Gooli-turah	.....	...	<i>Poinciana pulcherrima.</i>
Goond	.....	...	<i>Cordia augustifolia.</i>
Gooluncha or Goluncha	.....	...	<i>Cocculus cordifolius.</i>
Goordal-shim	.....	B	<i>Lablab vulgaris.</i>
Goori-shyora	.....	...	<i>Ficus rubescens.</i>
Goor-kamai	.....	...	<i>Solanum Indicum.</i>
Goor-kha	.....	...	<i>Cocculus cordifolius.</i>
Goorkhi-kuchoo	.....	H	<i>Colocasia antiquorum.</i>
Gooya-babula	.....	...	<i>Acacia Farnesiana.</i>
Gora-neboo	.....	B & H	<i>Citrus acida.</i>
Govila	.....	B	<i>Vitis latifolia.</i>
Guj-pippul	.....	...	<i>Scindapsus officinalis.</i>
Gudgega	.....	H	<i>Guilandina Bonduc.</i>
Gulnar	.....	...	<i>Punica Granatum.</i>
Guma	.....	...	<i>Mollugo cerviana.</i>
Gumbaree	.....	B & H	<i>Gmelina arborea.</i>
Gundhabena, or Gundbeyl	.....	...	<i>Andropogon Schenanthus.</i>
Gundha-bela	.....	B	do.
Gundhalee	.....	H	<i>Pæderia foetida.</i>
Gundo-bhadulee	.....	B	do.
Gunna	.....	H	<i>Saccharum officinarum.</i>
Gurcha	.....	...	<i>Cocculus cordifolius.</i>
Gursoonder	.....	B	<i>Acacia Arabica.</i>
Hakooch	.....	B	<i>Psoralea corylifolia.</i>
Hakoon	.....	H	<i>Croton polyandrum.</i>
Hakoork	.....	B & H	<i>Psoralea corylifolia.</i>
Hali-moog	.....	...	<i>Phaseolus Mungo.</i>
Har, or Hara	.....	H	<i>Terminalia Chebula.</i>
Har, or Harchara	.....	B	<i>Cissus quadrangularis.</i>
Har-cuchila	.....	...	<i>Strychnos colubrina.</i>
Harfaroorie	.....	H	<i>Cicca disticha.</i>
Has-jorah	.....	B & H	<i>Vitis quadrangularis.</i>
Har-kat, Harkooch kanta	.....	H	<i>Dilivaria ilicifolia.</i>
Harpar	.....	...	<i>Polanisia icosandra.</i>
Harsingahar	.....	...	<i>Nyctanthes Arbor tristis.</i>
	.....	B	<i>Triandrium Indicum.</i>
Hier	.....	H	<i>Cocculus villosus.</i>
Hijul	.....	B	<i>Barringtonia acutangula.</i>
Hijulee budam	.....	...	<i>Anacardium occidentale.</i>
Hijulee-mendee	.....	H	<i>Eugenia bracteata.</i>

Hina	H	<i>Lawsonia inermis.</i>
Hingoolce	B	<i>Solanum Melongena.</i>
Hingun	H	<i>Balanites Ægyptica.</i>
Hintal	B	<i>Phoenix paludosa.</i>
Hogla		<i>Typha elephantina or angustifolia.</i>
Hollounda	H	<i>Phaseolus rostratus.</i>
Hoolhool		<i>Gynandropsis pentaphylla.</i>
Hoor-hoorya	[B & H]	<i>Polanisia icosandra.</i>
Hoorooya		<i>Sapium Indicum.</i>
Hulda	H	<i>Terminalia Chebula.</i>
Huldie	[B & H]	<i>Curcuma longa.</i>
Huldi-lunka-murich	B	<i>Capsicum frutescens.</i>
Huldi-murich		Do.
Huludee		<i>Curcuma longa.</i>
Humula		<i>Koempfera Galanga.</i>
Hur or Hura	H	<i>Terminalia Chebula.</i>
Hurbhury		<i>Cicer arietinum.</i>
Hurida	B	<i>Curcuma longa.</i>
Hurin-hura	H	<i>Amoora Rohituka.</i>
Huritukee	B	<i>Terminalia Chebula.</i>
Hurivilasinee	...	<i>Curcuma longa.</i>
Huttian	H	<i>Eriodendron anfractuosum.</i>
Huyer	B	<i>Cocculus villosus.</i>
Ibharunkusha	[B & H]	<i>Andropogon Iwarancusa.</i>
Igir	H	<i>Acorus Calamus.</i>
Ik		<i>Saccharum officinarum.</i>
Ikshoo		Do.
Ikshugandha		<i>Asteracantha longifolia.</i>
Ilachi		<i>Elettaria Cardamomum.</i>
Imli		<i>Tamarindus Indica.</i>
Indraini or Indrayan	H	<i>Cucumis Colocynthis.</i>
Indurjaw		<i>Wrightia antidysenterica.</i>
Inderjob	B	Do.
Isarmel or Isabel	[B & H]	<i>Aristolochia Indica.</i>
Ishurmool		
Iwarankoosa	H	<i>Andropogon Iwarancusa.</i>
Jaci	H	<i>Jasminum grandiflorum.</i>
Jadoo-palung	B	<i>Salicornia Indica.</i>
Jadwar	H	<i>Curcuma Zedoaria.</i>
Jahoo	B	<i>Tamarix gallica.</i>
Jait	H	<i>Sesbania Ægyptiaca.</i>
Jainti	[B & H]	<i>Æschynomene Sesban.</i>
Jamalgota	H	<i>Croton Tiglium.</i>
Jaman		<i>Eugenia Jambolana.</i>
Jamoon		<i>Syzygium Jambolana.</i>
Jamun		Do.
Jorool, Jarul	[B & H]	<i>Lagerstræmia Regina.</i>
Jasoon	H	<i>Hibiscus Rosa-sinensis.</i>
Jatee	.....[B & H]	<i>Jasminum grandiflorum.</i>
Jawari	H	<i>Sorghum vulgare.</i>
Jawa		<i>Hibiscus Rosa-sinensis.</i>
Jawasi		<i>Alhagi Maurorum.</i>
Jawi		<i>Azadirachta Indica.</i>
Jeebuna	B	<i>Celtis orientalis.</i>
Jharberi	H	<i>Zizyphus Jujuba.</i>
Jhinga		<i>Luffa acutangula.</i>



Jhinghora		Bauhinia parviflora.
