

Gazetteer of Bombay State

(Revised Series)



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BOTANY

PART I—Medicinal Plants



(Under Government Orders)

BOMBAY

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PREFACE

Volume XXV of the "Gazetteer of the Bombay Presidency" was devoted to Botany and was published in 1886. It contained three articles, viz.—

- (1) Useful Plants of the Bombay Presidency—by J. C. Lisboa ;
- (2) Botany of the Bombay Presidency—by Surgeon Major W. Gray ; and
- (3) List of Gujarat Trees, compiled from materials supplied by G. H. D. Wilson and Lt.-Col. J. G. McRae.

In this revised edition, the information given in all these articles has been brought up to date ; articles (1) and (3) have been recast and arranged into three Parts, viz., I—Medicinal Plants, II—Timbers, and III—Miscellaneous Plants, Trees, Shrubs, Herbs, etc. ; and article (2) has been entirely re-written under the heading "Vegetation of the Bombay State" and arranged as Part IV.

Dr. S. P. Agharkar, M.A., Ph.D., F.L.S., F.N.I., Professor of Botany (Retired), Calcutta University, has been in charge of the preparation of these Parts under the direction of the Bombay District Gazetteers (Revision) Editorial Board.

In view of the great importance that attaches to medicinal plants, a whole part has been devoted to them. Not only has additional information been given about all the plants listed in the old gazetteer but a large number of new plants have also been added to the list. For the convenience of the public, this part is being published separately.

M. R. PALANDE,
Executive Editor and Secretary,
Bombay District Gazetteers (Revision)
Editorial Board.

May 1953.

AUTHOR'S NOTE

In this Part is given a brief account of the principal wild and cultivated species of medicinal plants found within the Bombay State. Species from the area found in the British Pharmacopœia and in the Ayurvedic and Unani systems of medicine, together with those used as popular village remedies, have been included in it.

Under each species has been given—(i) its correct scientific name according to the International Rules of Botanical Nomenclature, (ii) the family to which it belongs, (iii) common names in English, Hindi, Gujarati, Kannada, Marathi and Sanskrit, (iv) brief description of its important botanical characters, and (v) habit, habitat and localities in the Bombay State and outside where it is found.

Information regarding their active constituents and the vitamins present has been given wherever available. No attempt has been made to evaluate critically the medicinal value of the plants. Other economic uses of the plants have also been mentioned. In the case of those species whose medicinal importance is relatively small, attention has been drawn to their principal other uses, and the botanical description has been omitted.

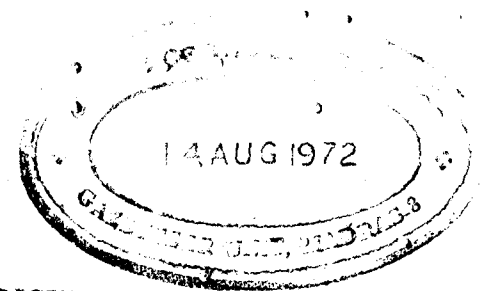
An effort has thus been made to bring together in one place the scattered information regarding the medicinal plants of the Bombay State. It is expected that this will prove useful to research workers and others interested in the study of medicinal plants.

The information given has been obtained from published works, a list of which is given in Appendix VI. The following appendices have been added :—

- I. Abbreviations used.
- II. Glossary of Technical Terms.
- III. Medicinal plants that are also poisonous.
- IV. Vitamin contents of the plants.
- V. Regional distribution of the medicinal plants in the Bombay State.
- VI. Reference literature.

It only remains for me to express my indebtedness to Shri S. R. Godbole, B.Ag., B.Sc., retired Assistant Economic Botanist, Bombay State, for his help in preparing this Part.

S. P. AGHARKAR.



SECTION I.—MEDICINAL PLANTS.

ABELMOSCHUS ESCULENTUS Linn.

(HIBISCUS ESCULENTUS Linn).

FAM.—Malvaceæ.

COM. NS.:—E. Gabba, Gumbo, Lady's finger, Ochra; G. Bhinda; H. Bhindi, Katavandai, Ramturai; K. Bendikai, Bende; M. Bhendi; Sk. Bhinda, Gandhamula, Pichhila, Tindisa, Krittabija.

HABITAT:—Cultivated in fields.

LOC.:—Cultivated throughout the State and throughout the year.

DISTR.:—Cultivated throughout India; probably of African origin; naturalised or cultivated in all tropical countries.

PARTS USED:—Leaves, fruits and seeds.

PROPERTIES AND USES:—Mucilaginous fruit is sweetish and tasty; tonic, astringent, aphrodisiac; causes "Kapha" and "Vata", dyspepsia; produces oedema; to be avoided in bronchitis (Ayurveda). Mucilaginous fruit is sweetish, cooling, stomachic, aphrodisiac; enriches blood; cures biliousness; useful in gonorrhœa, urinary discharges, strangury and diarrhœa; emollient; causes constipation (Yunani).

LOC. USES:—Plant abounds in copious bland mucilage, consisting chiefly of pectin and starch and possesses valuable emollient, demulcent and diuretic properties. It is most beneficial in dysentery; it is also aphrodisiac. Decoction of capsule is an agreeable drink, most serviceable in fevers, catarrhal attacks and irritable states of the genito-urinary organs. Leaves are used to form emollient poultices.

Fruits contain vitamins A, B and C.

See—Vegetables.

ABELMOSCHUS MOSCHATUS Medik.

(HIBISCUS ABELMOSCHUS Linn.)

FAM.—Malvaceæ.

COM. NS.:—E. Musk-Mallow; G. Mushakdana; H. Mushakadana; K. Kasturibende; M. Kasturibhendi; Sk. Lalakasturika.

A Bk Vf 1-1†

CHAR.—A tall annual shrub; stem clothed with long hairs; *L.*—polymorphous, cordate, the lower ovate, acute or roundish angled, upper palmately 3-7 lobed, lobes oblong-ovate, crenate, serrate or irregularly toothed, hairy; *Fl.*—regular, bisexual, involucre bracts 8-12, hairy, yellow with purple centre; *Fr.*—capsule fulvous hairy, oblong-lanceolate, acute; *Sd.*—subreniform, blackish; *Fl. t.*—cold season.

HABITAT :—Cultivated.

LOC. :—Cultivated extensively throughout the State.

DISTR. :—Cultivated in the hotter parts of India; tropics of the old-world.

PARTS USED :—Roots, leaves (rarely) and seeds.

PROPERTIES AND USES :—*Seeds* cooling, tonic, carminative, aphrodisiac; cure diseases due to “Kapha” and “Vata”, intestinal complaints, stomatitis; good in diseases of heart; allay thirst and check vomiting (Ayurveda).

Seeds allay thirst, cure stomatitis, dyspepsia, urinary discharges, gonorrhœa, leucoderma and itch; tonic, stomachic. *Roots and leaves* are cure for gonorrhœa (Yunani).

LOC. USES :—In Bombay the *seeds* are rubbed to a paste with milk and used to cure itch. *Seeds* enter into the composition of some compound prescriptions, being regarded as cooling, emollient and demulcent. They are used as a drink in fevers, gonorrhœa, etc. and as an inhalation in hoarseness and dryness of throat. *Seeds* yield an essential oil.

Moideen Sheriff used the tincture of the seeds and considered it to be stimulant, stomachic, antispasmodic and recommended its use in nervous debility, hysteria and as a tonic for dyspepsia. In Brazil the *herb* is used as a fomentation and an enema.

ABROMA AUGUSTA Linn.

FAM.—Sterculiaceæ.

COM. NS. :—*E.* Devil's cotton; *H.* Kumal, Ulatkambal; *K.* Melpundigida; *M.* Ulatkambal, Olak-tambol.

CHAR. :—A shrub or a small tree with velvety branches; *L.*—10-15 × 12 cm., repand, denticulate, entire, smooth above, pubescent below; *Fl.*—dark-red, 5 cm. diam; *Fr.*—capsule 4 cm. long, obpyramidal; *Sd.*—enveloped in light cottony wool.

HABITAT :—Grows wild in hotter parts; also cultivated.

LOC. :—Often cultivated as an ornamental plant in gardens.

DISTR. :—Indigenous or cultivated throughout the hotter parts of India (Sikkim; Khasia Hills, Assam), Java, Philippines, China.

PARTS USED :—Root bark.

PROPERTIES AND LOC. USES :—*Root bark* is emmenagogue and uterine tonic. It is used in menstrual discharges. The fresh viscid *juice* of the root-bark is useful in the congestive and neuralgic varieties of dysmenorrhœa. It regulates the menstrual flow. It is a very popular medicine in the indigenous system. Only the fresh root-bark or dried root-bark should be used.

The root has a fixed oil, resins and an alkaloid in minute quantity among its constituents.

See—Fibres, Ornamental Plants.

ABRUS PRECATORIUS Linn

FAM.—Leguminosæ (Papilionaceæ).

COM. NS. :—*E.* Indian liquorice, Rosary pea; *G.* Chanoti; *Gunja*; *H.* Chirmiti, Gaungchi, Gunchi, Gunja, Kunch, Rati; *K.* Gunja, Haga, Madhukā; *M.* Gunja, Kunch, Gunchi; *Sk.* Gunja, Gunjika, Kakavallari, Tulabija.

CHAR. :—A deciduous glabrous-twiner; branches slender, stem attaining 5.5 m. height; *L.*—paripinnate, 5-10 cm. long; leaflets 10-20 pairs; *Fl.*—in racemes, small, crowded, rose-coloured; *Fr.*—pod, 2.5-4.3 × 1-1.25 cm., turgid, finely silky, 4-6 seeded; *Sd.*—scarlet with a black-spot, ovoid; *Fl. t.*—rainy season.

• **HABITAT** :—Moist and open littoral forests.

LOC. :—Throughout the State, common in Konkan, N. Kanara.

DISTR. :—Throughout India, Ceylon and throughout the tropics; often planted.

PARTS USED :—Root, leaves and seeds. *Seeds* are commonly used as weights by goldsmiths.

PROPERTIES AND USES :—*Seeds*—acrid, aphrodisiac, tonic; causes “Kapha”; removes biliousness; improves taste and complexion; useful in eye diseases; cures leucoderma, itching, skin diseases and wounds. *Root and leaves*—same properties as seed and in addition they cure fevers, stomatitis, head complaints, asthma, thirst, tuberculous glands, caries of teeth (Ayurveda). *Seed*—acrid; tonic to brain and body; aphrodisiac; harmful to old men. *Root and leaves* are sweet. They have the same properties as seed and oil (Yunani).

LOC. USES :—*Root* is emetic and alexiteric. The watery extract is useful in coughs. It is employed as a substitute for liquorice. *Leaves* steeped in warm mustard oil are used to relieve local pain in swellings and rheumatism. *Juice* rubbed on leucodermic spots for a month has been found to remove them. *Leaves* are chewed and the juice swallowed in cases of hoarseness. In small doses seeds are purgative and emetic. *Seeds* poisonous in large doses. They are used by lower class people for poisoning cattle and for producing criminal abortion. *Seed* loses its activity when boiled and then it can be used as a food. Powdered seeds boiled with milk have a powerful tonic and aphrodisiac action on the nervous system. Externally they are used in skin diseases, ulcers and hair affection. The paste is applied locally in sciatica, stiffness of joints, paralysis and other nervous diseases. It is used in white leprosy along with plumbago root. Paste is also used for contusions in inflammation. Powdered seeds are used as snuff in violent headache; seeds decorticated and finely ground are used in eye-troubles (granular lids).

The active principle has been isolated from seeds and named *abrin*.

INDIAN PREPARATIONS:—*Gunjabhadrarasa*—given in paraplegia. (Rasendrasarasangrah). *Gunjadya Tailam*—used as local application in skin diseases.

See—Poisonous Plants and Fish Poisons.

ACACIA ARABICA Willd.

FAM.—Leguminosæ (Mimosæ).

COM. NS.:—*E.* Black babool; Indian gum-arabic tree; *G.* Babalia, Baval; *H.* Babul, Kikar; *K.* Babbuli, Karijali; *M.* Babhul, *Sk.* Babbula, Barbura, Dridhabija.

HABITAT:—Dry hot regions.

LOC.:—Common throughout the Deccan and the Karnatak in black cotton soil. Forms extensive forests along the rivers in Poona, Ahmednagar and Sholapur districts.

DISTR.:—Throughout the greater part of India, Ceylon, Baluchistan, Waziristan, Arabia, Egypt, Sind, Tropical and S. Africa, Natal.

PARTS USED:—Bark, leaves, flowers, fruits, gum.

PROPERTIES AND USES:—*Bark*—hot, astringent to bowels, alexipharmic, anthelmintic; cures cough, bronchitis, diarrhoea, dysentery, biliousness, burning sensation, piles, leucoderma, urinary discharges; good in ascites. *Leaves* cure "Vata", heal fractures; good for eye diseases. *Pods*—cooling; cure "Kapha". *Gum*—anti-dysenteric, styptic; cures leprosy, vaginal and uterine discharges (Ayurveda). *Bark*—bitter, acrid, astringent to bowels, emetic; lessens dyspnoea. *Leaves*—tonic to liver and brain, antipyretic; cure leucoderma, gonorrhoea, strangury; enrich blood; used in urethral discharges, ophthalmia and eye-sores. *Flowers* are powerful tonic; good cure for insanity. *Gum*—expectorant, liver tonic, antipyretic; cures sore throat, lung troubles, cough, piles, burns; enriches blood; used in colic; all parts of the plant are aphrodisiac (Yunani).

LOC. USES:—Young *leaves*, with sugar and cumin seeds, are given with milk in cases of bloody seminal discharges. *Bark* is a powerful astringent and demulcent. It has been found a valuable remedy in *prolapsus-ani*; as an external application in leucorrhoea and as a poultice for ulcers attended with sinous discharges. *Bark juice* mixed with milk is dropped into eye in conjunctivitis. *Bark infusion* is given in chronic diarrhoea and diabetes mellitus. *Teefler shoots* are used as tooth brush. They strengthen teeth and gums. *Gum* is administered in the form of mucilage in diarrhoea, dysentery and also in diabetes mellitus. Powdered gum mixed with white of an egg is applied to burns and scalds; it is also used to arrest hæmorrhage. Fried in ghee it is useful as a nutritive tonic and aphrodisiac in cases of sexual debility.

See—Timbers, Dyes, Gums and Resins.

ACACIA CATECHU Willd. Var. SUNDRA Prain.

FAM.—Leguminosæ (Mimosæ).

COM. NS.:—*E.* Black pegu catechu, Cutch; *G.* Kher, Kherio, Khuriobaval; *H.* Katha, Khair, Khair-babul; *K.* Kachu, Kaggali,

Kanti; *M.* Khair, Lalkhair; *Sk.* Dantadhavan; Khadira, Kushthari, Saradruma, Yajnika.

HABITAT:—Dry open thorn forests.

LOC.:—Common throughout the State; along the coasts of Konkan and N. Kanara (often on laterite), Deccan, Khandesh, Akran, S. M. Country and Gujarat.

(This variety is very common in the Bombay State and has often been recorded as *Acacia catechu* proper, which is somewhat of doubtful occurrence).

DISTR.:—Rajasthan, Western Peninsula, Himalayas up to 1700 m., Sikkim, Pegu, Burma, Ceylon.

PARTS USED:—Bark and Cutch (Extract).

PROPERTIES AND USES:—Bitter, acrid; cooling, astringent to bowels, anthelmintic, anti-dysenteric, anti-pyretic; cures itching, bronchitis, indigestion, boils, ulcers, psoriasis, heaviness, inflammations, leprosy, urinary and vaginal discharges, "Kapha", "Vata", throat diseases, leucorrhoea, piles, erysipelas, mouth troubles; strengthens teeth; given in elephantiasis; tonic, aphrodisiac; gives taste and increases appetite (Ayurveda).

LOC. USES:—In the Konkan *juice* of fresh bark is given with asafœtida in hæmoptysis. *Khair sal* or catechuic acid is used as a remedy in chest affections and as an expectorant. It is given in diarrhoea. In ulceration of the gums, sore-throat and tooth-ache, a small piece made into lozenge with cinnamon and nutmeg is useful. Ointment with vaseline or lard is a good local application for ulcers. It is used with advantage in sponginess of gums, relaxation of the uvula, hypertrophy of tonsils, as an astringent injection in leucorrhoea and a tonic in menorrhoea. *Kath-bole*, (mixture of catechu with myrrh) is given to women after confinement as tonic and to promote milk secretion.

INDIAN PREPARATIONS:—*Svalpakhadirvatika*—used in affections of the teeth, gums, palate and tongue (Chakradatta). *Khadirashtaka* used internally in boils, prurigo, measles and other skin-diseases.

See—Timbers, Dyes, Tans.

ACACIA CONCINNA DC.

FAM.—Leguminosæ (Mimosæ).

COM. NS.:—*E.* Soap-pod tree; *G.* Chikakai; *H.* Kochi, Ritha, *K.* Manda-otte, Shige, Sige-balli or kai; *M.* Shikekai; *Sk.* Bhuriphena, Charmakusha, Dipta, Phena, Saptata, Vidula.

CHAR.:—An extensive woody climber, branches dotted with white lenticels and armed with hooked prickles; *L.*—bipinnate, 5-10 cm. long; rachis armed with hooked prickles and with glands; pinnae 4-6 pairs with rachis ending in spine; leaflets 10-20 pairs, overlapping; *Fl.*—in fasciated globose heads, yellow; *Fr.*—pod, 7.5-12.5×2.2-2.8 cm., linear-oblong, fleshy when green, wrinkled when dry; *Sd.*—6-10; *Fl.*—t.—Mar.-July.

HABITAT:—Tropical moist monsoon forests.

LOC.:—Common in the Konkan and N. Kanara forests.

DISTR.:—Throughout India, Malay Islands, China.

PARTS USED :—Leaves and pods.

PROPERTIES AND USES :—*Pod*—bitter, pungent, cooling, digestible, deobstruent, detergent, purgative, anthelmintic, anti-diarrhoeal; improves appetite; causes "Vata", cures "Kapha," biliousness, burning sensation, blood-diseases, erysipelas, leucoderma, stomatitis, ascites, piles; cardio-tonic. *Leaves*—cathartic and cure biliousness (Ayurveda).

LOC. USES :—Powdered *leaves* act as a mild laxative. Decoction of leaves and pods is a useful aperient in bilious affections. Infusion of leaves is useful in checking malarious fevers and also preventing flatulence. Pods are largely used by Indians externally as detergent. Internally they are aperient, expectorant and good emetic. Decoction of pods removes dandruff and promotes growth of hair. *Pods* ground up and formed into an ointment make a good application in skin-diseases.

In China and Japan pods are used in kidney and bladder troubles; externally they are applied to leprous patches, prurigo, eczema, buboes. The *seeds* are said to facilitate delivery in childbirth.

The plant contains saponin and an alkaloid.

ACACIA FARNESIANA Willd.

FAM.—Leguminosæ (Mimosæ).

COM. NS. :—*E.* Cassia flower, Sponge tree, Stinking acacia; *G.* Gandhelo khair; *J.* Jheri baval; *H.* Gandhibabul, Pissibabul, Vilavati kihar; *K.* Jali, Kari jali, Sanna jali; *M.* Devababhul, Kankri; *Sk.* Arineda, Girimeda, Marudruma.

HABITAT :—Moist situations.

LOC. :—Naturalised near villages throughout the State; often cultivated; common in eastern parts of the Deccan.

DISTR. :—Cosmopolitan in the tropics, Sind; often planted; not indigenous but naturalised.

PARTS USED :—Bark, leaves and gum.

PROPERTIES AND USES :—*Bark* acrid and hot, alexiteric, anthelmintic, anti-dysenteric; cures stomatitis, caries of teeth, blood diseases, itching, bronchitis, leucoderma, ulcers, inflammations, erysipelas. *Gum*—sweetish, tonic, aphrodisiac (Ayurveda).

LOC. USES :—*Bark* together with ginger is an astringent wash for the teeth used in bleeding of gums etc. Tender *leaves* bruised in a little water are swallowed for the treatment of gonorrhœa. *Pods* and round yellow heads contain a balsamic liquid which is employed as an adjunct to aphrodisiac in spermatorrhœa.

In Philippines decoction of small-bark is given in prolapse and leucorrhœa. Tender leaves are boiled and applied as a cataplasm to wounds and ulcers.

See—Timbers, Gums and Resins.

MEDICINAL PLANT

ACALYPHA INDICA Linn.

FAM.—Euphorbiaceæ.

COM. NS. :—*G.* Vanchhikanto; *H.* Khokla, Kuppi; *K.* Chalmari, Kuppi-gida; *M.* Rhajoti, Khokali; *Sk.* Arittamanjaria.

CHAR. :—Annual, erect herb, 30-75 cm. high, branches long, ascending, angular; *L.* 2.5-7.5×2.4-5 cm., ovate or rhomboid-ovate, crenate-serrate, somewhat 3-nerved; *Fl.*—monceious, in lax, erect, elongate, axillary spikes; males, minute, clustered near the summit of spike; females, scattered, 3-5 surrounded by a large leafy bract; *Fr.*—capsule, small, hispid, one-seeded; *Sd.*—ovoid, smooth, pale-brown; *Fl. t.*—June-Sept.

HABITAT :—Weed of cultivation.

LOC. :—Common in the Deccan and S. M. Country.

DISTR. :—Throughout India; Ceylon, tropical Africa, Philippines.

PARTS USED :—Roots and leaves.

PROPERTIES AND LOC. USES :—The *plant* is used as an expectorant and diuretic. It is a useful remedy for bronchitis, asthma, pneumonia and rheumatism. It is used in congestive headache. *Root* bruised in hot water is employed as cathartic. *Leaf-decoction* mixed with common salt is used as laxative. *Leaves* are also used in skin diseases. Expressed *leaf-juice* is in great repute as an emetic for children and is safe and certain; *leaf-decoction* is given in ear-ache. A cataplasm of leaves is used in syphilitic ulcers. Powder of dry leaves is given to children in worm cases; also used in bed-sores and wounds attacked by worms.

The plant contains *acalyphin*.

ACHYRANTHES ASPERA Linn.

Var. PERPHYRISTACHYA Hook f.

FAM.—Amarantaceæ.

COM. NS. :—*E.* Prickly chaff-flower; *G.* Agheda-di; *H.* Apang, Chirchira, Chichra, Latjira; *K.* Utranigida, Uttrane; *M.* Aghada; *Sk.* Apamarga, Kantarika, Kharamanjiri, Ksharamadhya, Merkati; *Vasira*.

CHAR. :—An erect herb 0.3-0.9 m. high; stem stiff, branches terete or quadrangular striate; *L.*—opposite, few, 3.8-6.3×2.5-4.5 cm., elliptic obovate, or orbicular rounded at the apex, softly hairy; *Fl.*—greenish white, many, in elongate terminal spikes, about 50 cm. long in fruit; perianth 4-5 segments, and shining sepals with narrow white margins; *Fr.*—utricle, oblong-cylindric, enclosed in perianth smooth, brown; *Sd.*—truncate at apex, rounded at base, brown; *Fl. t.*—Nov.-Jany.

HABITAT :—Waste places and rubbish heaps.

LOC. :—Common weed growing all over the State in waste places.

DISTR. :—Throughout India, Baluchistan, Ceylon, Tropical Asia, Africa, Australia, America.

PARTS USED :—Root, leaves, flowers and seeds.

PROPERTIES AND USES :—Bitter, pungent; heating, laxative, stomachic, carminative; improves appetite, useful in vomiting, bronchitis, "Vata", heart diseases, piles, itching, abdominal pains, ascites, dyspepsia, dysentery, blood diseases (Ayurveda).

LOC. USES :—*Root infusion* is given as a mild astringent in bowel complaints. Plant possesses valuable properties as a pungent laxative, and is considered useful in dropsy, piles, boils, skin eruption etc. *Decoction* of the whole plant is a good diuretic and is given in renal dropsy and general anasarca and pneumonia. *Decoction* of powdered leaves with honey is useful in early stages of diarrhoea and dysentery. Fresh leaves ground and mixed with black pepper and garlic are used as anti-periodic. *Leaf paste* with water is applied with benefit to bites of poisonous insects. *Seeds* are considered emetic and are useful in hydrophobia. Plant ash yields a large quantity of potash; it is used in cases of cough and asthma. *Ash* is used externally in the treatment of ulcers, etc.

INDIAN PREPARATION :—*Apamarga Taila* (ash and sesame oil) used in ear-ache.

See—Sacred Plants.

ACORUS CALAMUS Linn.

FAM.—Araceæ.

COM. NS. :—*E.* Sweet flag; *G.* Gandhilovaj, Godavaj, Vekhand; *H.* Bach, Gorbach; *K.* Baja; *M.* Vekhand; *Sk.* Bhutnashini, Jatila, Uragandha, Vacha.

CHAR. :—An aromatic herb; root-stock as thick as the middle finger, creeping and branching; *L.* 0.9-1.8 × 1.7-3.8 cm.; bright-green, acute, thickened in the middle, margins wavy; spathe 15-75 cm. long; spadix, 5-10 cm. long, obtuse, slightly curved, green; sepals scarious, anthers yellow; *Fr.*—turbinate, prismatic, top pyramidal.

HABITAT :—Marshy places.

LOC. :—Cultivated in gardens in many places in the State.

DISTR. :—Throughout India and Ceylon in marshes, wild or cultivated ascending the Himalayas up to 2000 m., Sikkim. Throughout Asia, Europe and N. America.

PARTS USED :—Root.

PROPERTIES AND USES :—Pungent, bitter, heating, emetic, laxative, diuretic, carminative, anthelmintic; improves appetite, voice, throat; good for mouth diseases; useful in abdominal pains, inflammations, fevers, epilepsy, bronchitis, delirium, hysteria, dysentery, tumours, thirst, loss of memory, rat-bite, worms in the ear (Ayurveda). Bitter, laxative, expectorant, carminative, alexiteric, brain-tonic, emmenagogue; useful in general weakness, stomatitis, toothache, inflammations, liver and chest pains, kidney troubles, leucoderma (Yunani).

LOC. USES :—Dried *rhizome* is stimulant and aromatic; its infusion is tonic and stomachic; useful in dyspepsia, flatulence,

loss of appetite; used also in atonic and choleric diarrhoea in children. It is successfully used in intermittent fevers. With the addition of little liquorice root it is given in cases of cough, fever, colic, etc., in children. In small doses it is carminative and nervine. In cases of irritation of throat and cough, *root chewed* produces copious salivation and agreeable sensation of warmth in the mouth. It is eaten freely during prevalence of epidemics as it is supposed to be an antidote to several poisons. It is a good remedy in asthma. Externally it is used in chronic rheumatism. *Powder* is very effective insecticide, keeps off moths from woollen goods and fleas from rooms.

The dried rhizome yields an essential oil; aerial parts yield a volatile oil. There is a bitter glucoside present named *acarin*.

ACTINODAPHNE HOOKERI Meis.

FAM.—Lauraceæ.

COM. NS. :—*K.* Haggodgimara, Tudgensu; *M.* Pichli, Pisa.

HABITAT :—Rain forests along the Ghats.

LOC. :—Konkan; Deccan, Matheran and Mahabaleshwar (very common); N. Kanara evergreen forests.

DISTR. :—Western Peninsula.

PARTS USED :—Leaves and seeds.

PROPERTIES AND LOC. USES :—The mucilaginous cold infusion of the leaves is used in urinary disorders and in diabetes; the oil of the seeds is used as an external application to sprains.

The plant contains the alkaloid *actinodaphnine*.

See—Timbers.

ADANSONIA DIGITATA Linn.

FAM.—Bombacaceæ.

COM. NS. :—*E.* African calabash, Baobab, Monkey-bread tree; *G.* Bukha, Gorakhaamli, Rukhdo; *H.* Gorakamali, Goremlchora; *K.* Brahmanlika; *M.* Gorakhchinch; *Sk.* Gopali, Gorakshi, Panch-parnika, Dirgh—Sarpa-dandi.

HABITAT :—Cultivated.

LOC. :—Planted here and there throughout the State; common in places along the sea coast north of Bombay, Gujarat. Supposed to have been introduced by Arabs.

DISTR. :—Grown in many places in India; indigenous in tropical Africa.

PARTS USED :—Root, bark, leaf and fruit.

PROPERTIES AND USES :—Fruit cooling, anti-pyretic; useful in biliousness, vomiting, dysentery, excessive perspiration (Ayurveda).

LOC. USES :—The dried leaves in powder form have been found serviceable in diarrhoea, fevers and other maladies. The leaves are used as fomentations and poultices for rheumatic affections and

inflammatory ulcers. The *pulp* is beneficial in pyrexia of any form of fever by diminishing the heat and quenching thirst. In Bombay the pulp mixed with butter-milk is used as an astringent in diarrhoea and dysentery. In the Konkan the pulp with figs is given in asthma and a sherbat made of it with the addition of cummin and sugar is administered in bilious dyspepsia. The *leaves* and *bark* abound in mucilage. The bark contains a crystalline bitter principle *Adansonin*. The fruit has a mucilaginous pulp, having a pleasant, cool, sub-acid taste like cream of tartar; it is a good refrigerant in fever.

In Gold Coast and in Europe the bark was used as a substitute for cinchona bark for curing fevers.

See—Timbers, Fibres.

ADHATODA VASICA Nees.

FAM.—Acanthaceae.

COM. NS.:—G. Adsoge, Aduso, Ardusi; H. Adalso, Arusho, Vasaka; K. Adsala, Adumtiada, Adugogo; M. Adulsa, Adusa, Vasuka; Sk. Amalaka, Atusta, Sinhika, Vasaka.

CHAR.:—A dense shrub 1-2-2.4 m. high, with opposite ascending branches: *L.*—12-20 by 4-6 cm., elliptic lanceolate, dark green above, paler beneath; *Fl.*—in axillary spikes towards the ends of the branches; *C.*—tubular, white, with a few rose-coloured bars in the throat; *Fr.*—capsule, clavate, bluntly pointed, orbicular, oblong, tubercular-verrucose; *Fl. l.*—Aug.-Nov.

HABITAT:—Commonly cultivated, sometimes gregarious in waste places.

LOC.:—In hedges throughout the state; abundant in the Deccan and Konkan districts.

DISTR.:—Tropical India from the Punjab and Assam to Ceylon, Malaya, S. E. Asia.

PARTS USED:—Roots, leaves, flowers and fruits.

PROPERTIES AND USES:—*Root* facilitates expulsion of foetus; useful in strangury and leucorrhoea. *Plant* pungent, acrid, cooling; causes "Vata", useful in bronchitis, leprosy, blood impurities, heart-troubles, thirst, asthma, fever, vomiting, loss of memory, leucoderma, consumption, jaundice, tumours, mouth diseases (Ayurveda). *Root* diuretic; useful in bronchitis, asthma, bilious vomiting, sore-eye, fever, gonorrhoea. *Leaves* emmenagogue. *Flowers* improve blood circulation; lessen strangury and jaundice (Yunani).

LOC. USES:—*Roots, leaves and flowers* are extensively used in indigenous medicines as a remedy for cold, cough, bronchitis and asthma. *Juice* extracted from leaves, mixed with ginger or honey, is generally used. In chronic bronchitis and asthma it is said to be specially efficacious. *Dried leaves* are made into cigarettes and smoked in asthma. *Leaf juice* is used in diarrhoea and dysentery, and powdered leaves are used in malaria in South India. *Leaves* are also used as poultice on rheumatic joints and swellings and in neuralgia. *Leaves* are said to be toxic in all forms of lower life. Alcoholic extract of leaves is "poisonous to flies, flees, mosquitoes, centipedes and other insects (Watt.)". The drug has no effect on the tubercular affection of the lungs (Chopra and Ghosh).

Leaves contain alkaloid *vasicine*. No part of the plant can be recommended for treatment of snake-bite (Mhaskar and Caius).

ADIANTUM LUNULATUM Burm.

FAM.—Polypodiaceae.

COM. NS.:—G. Hansapadi, Hansaraj, Mubarakh; H. Hansapagi, Kalijhamp, Kalijhant; K. Navalad; M. Ghoda-khuri, Rajhans, Ratkombada, Kombada; Sk. Brahmadari, Chitrapada, Godhangri, Hansapadi.

CHAR.:—Stipes 10-15 cm. long, tufted, wiry, naked, polished dark chestnut brown; fronds 15-30×7.5 cm., simply pinnate, often elongated and rooting at the apex; pinnae subdimidiate, the lower edge in a line or oblique with the petiole, the upper rounded usually more or less lobed. Rachis and both surfaces naked. Texture herbaceous. Sori linear, frequently becoming confluent.

HABITAT:—Moist places.

LOC.:—The Deccan hills; Konkan, Bombay Island, hills and lake region of Thana district; N. Kanara, common.

DISTR.:—Throughout N. India in moist places; South India; Ceylon, Burma, Tropics of nearly the whole world.

PARTS USED:—Root and plant.

PROPERTIES AND USES:—*Root* good for strangury, fever due to elephantiasis. *Plant* pungent, cooling, alterative, alexiteric, indigestible; useful in dysentery, blood diseases, ulcers, erysipelas, burning sensation, epileptic fits (Ayurveda).

LOC. USES:—In Gujarat it is extensively used in the treatment of children for febrile affections. The leaves are rubbed with water and given with sugar. It is worked up with ochre and applied locally for erysipelatos inflammation.

ÆGLE MARMELOS Corr.

FAM.—Rutaceae.

COM. NS.:—E. Bel Fruit Tree, Bengal—Indian Quince; G. Bel, Belly; H. Bel, Bili, Sirphal; K. Belpatra, Kumbala, Malura; M. Bel; Sk. Bilva, Malura, Shivadruma, Tripatra.

HABITAT:—Dry places, wild or cultivated.

LOC.:—Konkan, Deccan; wild as well as planted near the temples; S. M. Country.

DISTR.:—Throughout India, in dry hilly places, from the Jhelum to Assam and southwards; often planted all over India, Burma.

PARTS USED:—Root, root-bark, leaves, flowers, fruits.

PROPERTIES AND USES:—*Root* cures fevers due to *tridosha*, abdominal pain, heart palpitation, urinary troubles, hypochondriasis, melancholia; removes "Vata", "Pitta", "Kapha". *Leaves* astringent, digestive; laxative and febrifuge, when fresh; useful in

ophthalmia, deafness and inflammations. *Flowers* allay thirst, vomiting. *Unripe fruit* oily; cures dysentery; removes pain. *Ripe fruit* acrid, appetiser, binding, tonic, febrifuge; causes biliousness and "Tridosha" (Ayurveda). *Ripe fruit* hot and dry; tonic, restorative, astringent, laxative; good for heart and brain, bad for lungs and chest. (Yunani).

LOC. USES :—Decoction of *root* and the *stem bark* is used in the cure of intermittent fevers. *Root* constitutes one of the ingredients of *Dashamula*. On the Malabar coast it is used in hypochondriasis, melancholia and palpitation of heart. *Root* decoction is given with sugar and fried rice for checking diarrhoea and gastric irritability in infants. *Leaves* are made into poultice, used in the treatment of ophthalmia. *Fresh juice* is given with addition of black pepper in anasarca with causticness and jaundice. Sun dried slices of *unripe fruit* are prescribed in diarrhoea and dysentery with debility of mucous membrane. It is specially useful in cases of children. In the Konkan, decoction of small *unripe fruit* with fennel seeds and ginger is given for piles. *Ripe fruit* is sweet, aromatic and cooling and is made into *sherbat*, which is a pleasant laxative and a simple cure for dyspepsia. *Bel marmalade* is useful in chronic dysentery and diarrhoea. *Pulp of the fresh fruit*, mixed with milk and administered with cubeb powder is given in chronic gonorrhoea. *Rind* of the ripe fruit is employed in acute dysentery.

Flowers yield a volatile oil.

Fruit yields an important active principle *marmalosin*.

See—Timbers, Gums and Resins, and Dyes.

ÆRUA LANATA Juss.

FAM.—Amarantaceæ.

COM. NS. :—*G.* Bur, Kapurimadhuri; *H.* Gorkhabundi, Kapuri-gadi; *M.* Kapurimadhuri, Kapurphuti; *Sk.* Astmabayde.

CHAR. :—*A.* herb, erect or prostrate, with a long tap-root, branched from near the base; branches many, woolly tomentose, striate; *L.*—alternate 2.2.5 × 1.1.6 cm. on the main stem; 6.10 × 3.6 mm. on the branches, elliptic or obovate, pubescent above, white with cottony hairs beneath; *Fl.*—bisexual, very small, sessile, in small axillary heads or spikes, often forming globose clusters, greenish white; perianth silky, hairy on the back. *Fr.*—utricle, broadly ovoid, acute; *Sd.*—smooth, polished, black; *Fl. t.*—Aug.-Oct.

HABIT :—A common weed.

LOC. :—Deccan, S. M. Country.

DISTR. :—Throughout India, Ceylon, Arabia, tropical Africa, Java, Philippines.

PARTS USED :—Plant and root.

PROPERTIES AND USES :—The *plant* is diuretic; used in lithiasis. *Root*—demulcent, diuretic; useful in strangury (Ayurveda).

LOC. USES :—*Roots* are used in the treatment of headache. In Ceylon the plant is valued for cough and also as a vermifuge for children.

AGAVE AMERICANA Linn.

FAM.—Amaryllidaceæ.

COM. NS. :—*E.* American aloe, Century plant; *G.* Janglikunwar; *H.* Banskeora, Barakarwar, Bilaitipat; *R.* Rakaspattah; *K.* Anekattale, Devabale; *M.* Ilaitikedara, Chayapat; *Sk.* Kalakantala, Kantala.

CHAR. :—A stout shrubby rhizomatous perennial plant; *stem* short, aerial, more or less concealed by the leaf-bases; *L.*—very stout, commonly variegated, thick, fleshy, constricted into a neck just above the very swollen base, margin distinctly sinuate, bearing reflexed spines; apical spine 2.5-5 cm. long.

HABITAT :—Cultivated.

LOC. :—Cultivated as an ornamental plant in parks and large gardens throughout the State. Planted as a hedge plant.

DISTR. :—Tropical America; cultivated in India for its fibres.

PARTS USED :—Root, leaves, gum.

PROPERTIES AND LOC. USES :—*Roots* have diuretic and antisyphilitic properties; used with sarsaparilla in the form of decoction. The *juice* from cut roots and leaves is specially useful in syphilis. The sap is laxative, diuretic and emmenagogue; it is found very useful in scurvy. The fresh juice is a good external application to bruises and contusions. The gum exuding from the leaves and roots is used as a cure for tooth-ache. *Leaf pulp* mixed with sugar is a popular remedy for gonorrhoea.

This is one of the important plants whose investigation is likely to be useful.

See—Ornamental plants, Fibres.

AILANTHUS EXCELSA Roxb.

FAM.—Simarubaceæ.

COM. NS. :—*G.* Motoaduso, Mothoaradaso; *H.* Limbada, Maharukh; *K.* Bende, Doddabevu, Hebmani; *M.* Mahanimb, Maharuka; *Sk.* Atarusha, Madala, Mahanimba, Maharukha.

LOC. :—Common in Broach District, Baroda, Gujarat and the Deccan.

DISTR. :—India—N. W. parts, Western Peninsula, Bihar, often planted; Queensland; Ceylon.

PARTS USED :—Bark and leaves.

PROPERTIES AND USES :—*Bark*—bitter; refrigerant, astringent, appetiser, anthelmintic, febrifuge; good in complaints of children, diarrhoea, dysentery, ear-ache; cures skin diseases, rectum troubles, fevers due to *Tridosha*, allays thirst; removes bad taste in the mouth (Ayurveda).

LOC. USES :—The *bark* is aromatic and used for dyspepsia. It is regarded as tonic and febrifuge in cases of debility. Expectorant and antispasmodic, given in chronic bronchitis and asthma; as an astringent in diarrhoea and dysentery.

In Bombay the bark and leaves are in great repute as tonic, especially in debility after child-birth.

In the Konkan the juice of leaves or fresh bark is administered in *khir* or treacle, aromatics or honey; it is said to stop after-pains.

See—Timbers.

ALANGIUM SALVIFOLIUM Wang.

(ALANGIUM LAMARCKI Thw.)

FAM.—Alangiaceæ.

COM. NS.:—*E.* Sage-leaved alangium; *G.* Ankola, Ankoli, Onkla; *H.* Akoly, Ankora, Anedhera; *K.* Ankola, Ankotha, Asroli, Kullumavu; *M.* Ankol, Ankoli; *Sk.* Ankola, Ankota, Dridhakantaka, Gudhapatra, Kathora, Tamraphala, Vamaka.