Jidoo-palung	B	Salicornia Indica.
Jinga	H	Luffa acutangula.
Jiyul	B	Odina Wodier.
Joogni-chookur	H	Salicornia Indica.
Jyoi-pana	B	Gmelina arborea.
Juba	[B & H]	Rhinacanthus communis.
Jugut-mudum	B	Hibiscus Rosa-sinensis.
Jumalgota	B & H	Justicia Gendarussa.
Junglee-badam	H	Croton Tiglium.
do		Canarium commune.
Junglai-kandi		Sterculia foetida.
Junglai-moonghie		Dracontium polyphyllum.
Junglee-huldee	B	Ormocarpum sennoides.
Junglai-piaz	H	Curcuma Zedoaria.
Juvanee, Juwance	B & H	Scilla Indica.
Juwasi	H	Ptychotis Ajowan.
Juyrintee	B & H	Alhagi Maurorum.
Jypal	B	Sesbania Aegyptiaca.
		Croton Tiglium.
Kabuter-kejar	H	Rhinacanthus communis.
Kadali	B	Musa paradisiaca.
Kagugee-neebo	H	Citrus acida.
	[B & H]	Saccharum spontaneum.
Kahoowa	H	Pentaptera Arjuna.
Kajeerah	B	Carthamus tinctorius.
Kajur, Khajur		Elate sylvestris.
Kaka-chinchi		Abrus precatorius.
Kaka-jambu		Calyptranthus caryophyllifolia.
Kakamari		Anamirta cocculus.
Kakhura	H	Curcuma Zerumbet.
Kakoon		Panicum Italicum.
Kakrie		Cucumis utillisimus.
Kala-buchnak		Hymenodictyon excelsum.
Kala-dhootura	[B & H]	Datura fastuosa.
Kalajam	[B & H]	Syzygium Jambolanum.
Kala-kuchoo	B	Colocasia antiquorum.
Kala-kustooree	H	Abelmoschus moschatus.
Kala-megh	B & H	Andrographis paniculata.
Kalamirch	B	Piper nigrum.
Kala-oja	..	Ehretia serrata.
Kalatill	H	Guizotia oleifera.
Kalee-toolsee		Ocymum Basilicum.
Kalee-shumbali		Gendarussa vulgaris.
Kalikeker		Acacia Arabica.
Kali-moong	B	Phaseolus Mungo.
Kalizer		Clitoria ternatea.
Kaliezerzeerie		Vernonia anthelmintica.
Kamal		Nelumbium speciosum.
Kam-aloo	B & H	Dioscorea alata.
Kamaral-neeboo		Citrus acida.
Kama-runga		Averrhoa Bilimbi.
Kanala	B	Gynandropsis pentaphylla.
Kanara		Stylocoryne Webera.
Kana-raj	H	Bauhinia cannabina.
Kanchkooori		Tragia cannabina.
Kanchkooori		Mucna prurita.

Kanchun	B	<i>Bauhinia acuminata.</i>
Kanda	H	<i>Scilla Indica.</i>
Kaner	...	<i>Nerium odorum.</i>
Kangni	B & H	<i>Panicum Italicum.</i>
Kankoor	B	<i>Cucumis utilissimus.</i>
Kanta-aloo	B & H	<i>Dioscorea pentaphylla.</i>
Kanta-koolika	H	<i>Asteracantha longifolia</i>
Kantchi-shim	B	<i>Lablab cultratus.</i>
Kanth-mullika		<i>Jasminum Sambac.</i>
Kanth-karee	& H	<i>Solanum Jacquini.</i>
Kapas	B	<i>Gossypium herbaceum.</i>
Karbi	H	<i>Sorghum vulgare.</i>
Karavela	[B & H	<i>Gynandropsis pentaphylla.</i>
Karia-paak	B	<i>Bergera Koenigii.</i>
Kariari	H	<i>Gloriosa superba.</i>
Karpassa	B	<i>Gossypium herbaceum.</i>
Kas	H	<i>Saccharum spontaneum.</i>
Kashiya	B	Do.
Kashmulla	H	<i>Odina Wodier.</i>
Katch-kula	B & H	<i>Musa paradisiaca.</i>
Kathbel	B	<i>Jasminum hirsutum.</i>
Kat-kulija	H	<i>Cæsalpinia Bonduc.</i>
Katira		<i>Sterculia urens.</i>
Kauchra	B	<i>Hydrolea Zeylanica.</i>
Kawa	H	<i>Coffea Arabica.</i>
Kayla		<i>Musa paradisiaca.</i>
Kea or Kea-phool	B	<i>Pandanus odoratissimus.</i>
Keco	B & H	<i>Costus speciosus.</i>
Keera	H	<i>Cucumis sativus.</i>
Keerat	B	<i>Gentiana Cherayta.</i>
Kela	H	<i>Musa paradisiaca.</i>
Kelikudum	B	<i>Nauclea cordifolia.</i>
Kendoo		<i>Diospyros melanoxylon.</i>
Kental		<i>Artocarpus integrifolius.</i>
Kerula	H	<i>Luffa amara.</i>
Keshoor	B	<i>Rottlera tinctoria.</i>
Keeshooriya		<i>Wedelia calendulacea.</i>
do		<i>Eclipta erecta.</i>
Ket, Khoct	H	<i>Feronia elephantum.</i>
Kergi	B	<i>Pandanus odoratissimus.</i>
Ketukce		Do.
Keura-keora	H	Do.
Khagin	H	<i>Clitorea ternatea.</i>
Khaira		<i>Acacia Catechu or ferruginea.</i>
Khajoor	B & H	<i>Elate sylvestris.</i>
Khajora	H	<i>Saccharum spontaneum.</i>
Khana		<i>Amoora Rohituka.</i>
Khas-zahra		<i>Nerium oleander.</i>
Khas-khas		<i>Andropogon muricatum.</i>
Kheeri		<i>Mimusops Kauki.</i>
Kherooya		<i>Phaseolus Mungo.</i>
Khikhri	H	<i>Zizyphus Jujuba.</i>
Khira		<i>Cucumis utilissimus.</i>
Khirmi		<i>Mimusops kauki.</i>
Khishniz		<i>Coriandrum sativum.</i>
Khoolinjan	B	<i>Alpinia Galanga.</i>
Khoodi-okra	B	<i>Crozophora plicata.</i>
Khoodi-jam	B & H	<i>Antidesma paniculata.</i>
Khor	B	<i>Andropogon muricatum.</i>

Khuera	B & H	Acacia Cat echu.
Khugura	B	Saccharum spontaneum.
Khul	H	Ærua lanata.
Khurbooja	B & H	Cucumis Melo.
Khurbuz	B	do.
Khurma	H	Phoenix dactylifera.
Khuree	B	Saccharum fuscum.
Kiew		Diospyros melanoxydon.
Kikar	H	Acacia leucophlæa.
Kingshookha	B	Butea frondosa.
Kiraneli		Phyllanthus Niruri.
Kiwach	B & H	Mucuna prurita.
Koamoora		Callicarpa lanata.
Kodaleya-koodaliya	B & H	Desmodium trifolium.
Kolsi		Solanum Indicum.
Komla-neeboo	B	Citrus Aurantium.
Komol		Nelumbium speciosum.
Koobedar		Bauhinia variegata.
Koobell	H	Andropogon Martini.
Koochila	B & H	Strychnos Nux-vomica.
Koochila-luta	B	„ colubrina.
Koochunduna	H	Adenanthera pavonina.
Koochuri	B	Exacum tetragonum.
Kookoora-neja		Gloriosa superba.
Kookoora-choora		Pavetta Indica.
Kool		Zizyphus Jujuba.
Kooli	H	Sterculia urens.
Kooli-begoon	B	Solanum longum.
Koolthee	B & H	Dolichos biflorus.
Koomaree	B	Aloe littoralis.
Koomra		Cucurbita Pepo.
Koomurka		Smilax ovalifolia.
Koonch		Abrus precatorius.
Koonda		Jasminum hirsutum.
Koondoorie	H	Coccinia Indica.
Kooppie		Acalypha Indica.
Koorchi		Wrightia antidysenterica.
Kooshoom		Carthamus tinctorius.
Koosum		Do.
Koosumbha	B & H	Do.
Kootaya	H	Solanum Jacquini.
Kora, Koraloo		Panicum Italicum.
Korna-neeboo	B & H	Citrus medicus.
Korunkoosha	B	Andropogon Iwarancusa.
Kosderi		Momordica umbellata.
Koshnanto		Cucurbita Pepo.
Koshta		Corchorus capsularis.
Kotoo		Michelia Champaca.
Kovidara		Bauhinia variegata.
Krishna	H	Sesamum Indicum.
Krishanoo		Plumbago Zeylanica.
Krishna		Sesamum Indicum.
Krishna-choora	B & H	Poinciana pulcherrima.
Krishna-dhattura	H	Datura alba.
Kuchoo	B	Colocasia antiquorum.
Kuchoora		Curcuma Zerumbet.
Kudoo	B	Cucurbita lagenaria or Pepo.
Kudum	B & H	Nauclea Cadamba.
Kula		Musa sapientum.

Kulinjam	.....	H	Alpinia Galanga.
Kulkashinda	.....	B	Cassia Sophora.
Kulooa	.....	H	Saccharum officinarum.
Kumla-neboo	.....	B	Citrus aurantium.
Kumula	.....	...	Kæmpferia Galanga.
Kunchun	.....	...	Bauhinia acuminata.
Kungnec, Kungoo	.....	H	Panicum Italicum.
Kungia	.....	B	Urena sinuata.
Kungwel	.....	...	Nelumbium speciosum.
Kural	.....	...	Ocymum sanctum.
Kural	.....	...	Hemidesmus Indicus.
Kuretta	.....	B	Sida acuta.
Kurfa	.....	H	Portulaca oleracea.
Kurilla	.....	B & H	Momordica Charantia.
Kurish-churim	.....	H	Poinciana pulcherrima.
Kurktie	.....	B	Cucumis utilissimus.
Kurma	.....	H	Phoenix dactylifera.
Kurubee	.....	B	Nerium odorum.
Kurumche	.....	...	Carissa Carandas.
Kurunda	.....	H	Do.
Kurung	.....	...	Pongamia glabra.
Kurunja	.....	...	Dalbergia arborea.
Kuskus	.....	B	Andropogon muricatum.
Kusnec	.....	...	Ficus elastica.
Kusseb-bewa	.....	H	Acorus Calamus aromaticus.
Kuthbel	.....	B & H	Feronia elephantum.
Kyere	.....	H	Euphorbia hirta or thymifolia.
Kyou	.....	B	Diospyros tomentosa.
Kyrob	.....	H	Nymphaea pubescens.
Labera	.....	H	Cordia Myxa.
Lal-bunlunga	.....	B	Jussiaea villosa.
Lal-chirchiri	.....	...	Plumbago rosea.
Lal-chita	.....	B & H	Do.
Lal-chundend	.....	H	Pterocarpus santalinus.
Lal-kamal	.....	...	Nelumbium speciosum.
Lal-kurubec	.....	B & H	Nerium odorum.
Lal-lunka-murich	.....	B	Capsicum frutescens.
Lal-peyra	.....	H	Psidium pomiferum.
Lal-pudma	.....	...	Nelumbium speciosum.
Lal-sabuni	.....	...	Trianthema obscurata.
Lal-shurkund-aloo	.....	B & H	Batatas paniculatus.
Lal-subujuya	.....	H	Canna Indica.
Lal-suffrian	.....	...	Psidium pomiferum.
Langul	.....	B	Gloriosa superba.
Lao	.....	...	Lagenaria vulgaris.