HABITAT:—Dry places and banks of *nalas*.

LOC.:—Common throughout the State in dry places; often along banks of *nalas* in N. Kanara.

DISTR.:—Throughout India, Ceylon, S. China, Malaya, Philippines.

PARTS USED:—Root-bark, stem, leaves (rarely) and fruit.

PROPERTIES AND USES:—*Root*—acid, pungent, heating, anthelmintic, alterative; cures erysipelas, biliousness, inflammations; fish-poison. *Juice*—emetic, alexipharmic; cures “Kapha”, “Vata”-pain, blood diseases, hydrophobia, rat-bite, lumbago, dysentery, diarrhoea. *Seeds*—cooling, aphrodisiac, indigestible, tonic; cure burning sensation and consumption (Ayurveda). *Root-bark*—used in piles. *Stem*—good in vomiting and diarrhoea. *Fruit*—laxative, expectorant, carminative, anthelmintic, alexiteric; useful in inflammations, blood diseases, burning of body, wasting diseases, spermatorrhœa, gleet, acute fever, lumbago (Yunani).

LOC. USES:—In Indian practice root-bark is used as purgative and anthelmintic; useful in worms, colic, inflammations, poisonous bites. Oil of root-bark is said to be a useful external application in acute rheumatism. It is an efficient and safe emetic in large doses, and as nauseant and anti-pyretic it is used in continued fevers. It is also used in leprosy and syphilis (Moideen Sheriff).

The claims made regarding the therapeutic efficacy of the drug have not been investigated recently by any worker (Chopra).

The plant contains the alkaloid *alangine*. Root-bark poisonous.

See—Timbers, Poisonous Plants and Fish Poisons.

ALBIZZIA LEBBECK Benth.

FAM.—Leguminosæ (Mimosææ).

COM. NS.:—*E.* Parrot—Siris—Sizzling tree; *G.* Kalosadasado, Kaloshish, Piloshirish; *H.* Garso, Kalshish, Shirish, Sirai, Tantia; *K.* Dodla-Hombage, Sirisa, Sirsul; *M.* Chinchola, Kalashirish, Shirich; *Sk.* Karnapura, Krishnashirisha, Shankiniphala, Shirisha, Shyama, Uddanaka.

HABITAT:—Dry and moist monsoon forests.

LOC.:—Throughout the State, commonly planted along roadsides.

DISTR.:—Throughout India; usually planted; tropical and sub-tropical Asia and Africa. Sub-Himalayan region from the Indus eastwards, Bengal, Burma, Ceylon.

PARTS USED:—Root, bark, leaves, flowers, seeds.

PROPERTIES AND USES:—*Root*—used in hemiplegia. *Bark*—bitter, cooling, alexiteric, anthelmintic; cures “Vata”, blood diseases, leucoderma, itching, skin-diseases, piles, excessive perspiration, inflammations, erysipelas, bronchitis; good in rat-bite. *Leaves*—good for ophthalmia. *Flowers*—given for asthma (Ayurveda). *Root*—astringent; prescribed in ophthalmia. *Bark*—anthelmintic; relieves tooth-ache; strengthens gums and teeth; used in leprosy; deafness, boils, scabies, syphilis, paralysis, weakness. *Leaves*—good in night blindness. *Flowers*—aphrodisiac, emollient, maturant; their smell useful in hemiplegia. *Seeds*—tonic to brain; used in gonorrhœa and tuberculous glands. *Oil*—is applied topically in leucoderma (Yunani).

LOC. USES:—Powder of root-bark is used to strengthen gums. Bark and seeds are astringent, given in piles, diarrhoea, etc. Leaves are used in ophthalmia. Flowers are used as a cooling medicine and also externally applied in boils, eruptions and swellings. *Anjan* from seeds is used in ophthalmic diseases. Oil is used in leprosy.

See—Timbers.

ALLIUM CEPA Linn.

FAM.—Liliaceæ.

COM. NS.:—*E.* Onion; *G.* Dungari; *H.* Piyaz; *K.* Ulageddi; *M.* Kanda; *Sk.* Palandu, Rajapriya, Rochaka.

HABITAT:—Cultivated in fields as garden crop.

LOC.:—Cultivated as a cold season crop throughout the Deccan and Gujarat.

DISTR.:—Native country probably Persia, etc.; cultivated everywhere. It is an important garden crop.

PARTS USED:—Bulbs, seeds.

PROPERTIES AND USES:—*Tuber*—pungent, tonic, aphrodisiac; improves taste; useful in vomiting, biliousness, body pains, tumours, bleeding piles, epistaxis. *Seeds*—fattening; useful in caries of teeth and urinary discharges (Ayurveda). *Bulb*—tonic; stonachic, appetiser; useful in malaria, ophthalmia, spleen diseases, vomiting, asthma, scabies, ear-ache, piles; enriches blood; applied to eyes in night-blindness (Yunani).

LOC. USES:—The *bulb* contains an acrid, volatile oil, which acts as a diuretic, stimulant and expectorant; occasionally used in fever, dropsy, catarrh, and chronic bronchitis; mixed with common salt it is used in colic and scurvy. Externally it is used as emollient and when roasted it is applied as poultice to boils. The *juice* is used like smelling salt in faints and hysterical fits, dropped into the ear to relieve ear-ache; it is applied to allay irritation of insect bites, and also in skin diseases; mixed with mustard oil it is used in rheumatic pains. Onions are used to mitigate cough in phthisis.

The plant contains vitamins A, B & C.

See—Vegetables.

ALLIUM SATIVUM Linn.

FAM.—Liliaceæ.

COM. NS.:—*E.* Churl's or Poor-man's treacle, Garlic; *G.* Lasan; *H.* Lahsan, Lasan; *K.* Bellulli; *M.* Lasun; *Sk.* Lashuna, Rasonaka, Uragandha.

HABITAT:—Cultivated in fields.

LOC.:—Widely cultivated in irrigated lands of the Deccan and S. M. Country.

DISTR.:—Widely cultivated. It is an important garden crop.

PARTS USED:—Bulb.

PROPERTIES AND USES:—Pungent; heating, oleaginous; tonic, aphrodisiac, fattening, digestive, anthelmintic; improves appetite, voice, complexion; useful in diseases of eye and heart, low fevers, bronchitis, inflammation, piles, leucoderma, asthma, "Vata", lumbago, tumours, epileptic fits, thirst, ear-ache (Ayurveda). Diuretic, carminative, alexipharmic, aphrodisiac; useful in inflammations, paralysis, body and joint pains, troubles of spleen, liver and lungs; clears voice; good for lumbago, chronic fevers, thirst, caries of teeth, leucoderma; thins the blood (Yunani).

LOC. USES:—As a medicine, garlic was held in great repute by the ancient physicians of India. It is considered to be hot and stimulant and is administered in fevers, coughs and other debilitating conditions. It has also a reputation as a febrifuge in intermittent fevers. It is an excellent medicine in several forms of atonic dyspepsia. It is very effective in bronchial and asthmatic complaints. In cases of diphtheria, the constant chewing of garlic clove relieves the patient. Garlic is an invaluable remedy in the treatment of pneumonia. In pulmonary phthisis, garlic and its preparations have been used extensively. Use of garlic preparations in tuberculous affections has been warmly advocated. It yields an aromatic oil of a stimulant nature, prescribed internally to prevent recurrence of cold fits of intermittent fever. When eaten in cold season it wards off attacks of rheumatism and neuralgia. Garlic juice is used as an antiseptic in ulcerated surfaces and wounds. Used as a liniment it acts very beneficially in infantile convulsions and other nervous and spasmodic affections. Garlic oil is stimulant and rubefacient. Garlic clove boiled in gingelly oil is used as an ear-drop in atonic deafness and to allay the pain in otorrhœa. Expressed juice is applied in case of elongated uvula. In Cambodia, the leaves are used in the treatment of asthma.

The plant contains vitamin C.

INDIAN PREPARATIONS:—*Svalparasuna pinda*—used in facial paralysis, hemiplegia, sciatica, paraplegia and convulsive affections.

See—Vegetables.

ALCE VERA Linn.

FAM.—Liliaceæ.

COM. NS.:—*E.* Indian alœ; *G.* Kadvi—Nahani Kunvar; *H.* Ghikumari, Kumari, Kuvarpatha; *K.* Kattali, Lolisara; *M.* Korphad, Korkand; *Sk.* Ikshurmallika, Kanya, Kapila, Kumari.

MEDICINAL PLANTS

CHAR.:—A perennial herb; stem short thick, somewhat divided; *L.*—sessile, crowded, lanceolate, pale-green, fleshy, margins spiny; scape longer than the leaves, scaly, simple or branched; *Fl.*—in dense racemes; perianth cylindric; pendulous, yellow.

HABITAT:—In driest and poorest soils, wild along the coast; also cultivated.

LOC.:—Growing wild near Bassein creek; also planted in gardens on a small scale in many places.

DISTR.:—Wild along the coast in S. India; planted in Indian gardens; West Indian Islands, Mediterranean, Jamaica, Barbados. Native of S. Africa.

PARTS USED:—Leaves.

PROPERTIES AND USES:—Bitter; cooling, purgative, alterative, fattening, tonic, aphrodisiac, anthelmintic, alexiteric; useful in eye-diseases, tumours, spleen enlargement, liver complaints, vomiting, bronchitis, skin diseases, biliousness, asthma, jaundice, strangury, ulcers (Ayurveda). Bitter; purgative, carminative, tonic, digestive, useful in spleen inflammation, lumbago, pain in muscles, inflammations, ophthalmia, piles, biliousness (Yunani).

LOC. USES:—Its application in medicine dates back to the 4th century B. C. *Tender leaves* mixed with powder of cumin seed and sugar-candy is an excellent remedy in dysentery with bloody stools. *Leaf juice* mixed with opium and applied to forehead, relieves headache; mixed with gingelly oil and boiled makes a fine hair-oil used in cases of sleeplessness. *Leaf-pulp* is a refrigerant medicine in conjunctivitis, with a small quantity of sugar-candy; pulp with addition of burnt alum is a valuable application in ophthalmia. Freshly expressed juice is used as an external refrigerant application for all local inflammations. Leaf-juice with turmeric is given in glandular enlargement and spleen-diseases. *Fresh juice* is cathartic and cooling; used in fevers, liver troubles, gonorrhœa, proctitis. It also acts as a mild purgative, emollient and demulcent; used in form of paste in pleurisy. *Tender pulp* is eaten in rheumatism. Used also in menstrual suppression and piles.

Alœs are identified as the ancient "Chrit Kumari" of the Vedas.

The commercial drug is met with in hard dark masses, and it is largely imported into India.

The plant contains *aloin*, *isobarbaloin* and *emodin*.

ALSTONIA SCHOLARIS R. Br.

FAM.—Apocynaceæ.

COM. NS.:—*E.* Dita bark tree; *H.* Satian, Satwin, Chatian; *K.* Hale, Kadusale, Kaduhale; *M.* Satwin; *Sk.* Saptachhada, Saptaparna.

HABITAT:—Moist forests.

LOC.:—Throughout the State usually in monsoon forests from Bombay southwards; common in the rain-forests of N. Kanara.

DISTR.:—Throughout India, Ceylon, Java, tropical Africa, E. Australia.

PARTS USED:—Root, bark, leaves, milky juice.

A Bk Vf 1-2

PROPERTIES AND USES :—Root is given for enlarged liver with pain. Bark—acid, bitter, heating, oleaginous; appetiser, laxative, anthelmintic, galactagogue; good in diseases of the heart, asthma, leucoderma, ulcers, diseases of the blood, "tridosha" pain, tumours; very good for chronic ulcers and caries of teeth (Ayurveda).

LOC. USES :—The bark is used as an astringent tonic, antiperiodic and febrifuge; valuable in debility and after-effects of fever. It is a valuable remedy in chronic diarrhoea and dysentery; also useful in catarrhal fever. It is also said to be used in leprosy, stomach-ache and liver complaints. Leaf-poultice acts as useful local stimulant to unhealthy ulcers. The milky juice is applied to ulcers and to rheumatic pains; mixed with oil it relieves ear-ache.

The drug seems to produce good effects in cases where the catarrhal conditions of the intestines have lasted for some time (Report of Ind. Drug Com.). Alkaloid *ditamine* is said to be equally effective as sulphate of quinine, but no definite conclusions as to its anti-malarial properties are yet found.

Bark contains two alkaloids *ditamine* and *echitamine*.

INDIAN PREPARATION :—*Amritashtakanachana*.
See—Timbers.

AMARANTUS SPINOSUS Linn.

FAM.—Amarantaceæ.

COM. NS. :—*E.* Prickly amaranth; *G.* Kantalo dambho, Kantanudant, Tandulja; *H.* Cholai, Kantanatia; *K.* Mulladantu, Mullarave-soppu; *M.* Kante math, Tandulaja; *Sk.* Apamarisha, Pathyashaka, Tandulibija.

CHAR. :—An erect glabrous herb, 30-60 cm. high, often reddish; branches grooved with sharp divaricate spines in the leaf-axil; *L.*—3.2-7.5 x 1.3-3.8 cm., ovate, lanceolate, obtuse, entire; *Fl.*—in terminal and axillary dense spikes, numerous, unisexual; male calyx acute, bristles pointed; female calyx oblong, obtuse, apiculate; *Fr.*—capsule, long, ovoid, thickened at the top, rugose.

HABITAT :—In waste places, rubbish heaps; also in fields.

LOC. :—Growing wild throughout the State in waste places, rubbish heaps and fields.

DISTR. :—Throughout India, Ceylon, tropical countries.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—Cooling, digestible, alexiteric, laxative, diuretic, stomachic, antipyretic; improves appetite; useful in "Kapha", biliousness, blood diseases, burning sensation, hallucination, leprosy, bronchitis, rat-bite, piles, leucorrhoea. Root—heating expectorant; lessens menstrual flow (Ayurveda).

LOC. USES :—Root is considered a specific in gonorrhoea; it is used in menorrhagia and eczema. It is applied as a poultice to buboes and abscesses for hastening suppuration. It is also considered a lactagogue and a specific for colic. Boiled roots and leaves are given to children as laxative; they are applied as emollient poultice to abscesses, boils and burns.

In Cambodia root is used internally as diuretic, sudorific and febrifuge.

See—Vegetables.

AMMANNIA BACCIFERA Linn.

FAM.—Lythraceæ.

COM. NS. :—*E.* Blistering ammania; *G.* Jalavgiyo; *H.* Dadmari, Jangli mehandi, Kuranda; *M.* Bharajambhul; *Sk.* Kurendika, Kuranti, Sukaṇḍa, Vikata.

CHAR. :—An annual, erect or subscandent herb, 8-65 cm. high, branches usually opposite; *L.*—opposite, sessile, linear-oblong or oblong-lanceolate, much narrowed at the base; *Fl.*—in dense axillary clusters or in loose cymes forming whorls in the axils; *Fr.*—capsule, depressed, globose, red, irregularly circumsciss above the middle; *Sd.*—subhemispheric excavated on the plane-face; *Fl. t.*—Nov.

HABITAT :—Moist places (tolerably common).

LOC. :—Konkan, Deccan, Gujarat and Kanara.

DISTR. :—Throughout India in moist places. Ceylon, Afghanistan, Malaya, China, Australia, Tropical Africa.

PARTS USED :—Leaves.

PROPERTIES AND USES :—Bitter; appetiser, laxative, stomachic, aphrodisiac; removes "Kapha", "Vata", blood troubles, stranghly, causes biliousness (Ayurveda). Bitter and acid; used as an appetiser (Yunani).

LOC. USES :—Leaves are exceedingly acid; they are commonly used to raise blisters in rheumatic pains, fevers etc. In the Konkan, the plant, fresh or dried, is administered in decoction with ginger and Cyperus root for intermittent fevers and its ashes are mixed with oil and applied to herpetic eruptions.

There is much difference of opinion regarding the value of the plant as a blistering agent.

See—Poisonous Plants and Fish Poisons.

AMORPHOPHALLUS CAMPANULATUS Blume.

FAM.—Araceæ.

COM. NS. :—*E.* Elephant's foot; *G.* Suran; *H.* Suran; *K.* Suran; *M.* Suran; *Sk.* Arshaghna, Kandala, Kandavardhan, Kanthalla, Vatari.

HABITAT :—Cultivated and wild.

LOC. :—Cultivated widely in the State, especially in the Deccan and Gujarat. Grows wild on the banks of S. Konkan rivers.

DISTR. :—Cultivated largely throughout the plains of India and Ceylon in rich soils.

PARTS USED :—Root, corm.

PROPERTIES AND USES :—Dry, acid, pungent, increases appetite and taste, stomachic, constipating; useful in piles, enlargement of the spleen, tumours, asthma, bronchitis, vomiting, abdominal pains, blood diseases, elephantiasis; causes itching sensation; harmful in "Kapha", leprosy and leucoderma (Ayurveda).

LOC. USES :—The root is used in ophthalmia and applied to boils. It is also used as an emmenagogue. Corm is irritant and also the seeds; when applied externally they relieve pain of rheumatic swellings. Corm is considered a hot comminative in form of a pickle.

▲ Bk Vf 1-2a

When fresh, acts as an acrid stimulant and expectorant. It is supposed to have restorative power. It is considered serviceable in hæmorrhoids.

The plant contains Vitamins A, B, and trace of C. Corm is poisonous.

See—Vegetables, Poisonous Plants and Fish Poisons.

ANACARDIUM OCCIDENTALE Linn.

FAM.—Anacardiaceæ.

COM. NS.:—*E.* Cashew apple-nut; *G.* Kaju; *H.* Kaju; *K.* Gerubi, Govamba, Gova, Kempu—Turkaka geru; *M.* Kaju; *Sk.* Agni-krita, Kajutaka, Prithagbija, Sophara, Upapushpika.

HABITAT:—Coastal regions.

LOC.:—Throughout the State naturalised and completely established; very common near the seashore in open situations (in *N. Kanara* also cultivated).

DISTR.:—A native of tropical America; naturalised and cultivated in India especially near the coast.

PARTS USED:—Bark, leaves, flowers, swollen peduncle of fruit.

PROPERTIES AND USES:—Ripe peduncle of fruit acrid, sweet, hot; digestible, aphrodisiac, anthelmintic; cures "Vata" and "Kapha", tumours, ascites, fever, ulcers, leucoderma, skin diseases, dysentery, piles, loss of appetite (Ayurveda).

LOC. USES:—Bark is alterative. Root is purgative and fruit apple is anti-diarrhoeal. The tar from the bark is used as a counter-irritant. As an external application it has been recommended in leprosy, ringworm, corns and obstinate ulcers. It is powerfully rubefacient and vesicant and requires to be used with caution; fruit apple eaten is a remedy for scurvy. Kernel yields a light yellow bland oil, which is nutritious and emollient, equal to almond oil. The shell of the nut yields an oil which is black. It is powerfully rubefacient and vesicant. It is a mechanical as well as chemical antidote for irritant poisons and a good vehicle for liniments and other external applications. It is a good application for cracks of the feet.

The seed contains vitamin A.

See—Timbers, Oils, Poisonous Plants and Fish Poisons.

ANAMIRTA COCCULUS W. & A.

FAM.—Menispermaceæ.

COM. NS.:—*E.* Crow—Fish Killer, Fish—Louse Berry; *G.* Kakaphal, Kakamari; *H.* Jermic, Kakamari; *K.* Kakamari, Kakkisoppugida; *M.* Kakamari; *Sk.* Garalaphala, Kakamari, Kakanashika.

CHAR.:—A shrub climbing to a considerable height, bark vertically furrowed; *L.*—subcoriaceous, 10-12 × 7.5-12.5 cm., broadly ovate, cordate or truncate, 5-nerved, tuft of hairs in the axils of nerves except the basal ones; *Fl.*—in panicles 25-35 cm. long, many flowered;

•bud globular, diœcious, petals absent; *Fr.*—drupe on a 3-fid gynophore (usually 2), smooth, black; *Fl. t.*—Sept.-Oct.

HABITAT:—Moist rain forests.

LOC.:—Konkan, N. Kanara (Nilkund Ghat forests).

DISTR.:—Khasia Hills, Assam, E. Bengal, from Orissa to Ceylon, Malay Archipelago to New Guinea.

PARTS USED:—Leaves (rarely), fruits.

PROPERTIES AND USES:—Fruit slightly bitter; good expectorant; removes gases from the intestines; good for rheumatism and as an application for inflammations; a poison to fish (Yunani).

LOC. USES:—The seeds are officinal in the Pharmacopœia of India and enter as an ingredient in the preparation of an ointment used for the destruction of pediculi (lice) and obstinate forms of chronic skin diseases. Seeds possess powerfully poisonous properties due to the presence of *picrotoxin* and are chiefly used to poison fish; 6 to 10 grains of them are sufficient to kill a dog.

In Bengal fresh leaves are used as snuff in the treatment of daily ague.

See—POISONOUS PLANTS AND FISH POISONS.

ANANAS SATIVUS Schult.

FAM.—Bromeliaceæ.

COM. NS.:—*E.* Ananas, Pine-apple; *G.* Ananas; *H.* Ananas; *K.* Ananas hannu; *M.* Ananas; *Sk.* Ama, Ananasa, Kantak sanjika, Parvati.

HABITAT:—Hot moist regions along sea-coast; cultivated.

LOC.:—Cultivated along the sea-coast in the Konkan and N. Kanara; to a certain extent in Gujarat.

DISTR.:—Cultivated in India and elsewhere in tropical countries, native of Brazil (tropical America).

PARTS USED:—Roots, leaves and fruits.

PROPERTIES AND USES:—Fruit is digestive, useful in cardiac disorders and fatigue; causes cough and biliousness; useful in diseases of blood (Ayurveda.)

LOC. USES:—Fresh juice of the leaves is a powerful anthelmintic; given with sugar it relieves hiccup; also acts as a purgative. The juice of the ripe fruit is antiscorbutic; also allays gastric irritability in fevers; it is useful in jaundice. It acts also as diuretic, diaphoretic and refrigerant. The juice of the unripe fruits is emmenagogue, and in large quantities causes uterine contractions and ought to be rigorously avoided by pregnant women.

See—Fruit Trees.

ANDROGRAPHIS PANICULATA Nees.

FAM.—Acanthaceæ.

COM. NS.:—*E.* Creat; *G.* Kiriyata, Olikiriyat; *H.* Kiryat, Mahatit; *K.* Nelabevu gida; *M.* Olen, kirayat; *Sk.* Bhuinimba, Kirata, Mahateet.

CHAR. :—An erect branched annual 0.3-0.9 m. high, branches sharply quadrangular winged in the upper part; *L.*—lanceolate, acute, undulate, pale beneath; *Fl.*—small, solitary, distant, in lax axillary or terminal racemes or panicles, bracts lanceolate; *C.*—2-lipped, upper lip 2-toothed, lower 3-lobed, rose coloured; *Fr.*—capsule, linear-oblong, acute at both ends; *Sd.*—many, rugosely pitted, yellowish brown; *Fl. t.*—Dec.

HABITAT :—Dry forest undergrowth.

LOC. :—Konkan and Kanara.

DISTR. :—Throughout India, Ceylon; sometimes cultivated.

PARTS USED :—Root and leaves.

PROPERTIES AND LOC. USES :—The bitter herb is well known under the name of *Kalmegh* and forms the principal ingredient of a household medicine called *alui*, extensively used in Bengal. *Roots* and *leaves* are febrifuge, stomachic, tonic, alterative, and anthelmintic. *Plant* is useful in general debility, dysentery, and certain forms of dyspepsia; expressed *leaf-juice* is a common domestic remedy in the bowel complaints of children. It is called Indian chiretta and is used as a tonic. During the great influenza epidemic (1919) a tincture of the plant was found highly efficacious in arresting the progress of the disease.

Green leaves, with leaves of *Aristolochia indica* and the fresh inner root-bark of country sarsaparilla, made into an electuary, is used by hakims as a tonic and alterative in syphilitic cachexia and foul syphilitic ulcers.

The plant contains two bitter principles *andrographolin*, and *kalmeghin*.

ANISOMELES MALABARICA R. Br.

FAM.—Labiatae.

COM. NS. :—*E.* Malabar Catmint; *G.* Gholo—Makhamali-chodharo; *K.* Karitumbe; *M.* Chodhara, Sundara, Sundraphul; *Sk.* Alamoda, Oshthaphala, Vaikunth, Gojivana.

CHAR. :—An erect shrub, 1.2-1.8 m. high, thickly woolly, stem quadrangular, clothed with woolly hairs; *L.*—very thick, 6.3-10 × 2.4-5 cm., oblong-lanceolate; pale above, white below, crenate-serrate; *Fl.*—in dense whorls; distant, approximate above, forming a spicate inflorescence; *C.*—2-lipped, purple; lower lip very large and broad; lateral lobes small, middle lobe divided at the apex into 2 lobes; *Fr.*—nutlets, very small, ellipsoid, smooth, polished brown; *Fl. t.*—Oct.-Nov.

HABITAT.—Ghats.

LOC. :—Déccan, and N. Kanara.

DISTR. :—S. Karnatak, Malay Peninsula, Mauritius.

PARTS USED :—Plant and leaves.

PROPERTIES AND LOC. USES :—An infusion of the aromatic bitter leaves is in common use in affections of stomach and bowels, catarrhal affections and intermittent fevers. Patients are made to inhale the vapour of a hot infusion so as to induce copious diaphoresis. *Leaf infusion* is given to children in colic, dyspepsia and fever from teething. *Plant decoction* or oil distilled from leaves is used externally in rheumatism. The plant is considered sudorific and antipyretic.

ANOGEISSUS LATIFOLIA Wall.

FAM.—Combretaceae.

COM. NS. :—*E.* Button Tree; *G.* Dabria, Damora, Dhavada; *H.* Bakla, Dhava, Dohu; *K.* Bejjalu, Dindala, Dindiga; *M.* Dhamora, Dhavada; *Sk.* Dhaya, Dhavala, Pitaphala, Shushkanga.

HABITAT :—Growing usually in dry deciduous forests.

LOC. :—Very common throughout the State usually in dry forests.

DISTR. :—Throughout the greater part of India, Ceylon.

PARTS USED :—Root, bark, leaves and fruits.

PROPERTIES AND USES :—Stomachic; increases biliousness; cooling; improves taste and appetite; removes "Kapha" and "Vata"; useful in anæmia, discharges; applied to skin-diseases, erysipelas. *Leaf-juice* is given in purulent discharges from the ear; astringent to the bowels (Ayurveda).

Bark is bitter, astringent to the bowels; useful in liver complaints, chronic diarrhoea, and eye-sores. (Yunani).

LOC. USES :—In Chota-Nagpur, the bark enters into the composition of a remedy against difficult expectorations and obstruction of windpipe by phlegm.

See—Timbers, Dyes.

ANONA SQUAMOSA Linn.

FAM.—Anonaceae.

COM. NS. :—*E.* Custard apple, Sugar apple, Sweet-sop; *G.* Anan. Anuram, Sitaphal; *H.* Ata, Sharipha, Sitaphala; *K.* Amritphala, Durangi, Sitaphala; *M.* Sitaphala; *Sk.* Bahubijika, Krishnabija, Sitaphala.

HABITAT :—Wild and cultivated.

LOC. :—Cultivated all over the State in gardens; domesticated and wild in forests of Dharwar District and along N. Kanara border.

DISTR. :—A native of West Indies; now cultivated throughout India. Naturalised in Hyderabad and other parts.

PARTS USED :—Root, bark, leaves, fruit and seeds.

PROPERTIES AND USES :—*Fruit*—sweet, tasty; good tonic; enriches blood; increases muscular strength; cooling; lessens burning sensation and tendency to biliousness; sedative to heart; relieves vomiting (Ayurveda). *Root*—cathartic. *Fruit*—sweet, flavoury; enriches blood; stimulant, expectorant. *Seeds*—difficult to digest; causes fever and furunculosis; abortifacient; produce ulcers in the eye; good to destroy lice in hair (Yunani).

LOC. USES :—*Root* is considered a drastic purgative and is administered in acute dysentery. It is also employed internally in depression of spirits and spinal diseases. *Bark* is a powerful astringent. *Leaves* are used as poultice over boils and ulcers and also to kill lice. *Leaf infusion* is efficacious in *prolapsus ani* of children. • *Bruised leaves* with salt make a cataplasm to induce suppuration. They are applied for extraction of guinea-worms. *Ripe fruit* is maturant and applied—mixed with salt—to malignant tumours to hasten suppuration. *Dried unripe fruit* powdered and mixed with

gram-flour is used to destroy vermin. *Seeds* yield an oil and resin. They are detergent and their powder, mixed with gram-flour, is a good hairwash. *Seeds* are crushed and used to destroy worms in the wounds of cattle; *seeds* are powerful irritant of conjunctiva.

The plant contains an amorphous alkaloid. There is a trace of vitamin A in the fruit.

See—Fruit Trees.

ANTHOCEPHALUS CADAMBA Miq.

FAM.—Rubiaceæ.

COM. NS.:—*G.* Kadamb; *H.* Kadam, Kadamb; *K.* Kadamb, Kadubale, Kaduve; *M.* Kadamb, Niv; *Sk.* Ashokari, Kadamba, Karnapuraka, Nadija, Nipa, Surabhi.

HABITAT:—Near tanks and villages; wild or cultivated.

LOC.:—Common near villages throughout Konkan and Kanara. Not indigenous.

DISTR.:—Throughout India; often cultivated; from the Malayan Peninsula, Malay Islands.

PARTS USED:—Bark, sprouts and fruits.

PROPERTIES AND USES:—*Bark*—pungent, bitter, sweet, acrid, saline; aphrodisiac, cooling, indigestible, galactagogue, astringent to bowels, vulnerary, alexiteric; good in uterine complaints, blood diseases, strangury, “Vata”, “Kapha”, biliousness, burning sensation. *Fruit*—heating, aphrodisiac; causes biliousness when ripe. *Sprouts*—acrid, stomachic; cures leprosy and dysentery (Ayurveda).

LOC. USES:—In the Konkan, *fresh bark-juice* is applied to the heads of infants when the fontanelle sinks, and a small quantity mixed with cumin and sugar is given internally. In eye inflammations, juice with equal quantities of lime-juice, opium and alum is applied round the orbit. *Bark* is given in cough and fevers in Tongking. It is generally considered tonic. *Leaf decoction* is used as a gargle in cases of aphthæ and stomatitis.

The plant contains a principle similar to cinchotannic acid.

See—Timbers, Fodder Plants, Sacred Plants.

ANTIARIS TOXICARIA Lesch.

FAM.—Moraceæ.

COM. NS.:—*E.* Upas Tree; *H.* Chandkuda; *K.* Aijanpatte, Bairi, Jaipugri; *M.* Chandala, Chandkuda; *Sk.* Valkala.

HABITAT:—In evergreen forests.

LOC.:—Rain forests of the Konkan and N. Kanara; common near Yellapur.

DISTR.:—W. Peninsula, Burma, Pegu, Tennaserim, Ceylon, Malay Peninsula and Archipelago.

PARTS USED:—Seeds, sap of the tree.

PROPERTIES AND LOC. USES:—In the Konkan and in Kanara, the bitter *seeds* are used as a febrifuge and as a remedy in dysentery.

The juice derived from the leaves or the bark of the tree is nevertheless distinctly poisonous. It is used to this day as an arrow poison by wild tribes in Burma, Java and Malaya.

Pharmacological studies show that the drug is a very powerful heart poison.

The plant juice contains three glucosides α -antiarin, β -antiarin, and γ -antiarin.

See—Timbers, Fibres, Poisonous Plants and Fish Poisons.

APIUM GRAVEOLENS Linn.

FAM.—Umbellifereæ.

COM. NS.:—*E.* Celery, Wild celery; *G.* Bodi ajomoda; *H.* Ajmud, Bori ajmud, Karafs; *M.* Ajmoda; *Sk.* Ajamoda, Brahmakoshi, Markati, Moda, Ugragandha.

CHAR.:—A biennial plant; 0.3-2.4 m. high, erect, branching; *L.*—radial, pinnate with large deeply lobed segments, cauline 3-partite; segments once or twice trifid, apex toothed; *Fl.*—in umbels, rays 5-10; pedicels 6-10; *Fr.*—1.5-2 mm., ridges narrow, ribs broad.

HABITAT:—Wild and cultivated.

LOC.:—Cultivated in gardens in many places in the State, specially near large cities.

DISTR.:—Foot of the N. W. Himalayas and outlying hills in the Punjab, Afghanistan, W. Asia, Europe, N. Africa, Abyssinia.

PARTS USED:—Root (rarely) and seeds.

PROPERTIES AND USES:—*Seeds*—stomachic, aphrodisiac, tonic, astringent to bowels; improve appetite; cure “Kapha”, “Vata”; good for heart; useful in ophthalmia, bronchitis, vomiting, hiccup, rectal troubles, ascites, abdominal pain, tooth-ache, tumours; cause burning sensation (Ayurveda). *Seeds*—carminative, laxative, appetiser, anthelmintic, abortifacient; good in ophthalmia, scabies, scorpion and other stings; cure asthma, vomiting, heart and spleen diseases, amenorrhœa, urinary discharges, fever with cough, rheumatism, chest-pains, inflammations, nasal catarrh (Yunani).

LOC. USES:—*Root* is considered alterative and diuretic; used in anasarca and colic. *Seeds* are given as stimulant and cordial. As an antispasmodic they are used in asthma and bronchitis, and to some extent are said to be emmenagogue in liver and spleen diseases.

In Europe plant is recommended as excellent in rheumatism.

The plant contains vitamins A, traces of B and C.

Glucoside *apiin* is present.

See—Vegetables.

ARACHIS HYPOGÆA Linn.

FAM. Leguminosæ (Papilionaceæ).

COM. NS.:—*E.* Monkey-nut; Ground-Pea-nut; *G.* Bhuimug-chana; Chinimung; *H.* Mungphali; *K.* Bhuimug, Nelkadle; *M.* Bhuimug; *Sk.* Bhuchanak, Shimbika, Mandapi, Snehabijaka.

HABITAT :—Cultivated.

LOC. :—Cultivated extensively in Khandesh, Deccan, Gujarat and S. M. Country.

DISTR. :—A native of tropical America—now widely cultivated in tropical and sub-tropical regions all over.

PARTS USED :—Seeds and oil.

PROPERTIES AND USES :—*Seeds* and *oil* are sweet and astringent to bowels; they cause flatulence and bronchitis (Ayurveda).

LOC. USES :—*Unripe* fruits are considered a good lactagogue and are given to women in milk deficiency. Ground-nut oil is used in pharmacy as a good substitute for olive or almond oil; it is regarded as an excellent aperient and emollient and is used in catarrh of bladder.

In French Guinea, *oil* is given in acute abdominal pain; it is applied hot to dislocations as compress with or without *tafia*.

Immature seeds contain vitamins A and B.

See—Food Plants, Oils.

ARECA CATECHU Linn.

FAM.—Palmae.

COM. NS. :—*E.* Areca-nut palm, Areca palm, Betel-nut palm; *G.* Hopari, Sopari; *H.* Supari, Suppiyari; *M.* Pophal, Supari; *K.* Adki, Betta, Chikka, Kaungu, Poga; *Sk.* Akota, Chhataphala, Chikkan, Pugiphal, Tantusara.

HABITAT :—Cultivated in high rainfall tracts.

LOC. :—Extensively grown in N. Kanara; fairly largely in the Konkan.

DISTR. :—Madras, Bengal, Assam, Mysore, Malabar, Indo-Malaya, Malayan Peninsula and Islands, Burma, Siam; considered as indigenous in Cochin-China.

PARTS USED :—Root, leaves (rarely), seeds, gum.

PROPERTIES AND USES :—*Unripe seed* poisonous and harmful to the eyesight. *Seed* cooling, indigestible, laxative, improves appetite and taste, removes foul breath. *Gum* pungent, cooling, causes biliousness (Ayurveda). *Nut* astringent, digestive, diuretic, cardiotonic, emmenagogue; used for eye-inflammations, giddiness, gleet; removes pus (Yunani).

LOC. USES :—*Root decoction* is a reputed cure for sore-lips. *Juice* of young leaves mixed with oil is used as an embrocation in lumbago. *Powdered nut* is useful in checking diarrhoea; useful in urinary disorders; aphrodisiac. *Dried nut* (seed) when chewed produces stimulant and exhilarant effects on the system. It is a nervine tonic and emmenagogue; used as an astringent lotion for eyes, in bowel complaints and bad ulcers, bleeding gums. Women use it both externally and internally for stopping watery-discharges from vagina. In India areca-nut has been used as an anthelmintic in man and animals from time immemorial. The grated nut is given as an anthelmintic in round and tape-worms. It was considered so efficacious and so highly esteemed that it was introduced in the British Pharmacopoeia.

Seed contains vitamin A to a small extent.

Seed contains alkaloids *arecaine*, *arecaine*, *arecoline*, and *guvacine*.

See—Timbers, Fruit Trees.

ARGEMONE MEXICANA Linn.

FAM.—Papaveraceae.

COM. NS. :—*E.* Mexican prickly poppy; *G.* Darudi; *H.* Bharbhand, Bila dhatura, Shialkanta; *K.* Balurakkisa, Datturi, Pirangi datturi; *M.* Daruri, Firangi-Kate-Pivala dhotara; *Sk.* Brahma dandi, Pita-pushpa, Srigalkanta, Svarnakshiri.

CHAR. :—A glabrous, glaucous herb; stem 0.3–0.12 m. high, prickly, branching; juice yellow; *L.*—thistlelike, stem clasping, oblong, 7.5–18 cm. sinuately pinnatifid, spinous, veins white; *Fl.*—terminal, yellow, 2.5–5 cm. diam; *Fr.*—capsule, prickly, oblong-ovoid 2.5–3.8 cm. opening by 4–6 valves; *Sd.*—numerous, globose, netted, brownish black; *Fl.*—all the year.

HABIT :—A weed of the roadsides and in cultivated fields.

LOC. :—Found growing as a weed all over the State; more common in rice fields in the Konkan and Deccan (Maval).

DISTR. :—Introduced and naturalised throughout India. Indigenous in tropical America.

PARTS USED :—Root, seeds and yellow juice.

PROPERTIES AND USES :—*Plant*—diuretic, purgative, destroys worms; cures leprosy, various skin-diseases, inflammations and bilious fevers, useful in strangury; antidote to various poisons. *Root* anthelmintic. *Juice*—used as a collyrium, cures ophthalmia and opacity of the cornea. *Seeds*—purgative, sedative; when fresh cause vomiting (Ayurveda).

Plant enriches blood; good expectorant and aphrodisiac; useful in skin-diseases and leucoderma (Yunani).

LOC. USES :—*Root* is an alterative; its use is attended with benefit in some chronic skin diseases. *Roots* are used to cure guinea worm affections; they are ground up and mixed with onions and applied to the affected part. This is said to bring the worm out at once. *Seeds* are laxative, emetic, nauseant, expectorant and demulcent; useful in cough and catarrhal affections of the throat and pulmonary mucous membrane, and in pertussis and asthma. *Seeds* yield on expression a fixed oil which has long been in use as an aperient. It is also serviceable in some cases in which jalap, rhubarb and castor oil are indicated. Yellow juice of the plant is used as a medicine for dropsy, jaundice and cutaneous affections. It is also diuretic, relieves blisters, and heals excoriations and indolent ulcers. In the Konkan the *juice* is given with milk in leprosy; juice mixed with ghee is given internally in gonorrhoea.

Seeds are used to adulterate mustard seeds. *Seeds* yield an oil which is considered to be a cause of epidemic dropsy in N. India.

Both from the chemical and the therapeutical points of view the plant appears worthy of investigation (Ph. Ind.).

The plant contains alkaloids *berberine* and *protopine*.

ARGYRIA SPECIOSA Sweet.

FAM.—Convolvulaceæ.

COM. NS.:—*E.* Elephant Creeper; *G.* Samudrashosh, Varghoro; *H.* Samandarka phal, Samardar sokh; *K.* Samudraballi, Soge; *M.* Samudrashok; *Sk.* Ajantri, Dridhadaru, Hastivalli, Samudrapatashoh, Vridhadaraka.

CHAR.:—A very large climber, stems stout, white-tomentose *L.*—7.5-30 × 6.3-25 cm. (sometimes even larger), ovate glabrous above, white-tomentose beneath, base cordate; *Fl.*—in sub-capitate cymes, peduncles stout, white-tomentose, bracts large; *C.*—5-6.3 cm. long, tubular, infundibuliform, the bands silky, pubescent outside, tube inflated, pubescent outside, rose purple, glabrous inside; *Fr.*—globose apiculate; *Fl. t.*—Aug.-Sept.