Lauca	.....	H	Do.
Launa	.....	...	Anona reticulata.
Laug	.....	...	Eugenia caryophyllata.
Lemoo, Limu	.....	...	Citrus acida.
Lesoor, Lisora	.....	...	Cordia Myxa.
Lisoora	.....	...	Do.
Loban	.....	...	Boswellia serrata.
Lobia	.....	...	Dolichos Sinensis.
Lona	.....	...	Portulaca oleracea.
Loona	.....	B	Anona squamosa.
Loonia Loomika	.....	...	Portulaca oleracea.
Lubah, Luban	.....	...	Boswellia thurifera.

Lubung	.....	B	<i>Eugenia caryophyllata.</i>
Luchanno	.....	H	<i>Oxalis sensitiva.</i>
Lung	.....	B & H	<i>Eugenia caryophyllata.</i>
Lunka-shij	.....	B	<i>Euphorbia Tirucalli.</i>
Lushanno	.....	H	<i>Oxalis sensitiva.</i>
Lusora	.....	...	<i>Cordia Myxa.</i>
Lutiam	.....	B	<i>Willughbeia edulis.</i>
Lut-kun	.....	...	<i>Bixa Orellana.</i>
Machana	.....	H	<i>Euryale ferox.</i>
Madar	.....	B	<i>Calotropis gigantea.</i>
Madoorkati	.....	...	<i>Papyrus Pangorei.</i>
Mahoor	.....	...	<i>Aconitum ferox.</i>
Mahatita	.....	H	<i>Andrographis paniculata.</i>
Mahua-wowa	.....	...	<i>Bassia latifolia.</i>
Mahwal	.....	...	<i>Bauhinia Vahlia.</i>
Maiuri	.....	...	<i>Anethum Sowa.</i>
Majith	.....	...	<i>Rubia cordifolia.</i>
Makhal	.....	B & H	<i>Tricosanthes palmata.</i>
Makhal	.....	B	<i>Cucumis Colocynthis.</i>
Makhun-shin	.....	...	<i>Canavalia gladiata.</i>
Mala	.....	...	<i>Bryonia laciniosa.</i>
Malkunganee	.....	H	<i>Celastrus paniculata.</i>
Malutee	.....	...	<i>Jasminum grandiflorum.</i>
Man or Man-kuchoo	.....	B & H	<i>Colocasia Indica.</i>
Manok	.....	B	do.
Maoz-kula	.....	H	<i>Musa paradisiaca.</i>
Marooa	.....	B & H	<i>Eleusine Coracana.</i>
Maroree	.....	H	<i>Isora corylifolia.</i>
Mash-kulai	.....	B	<i>Phaseolus Roxburghii.</i>
Massandari	.....	...	<i>Callicarpa lanata.</i>
Maud	.....	H	<i>Eleusine Coracana.</i>
Maulseri	.....	...	<i>Mimusops Elengi.</i>
Mawal	.....	...	<i>Bauhinia racemosa.</i>
Meba	.....	B	<i>Anona squamosa.</i>
Mek-hun Shrin	.....	...	<i>Canavalia gladiata.</i>
Meetha-kamarunga	.....	...	<i>Averrhoa Carambola.</i>
Meetha-neeboo	.....	B & H	<i>Citrus acida.</i>
Mehndi	.....	H	<i>Lawsonia alba.</i>
Meowrie	.....	...	<i>Isora corylifolia.</i>
Mesta	.....	B	<i>Hibiscus Sabdariffa.</i>
Mesta-pat	.....	...	<i>Hibiscus cannabinus.</i>
Mindee	.....	...	<i>Lawsonia alba.</i>
Mirch	.....	H	<i>Piper nigrum.</i>
Mircha	.....	...	<i>Capsicum frutescens.</i>
Mirch-sookh	.....	...	„ annum.
Mocha	.....	...	<i>Musa sapientum.</i>
Moganee	.....	B	<i>Phaseolus trilobus</i>
Mogra-Mogri	.....	H	<i>Jasminum Sambac.</i>
Mohe	.....	...	<i>Bassia longifolia.</i>
Mokka	.....	B	<i>Bryonia scabra.</i>
Moola	.....	...	<i>Bassia latifolia.</i>
Moocta jooree	.....	...	<i>Acalypha Indica.</i>
Mookto-patee	.....	...	<i>Maranta dichotoma.</i>
Moondi	.....	H	<i>Sphceranthus mollis.</i>
Moongay	.....	...	<i>Hyperanthera Moringa.</i>
Moong-phullee	.....	...	<i>Arachis hypogœa.</i>
Moorga	.....	...	<i>Jasminum Sambac.</i>
Moorgabic	.....	...	<i>Sanseivera Zeylanica.</i>

Mooshk-dana	.....	H	<i>Abelmoschus moschatus.</i>
Moosnee	.....	B	<i>Linum usitatissimum.</i>
Mootabela	.....	...	<i>Jasminum Sambac.</i>
Moothoo	.....	B & H	<i>Cyperus rotundus.</i>
Motea	.....	H	<i>Jasminum Sambac.</i>
Moula	.....	B & H	<i>Cassia latifolia.</i>
Mou-alo	.....	B & H	<i>Dioscorea aculeata.</i>
Moung or Moong	.....	H	<i>Phaseolus Roxburghii.</i>
Mudar	.....	...	<i>Calotropis gigantea.</i>
Mugraboo	.....	...	<i>Hemidesmus Indicus.</i>
Mugri	.....	...	<i>Jasminum Sambac.</i>
Muha-tita	.....	...	<i>Andrographis paniculatus.</i>
Muhootce	.....	B	<i>Solanum Melongena.</i>
Mukhurundo	.....	...	<i>Jasminum hirsutum.</i>
Mullika	.....	...	do. Sambac.
Mulsari	.....	H	<i>Mimusops Eleni.</i>
Mundi, Mundhi	.....	H	<i>Sphœranthus Indicus.</i>
Mung	.....	...	<i>Phaseolus Mungo.</i>
Munga	.....	B	<i>Sansevieria Zeylanica.</i>
Mungfalli	.....	...	<i>Arachis hypogea.</i>
Munja	.....	H	<i>Saccharum Munja.</i>
Munjit	.....	...	<i>Rubia cordifolia.</i>
Munjista	.....	B	do.