HABITAT:—Found growing near villages.

LOC.:—Konkan, Deccan and S. M. Country; often cultivated in gardens for its flowers.

DISTR.:—Throughout India; cultivated, Java; perhaps a native of Bengal.

PARTS USED:—Root and leaves.

PROPERTIES AND USES:—*Root*—bitter; aphrodisiac, diuretic; used in gleet, gonorrhœa, strangury, chronic ulcers (Yunani).

LOC. USES:—In Hindoo medicine the *root* is regarded as alterative tonic; useful in rheumatic affections and diseases of the nervous system. In synovitis, powdered root is given with milk. *Leaves* are maturative, absorptive, local stimulant and rubefacient and are used externally as emollient poultice for wounds and skin diseases.

See—Ornamental Plants.

ARISTOLOCHIA BRACTEATA Retz.

FAM.—Aristolochiaceæ.

COM. NS.:—*E.* Bracteated Birth-wort; *G.* Kidamari; *H.* Ganda, Gandali, Kiramar; *K.* Adumuttadagida; *M.* Kidamar; *Sk.* Dhuma-patra, Kitakaba, Kitamari, Krimighni, Shyambhuna.

CHAR.:—A slender perennial; stems, weak, prostrate, striate; *L.*—3.8-7.5 cm. long and as broad as long, reniform or broadly ovate, base cordate with wide sinus; *Fl.*—solitary, pedicel with a large bract at the base; perianth 2.5-4.5 cm. long, base subglobose, tube cylindric with trumpet-shaped mouth, tip linear dark purple, with revolute margins; *Fr.*—capsule, 1.3-2 cm. long, oblong-ellipsoid, 12-ribbed; *Sd.*—deltoid with cordate base; *Fl. t.*—Aug.-Nov.

HABITAT.—Weed of cultivation in black soils.

LOC.:—Abundant in the black soils of the Deccan, Konkan, Gujarat and S. M. Country.

DISTR.:—Bengal, W. Peninsula; Ceylon, Arabia, tropical Africa.

PARTS USED:—The whole plant.

PROPERTIES AND USES:—*Purgative*, anthelmintic; useful in "Vata", "Kapha" fevers, painful joints; applied to sores to kill maggots (Ayurveda).

LOC. USES:—Every part of the plant is extremely bitter and is much used by the Hindoo physicians on account of its anthelmintic and purgative properties. *Leaves* are applied to the navel of children to move the bowels. Bruised leaves mixed with castor oil are externally applied in obstinate psora and eczema of legs in children. *Leaves* yield a yellowish thick juice which is mixed with boiled milk and given in syphilis and combined with opium used with success in gonorrhœa.

In Sind dried roots in powder form or infusion are administered during labour to increase uterine contraction.

The plant contains an alkaloid.

ARISTOLOCHIA INDICA Linn.

FAM.—Aristolochiaceæ.

COM. NS.:—*E.* Indian Birth-wort; *G.* Arkamula, Ruhimula; *H.* Isharmula; *K.* Isvara balli beru; *M.* Sapsan; *Sk.* Arkamula, Ishvari, Nakuli.

CHAR.:—A twining shrub; *Stem* long, slender, woody at the base, grooved; *L.*—variable linear oblong, 3.8-10 × 1.8-2.8 cm., obovate oblong 10-12.5 × 7.5 cm., entire with undulate margins, base variable; *Fl.*—in few flowered axillary racemes; bract opposite the pedicel; perianth greenish-white, reaching 4.5 cm. long with globose inflated base, then bent at right angle and suddenly narrowed into a cylindric tube with trumpet-shaped mouth passing into a narrow brownish lip; *Fr.*—capsule, globose-oblong, 6-valved; *Sd.*—flat, winged; *Fl. t.*—Nov.

HABITAT:—Hilly parts.

LOC.:—Konkan and S. M. Country.

DISTR.:—Western Peninsula, Bengal, Nepal, Ceylon.

PARTS USED:—Roots, leaves and seeds.

PROPERTIES AND USES:—*Root*—pungent, bitter, alexiteric, emmenagogue; useful in "Tridosha," pains in the joints, bowel troubles of children (Ayurveda). *Seeds* useful in inflammation, biliousness, dry cough, joint-pains, dyspnœa of children; purgative (Yunani).

LOC. USES:—*Root* which is very bitter is held in much esteem as a stimulant, tonic, emmenagogue and is employed in intermittent fevers and other affections. Mixed with honey it is given in leucoderma, also useful in dropsy. In Bombay it is chiefly prescribed in the bowel complaints of children; in cholera it is regarded as a stimulant tonic, and is also applied externally to the abdomen. *Juice* of fresh leaves is very useful in the croup of children. *Plant* is used as an abortifacient.

The plant contains an alkaloid.

ARTEMISIA NILAGIRICA Pamp.

(ARTEMISIA VULGARIS Linn.)

FAM.—Compositæ.

COM. NS.:—*E.* Flea-bane, Indian wormwood, Mother or Mugwort; *H.* Dona, Majtari, Mastaru, Nagduna; *K.* Dovana, Manjipatri; *M.* Dhor-davana, Gathona; *Sk.* Nagdamani, Nilpushpa, Saraparni, Sugandha.

CHAR. :—A perennial shrub, aromatic, 0.6-2.4 m. high, hairy, stems leafy; *L.*—lower leaves 5-10 × 2.5-5 cm. petioled, ovate, deeply pinnatisect; base lobed, lobes entire, toothed or again pinnatisect, pubescent above, white tomentose beneath; upper leaves smaller, 8-fid or entire, lanceolate; *Fl.*—heads ovoid or subglobose, solitary or 2, 3 together in horizontal or suberect panicles, racemes, outer flowers female, inner hermaphrodite, fertile; involucre bracts villous; *Fr.*—achene, minute, oblong ellipsoid; *Fl. t.*—Jany.

HABITAT :—Hilly districts.

LOC. :—Common in the Deccan hills with more rainfall.

DISTR. :—Throughout hilly districts of India, Ceylon, temperate Asia; Thailand (Siam), Java.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—*Plant* pungent; alexiteric, appetiser; cures "Kapha", "Vata", asthma, itching (Ayurveda).

LOC. USES :—*Plant* is a valuable stomachic, deobstruent and antispasmodic. It is prescribed in infusion and electuary in cases of obstructed menses and hysteria. Externally it is used in fomentations; given in skin diseases and foul ulcers as an alterative. The expressed juice is applied to the head of young children for prevention of convulsions. The leaves and tops are given in nervous and spasmodic affections connected with debility, asthma and brain diseases. Strong decoction is given as a vermifuge and a weak one to children in measles. An infusion is given as a tonic. Boiled leaves are used as poultice in headache.

The plant contains an essential oil.

ARTOCARPUS INTEGRIFOLIA Linn.

FAM.—Urticaceæ.

COM. NS. :—E. Jack-fruit tree, Jack-Orange wood; G. Vanas; H. Chakki, Kanthal, Panos; K. Halasina, Kujja, Panesa, Tage; M. Phanas; Sk. Kantakaphala, Panas, Phanasa, Skandaphala.

HABITAT :—Rain forests of W. Ghats.

LOC. :—Konkan, often planted along roadsides in N. Kanara; found near the villages or sites of deserted villages in Bombay State; grown in gardens also.

DISTR. :—Widely cultivated.

PARTS USED :—Leaves, fruit and seeds.

PROPERTIES AND USES :—*Fruit*—carminative, tonic; cooling, oleaginous, fattening, aphrodisiac; useful in biliousness, "Vata", leprosy, ulcers, "Kapha". *Seeds* sweet, diuretic, aphrodisiac, constipating (Ayurveda). Young leaves are applied to boils for fomentation and wounds to dry them. *Fruit*—sweet with pleasant taste, tonic, aphrodisiac; enriches blood. *Seeds*—aphrodisiac (Yunani).

LOC. USES :—*Root* is used internally in diarrhoea. The young leaves are used in skin diseases. The unripe fruit is astringent; ripe fruit laxative, but rather difficult to digest, although very nutritious. The juice of the plant is applied externally to glandular swellings and abscesses to promote suppuration.

Ripe fruit contains vitamins A and C.

See—Timbers, Fruit Trees and Dyés.

ASCLEPIAS CURASSAVICA Linn.

FAM.—Asclepiadaceæ.

COM. NS. :—E. West Indian or wild Ipecacuanha; M. Kaktundi, Kuraki.

CHAR. :—An erect undershrub, 0.9-1.2 m. high; *L.*—opposite 7.5-10 × 1.3-2.5 cm. lanceolate, thin, narrowed at both ends; *Fl.*—orange in axillary umbels; *C.*—lobes reflexed in flower, valvate in bud; corona bright orange of 5 erect processes adnate to the staminal column; *Fr.*—follicles, solitary, erect, 7.5 cm. long, straight, tapering at both ends; *Sd.*—ovoid, dark brown, with coma; *Fl. t.*—Feb.-Dec.

HABITAT :—Wild in shady places; cultivated as ornamental plant.

LOC. :—Deccan, abundant round about Poonā; S. M. Country; often grown as an ornamental plant in gardens in the State.

DISTR. :—Introduced from the W. Indies; naturalised in many parts of India.

PARTS USED.—Root, leaves and flowers.

PROPERTIES AND LOC. USES :—*Root* is regarded as purgative and subsequently astringent. It is also a remedy in piles and gonorrhoea. *Root* and expressed juice are emetic and cathartic. *Leaf juice* has been strongly recommended as anthelmintic. It is useful in arresting hæmorrhage in obstinate gonorrhoea: it is also sudorific. *Flower* is a good styptic. Powdered leaves and flowers are used for treating sores and wounds.

Plant contains glucosides asclepiadin and vincetoxin. Seed hairs are used for stuffing. A fibre is extracted from the plants.

See—Ornamental Plants.

ASPARAGUS RACEMOSUS Willd.

Var. JAVANICA Baker.

FAM.—Liliaceæ.

COM. NS. :—G. Satavari; H. Satāvāri; K. Satamulikā, Satāvāri, Siprimuli; M. Asual Shatavari; Sk. Shatavari, Svetmuli, Svadurasa.

CHAR. :—Extremely scandent, spinous, undershrub; spines recurved; root-stock tuberous; *L.*—linear with a stout spinous spur; cladodes in tufts, curved; *Fl.*—in simple raceme, 2.5-5 cm. white, fragrant; segments, linear, oblong; *Fr.*—berry, globose, red when ripe; *Fl. t.*—June-Sept.

LOC. :—Throughout the State both in the dry deciduous, thorn, and moist monsoon forests; common in the Deccan.

DISTR. :—Throughout tropical and sub-tropical India and Ceylon; up to 1,000 m. in the Himalayas, from Kashmir eastwards. Tropical Africa, Java and Australia.

PARTS USED :—Root.

PROPERTIES AND USES :—*Roots* sweet, oleaginous, cooling, indigestible; appetiser; alterative, stomachic, tonic, aphrodisiac, galactagogue, astringent to bowels, useful in dysentery, tumours, inflammation, biliousness, blood and eye diseases, throat complaints,

tuberculosis, leprosy, night-blindness (*Ayurveda*). The root is sweet, aphrodisiac, laxative, expectorant, galactagogue, tonic; useful in diseases of kidney and liver, scalding of urine, gleet, gonorrhoea. (*Yunani*.)

LOC. USES :—The root is refrigerant, demulcent, diuretic, aphrodisiac, antispasmodic, and alterative tonic. Used in diarrhoea, colic, and dysentery. The root boiled in milk is used as appetiser. It is used chiefly as a demulcent in veterinary medicine.

INDIAN PREPARATIONS :—Shatavari-ghrita, Phalaghrita, Narayana Taila, Vishnu Taila, Prameha-Mihira-Taila.

ASTERACANTHA LONGIFOLIA Nees.

(HYGROPHILA SPINOSA T. And.)

FAM.—Acanthaceae.

COM. NS. :—G. Ekharo, Gokhran, Talamkhan; H. Gokhalkanta, Gokshura, Talamkhana; K. Kalavankabija, Kolavalike; M. Talimkhana, Vikhara; Sk. Ikshura, Kak-Kokilaksha, Shrigalghant, Vajrakantaka.

CHAR. :—A stout herb; stems fasciculate, subquadrangular, erect, 0.6-1.5 cm. high, thickened at the nodes, hispid with long hairs; L.—sessile, whorled in verticels of 6 at each node, 2 outer large, 18 × 3.3-2 cm., 4 inner small, 3.8 cm. long, all with straight sharp yellow spine in their axil; Fl.—in whorls of 8 (in 4 pairs) at each node; bracts, like leaves, lanceolate, hairy, ciliate; C.—purple blue, widely 2-lipped; tube, abruptly swollen at the top, lips sub-equal, upper 2-fid, lower deeply 3-lobed; Fr.—capsule, linear oblong, pointed, 4-8 seeded; Fl. t.—June-Jany.

HABITAT :—Swampy places.

LOC. :—Common throughout the State, Konkan and Deccan.

DISTR. :—Throughout India, Ceylon, tropical and S. Africa.

PARTS USED :—Root, leaves and seeds.

PROPERTIES AND USES :—Leaves oleaginous, tonic, aphrodisiac, hypnotic; useful in diarrhoea, dysentery, thirst, urinary calculi and discharges, inflammations, biliousness, eye-diseases, ascites, abdominal troubles, anaemia, constipation, anuria. Seeds cooling, tonic, aphrodisiac; sedative to gravid uterus; useful in blood diseases (*Ayurveda*). Leaves good for cough; applied for gleet and in lumbago and joint-pains. Seeds fattening, tonic, aphrodisiac; improve blood (*Yunani*).

LOC. USES :—The whole plant has been used medicinally. Root decoction is useful in hepatic derangement and genito-urinary diseases as a diuretic. Leaves and seeds are regarded as demulcent and diuretic, useful in jaundice and arasarca. Ashes of plant are also diuretic and are used in dropsy. Seeds are given in gonorrhoea, with milk and sugar in spermatorrhoea. When placed in mouth seeds become coated with mucilage which has agreeable flavour.

AVERRHOA CARAMBOLA Linn.

FAM.—Oxalidaceae.

COM. NS. :—E. Carambola apple, Coromandel gooseberry; G. Kamarakh, Tamarak; H. Kamrang, Karmal; K. Darehuli, Kamaranga, Kirihihi; M. Kamarakha, Karmare; Sk. Karmar, Karuka, Mudgara, Shiral.

HABITAT :—Cultivated, rarely wild.

LOC. :—Cultivated in gardens throughout the State of Bombay; found wild near N. Kanara villages.

DISTR. :—Cultivated in many parts of India and the tropics; perhaps a native of Malaya.

PARTS USED :—Root and leaves (rarely); fruits.

PROPERTIES AND USES :—Fruit—sweet, sour, digestible, tonic; causes biliousness, astringent to bowels; heats the body (*Ayurveda*). Fruit sour, astringent to bowels; stops diarrhoea and vomiting; allays thirst, causes biliousness (*Yunani*).

LOC. USES :—Ripe fruit is a good remedy for bleeding piles; also useful in relieving thirst and febrile excitement; dried fruit is given in fevers; it is cooling and antiscorbutic; it is considered one of the best Indian cooling medicines. Fruits which are acid in taste promote digestion and assimilation. Fruits are used in pickles.

In Cambodia leaves are considered antipyretic and antipruritic. Root is given in cases of poisoning. In Mauritius fruit juice is given in dysentery and hepatic colic; also used in diarrhoea.

See—Fruit Trees.

BACOPA MONNIERI Penn.

(HERPESTIS MONIERA Benth.)

FAM.—Scrophulariaceae.

COM. NS. :—E. Thyme-leaved graticula; H. Barambhi, Brahmi; Jalneam, Safed-Kammi; K. Brahmi; M. Bama, Nirbrahmi; Sk. Brahmi, Manduki, Soumyalata.

CHAR. :—A glabrous, succulent, creeping herb; stems rooting at the nodes; branches many ascending; L. sessile, decussate, 6.25 × 2.3-10 mm., obovate-oblong or spatulate, fleshy, black dotted; entire; Fl. axillary, solitary; C. 2-lipped, pale blue or white, lobes equal spangled, when fresh, with shining dots; Fr. capsule, ovoid, acute, Sd. oblong, striate, pale; Fl. t. Jany-May.

HABITAT :—Damp places.

LOC. :—Konkan and Deccan.

DISTR. :—Throughout India in wet places, Ceylon and all warm countries.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—Bitter, pungent, heating, emetic, laxative; useful in bad ulcers, tumours, ascites, enlargement of spleen, indigestion, inflammations, leprosy, anaemia, "Vata", "Kapha" and biliousness (*Ayurveda*).

A Bk Vf 1-3†

Bitter; aphrodisiac; good in scabies, leucoderma, syphilis; purifies blood; useful in diarrhoea and pyrexia; maturant and expectorant (Yunani).

LOC. USES :—It is considered by the Hindu physicians as a nervine tonic, useful in insanity, epilepsy and hoarseness. It is also a powerful diuretic and aperient. *Leaf-juice*, conjoined with petroleum, is used as a local application in rheumatism. It gives relief in infantile catarrh or severe bronchitis. *Poultice* made of the boiled plant is placed on the chest in coughs of children.

In Pondichery plant is considered aphrodisiac. In Ceylon it is used for fomentation for erysipelas and elephantiasis. Plant contains an alkaloid which produces less toxic symptoms than strychnine. It is a direct cardiac tonic.

INDIAN PREPARATION :—Brahmi-Ghrita used in insanity, epilepsy and hoarseness.

BALIOSPERMUM MONTANUM Muell.

FAM.—Euphorbiaceae.

COM. NS. :—G. Dantimul, Jamalgota; H. Danti, Hakum; K. Danti, Kaduhalalu; M. Danti; Sk. Danti, Dantika, Rechani, Vishodhini.

CHAR. :—A stout undershrub, 0.9-1.8 m. high, branching from the roots; L. sinuate, toothed, the upper small, the lower large, often palmately 3-5 lobed, 2-glandular; Fl. in axillary racemes or contracted panicles, all male or with a few females below; yellowish; Fr. capsule, obovoid, hairy, of three 2-valved cocci; Sd. ellipsoid, smooth, mottled; Fl. t. Dec.

HABITAT :—Dry open plains, or in monsoon forests.

LOC. :—Dry open Deccan plains, in monsoon forests of N. Kanara, abundant on the hills of Karanja.

DISTR. :—Bihar, N. Bengal, Chota Nagpur, Assam, W. Peninsula, Burma, Malaya.

PARTS USED :—Root, leaves and seeds.

PROPERTIES AND USES :—Heating, purgative, anthelmintic, diuretic, alexiteric; useful in pains, diseases of skin and abdomen, piles, wounds, enlarged spleen, itching, inflammations, anæmia, leucoderma, jaundice (Ayurveda).

LOC. USES :—Root is sold as "Dantimul" by the drug dealers. Root and leaves are cathartic. They are used in dropsy, anasarca and jaundice. *Leaf-decoction* is said to be useful in asthma. Seeds have properties more or less similar to *Croton tiglium* and are used as drastic purgative. Locally seeds act as stimulant and rubefacient.

Seeds are poisonous.

See—Poisonous Plants and Fish Poisons.

BALSAMODENDRON MUKUL Hook f.

FAM.—Burseraceae.

COM. NS. :—E. Gum gugul; G. Guggul, Mukul; H. Gugul; K. Guggula; M. Guggula; Sk. Devdhup, Guggula, Jatala, Uddipta.

HABITAT :—Dry regions.

LOC. :—Khandesh and dry regions of the Deccan.

DISTR. :—Hills in Sind; Rajastan, Baluchistan, Arabia.

PARTS USED :—Fruits (rarely), gum.

PROPERTIES AND USES :—Gum is of five kinds; hot, acrid, laxative, stomachic, aphrodisiac, alterative, tonic, anthelmintic; causes biliousness; heals ulcers, fractures, fistula, piles; removes "Kapha", "Vata", bad discharges from ear; cures indigestion, urinary discharges and concretions, tumours, inflammations, tubercular glands in neck, "triklosa"; useful in ascites, asthma, chest troubles. *Fruit* cures abdominal troubles (Ayurveda). *Gum*—acrid, with a bad odour; maturant, resolvent, expectorant, aphrodisiac; enriches blood; useful in rheumatism, lung complaints, dyspepsia, piles (Yunani).

LOC. USES :—The drug has a wide range of usefulness in indigenous medicine. It is used in the form of lotion for indolent ulcers, and as a gargle in teeth caries, weak and spongy gums, pyorrhoea and throat diseases. Used as stomachic in chronic dyspepsia. It is demulcent, aperient, carminative and alterative, especially useful in nervous diseases, scrofulous affections, urinary disorders and skin diseases. It is believed to be a valuable aphrodisiac. Guggul (oleo-resin) is said to have marked anti-suppurative properties. Given in large doses it is useful in all chest affections. Fumes of guggul are inhaled in hay fever and other bronchial affections. It is applied locally as a paste in hæmorrhoids, incipient abscesses and bad ulcers.

See—Timbers, Gums and Resins.

BAMBUSA BAMBOS Voss.

(BAMBUSA ARUNDINACEAE Willd.)

FAM.—Graminæ.

COM. NS. :—E. Spiny—Thorny bamboo; G. Toncar, Wans; H. Bans, Kota—Mangar—Mal bans; K. Bidiru, Gale, Hebbidru, Kalale; M. Kalak, Bambu; Sk. Brihatrina, Kantaki, Kichaka, Vansha, Veru.

HABITAT :—Along the banks of rivers and *nalas* in moist monsoon forests.

LOC. :—Dangs, Konkan, W. Ghats, Deccan, N. Kanara.

DISTR. :—Throughout India except the Himalayas; Burma, Ceylon. Often cultivated.

PARTS USED :—Root, stem, leaves, sprouts, seeds and manna.

PROPERTIES AND USES :—Acrid, cooling, laxative, useful in "Kapha", burning sensation, blood diseases, biliousness, leucoderma, inflammations, strangury, wounds, piles, urinary discharges, tuberculosis, bronchitis, asthma, fevers, leprosy, jaundice, anæmia; fattening, aphrodisiac, alexiteric (Ayurveda). Tonic, emmenagogue; useful in ringworm, bleeding gums, earache, deafness, burning sensation, thirst, ophthalmia, stomatitis, syphilis; lessens bronchitis, lumbago, piles, biliousness, gonorrhoea and fevers (Yunani).

A Bk Vf 1-3a

BARRINGTONIA ACUTANGULA Gaertn.

FAM.—Myrtaceae.

COM. NS.:—*E.* Small Indian oak; *G.* Samudraphala; *H.* Hijgal, Panniari, Samudraphal; *K.* Holekanua, Mavinkubia; *M.* Samudraphal, Niwar; *Sk.* Ambuja, Samudraphala.

HABITAT:—Swampy places.

LOC.:—Banks of rivers and streams throughout N. Kanara and Konkan; common near the coast (not in mangroves).

DISTR.:—Throughout India, Ceylon, Malaya, N. Australia.

PARTS USED:—Root, bark, leaves, fruit and seeds.

PROPERTIES AND USES:—*Leaf-juice* is given in dysentery. *Fruit*—bitter, acrid; astringent to bowels, vulnerary, alexipharmic, anthelmintic; causes "Vata"; useful in biliousness, blood diseases, bronchitis, sore-eyes, headache, hallucinations; cures "Tridosh" (Ayurveda). *Fruit*—bitter, astringent, lactagogue; useful in gleet, abdominal colic, lumbar pains, syphilis and nasal catarrh (Yunani).

LOC. USES:—In Bombay root is considered warm, stimulating and emetic; often prescribed alone or in combination with other medicines as an external application in colds. It is supposed to be similar to cinchona in properties. *Leaf-juice* is given in diarrhoea. *Kernels* are given in diarrhoea with sago and butter. *Fruit* rubbed in water is administered as an emetic.

Powdered fruit is an ingredient along with *Mal Kangoni* as a cosmetic; it is rubbed on the skin in cases of fever attended with nervous symptoms; mixed with ginger it is rubbed on the skin to check profuse sweating (Sakharam Arjun). *Seeds* are very warm and dry, used as aromatic in colic, in parturition, also in ophthalmia; powdered seeds are used as snuff in headache. It is a fish poison.

The plant contains the glucosides *baringtonin* and *saponin*.

See—Timbers, Tans, Poisonous Plants and Fish Poisons.

BASELLA RUBRA Linn.

FAM.—Chenopodiaceae.

COM. NS.:—*E.* Indian spinach, Malabar night-shade; *G.* Pothinivel, Valchi bhaji; *H.* Poi, Mayalki bhaji, Lalbachala; *K.* Kempubasale; *M.* Mayalu, Velbondi; *Sk.* Kalambi, Pichhila, Putika, Vrischikapriya,

CHAR.:—A perennial herb, stem very long, slender, twining to the right, succulent; *L.*—15-12.5 × 2.5-7.5 cm., variable, broadly ovate, thick, entire, base cordate; *Fl.*—white or red, sessile, few, in lax pedunculate spikes; perianth fleshy 5-fid, segments elliptic obtuse; *Fr.*—size of a pea, red, white or black.

HABITAT:—Climbing over houses in and about villages; also cultivated.

LOC.:—Commonly grown in the Deccan and S. M. Country.

DISTR.:—Throughout India, wild or cultivated; tropical Asia and Africa.

PARTS USED:—Leaves.

PROPERTIES AND USES:—Acrid, sweetish, heating, soporific, narcotic, aphrodisiac, fattening, laxative; improves appetite; useful in

LOC. USES:—*Root* is considered diluent. *Bark* is used as a cure for eruptions. *Poultice* made from bamboo-shoots is used for dislodging worms from ulcers. *Pickles* or *curries* made from young shoots are beneficial in lack of digestion; they promote digestion and appetite. *Leaf bud* is good emmenagogue and administered in decoction to encourage free discharge of menses after delivery. *Leaves* are used with black pepper and common salt to check diarrhoea in cattle. The silicious concretion (Vanshalochana) found in the joints of bamboo is largely used as cooling tonic, and aphrodisiac; used also in cough, consumption and asthma. It is much prized as a stimulant and febrifuge. Two varieties of Vanshalochana are available in the market—blue and white—both are sweet in taste.

There is a trace of vitamin A.

See—Timbers, Fibres, and Fodder Plants.

BARLERIA PRIONITES Linn.

FAM.—Acanthaceae.

COM. NS.:—*G.* Kantashelio; *H.* Katoeriya, Vajradanti; *K.* Gorante, Mullu-goranta, Mudarangi; *M.* Kalsunda, Pivalikoranti; *Sk.* Bona, Jhinti, Kantakuranta, Kurantaka, Souriyaka.

CHAR.:—A shrub, 0.6-1.5 m. high, usually prickly, stems and branches 4-gonous; *L.* 9-18 × 2.5-5.7 cm. elliptic, acuminate, bristle-tipped, entire, usually with 3 acicular spines in the axils; *Fl.*—sessile, solitary in lower axils becoming spicate above; bracts foliaceous, bristle-tipped; bracteoles almost spinous; *C.*—yellow, infundibuliform, 2-lipped, upper tip 4-lobed, lower entire; *Fr.*—capsule, ovoid with a long tapering beak, 2-seeded. *St.*—clothed with silky hairs. *Fl. t.*—Oct-Jany.

HABITAT:—Often planted as a fence.

LOC.:—Common throughout the State; Konkan, Deccan and Gujarat.

DISTR.:—Throughout India, Sind, Ceylon, tropical Asia, tropical and S. Africa.

PARTS USED.—Root, bark and leaves.

PROPERTIES AND USES:—Bitter, heating; alexiteric; useful in tooth-ache, leucoderma, blood-complaints, bronchitis, diseases of blood and skin, inflammations; appetiser (Ayurveda).

LOC. USES:—A root-paste is applied to disperse boils and glandular swellings. In the Konkan dried bark is given in whooping-cough; fresh bark-juice with milk is given in anasarca; it acts as a diaphoretic and expectorant. A medicated oil (made by boiling stems and leaves with sweet oil) is applied to wounds as a cleansing material. *Leaf-juice* with a little honey and water is a favourable medicine in catarrhal affections of children, accompanied with fever and phlegm. In Bombay leaf-juice is applied to feet in rainy season to prevent cracking. Tooth-paste made of leaves and common salt is used to strengthen gums in caries of teeth.

biliousness, leprosy, dysentery, ulcers; causes "Kapha" (Ayurveda). Sour, tonic, narcotic, aphrodisiac, antipyretic, improves voice; applied to burns (Yunani).

LOC. USES:—The leaves made into pulp are used as application to boils and abscesses to hasten suppuration. They are demulcent and diuretic, useful in gonorrhoea and balanitis. Leaf-juice mixed with butter is a soothing application in burns and scalds. Mucilaginous liquid from the plant is a popular remedy for habitual headache.

See—Vegetables.

BAUHINIA TOMENTOSA Linn.

FAM.—Leguminosae (Caesalpinioideae).

COM. NS.:—E. Wild champak; G. Asundro, Piloasudro; H. Kachnar, Kanchana; K. Kadatti, Karanasupu; M. Apta, Pivala Kanchan; Sk. Phalgu, Pita Kanchana.

CHAR.:—An erect shrub, branches slender, terete, zigzag; L.—broader than long, 2.8-5 × 3.8-6.3 cm., divided a little less than half into 2 rounded lobes, base truncate; FL.—usually in pairs (rarely 1 or 3) on short axillary or leaf opposed peduncles; C.—petals 3.8-5 cm., much imbricated, obovate, spatulate, yellow, the upper with a purple blotch on the face; Fr.—pod stalked 10-12.5 × 1.3-1.63 cm., flat, pointed, veined; Sd.—8-12.

HABITAT:—Wild and cultivated.

LOC.:—Often cultivated as an ornamental shrub in the gardens in the Konkan. Nimmo says it is wild.

DISTR.:—N. W. Provinces, Circars, Karnatak, in dry forests from Chilka Lake to Tinnevely; in other parts of India often cultivated; Ceylon, China, Tropical Africa.

PARTS USED:—Root-bark, buds, flowers and fruits.

PROPERTIES AND USES:—Decoction of the root-bark is administered in inflammation of the liver. It is also used as a vermifuge. The bruised bark is externally applied on tumours and wounds. Infusion is a useful gargle in aphthae. Dried buds and young flowers are prescribed in dysenteric affections. The fruit is diuretic. Seeds have tonic and aphrodisiac action. Seed paste made with vinegar is an efficacious application to wounds inflicted by poisonous animals.

See—Ornamental Plants.

BAUHINIA VARIEGATA Linn.

FAM.—Leguminosae (Caesalpinioideae).

COM. NS.:—G. Kovidara; H. Kachaar, Kaniar, Padrian; K. Arisin-ganlige, Kanjivala, Utipe; M. Kanchan, Raktakanchan; Sk. Ashantaka, Kanchana, Kovidar, Kantar.

CHAR.:—A medium sized deciduous tree, young shoots brown pubescent; L.—10-15 cm. long and as broad, cleft 1/4 to 1/3 into 2 obtuse lobes, base deeply cordate; FL.—in racemes; large, fragrant, white or purplish; C.—petals 5-6.3 cm. long, clavate with broad

claws, all white or 4 parts purple and fifth darker; Fr.—pod, 15-20 × 1.8-2.5 cm. flat, dehiscent; Sd.—10-15; FL. t.—Feb.-Apr.

HABITAT:—Cultivated.

LOC.:—Cultivated throughout the State; not indigenous.

DISTR.:—Sub-Himalayan tract and outer Himalayas of the Punjab from the Indus eastwards, Kumaon, Sikkim, Burma, China.

PARTS USED:—Root, bark and flowers.

There are two varieties, red and white.

PROPERTIES AND USES:—Bark of both the varieties is alterative, tonic, astringent, appetising, cures biliousness, "Kapha", tuberculous glands, leprosy; bark of the white flowered variety cures leucoderma, anal troubles, cough, asthma, blood diseases, ulcers, vaginal discharges; anthelmintic; used in strangury, thirst, burning sensation, headache and "Tridosha" (Ayurveda). Bark—astringent to bowels, tonic to liver; cures biliousness, leprosy, leucoderma, dysmenorrhoea, menorrhagia, blood impurities, tuberculous glands, asthma, wounds and ulcers; used as gargle in stomatitis. Buds—indigestible; used in piles, cough, eye diseases; styptic in haematuria (Yunani).

LOC. USES:—Root-decoction is given in dyspepsia and flatulence; it is also anti-fat remedy, given to corpulent persons. Bark-emulsion with rice-water is administered with addition of ginger in scrofula. Bark decoction is a useful wash in ulcers and skin diseases. Flowers with sugar are a gentle laxative. Root, bark and flowers triturated in rice-water, used as a cataplasm to promote suppuration. Dried buds are used in piles and dysentery; they are considered cool and astringent and are useful in diarrhoea and worms.

See—Ornamental Plants.

BENINCASA CERIFERA Sav.

FAM.—Cucurbitaceae.

COM. NS.:—E. Ash pumpkin, Tallow—White gourd; G. Bhurukoholu, Dorokaru, Koholu; H. Golkaddu, Kondha, Kudimah, K. Budekubalkai; M. Kohala; Sk. Karkutika, Kushmanda, Shikhivardhaka, Timisha.

HABITAT—Cultivated in warm countries.

LOC.:—Cultivated occasionally in the gardens in the State.

DISTR.:—Cultivated more or less throughout India and in many warm countries.

PARTS USED:—Fruit, seeds, oil from the seeds.

PROPERTIES AND USES:—Fruit—laxative, diuretic, tonic, aphrodisiac; cures strangury, urinary discharges and calculi, "Tridosha", thirst, biliousness, blood diseases; removes foul taste from mouth; heart tonic (Ayurveda). Fruit—antiperiodic, cardiac and general tonic, aphrodisiac; enriches blood. Seeds—cooling; used in dry cough, fever, urethral discharges, biliousness,

thirst. *Oil*—is soporific, sweetish; good for the brain and liver; good in syphilis (Yunani).

LOC. USES :—Fruit is alterative and styptic and is a valuable anti-malarial, cooling, laxative, and nutritious tonic. Juice is specific in hæmoptysis and internal hæmorrhages; it is particularly beneficial in phthisis; it is also useful in insanity, epilepsy and other nervous diseases. It is a good antidote for many kinds of vegetable poisons. Expressed juice of fresh fruit is purgative and alterative; it is used in cases where symptoms have been affected by use of mercury. In diabetes juice of cortical portion mixed with saffron and red rice bran is given morning and evening with strict diet. Seeds and oil are anthelmintic and are used in tænia. Fruit is made into confections.

INDIAN PREPARATIONS :—Khanda Kooshmandaka, Vasa Kushmanda Khanda—used in cough, asthma, phthisis, hæmoptysis, catarrh, heart diseases, etc. Kushmanda Ghrita—used in insanity, epilepsy and other nervous diseases.

Fruit contains a trace of vitamin A.

See—Vegetables.

BLUMEA LACERA DC.

FAM.—Compositæ.

COM. NS. :—G. Kalhar, Kakarunda, Pilokapurio; H. Jangali-muli, Kakarunda, Kukurbanda; M. Bhamurdi; Sk. Kukkurdu, Mriduchhada, Tamrachuda.

CHAR. :—Annual herb, with a strong odour of turpentine; stem erect, 0.3–0.9 m. high, ash colored, densely glandular, pubescent; *L.*—the lower ones petioled, often incised or lyrate, upper subsessile, elliptic-oblong, finely silky pubescent on both sides, sharply serrate-dentate, base tapered; *Fl.*—heads many, in short axillary cymes or terminal panicle, yellow involucre bracts densely silky-villous, inner bracts with green midrib; pappus white; *Fr.*—achene, oblong, not ribbed; *Fl. t.*—Jany.-Apl.

HABITAT :—Plains: common along rice fields.

LOC. :—In plains south of Bombay, Konkan, Deccan, S. M. Country, Kanara.

DISTR. :—Throughout plains of India; Ceylon, China, Malaya, Australia, Tropical Africa.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—Hot, pungent, bitter, anti-pyretic; cures bronchitis, blood diseases, fevers, burning sensation, thirst. *Root* kept in the mouth cures mouth diseases (Ayurveda).

LOC. USES :—The expressed juice of the leaves is used as an anthelmintic, febrifuge, astringent, and diuretic; mixed with black pepper, it is given in bleeding piles; *root* mixed with black-pepper is given in cholera.

The plant is capable of yielding a fairly large amount of camphor (Chopra).

BCERHAAVIA DIFFUSA Linn.

FAM.—Nyctaginaceæ.

COM. NS. :—E. Hogweed; G. Dholia-saturdo, Moto-satodo; H. Santhikari; K. Kommegida; M. Ghetuli, Vasu; Sk. Punarnava, Raktakandla, Shothaghni, Varshabhu.

CHAR. :—A diffuse herb; root large, fusiform; stem prostrate or ascending; *L.*—in unequal pairs at each node, 1.3–2 cm. sub-orbicular, green above, whitish beneath, margins undulate, pinkish; *Fl.*—in corymbose umbels, very small; *P.*—funnel-shaped dark-pink or white; *Fr.*—clavate, bluntly 5-ribbed, very glandular; *Fl. t.*—Nov.

HABITAT :—A weed; generally found in poorer soils.

LOC. :—Abundant throughout the State especially in the Deccan and Gujarat.

DISTR. :—Tropical India, Baluchistan, Ceylon, tropical and sub-tropical Asia, Africa and America.

PARTS USED :—Root, leaves and seeds.

PROPERTIES AND USES :—White flowered variety (Shweta punarnava) is preferred to red flowered one (Rakta punarnava). The plant has been in use in the indigenous medicine from time immemorial. Bitter, cooling; astringent to bowels; useful in biliousness, blood impurities, leucorrhœa, anæmia, inflammations, heart diseases, asthma, "Vata", "Kapha" heating, alterative. *Leaves* useful in dyspepsia, tumours, spleen enlargement, abdominal pains. (Ayurveda). *Leaves*—appetiser, alexiteric; useful in ophthalmia, in pain of joints. *Seeds*—tonic, expectorant, carminative; useful in lumbago, scabies; purify blood and hasten delivery (Yunani).

LOC. USES :—The root is well known for its diuretic properties. It is used in jaundice, gonorrhœa, and dropsy. It is also laxative and anthelmintic. In moderate doses it is a good expectorant and antispasmodic and successful in asthma. Useful in cases of ascites due to early liver conditions. It produces a very marked and persistent diuresis and in some cases the ascites completely disappears. Plant contains large quantities of pot. nitrate and the active principle "Punarnavine" which is of an alkaloid nature.

INDIAN PREPARATIONS :—Punarnavastaka, Punarnavataila and Punarnavaleha—useful in dropsy and other urinary complaints.

BORASSUS FLABELLIFER Linn.

FAM.—Palmæ.

COM. NS. :—E. Brab tree; Fan Palm, Desert Palm, Palmyra Palm; G. Tad; H. Tad; K. Talimara; M. Tad; Sk. Asavardu, Dhvajadruma, Lekhyapatra, Madhuras, Tala.

HABITAT :—Coastal districts; cultivated.

LOC. :—Very common in the coastal districts north of Ratnagiri, Kolaba and Thana districts; cultivated and self-sown.

DISTR. :—Planted and self-sown throughout the plains of India; common in S. India; Uttar Pradesh; Ceylon, Burma, Indian Archipelago, Persian Gulf; native of tropical Africa.

PARTS USED :—Root, leaves, flowers, fruits, juice.

PROPERTIES AND USES :—*Root*—useful in leprosy; helps delivery. *Flower*—good for spleen enlargement. *Fruit*—cooling, intoxicating, fattening, aphrodisiac, tonic, laxative, alexiteric; useful in biliousness, burning sensation, thirst, fatigue, “Vata”, blood complaints; diuretic; causes “Kapha”. *Fermented juice*—aphrodisiac; causes flatulence (Ayurveda). *Fruit*—aphrodisiac, antibilious; improves taste; allays thirst. *Fermented juice*—tonic, fattening, aphrodisiac, intoxicating, expectorant; allays thirst and scalding of urine; causes headache; purifies blood (Yunani).

LOC. USES :—*Root* is cooling and restorative. *Decoction* of root and expressed juice from the young terminal buds have been used in gastritis and hiccup. *Bark-decoction*, with a little salt added, is a good astringent gargle for strengthening gums and teeth. Extract of green leaves is used internally in secondary syphilis. *Juice* is used as stimulant and antiphlegmatic; if taken regularly acts as laxative. Freshly drawn it is useful in inflammatory affections and dropsy; slightly fermented it is used in diabetes. It is diuretic and prescribed in chronic gonorrhoea and kidney troubles. Ashes of the *spadix* are given internally in bilious affections; also used as antiperiodic. It is a good antacid in heart burns. Pulp of ripe fruit is applied externally in skin diseases. Palm-sugar is antibilious and alterative and used in hepatic disorders and gleet. Cotton-like substance from the base of fronds is used in Ceylon as styptic to arrest hæmorrhage from wounds.

Fruits contain a trace of vitamin C.

See—Timbers, Gums and Resins, Sugars, Liquors.

BOSWELLIA SERRATA Roxb.

FAM.—Burseraceæ.

COM. NS. :—*E.* Indian olibanum tree; *G.* Dhup, Guggali, Mukulsalai; *H.* Kundur, Luban, Salpe, Salgond; *K.* Dup, Guggula, Loban, Moddi, Sambrani; *Vishesha*-dhupa, *M.* Salai, Salphali; *Sk.* Dhupam, Salashi.

HABITAT :—Open formations in hills.

LOC. :—Common in hills of the Deccan; very abundant in the Satpudas and Khandesh forests; also found in Belgaum District.

DISTR. :—Common in dry hills throughout the greater part of India.

PARTS USED :—Bark, flowers, fruit and gum.

PROPERTIES AND USES :—*Bark*—acid; cooling, binding, tonic; removes “Kapha”, biliousness; allays asthma; cures dysentery, skin diseases, ulcers; purifies blood. *Flowers and fruits* cure leucoderma and piles. *Gum*—hot; antipyretic, antiglycosuric, antidysenteric; useful in skin and blood diseases, fevers, diaphoresis, convulsions, mouth-sores, vaginal discharges, “Vata”, diabetes and diseases of testes (Ayurveda). *Gum* is of five kinds; hot, dry, with a good flavour, bitter, astringent to bowels, expectorant; used for boil, scabies, as a collyrium in ophthalmia; useful in intestinal troubles, bronchitis, asthma, cough, bad throat; heals wounds; strengthens teeth; invigorating; may cause vomiting; its distillate in oil is carminative and pectoral (Yunani).

LOC. USES :—Fragrant *resin* is bitter aromatic. It is used as a diaphoretic and an astringent and as an ointment for sores; used with butter in syphilis; as a stimulant in pulmonary diseases; given both internally and as fumigation in chronic laryngitis. Combined with aromatics it is used in rheumatic and nervous diseases, scrofulous affections and skin-diseases. Mixed with gum-acacia it is used as a corrective for foul breath. In the form of oily solution it promotes growth of hair; as an ointment it excites a healthy action in ulceration. The *gum* contains oxidising and diastatic enzymes.

Powder of shade-dried leaves mixed with cocoanut oil is said to cure burned and scalded skins and to heal these wounds rapidly. (This treatment was reported successful by persons who tried them. Further trials and investigation are worth taking in hand).

The resinous substance is sold in bazar under the name of Loban, Kunder or Mhasha-guggula.

See—Timbers, Gums and Resins.

BRASSICA NIGRA Koch.

FAM.—Crucifereæ.

COM. NS. :—*E.* Black—True mustard; *G.* Kali-rai, Rai; *H.* Banarasi—Kali—Makra Rai, Taramira; *K.* Kari Sasive; *M.* Mohori; *Sk.* Asuri, Jwalanti, Rajika, Sarshapa.

HABITAT :—Cultivated during cold seasons, mainly for the seeds which yield one of the most common edible oils in N. India.

LOC. :—Cultivated in various districts of the Bombay State, chiefly in Nasik, Surat, Khandesh, Kaira, Broach, Dharwar and Belgaum.

DISTR. :—Cultivated in India, indigenous in Macaronesian transition area and Mediterranean.

PARTS USED :—Leaves and seeds.

PROPERTIES AND USES :—*Leaves*—strengthen the body; increase bile; vermicide; good for throat complaints. *Seeds*—remove cough tumours, “Vata”; cure enlargement of spleen; dispel fever; cause burning; anthelmintic; increase appetite; cure skin-diseases; destroy external parasites (Ayurveda). *Seeds*—laxative, appetiser, stomachic, bechic; good in cough and for inflammations, spleen, biles, rheumatism; lessen œdema of body; cure nose, ear, eye-troubles, and toothache; kill external parasites; smoke drives away mosquitos (Yunani).

LOC. USED :—Mustard *leaves* are used as a pot-herb and are considered stomachic. *Seeds* are used in medicine as poultice, being useful as a simple rubefacient and vesicant. It is highly serviceable in febrile and inflammatory diseases, internal congestions, spasmodic, neuralgic and rheumatic affections; mustard flour with water is a speedy and safe emetic. Seeds act as digestive condiment; if swallowed whole they are laxative. Pure fresh oil is stimulant and mild counterirritant used in sore-throat and muscular rheumatism.

Seeds contain glucoside *sinigrin*.

See—Condiments and Spices.

BRIDELIA RETUSA Spreng.

FAM.—Euphorbiaceæ.

COM. NS. :—G. Asana, Ekalkanto, Manj; H. Gauli, Kaj, Kassi, Khaja; K. Asana, Garige, Goge, Mullu-siru Honne; M. Asana, Gunjan, Patharphoda; Sk. Asana, Ekadivi, Mahavira, Suviraka.

HABITAT :—Deciduous monsoon forests.

LOC. :—Throughout the State in deciduous monsoon forests; tolerably common in the Konkan and Deccan hills.

DISTR. :—Throughout India, in hotter parts along the base of the Himalayas from Kashmere to Mishmi, southward to Ceylon.

PARTS USED :—Root, bark.

PROPERTIES AND USES :—The plant is pungent, bitter, heating, useful in "Vata", lumbago, hemiplegia; bark is good for the removal of urinary concretions (Ayurveda).

LOC. USES :—Root and bark are valuable astringents. The bark is used as a liniment with gingelly oil in rheumatism.

See—Timbers, Tans.

BRYONIA LACINIOSA Linn.

FAM.—Cucurbitaceæ.

COM. NS. :—G. Shivlingi; H. Gargunaru, Ishawara-Shivalingi; M. Kavodi, Shivalingi; Sk. Apastambhini, Chandra, Lingaja, Lingini, Shivavalli.

CHAR. :—An annual scandent herb; stem grooved, glabrous; tendrils 2-fid; L.—membranous, 10-15 cm. long, green and scabrid above, paler and smooth beneath, 5-lobed, deeply cordate base, lobes oblong lanceolate, margins sinuate denticulate; FL.—monœcious: male in fascicles of 3-6 flowers, corolla campanulate, 5-partite, ovate-oblong; female flowers solitary, or few or many, corolla as in the male; Fr.—baccate, sessile, 1.3-2.5 cm., diam., globose, smooth, bluish green, streaked with broad vertical lines; Sd.—yellowish brown, of Shivaling shape; Fl. t.—Aug-Sept.

HABITAT :—Common in hedges.

LOC. :—Deccan, S. M. Country.

DISTR. :—Throughout India from the Himalayas to Ceylon, Mauritius, tropical Africa, Malaya, Philippines, Australia.

PARTS USED :—The plant and leaves.

PROPERTIES AND USES :—Plant has a bad smell; hot, pungent, alterative. Leaves are applied topically to inflammations (Ayurveda).

LOC. USES :—The whole plant is collected when in fruit. It is bitter and aperient and is considered to have tonic properties. It is used in bilious attacks, and in fevers with flatulence.

The plant contains a bitter principle *bryonin*.

BRYOPHYLLUM PINNATUM Kurz.

(BRYOPHYLLUM CALYCINUM Salisb.)

FAM.—Crassulaceæ.

COM. NS. :—H. Zakhi-haiyat; K. Lonnahadakana gida; M. Panphuti, Panphui; Sk. Asthibhakshya, Parnabija.

CHAR. :—A succulent glabrous herb 0.3-1.2 m., high; Stems obtusely 4-angled, the older light-coloured, younger reddish, speckled with white; L.—variable, decussate, lower usually simple, occasionally compound; upper 3-5-7 foliate; leaflets ovate, elliptic, crenate or serrate; Fl.—pendant, in large panicles, with opposite branches; C.—swollen and octagonal at the base, constricted in the middle, reddish purple, lobes triangular; Fr.—enclosed in the papery calyx and corolla; Sd.—small, smooth; the leaves often produce on their crenatures, when punctured, buds with root, stem and leaves which drop off and become new-plants; Fl. t.—Jany.

HABITAT :—Common in gardens as an ornamental plant; also wild.

LOC. :—Konkan, Deccan, abundant in the Koyana Valley below Mahabaleshwar, S. M. Country.

DISTR. :—Native of tropical Africa, but naturalised everywhere throughout the tropics of the old world.

PARTS USED :—Bark and leaves.

PROPERTIES AND USES :—The leaves are bitter and poisonous to insects (Ayurveda). The bark is bitter and poisonous; tonic, alexipharmic, astringent to bowels, analgesic, carminative; useful in diarrhoea, vomiting, inflammations; snakes and scorpions avoid the plant (Yunani).

LOC. USES :—Leaves slightly roasted are used as an application to wounds, bruises, boils and bites of venomous insects. Decidedly beneficial effects follow their application to contused wounds and swellings. It is a disinfectant. In the Konkan leaf-juice is administered with ghee in dysentery.

See—Ornamental Plants.

BUCHANANIA LANZAN Spreng.

FAM.—Anacardiaceæ.

COM. NS. :—G. Charoli; H. Char, Paira, Piyal; K. Charpoppu, Kolegeru, Murukali; M. Char, Charoli, Pyalchar; Sk. Char, Dhanu, Lalana, Priyal, Rajadana, Snehabija, Tapaspriya.

HABITAT :—Dry, deciduous open forests.

LOC. :—Konkan, Deccan, Gujarat, the Dangs, S. M. Country.

DISTR. :—Hot and drier parts of India, Burma, Cambodia, Cochin-China, Thailand (Siam).

PARTS USED :—Roots, leaves, fruit, seeds, gum (rarely).

PROPERTIES AND USES :—Removes "Kapha", "Vata" and biliousness; cures blood-diseases, fevers, thirst, ulcers, burning sensation on body; fattening, laxative, binding, cooling, aphrodisiac, cardio-tonic, astringent to bowels (Ayurveda). Leaf-juice digestive, expectorant, aphrodisiac, purgative; purifies blood; allays

thirst; lessens biliousness. *Seeds* tonic to body and brain; stomachic; remove bad humours; useful in gleet and urinary concretions; good in fevers; cause headache (Yunani).

LOC. USES :—The *oil* from fruit kernels is used as a substitute for almond oil in medicinal preparations and confectioneries. It is applied to glandular swellings of neck. *Kernel* worked up into an ointment is used to cure pimples, prickly heat and itch. Pounded kernels are used by women to remove spots from the face. In Bombay State kernel is employed as tonic. In Madras State *gum* with goat's milk is given internally for intercostal pains and diarrhoea.

See—Timbers, Dyes, Gums and Resins, Oils.

BUTEA MONOSPERMA O. Kuntz.

(BUTEA FRONDOSA Roxb.)

FAM.—Leguminosæ (Papilionoideæ).

COM. NS. :—*E.* Bastard teak; *G.* Khakera, Khakda, Khakhrao; *H.* Dhak, Kakria, Palas, Chichra; *K.* Muttala, Muttuga; *M.* Palas; *Sk.* Kshatadru, Kinshuk, Palash, Tripatrak, Yajnika.

HABITAT :—Mixed monsoon forests.

LOC. :—Throughout the State common in mixed monsoon forests; ascends to 1200 m. in the Khandesh Akrani.

DISTR. :—Common throughout the greater part of India and Burma up to 900 m. and higher in the outer Himalayas and hills of S. India, Ceylon.

PARTS USED :—Root, bark, leaves, flowers, seeds, gum.

PROPERTIES AND USES :—*Root*—cures night-blindness and other defects of sight; useful in elephantiasis. *Bark*—appetiser, aphrodisiac, laxative, anthelmintic; useful in bone fractures, diseases of anus, dysentery, piles, hydrocele; cures ulcers and tumours. *Leaves*—good for eye diseases. *Gum*—astringent to bowels; good in dysentery, stomatitis, cough, pterygium, corneal opacities; cures excessive perspiration. *Flowers*—cure “Kapha”, leprosy, strangury, gout, skin-diseases, thirst, burning sensation. *Fruit and seed*—hot, dry, digestible, anthelmintic; aperient used in urinary discharges, piles; cure tumours, abdominal troubles (Ayurveda). *Bark*—appetiser; lessens inflammations, Lilioussness, dysmenorrhœa; used in liver disorders, fractures, gonorrhœa; topically in piles and hydrocele; purifies blood. *Leaf*—very astringent, carminative, anthelmintic, aphrodisiac, tonic; lessens lumbago. *Gum*—acid, astringent, aphrodisiac; tonic to liver; used in diseases of chest and lungs; useful in syphilis. *Flower*—aphrodisiac, expectorant, tonic, emmenagogue, diuretic; good in biliousness, inflammations, burning urine, gonorrhœa. *Fruit and seeds*—oily, anthelmintic; useful in piles, eye diseases. *Lye* is useful in spleen enlargement (Yunani).

LOC. USES :—*Leaves* are externally used to disperse boils, pimples, buboes, tumours, hæmorrhoids and internally in flatulence, colic, worms and piles. Weak decoction of the bark is useful in catarrh, cold and cough. Pieces of bark with sugar-candy, if chewed, relieves abnormal thirst. *Kino-gum* (exuded from the bark) is an excellent astringent used in diarrhoea and dysentery of young children and

delicate women. It is also useful in cases of hæmorrhage from the stomach and bladder. Gum solution is applied to bruises, ringworm, etc. *Flowers* are astringent, aphrodisiac and diuretic. They are applied as poultice to disperse swellings and promote diuresis and menstrual flow. They are applied to orchitis. The *seeds* when pounded with lemon-juice and applied to the skin, act as rubefacient. They have been successfully used for the cure of *Dhobie's itch*. When made into paste they are used for ringworm. Maggots are killed by sprinkling the powdered seeds over them. *Seeds* are internally administered as an anthelmintic. As regards their anthelmintic properties there is considerable difference of opinion. *Gum* is good astringent in diarrhoea and dysentery. Powdered seeds are quite ineffective against hook-worm, and their action against round-worms is very weak and erratic.

Leaves contain a glucoside.

See—Timbers, Gums and Resins, Dyes.

CÆSALPINIA BONDUCELLA Flemi.

FAM.—Leguminosæ (Cæsalpinoideæ).

COM. NS. :—*E.* Fever nut, Physic nut; *G.* Gajga, *H.* Katkaranj, Katkaleja; *K.* Gajjige, Tapasi; *M.* Gajaga, Sagargota; *Sk.* Kakechika, Karanja, Kuberakshi.

CHAR. :—An extensive climber, branches armed with hooked and straight hard yellow prickles; *L.*—abruptly pinnate, 30-60 cm. long, petioles prickly; pinnæ 6-8 pairs, 5-7.5 cm. long with a pair of hooked spines at the base; leaflets 6-9 pairs, elliptic-oblong, strongly mucronate; *Fl.*—in terminal and supra-axillary racemes *C.*—yellow; *Fr.*—pod, shortly stalked, oblong 5-7.5 × 4.5 cm. densely armed on the faces with prickles; *Se.*—1-2 oblong, lead-colored 1.3 cm. long; *Fl. t.*—July-Sept.

HABITAT :—In hedges and waste places.

LOC. :—Pretty common throughout the State in hedges, very common near the sea-coast; Deccan hills.

DISTR. :—Throughout India, Sind, the tropics generally.

PARTS USED :—Root-bark, leaves, flowers and fruit.

PROPERTIES AND USES :—*Root-bark*—good for tumours and for removing placenta; sprouts useful in tumours. *Leaf-juice*—anthelmintic; good in small-pox and elephantiasis; destroys bad odour due to perspiration. *Flower*—cures “Kapha” and “Vata”. *Fruit*—acid, heating; astringent to bowels, aphrodisiac, anthelmintic; cures urinary discharges, leucorrhœa, piles, wounds; oil from fruit is good for indolent ulcers (Ayurveda). *Seed*—styptic, antiperiodic, anthelmintic; prevents contagious diseases; cures inflammation; useful in colic, malaria, hydrocele, skin-diseases, leprosy (Yunani).

LOC. USES :—*Root-bark* is useful in intermittent fevers, asthma and colic. Tender *leaves* are efficacious in disorders of liver and are reckoned as deobstruent and emmenagogue. *Oil* expressed from leaves is used in convulsions and nervous complaints. Tender leaves boiled with castor-oil and thickly applied on painful and swollen testicles are found efficacious. *Seeds* are considered in India to be very hot and dry. Seeds roasted and powdered are administered for hydrocele internally and also applied externally;

Powdered seeds mixed with black-pepper are febrifuge and antiperiodic, used in chronic fevers; mixed with warm butter-milk and asafoetida act as a tonic in dyspepsia. Burnt seeds with alum and burnt areca-nut is a good dentifrice useful in spongy gums. Fixed oil from seeds is emollient and used as an embrocation to remove freckles from face. Decoction of roasted seeds is used against consumption and asthma. In 1868 seeds were made officinal in the Pharmacopœia of India as a tonic and antipyretic and were favourably reported on by medical officers.

The plant contains a bitter substance *bonducin*.

CALOPHYLLUM INOPHYLLUM Linn.

FAM.—Guttiferæ.

COM. NS.:—*E.* Alexandrian laurel; *H.* Undi, Sultanchampa, Surpan; *K.* Ponne, Surhonne, Vuma; *M.* Punmag, Surangi, Undi; *Sk.* Punnaga, Purakeshera, Tungakeshera.

HABITAT:—Near the sea-coast; also cultivated as an ornamental plant, and for its oil.

LOC.:—Common on the coastal regions in the State; very common in N. Kanara associated with littoral species.

DISTR.:—Cultivated throughout India, Ceylon, East African Islands, Malaya, Australia, Polynesia.

PARTS USED:—Bark, gum, and oil.

PROPERTIES AND USES:—Hot; heals ulcers and inflammations of the eye; destroys “Kapha” and “Vata”, lessens appetite; astringent, improves complexion (Ayurveda).

LOC. USES:—*Bark* is astringent and is used in decoction in internal hæmorrhage. *Juice* of the bark is purgative and is very powerful in action. *Tears* which distil from the tree and its fruit are emetic and purgative (Rheede). The *gum* from wounded branches, mixed with bark strips and leaves, is steeped in water and the oil which rises to the surface is used as an application to sore-eyes. It is a very useful remedy for indolent ulcers. *Leaves* soaked in water are applied to inflamed eyes. Fixed oil expressed from seed kernels is used to cure scabies. It is highly useful in the treatment of gonorrhœa and gleet. It is a good embrocation in rheumatism and gout.

In Java tree is supposed to possess diuretic properties.

See—Timbers, Oils.

CALOTROPIS GIGANTEA R. Br.

FAM.—Asclepiadaceæ.

COM. NS.:—*E.* Gigantic swallow-wort; *G.* Akdo, Dholaakdo; *H.* Ak., Ark, Madar; *K.* Arka, Ekke, Mandara; *M.* Akand, Madar, Rui; *Sk.* Arka, Mandara, Shuka-phala, Kshirparni, Kshiranga.

CHAR.:—A large shrub, 2.4-3 m. high, much branched, often gregarious, branches stout, covered with cottony pubescence; *L.*—opposite, 10-20 × 3.8-10 cm., sessile, elliptic or ovate oblong, thick, base cordate, sometimes amplexicaul, both surfaces tomentose;

Fl.—in umbellate cymes, purplish or white, buds ovoid; *C.*—lobes deltoid-ovate, corona shorter than the column, back much curved; apex with two auricles; *Fr.*—follicles, 9-10 cm. long, broad, green; *Sd.*—many, comose; *Fl. t.*—Feb.-July.

HABITAT:—Dry waste places.

LOC.:—Throughout the State in dry waste places; very common.

DISTR.:—Throughout warmer parts of India; also in the Himalayas ascending 1000 m.; very common in S. India, Ceylon, Malay Islands and S. China.

PARTS USED:—Root, bark, leaves and flowers.

PROPERTIES AND USES:—*Plant*—alexipharmic; cures leprosy, ulcers, spleen and liver diseases. *Juice*—anthelmintic, laxative; cures piles and “Kapha”. *Root-bark* is diaphoretic; cures asthma and syphilis. *Flower*—analgesic, astringent; cures inflammations, tumours, rat-bite. *Milk*—heating, oleaginous, purgative; cures leucoderma, tumours, ascites, diseases of abdomen (Ayurveda). All parts of the plant dried and taken with milk act as a good tonic, expectorant and anthelmintic; *leaves* applied to paralysed parts, swellings, painful joints; heal wounds. *Milk*—caustic, acrid; depilatory; useful in leprosy, scabies, ringworm of scalp, piles, eruption on body, asthma, liver and spleen enlargement, dropsy. *Flowers*—stomachic; good for liver (Yunani).

LOC. USES:—*Root bark* and *juice* have emetic, diaphoretic, alterative and purgative properties. In the treatment of dysentery dried root-bark is an excellent substitute for ipecacuanha; *root-bark* is emetic and is useful in the enlargement of abdominal viscera, also useful in intestinal worms, coughs, ascites and anasarca, elephantiasis. Reduced to paste with sour *conjee* it is applied to elephantiasis of legs and scrotum. *Root-powder* promotes gastric secretion, acts as a mild stimulant and febrifuge. *Leaves* are useful in ascites and enlargement of abdominal viscera. Fluid extract of leaves given in intermittent fevers during intermission is said to cut off paroxysms. Powder of dried *leaves* is dusted on ulcers to promote healthy action. *Flowers*—digestive, tonic and stomachic in action; used in cough, asthma, catarrh and loss of appetite; milky *juice* is recommended for ringworm of the scalp and to destroy piles; also used in aphthæ and to cure tooth-ache. The plant contains bitter resins *akundarin* and *calotropin*.

See—Fibres.

CALOTROPIS PROCERA R. Br.

FAM.—Asclepiadaceæ.

COM. NS.:—*H.* Ak, Madar, Safedak; *M.* Mandara; *Sk.* Ark, Mandara, Rajarka.

CHAR.:—An erect shrub usually 1.8-2.4 m. high; young parts white, cottony; bark corky, spongy; *L.*—subsessile, usually 5.7-15 × 4.5-8.2 cm., ovate oblong, elliptic or obovate; *Fl.*—purplish in umbellate cymes, buds globose; *C.*—about 2.5 cm. across, lobes usually erect, corona lobes equalling or exceeding the staminal column; *Fr.*—7.5-10 × 5.7-5 cm., subglobose, ellipsoid or ovoid; *Sd.*—broadly ovate, flattened tomentose, comose.

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HABITAT :—Dry regions.

LOC. :—Common in the dry parts of the State.

DISTR. :—More or less common in warm dry places throughout India, abundant in Sind, Afghanistan, Waziristan, Arabia, Egypt, Iran, tropical Africa.

PARTS USED :—Leaves, flowers and milky juice.

PROPERTIES AND USES :—Same as those of *C. Gigantea*.

LOC. USES :—Fresh root used as a tooth-brush is considered to cure tooth-ache. Warm leaves used as poultice. Flowers used as detergent; they are given in cholera. Milky juice used as a blistering agent.

In northern territories leaves and fruits are boiled together and used for extraction of guinea-worm.

See—Fibres.

CANAVALIA ENSIFORMIS DC.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS. :—*E.* Broad—Sword bean; *G.* Gavria, Paraholiya, Taryardi; *H.* Kadsambu, Khadsambal, Sema; *K.* Kadavare, Sambe, Tamateballi; *M.* Abai, Gavara; *Sk.* Asishimbi, Koshaphala, Nilashimbika, Shimbi.

HABITAT :—Commonly cultivated, but doubtfully wild.

LOC. :—Grown in Khandesh and Deccan near houses, on trees and hedges; the virose variety is extremely abundant as a wild plant in Konkan.

DISTR. :—Commonly cultivated throughout India and everywhere in the Tropics.

PARTS USED :—Pods.

PROPERTIES AND USES :—Sweetish, acrid, cooling, indigestible, tonic; appetiser; useful in burning sensations, biliousness, ulcers (Ayurveda).

Fruits eaten create abdominal complaints, hernia and colic. (Chopra).

The pods contain vitamin A.

There is an alkaloid present in the pods.

See—Vegetables.

CANNA INDICA Linn.

FAM.—Scitamineæ.

COM. NS. :—*E.* Indian shot; *G.* Akalabera; *H.* Sabbajaya; Sarvajaya; *K.* Hudingana, Kalehu; *M.* Kardali; *Sk.* Devakeli, Kamakshi, Sarvajaya, Shitarambha.

CHAR. :—Perennial herb; root-stock tuberous, stem 0.9-1.2 m. high; *L.*—15-45 × 10-20 cm.; lanceolate to ovate, oval or orbicular, veins arching; *Fl.*—in mixed inflorescences 5-6.3 cm. long; bracts oblong, membranous, green; *P.*—segments 2.5 cm., erect, narrow, greenish or colored, staminodial segments, 3 sub-erect, spatulate, 1 linear

revolute; *Fr.*—sub-globose or oblong; 3-lobed, echinulate; *Sd.*—many, globose, black, shining; *Fl. t.*—more or less throughout the year.

HABITAT :—Cultivated in moist situations.

LOC. :—Very common in the gardens all over the State. Not indigenous.

DISTR. :—Widely cultivated in India.

PARTS USED :—Roots, leaves, flowers and seeds.

PROPERTIES AND LOC. USES :—Root is given as a demulcent and stimulant; used as a diaphoretic and diuretic in fevers and dropsy. When the cattle have eaten any poisonous grass resulting in swelling of abdomen root-stocks are administered. They are broken in small pieces, boiled in rice water which pepper and given to cattle to drink (Drury). Seed is cordial and vulnerary (Baden-Powell).

In the Gold-Coast flowers are said to cure eye-diseases.

See—Ornamental Plants.

CANNABIS SATIVA Linn.

FAM.—Urticaceæ.

COM. NS. :—*E.* Hemp; *G.* Bhang, Ganja; *H.* Ganja; *K.* Bhang; *M.* Bhang; *Sk.* Ganja, Harshini, Mohini, Shivapriya, Siddhapatri, Vijaya, Unmattini.

CHAR. :—A tall erect dioecious annual herb strongly smelling, usually 0.9-1.5 m. high in its feral state, female plant supposed to grow taller than the male; *L.*—alternate or the lower opposite, upper 1-3, lower 3-8 foliate, serrate; *Fl.*—small axillary, dicecious, male fascicled; female crowded under convolute bracts; male flowers, sepals 5, imbricate, female perianth hyaline; *Fr.*—achenes

HABITAT :—Cultivated, also wild.

LOC. :—Cultivated as a narcotic drug.

DISTR. :—Throughout India. Wild in the Himalayas, Central Asia; cultivated in tropical and temperate regions.

PARTS USED :—Bark, leaves, flowers, seeds and resin.

PROPERTIES AND USES :—Leaves—bitter, heating, astringent to bowels, tonic, stomachic, alterative; useful in "Kapha", leprosy; causes biliousness, intoxication, hallucinations; excessive use causes indigestion, cough, melancholia, impotence, dropsy, insanity. Female inflorescence is stomachic, soporific, abortifacient; useful in convulsions; causes thirst, restlessness, intoxication (Ayurveda). Leaves—bitter, hot, tonic, aphrodisiac, antidiarrhoeic, intoxicating, soporific; causes thirst and biliousness; water extract anthelmintic; oil—good for earache. Bark—tonic, good for hydrocele, inflammations, piles. Seeds—carminative, astringent, aphrodisiac; check vomiting; lessen inflammation; cause headache. Resin is smoked to allay hiccup and bronchitis (Yunani).

LOC. USES :—There are three principal forms in which the plant is used in India: (1) Ganja, (2) Bhang, (3) Charas. All these are intoxicating in different degrees. Bhang and Ganja are prescribed by Indian doctors in bowel complaints and recommended as appetisers; valuable as a nervous stimulant and a source of great staying power

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under fatigue. *Leaves* make a good snuff for deterring the brain; their *juice* applied to head removes dandruff and vermins; dropped into the ear it allays pain and destroys worms; it checks the discharge in diarrhoea, gonorrhoea and is a diuretic. *Leaf-powder* applied to fresh wounds promotes granulations; a poultice of the plant is applied to local inflammations, erysipelas, neuralgia as an anodyne or sedative. Poultice of fresh bruised leaves is useful in eye affections with photophobia; applied to relieve pain and swellings in orchitis. *Resin* from leaves and flowers (charas) is narcotic and is used to produce sleep; it is valuable in curing all kinds of headaches, acute mania, whooping cough, asthma, dysuria. In the form of tincture it is used for checking ague fits, and is employed by Indian physicians, in the form of electuary, as an aphrodisiac in cases of impotence, spermatorrhoea. *Oil* extracted from seeds is used for rubbing in rheumatism.

INDIAN PREPARATIONS:—*Jatuphaladya churna*—given in diarrhoea, indigestion and loss of appetite (Sarangdhara). *Jwālānala Rasa* used for indigestion and loss of appetite (Bhavaprakash). *Madana modak* used in cough, chronic bowel complaints and impotence.

The plant contains *cannabinin*.

See—Gums and Resins, Fibres, Narcotics.

CAPSICUM FRUTESCANS Linn.

FAM.—Solanaceæ.

COM. NS.:—*E.* Chillies, Cayenne-pepper; *G.* Mirchi, Marchu; *H.* Lalmirchi, Lanka mirchi; *K.* Menshinkai; *M.* Mirchi; *Sk.* Marichiphala, Raktamaricha, Ujjvala, Tikshna, Tivrashakti.

HABITAT:—Cultivated.

LOC.:—Extensively cultivated in S. M. Country in Deccan; to a small extent in Gujarat and Konkan.

DISTR.:—Cultivated all over India; often found as an escape.

PARTS USED:—Fruit.

PROPERTIES AND USES:—*Fruit*—causes burning sensation; increases appetite; useful in indigestion, diarrhoea, chronic ulcers, loss of consciousness, delirium (Ayurveda). *Fruit*—pungent; expectorant; useful in brain complaints, muscular pains, weakness of body; increases biliousness; produces a burning sensation at the anus (Yunani).

LOC. USES:—*Fruit* is used very widely in India in the preparation of various curries and chutneys. It is stomachic, stimulant and externally used as a rubefacient liniment. They are used in typhus and intermittent fevers, and dropsy; also in gout, dyspepsia, cholera, and flatulence. Powdered *seeds* given with hot water sometimes show remarkable effects in cases of *delirium tremens*. *Fruit decoction* with addition of opium and asafetida (fried) is given with success in cholera. It has a powerful action on the mucus membrane and as a gargle in sore and putrid throat is beneficial. *Chilly Vinegar* is an excellent stomachic.

The fruit contains *Capsisin*, *Capsaicin* and *Solanin*.

The fruits contain vitamins A and C.

See—Condiments and Spices, Vegetables.

CARDIOSPERMUM HALICACABUM Linn.

FAM.—Sapindaceæ.

COM. NS.:—*E.* Balloon vine, Blister creeper; *G.* Karolio; *K.* Agnierum, Maniju balli, Kangu; *M.* Kanphuti, Kapalphodi; *Sk.* Jyotishmati, Karhasphota, Sakralata.

CHAR.:—Annual or perennial climbing herb; stem wiry; *L.*—alternate, deltoid, 2-ternate, ultimate segments lanceolate, incis-serrate, very acute apex; *Fl.*—in few flowered umbellate cymes, provided beneath the cyme with opposite circinnate tendrils; *C.*—white, petals 4, rounded at the apex; *Fr.*—capsule, subglobose, trigonous, winged at the angles, bladdery; *Sd.*—globose, smooth, black.

HABITAT:—In hedges; introduced.

LOC.:—Common in hedges throughout the State, Deccan.

DISTR.:—Most warm countries, Sind.

PARTS USED:—Root, leaves and seeds.

PROPERTIES AND LOC. USES:—The *juice* of the plant promotes the catamenial flow during the menstrual period; also demulcent in gonorrhoea and in pulmonary affection; dropped into the ears to cure ear-ache and discharge from the meatus. *Root* is considered diaphoretic, diuretic and aperient; it is mucilaginous, and is administered in fevers. *Leaves* are administered in pulmonic complaints; *leaves* mixed with castor oil are employed internally in rheumatism.

The plant contains *saponin*.

CAREYA ARBOREA Roxb.

FAM.—Myrtaceæ.

COM. NS.:—*E.* Wild guava; *G.* Kumbi; *H.* Kumbhi, Vakambi; *K.* Daddala, Gavvahannu, Henumatti; *M.* Kumbha; *Sk.* Girikarnika, Kalindi, Kumbhi, Shaundi.

HABITAT:—Deciduous forests.

LOC.:—Very common throughout the State in monsoon forests, also in valleys and ravines throughout the drier areas; common in S. Konkan and W. Ghats.

DISTR.:—Throughout India, Ceylon, Malay Peninsula, Thailand (Siam).

PARTS USED:—Root, bark, leaves, flowers and fruits.

PROPERTIES AND USES:—*Bark*—pungent, hot, dry; alexiteric, anthelmintic; useful in tumours, dyspepsia, colic, "Vata", bronchitis, urinary discharges, piles, leucoderma, skin-diseases, epileptic fits. *Fruit*—acid, aphrodisiac; cures "Kapha" (Ayurveda).

LOC. USES:—*Bark* and *fruit* astringent; bark, when moistened, gives out mucilage and is prescribed for emollient erabrocations; *infusion* of flowers is given after child-birth to heal the ruptures; *juice* of fresh bark and flowers is administered with honey as demulcent in coughs and colds. *Decoction* of bark is used to wash and clear boils, abscesses and ulcers. *Root*, *bark* and *fruit* are used to kill fish by the Mundas of Chota-Nagpur.

See—Timbers, Fibres.

CARICA PAYAYA Linn.

FAM.—Caricaceæ.

COM. NS. :—*E.* Papaw, Papaya; *G.* Chibda, Papayi; *H.* Papaya, Papita; *K.* Guppe, Pangi, Pappayi; *M.* Papaya, Popayi; *Sk.* Chirbhita, Nalikadala.

HABITAT :—Cultivated.

LOC. :—Grown extensively in Poona, Ahmednagar and Nasik. Sparingly grown in other parts of the State.

DISTR. :—Native of W. Indies, Mexico and Brazil. Cultivated throughout India.

PARTS USED :—Leaves, fruit and seeds.

PROPERTIES AND USES :—*Fruit*—tasty; astringent to bowels, aphrodisiac; increases “Kapha” and “Vata”; removes biliousness; cures insanity (Ayurveda). *Fruit*—stomachic, appetiser, digestive, carminative, diuretic; cures inflammation, enlargement of spleen; removes urinary concretions; relieves obesity; used in hæmoptysis, bleeding piles, wounds of urinary track; useful in skin diseases (Yunani).

LOC. USES :—*Leaves* warmed over fire are applied to painful parts for nervous pains; bruised leaves applied as poultice are said to reduce elephantoid growths. *Fruit* is useful in chronic diarrhoea; green fruit is laxative and diuretic; *unripe fruit*, made into curries, is eaten by women to stimulate milk secretion; dried and salted fruit reduces enlarged spleen and liver; *ripe fruit* is alterative and if eaten regularly corrects constipation; it is useful in bleeding piles and dyspepsia. Milky *juice* from unripe fruit has been long considered anthelmintic, useful in expulsion of lumbrici; it is used to procure abortion. *Seeds* are vermifuge but mostly used as an emmenagogue.

White thin latex contains Papain, a digestive enzyme valued in medicine. The leaves contain alkaloid *carpaine* and a glucoside *carposide*. Fruits contain vitamins A and C.

See—Fruit Trees.

CARTHAMUS TINCTORIUS Linn.

FAM.—Compositæ.

COM. NS. :—*E.* Dyer's saffron, Safflower; *G.* Katada, Kusumbo; *H.* Barre, Karrak, Kusumba; *K.* Kusumba; *M.* Kardai, Kusumba; *Sk.* Agnishikha, Kamalottama, Kusumbha.

HABITAT :—Cultivated.

LOC. :—Grown over large areas in the Deccan and Gujarat for the oil from their seeds and the dye from the flowers.

DISTR. :—Cultivated throughout large parts of India.

PARTS USED :—Leaves, flowers, seeds and oil.

PROPERTIES AND USES :—Laxative, cure “Vata”, “Kapha”, “Tridosh”, strangury, leprosy; cause biliousness. *Seeds*—oleaginous, cooling, aphrodisiac. *Oil*—indigestible, heating, causes burning sensation; depilatory. *Leaves*—hot, laxative, diuretic, appetiser; cure urinary discharges; good for eyes; cause anal troubles (Ayurveda). *Flower*—tonic to liver, hypnotic, diuretic, expectorant; cures inflammations, bile, ringworm, scabies, leucoderma, piles, bronchitis;

improves complexion. *Seeds*—purgative, carminative, bechic, aphrodisiac; good for old people; cure catarrh, chest and throat pains; enrich blood; give lustre to eyes. *Oil*—good in all diseases, tonic, strengthening, purgative, cures liver and joint-pains (Yunani).

LOC. USES :—*Flowers* are stimulant, emmenagogue and sedative; they are used in jaundice; they are used as a substitute for saffron to promote eruptions in skin-diseases. Poultice made from powdered seeds is used to allay inflammation of the womb after child-birth. *Oil* is used as a liniment in rheumatism and for dressing bad ulcers; it is also a mild purgative and is a valuable remedy for itch.

• In the Punjab seeds are considered diuretic and tonic.

Leaves contain vitamin A.

See—Vegetables, Oils, Dyes.

CARUM COPTICUM Benth.

FAM.—Umbellifereæ.

COM. NS. :—*E.* Bishops' weed; *G.* Ajamo; *K.* Oma, Omu; *H.* Ajowan, Ajwain; *M.* Owa; *Sk.* Ajamoda, Dipyaka, Tivragandha, Elgra.

LOC. :—Cultivated throughout the Bombay State in gardens.

DISTR. :—Cultivated extensively in India, Baluchistan, Afghanistan, Iran, Egypt, Europe.

PARTS USED :—Root (rarely) and seeds.

PROPERTIES AND USES :—The *seeds* are hot, bitter, pungent, stomachic, appetiser, aphrodisiac, anthelmintic, carminative, laxative; cure ascites, abdominal tumours, enlargement of spleen, piles, vomiting, abdominal pain; good for heart and tooth-ache; increase biliousness (Ayurveda). The *seeds* bitter and hot, carminative, diuretic; good in weakness of limbs, paralysis, chest pains; improve speech and eyesight; stimulate intestines; good for ear boils, liver, spleen, hiccup, vomiting, dyspepsia, kidney troubles, inflammation (Yunani).

POPULAR USES :—The *root* is diuretic and carminative; it is used in febrile affections and in stomach disorders. The fruits are much valued for their antispasmodic, stimulant, tonic and carminative properties. They are administered in flatulence, atonic dyspepsia, and diarrhoea, and even in cholera. They are given frequently in conjunction with asafoetida, myrabolans and rock salt. They constitute an ingredient in cough mixture.

The plant yields an essential oil and is a source of thymol.

See—Condiments and Spices.

CASSIA ALATA Linn.

FAM.—Leguminosæ (Cæsalpinoideæ).

COM. NS. :—*E.* Ringworm shrub, Winged senna; *H.* Dadmardan, Datka pat; *K.* Dodda sagate, Simyatase; *M.* Dadamardana; *Sk.* Dadrugna, Dwipagasti.

CHAR. :—A large shrub with very thick downy branches; *L.* pinnate, subsessile, 30-60 cm. long; leaflets 10-12 pairs, oblong-obtuse, mucronate, downy beneath, oblique at the base; rachis

narrowly winged; *Fl.*—in spiciform, pedunculate racemes; buds in yellow bracts; *C.*—bright yellow with darker veins; *Fr.*—pod long, ligulate with a broad wing down the middle of each valve, membranous, straight, 10-20 × 1.3-1.6 cm., *Sd.*—50 or more; *Fl. t.*—Oct.

HABITAT :—Planted.

LOC. :—Planted in Konkan and Deccan.

DISTR. :—Introduced into India, very likely a native of the W. Indies.

PARTS USED :—Leaves and flowers (rarely).

PROPERTIES AND USES :—Leaves sour; cure "Vata", itching, cough, asthma, ringworm, skin diseases; vermicide (Ayurveda).