Munsasij	.....	...	<i>Euphorbia ligularia.</i>
Murich, Muricha	.....	...	<i>Piper nigrum.</i>
Muricha	.....	...	<i>Capsicum frutescens.</i>
Mutra	.....	H	<i>Sansiviera Zeylanica.</i>
Murooa	.....	B	<i>Eleusine Coracana.</i>
Musina, Musnee	.....	...	<i>Linum usitatissimum.</i>
Musmusa	.....	H	<i>Bryonia scabra.</i>
Mutkec-pully	.....	...	<i>Cyamopsis psoraloides.</i>
Mynphul	.....	...	<i>Gardenia dumetorum.</i>
Myn	.....	...	<i>Randia dumetorum.</i>
Naga	.....	B	<i>Cyperus pertenuis.</i>
Nagur-moothee	.....	H	do.
Nag-bel	.....	...	<i>Piper Betel.</i>
Nagkeshur	.....	B & H	<i>Mesua ferrea.</i>
Nagkeshura-jamba	.....	...	<i>Syzygium Zeylanicum,</i>
Namuti	.....	B	<i>Grangea Maderaspatana.</i>
Nagree	.....	...	<i>Euphorbia antiqorum.</i>
Nar	.....	H	<i>Amphidonax Karka.</i>
Nalkee	.....	B	<i>Hibiscus cannabinus.</i>
Nalta-pat	.....	...	<i>Corchorus capsularis.</i>
Narang, Narangi	.....	H	<i>Citrus aurantium.</i>
Nara shig	.....	B & H	<i>Euphorbia antiqorum.</i>
Narikulee-kool	.....	B	<i>Zizyphus jujuba.</i>
Naskel, Naryl, Nargel	.....	B & H	<i>Cocos nucifera.</i>
Nasurjingshi	.....	H	<i>Trianthema monogyia.</i>
Nata, Nata-kanta	.....	B	<i>Cœsalpinia Bonduc.</i>
Nata caranja	.....	H	do.
Nayor	.....	B	<i>Icica Indica.</i>
Nazuc	.....	H	<i>Zizyphus Jujuba.</i>
Neboo	.....	B	<i>Citrus acida.</i>
Neel	.....	B & H	<i>Indigofera tinctoria.</i>
Neel-kalme	.....	B	<i>Pharbitis Nil.</i>
Neel-mall	.....	H	<i>Strychnos potatorum.</i>
Niahmooslie	.....	...	<i>Curculigo orchoides.</i>
Nigala	.....	...	<i>Amphidonax Karka.</i>

Nillur	.....	H	<i>Vitis quadrangularis.</i>
Nilofar	.....	...	<i>Nymphœa pubescens.</i>
Nim	.....	B & H	<i>Azadirachta Indica.</i>
Nirbisee	.....	H	<i>Curcuma Zedoaria.</i>
Nircha	.....	...	<i>Corchorus capsularis.</i>
Nirgundi	.....	B	<i>Vitex Negundo.</i>
Nirmullee, Nirmillies	.....	B & H	<i>Strychnos potatorum,</i> <i>Vitex Negundo.</i>
Nisinda	.....	H	<i>Vitex Negundo.</i>
Nisot	.....	...	<i>Ipomœa Turpethum.</i>
Nona	.....	B & H	<i>Anona reticulata.</i>
Noncha	.....	H	<i>Portulaca oleracea.</i>
Noonya	.....	B & H	do.
Noonbora	.....	B	<i>Ionidium suffruticosum.</i>
Nouka	.....	...	<i>Pontedera vaginalis.</i>
Nubarec	.....	...	<i>Cicca disticha.</i>
Nuckchilinic	.....	H	<i>Epicarpurus orientalis.</i>
Nul	.....	...	<i>Amphidonax Karka.</i>
Nuta	.....	B	do.
Ochooyot	.....	B	<i>Morinda tinctoria.</i>
Ochaha	.....	...	<i>Momordica Charantia.</i>
Oodachiretta	.....	H	<i>Exacum tetragonum.</i>
Ogneee	.....	B	<i>Plumbago Zeylanica.</i>
Ook	.....	...	<i>Saccharum officinarum.</i>
Oi	.....	B & H	<i>Amorphophallus campanulatus.</i>
Oodbeg	.....	B	<i>Areca Catechu.</i>
Odoojatec	.....	H	<i>Justicia Echolium.</i>
Oolut kumbul	.....	...	<i>Abroma augusta.</i>
Orjoon	.....	...	<i>Terminalia alata or glabra.</i>
Orol	.....	...	<i>Cajanus Indicus.</i>
Osir	.....	...	<i>Andrapogon muricatum.</i>
Our-chaka	.....	B	<i>Sonneratia acida.</i>
Pakar	.....	H	<i>Ficus venosa.</i>
Pakoor	.....	B	do.