LOC. USES :—*Leaves* rubbed into a thin paste and mixed with vaseline constitute an effective remedy for ringworm; they are also used in other skin diseases (Ainslie). Internally the leaves and flowers are prescribed as a tonic (T. N. Mukerji). The whole plant is used by Tamil people in venereal diseases, poisoned bite and as a general tonic (Roxb).

"In eczema, I have obtained the best results by washing the parts repeatedly with a strong decoction of the leaves and flowers. *Bark* has the same properties. In cases of bronchitis and asthma, I have administered the decoction in repeated doses during the day, relieving dyspnoeal oppression and promoting expectoration. Medicine acts on the bowels slightly and increases the flow of urine" (Dr. Ahmed; Ph. J. 28-4-88).

CASSIA AURICULATA Linn.

FAM.—Leguminosæ (Cæsalpinioidæ.)

COM. NS. :—*E.* Tanner's cassia; *G.* Awal; *H.* Taroda, Tarwad; *K.* Avarike, Fakusina, Tangadi; *M.* Tarwad; *Sk.* Avartki, Chamaranga, Mayahari, Pitakilaka.

CHAR. :—A tall much branched evergreen shrub; bark smooth, reddish brown; *L.*—7.5 × 10 cm. long, rachis densely pubescent, a linear gland between each pair of leaflets; stipules very large, rotundate, reniform; leaflets 8-12 pairs, slightly overlapping, oblong-obovate, mucronate, dull green above, pale beneath; *Fl.*—large, yellow with orange veins, 5 cm. across, in terminal and axillary corymbose racemes; *Fr.*—pod, 20-25 cm., obliquely septate; *Sd.*—30-35, rhombohedral; *Fl. t.*—Jany.-July

HABITAT :—Growing in black cotton soil and dry stony ground.

LOC. :—Savannah and thorn forests of the Deccan, Gujarat and S. M. Country; along the sea coast in laterite region.

DISTR. :—Dry regions of Rajputana, Madhya Pradesh and W. Peninsula, Ceylon, Burma.

PARTS USED :—Root, leaves, flowers, fruits and seeds.

PROPERTIES AND USES :—Alexiteric; useful in thirst, urinary discharges; cures tumours, skin-diseases, asthma; causes flatulence; anthelmintic; good for ulcers, leprosy, nocturnal emissions, diabetes, and throat troubles; useful in vomiting, thirst; alexipharmic; used in ophthalmia and dysentery (Ayurveda).

LOC. USES :—*Bark* is considered astringent; it has been much used as a gargle in sore-throat and seems to be worthy of trial.

A decoction of the whole plant—especially of flower buds—has been tried with good results in diabetes and diuresis. Finely powdered decorticated seeds have been used as a dusting powder in conjunctivitis.

See—Dyes, Tans, and Famine Plants.

CASSIA FISTULA Linn.

FAM.—Leguminosæ (Cæsalpinoideæ.),

COM. NS. :—*E.* Golden shower, Indian laburnum, Pudding-pipe or stick; *G.* Balla, Garmala; *H.* Amaltas, Bandartauri; *K.* Aragina, Kakka, Konde; *M.* Bahava, Chimkani; *Sk.* Arogyashimbi, Hemapuspha, Rajataru, Rechana, Suvarnaka, Vyadivata.

HABITAT :—Mixed monsoon forests; also planted.

LOC. :—Throughout the Deccan and Konkan forests and in Khandesh Akrani. Planted as ornamental and roadside tree.

DISTR. :—Throughout India, Ceylon, Burma.

PARTS USED :—Root, leaves, flowers, fruit and seeds.

PROPERTIES AND USES :—*Root*—useful in skin diseases, leprosy, tuberculous glands, syphilis; cures burning sensation. *Leaves*—anti-periodic; heal ulcers; used in rheumatism; juice given in erysipelas. *Flowers*—improve taste, laxative, antipyretic; cure "Kapha", biliousness; cooling, astringent, cause flatulence. *Fruit*—digestible, cooling, purgative; cures diseases of the heart and abdominal pains. *Seeds*—oily, carminative; improve appetite. (Ayurveda). *Leaves* lessen inflammation. *Flowers*—purgative. *Fruit*—antipyretic, purgative, abortifacient, demulcent; lessens inflammation and body-heat; useful in chest and liver complaints, throat-troubles, eye-diseases, griping, rheumatism. *Seeds*—emetic (Yunani).

LOC. USES :—*Root* is generally given as a tonic and febrifuge. It has been found to act as a strong purgative. In Konkan, juice of young leaves is used to cure ringworm and to allay the irritation caused by marking-nut juice. *Leaf-poultice* has been beneficially used in facial paralysis and rheumatism. In Hindoo medicine *fruit pulp* is used as a cathartic. It is a mild laxative, safe for children and pregnant women.

See—Timbers, Ornamental Plants.

CASSIA OCCIDENTALIS Linn.

FAM.—Leguminosæ (Cæsalpinioidæ.)

COM. NS. :—*E.* Negro coffee, Stinking weed; *G.* Kacodari, Kasundari; *H.* Chakinda, Kasonda, Kasondi; *K.* Ane sogate, Doddtagase; *M.* Kasoda, Rankasvinda; *Sk.* Arimarda, Kasmarda, Kasari.

CHAR. :—A diffuse (usually annual) undershrub; branches furrowed, often purplish; *L.*—very foetid when bruised, 15-20 cm. long; rachis with a single sessile gland near its base; leaflets 3-5 pairs, ovate-lanceolate, apex acute, base somewhat oblique; *Fl.*—in few flowered racemes, corymbose, axillary and forming a terminal panicle; *C.*—petals 5, yellow, faintly veined with orange; *Fr.*—pods, 10-12.5 cm. long, recurved, transversely septate, distinctly torulose; *Sd.*—20-30, hard, smooth, shining dark olive-green; *Fl. t.*—Jany-March.

HABITAT :—Amongst rubbish near villages.

LOC. :—Abundant throughout the State during rains near villages.

DISTR. :—Throughout India and the tropics generally.

PARTS USED :—Root, leaves and seeds.

PROPERTIES AND USES :—*Root* useful in ringworm, elephantiasis. *Leaves*—aphrodisiac, alexiteric; cure “Kapha”, hiccup, asthma, cough, “Vata”, fevers, “tridosha”; stomachic; good for sore-throat and biliousness (Ayurveda). *Fruit-juice* useful in ringworm; heals wounds; cures ascites. *Seeds* used in heat of the blood, for winter cough and cough in animals (Yunani).

LOC. USES :—The whole *plant* is purgative, tonic and febrifuge. In many countries root is considered diuretic. *Leaves* and *seeds* are used in cutaneous diseases. In the Konkan seeds are used as a cure for convulsions in children. Antiperiodic value of the leaves and seeds is now admitted by every therapist who has used them.

At Kotra, in Kutch, plant is considered a cure for sore eyes (Hughes Buller).

Seeds roasted and ground have been used as a substitute for coffee; medicinal properties are destroyed in the roasting process.

See—Famine Plants.

CASSIA SOPHERA Linn.

FAM.—Leguminosæ (Cæsalpinoideæ).

COM. NS. :—G. Kasundari; H. Banar, Baskikasondi, Kasondi; K. Kasamarda; M. Ran tankala; Sk. Kasamarda, Talapota.

CHAR. :—A shrub 2-4-3 m. high, annual or perennial; *L.*—18-23 cm. long; rachis grooved; with a solitary conical gland near the base; leaflets 6-10 pairs, opposite, lanceolate, base rounded; *Fl.*—in axillary, few flowered corymbose racemes; *C.* petals 5, ovate, obtuse, yellow; *Fr.*—pod, 7-5-10 cm., slightly recurved, turgid, septate between the seeds; *Sd.*—30-40 broadly ovoid, dark brown; *Fl. t.*—Nov.—Jany.

HABITAT :—Uncultivated places.

LOC. :—A common weed in uncultivated places throughout the State.

DISTR. :—Throughout India and most tropical countries.

PARTS USED :—Bark, leaves and seeds.

PROPERTIES AND USES :—In both Ayurveda and Yunani, the plant is credited with the same properties as *Cassia occidentalis*.

LOC. USES :—*Bark* infusion and powdered seeds, mixed with honey, are given in diabetes. The bark, leaves, and seeds are cathartic; *root* and *leaf* juice is a specific in ringworm, when mixed with sandal-wood paste. *Leaf infusion* is taken internally for gonorrhœa and also used externally for washing syphilitic sores. A decoction of the whole plant is said to be useful in diminishing urine and also to act as expectorant; found useful in cases of acute bronchitis.

The plant contains glucoside *emodin*.

See—Famine Plants.

CASSIA TORA Linn.

FAM.—Leguminosæ (Cæsalpinoideæ).

COM. NS. :—*E.* Foetid cassia; H. Chakunda, Pamad, Panevar; K. Chagoche, Tagache, Taragosi; M. Takala, Tarota; Sk. Chakramarda, Dadamari, Taga, Dadrughna.

CHAR. :—An annual foetid herb, 30-90 cm. high; *L.*—pinnate, 7-5-10 cm. long, rachis grooved, with a conical gland between each of the 2 lowest pairs of leaflets; leaflets 3 pairs, opposite (lowest smaller), obovate, oblong, base oblique; *Fl.*—in pairs in the axils of leaves; *C.*—petals 5, pale yellow, upper petal 2-lobed; *Fr.*—pod, 12-5-20 cm. × 4-5 mm. much curved when young, obliquely septate; *Sd.*—25-50 rhombohedral; *Fl. t.*—after the rains.

HABITAT :—Along roadsides and waste grounds.

LOC. :—A very common weed all over the State.

DISTR. :—Ceylon and the tropics generally.

PARTS USED :—Root, leaves and seeds.

PROPERTIES AND LOC. USES :—*Root* rubbed into a paste with lime juice is said to be specific for ringworm. Both *leaves* and *seeds* contain chrysophanic acid and are a valuable remedy in skin diseases. *Leaves* are gently aperient and prescribed in decoction for children suffering from feverish attacks while teething.

In China *seeds* are used externally and internally for all sorts of eye-diseases.

Seeds are roasted and are used as a substitute for coffee.

The plant contains glucoside *emodin*.

CELASTRUS PANICULATA Willd.

FAM.—Celastraceæ.

COM. NS. :—*E.* Black-oil tree, Climbing-staff plant; Intellect tree; G. Malhangana, Velo; H. Malkakni, Malkamni; K. Kangli, Kangodi; M. Kangani, Malkangoni; Sk. Jyotishmati, Kanguni, Sphutabandhani, Svarnalata.

CHAR. :—Large deciduous climber, 18 m. high, stem upto 23 cm. in diam.; branches rough, unarmed, reddish brown, covered with lenticels; *L.* alternate, ovate or obovate, 6-3-10 × 3-8-7-5 cm., crenate, shining above; *Fl.* in drooping panicles, small yellowish-green, usually unisexual; *Fr.* capsule, bright yellow, globose; *Sd.* 1-6 completely covered with red, fleshy arillus.

HABITAT :—In hedges and along river and *nala* banks.

LOC. :—Throughout the State in hilly parts.

DISTR. :—Sub-Himalayan tract from the Jhelum eastward upto 2000 m., throughout the hilly parts of Madhya Bharat, Madras State, Ceylon, Burma, Malay Peninsula and Archipelago.

PARTS USED :—Leaves and seeds.

PROPERTIES AND USES :—*Leaves* are emmenagogue. *Seeds*—acrid, bitter, hot, appetiser, laxative, emetic, aphrodisiac; powerful brain tonic; remove “Vata” and “Kapha”, cause burning sensation. *Oil* enriches blood and cures abdominal complaints (Ayurveda). *Seeds*—bitter; expectorant, brain and liver tonic; cure joint-pains,

paralysis and weakness. *Oil* stomachic, tonic; good for cough and asthma; used in leprosy; cures headache and leucoderma (Yunani).

LOC. USES:—In the Konkan *leaf-juice* is given as an antidote in over-doses of opium. *Seeds* are hot, aphrodisiac and stimulant; useful both as an external and internal remedy in rheumatism, gout, paralysis and leprosy; bruised and formed into poultice they are a good stimulant to foul unhealthy and indolent ulcers; they are also sudorific. They are also supposed to have the property of stimulating intellect and sharpening memory. *Seeds* yield oil called locally as "Kanguni" oil, and is employed for external application. Its chief interest lies in the fact that by destructive distillation along with benzoin, cloves, nutmegs and mace is obtained *oleum nigrum* of pharmacy which is used in the treatment of beri-beri. It is a powerful stimulant and diaphoretic.

The plant contains an alkaloid and a glucoside.

CENTAURIUM ROXBURGHII Druce.

(ERITHRÆA ROXBURGHII G. Don.).

FAM.—Gentianaceæ.

COM. NS.:—G. Jangli-karayatu, Jhinkun-kariatum; H. Kheta-Barik-chirayat; M. Lahan-chirayat.

CHAR.:—A small erect herbaceous plant 5-20 cm. high; L.—opposite; radical leaves revolute, persistent, obovate or oblong; cauline smaller, linear-oblong; FL.—in dichotomous cymes with a flower in each fork; C.—tubular lobes 5, pink, elliptic, spreading star-like; Fr.—capsule, narrowly oblong; Fl. t.—Feb.-Apl.

HABITAT:—Common in cultivated fields.

LOC.:—Konkan, Deccan and S. M. Country.

DISTR.:—Throughout India.

PARTS USED:—The whole plant.

PROPERTIES AND USES:—The whole plant is powerfully bitter and held in high esteem as a stomachic. It is used as a substitute for chiretta, especially in Bengal.

It is used by the Santals in fevers (Campbell).

CENTELLA ASIATICA Linn.

(HYDROCOTYLE ASIATICA Linn.).

FAM.—Umbellifereæ.

COM. NS.:—E. Indian—Thick-leaved pennywort; G. Barmi, Vallari; H. Brahnamanduki; K. Vondelaga; M. Brahmi, Ekpani; Sk. Brahnamanduli, Mahaushadhi, Mandukparni.

CHAR.:—A slender herbaceous plant, stem creeping with long internodes, rooting at the nodes; L.—1-3 from each node, orbicular, reniform, base deeply cordate stipulate. FL.—in fascicled umbels; minute, pink. Fr.—4 mm. long, ovoid, hard-rugose; Fl. t.—May-Nov.

* HABITAT:—In moist situations.

LOC.:—In moist situations (streams, nallas, water courses throughout the State.)

DISTR.:—Throughout India and Ceylon; tropical and sub-tropical regions of the world.

PARTS USED:—Whole plant (root, twigs, leaves and seeds).

PROPERTIES AND USES:—*Plant*—acid, bitter; digestible, tonic, cooling, laxative, alterative, alexiteric, antipyretic; improves appetite, voice, memory; cures leucoderma, anæmia, urinary discharges, blood diseases, bronchitis, inflammations, fevers, "Kapha", biliousness, spleen enlargement, thirst, asthma, small-pox; used in insanity (Ayurveda). *Plant*—bitter, soporific, sedative to nerves, cardio-tonic, tonic, bechic, stomachic, carminative, diuretic; clears voice and brain; cures hiccup, asthma, bronchitis, scalding of urine, headache; improves appetite (Yunani).

LOC. USES:—Only leaves are recognised in the Pharmacopœia Indica, but many investigators have advocated the use of the entire plant, specially roots which contain the major portion of the active principle "Vellarin". *Leaves* are dried in shade so that no active principle is lost. *Plant* is a valuable alterative tonic and reliable local stimulant. As an internal and external remedy in all chronic cutaneous affections and in chronic rheumatism its efficacy has been highly valued and as a stimulant to healthy mucous secretion in infantile diarrhoea, and emmenagogue in amenorrhœa it has been successfully employed. *Leaf-powder*, fluid extract of fresh plant or syrup prepared from plant are suitable for internal administration. For external use powder, ointment, plaster or bath are used. *Ointment* is used in elephantiasis and enlarged scrotum. As a remedy for leprosy it has a considerable repute. Powdered dried leaves with milk are an alterative tonic, and said to improve memory. In the Konkan leaves are given to cure stuttering. Leaves are also diuretic.

CERBERA ODOLLAM Gaertn.

FAM.—Apocynaceæ.

COM. NS.:—K. Chanda, Honde, Tande; M. Sukanu.

HABITAT:—Salt-swamps.

LOC.:—South Konkan and N. Kanara.

DISTR.:—Throughout India near the coast, abundant on the Malabar Coast, Malay Archipelago, China, Australia, Pacific Islands.

PARTS USED:—Bark, fruit, milky juice.

PROPERTIES AND LOC. USES:—*Bark* is purgative; *Fruit* is used as a cure for hydrophobia; *Kernel* of the fruit is an irritant poison; green fruit is employed to kill dogs; *nut* is narcotic and poisonous; the acid *milky juice* of the plant is emetic and purgative.

The plant contains glucoside *cerberin*, and a bitter substance *odollin*.

See—Timbers, Poisonous Plants and Fish Poisons.

CHENOPODIUM ALBUM Linn.

FAM.—Chenopodiaceæ.

COM. NS. :—*E.* Goose-foot, Wild-spinach; *G.* Cheel, Tanko; *H.* Bathusag, Chandanbedu; *K.* Chakravati; *M.* Chakwat; *Sk.* Agralohita, Chakravarti, Chhillika, Ksharadaḷa.

HABIT :—A weed of cultivation.

LOC. :—Very common in the Deccan; also cultivated as a pot herb.

DISTR. :—Widely distributed.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—Improves appetite; oleaginous, anthelmintic, laxative, diuretic, aphrodisiac, tonic; useful in biliousness, “Vata”, “Kapha”, abdominal pains, eye-diseases, throat-troubles, piles, diseases of blood, heart, spleen (Ayurveda).

LOC. USES :—The plant is used as a laxative; used in the form of pot-herb in piles; infusion is used as an enema for intestinal ulcerations.

The plant yields an essential oil.

CICCA ACIDA Merr.

(PHYLLANTHUS DISTICHUS Muell.)

FAM.—Euphorbiaceæ.

COM. NS. :—*E.* Country gooseberry; *H.* Chalmeri, Harparauri; *K.* Rayara nelli; *M.* Rai-avala, Harparrevdi; *Sk.* Laval, Laveni, Pandu, Skandhaphala.

HABITAT :—Cultivated.

LOC. :—Grown in gardens all over the State.

DISTR. :—Cultivated in India; native of Malay Islands and Madagascar.

PARTS USED :—Root, fruit and seeds.

PROPERTIES AND USES :—*Fruit*—slightly bitter, fragrant, acrid, sour; improves appetite, useful in bronchitis, biliousness, urinary concretions, piles; increases “Vata” (Ayurveda). *Fruit* is very sour; tonic to liver; useful in thirst, biliousness, vomiting, constipation; purifies and enriches blood (Yunani).

LOC. USES :—*Root* is purgative, *root* and the *seed* are cathartic. The *fruit* is acrid and astringent.

See—Fruit Trees.

CICER ARIETINUM Linn.

FAM.—Leguminosæ (Papilionaceæ).

COM. NS. :—*E.* Bengal—Common-gram, Chick pea; *G.* Chana, Chania; *H.* But, Chana, Chunna; *K.* Kari-Kempukadale, Kadale; *M.* Harbara; *Sk.* Balabhajya, Chanaka, Kanchuki, Vajibhakshya.

HABITAT :—Cultivated.

LOC. :—Cultivated largely in Gujārat, Deccan and S. M. Country.

DISTR. :—Widely cultivated in most parts of India.

PARTS USED :—Leaves, seed and acid exudation.

PROPERTIES AND USES :—*Leaves*—sour, astringent to bowels; improve taste and appetite; cure bronchitis. *Seed*—stimulant, tonic, aphrodisiac; cures thirst and burning; refrigerant, appetiser, anthelmintic; causes flatulence; useful in bronchitis, leprosy; cures skin diseases, blood troubles, throat troubles, biliousness. *Acid exudation* is astringent and useful in dyspepsia and constipation (Ayurveda). *Leaves*—purgative, abortifacient, tonic to hair; useful in cold, pains; causes flatulence. *Seed*—indigestible, aphrodisiac, anthelmintic, tonic; good for diseases of liver and spleen, chest complaints, throat troubles, foul mouth and fever; enriches blood, cures skin diseases and inflammations of the ear (Yunani).

LOC. USES :—*Plant* is employed as a refrigerant in fevers, and also in the treatment of dysmenorrhœa. *Seeds* are used in bronchial catarrh. *Acid exudation* collected from leaves contains oxalic, acetic and malic acids and is a useful astringent given in dyspepsia, vomiting, indigestion, diarrhœa and dysentery.

Leaves contain vitamin A. Pulse contains vitamins A and B.

See—Food Plants.

CINNAMOMUM ZEYLANICUM Blume.

FAM.—Lauraceæ.

COM. NS. :—*G.* Dalchini; *H.* Dalchini, Darchini, Duḷ, Kash; *K.* Dalchini, Lavange-hakke, Nisane; *M.* Dalchini; *Sk.* Gudatwaka; Valkala.

HABITAT :—Rain-forests.

LOC. :—Along the ghats from Konkan southwards; very common in the N. Kanara district.

DISTR. :—W. Peninsula, Burma, Ceylon, Malay Peninsula; indigenous and cultivated. Cultivated in the Malay Islands and elsewhere in the tropics.

PARTS USED :—Bark and oil.

PROPERTIES AND USES :—*Bark*—bitter, pungent, aphrodisiac, anthelmintic, tonic; useful in “Vata”, biliousness, thirst, parched mouth, bronchitis, diarrhœa, itching, heart, rectum and urinary diseases. *Oil*—styptic, carminative; useful in loss of appetite, flatulence, vomiting, toothache (Ayurveda). *Bark*—tonic, alexiteric, carminative, aphrodisiac, expectorant; causes salivation; useful in hydrocele, flatulence, heated brain, headache, hiccup, piles; strengthens liver. *Oil*—carminative, emmenagogue, liver-tonic; useful in inflammations, abdominal pains, cold in head, bronchitis (Yunani).

LOC. USES :—It is used in medicine only to a limited extent. It possesses carminative, astringent and stomachic properties and forms an ingredient of many medicines prescribed for bowel complaints. It is a fragrant cordial specially useful for weakness of stomach and diarrhœa. It checks nausea and vomiting. As a stimulant of the uterine muscular fibres it is used in menorrhagia and tedious labour due to defective uterine contraction. *Oil* is externally used in neuralgia, headache, toothache, etc.

See—Condiments and Spices, Oils.

CISSAMPÉLOS PAREIRA Linn.

FAM.—Menispermaceæ.

COM. NS. :—*E. Velvet-leaf*; *G. Venivel*; *H. Nirbisi*; *M. Pahadvel*, *Paharmul*; *Sk. Patha*, *Uthika*, *Venivalli*.

CHAR. :—A climbing shrub, branches more or less pubescent; *L.* peltate, 3-8-10 cm. diam; orbicular or reniform, cordate at the base, mucronate, margins ciliate; *Fl.* minute, yellowish; male flowers in axillary cymes, petals combined into cupshaped corolla; female flowers in elongate, solitary, or twin, axillary racemes; *Fr.* drupe, subglobose, compressed, hairy, red; *Fl. t.*—July-Sept.

HABITAT. :—In hills.

LOC. :—Deccan, Kanara.

DISTR. :—Throughout tropical and sub-tropical India—warm parts of Asia, E. Africa and America.

PARTS USED :—Root, leaves.

PROPERTIES AND USES :—Hot with bitter taste; destroys “Vata” and “Kapha”, removes pain, fever, dysentery, skin eruptions, heart troubles, burning, itching; alleviates vomiting, asthma; removes intestinal worms; cures enlarged spleen and ulcers; useful in hemicrania, piles, uterine complaints; helps parturition. The variety “Laghupatha” has the same properties (Ayurveda).

LOC. USES :—The root is the part most esteemed; it has an agreeable bitterish taste and is considered a valuable stomachic. It is frequently prescribed in the later stages of bowel complaints, in conjunction with aromatics. It is given for pains in the stomach and for dyspepsia, diarrhoea, dropsy and cough; also for *prolapsus uteri*. The root acts as an antiseptic of the bladder and is used in chronic inflammation of the urinary passages. *Leaves* have a peculiarly cooling quality and they are used locally in unhealthy sores and sinuses.

The drug is recommended for use in the alleviation of pain. The active constituent of the drug, an alkaloid, has been isolated, which possibly has a cholinergic action, i.e., formation of acetyl cholin in the system which produces a fall in blood pressure. The pharmacology of the alkaloid is under investigation. (Ind. R. F. Asso. Annual Report, 1949).

CITRULLUS COLOCYNTHIS Sch.

FAM.—Cucurbitaceæ.

COM. NS. :—*E. Bitter apple*, *Colocynth*; *G. Indruk*, *Indrayana*; *H. Chorumba*, *Indrayan*, *Makal*; *K. Pavamekke Kayi*, *Tumtikayi*; *M. Indraphal*, *Indryan*, *Kaduvrindavan*; *Sk. Chitraphala*, *Katurasa*, *Mahendravaruni*, *Trapusi*.

CHAR. :—An extensively climbing annual; stem thick, angular; young shoots woolly; tendrils bifid; *L.* 7-5-20 cm. long, deeply divided or but moderately lobed, somewhat hairy; *Fl.*—large, monœcious, solitary; *C.* subcampanulate, 5-partite, yellow within, greenish outside, lobes obovate-oblong, 5-nerved. *Fr.* upto 25 cm. diam, subglobose, smooth, greenish, waxy coated; flesh juicy, red or yellowish white; *Sd.*—usually margined; *Fl. t.*—Nov.-Jany.

HABITAT :—Wild in arid tracts.

LOC. :—Konkan; Deccan; Gujarat, sea-shores.

DISTR. :—Throughout India wild or sparingly cultivated; Ceylon. Also indigenous in Arabia, W. Asia, N. and tropical Africa and in the Mediterranean region.

PARTS USED :—Root and fruit.

PROPERTIES AND USES :—Root has a beneficial action in inflammation of breasts, pain in joints; externally it is used in ophthalmia and in uterine pains. Root and fruit cooling, purgative, anthelmintic, antipyretic, carminative; cures tumours, ascites, “Kapha”, leucoderma, ulcers, asthma, bronchitis, urinary discharges, jaundice, enlargement of spleen, tuberculous glands of neck, dyspepsia, constipation, anæmia, throat diseases, elephantiasis; useful in abnormal presentation and in atrophy of *fœtus* (Ayurveda).

The properties are the same as *Trichosanthes palmata* (Yunani).

LOC. USES :—Root is useful in cough and asthmatic attacks in children. In the Konkan fruit and root, with or without nux-vomica, is rubbed into a paste with water and applied to boils and pimples. In rheumatism equal parts of root and long-pepper are given in pills. Paste of the root is applied to the enlarged abdomen of children. The bitter pulp of the fruit is cathartic, useful in biliousness, constipation, fever and worms; fruit juice mixed with sugar is a household remedy in dropsy, bowel complaints, epilepsy. The active principle is glucoside *colocynthin*.

INDIAN PREPARATION :—*Jwaroghni Gutika*—used along with *guluncha* in fevers.

CITRUS AURANTIUM Linn.

FAM.—Rutaceæ.

COM. NS. :—*E. China*—Portugal—Sweet orange; *G. Narangi*; *H. Narenj*, *Naringi*, *Sunthura*; *K. Doddile*, *Kittale*, *Narange*, *Sukkarekanji*; *M. Naringa*, *Santra*; *Sk. Kirmirtvaka*, *Nagaranga*, *Tvakasugandha*.

HABITAT :—Cultivated in gardens.

LOC. :—Largely cultivated in the Deccan, (Poona, Ahmednagar and Khandesh).

DISTR. :—Widely cultivated in India.

PARTS USED :—Flowers and fruits.

PROPERTIES AND USES :—Fruit—strengthening, cardi tonic, laxative, anthelmintic; removes fatigue; aphrodisiac; removes “Vata”, causes “Kapha” and “Pitta” (Ayurveda). Flower—stimulant, tonic, diuretic, relieves colds; good in fevers; useful in piles, enlargement of spleen, chest troubles, and lumbago. Fruit—sour, sweet and has agreeable flavour; cooling, aphrodisiac, astringent, tonic; relieves vomiting and retching; removes biliousness; fortifies chest. Rind—anthelmintic; good in vomiting and skin diseases; juice, stops bilious diarrhoea (Yunani).

LOC. USES :—The water distilled from orange flowers is employed as an antispasmodic and sedative in nervous and hysterical cases. Fruit is blood purifier and appetiser. Orange poultice is recommended in some skin diseases. It is considered to be alexipharmic and

disinfectant. *Orange* water, stimulating and refreshing. The *essence* extracted from the rind and flowers is used as a stimulating liniment. The *peel* is useful in checking vomiting and prevention of intestinal worms. Orange marmalade is good for dyspeptic patients. The dried outer portion of the rind of the fruit possesses stomachic, tonic and astringent properties. It is useful in atonic dyspepsia, flatulence, gastric irritability in general and general debility.

The fruits contain vitamins A, B and C.

See—Fruit Trees.

CITRUS MEDICA Linn.

FAM.—Rutaceæ.

COM. NS. :—*E.* Adam's apple, Citron; *G.* Balank, Bijoru, Turanj; *H.* Bera nimbu, Bijaura, Kutla, Turanj; *K.* Madala, Mahaphala, Rusaki; *M.* Mahalunga, Mavalunga; *Sk.* Amlakeshara, Bijapurna, Mahaphala, Matulunga, Ruchaka.

HABITAT :—Cultivated; said to be wild in W. Ghats.

LOC. :—Grown in gardens in the State; though there are no regular plantations, odd trees occur in gardens in almost every village.

PARTS USED. :—Roots, flowers, fruits and seeds.

PROPERTIES AND USES :—*Root*—anthelmintic; used in constipation and tumours; removes colic; useful in vomiting, urinary calculus and caries of teeth. *Flowers*—stimulant, astringent to bowels; increase appetite; relieve vomiting; useful in abdominal complaints, asthma, cough, hiccup, intoxication. *Fruit*—sweet and sour; stimulant, digestible, tonic, cures leprosy; relieves sore-throat, cough, asthma, thirst; the juice allays ear-ache; rind of the fruit is bitter, sharp, oily, aphrodisiac; removes "Vata" and "Kapha". *Seeds*—indigestible; good for piles and in biliousness (Ayurveda).

LOC. USES. :—Citron *rind* is hot, dry and tonic; the *pulp* cold and dry; *seeds*, leaves and flowers hot and dry; *juice* refrigerant and astringent. According to Theophrastus, the fruit is an expellent of poisons; also corrects foetid breath. Distilled water of the fruit is used as a sedative; rind is made into a marmalade and is an antiscorbutic; its preserve is used for dysentery.

INDIAN PREPARATIONS :—*Rasayanamrita leha*—used in enlargement of the abdominal viscera, anæmia, jaundice, anasarca and chronic fever.

VAR. *Limonum*.

COM. NS. :—*E.* Lemon; *G.* Motalimbu; *H.* Jambira, Paharinimbu; *K.* Devamadala, Dodda-Gaja-nimba, Harale; *M.* Idalimbu, Thoralimbu; *Sk.* Mahanimbu, Matunga, Matalunga.

HABITAT :—Cultivated.

LOC. :—Cultivated in the Deccan; the stock of the plant is used for budding oranges.

PARTS USED :—Root, bark and fruit.

PROPERTIES AND USES :—*Rind* of the fruit is sour, heating, with a sharp taste; anthelmintic; removes "Vata" and "Kapha" and lung troubles (Ayurveda).

PROPERTIES AND LOC. USES :—*Rind* of the ripe fruit is stomachic and carminative. *Fruit juice* is a valuable antiscorbutic and refrigerant being one of the best remedies in scurvy, both as a prophylactic and as a curative. Diluted sweetened juice is an excellent refrigerant drink in febrile and inflammatory affections; successfully employed in acute rheumatism and acute tropical dysentery and diarrhoea. It often proves effectual as an antidote to acro-narcotic poisons.

VAR. *Acida*.

COM. NS. :—*E.* Acid—Sour lime; *G.* Khatalimbu, Lebu, Nimbu; *H.* Lebu, Limbu, Nebu, Nimbu; *K.* Limbe, Nimbe; *H.* Kagadi limbu; *Sk.* Amlasara, Limpaka, Nimbuka, Rochana, Shodharla.

HABITAT :—Cultivated in gardens.

LOC. :—Extensively cultivated all over the State.

PARTS USED :—Fruit, leaves (rarely).

PROPERTIES AND USES :—Sour, sharp taste, appetiser, stomachic, anthelmintic; cures abdominal complaints; removes diseases due to "Tridosha", loss of appetite, constipation, fatigue; good in "Kapha" and biliousness and foul breath; relieves vomiting; good for the eyes (Ayurveda). *Fruit*—sour, with flavour, stimulant; useful in weakness and tremblings of limbs, hemicrania, throat trouble, brain disorders, plethora; relieves biliousness, burning in the chest, vomiting, bronchitis; improves liver, heart, eyes; not good in old age. *Leaves* are used for bleeding gums (Yunani).

PROPERTIES AND LOC. USES :—*Fruit* is refrigerant. *Juice* is a valuable antiscorbutic, also useful in rheumatism; it cures and prevents scurvy. *Oil* from rind, from flowers and leaves is employed in refrigerant drinks in small-pox, measles, scarletina, where there is dry skin and much thirst. Lemons are an excellent remedy in pulmonary diseases. *Lime-juice* is most useful in dysentery and forms as excellent gargle in cases of ulceration of the mouth; it helps digestion. Juice of a baked lemon is an excellent remedy for cough; weak lemonade is preferable to plain water in diabetes. In poisoning by seed or root poisons lime-juice mixed half with water or *conjee* gives immediate relief. Local application of juice relieves irritation of mosquito bites.

The fruits contain vitamins A and C.

See—Fruit Trees.

CLEMATIS TRILOBA Heyne.

FAM.—Ranunculaceæ.

COM. NS. :—*G.* Morvel; *H.* Churhar, Dhantiatê, Murhari; *K.* Morhari; *M.* Moravel, Ranjai; *Sk.* Murva, Devashreni, Madhulika, Morata, Snuva.

CHAR. :—An extensive climber, but often found trailing amongst grass; whole plant tomentose; *L.*—simple or once ternate, entire or shallowly 1-7 lobed, lobes mucronate, blades 2-2.5 cm. long ovate or orbicular, petioles twinning; *Fl.*—in axillary corymbose panicles, white; sepals 4-6, hairy outside; *C.*—petals 0; *Fr.*—achenes, ovoid, silky villous, with long feathery tails; *Fl. t.*—Sept.-Nov.

A Bk VI 1-5a

HABITAT. :—Common in grass lands.

LOC. :—Very common throughout the Deccan and Konkan.

DISTR. :—W. Ghats.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—Sweet, bitter, astringent, hot, stimulant, laxative, stimulates secretion of bile; useful in leprosy, blood diseases, and fevers; used internally in thirst, heart-troubles and bilious vomiting; externally applied to boils, itch and to kill parasitic worms (Ayurveda).

CLEOME VISCOSA Linn.

FAM.—Capparidaceæ.

COM. NS. :—G. Talvari, Tilwan, Timnani; H. Hulhui, Jangali-harhar, Kanphutia; K. Nayibela; M. Harhuria, Kanphodi; Sk. Adityabhakta, Barbara, Karnasphota, Sauri, Tilparni.

CHAR. :—Annual erect herb, 30-90 cm. high; stems grooved and glandular, hairy; L.—3-5 foliate; petioles of lower leaves longer, gradually becoming shorter upwards; leaflets elliptic-oblong, terminal the largest; Fl.—axillary, in lax racemes, yellow; C.—petals 4, oblong-obovate, veined; Fr.—capsule, erect, hairy, obliquely striate, tapering towards both ends; Sd.—brownish black, transversely striate, subglobose; Fl. t.—Sept.-June.

HABIT :—A common weed.

LOC. :—Widely distributed throughout the State; very common in the Deccan, Konkan.

DISTR. :—Throughout the tropics of the world.

PARTS USED :—Leaves and seeds.

PROPERTIES AND USES :—Plant has saltish, bitter taste and a strong odour; cooling, stomachic, laxative, diuretic, anthelmintic; removes "Kapha"; causes excessive biliousness, dryness and urethral discharges; reduces tumours and inflammations; useful in skin-diseases and ulcers; enriches blood and is useful in blood diseases and uterine complaints; cures cough and ear-ache (Ayurveda). Plant has penetrating bad smell. Leaves—favour digestion, and dispel intestinal fermentation. Juice—cures ear-ache; good in malaria; useful in piles and lumbago as a local stimulant. Seeds—anthelmintic and detergent (Yunani).

LOC. USES :—Leaf-juice is put into the ear to relieve ear-ache; mixed with oil, it is a popular remedy for purulent discharges from the ear; it also forms an application to wounds and ulcers. Bruised leaves are applied to skin as counter-irritant. Seeds have properties resembling those of mustard. They are regarded as an efficient substitute; they are used as anthelmintic and carminative. They are also given in fevers and diarrhoea. Seeds yield on expression a fixed oil.

CLERODENDRON SERRATUM Moon.

FAM.—Verbenaceæ.

COM. NS. :—G. Bharangi; H. Bharangi; K. Gantubarangi, Kiritekki; M. Bharang; Sk. Bharangi, Brahmani, Kasaghni, Phanjika, Vatari.

CHAR. :—Shrub, 0.9-2.2 m. high; stems bluntly quadrangular; L.—ternately whorled, sometimes opposite, 12.5-15 × 5.7-6.3 cm., oblong or elliptic, sharply serrate; Fl.—many, showy, in lax dichotomous cymes, with a pair of bracts at each branching and a flower in the fork, collectively forming a terminal panicle; C.—pale blue, the larger lower lobe dark purple, tube hairy within, 4 lobes flat, spreading, lower one deflexed; Fr.—drupe, obovoid, black, fleshy; Fl. t.—Aug.-Oct.

HABITAT :—Deciduous dry forests and open situations.

LOC. :—Common in deciduous dry forests and open situations of the Deccan hills; also found throughout the State.

DISTR. :—More or less throughout India, Ceylon, Malay Peninsula.

PARTS USED :—Root, leaves and seeds.

PROPERTIES AND USES :—Root—dry, heating, stomachic, anthelmintic, useful in bronchitis, asthma, ozæna, fevers, "Vata", blood diseases, inflammations, tumours, burning sensation, hiccup, consumption, epilepsy, tubercular glands, wounds (Ayurveda). Root increases appetite; lessens expectoration; useful in inflammation, bronchitis, asthma, fevers (Yunani).

LOC. USES :—The root is used in febrile and catarrhal affections. In Ratnagiri people consider it very effective in malarial fevers. Leaves boiled with oil and butter made into an ointment are useful in cephalalgia and ophthalmia. The seeds bruised and boiled in butter milk are used as aperient and in dropsy.

The plant contains an alkaloid.

CLITORIA TERNATEA Linn.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS. :—G. Garani, Koyala; H. Aparajita, Kalina, Kowa, Wowatheti; K. Girikarniballi; M. Gokarni, Kajli; Sk. Aparajita, Girikarnika, Gokarnika, Vishnukranta.

CHAR. :—A perennial twining herb, stems terete, pubescent; L.—imparipinnate, leaflets 5-7, elliptic oblong, 2.2-5 × 2.3-2 cm.; Fl.—axillary, solitary; C.—much exerted, 3.8-5 cm. long; standard bright blue or white, with an orange centre; Fr.—pod 5-10 × 8-13 cm., flat, nearly straight, beaked, hairy; Sd.—6-10 yellowish brown, smooth; Fl. t.—June-Jany.

There are two varieties :—white flowered, and blue flowered.

HABITAT :—In hedges.

LOC. :—Very common in hedges everywhere throughout the State.

DISTR. :—Cosmopolitan in the tropics.

PARTS USED :—Root, leaves and seeds.

PROPERTIES AND USES :—White and blue flowered varieties—Root—cooling, acrid, laxative, diuretic, alexiteric, anthelmintic; toxic to the brain; good for eye-diseases, ulcers of the cornea, tuberculous glands, elephantiasis, headache; cures "Tridosha", leucoderma, burning sensation, pains, biliousness, inflammations, ulcers (Ayurveda). Root is purgative and diuretic; useful in ascites (Yunani).

LOC. USES :—*Root* is diuretic and laxative, useful in ascites and fevers; *root-bark decoction* is given as a demulcent in the irritation of the bladder and urethra. In the Konkan *root-juice* is given in cold milk to remove the phlegm in chronic bronchitis. *Root juice* of white flowered variety is blown up the nostrils as a remedy for hemicrania. *Leaf infusion* is used for eruptions. *Leaf juice* mixed with that of green ginger is given in cases of colliquative sweating in hectic fever. *Seeds* are purgative and aperient.

COCINIA INDICA W. & A.

FAM.—Cucurbitaceæ.

COM. NS. :—*G.* Galedu, Ghobe, Gluru; *H.* Bimb, Kanduri; *K.* Tondeballi; *M.* Tondali, Bimbi; *Sk.* Bimba, Bimbika, Karabhoja, Oshthi, Tundi, Tundika.

HABITAT. :—Cultivated in gardens; wild in hedges.

LOC. :—Grown everywhere in gardens, Deccan, S. M. Country, Gujarat, Konkan.

DISTR. :—Throughout India, Ceylon, Malaya, tropical Africa.

PARTS USED :—Root, leaves, flowers, fruit.

PROPERTIES AND USES. :—*Root* cooling, aphrodisiac; stops vomiting, urinary losses, burning of hands and feet; given for uterine discharges. *Leaves*—acrid, astringent to bowels; cure “Kapha” and “Pitta”; cause flatulence. *Flowers* cure itching, biliousness, and jaundice. *Fruit*—indigestible, galactagogue, antipyretic; cures leprosy, “Vata”, asthma, consumption, diseases of blood, inflammations due to “pitta” (Ayurveda). *Fruit* is aphrodisiac, allays thirst, useful in biliousness and diseases of blood (Yunani).

LOC. USES. :—In the Konkan, *root* pounded with *leaf-juice* is applied as a *lep* to the whole body to induce perspiration in fever. *Expressed juice* of the thick tap-root is used as an adjunct to the metallic preparations prescribed in diabetes. *Root bark*, dried and powdered, is said to act as a good cathartic (Taylor). *Leaves* are applied externally in skin-eruptions.

The plant has a reputation of having a remarkable effect in reducing the amount of sugar in the urine of diabetic patients.

The plant contains an enzyme, a hormone and an alkaloid. None of these substances reduce sugar when administered subcutaneously. Fresh juice from the plant parts produces no reduction of sugar in the blood or urine of patients suffering from glycosuria (Chopra and Bose).

The fruit contains vitamins A and C.

See—Vegetables.

COCULUS HIRSUTUS Diels.

(COCULUS VILLOSUS DC.)

FAM.—Menispermaceæ.

COM. NS. :—*E.* Broom-creeper, Ink-berry; *G.* Vevati, Vevdi; *H.* Chireta, Faridburti, Jamtikihel; *K.* Dagadi-Sugadi-Yadami balli; *M.* Hunder, Parvel, Tana, Vasanvel; *Sk.* Dirghvalli, Garudi, Vasandi, Vasantitika.

CHAR. :—A straggling scandent shrub, young parts densely villous; *L.*—3.8-6.3 × 1.3-3.8 cm., 3-5 nerved, ovate-oblong, subdeltoid or subhastate, villous; *Fl.*—diœcious, male in small axillary cymose panicles; *female* in axillary clusters, 2-8 together; *Fr.*—drupe, size of a small pea, keeled, rugose; *Fl. t.*—Dec.

HABITAT. :—In hedges.

LOC. :—Common in hedges throughout the State, Konkan, Deccan, Gujarat.

DISTR. :—Tropical and sub-tropical India from the foot of the Himalayas to S. India and Ceylon, Pegu, S. China, Arabia, tropical Africa.

PARTS USED :—Root and leaves.

PROPERTIES AND USES. :—*Root* has an unpleasant taste; smells sweetish and pungent; alexipharmic; destroys “Kapha” and “Vata”, lessens bile and burning sensation; enriches blood; useful in urethral discharges (Ayurveda). Antipyretic; tonic; lessens thirst; good in fractures; good for tubercular glands when mixed with sesame oil (Yunani).

LOC. USES. :—A decoction of fresh root, with a few heads of pepper, in goat's milk is administered in rheumatic and old venereal pains; it is heating, laxative and sudorific. In the Konkan, roots rubbed with Bonduc-nuts are given as a cure for belly-ache in children. It is also used as a refrigerant. *Leaf-juice*, mixed with water, coagulates into a green jelly-like substance, which is taken internally with sugar, as a cure for gonorrhœa.

In Baluchistan the mucilage taken in milk is used to cure spermatorrhœa; it is used for coughs, and put on to sore-eyelids, and to soften breasts (Hughes-Buller).

COCOS NUCIFERA Linn.

FAM.—Palmæ.

COM. NS. :—*E.* Cocoanut palm; *G.* Narial, Nalivar; *H.* Nariyal; *K.* Tenginmara, Tengu; *M.* Mad, Nara; *Sk.* Jataphala, Mahaphala, Mangalya, Narikel, Toyagarbha.

HABITAT. :—Cultivated along the sea-coasts; also in many places in the interior.

LOC. :—Cultivated throughout the State extensively near the sea, Common in Konkan and N. Kanara.

DISTR. :—Indigenous to islands of the Indian and Pacific oceans. Cultivated in the lower basins of the Ganges and the Brahmaputra, S. India, Malabar and Coromandel coasts, Ceylon and throughout the tropics.

PARTS USED :—Root, bark, flowers, seed, fermented juice, oil.

PROPERTIES AND USES. :—*Root*—anthelmintic. *Seed*—cooling, oleaginous, indigestible, fattening, tonic, laxative, aphrodisiac, cardiogenic; useful in leprosy, thirst, biliousness, blood diseases, burning sensation, tuberculosis; causes “Kapha”. *Flower*—cooling; useful in diabetes, dysentery, urinary discharges; constipation. *Dried seed* (copra) improves taste; aphrodisiac, fattening. *Milk*—cooling, appetiser, aphrodisiac, laxative; useful in biliousness, bronchitis, “Kapha” and “Vata”, tumours.

Fermented juice intoxicating. *Oil*—indigestible, fattening; useful in urinary complaints, asthma, bronchitis, consumption, ulcers (Ayurveda). *Bark* good for teeth and in scabies. *Seed*—sweet aphrodisiac, diuretic; useful in fever, paralysis, liver complaints, piles; enriches blood; increases body weight; causes pain in kidney and lumbago in persons of cold constitution. *Fermented juice*—stomachic and anthelmintic. *Oil*—sweet, tonic, diuretic; lessens inflammations; promotes hair-growth; useful in lumbar-pain, piles and scabies (Yunani.) Fresh unfermented juice (Nira) is considered to be valuable nutriment containing vitamins.

LOC. USES :—*Root* is diuretic and is found useful in uterine diseases. The terminal *bud* of the tree is esteemed as nourishing, strengthening and agreeable vegetable. *Juice* extracted by wounding flowering spikes is made into toddy. It is refreshing and laxative. It is said that its continuous use during pregnancy has a marked effect on the skin color of the infant. Fresh juice is refrigerant and diuretic; fermented juice is intoxicating; milk from the fruit is a good refrigerant, useful in fevers and urinary disorders; it also purifies blood. *Milk* of the fresh kernel is used in debility, incipient phthisis and cachexia. The pulp of the young fruit is cooling and diuretic and nourishing; the albumen of the ripe fruit (copra) is hard. Coconut oil is a useful application in baldness; it promotes growth of hair. It is also used for burns. The kernel oil is an effective remedy for ring-worm.

Copra contains traces of vitamins of A, B and C.

See—Fruit Trees, Oils, Fibres.

COIX LOCHRYMA-JOBI Linn.

FAM.—Gramineæ

COM. NS. :—*E. Job's tears*; *G. Kasai*; *H. Dabha*, *Gurlu*; *M. Ran-jondhala*; *Sk. Gavedhu*, *Gojivha*, *Jargadi*.

CHAR. :—A tall leafy grass; *stem* 90-150 cm. high or more, stout, rooting at the lower nodes, internodes smooth, polished; *L.*—10-15 × 2.5-5 cm., smooth, base cordate, spinously serrate margins, midrib stout, sheaths long; *Fl.*—monœcious racemes 2.5-6.3 cm. long; rachis within the bract slender, above the bract stout, notched at the nodes; *Fr.*—broadly ovoid to globose, bluish grey, 6-10 mm. long, smooth, polished; *Fl. t.*—Oct.

HABITAT :—Gregarious, abundant in standing water.

LOC. :—Common all through the Konkan and Deccan filling up the banks of streams.

DISTR. :—Himalayas, Rajputana, Madhya Bharat, Madhya Pradesh, S. India, Bengal, Assam, China, Japan, Malaya; tropical Asia-Africa, America, Polynesia.

PARTS USED :—Root and seeds.

PROPERTIES AND USES :—The *seed* reduces the weight of the body; useful in "Kapha" (Ayurveda). *Seed* is used as a tonic and diuretic. (Yunani.)

LOC. USES :—Among the Santals the root is given in stranguary and in menstrual complaints (Campbell). *Kernels* deprived of their shells are used as food and medicine throughout tropical Asian

countries; they make an excellent drink for invalids and have diuretic and cathartic properties. They are also used in lung and chest complaints.

In Tongking the grains are considered a good blood-purifier.

The plant contains *leucin*, *tyrosin*, *histidin*, *lysin*, *arginine* and *coicin*.

See—Fodder Plants.

CORCHORUS CAPSULARIS Linn.

FAM.—Tiliaceæ.

COM. NS. :—*E. Jute*; *G. Chhunchh*; *M. Chaunchan*; *Sk. Kalasaka*, *Patla*.

CHAR. :—An annual herb; growing very tall under cultivation; *L.*—7.5-10 × 2.3-2 cm. lanceolate, acute or acuminate, serrate, lower serratures on each side prolonged into filiform appendages; *Fl.*—in short cymes, buds obovoid; *C.*—petals 4-5, yellow; *Fr.*—capsule, 12 mm. diam, subglobose, not beaked, ridged and mucronated, 5-valved. *Sl.*—few in each cell, wedge-shaped, smooth, brown; *Fl. t.*—Sept.

HABITAT :—Wild and cultivated in hotter parts.

LOC. :—Konkan, Gujarat.

DISTR. :—Throughout the hotter parts of India; may have been introduced from China or Cochin-China; cultivated in most tropical countries.

PARTS USED :—Root, leaves and fruit.

PROPERTIES AND LOC. USES :—A decoction of dried root and unripe fruit is given in diarrhoea. In cases of dysentery the dried leaves are eaten at breakfast time with rice. The cold infusion is also administered as a tonic in dysenteric complaints, fever, and dyspepsia. In jute-growing districts, leaf infusion—a so-called tea—is made and taken by those suffering from any disorder of liver. The Indian Drug Research Committee reports this to be of great value, when there is trouble with burning sensation in hands and feet. It is also used as a bitter tonic, stomachic, laxative, carminative, stimulant to increase appetite and flow of saliva and gastric juice; also as antiperiodic, anthelmintic, astringent, and intestinal antiseptic; also efficacious in skin-diseases. Col. Deare of the Indian Drugs Committee reports that the glucoside isolated from the plant is undoubtedly a valuable gastric tonic in atonic dyspepsia increasing the appetite and gastric juice and thus aiding digestion.

The plant contains glucosides *Corchorin* and *Capsularin*.

See—Fibres.

CORDIA OBLIQUA Willd.

FAM.—Boraginaceæ.

COM. NS. :—*E. Sebesten plum*; *G. Pistan*, *Rayagundo*; *H. Bhokar*, *Lassora*, *Resalla*; *K. Challa*, *Hadige*, *Mannadike*; *M. Bargund*, *Bhokar*, *Gondan*; *Sk. Bhukerbudara*, *Bhuselu*.

HABITAT :—Dry deciduous and moist monsoon forests.

LOC. :—Throughout the State in W. Ghats, Satpudas, also in moist monsoon forests in the Konkan and N. Kanara; also cultivated.

DISTR. :—Throughout India, wild and cultivated, Ceylon, Egypt, Cochin-China, tropical Australia; often planted.

PARTS USED :—Bark, leaves (rarely) and fruit.

PROPERTIES AND USES :—*Fruit*—slightly cooling, anthelmintic, bechic; used as an expectorant and astringent; valuable in all lung diseases (Ayurveda). *Fruit*—diuretic, anthelmintic, purgative, expectorant, maturant, vulnerary; used in dry cough, diseases of chest and urethra, biliousness, chronic fevers; lessens thirst and scalding of urine; causes suppuration; removes bad humours, pains in joints, burning of throat; good in spleen diseases (Yunani).

LOC. USES :—*Bark* is a useful astringent and used as infusion in form of gargle. *Bark-juice* along with cocoanut-oil is given in gripes. *Bark* is used as a mild tonic. *Bark-powder* is used as an external application in prurigo. Leaves are useful as an application to ulcers and in headache. *Fruit* is mucilaginous and the mucilage is demulcent, highly esteemed in coughs, diseases of chest, uterus and urethra. *Kernels* are a good remedy for ringworm.

See—Timbers, Fibres.

CORIANDRUM SATIVUM Linn.

FAM.—Umbelliferae.

COM. NS. :—*E.* Coriander; *G.* Konphir; *H.* Dhania; *K.* Hivija, Kothambri; *M.* Kothamir, Kothimbir; *Sk.* Allaka, Dharika, Kustumburi, Vitunnaka.

HABITAT :—Cultivated.

LOC. :—Extensively cultivated all over the State.

DISTR. :—Cultivated throughout India; widely known from Palestine, Syria, Mesopotamia and Greece.

PARTS USED :—Leaves and fruit.

PROPERTIES AND USES :—The whole *plant* is used in dysentery. The *plant and fruit*—acid, cooling, diuretic antipyretic, stomachic, aphrodisiac, stimulant, laxative, anthelmintic; gives appetite; cures thirst, bronchitis, biliousness, vomiting, "Kapha" (Ayurveda). *Leaves*—hypnotic, analgesic; useful in hiccup, piles, inflammations, eye-pains, gleet, jaundice, stomatitis, tooth-ache, bleeding gums, thirst, scabies, tuberculous glands. *Seeds*—aphrodisiac, tonic to brain, heart and liver; prevents coryza and bronchitis; used in syphilis, dyspepsia, biliousness, headache; applied to ulcers on the penis (Yunani).

LOC. USES :—*Juice* of the fresh plant is used as an application in erythema caused by marking-nut. Bruised plant is a cooling application for headache. *Fruit* is aromatic, stimulant, carminative and antispasmodic. Seed infusion is useful in flatulence, indigestion, vomiting and other intestinal disorders. Fruits are used as spice. Dried fruit and *volatile oil* are used as an aromatic stimulant in colic. Coriander is considered to lessen the intoxicating effects of liquors.

In Indo-China *root and leaves* powdered and macerated in alcohol are used to touch measles eruptions in children.

The plant yields an essential oil. Leaves contain vitamins A and C; seeds contain vitamin A and trace of vitamin C.

See—Condiments and Spices.

COSTUS SPECIOSUS Sm.

FAM.—Scitamineae.

COM. NS. :—*G.* Pakarmula; *H.* Keu, Kust; *K.* Changalkashta, Chikke, Karikuttu; *M.* Penva, Pinga, Pushkarmula; *Sk.* Kushtha, Kashmira, Kemuka, Pushkarmula, Shura.

CHAR. :—An erect plant 1.2-2.7 m. high; root-stock tuberous; stem sub-woody at the base; *L.*—15-30 × 5-7-7.5 cm. subsessile, oblong, spirally arranged, silky-pubescent beneath; sheaths coriaceous; *Fl.*—in very dense spikes, many; bracts ovate, mucronate, bright red; *C.*—tube short, lobes ovate-oblong, subequal; lip white with yellow centre, crisped, concave; disk with a tuft of hair at the base; *Fr.*—capsule, globose 3-gonous, red; *Sd.*—black with white aril; *Fl. t.*—Aug.-Oct.

HABITAT :—Western Ghat forests.

LOC. :—Konkan ghats, Khandala, S. M. Country, Castle Rock.

DISTR. :—More or less throughout India, Ceylon, Malay Islands, China.

PARTS USED :—Root.

PROPERTIES AND USES :—Bitter; useful in bronchitis, fever, "Kapha", and "Vata", dyspepsia, inflammations, anæmia, rheumatism, lumbago, hiccup (Ayurveda).

LOC. USES :—*Root* is anthelmintic, depurative, and aphrodisiac; a tonic is prepared from it. It is also astringent and digestive, useful in catarrhal fevers, coughs and skin diseases. *Tuber* is cooked and made into a syrup or preserve which is considered to be very wholesome.

CRATÆVA NURVALA Ham.

FAM.—Capparidaceae.

COM. NS. :—*G.* Varno, Vayavarno; *H.* Barna, Biliana, Varvunna; *K.* Bilpatri, Bitusi, Nervele; *M.* Hadawarna, Varuna, Vayavarna; *Sk.* Ajapa, Kumaraka, Mahakapittha, Varuna.

By the earliest writers, this tree was confused with *Ægle marmelos*, the *bel* fruit and both trees are given the same vernacular names.

HABITAT :—Banks of rivers, *nalas*, in moist and shady places.

LOC. :—Throughout the State in moist and shady places; also planted near Muslim tombs.

Var. nurvala is the common form throughout the State. *Var. roxburghii* is found in Wari Country and along the banks of the Narbudda river near Chandod.

DISTR. :—Almost all over India (Assam, Madhya Bharat, S. India, also in Sub-Himalayan tract).

PARTS USED :—Root, bark, leaves, flowers and fruits.

PROPERTIES AND USES :—*Bark*—bitter first, then sweet; digestive, stomachic, laxative, antilithic, vesicant, anthelmintic, detergent, hecic, expectorant; removes "Vata", "Pitta" and "Kapha"; good in strangury, chest and blood diseases, tuberculous glands. *Flowers*—astringent and cholagogue. *Fruit* sweet and oily (Ayurveda). *Bark* promotes appetite, decreases bile-secretion and phlegm; removes disorders of urinary organs (Yunani).

LOC. USES :—*Root* is alterative; it forms the principal medicine (bark being another) for calculous affections; it promotes appetite, increases secretion of bile, acts as laxative and removes disorders of urinary organs. *Bark decoction* is specially useful in urinary complaints in cases of kidney and bladder stones. It is used in fevers and skin diseases in which sarsaparilla is generally used. *Root bark* and fresh *leaves* are efficacious in all affections where mustard poultice is indicated. Fresh leaves bruised with vinegar, lime-juice or hot-water and applied as a paste to skin, act as rubefacient and vesicant. In Bombay leaves are a remedy for foot-swellings and burning sensation of soles of feet. In the Konkan *juice* is given in rheumatism. *Leaf smoke* is inhaled in cases of caries of nose. A couple of *buds* pounded with salt taken before meals promote appetite.

The plant contains *saponin*.

See—Timbers.

CRINUM ASIATICUM Linn.

FAM.—Amaryllidaceæ.

COM. NS. :—G. Nagadown, Nag-damani; H. Chindar, Kanmu, Kanwal, Pindar; K. Vishamungalli; M. Nagdavana; Sk. Kandalshini, Nag-damani, Patra-pushpi, Visha-Mandala-mardini.

CHAR. :—A herb with tunicated bulb; *bulb* 5-10 cm. diam, narrowed into a neck clothed with leaf-sheaths; *L.*—20-30, thin, 0.9-1.5 cm. × 12.5-18 cm., linear lanceolate, flat, with a sheathing base, bright green; *scape* 45-90 cm.; *Fl.*—15-50 in an umbel, white, fragrant at night, bracts 7.5-10 cm. long; perianth tube greenish-white, cylindric; lobes 6, linear, as long as the tube; *Fr.*—subglobose, beaked; *Sd.*—1 (rarely 2).

HABITAT :—Cultivated, also wild.

LOC. :—Often cultivated in gardens in the State; found wild in North and South Konkan.

DISTR. :—Throughout tropical India, Ceylon. Wild or cultivated.

PARTS USED :—Root, leaves and seeds.

PROPERTIES AND USES :—Pungent, bitter, heating; vulnerary, laxative, carminative, antipyretic, anthelmintic; useful in biliousness, strangury, vomiting, urinary discharges, tumours, diseases of vagina, abdomen and blood (Ayurveda). Tonic, expectorant, laxative, aphrodisiac, useful in bronchitis, chest, lung and spleen diseases, gonorrhœa, night-blindness, defective vision, urinary concretions, lumbago, anuria, toothache. *Seeds*—purgative, diuretic, emmenagogue; useful in kidney diseases and in furunculosis (Yunani).

LOC. USES :—*Fresh root* is emetic; in small doses, nauseant and diaphoretic. *Leaves* are slightly roasted and juice is then expressed and few drops poured into ear in ear-ache. In the Konkan leaves smeared with mustard-oil and warmed are bound round inflamed joints. *Leaves* bruised and mixed with castor oil are useful in whitlow and local inflammations.

Smoke of burnt leaves is regarded as poisonous to mosquitoes.

Bruised leaves are kept in cattle sheds to drive away noxious insects and parasites.

The plant contains *lycorin*.

See—Ornamental Plants.

CROTON OBLONGIFOLIUS Roxb.

FAM.—Euphorbiaceæ.

COM. NS. :—H. Chukka; M. Ganasur; Sk. Bhutankusam.

HABITAT :—Rain forests near sea-coast.

LOC. :—Rare in the State; Konkan (Fort of Bandra) and Kumpta taluka of N. Kanara.

DISTR. :—Sylhet, Bengal, Chota-Natpur, Madhya Pradesh, Burma, Ceylon, Western Peninsula.

PARTS USED :—Root, bark, leaves and seeds.

PROPERTIES AND LOC. USES :—*Root* and *seeds* are purgative. In Southern Konkan *bark* is administered in chronic enlargement of liver and in remittent fever. In the former disease it is both taken internally and applied locally. As an application to sprains, bruises and rheumatic swellings, etc., it is in great request. *Seeds* in large quantities are poisonous.

Seeds contain an alkaloid.

See—Timbers.

CROTON TIGLIUM Linn.

FAM.—Euphorbiaceæ.

COM. NS. :—E. Purging croton; G. Nepal; H. Jamalgota; K. Danti, Japala, Nepala; M. Jamalgota, Jepak; Sk. Danti, Jayapala, Nepala.

LOC. :—Naturalised in S. Konkan. The plant was at one time grown at Hivre, near Junnar (Poona Dist.).

DISTR. :—Bengal, Assam to Malacca, Burma, Ceylon; naturalised or cultivated. China, Malay Islands.

PARTS USED :—Fruits and seeds.

PROPERTIES AND USES :—The *fruit* and *seeds* are purgative. *Oil* from the seed is purgative, carminative; useful in mental troubles, convulsions, abdominal diseases, fever, insanity, inflammations, bronchitis (Ayurveda). *Seeds* cause burning sensation; cathartic, expectorant, emetic; good in sore eyes, excessive phlegm, leucoderma. *Oil* cathartic, tonic; removes pus and bad matter from the body (Yunani).

LOC. USES :—*Seed* is a powerful drastic purgative ; in overdoses it is an acronarcotic poison. It is given internally with great caution. It is useful in apoplexy, convulsions, insanity, dropsy, obstinate constipation, and lock-jaw. Seeds half roasted over a lamp and smoke inhaled relieves a fit of asthma. *Oil* is counter-irritant and vesicant in rheumatism, synovitis, paralysis and painful affections of joints and limbs. *Oil* diluted with mustard or olive oil is useful as a liniment in infantile bronchitis.

INDIAN PREPARATIONS :—*Ichhabhedi vatika*—used in fever with constipation, in ascites and anasarca ; *Rukkeshee Rasa* used as drastic purgative in obstinate constipation. *Mahanaracha Rasa*, used as drastic purgative in tympanites, colic, ascites, &c.

See—Timbers, Poisonous Plants and Fish Poisons.

CUCUMIS MELO Linn.

FAM.—Cucurbitaceæ.

COM. NS. :—*E. Melon*, Sweet melon ; *G. Chibdu*, Shakarteti ; *H. Kachra*, Kakni ; *Kharbuja*, Pathira ; *K. Kalangida* ; *M. Chibuda*, *Kharbuja* ; *Sk. Karkati*, *Kharbuja*, *Shadrekha*, *Vrittervaru*.

HABITAT :—Cultivated in sandy beds of rivers.

LOC. :—Cultivated in Gujarat and Deccan during the dry season.

DISTR. :—Extensively cultivated throughout India. Said to be truly wild in India, Baluchistan and tropical Africa.

PARTS USED :—Fruit and seeds.

PROPERTIES AND USES :—*Unripe fruit*—sour ; may cause skin eruptions and strangury. *Ripe fruit*—sweet, oily, wholesome, cooling, fattening, tonic, laxative, aphrodisiac, diuretic ; cures “Vata”, biliousness, insanity, ascites ; allays fatigue ; causes “Kapha” (Ayurveda). *Fruit*—tonic, laxative, galactagogue, diuretic, diaphoretic ; strengthens heart, brain and body ; cures ophthalmia, urinary discharges, causes congestion of eyes in plethoric people ; gives headache ; may cause indigestion. *Rind*—vulnerary ; applied to the hypogastrium causes diuresis. *Seeds*—lachrymatory ; used in liver and kidney troubles, bronchitis, chronic fever, thirst (Yunani).

LOC. USES :—*Fruit* is cool and astringent and given in cases of dyspepsia ; pulp of fruit and seed is powerful diuretic, very beneficial in chronic and acute eczema. *Seeds* are supposed to be a cooling medicine. They are edible, nutritive and diuretic, used in painful discharges and suppression of urine. *Oil* from the seeds is said to be very nourishing.

C. MELO Var. OTILISSIMUS Duthie and Fuller.

COM. NS. :—*G. Kankadi* ; *H. Kakri* ; *M. Kakadi*, *Valaka*, *Tarkakadi* ; *Sk. Karkali*, *Lomashi*, *Mutrala*, *Shantanu*, *Valungi*.

HABITAT :—Cultivated widely.

LOC. :—In Deccan.

DISTR. :—Cultivated in all parts of India.

PARTS USED :—Root, fruit and seeds.

PROPERTIES AND USES :—*Unripe fruit*—tasty, dry, cooling, astringent, diuretic, cures biliousness, strangury, indigestible ; causes “Vata”, “Kapha” and flatulence. *Ripe* one tonic, stomachic ; cures thirst, fatigue. *Root* of the sweet variety is used as a sedative for uterine pains in pregnancy (Ayurveda). *Fruit*—fattening ; used in thirst, fever, biliousness. *Seeds*—diuretic, purgative, antipyretic ; enrich blood ; allay thirst ; improve complexion. *Seed oil* used in fever ; good for brain and body. *Root* of sweet variety is emetic (Yunani).

LOC. USES :—*Powder* of roasted seeds is a powerful diuretic and serviceable in promoting the passage of sand or gravel (Roxburgh). They are nutritive.

See—Fruit Trees.

CUCUMIS SATIVUS Linn.

FAM.—Cucurbitaceæ.

COM. NS. :—*E. Cucumber* ; *G. Kakari*, *Kankdi*, *Tansali* ; *H. Khira* ; *K. Santekayi* ; *M. Kakdi*, *Khira*, *Tavasa* ; *Sk. Sudhavsa*, *Sushitala*, *Trapusha*.

HABITAT :—Cultivated.

LOC. :—Largely cultivated in gardens all over the State especially in the Deccan.

DISTR. :—N. India is considered to be the original home. Cultivated in all parts of India, and in warm and temperate countries throughout the world.

PARTS USED :—Leaves, fruits, seeds.

PROPERTIES AND USES :—The medicinal properties are the same as those of *C. melo* var. *utilissimus* (Ayurveda, Yunani).

LOC. USES :—*Leaves* boiled and mixed with cumin seeds, roasted and powdered, are administered in throat affections. *Fruit* is applied externally to relieve inflammation. *Seeds* possess cooling properties ; they are also used as diuretic. In sun-stroke cucumber pieces are put on the head of the patient to neutralise the heat.

Cucumber contains a fairly strong proteolytic enzyme.

The fruit contains traces of vitamins A, B, and C.

See—Vegetables.

CUCUMIS TRIGONUS Roxb.

FAM.—Cucurbitaceæ.

COM. NS. :—*G. Kothiban* ; *H. Hislambhi* ; *M. Karit*, *Takamaki* ; *Sk. Chitravalli*, *Kumbhakshi*, *Mrigadani*, *Vishala*.

CHAR. :—A perennial climber ; stem slender, angled, rigid, hairy ; tendrils simple ; *L.*—suborbicular, deeply palmately 5-7 lobed, cordate at the base, lobes obovate, lobulate or dentate ; *Fl.*—monœcious ; male in clusters ; *C.*—yellow segments elliptic ; female peduncle longer than male ; *Fr.*—subglobose or ellipsoid ; with 10 green longitudinal stripes, pale yellow when ripe, pulp bitter ; *Sd.*—white, margined ; *Fl. t.*—June-Sept.

HABITAT :—Jungles, on hedges, etc.

LOC. :—Very common in the Deccan and Konkan.

DISTR. :—Throughout the greater part of India, Ceylon, Afghanistan, Iran, Malaya, N. Australia.

PARTS USED :—Root, fruits and seeds.

PROPERTIES AND USES :—*Green fruit* bitter, stomachic; cures "Kapha" and biliousness; increases "Vata". *Dried fruit* indigestible; astringent to bowels; improves taste (Ayurveda).

LOC. USES :—*Decoction* of root is prepared and given as a purgative. It is milder and less irritant than the fruit pulp which is very bitter and acts as a drastic purgative. *Seeds* are cooling and astringent and useful in bilious disorders.

In Malabar, fruit is used to prevent insanity, to strengthen memory and to remove vertigo.

CUCURBITA MAXIMA Duch.

FAM.—Cucurbitaceæ.

COM. NS. :—*E.* Melon pumpkin, Red squash gourd; *G.* Koron; *H.* Kaddu, Mithakaddu; *K.* Kumbala; *M.* Tambda bhopala; *Sk.* Dangari, Kushmand, Pitakushmand, Punyalata.

HABITAT. :—Cultivated.

LOC. :—Creeper is found growing very frequently on the roofs of houses and on flat ground all over the State.

DISTR. :—Cultivated throughout India and in most warm regions of the world.

PARTS USED :—Fruit and seeds.

PROPERTIES AND USES :—Diuretic, tonic, allays thirst, cures cough; indigestible; increases "Vata"; causes biliousness and loss of appetite (Ayurveda).

LOC. USES :—*Pulp* of the fruit is often used as a poultice to boils, carbuncles, unhealthy ulcers. *Dried pulp* is a remedy in hæmoptysis and hæmorrhages from the pulmonary organs. *Seeds* are used as tæniacide. *Seed oil* is prescribed as a nervine tonic.

The plant contains glucoside *saponin*. Fruit contains vitamins A, B and C.

See—Vegetables.

CUCURBITA PEPO Linn.

FAM.—Cucurbitaceæ.

COM. NS. :—*E.* Pumpkin, Vegetable marrow; *G.* Dudia; *H.* Kadimah, Kumra, Safedkaddu; *K.* Kumbala; *M.* Kashiphala, Bhopala, *Sk.* Karkarn, Kushmand.

HABITAT :—Cultivated.

LOC. :—Commonly grown in the Bombay State, in fields as well as in compounds of houses.

DISTR. :—Considered to be a native of America; cultivated in many parts of India.

PARTS USED :—Leaves, fruit and seeds.

PROPERTIES AND USES :—*Fruit*—cooling; astringent to bowels; increases appetite; cures leprosy, "Kapha" and "Vata", thirst, fatigue; purifies blood (Ayurveda). *Leaves*—digestible, hæmatinic, analgesic; remove biliousness. *Fruit*—very cooling, laxative; good for teeth, throat and eyes; allays thirst. *Rind* is used in piles and applied to wounds. *Seeds*—diuretic, tonic, fattening; cure hæmoptysis, bronchitis, fever; good for kidney and brain (Yunani).

LOC. USES :—*Leaves* are used as an external application for burns. *Seeds* anthelmintic. *Seeds* are largely used for flavouring certain preparations of Indian Hemp, and the root for making these more potent. *Seeds* are tæniacide, diuretic and demulcent. They are a popular worm-remedy in Europe.

In Malaya, root decoction is administered to control uterine hæmorrhage resulting from the use of abortifacients.

In Cambodia plant-juice is given in small-pox.

Fruit contains traces of vitamins A and C.

See—Vegetables.

CUMINUM CYMINUM Linn.

FAM.—Umbellifereæ.

COM. NS. :—*E.* Cumin; *G.* Girautmi, Jiru; *H.* Zira; *K.* Jirige; *M.* Jire; *Sk.* Ajjika, Dipaka, Dirghaka, Gaurajerka, Jira.

HABITAT :—Cultivated in fields.

LOC. :—Cultivated throughout the Bombay State.

DISTR. :—Widely cultivated in India—probably a native of the Mediterranean region.

PARTS USED :—Fruit.

PROPERTIES AND USES :—*Fruit* hot, sweet, cooling, aphrodisiac, anthelmintic, carminative, antidysenteric, stomachic, alexipharmic, astringent to bowels, tonic, uterine stimulant, antipyretic. Cures "Vata" tumours, eye-diseases, belching; appetiser; beneficial in consumption, leucoderma, fever, leprosy, biliousness, scorpion sting (Ayurveda). *Fruit* astringent, carminative, vulnerary, tonic to intestine, abortifacient, emmenagogue, stops epistaxis; heals corneal opacities, ulcers, cures hæmoptysis, scabies, gonorrhœa, asthma; relieves hiccup, inflammations, enlargement of the spleen; applied to boils and ulcers (Yunani).

LOC. USES :—The fruit is considered stomachic, carminative, astringent, useful in dyspepsia and diarrhœa, very cooling and used in gonorrhœa; also a lactagogue.

Fruit yields an essential oil. It contains vitamins A and C.

See—Condiments and Spices.

CURCULIGO ORCHIOIDES Gærtn.

FAM.—Amaryllidaceæ.

COM. NS. :—*G.* Kalimusalali; *H.* Kalimusalali, Mushalikand; *K.* Neltati gadde, Neladati; *M.* Kalimusalali; *Sk.* Bhoomitala, Dirghakandika, Musali, Talamulika.

CHAR. :—A small herb, root stout with copious fleshy root fibres; *L.*—sessile or petiolate, 15-45 × 1.3-2.5 cm. linear or linear-lanceolate; tips sometimes rooting; scape, very short, clavate; *Fl.*—in racemes, distichous, yellow; lowest in the raceme 2-sexual; perianth segments elliptic, oblong, hairy on the back; *Fr.*—capsule, oblong, with a beak; *Sd.*—grooved, black, shining; *Fl. t.*—May-June.

HABITAT :—Hotter regions.

LOC. :—Konkan and N. Kanara, common at the beginning of rains.

DISTR. :—Bengal, Assam, W. Peninsula, Java.

PARTS USED :—Root, rhizome.

PROPERTIES AND USES :—*Root*—heating, aphrodisiac, alterative, appetiser, fattening, useful in piles, “Vata”, biliousness, fatigue, blood-diseases (Ayurveda). *Root*—carminative, tonic, aphrodisiac, antipyretic; useful in bronchitis, ophthalmia, indigestion, vomiting, diarrhoea, lumbago, gonorrhoea, gleet, hydrophobia, pains in joints (Yunani).

LOC. USES :—The tuberous roots constitute the *Kali-musali* of the bazar; *roots* contain a good deal of mucilage and are used as a demulcent, alterative and tonic, during convalescence after acute illness; they are also diuretic and aphrodisiac; they are often combined with aromatics and bitters and are prescribed for asthma, piles, jaundice, diarrhoea, colic, gonorrhoea, debility and impotence. *Powdered rhizome* is used to stop bleeding and to dry up wounds. The *tuber* enters into the composition of several medicinal preparations intended to act as aphrodisiac.

CURCUMA AMADA Roxb.

FAM.—Scitamineæ.

COM. NS. :—*E.* Mango-ginger; *G.* Ambahaladara; *H.* Amhaladi, Kapurahaldi; *K.* Ambahaldi; *M.* Ambehalad; *Sk.* Amragandha, Karpuraharidra.

CHAR. :—Stemless herb; root stock large, sessile, tubers thick, cylindric or ellipsoid, pale yellow inside; *L.*—long petioled in tufts, 30-45 × 7.5-12.5 cm. oblong lanceolate; *Fl.*—in autumnal spikes 7.5-15 × 3.8-5 cm., flowering bract greenish-white, bract of the coma tinged with red or pink; *C.*—white or very pale-yellow; *Fl. t.*—Sept.

HABITAT :—Often cultivated.

LOC. :—Konkan and Gujarat; often cultivated.

DISTR. :—W. Peninsula, Bengal, Malay Archipelago.

PARTS USED :—Root and tubers.

PROPERTIES AND USES :—Sweet, bitter, cooling; appetiser, alexiteric, antipyretic, aphrodisiac, laxative, causes “Vata”, useful in biliousness, all skin-diseases, bronchitis, asthma, hiccup, inflammations (Ayurveda). Bitter; diuretic, maturant, emollient, expectorant, antipyretic, appetising, useful in inflammations, troubles in the mouth and ear, gleet, ulcers on penis, scabies, lumbago, stomatitis (Yunani).

LOC. USES :—*Tubers* regarded as cooling and carminative and useful in prurigo; also stomachic; they are topically applied over contusions and sprains in the form of paste, used as an application for skin-diseases, combined with other medicines to improve quality of blood.

The plant tubers, yield an essential oil.

CURCUMA AROMATICA Salisb.

FAM.—Scitamineæ.

COM. NS. :—*E.* Cochín—Wild turmeric, Yellow Zedoary; *G.* Kapur-kachali, Vanhaldara; *H.* Banhaladi, Banharidra; *M.* Ranhalad, Sholi; *Sk.* Aranyaharidra, Sholiḱa, Vanarishta.

CHAR. :—Stemless herb; root-stock large, palmately branched, sessile, annulate, biennial; tubers yellow and aromatic inside; *L.*—38-60 × 10-20 cm., oblong elliptic or lanceolate, green, variegated above, base deltoid; *Fl.*—flowering stem sheathed, appearing before leafing stem; flowers fragrant, in spikes 15-30 cm. long, flowering bracts cymbiform, rounded at the tips, pale green, forming pouches for the flowers; bracts of the coma tinged with red or pink; *C.*—tube 2.5 cm. long, upper half funnel-shaped, lobes pale-rose, lateral lobes oblong, the dorsal longer; lip yellow, 3-lobed; *Fl. t.*—May.

HABITAT :—Moist shady places in forest.

LOC. :—Common in the Konkan and Kanara in moist shady forests. Sometimes cultivated.

DISTR. :—Western Peninsula, Bengal; sometimes cultivated.

PARTS USED :—Tubers.

PROPERTIES AND USES :—Bitter, appetiser; useful in leucoderma and blood-diseases (Ayurveda).

LOC. USES :—*Tubers* have an agreeable fragrant smell. It is considered tonic and carminative. In the Konkan it is applied to promote eruptions of exanthematous fevers; it is seldom used alone; combined with astringents it is applied to bruises; with bitters and aromatics to promote eruptions. It is used externally in scabies and eruptions of small-pox. Rubbed into paste with benzoin it is a common domestic application to the forehead for headache.

See—Condiments and Spices.

CURCUMA LONGA Linn.

FAM.—Scitamineæ.

COM. NS. :—*E.* Indian saffron, Turmeric; *G.* Halada; *H.* Halad; *K.* Arishina; *M.* Halad; *Sk.* Haridra, Harita, Jayanti, Mangalya, Varnadatri.

HABITAT :—Cultivated as a garden crop in good soil.

LOC. :—Grown extensively in Deccan; throughout Gujarat it is important as a subordinate crop with ginger. Also cultivated in Konkan.

DISTR. :—Cultivated throughout the tropics.

PARTS USED :—Root, leaves and flowers.

▲ Bk Vf 1-6a

PROPERTIES AND USES :—Pungent, bitter, heating; laxative, anthelmintic, vulnerary, tonic, alexiteric, emollient; improves complexion, useful in "Kapha", "Vata", blood diseases, leucoderma, scabies, urinary discharges, inflammations, small-pox, swellings, boils, bruises, sprains (Ayurveda). Bitter, carminative, maturant, diuretic, good for liver affections, jaundice, urinary discharges, scabies, bruises (Yunani).