Palo	.....	H	<i>Maba buxifolia.</i>
Palak or Palek-joohie	.....	...	<i>Rhinacanthus communis.</i>
Palita-mandar; Palto-mander	.....	B & H	<i>Erythrina Indica.</i>
Pan	.....	...	<i>Chavica Betel.</i>
Pana	.....	B	<i>Pistia stratiotes.</i>
Panch-shim	.....	...	<i>Lablab cultratus.</i>
Panee phul	.....	...	<i>Trapa bispinosa.</i>
Panieke-shum-balie	.....	H	<i>Vitex trifolia.</i>
Paniayala	.....	B & H	<i>Flacourtia cataphracta.</i>
Pan-kooshee	.....	B	<i>Phyllanthus multiflorus.</i>
Papay pepya	.....	B & H	<i>Carica Papaya.</i>
Paral	.....	H	<i>Bryonia chelonoides.</i>
Paris, paras-pupil	.....	...	<i>Thespesia populnea.</i>
Pat	.....	B	<i>Corchorus olitorius.</i>
Pata-khuree	.....	B & H	<i>Saccharum fuscum.</i>
Patchouli or Pucha-put	.....	B	<i>Pogostemon Patchouli.</i>
Patee	.....	H	<i>Cyperus inundatus.</i>
Patee-neeboo	.....	B & H	<i>Citrus acida.</i>
Pathoor choor	.....	B	<i>Coleus Amboinicus.</i>
Pat-kili	.....	B	<i>Hibiscus Rosa-sinensis.</i>
Paya-tullo	.....	H	<i>Beesha Rheedii.</i>
Peela-bhungara	.....	...	<i>Wedelia calendulacea.</i>
Pect-shala.	.....	...	<i>Pterocarpus Marsupium.</i>
Peka Bans	.....	...	<i>Dendrocalamus Tulda.</i>

Peeyar Cheroonjie	.....	H	<i>Buchanania latifolia.</i>
Pendaloo	.....	...	<i>Batatas paniculatus.</i>
Petaree	.....	B	<i>Abutilon Indicum.</i>
Peyara	.....	...	<i>Psidium pyriferum, or pomiferum.</i>
Phool-shoola	.....	H	<i>Æschynomene aspera.</i>
Phulshasha	.....	B & H	<i>Grewia Asiatica.</i>
Phoontee	.....	B	<i>Cucumis Momordica.</i>
Phul-wara	.....	H	<i>Bassia butyracea.</i>
Pilu	.....	...	<i>Careya arborea.</i> *
Pippulee	.....	B	<i>Chavica Roxburghii</i>
Pippul, pippuloo	.....	B & H	Do.
Pipal	.....	H	Do.
Pipul, pipal	.....	...	<i>Ficus religiosa.</i>
Pitalee-jamai-poolishim	.....	B	<i>Lablab cultratus.</i>
Pitoli	.....	B & H	<i>Trewia nudiflora.</i>
Pitras	.....	H	<i>Curcuma longa.</i>
Piyalee	.....	B	<i>Buchanania latifolia.</i>
Poi	.....	H	<i>Basella alba.</i>
Pooi	.....	...	<i>cordifolia.</i>
Pooin-shak	.....	B	do.
Poog	.....	...	<i>Artocarpus integrifolia, Areca Catechu.</i>
Poluh	.....	H	<i>Ehretia buxifolia.</i>
Poon-nag, Poon-naga	.....	...	<i>Rottlera tinctoria.</i>
Poontureka	.....	...	<i>Nelumbium speciosum.</i>
Post	.....	B & H	<i>Papaver somniferum.</i>
Ptoon	.....	H	<i>Euphorbia Nivulia.</i>
Pudma	.....	B & H	<i>Nelumbium speciosum.</i>
Pudma-kurubec	.....	...	<i>Nerium odorum.</i>
Pulas	.....	...	<i>Butea frondosa.</i>
Pundaroo	.....	H	<i>Hymenodictyon excelsum.</i>
Purush	.....	B & H	<i>Thespesia populnea.</i>
Purush-pipool	.....	...	Do.
Putsun	.....	H	<i>Crotalaria Jucea.</i>
Putteon	.....	...	<i>Euphorbia Nercefolia.</i>
Pykassic	.....	...	<i>Cassia fistula.</i>
Racta bun-poor	.....	B	<i>Basella rubra.</i>
Racc	.....	...	<i>Sinapis ramosa.</i>
Raggee	.....	H	<i>Eleusine stricta, or Coracana.</i>
Rahala	.....	...	<i>Cicer arietinum.</i>
Rakat-chandan	.....	...	<i>Pterocarpus santalinus.</i>
Rakhal-phul	.....	B	<i>Schmidelia serrata.</i>
Rakus	.....	H	<i>Agave Americana.</i>
Rambagoon	.....	B	<i>Solanum ferox.</i>
Ram-kula	.....	B & H	<i>Musa sapientium.</i>
Ram-til	.....	B	<i>Guizotia oleifera.</i>
Ram-toolshee	.....	B & H	<i>Ocymum gratissimum.</i>
Ram-turay	.....	H	<i>Abelmoschus esculentus.</i>
Ranga-makhon-shirn	.....	B	<i>Canavalia gladiata.</i>
Rawasan	.....	H	<i>Dolichos Sinensis.</i>
Rawkus-gudda	.....	...	<i>Bryonia epigæa.</i>
Rawla	.....	...	<i>Panicum Italicum.</i>
Rechuk	.....	B	<i>Croton Tiglium.</i>
Reetha	.....	...	<i>Sapindus detergens.</i>
Reetha	.....	...	<i>Acacia concinna.</i>
Rishta	.....	H	<i>Sapindus emarginatus.</i>
Ritah	.....	...	<i>Sapindus emarginatus, or saponaria.</i>
Riuasan	.....	...	<i>Sesbania Ægyptica.</i>
Rohun	.....	B & H	<i>Swietenia febrifuga.</i>



Rooi	.....	H	Gossypium herbaceum.
Ructa-Numbula	.....	B	Nymphæa rubra.
Ructa-chundana	.....	...	Adenantha pavonina.
Ructa-pudma	.....	...	Nelumbinm speciosum.
Ructa-canchun	.....	...	Bauhinia variegata.
Ructa-chunduna	.....	B & H	Pterocarpus santalinus.
Rukhta-chunduna	.....	H	Nymphæa rubra.
Rukt-shirrool	.....	B	Bombax Malabaricum.
Rukto chita	.....	...	Plumbago rosea.
Ruttu n-purus	.....	H	Ionidium suffruticosum.
Ruviya	.....	B	Dillenia speciosa.
Sabuni	.....	...	Trianthema obcordata.
Sada-bori	.....	H	Asparagus racemosus.
Sada-dhatura	.....	B & H	Datura alba.
Sada-hazur-muni	.....	B	Phyllanthus Niruri.
Sada-jamai-pooli	.....	...	Lablab cultratus.
Sada-jamai-shim	.....	...	Do.
Safriam	.....	H	Psidium pyriferrum.
Sagoon	.....	B & H	Tectona grandis.