LOC. USES :—*Dried rhizome* is used medicinally and as a condiment. As a local application in combination with lime it is valuable in sprains, bruises, and inflammatory troubles of the joints; an ointment prepared from the rhizome, mustard oil and hemp-leaves is effective in eczema, itches etc. *Tuber* is used as a stimulant; externally applied to leech-bites; internally administered in blood disorders. *Fresh Juice* is said to be anthelmintic. A decoction is applied to relieve catarrh and purulent ophthalmia; it is very effective in relieving pain in purulent conjunctivitis. In coryza, fumes of burning turmeric directed into nostrils, cause copious mucous discharge and relieve congestion. It is given in troublesome diarrhoea; also in intermittent fevers and dropsy. *Root* parched and powdered is given in bronchitis; *fumes* are used during hysteric fits; *paste* from fresh tuber is applied to head in cases of vertigo. Turmeric and alum (1:20) is blown into the ear in chronic catarrh. In small-pox and chicken-pox, turmeric coating is applied to facilitate scabbing. Flower-paste is used in ring-worm and other skin-diseases, and also in treatment of gonorrhoea.

The plant contains curcumin, an alkaloid, and yields an essential oil. It contains vitamin A.

INDIAN PREPARATION :—*Haridrakhanda*, used in prurigo, boils and urticaria.

See—Condiments and Spices.

CURCUMA ZEDOARIA Rosc.

FAM.—Scitamineæ.

COM. NS. :—*E. Zedoary*; *G. Kachuri*; *H. Hakhir*; *K. Kachora*; *M. Kachari*, *Kachora*, *Narakachora*; *Sk. Gandhamulaka sara*, *Jatala*, *Karechura*, *Shathi*.

CHAR. :—Stemless herb; root-stock of palmately branched, cylindric, oblong, annulate tubers, pale-yellow inside; odour like camphor, taste bitterish spicy; *L.*—4-6 with long petioles, 30-60 cm. long, oblong-lanceolate, clouded with purple down the middle; *Fl.*—flowering stem 20-25 cm. long, appearing before the leaves, clothed with sheaths; flowers yellow in spikes, flowering bract green tinged with red; coma-bract crimson or purple; *C.*—funnel shaped, lobed; lip 3-lobed, deep-yellow; *Fr.*—capsule, 3-gonous.

HABITAT :—Cultivated.

LOC. :—Cultivated in the State.

DISTR. :—Cultivated more or less throughout India; said to be wild in E. Himalayas and Chittagong.

PARTS USED :—Tubers and leaves.

PROPERTIES AND USES :—Pungent, bitter, fragrant; heating, appetiser, vulnerary, anthelmintic, antipyretic, alexiteric; destroys foulness of breath, useful in leucoderma, bronchitis, piles, asthma,

tumours, tuberculous glands of neck, enlargement of spleen, epileptic seizure (Ayurveda). Bitter, sharp hot taste, good odour; laxative, tonic to brain and heart; aphrodisiac, alexipharmic, emetic, emmenagogue, expectorant, carminative; useful in griping of children, pains, inflammations, toothache (Yunani).

LOC. USES :—*Fresh root* is cooling and diuretic; it checks leucorrhoea and gonorrhoeal discharges and purifies blood. It is also aromatic, stimulant and carminative; applied to bruises and sprains; also used as a tonic and depurative. It forms an ingredient of the strengthening conserves given to women after child-birth. *Leaf-juice* is given in leprosy. *Leaves* are used as plasters in lymphangitis, furunculosis.

Tubers yield an essential oil.

CYMBOPOGON CITRATUS Stapf.

FAM.—Gramineæ.

COM. NS. :—*E. Lemon grass*; *G. Lilicha*; *H. Gandhatrina*; *K. Majjige hullu*, *Purhati hullu*; *M. Gavati-chaha*; *Sk. Bhustrina*, *Putigandha*, *Takratrina*.

CHAR. :—A tall perennial, throwing up dense fascicles of leaves from a short rhizome; culm stout, erect, up to over 1.8 m. high; *L.*—linear tapering upwards to a point, upto over 90 cm. long; glaucous green, smooth or rough upwards and along the margins; midrib whitish on the upper side. Ligule very short; sheaths terete; those of the barren shoots widened and tightly clasping at the base, others narrow and separating; sheaths of the culm tight, velvety at the nodes; *Fl.*—in decompound spatheate panicles 30 to over 60 cm. long, nodding.

HABITAT :—Cultivated in gardens.

LOC. :—Cultivated in gardens all over the State.

DISTR. :—The grass is only known in the cultivated state, probably of Indian origin, and now widely distributed over the tropics of both the hemispheres.

PARTS USED :—Leaves.

PROPERTIES AND USES :—Grass pungent, bitter, sharp, hot; laxative, appetiser, alexipharmic, anthelmintic; useful in bronchitis, leprosy, epileptic fits, causes burning sensation (Ayurveda).

LOC. USES :—This grass is generally used in the form of an infusion. It is an excellent stomachic to children, of much use in typhoid fevers; given with black-pepper it is useful in disordered menstruation and in the congestive and neuralgic forms of dysmenorrhoea. It is carminative and tonic to the intestinal mucous membrane, useful in vomiting and diarrhoea. The grass yields a fragrant volatile oil known as *Indian Molissa oil*; it is stimulant, carminative, antispasmodic and diaphoretic; useful in flatulent and spasmodic affections of the bowels, gastric irritability, and is of great value in cholera. Externally it is rubefacient. Mixed with an equal quantity of pure coconut oil it makes an excellent liniment for lumbago, chronic rheumatism, neuralgia, sprains, and other painful affections; it is also a good application for ringworm.

CYMBOPOGON MARTINI Stapf.

FAM.—Gramineæ.

COM. NS.:—*E. Geranium* grass; *G. Roshdo*, *Rhusghas*; *H. Bujina*, *Mirchiagand*, *Rohisha*; *K. Vasanchullu*; *M. Roshagavat*; *Sk. Bhutika*, *Rohisha*, *Saugandhika*, *Shyamaka*.

CHAR.:—A tall perennial sweet scented grass. 1.5-2.4 m. high, stem, straw coloured, leafy; *L.*—flat, usually broad, subcordate or rounded at the base, glaucous beneath, those below the inflorescence 23 cm. × 1 cm., upto 2.3 cm. wide below; margins scabrid; *Fl.*—spikes 2-nate, 12-18 mm. long, oblique or divaricate; *Fl. t.*—Oct.-Nov.

HABITAT:—Open grass lands, particularly the Deccan trap areas.

LOC.:—Sourashtra, Gujarat, Deccan, W. Ghats, Konkan, S. M. Country.

DISTR.:—Punjab, Sind, Baluchistan, Afghanistan, through N. Africa to Morocco.

PARTS USED:—The whole plant.

PROPERTIES AND USES:—Acrid, bitter, pungent; useful in fevers, bronchitis, pains, leprosy, heart diseases, throat troubles; epileptic fits in children (Ayurveda).

LOC. USES:—The oil distilled from the leaves called *Rosha* oil is stimulant, carminative, antispasmodic and diaphoretic and found useful in flatulence and spasmodic affections of the bowels. It is also used in rheumatism and neuralgia. The infusion of the grass is said to be a febrifuge.

See—Oils.

CYNODON DACTYLON Pers.

FAM.—Gramineæ.

COM. NS.:—*E. Bahama*—Bermuda—Creeping—Dog's tooth grass; *G. Dhro*, *Gharo*; *H. Dhoboghas*, *Durba*, *Kobbar*; *K. Garikhallu*; *M. Durva*, *Harali*; *Sk. Bahuviya*, *Durva*, *Mangala*, *Shatagranthi*, *Shatamula*.

CHAR.:—A perennial grass; stem, slender, prostrate, widely creeping, forming matted tufts, with erect flowering branches 7.5-30 cm. high; *L.*—2-10 cm. long, narrowly linear, finely acute, soft, smooth, distichous in the barren shoots and the base of stems; sheaths tight; *Fl.*—spikes 2-6 radiating from the top of a slender peduncle 2.5-5 cm. long, green or purplish; *Fr.*—grain, 1 mm. long; *Fl. t.*—throughout the year.

HABITAT:—Grows everywhere.

LOC.:—Grows all over the State; under favourable conditions it has become a pest in cultivated fields especially in garden soils.

DISTR.:—Cosmopolitan; throughout India, Burma, and Ceylon ascending to 3,000 m. in the Himalayas; most warm countries.

PARTS USED:—Whole plant.

PROPERTIES AND USES:—Acrid, sweet, cooling, useful in biliousness, thirst, vomiting, burning sensation, bad taste in the mouth, hallucinations, epileptic fits, fatigue, leprosy, scabies, skin

diseases, dysentery, fever, erysipelas, epistaxis (Ayurveda). Bitterish, vulnerary, expectorant; useful in vomiting, diarrhoea, burning sensation, blood diseases, stomatitis, epistaxis, bruises, biliousness, hiccup (Yunani).

LOC. USES:—*Root decoction* is diuretic and is valuable in vesical calculus and secondary syphilis. *Roots* crushed and mixed with curds are given in chronic gleet. A cold *infusion* stops bleeding from piles. The fresh expressed juice of the grass is astringent and used as an application to fresh cuts and wounds; it is diuretic, used in cases of dropsy and anasarca, as an application is useful in catarrhal ophthalmia; *juice* is used in hysteria, epilepsy and insanity. In the Konkan grass is prescribed in compound decoction with more active drugs in dysentery and menorrhagia. White variety is acidulous and is used to check vomiting in biliousness. Juice when sniffed up in case of epistaxis proves styptic and stops bleeding.

See—Fodder Plants.

CYPERUS ROTUNDUS Linn.

FAM.—Cyperaceæ.

COM. NS.:—*G. Motha*; *H. Motha*, *Mutha*; *K. Koranarigadde*, *Tungegaddo*; *M. Bimbal*, *Nagarmotha*, *Motha*; *Sk. Bhādrāmasta*, *Granthi*, *Kachhola*, *Mustaka*, *Sugandhi-granthila*.

CHAR.:—Glabrous herb; stolons elongate, bearing hard ovoid tunicate fragrant tubers, 0.8-2.5 cm.; stems subsolitary 10-15 cm.; *L.*—shorter or longer than the stem, narrowly linear; *Fl.*—in simple or compound umbel, rays 2-8 bearing short spikes of 3-10 spreading red brown spikelets; spikelets 10-50 flowered; *Nut*—broadly ovoid, trigonous, greyish black; *Fl. t.*—Sept-Nov.

HABIT:—Weed of cultivation.

LOC.:—Throughout the State in cultivated fields; very troublesome weed, difficult to eradicate.

DISTR.:—Throughout India, Ceylon, most hot countries.

PARTS USED:—Tubers.

PROPERTIES AND USES:—*Root*—pungent, acrid, cooling; astringent, appetiser, stomachic, anthelmintic; useful in leprosy, thirst, fever, blood diseases, biliousness, dysentery, pruritis, pain, vomiting, epilepsy, ophthalmia, erysipelas (Ayurveda). *Root*—diuretic, emmenagogue, diaphoretic, anthelmintic, vulnerary; useful for ulcers and sores, fevers, dyspepsia, urinary concretions (Yunani).

LOC. USES:—*Roots* are commonly used as a diaphoretic and astringent. They are also diuretic and stimulant. They are held in great esteem as a cure for disordered stomach and irritation of bowels. In the Konkan the fresh tubers are applied to the breast as a galactagogue.

In Ceylon, a *decoction* of the tubers is given in fevers, diarrhoea, dyspepsia and stomach complaints.

Tubers yield an essential oil.

INDIAN PREPARATION:—*Shadanga Paniya* given as a drink for appeasing thirst and relieving heat of body in fever.

DÆMIA EXTENSA Linn.

FAM.—Asclepiadaceæ.

COM. NS.:—*H.* Utran; *M.* Utarni; *Sk.* Phalakantak.

CHAR.:—A perennial twining herb, foetid when bruised and with much milky juice, stem hairy; *L.*—thin, broadly ovate or suborbicular, glabrous above, velvety pubescent beneath; *Fl.*—in lateral cymes which are at first corymbose, afterwards racemose, greenish-yellow or dull-white; *C.*—tubular, lobes spreading, ciliate; corona outer and inner; outer truncate, inner curved high over the staminal column, spur acute; *Fr.*—follicle, reflexed, beak long, soft spiny; *Sd.*—densely pubescent on both sides with coma; *Fl. t.*—Aug.-Jany.

HABIT:—A common weed.

LOC.:—Deccan, S. M. Country, Gujarat.

DISTR.:—Throughout India in hotter parts, Ceylon, Afghanistan.

PARTS USED:—The whole plant.

PROPERTIES AND LOC. USES:—In the indigenous system of medicine, this drug is reputed to be a good uterine tonic and sedative, and is recommended for the treatment of gynaecological conditions. This drug has been investigated on scientific lines and an active principle, a glucoside, has been isolated and its mode of action studied. In many respects this active fraction behaves like Ergot and Pituitrin, though it seems to differ from them in its mode of action. It has beneficial action on the atonic condition of the intestine, e.g., paralytic ileus.

Clinical trials with this glucoside are being undertaken in different hospitals, and the results obtained so far seem to show its usefulness in such conditions as menorrhagia (excessive bleeding), metrorrhagia (excessive bleeding with pain), and sub-involution of the uterus. Administered after the third stage of labour, it appears to hasten the process of normal involution. Pharmacological studies on the drug are being continued.

DATURA FASTUOSA Linn.

FAM.—Solanaceæ.

COM. NS.:—*E.* Black-Purple datura; *G.* Kaladhatura; *H.* Kaladhatura; *K.* Dhatura, Kanaka, Kariyu-Um-Mutta; *M.* Kaladhatura; *Sk.* Bhranta, Kanaka, Rajdhatura, Unmatta.

CHAR.:—Annual shrub, 30-60 cm. high, somewhat zigzag, divaricately branched; *L.*—7.5-15 × 3.2-7.5 cm. ovate, acute, entire or with large teeth or lobes, usually pubescent, very unequal at the base; *Fl.*—purple outside, white inside, double, solitary, long, tubular, funnel-shaped, 18 cm. long 10-20.5 cm. across; limb with 5 or 6 deltoid lobes, and a short tail in the middle of each intervening sinus; *Fr.*—capsule, nodding, on curved stalk 3.2 cm. diam, subglobose, green, covered with straight sharp prickles; *Sd.*—many, packed, yellowish brown; *Fl. t.*—Sept-Dec.

There are two varieties "Kala-dhatura" and "Safed-dhatura".

HABITAT:—On rubbish heaps.

LOC.:—Very common in rubbish heaps and waste places throughout the State; found sometimes cultivated in gardens also.

DISTR.:—Throughout the tropics.

PARTS USED:—Root, leaves and seeds.

PROPERTIES AND USES:—*Seeds*—acid, bitter, heating, tonic, febrifuge, anthelmintic, alexiteric, emetic; useful in leucoderma, skin-diseases, ulcers, bronchitis, biliousness, jaundice, piles. (Ayurveda). The whole plant is narcotic, toxic, aphrodisiac; applied topically it removes pain of tumours and piles. *Leaves*, after heating are applied locally to relieve eye pain, headache, nose-trouble, enlargement of testicles and boils. *Root*—useful in reducing inflammation. *Seeds*—narcotic, febrifuge, anthelminthic; cause headache (Yunani).

LOC. USES:—Out of the two varieties, black (*Kala*) and white (*Safed*), black variety is considered to be more powerful. *Datura* was known to the ancient Hindoo physicians. They regarded the drug as intoxicant, emetic, digestive and heating. Smoking of seeds as a treatment for asthma was known during the Vedic period. The plant as a whole has narcotic, anodyne, and antispasmodic properties. It has properties analogous to those of belladonna. It also causes dilation of the pupil of the eye, equal in effect to atropine. *Leaf poultice*, when applied to rheumatic lumbago, painful tumours, nodes, mumps etc. relieves pain. Fresh *leaf-juice* is also a popular application in such cases. *Leaves* are used as anodyne poultice to inflamed breasts to check inflammation and excessive secretion of milk. *Leaf-juice* is given internally, with curdled milk, in gonorrhœa. It is also a popular internal remedy for the prevention of hydrophobia. The smoking of dried leaves and stems in a pipe or cigarette relieves spasmodic asthma, chronic coughs. The *seeds* are in popular use by the dissipated, in combination with subja, toddy, majum, ganja, to increase their stupefying effect. *Seeds* have a strong aphrodisiac effect. *Hakims* prepare a ghee from the seeds for rubbing on genitals to stimulate them. Ground seeds made into pills and kept on the decayed teeth are said to relieve toothache. *Seeds* are a favourite poison for criminal purposes.

Variety *Alba* is found in the same locality and has practically got the same properties as above.

Seeds contain alkaloids *hyoscyne*, *hyoscyamine* and traces of *atropine*.

The plant grows so abundant and wild that it is worth while using it for the extraction of the above alkaloids for medicinal purposes.

See—Poisonous Plants and Fish Poisons.

DAUCUS CAROTA Linn.

FAM.—Umbellifereæ

COM. NS.:—*E.* Carrot; *G.* Gajar; *H.* Gajar, Gajra; *K.* Gajjari; *M.* Gajar; *Sk.* Garjara, Granthi-Pinda-Mula, Shikkikanda.

HABITAT:—Cultivated.

LOC.:—Cultivated in gardens all over the State; mostly in the Deccan and Karnatak.

DISTR.:—Probably a native of the sea-coast of S. Europe. Cultivated in many parts of India.

PARTS USED:—Roots, leaves and seeds.

PROPERTIES AND USES :—Gives appetite; astringent to bowels; antidysenteric; carminative, cardiotonic; cures leprosy, piles, pains, burning sensation, thirst, biliousness, tumours; good for inflammation, asthma, hiccup; corrects foul breath (Ayurveda). Tonic, aphrodisiac, expectorant, diuretic, stomachic; good for liver; used in bronchitis, chest troubles, urinary complaints; lessens griping and spleen inflammation; leaves are preferable for external use (Yunani).

LOC. USES :—Externally, fresh scraped root forms a good stimulating poultice for foul ulcers. Raw rasped root made into ointment with lard is much used in burns and scalds to good effect. *Root marmalade* is refrigerant. *Leaf and seed decoction* is used as a stimulant to uterus during parturition. Fruits are used in chronic diarrhoea; they are also diuretic. Seeds are considered to be nerve tonic; boiled with honey and fermented, they produce a spirituous liquor. In the Konkan seeds are eaten as an aphrodisiac.

In Europe carrot decoction is a popular remedy for jaundice.

Roots contain vitamins A, B and C.

See—Vegetables.

DESMODIUM GANGETICUM DC.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS. :—G. Salwan; H. Salpan, Salpani, Salwan; K. Murelehonne; M. Darh, Ranbhal, Salpani, Salwan; Sk. Dirghamula, Kitavinashini, Shaliparni, Vidarigandha.

CHAR. :—A woody undershrub; 0.6-1.2 m. high, stems and branches angled, hairy; L.—one-foliate, membranous, ovate-oblong, margins wavy, green and glabrous above, paler and hairy beneath; Fl.—in terminal or axillary racemes, arranged in few-flowered fascicles; C.—violet or white, standard cuneate at the base; Fr.—pod, sub-falcate, rounded and deeply indented in the lower edge; upper edge straight, joints 6-8, hooked hairy; Fl. t.—May-July.

HABITAT :—Plains and deciduous monsoon forests.

LOC. :—Konkan and N. Kanara; abundant in Khandesh Akrani, Deccan and S. M. Country.

DISTR. :—Outer Himalayas upto 1000 m.; throughout India, Ceylon, Burma, Malay Peninsula and Islands; China, Philippines, tropical Africa.

PARTS USED :—Root.

PROPERTIES AND USES :—Root—hot, indigestible, alterative, aphrodisiac, anthelmintic, fattening, astringent to bowels; cures typhoid, other fevers, "Vata", urinary discharges, piles, inflammations, asthma, bronchitis, "Tridosha", thirst, vomiting, dysentery; alexipharmic; removes "Kapha", biliousness; prevents death of fetus in womb; used in hemicrania (Ayurveda). Root—astrigent in diarrhoea, tonic; cures biliousness; useful in chronic fevers, chronic affections of chest and lungs, vomiting, nausea (Yunani).

LOC. USES :—Plant is considered antipyretic and anticatarrhal. It is used in fevers, cough, vomiting and asthma.

DESMOSTACHYA BIPINNATA Stapf.

(ERAGROSTIS CYNOSUROIDES Beauv.)

FAM.—Gramineæ.

COM. NS. :—G. Dabha; H. Dab, Davoli, Durva; M. Darbha; Sk. Darbha, Kusha, Pavitra.

CHAR. :—Perennial tall grass, branched from the base; rootstock stout, creeping; stolon very stout, covered with shining sheaths; stems 30-90 cm. high, tufted, smooth, erect, stout; L.—many, the basal fascicled, reaching 50 cm., long, rigid, margins hispid; sheaths glabrous, ligule a hairy line; Fl.—panicle 15-45 × 1.3-3.8 cm. erect pyramidal or columnar, interrupted, branches short crowded, clothed with sessile spikelets; Fl. t.—Dec.

HABITAT :—Drier parts in open waste land.

LOC. :—Saurashtra, Gujarat, Konkan.

DISTR. :—Throughout India in hot and dry places; Nubia, Egypt, Syria.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—Acrid, cooling, oleaginous, aphrodisiac, diuretic; useful in blood diseases, biliousness, asthma, thirst, strangury, jaundice, vaginal discharges, vesical calculi, diseases of bladder, skin eruptions, vomiting; sedative to pregnant uterus; causes "Kapha" (Ayurveda).

LOC. USES :—The culms are said to possess diuretic and stimulant properties. In the Konkan they are prescribed in compound decoctions with more active drugs for the cure of dysentery and menorrhagia.

See—Fodder Plants, Sacred Plants.

DIOSPYROS EMBRYOPTERIS Pers.

FAM.—Ebenaceæ.

COM. NS. :—E. Ribber ebony, Wild mangosteen; G. Zeeberwo; H. Gale, Kalatendu, Makurkendi, Tendu; K. Banda, Cavandu, Tumari, Tumaki Mara; M. Temburni, Timbwini; Sk. Anilsara, Kalaskandh, Sphurjaka, Tinduka.

HABITAT :—Near creeks and backwaters, in the beds of rivers and streams.

LOC. :—Along the coasts of N. Kanara and the Konkan; in the rain forests and river beds in ghats.

DISTR. :—Throughout India, Ceylon, Thailand (Siam), Malay Archipelago.

PARTS USED :—Wood, bark, flowers, fruit and seeds.

PROPERTIES AND USES :—Bark good for dysentery. Wood cures biliousness. Flowers and fruit given in hiccup of children. Fruit—oleaginous, heating, astringent to bowels, cures ulcers and "Vata", diseases of blood, urinary losses and stone in urinary tract (Ayurveda).

Flowers—aphrodisiac, good for lumbago; used in biliousness and blood diseases. Fruit—aphrodisiac and tonic (Yunani).

LOC. USES :—*Bark* and *fruit* are astringent. *Juice* of the unripe fruit makes a good application to fresh wounds. *Bark* is used for intermittent fevers. Infusion of fruit is used as a gargle in aphthæ and sore throat. Seeds are given as an astringent in diarrhœa. *Oil* from seeds is used in local medicine with success in dysentery and diarrhœa.

See—Timbers, Tans.

DOLICHOS BIFLORUS Linn.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS. :—*E. Horse-Grass*; *G. Kulathi, Kulit*; *H. Gahat, Kulthi*; *K. Hurali, furali*; *M. Kulith, Kulthi*; *Sk. Kalvrinta, Kulithaka, Kulitha, Sitetara.*

HABITAT :—Cultivated.

LOC.:—Grown extensively in the Deccan—Khandesh, Nasik, Ahmednagar and Satara Districts; grown to a certain extent in S. M. Country—Belgaum, Bijapur and Dharwar; Konkan—Ratnagiri.

DISTR. :—Tropics of the old world.

PARTS USED :—Seeds.

PROPERTIES AND USES :—Bitter, acrid, hot, dry, astringent to bowels, fattening, antipyretic, anthelmintic; cures "Kapha", "Vata", tumours, asthma, bronchitis, urinary discharges, hiccup, ozæna, abdominal complaints, heart-troubles, diseases of the brain and eye, intestinal colic, strangury, piles, leucoderma, inflammation, liver troubles; removes stone from kidney (Ayurveda). Diuretic, emmenagogue, appetiser; removes stone from kidney; cures hiccup, eye troubles, piles, enlargement of spleen, pain in liver; improves complexion; causes biliousness (Yunani).

LOC. USES :—The decoction is used in leucorrhoea and menstrual derangements. It is also given to parturient women to promote discharge of lochia. It is demulcent in calculus affection, coughs etc. Its employment is said to reduce corpulence.

Grains contain vitamin A.

See—Food Plants.

DRYNARIA QUERCIFOLIA Bory.

FAM.—Polypodiaceæ.

COM. NS. :—*M. Basingh*, Wandar bashing; *Sk. Ashvakatri*.

CHAR. :—Rhizome creeping, short, stout, densely clothed with red-brown scales; fronds coriaceous of two kinds—sterile ones varying in size, green when very young but soon turning dark brown, cordate, ovate, variously lobed; fertile ones long stalked, base decurrent on the stipe, cut down to the midrib into elongated segments. Surfaces naked. Texture membranaceous to leathery; midrib of each segment gives rise to lateral branches which run to the margin and are connected by transverse veins forming 4-5 primary areoles. Sori two in each primary areole.

HABITAT :—Plains and low portions of mountains ; generally on trees and rocks.

LOC. :—Kanara ; Konkan ; also cultivated to a certain extent.

DISTR. :—Throughout India.

PARTS USED :—Root and plant.

PROPERTIES AND USES :—Root bitter, tonic, astringent to bowels; used in typhoid fever (Ayurveda). treatment of phthisis,

LOC. USES :—The plant is used in the treatment of phthisis, hectic fever, dyspepsia and cough.

ECHINOPS ECHINATUS Roxb.

FAM'.—Compositæ.

COM. NS. :—G. Shulio, Utkanto; H. Utkanta, Utkatara; M. Kadechubak, Utanti, Utakatara; Sk. Kantaphala, Kantalu, Utkantaka.

CHAR.:—A much branched rigid annual, 0.3–0.9 m. high, branches widely spreading from the base, cottony pubescent; *L.*—sessile, glabrous above, cottony, wooly beneath, oblong, deeply pinnatifid; the lobes triangular and oblong, sinuate and spinescent; spines 2.5 cm. long; *Fl.*—heads white, globose, spiny; *C.*—limb linear, involucre, surrounded by strong white bristles, bracts 3-seriate, intermediate produced in sharp spine; pappus short, yellowish; *Fr.*—achene obconic, densely villous; *Fl. t.*—Nov.–Janv. of rather poor soils.

HABITAT :—Wild in overgrazed areas of rather poor soils.

LOC.:—Konkan, Deccan, S. M. Country.

DISTR.—More or less throughout India, Afghanistan.

DISTR. :—More or less throughout India, Afghanistan and Iran. A plant—especially roots and seeds.

PARTS USED :—The whole plant—especially roots and leaves. **USES** : *Plant*—pungent, bitter, hot ;

PROPERTIES AND USES :—*Plant*—pungent, bitter, hot; improves taste; causes “Kapha”, “Vata”; used in strangury, biliousness, urinary discharges, gleet, thirst, diseases of heart. *Root*—abortifacient. *Seeds*—wholesome, cooling, aphrodisiac (Ayurveda). *Plant* stomachic, antipyretic, analgesic; increases appetite; stimulates liver; useful in brain-diseases; used in ophthalmia, chronic fever, pain in joints, inflammations. *Root*—aphrodisiac (Yunani).

LOC. USES :—Drug is bitter and is considered to be a nerve tonic and diuretic. It is used in hoarse cough, hysteria, dyspepsia. Roots are powdered and mixed with acacia gum and applied to hair to destroy lice. Powdered roots are applied to wounds in cattle to destroy maggots.

ECLIPTA ERECTA Linn.

FAM.—Compositæ.

COM. NS. :—*G. Bhangro*, Dadhal, Kalobhangro ; *H. Balari*, Bhangra, Mochand ; *K. Ajagara*, Garagadasoppu ; *Kadigga-guraga* ; *M. Bhangra*, Maka ; *Sk. Bhringraj* ; Keshrangana, Markara, Pitripriya, Sunilaka.

CHAR. :—An annual erect or prostrate herb, often rooting at the nodes; stems and branches strigose and hairy; *L.*—opposite, sessile, usually oblong-lanceolate, subentire, strigose and hairy;

FL.—in heads, solitary or 2 together, axillary; involucre bracts about 8; ray flowers ligulate; disk ones tubular; *C.*—often 4-toothed; pappus 0; *FL.*—achene, cuneate with a narrow wing; *FL.* *t.*—Oct.-Dec. There are two forms *erect* and *prostrate*.

HABITAT :—Wild in rather moist places.

LOC. :—Pretty common all over the State.

DISTR. :—India (Bengal, Madhya Bharat, Panjab, W. Peninsula). Burma, Sind, Ceylon, Malaya. Cosmopolitan in warm climate.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—Bitter, hot; fattening, alterative, anthelmintic, alexipharmic; good for complexion, hair, eyes, teeth; cures inflammations, hernia, "Kapha", "Vata", eye diseases, bronchitis, asthma, leucoderma, anaemia, heart and skin diseases, night blindness, syphilis; prevents abortion and miscarriage; used for uterine pains after delivery (Ayurveda). Bitter; improves colour of hair, lustre of eyes; tonic, expectorant, antipyretic, stomachic; good for spleen diseases, stomatitis, toothache, hemi-crania, fevers, internal diseases, liver pain; cures vertigo (Yunani).

LOC. USES :—Root is principally used as a tonic and deobstruent in hepatic and splenic enlargements and in various chronic skin-diseases; it is powdered and applied externally. It is given internally in scalding of urine. It relieves headache when applied with oil. It is also used as an emetic and purgative. Root is applied to galled neck in cattle. Leaf-juice is given in jaundice and fevers. There is a popular belief that the herb taken internally and applied externally will turn hair black. In the Punjab it is used externally for ulcers, and as an antiseptic in wounds in cattle. Fresh plant is applied with sesame oil in elephantiasis, and juice in affections of liver and in dropsy.

Roots and leaves are largely used alone or with Ajwan seeds in derangements of the liver and gall-bladder. They have also been used as a substitute for Taraxacum, a reputed and popular liver tonic.

In China plant is used for checking hæmorrhage and for strengthening gums.

In Indo-China it is much used for curing asthma and bronchitis.

In Ceylon it is used to purify blood.

There are two varieties—yellow flowered and white flowered. The former is extensively used in catarrhal jaundice (Koman).

The plant contains alkaloid *ecliptine*.

See—Sacred Plants.

ELETTERIA CARDAMOMUM Maton.

FAM.—Scitamineæ.

COM. NS. :—*E.* Lesser—Malabar cardamom; *G.* Elachi; *H.* Choti-elachi; *K.* Yalakki, Ilaji, Karangi; *M.* Veldoda, Velchi; *Sk.* Bahula, Chandrabala, Ela, Gandhkuti, Gourangi, Triputa.

HABITAT :—Moist situations in hilly tracts (rich moist forests).

LOC. :—Western valleys of N. Kanara (Siddapur, Sirsi and Ilapur Talukas); cultivated.

DISTR. :—Western and S. India, wild or cultivated in Malabar and Ceylon.

PARTS USED :—Root, fruit and seeds.

PROPERTIES AND USES :—Seeds—bitter, cooling, pungent, fragrant; cause biliousness; abortifacient, alexiteric; clear head, brain and mouth; useful in asthma, bronchitis, piles, consumption, strangury, scabies, pruritus, diseases of bladder, kidney, rectum and throat (Ayurveda). Seed—fragrant; tonic to heart, stomachic, laxative, diuretic, carminative; causes thirst; lessens inflammation; useful in head, ear and tooth ache, bad humours of liver, chest and throat (Yunani).

LOC. USES :—Seeds are used as an ingredient in compound preparations. Seeds are valuable as a warm cordial and aromatic, carminative stimulant due to an essential oil. The oil extracted from fruit is used both in pharmacy and perfumery. It occurs to the extent of 4 to 8 per cent of the seeds and contains a considerable amount of terpinyl-acetate. It is stomachic, diuretic.

In Cambodia root and fruits are used medicinally; root is laxative and tonic; fruit is tonic, stomachic, stimulant and emmenagogue; it is administered internally in the diseases of liver and uterus; externally it is applied to the tumours of the uterus.

See—Condiments and Spices.

ELEUSINE CORACANA Gaertn.

FAM.—Gramineæ.

COM. NS. :—*G.* Bavato, Navalo-nagali; *H.* Makra, Marua, Rotka; *K.* Ragi; *M.* Nachani, Nagali; *Sk.* Kanisha, Rajika, Narttika.

HABITAT :—Grows in any soil, rich or poor; cultivated.

LOC. :—Extensively grown chiefly in the hilly districts of the State (uplands of ghats). Heavy crops are taken in Ahmedabad and Kaira districts of Gujarat.

DISTR. :—Cultivated in the tropics of the old world.

PARTS USED :—Grain.

PROPERTIES AND USES :—The grain is acrid, bitter, tonic, cooling, useful in biliousness, "Tridosh" and blood diseases (Ayurveda).

LOC. USES :—The grain is rather difficult of digestion but highly nourishing; most suitable to hard-working classes. It is said to be astringent.

In S. Africa it is used along with *Plumbago Zeylanica* as an internal remedy for leprosy.

Grains contain vitamin B.

See—Food Plants.

EMBELIA RIBES Burm.

FAM.—Myrsinaceæ.

COM. NS. :—*G.* Varding, Vavoding; *H.* Boberang, Wavrung; *K.* Vayuvitang, Vidanga; *M.* Vavading; *Sk.* Bhasmaka, Bidanga, Jantughna, Pavaka.

CHAR. :—A large scandent shrub; branches long, slender, flexible, internodes long, bark studded with lenticels; *L.*—alternate, coriaceous, elliptic-lanceolate, shining above, paler and silvery beneath, whole surface covered with minute reddish stunken glands; *Fl.*—in lax panicles, racemes minute, many, greenish yellow; *Fr.*—berry, nearly globose, smooth, succulent, black when ripe, like a pepper corn when dried; *Fl. t.*—Feb.

HABITAT :—Rain forests.

LOC. :—Hilly parts of the State; Konkan and N. Kanara, fairly common near Gerasappa Ghats.

DISTR. :—Throughout India, Ceylon, Malaya, S. China.

PARTS USED :—Fruit.

PROPERTIES AND USES :—Hot, dry, with a sharp bitter taste; good appetiser, carminative, anthelmintic, alexiteric, laxative, alterative; cures tumours, ascites, bronchitis, mental diseases, dyspnoea, diseases of heart, urinary discharges; jaundice, hemicrania, worms in wounds (Ayurveda). Bitter; good for plethoric constitution; analgesic, purgative, vulnerary, anthelmintic; cures bronchitis; dries wound discharges; reddens urine; removes bad humours from body (Yunani). Fruit along with liquorice root is used for the purpose of strengthening body and preventing the effects of age (Sushruta).

LOC. USES :—The seeds are used as an anthelmintic in cases of tape-worms; a few berries in milk given to children prevent flatulence. (Dymock). Seeds have been found an efficacious remedy in tape-worms (Sakharam Arjun). Embelia is effective against tape-worm only. It is a useful and safe remedy against tape-worms (A. S. Paranjpe and G. K. Gokhale, Arch. Int. Pharm. et Ther. 42—II—1932). The Hakims consider it to be attenuant and purgative of phlegmatic humours.

EMBLICA OFFICINALIS Gaertn.

(PHYLLANTHUS EMBLICA Linn.)

FAM.—Euphorbiaceæ.

COM. NS. :—*E. Embelic myrobalan*; *G. Ambala*, *Amla*, *Bhoza*; *H. Amlika*, *Anola*, *Anward*, *Daula*; *K. Amalaka*, *Dadi*, *Dhatri*, *Nellika*; *M. Avala*; *Sk. Adiphala*, *Amlika*, *Dhatrithala*, *Triphala*.

HABITAT :—In deciduous forests.

LOC. :—Throughout the State, in deciduous forests; often planted in Konkan, Western Ghats, Deccan.

DISTR. :—Throughout tropical and sub-tropical India, wild or planted, Ceylon, China, Malay Islands.

PARTS USED :—Root, bark, leaves, flowers, fruit and seeds.

PROPERTIES AND USES :—*Fruit*—acid, sour; cooling, alexiteric, carminative, alterative, laxative, tonic, antipyretic; useful in burning sensation, vomiting, biliousness, urinary discharges, thirst, leprosy, constipation, inflammations, erysipelas, piles, anaemia, strangury, "Kapha", sweats, anuria, poisoning, "Tridosha". Fruit and leaf useful in ophthalmia and incipient blindness. *Seed*—acid, aphrodisiac; useful in asthma, bronchitis, leucorrhœa (Ayurveda).

Flowers—cooling, aperient. *Fruit*—acid, sour, cooling, astringent, tonic, expectorant, vulnerary; improves appetite; useful in heart-diseases, liver complaints, cold in the nose, thirst, piles, biliousness, eye troubles; stops nasal hæmorrhage; purifies body humours (Yunani).

LOC. USES :—Root, bark and fruit are astringent. Flowers refrigerant and aperient. In the Konkan juice of fresh bark with honey and turmeric is given in gonorrhœa. Leaves used in infusion with fenugreek seeds in chronic dysentery and are also considered a bitter tonic. *Milky juice* is good application to offensive sores. Unripe fruit is cooling, diuretic and laxative. Exudation from fruit-incisions is used as an external application in eye-inflammation. It is one of the ingredients of "Triphala", used as laxative and astringent. Decoction prepared from fruit combined with *Hirada* and *Beheda* is useful in chronic dysentery and biliousness. Seed infusion is used in eye diseases. Dried fruits, immersed in water in a new earthen vessel a whole night yield an infusion which is used as a collyrium in ophthalmia. It may be applied cold or warm (Surg. R. Grey).

Fruit is one of the most important sources of Vitamin C.

See—Timbers, Dyes, Tans, Fruit Trees.

ENICOSTEMA LITTORALE Blume.

FAM.—Gentianaceæ.

COM. NS. :—*G. Madvinashi*, *Mamejavo*; *H. Chhotakirayat*; *M. Kadvinayi*, *Tanavadi*; *Sk. Mabhipaka*, *Nagajivha*, *Nahu*, *Tiktapatra*.

CHAR. :—A perennial glabrous herb, 10–50 cm. high, branched from the base; stems erect or procumbent, sub-quadrangular or terete; *L.*—sessile, opposite, variable, 3-nerved, mid-nerve strong; *Fl.*—sessile, in axillary clusters all along the stem; *C.*—infundibuliform, lobes 5, white; *Fr.*—capsule, ellipsoid, narrowed at the base, rounded apex; *Fl. t.*—Aug.–Nov.

HABITAT :—More frequent near the sea.

LOC. :—Konkan, Gujarat, Saurashtra, S. M. Country.

DISTR. :—Throughout the greater part of India, Sind, Ceylon, Malaya, tropical Africa, West Indies.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—Plant is pungent and very bitter; anthelmintic; cures fever and "Vata" (Ayurveda).

LOC. USES :—The plant is very bitter and is used in Madras as stomachic. It is also tonic and laxative (Pharm. Ind.). The plant is crushed and applied locally in snake-bite (Blatter).

ENTADA PHASEOLOIDES Merr.

(ENTADA SCANDENS Benth.)

FAM.—Leguminosæ (Mimosoideæ).

COM. NS. :—*E. Giant's rattle*, *Lady nut*, *Mackary bean*; *K. Doddakampi*, *Hallekayiballi*; *M. Carambi*, *Garbe*.

CHAR. :—An immense woody climber with a thick trunk; branches terete, glabrous; *L.*—2-pinnate, main rachis grooved ending in a bifid tendril; pinnæ 2–3 pairs, stalked; leaflets 7.5×2.3 –2 cm., oblong or obovate, rigidly coriaceous, dark green; *Fl.*—in panicles or simple spikes 15–25 cm. long, axillary or from the nodes of old branches; *C.*—yellow; *Fr.*—pod, 30–90 cm. long, $3.7.5 \times 7.5$ –10 cm. wide and 3–8 cm. thick, slightly curved, woody, indented between the seeds; *Sd.*—6–15, orbicular, 4.5 – 5.7 cm. diam., compressed, smooth, shining and brown; *Fl. t.*—Mar.–May.

HABITAT :—Monsoon forests, often along river banks.

LOC. :—North Kanara and the Konkan Ghats.