Sagowanie	.....	H	Dæmia extensa.
Sahajna, Sahunjna	.....	...	Hyperanthera Moringa.
Sal, Salo	.....	...	Shorea robusta.
Salace, Sala	.....	...	Boswellia serrata, or thurifera.
Salsa	.....	B	Ichnocarpus frutescens.
Samalu	.....	H	Vitex trifolia.
Samauka	.....	H	Cucurbita Citrullus.
Sam-dullam	.....	...	Elephantophus scaber.
San	.....	...	Crotalaria juncea.
Sanchi-beta	.....	B	Calamus Rotang.
Sarang	.....	H	Nymphœa pubescens.
Saro	.....	...	Saccharum Sara.
Saynd	.....	...	Euphorbia Nivulia.
Seduari	.....	...	Vitex trifolia.
Semal, Sembal	.....	...	Bombax Malabaricum.
Sendhi	.....	...	Elate sylvestris.
Senthi	.....	...	Saccharum Sara.
Seora	.....	...	Epicarpurus orientalis.
Seyard	.....	...	Euphorbia antiquorum.
Shakul	.....	...	Cytisus Cajan.
Shal	.....	B & H	Shorea robusta.
Shalmuli	.....	B	Bombax Malabaricum.
Shalook	.....	...	Nymphœa pubescens.
Shewt-kherus	.....	...	Euphorbia thymifolia.
Shum-dulum	.....	...	Elephantophus scaber.
Shara	.....	...	Epicarpurus orientalis.
Sheem	.....	...	Canavalia gladiata.
Sheora	.....	...	Epicarpurus orientalis.
Shephalika	.....	...	Nyctanthes Arbor tristis.
Shial-kanta	.....	...	Argemone Mexicana.
Shibjhool	.....	...	Cardiospermum halicacabum.
Shij	.....	B & H	Euphorbia Nivulia.
Shimool	.....	B	Bombax Malabaricum.
Shiooli	.....	...	Nyctanthes Arbor tristis.
Shiresh	.....	B & H	Acacia speciosa.
Shisham	.....	H	Dalbergia Sisso.
Shojina	.....	B	Hyperanthera Moringa.
Shola, Sola	.....	...	Æschynomene aspera.

Shona, Shyona	B & H	Calosanthos Indica.
Shoochi-mookhee	B	Sansevieria Zeylanica.
Shootee	...	Curcuma Zerumbet.
Shoothugnee Shothugnee	...	Boerhavia diffusa or procumbens.
Shudi-mudi	...	Emilia sonchifolia.
Shum-balie	H	Vitex Negundo.
Shumee	B	Prosopis spicigera.
Shwet (or sada) akundi	...	Asclepias gigantea.
Shwet-buch	H	Acorus Calamus aromaticus.
Shwet-busunta	...	Acalypha Indica.
Shwet-chamni	...	Gratiola Monniera.
Shwet-gurjun	B	Dipterocarpus turbinatus.
Shwet-kurubee	B & H	Nerium odorum.
Shwet-pudma	B	Nelumbium speciosum.
Shwet (or sada) sabuni	H	Trianthema obcordatum.
Shwet-sal	B	Dalbergia latifolia.
Shwet-shimool	B & H	Eriodendron anfractuosum.
Shwet-uparajita	H	Clitoria ternatea.
Shyama-luta	B & H	Ichnocarpus frutescens.
Sirah-mooslic	H	Curculigo orchioides.
Sij	...	Euphorbia Nivulia.
Simbalu	...	Vitex trifolia.
Singara	...	Trapa bispinosa or natans.
Singarhar	...	Nyctanthos Arbor tristis.
Singinjanascha	...	Corchorus olitorius.
Siphal	...	Ægle Marmelos.
Siriari	...	Tiaridium Indicum.
Sirissa	...	Acacia speciosa.
Sissoo	B & H	Dalbergia Sissoo.
Sitafal	H	Anona squamosa.
Sitaka-pungerie	...	Lavendula carnosa.
Sobhanjunya	B	Hyperanthera Moringa.
Sod	H	Anethum Sowa.
Soie, Soia	...	Anethum Sowa or gravecolens.
Sola	B & H	Æschynomene aspera.
Soml-luta	B	Sarcostemma brevistigma.
Soomroj	...	Conyza anthelmintica.
Sona	H	Bauhinia variegata.
Sonali	B	Cathartocarpus fistula.
Sona-mookhee	H	Cassia elongata.
Sona-pat	B	Do.
Son-balli	H	Croton plicatum.
Sonth	...	Zingiber officinalis.
Soodali	B	Cathartocarpus fistula.
Sookh-dursun	...	Crinum Asiaticum.
Soom	...	Sarcostemma brevistigma.
Sooparee	B & H	Areca Catechu.
Soovur nuka	B	Cthartocarpus fistula.
Sothali	H	Æschynomene aspera.
Souballi	...	Crozophora plicata.
Sowa, Shuta-poospha	...	Anethum Sowa or gravecolens.
Sphootee	B	Cucumis Momordica.
Subjuya	H	Canna Indica.
Subzs	...	Ocymum Basilicum.
Sufed-baryala	...	Sida rhomboidea.
Suffaid or Lalkudsumbal	...	Canavalia gladiata.
Suffaid-muhamma	...	Fluggea leucopyrus.
Suffaid-mooslic	...	Asparagus sarmentosus.
Suffaid-toolsic	...	Ocymum album.
Suffet-shukurkund-aloo	B & H	Batatas edulis.

Suffet-poin	.....	ii	Basella alba.
Surff-mia	.....	...	Psidium pyriferrum
Suhoora	.....	H	Epicarporus orientalis.
Sujna	.....	...	Hyperanthera Moringa.
Sukkapat	.....	...	Monetia tetraacantha.
Sukkur-kunda-aloo	.....	B	Batatas paniculatus.
Suloopha sulph	.....	...	Anethum Sowa.
Sultan-champa	.....	H	Calophyllum inophyllum.
Sunn	.....	B & H	Crotalaria juncea.
Sundel	.....	H	Santalum album.
Sung-koopie	.....	...	Clerodendron inerm.
Suparee	.....	...	Areca Catechu.
Suphura-koomra	.....	B & H	Cucurbita maxima.
Suran	.....	H	Amorphyphallus campanulatus.
Surasaruni	.....	...	Melanthesa rhamnoides.
Surba-juya	.....	B	Canna Indica.
Surj	.....	...	Shorea robusta.
Surpunka	.....	H	Calophyllum inophyllum.
Surpunkha	.....	B	Tephrosia purpurea.
Susha	.....	...	Cucumis sativus.
Suthmoolie	.....	...	Asparagus racemosus.
Sweta-koonch	.....	...	Abrus precatorius.
Swet-baryala	.....	...	Sida rhomboidea.
Swetn-shala	.....	...	Dalbergia latifolia.
Tabaneeboo	.....	B & H	Citrus acida.
Talee	.....	B	Corypha umbraculifera.
Taliera	.....	H	Corypha Taliera.
Talis-putrie	.....	...	Flacourtia cataphracta.
Tal-machana	.....	...	Asteracantha longifolia.
Ta-molec	.....	B	Curculigo orchoides.
Tamarhinda	.....	H	Tamarindus Indica.
Tan	.....	...	Zepania nodiflora.
Tapia	.....	...	Cratava Nurvala.
Tar, Talgachh	.....	B & H	Borassus flabelliformis.
Tarbutz	.....	H	Cucurbita citrullus.
Tarie	.....	...	Borassus flabelliformis.
Tariyat, Tara, Talier	.....	B	Corypha Taliera.
Taruni	.....	...	Aloc perfoliata.
Teekor	.....	H	Curcuma angustifolia.
Tekanda-jutee	.....	B	Monetia tetraacantha.
Tela-koocha	.....	...	Coccinia Indica.
Telkaiha	.....	H	Do.
Telnoor	.....	B	Curculigo orchoides.
Tendu	.....	H	Dyospyros melanoxylon.
Teora	.....	B	Lathyrus sativus.
Teorie	.....	...	Ipomæa Turpethum.
Thikeree	.....	...	Phaseolus radiatus.
Thuhar	.....	H	Euphorbia Nivulia.
Thulkuri	.....	B	Hydrocotyle Asiatica.
Tidhara	.....	H	Euphorbia antiquorum.
Tikrie	.....	...	Boerhavia procumbens.
Tikta-raj	.....	B	Amoora Rohituka.
Tikul, Tikoor	.....	H	Garcinia pedunculata.
Tikhur	.....	...	Curcuma angustifolia.
Tikura	.....	...	Ipomæa Turpethum.
Till	.....	B & H	Sesatum orientale.
Tilia-kora	.....	B	Cocculus acuminatus.
Tilea-gurjun	.....	...	Dipterocarpus locviss.
Tisi	.....	...	Linum usitatissimum.

Tito-dhoon-dhooi	.....	B	Luffa amara.
Tittha-pat	.....	...	Corchorus capsularis.
Toka-pana	.....	H	Pistia stratiotes.
Tomri	.....	...	Lagenaria vulgaris.
Toolsi Toolusee	.....	B & H	Ocimum villosum or sanctum.
Toolsoo-moodriya	.....	B	Leca macrophylla.
Toombo	.....	...	Cucurbita lagenaria.
Toon	.....	B & H	Cedrela Toona.
Toong	.....	B	Rottlera tinctoria.
Toor	.....	H	Cajanus Indicus.
Tooti	.....	...	Cucumis Momordica.
Triang-guli	.....	...	Phaseolus trilobus.
Trinpali	.....	...	Manisuris granularis.
Tripungkhi	.....	...	Coldenia procumbens.
'i selkache	.....	...	Coccinia Indica.
Tuar	.....	...	Cajanus Indicus.
Tugura	.....	B & H	Tabernæmontana coronaria.
Tula	.....	B	Gossypium herbaceum.
Tulda, Bans	.....	...	Dendrocalamus Tulda.
Tulidun	.....	H	Solanum nigrum.
Tumal	.....	B	Diospyros tomentosa.
Turanj	.....	H	Citrus medica.
Turbooz, Turmooj	.....	B & H	Cucurbita Citrullus.
Turbad	.....	H	Ipomæa Turpethum.
Turooi	.....	...	Luffa acutangula.
Turwur	.....	...	Cassia auriculata.
Uch	.....	H	Saccharum officinarum.
Udruk	.....	B	Zingiber officinale.
Ukyo	.....	...	Saccharum officinarum.
Ulsee	.....	H	Linum usitatissimum.
Ulutchandal	.....	...	Gloriosa superba.
Umbutee	.....	...	Oxalis corniculata.
Umul-koochi	.....	...	Cæsalpinia digyna.
Undum	.....	H	Pterocarpus santalinus.
Untamool	.....	...	Tylophora asthmatica.
Untergunga	.....	...	Pistia stratiotes.
Ununta-mool	.....	B & H	Tylophora asthmatica.
Do.	.....	...	Hemidesmus Indicus.
Upanga	.....	B	Achyranthes aspera.
Uparajita	.....	...	Clitoria ternatea.
Urjoon	.....	...	Pentaptera Arjuna.
Urka	.....	...	Asclepias gigantea.
Uroona	.....	...	Rubia cordifolia.
Urur	.....	B & H	Cajanus Indicus.
Urush Urusa	.....	B	Solanum verbascifolium.
Urwee	.....	H	Colocasia antiquorum.
Usan	.....	B	Terminalia tomentosa.
Useer	.....	H	Andropogon muricatum.
Usfur	.....	...	Carthamus tinctorius.
Usgund	.....	...	Physalis somnifera.
Ushwargundha	.....	...	Physalis somnifera.
Usoola	.....	B	Vitex alata.
Vasooka	.....	B	Adhatoda Vasica.
Veleytie aghati	.....	H	Cassia alata.
Vurtuli	.....	...	Dichrostachys cinerea.
Wully-kola	.....	B & H	Musa sapientum.
Zard-chob	.....	H	Curcuma longa.