DISTR. :—Central and Eastern Himalayas, Nepal, W. Peninsula, Ceylon, the tropics generally.

PARTS USED :—Seeds.

PROPERTIES AND LOC. USES :—Powdered kernel, mixed with spices, is commonly taken by Indian women for some days immediately after delivery, for allaying the bodily pains and warding off cold. Kernels are also used by hill people as febrifuge. Seeds are used in pains of the loins, in debility and glandular swellings; they are given internally as an emetic. Seed powder mixed with water is given as a drink to buffalo calves for worms during the first two or three weeks. The plant is used as a fish-poison.

The plant contains a glucoside and an alkaloid.

See—Poisonous Plants and Fish Poisons.

ERYTHRINA VARIEGATA L., Var. ORIENTALIS Merr.

(ERYTHRINA INDICA Lam.)

FAM.—Leguminosæ (Papilionoideæ).

COM. N.S. :—*E.* Indian coral-tree, Mochi-wood; *G.* Bangaro, Panarvo, Panderavo; *H.* Dadap, Mandara, Pangara, Panjira; *K.* Halivan, Hongara, Mullumurige, Salaki; *M.* Pangara, Phandra; *Sk.* Kantakinshuka, Mandara, Paribhadra, Raktapushpa.

HABITAT :—Deciduous forests, along sea-coast above high-water.

LOC. :—Konkan and N. Kanara. Indigenous along sea-coast from Bombay to Kanara. Planted as support for pepper vines, for grape-vines in Nasik district.

DISTR. :—Coast forests of Malabar, Sundribans, Arakan, Pegu, Tennaserim, Andamans and Nicobar. Planted as ornament.

PARTS USED :—Root, bark, leaves, flowers.

PROPERTIES AND USES :—Root emmenagogue; bark used in dysentery; cures “Kapha” and “Vata”. Leaves—bitter, hot, stomatic, anthelmintic, improve appetite, cure urinary discharges, inflammations. Flowers used in biliousness and ear troubles (Ayurveda).

LOC. USES :—Bark is used as febrifuge and anti-bilious; it is anthelmintic; useful as a collyrium in ophthalmia. In the Konkan juice of young leaves is used to kill worms in sores. Young roots of white-flowered variety are pounded and given with cold milk as an aphrodisiac. Leaves are applied externally to disperse venereal buboes, and to relieve pain of the joints. Fresh leaf-juice is used for the relief of ear-ache and as an anodyne in toothache.

The plant contains an alkaloid.

See—Timbers.

EUPHORBIA HIRTA Linn.

(EUPHORBIA PILULIFERA Linn.)

FAM.—Euphorbiaceæ.

COM. N.S. :—*E.* Australian asthma herb, Pill-bearing spurge; *G.* Duddi, Dudhi; *H.* Dudhi; *K.* Achhegida; *M.* Dudanali, Dudhi, Govardhan; *Sk.* Pusitola.

CHAR. :—Annual herb, 15–50 cm. high, erect or ascending, hispid with long often yellowish hairs; branches often 4-angled; *L.*—opposite, obliquely oblong-lanceolate, serrulate or dentate, dark green above, pale beneath, base unequal-sided; *Fl.*—involucres numerous, crowded in small axillary globose cymes; gland minute; globose, with or without a limb; *Fr.*—capsule, appressedly hairy; *Sd.*—ovoid-trigonal, rugose, reddish brown; *Fl. t.*—throughout the year.

HABITAT :—Growing in waste places and cultivated lands.

LOC. :—Common everywhere in fields and open spaces throughout the State.

DISTR. :—Throughout the hotter parts of India; Ceylon; most tropical and sub-tropical countries.

PARTS USED :—The whole plant.

PROPERTIES AND LOC. USES :—In the indigenous system of medicine, the plant has a great reputation and is believed to be a sovereign remedy for diseases of respiratory tracts. *Decoction* is used in asthma and chronic bronchial affections. *Root* is given to allay vomiting and the *plant* to nursing mothers when supply of milk fails. *Plant juice* is given in dysentery and colic and the milk applied to destroy warts. Plant is chiefly used for worms, bowel complaints and cough in children. It is also prescribed in gonorrhœa.

The plant *extract* has sedative effect on the mucous membrane of the respiratory and genito-urinary tract (Koman).

Perfusion experiments show a depression of the heart (Dikshit and Kameshwar; 18th Ind. Sc. Cong. Nagpur 1931).

The plant contains an alkaloid and an essential oil.

EUPHORBIA TIRUCALLI Linn.

FAM.—Euphorbiaceæ.

COM. N.S. :—*E.* Milk bush, Milk hedge, Indian tree spurge; *G.* Dandalio thora, Paradeshi thora; *H.* Sahud, Sendh, Shirthahar; *K.* Bottugalli, Kodukalli, Mondukalli; *M.* Nevli, Sher; *Sk.* Bahukshira, Dandasruha, Vajradruma.

CHAR. :—A small tree, about 6 m. high, branches erect, smooth, terete, polished; branchlets whorled, thick like quill, almost leafless; L.—small, linear, 6-13 mm. long (appearing in rainy season); involucres clustered in the forks of branchlets, mostly female, campanulate; Fr.—capsule, cocci velvety; Sd.—ovoid, smooth; Fl. t.—Aug.-Sep.

HABITAT :—Cultivated in dry districts.

LOC. :—Cultivated as a hedge plant all over the State.

DISTR. :—Native of East Africa, naturalised in India.

PARTS USED :—Plant and juice.

PROPERTIES AND USES :—Hot; useful in biliousness, leprosy and leucorrhœa; milk is alexiteric, carminative; useful in abdominal troubles, tumours and "Vata" (Ayurveda). Juice is purgative, carminative; useful in gonorrhœa, whooping cough, asthma, dropsy, leprosy, enlargement of spleen, dyspepsia, jaundice, colic, tumours, stone in bladder (Yunani).

LOC. USES :—Fresh milky juice is applied in warts and used as a rubefacient embrocation in rheumatism; employed to raise blisters. It is a good alterative in syphilis and good application in neuralgia. Given with butter it is said to cure affections of the spleen and to act as a purgative in colic and bowel complaints.

See—Poisonous Plants and Fish Poisons.

EVOLVULUS ALSINOIDES Linn.

FAM.—Convolvulaceæ.

COM. NS. :—G. Jhinkiphudardi, Kalisankhavali; H. Shyamakranta; K. Vishnukranti; M. Vishnukranta; Sk. Nilpushpi, Vishnugandhi, Vishnukranta.

CHAR. :—A perennial herb, rootstock woody; stems many, more than 5 cm. long, prostrate, spreading, wiry, usually clothed with long hairs; L.—many, elliptic-oblong, base acute, silky hairy; Fl.—light blue, solitary or sometimes 2, peduncles very long, axillary; Fr.—capsule, globose, thin, 4-valved; Sd.—glabrous; Fl. t.—July-Nov.

HABITAT :—Grassy places in rather poor soils.

LOC. :—Throughout the State. Common during the rains in the Deccan plains, Konkan and Gujarat.

DISTR. :—Sind, Ceylon, tropical and sub-tropical countries.

PARTS USED :—Whole plant.

PROPERTIES AND USES :—Bitter, pungent; alexiteric, alterative, tonic, anthelmintic; useful in bronchitis, biliousness, epilepsy, leucoderma, teething of infants; brightens intellect; improves complexion and appetite (Ayurveda).

LOC. USES :—The Mohamedan physicians believe that the plant has the power to strengthen brain and memory. It is used as a febrifuge with cumin and milk, also as an alterative, and with oil to promote growth of hair. It is reputed to be a sovereign remedy for dysentery. The leaves are made into cigarettes and smoked in chronic bronchitis and asthma. The plant is astringent and is used in internal hæmorrhage.

The plant contains an alkaloid.

EXACUM BICOLOR Roxb.

FAM.—Gentianaceæ.

COM. NS. :—H. Barachirayat; M. Udichirayat.

CHAR. :—An erect annual, reaching 60 cm. high; root fibrous, stem quadrangular, scarcely branched; L.—very variable in size and form, sessile, ovate, elliptic or lanceolate, 5-nerved; Fl.—showy, in copious terminal cymes; C.—lobes 4-5, obliquely obovate, lower half white, the upper blue; Fr.—capsule, ellipsoid, smooth, shining, yellowish brown; Fl. t.—Aug.-Nov.

HABITAT :—Pasture lands.

LOC. :—Konkan, Maval, Deccan hills and S. M. Country.

DISTR. :—Madras State, N. Circars, Mysore, Coimbatore, W. Ghats.

PARTS USED :—Leaf stalks.

PROPERTIES AND USES :—The plant possesses tonic and stomachic properties and may well be substituted for Gentian (Pharm. Ind.).

The dried stalks are sold in South India under the name of country kirayat.

FAGONIA ARABICA Linn.

FAM.—Zygophyllaceæ.

COM. NS. :—G. Dhamaso; H. Hinguna, Ustarkhar; M. Dhamasa; Sk. Atmamuli, Dhanavi, Dusparsa, Kashaya, Prabhodhini.

CHAR. :—A small spiny erect undershrub, more or less glandular; L.—opposite, 1-3 foliate, petioles deeply striate; stipules 2 pairs of sharp slender thorns, about 1.2 cm. long; leaflets linear, acute, the middle the largest, sessile; Fl.—solitary, small, pale rose-coloured, arising from between the stipules; Fr. of 5, 1-seeded cocci, glandular hairy, deeply 5-partite, pyramidal to the apex; Sd.—ovoid, flattened, smooth; Fl. t.—Oct.-Dec.

HABIT :—Weed of cultivation.

LOC. :—Common in the Deccan in grain fields; Gujarat.

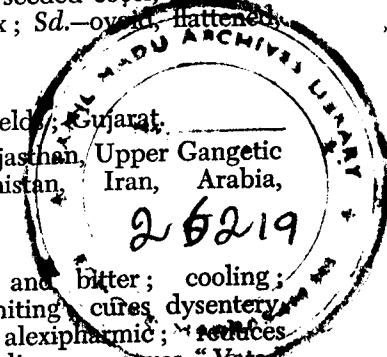
DISTR. :—Sind, Balughistan, Waziristan, Rajasthan, Upper Gangetic plains, Punjab, westwards to Afghanistan, Iran, Arabia, Mediterranean.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—Plant—acid and bitter; cooling; removes "Vata", asthma, fever, thirst, vomiting, cures dysentery, urinary discharges, erysipelas, typhoid; alexipharmic; removes tumours; purifies blood (Ayurveda). Cooling; removes "Vata", asthma; emmenagogue; good for liver troubles, in chronic bronchitis, spitting of blood, ophthalmia, toothache, stomatitis. Bark is used in scabies. Leaves useful in biliousness and leucoderma (Yunani).

LOC. USES :—Plant useful as an application to tumours; also used in chronic fevers, dropsy and delirium and in many disorders arising from poisoning; it is reputed as a suppurative in cases of abscesses from thorns; used for cooling mouth in stomatitis; largely used as a bitter and astringent tonic; it is pounded and bound upon the neck swellings and for scrofula; infusion made with hot water is used as a bath in fevers; it has got cooling properties.

It is given to children as a prophylactic in small-pox (Bellew).



FERONIA ELEPHANTUM Corr.

FAM.—Rutaceæ.

COM. NS.:—*E.* Elephant or wood apple, Monkey fruit; *G.* Kavita, Kotha, Kothun; *H.* Balin, Kait, Kathel, Kavitha; *K.* Belada, Byala, Malura, Mammadha; *M.* Kavath; *Sk.* Dadhiphala, Grahiphala, Kapipriya, Kapitha, Kathinyaphala.

HABITAT:—Dry open situation; often cultivated.

LOC.:—Cultivated all over the State; common in the Tapi Valley.

DISTR.:—Indigenous in S. India, Java, Ceylon.

PARTS USED:—Leaves, fruit and seeds.

PROPERTIES AND USES:—*Fruit*—sour, acrid; difficult to digest; refrigerant, aphrodisiac, alexipharmic; cures cough, dysentery, heart diseases, vomiting; removes biliousness, "Vata", "Tridosha", blood impurities, fatigue, thirst, hiccup; good for throat, asthma, consumption, tumours, ophthalmia, leucorrhœa. *Seeds*—antidote to poison. *Oil*—acrid (Ayurveda). *Leaves*—very astringent. *Fruit*—sour; refrigerant; tonic to heart, liver and lungs; astringent, binding diuretic; strengthening to gums; *pulp* good for stomatitis and sore-throat; useful in biliousness; relieves pain due to stings of wasps and other insects (Yunani).

LOC. USES:—*Bark* is prescribed for biliousness; *gum* exuding from the stem is used in place of true gum arabic; reduced to powder and mixed with honey it is given in dysentery and diarrhœa. *Leaves* are aromatic and carminative and are used in the bowel complaints of children. *Unripe fruit* is astringent and is used in diarrhœa and dysentery. *Pulp* of the *ripe fruit* is aromatic, antiscorbutic and in the form of sherbat or chutny with the addition of salt and spices forms a good stomachic. *Pulp* is also used in some affections of gums and throat.

In Cambodia *thorns* are used as styptic in menorrhagia.

INDIAN PREPARATION:—*Kapitthashtaka Churna*—used in chronic diarrhœa and dysentery with loss of appetite and in throat affections.

See—Timbers, Fruit Trees.

FICUS BENGALENSIS Linn.

FAM.—Moraceæ.

COM. NS.:—*E.* Banian tree; *G.* Vad, Vadlo; *H.* Bar, Bargad, Bargat; *K.* Ala, Alada, Goli, Nyagrodha, Vata; *M.* Vad; *Sk.* Avaroha, Bahupada, Bhringi, Jatala, Vat.

CHAR.:—Large evergreen tree 30 m. high, with spreading branches, sending down to the ground many aerial roots, which afterwards develop into separate trunks; *L.*—coriaceous, 10-20 × 5-12.5 cm., ovate to elliptic, cordate or rounded base, shining above; *Fr.*—globose, about 2 cm. diam. with male, female, and gall flowers.

HABITAT:—Monsoon and rain forests; often planted.

LOC.:—Planted throughout the plains in avenues and roadside trees in W. Ghats, S. M. country and N. Kanara. Self-sown. Trees with a very large spread of crown are found in Poona and Satara.

DISTR.:—Sub-Himalayan tract and Western Peninsula; hill ranges of S. India.

PARTS USED:—Bark, root-fibres, leaves, seeds and milky juice.

PROPERTIES AND USES:—Astringent to bowels; useful in "Kapha", biliousness, ulcers, erysipelas, vomiting, vaginal complaints, fever, inflammations, leprosy (Ayurveda). *Milky juice*—aphrodisiac, tonic, vulnerary, maturant; lessens inflammations; useful in piles, nose-diseases, gonorrhœa. *Aerial root* is styptic; useful in syphilis, biliousness, dysentery, inflammation of liver (Yunani).

LOC. USES:—*Milky juice* that exudes from the tree is externally applied for pains, bruises, in rheumatism and lumbago. It is considered valuable application to cracked foot-soles; applied to teeth as a remedy in toothache. *Bark-infusion* is a powerful tonic and is said to have specific properties of reducing blood sugar in diabetes. *Leaves* are applied heated as poultice. *Seeds* are cooling and tonic. *Infusion* of young buds useful in diarrhœa and dysentery.

See—Famine Plants, Fibres, Sacred Plants.

FICUS CARICA Linn.

FAM.—Moraceæ.

COM. NS.:—*E.* Fig; *G.* Anjir; *H.* Anjir; *K.* Anjura, Simeyattu; *M.* Anjir; *Sk.* Anjir, Kakodumbar.

HABITAT:—Cultivated in poor soils.

LOC.:—Grown largely in the Purandhar taluka of the Poona district. Grown scattered elsewhere; Bijapur, Dharwar, Ahmednagar and Nasik districts.

DISTR.:—Baluchistan, Afghanistan, W. Asia and Mediterranean. Cultivated in N. W. India.

PARTS USED:—Root and fruit.

PROPERTIES AND USES:—*Fruit*—cooling; useful in "Vata", diseases of head and blood, leprosy, nose bleeding (Ayurveda).

Root—tonic; useful in leucoderma, ringworm. *Fruit*—antipyretic, purgative, alexiteric, aphrodisiac, lithotriptic; useful in inflammation, weakness, paralysis, thirst, liver and spleen diseases, pain in chest cures piles; stimulates hair-growth. *Milky Juice*—expectorant, diuretic; dangerous for eyes (Yunani).

LOC. USES:—*Fruit* is emollient, demulcent, laxative, nutritive; the fresh and dried fruits are used in constipation. A poultice from dried figs in milk removes unpleasant odours from ulcers and cancers. *Pulp* is mucilaginous and is esteemed as pectoral emollient for coughs. *Milky acrid juice* from fresh green fruits destroys warts.

In Europe roasted figs are used as poultice in gum boils, boils and carbuncles.

Fruit contains vitamins A and C

See—Fruit Trees.

FICUS GLOMERATA Roxb.

FAM.—Moraceæ.

COM. NS.:—E. Gular—Country fig; G. Umar, Umbro; H. Dēmera, Gular, Lalka, Umar; K. Atti, Rumadi; M. Umbar; Sk. Hemadugdha, Pavitraka, Udumbara, Yajniya.

HABITAT:—Near villages and along the banks of streams and rivers.

LOC.:—Throughout the State near villages, common in Western Ghats and Konkan.

DISTR.:—Widely spread throughout India.

PARTS USED:—Root, bark, leaves, latex, fruit.

PROPERTIES AND USES:—Root used in hydrophobia. Bark is cooling, acrid, galactagogue; good for gravid uterus. Fruit—astrigent to bowels, tonic, styptic, allays thirst, useful in "Kapha", biliousness, leucorrhœa, blood diseases, burning sensation, fatigue, urinary discharges, leprosy, menorrhagia, nose bleedings; causes "Kapha" and intestinal worms (Ayurveda). Bark useful in asthma and piles. Leaves—astrigent to bowels; good for bronchitis. Fruit—useful in dry cough, loss of voice, diseases of kidney and spleen. Milk—aphrodisiac, vulnerary. Ashes—diuretic and useful in gleet (Yunani).

LOC. USES:—An infusion of bark and leaves is astringent and has been employed as mouth wash in spongy gums and also internally in dysentery, menorrhagia and hæmoptysis. Bark-powder with gingelly oil is applied to cancerous affection. Bark infusion is given in diabetes. Powder of young leaves mixed with honey is given in bilious affections. Bark, ground with onions, cummin, cocoanut spathe and mixed with vinegar, is given to cattle in rinderpest. In Bombay sap is applied to mumps and other inflammatory glandular enlargements and is given with cummin and sugar in gonorrhœa. The fresh juice of ripe fruit is used as an adjunct to a metallic preparation given in diabetes and other urinary disorders. Fruit boiled in milk is a good remedy for visceral obstructions. Bath made from fruit and bark is regarded as a cure for leprosy.

See—Timbers, Sacred Plants.

FICUS RELIGIOSA Linn.

FAM.—Moraceæ.

COM. NS.:—E. Peepal tree; G. Jari, Pipers, Pipal; H. Pipal, Pipli; K. Arani, Ashwatha mara, Pippala, Ragi; M. Pimpal; Sk. Ashvatha, Bodhidruma, Pippala, Shuchidruma, Vriksharaj, Yajnika.

HABITAT:—Planted.

LOC.:—Planted near temples and villages throughout the State.

DISTR.:—Wild in Sub-Himalayan tracts, Bengal and Madhya Bharat; planted all over.

PARTS USED:—Root, bark, leaves and fruits.

PROPERTIES AND USES:—All parts cooling; useful, in diseases of blood, vagina, uterus; given in leucorrhœa, burning sensation, biliousness, uncurs. Ripe fruit—alexipharmic; good for foul taste,

thirst, heart diseases. Root good for gout. Root-bark good in stomatitis; cleans ulcers; astringent in leucorrhœa; promotes granulations. Young bark useful in bone fractures. Seeds useful in urinary discharges (Ayurveda). Root-bark—aphrodisiac; good for lumbago; bark useful in inflammations and glandular swellings of neck. Fruit—purgative, aphrodisiac; checks vomiting (Yunani).

LOC. USES:—Bark is astringent and is useful in gonorrhœa; a paste of powdered bark is used as an absorbent in inflammatory swelling. Powder of dried bark is used in cases of anal fistulæ. Tender shoots boiled in milk and mixed with sugar make a very nutritious drink. Leaves of young shoots are used as purgative and are useful in skin-diseases. Fruit is laxative and helps digestion. Dried fruit pulverised and taken in water for a fortnight removes asthma, and produces sterility in women. The juice is employed in hiccup.

In Ceylon bark-juice is used as a mouth wash for toothache and for strengthening gums.

See—Timbers, Sacred Plants.

FLACOURTIA RAMONTCHI L'Herit Var. SAPIDA Roxb.

FAM.—Flacourtiaceæ.

COM. NS.:—G. Kankod; H. Bhanber, Bilangra; Handi Kandai, Katar; K. Gajale, Hettarimullu, Hunmunki, Mullutari; M. Bhakal, Pakar, Tambat; Sk. Swadukantaka.

HABITAT:—Hills.

LOC.:—Hills of the Konkan and Deccan, S. M. Country and N. Kanara Jungles, Khandesh, Satpura, Akran.

DISTR.:—Sub-Himalayan tract and outer Himalaya from the Indus eastwards, upper Gangetic plain; common in the Peninsula, W. Ghats, N. Circars, Burma.

PARTS USED:—Root, bark, fruit, seeds, gum.

PROPERTIES AND LOC. USES:—The bark is applied to the body with that of Albizzia at intervals during intermittent fever (Campbell). Fruits are sweet, appetising and digestive. They are given in jaundice and enlarged spleen. The seeds are ground to powder with turmeric and rubbed all over the mother's body after child-birth to prevent rheumatic pains from exposure to damp winds. Gum is given along with other ingredients in cholera.

In Madagascar the fruit is considered diuretic and root is prescribed in nephritic colic.

See—Timbers, Fodder Plants.

FCENICULUM VULGARE Gaertn.

FAM.—Umbellifereæ.

COM. NS.:—E. Fennel, Finkel; G. Variari, Variali; H. Soupa; K. Badisoppu; M. Badishep; Sk. Bhuripushpa, Potika, Shalina, Shateya, Tapaspriya.

CHAR. :—A tall glabrous, dark green, annual, 0·6-0·9 m. high; *L.*—decompound, ultimate segments linear; *Fl.*—in large umbels; bracts and bracteoles absent; yellow; *Fr.*—ellipsoid, ridges prominent, furrows vittate, carpophore 2-partite.

HABITAT :—Cultivated.

LOC. :—Extensively cultivated in the Kaira district of Gujarat; cultivated to a small extent in Ahmedabad and Satara districts.

DISTR. :—Apparently a native of S. Europe but now diffused over temperate and sub-tropical regions of the world.

PARTS USED :—Roots, leaves and seeds.

PROPERTIES AND USES :—*Seeds*—hot, laxative, aphrodisiac, stomachic, appetiser, anthelmintic, alexiteric; cures “Tridosh”, eye-diseases, burning sensation, fever, thirst, wounds, dysentery, “Vata”, biliousness, leprosy (Ayurveda). *Leaves*—improve eyesight; seeds—carminative, galactagogue, diuretic, stimulant, cure intestinal troubles when applied to abdomen of children; useful in diseases of chest, spleen, kidney, in headache, amenorrhœa, cough and asthma; lessen inflammations; strengthen eyes (Yunani).

LOC. USES :—used as stimulant, aromatic and carminative. *Root* is regarded as purgative and leaves diuretic. In Madras fruits are used in venereal diseases. It is an admirable corrective of flatulence; it relieves griping of bowels in infants.

Oil from the seed is a fairly good vermicide against hook-worms. (Mhaskar and Caius).

See—Condiments and Spices.

GARCINIA INDICA Chois.

FAM.—Guttiferae.

COM. NS. :—*E.* Wild mangosteen; *G.* Kokam; *H.* Kokam; *K.* Mulgala, Murjinhalli, Tittidika; *M.* Kokam, Ratambi; *Sk.* Amlabija, Atyamla, Tintidika.

HABITAT :—Tropical rain forests.

LOC. :—Endemic in W. Ghats south of Bombay; common in S. Konkan and N. Kanara; cultivated extensively in Ratnagiri District.

DISTR. :—W. Ghats, Coorg, Wynaad; often cultivated.

PARTS USED :—Bark, leaves (rarely), fruit and seeds.

PROPERTIES AND USES :—*Fruit* destroys “Vata”; promotes “Kapha” and “Pitta”, difficult to digest, causing constipation; improves appetite and allays thirst; anthelmintic, cardiogenic; useful in bleeding piles, dysentery, tumours, pains and heart-diseases (Ayurveda).

LOC. USES :—*Bark* is astringent; young *leaves* are used in cases of dysentery. *Syrup* from the fruit-juice is used for bilious affections. The *oil* of the seeds is much used for the preparation of ointments, suppositories and other pharmaceutical purposes. It is much used as a nutritive, demulcent and emollient. It is used as a local application to ulcerations, fissures of lips, wounds etc. The *oil* is called Kokam oil or Kokam butter.

See—Timbers, Oils.

GARDENIA GUMMIFERA Linn.

FAM.—Rubiaceae.

COM. NS. same as for *G. lucida*.

CHAR. :—A deciduous shrub, about 1·8 m. high, unarmed, buds resinous; *L.*—sessile, 4·5 × 2·2·5 cm., elliptic-obovate, oblong, shining; *Fl.*—subsessile, not fragrant, 1·3 together; *C.*—tubular, first white then changing to yellow; *Fr.*—2·5-3·8 cm. long, oblong or ellipsoid, with many longitudinal elevated lines and a stout beak; *Fl. t.*—Feb.-June.

HABITAT :—Open situations.

LOC. :—Western peninsula from the Satpuda range southwards; common on laterite in southern parts of N. Kanara.

DISTR. :—India (W. Peninsula), Northern ghats of Madras State.

PARTS USED :—Gum.

PROPERTIES AND USES :—Medicinal properties are the same as those of *G. lucida* (Ayurveda).

LOC. USES :—*Gum* is used internally in dyspepsia accompanied by flatulence; used as an astringent for clearing foul ulcers and for allaying irritation of the gums and checking diarrhoea during teething of children.

The plant yields a gum *Dikemali*.

See—Gums and Resins.

GARDENIA LUCIDA Roxb.

FAM.—Rubiaceae.

COM. NS. :—*E.* Cambi resin tree; *G.* Dakamali, Dikamari; *H.* Dikamali, Dekamari; *K.* Bikke, Dikkamalli; *M.* Dikemali; *Sk.* Hingu, Jantuka, Pinda, Suvirya.

HABITAT :—Dry deciduous forests.

LOC. :—Common from Konkan southwards.

DISTR. :—India, Western Peninsula; all dry districts of Madras State, Burma.

PARTS USED :—Gum.

PROPERTIES AND USES :—Increases appetite, astringent to bowels; relieves pain of bronchitis, vomiting and constipation (Ayurveda).

LOC. USES :—The *resin* from the plant is carminative and antispasmodic; externally it is antiseptic and stimulating. It is mostly employed internally in flatulent dyspepsia and nervous disorders due to dentition; used commonly in cutaneous diseases and to keep off flies and worms. It is a successful anthelmintic in cases of round worms. It is much employed by farriers to kill maggots in cattle sores. The gum exuding from wounded bark is called *Dikemali*. As sold in the bazar it is hard, opaque, greenish yellow and of a repulsive odour.

See—Timbers, Gums and Resins.

GLORIOSA SUPERBA, Linn.

FAM.—Liliaceæ.

COM. NS. :—G. Dudhia vachlonag; H. Kalihari, Kathari, Kulhari, Languli; K. Akkitang hall, Hulyuguru, Nangulika, Sivasaktibalb; M. Indai, Karianag, Khadyanag; Sk. Agnintukhi, Garhapatani, Kalikari.

CHAR. :—Herbaceous, tall, branching climber; root-stock of arched, solid, fleshy-white cylindric tubers 15-30×2.5-3.2 cm.; stems annual, given off from young tubers; L.—sessile, 7.5×15×2.4-5 cm., scattered or opposite, sometimes whorled, ovate lanceolate, tip ending in a tendril-like spiral; Fl.—large, solitary, axillary; perianth segments reaching 6.3 cm., linear-lanceolate, margins wavy, changing colours from greenish yellow, orange, scarlet, and crimson from blooming to fading; filaments long spreading; Fr.—capsule, linear oblong; Fl. t.—July-Oct.

There are two varieties of the plant. The root-stock of one divides dichotomously and that of the other does not divide at all. The former is supposed to be male.

HABITAT :—Common in forests and in low jungles throughout the State.

LOC. :—Common below ghats in jungles on Konkan side. Planted in gardens as an ornamental plant.

DISTR. :—Throughout tropical India, Ceylon, Malay Peninsula, Cochin-China, Tropical Africa.

PARTS USED :—Tuber, leaves and flowers.

PROPERTIES AND USES :—*Tuber*—pungent, bitter, acrid, heating, anthelmintic, laxative, alexiteric, abortifacient; useful in chronic ulcers, leprosy, inflammations, piles, abdominal pains, itching, thirst; used to remove placenta from uterus; causes biliousness (Ayurveda). *Root*—useful in bowel complaints, *flower*—for fever and thirst. *Tuber*—astringent, expectorant; used in bleeding piles and thirst (Yunani).

LOC. USES :—*Root* is not so poisonous as is generally supposed. On the other hand it seems to possess alterative and tonic properties. Root powdered and reduced to paste is applied to the navel and suprapubic region and vagina to promote labour. In case of retained placenta, paste of the root is applied to the palms and soles. In Bombay it is supposed to be anthelmintic and is administered to cattle affected by worms. In Madras it is used as an external application in parasitical affections of the skins. Starch obtained from the root by washing is used in gonorrhœa. Its use as an abortifacient has been mentioned by old Sanskrit writers. Paste formed with water is a useful anodyne application for bites of poisonous insects.

In Guinea, the *tubers* are used in cataplasm for neuralgia. The juice of the ground leaves is used to destroy lice in the hairs.

The root contains alkaloids *gloriosine* and *superbine*.

See—Poisonous Plants and Fish Poisons.

GMELINA ARBOREA Roxb.

FAM.—Verbenaceæ.

COM. NS. :—E. Cashmere tree, Coomb teak, White teak; G. Savan, Shivan; H. Gambhari, Gumbhar, Shiwan; K. Bachanige, Gupsi, Kumbudi, Shivani; M. Shiwan; Sk. Gambhari, Gandhari, Kashmari, Mahabhadra, Shripani.

HABITAT :—Deciduous monsoon forests.

LOC. :—Throughout the State; scattered in monsoon forests; common on Satpuda, Khandesh.

DISTR. :—Throughout India, Sind, Ceylon, Malaya, Philippines.

PARTS USED :—Root, leaves, flowers and fruit.

PROPERTIES AND USES :—*Root*—heating, indigestible, stomachic, laxative, anthelmintic; improves appetite; useful in hallucinations, thirst, piles, abdominal pains, burning sensation, fevers, "Tridosha", urinary discharges. *Flowers*—astringent, useful in leprosy and blood diseases. *Fruit*—diuretic, tonic, aphrodisiac, alterative; promotes hair-growth; useful in "Vata", thirst, anamia, leprosy, ulcers, consumption, strangury, vaginal discharges (Ayurveda).

LOC. USES :—*Root* is an ingredient of *dashamula* which is in great repute among Hindoo physicians. *Root extract* is bitter and tonic, useful in fevers; root is also stomachic and laxative, useful in indigestion, anasarca. It is used in form of infusion or weak decoction. Root taken with liquorice, honey and sugar increases secretion of milk. *Leaf-juice* is used to remove fetid discharges and worms from wounds. In Bombay juice of young leaves is used as demulcent in gonorrhœa, catarrh of the bladder etc.

See—Timbers.

GOSSYPIUM ARBOREUM Linn.

FAM.—Malvaceæ.

COM. NS. :—E. Tree cotton; G. Devkapas; H. Deokapas, Nurma; K. Hanji, Karibatti; M. Devakapus; Sk. Karpasim.

HABITAT :—Grown in gardens and about temples.

LOC. :—Throughout the State and about temples. Var. *neglectum* is cultivated in Gujarat and Saurashtra.

DISTR. :—Bengal, Madhya Bharat, Rajasthan and N. W. Provinces.

PARTS USED :—Root, leaves, flowers and seeds.

PROPERTIES AND LOC. USES :—*Root* is used in the treatment of fever. In the Konkan, the root, made into paste, with *patchouli* leaves is used for promoting granulations in wounds. *Petals* squeezed and soaked in human or cow's milk are used as soothing and effective application for conjunctivitis in infants. *Seeds* exercise some good influence over gonorrhœa, gleet, chronic cystitis, consumption and some catarrhal affections; cotton is very useful external remedy in burns, scalds etc.

See—Fibres, Oils.

GOSSYPIUM HERBACEUM Linn.

FAM.—Malvaceæ.

COM. NS. :—E. Cotton ; G. Kapas ; H. Kupas, Rui ; K. Arali, Badari, Hatti, Karihariyale ; M. Kapus, Rui ; Sk. Anagnika, Karpas, Sutrapuspha, Tula.

HABITAT :—Cultivated in black soils.

LOC. :—Grown largely in Saurashtra, Gujarat and S. M. Country.

DISTR. :—Cultivated in N. W. F. Province (Pakistan), Baluchistan, Afghanistan, Iran, Mesopotamia, Syria, Egypt, Mediterranean, U. S. A., probably in N. Arabia and Asia Minor.

PARTS USED :—Root, leaves, fruits and seeds.

PROPERTIES AND USES :—*Flowers*—cooling, tonic ; remove biliousness and “Kapha” ; allay thirst ; dispel hallucinations and wanderings of mind ; restore consciousness. *Leaves* remove “Vata” ; enrich blood ; increase flow of urine ; cure all ear-troubles. *Seeds*—galactagogue, aphrodisiac. All parts of plant are used in skin diseases, urinary discharges (Ayurveda). *Flower-syrup* prescribed in all forms of insanity, in hypochondria ; *poultice* applied to burns, scalds, scabies ; fomentation for burning eyes ; analgesic ; good for all kinds of inflammations. *Seeds*—aphrodisiac, expectorant, laxative ; used in orchitis ; *leaf-juice* good in dysentery ; leaves with oil used as plaster in gouty joints. (Yunani).

LOC. USES :—*Decoction* of root-bark used in dysmenorrhœa and suppression of menses produced by cold. In gynecological practice gossypium is far better and safer than ergot. *Infusion* of young leaves is recommended in lax habits and preparing a vapour bath for anus in cases of tenesmus. *Leaf-poultice* applied externally hastens maturation of boils. *Seed emulsion* is given in dysentery. Seeds are laxative, demulcent, expectorant and aphrodisiac ; as a nerve tonic they are given internally in headache and brain affection ; seed poultice is a good application to burns and scalds. *Seeds* are used as a galactagogue. In India they are used to procure abortion. *Cotton seed oil* makes a good liniment in rheumatic affections. *Cotton wool* is a filter of atmospheric germs, preventing their access to wounds etc.

See—Fibres, Oils.

CREWIA ASIATICA Linn.

FAM.—Tiliaceæ.

COM. NS. :—G. Phasa ; H. Dhamin, Phalse, Pharuah ; K. Buttiyudippa, Jana, Tadasala ; M. Phalsi ; Sk. Parapera, Parusha, Roshana.

HABITAT :—Cultivated.

LOC. :—Cultivated in the State, extensively in Gujarat ; wild in Deccan ; in hills near Poona.

DISTR. :—Sind ; East Tropical Africa ; extensively cultivated.

PARTS USED :—Root, bark, fruit.

PROPERTIES AND USES :—*Unripe fruit*—bitter, acrid, sour ; removes “Vata” causes “Kapha” and biliousness. *Ripe fruit*—sweet, cooling, digestible, tonic, aphrodisiac ; allays thirst and burning sensation ; removes “Vata” and biliousness ; cures inflammations, heart and blood disorders, fevers and consumption ; good for throat

troubles ; helps removal of dead foetus. *Bark* cures biliousness and “Vata” ; removes urinary troubles and burning in vagina (Ayurveda). *Fruit*—sour, sweet, strengthens chest and heart ; relieves thirst and hiccup ; useful in diarrhœa and fevers ; should not be eaten raw. Root and bark used in strangury, gleet and gonorrhœa (Yunani).

LOC. USES :—The *fruit* is one of the *phala-traya* or fruit triad of Sanskrit writers and possesses astringent and cooling properties ; a sherbat is prepared from the fruit. *Infusion* of the bark is used as a demulcent. The *leaves* are used as an application to pustular eruptions.

The Santals use the root-bark for rheumatism (Campbell).

See—Fruit Trees.

GYMNEMA SYLVESTRE R. Br.

FAM.—Asclepiadaceæ.

COM. NS. :—E. Periploca of the woods, Small Indian ipecacuanha ; G. Mardashingi ; H. Gurmar, Merasingi ; K. Sanngera, Sannagerse ; M. Bedki, Kavali, Vakundi ; Sk. Meshashingi, Meshavalli, Vishani.

CHAR. :—A large woody climber, much branched ; young stems densely pubescent ; L.—opposite, ovate, elliptic, base rounded or cordate ; FL.—in cymes ; C.—complanate ; yellow ; corona of 5 processes ; Fr.—follicle, lanceolate, usually single ; Sd.—with thin marginal wing ; Fl. t.—Apl.-May.

HABITAT :—Monsoon forests.

LOC. :—Throughout the State ; common in hedges in Dharwar district, Mahabaleshwar and N. Kanara coast.

DISTR. :—Western Peninsula, Bundelkhand, Saharanpur, S. India, Ceylon, Tropical Africa.

PARTS USED :—Whole plant.

PROPERTIES AND USES :—Bitter, acrid, cooling, tonic, alterative, anthelmintic, alexiteric ; cures eye complaints (opacities of lens, cornea, vitreous body) burning sensation, biliousness, bronchitis, ulcers, asthma ; stomachic ; good in heart-diseases, piles, leucoderma, inflammations, urinary discharges (Ayurveda).

LOC. USES :—It is emetic and expectorant. *Leaves* when chewed deaden the sense of taste. Fresh leaves are chewed to reduce glycosuria. In Bombay the madrasai vaidyas recommend leaves in the treatment of furunculosis. In the Konkan dried and powdered leaves are used as an errhine ; used as a snuff to promote discharge from nose.

The *leaves* cause hypoglycæmia. The ease of administration, the stomachic stimulant, diuretic and laxative properties together with their mineral contents mark the leaves as a prescription for the treatment of glycosuria (Mhaskar and Caius).

GYNANDROPSIS PENTAPHYLLA DC.

FAM.—Capparidaceæ.

COM. NS. :—E. Caravella ; G. Adiyakharan, Sati talvani, Tanmani ; H. Churota, Hulhul, Karalia ; K. Shrikala ; M. Kanphodi, Mabli, Pandhari tilwan ; Sk. Arkapuspika, Bastagandha, Hulhul, Kabari, Karnasphota, Tilparni, Ugragandha.

CHAR. :—An annual erect herb 0.6–1.2 m. high, stem and branches hairy; *L.*—3–5 foliate, petioles sometimes armed with small prickles; leaflets subsessile, elliptic-obovate, pubescent, margins crenate-dentate; *Fl.*—in dense bracteate racemes, pedicels viscid hairy; *C.*—petals 4 with long slender claws, pink; gynophore 2.2–5 cm. long; *Fr.*—capsule, viscid, hairy, 5–9 cm. long, tapering at both ends; *Sd.*—muricate, dark-brown; *Fl. t.*—June.

HABITAT :—Weed in waste places and cultivated fields.

LOC. :—Deccan, Gujarat, S. M. Country.

DISTR. :—A common weed in all tropical countries.

PARTS USED :—Root, leaves and seeds.

PROPERTIES AND USES :—*Root*—hot, removes “Vata”; stomachic; good in ascites, tumours, ulcers, pain, earache, spleen enlargement and bilious fevers; the yellow variety good as a collyrium (Ayurveda).

LOC. USES :—A decoction of the root is said to be a mild febrifuge; leaves are applied externally to boils to prevent the formation of pus. Bruised leaves are rubefacient and vesicant, producing copious exudation. *Leaf-juice* is used as an anodyne for the relief of otalgia and catarrhal inflammation. *Seeds* are anthelmintic and rubefacient and are employed internally for the expulsion of round-worms and externally as a counter-irritant. They are used as a substitute for mustard and yield a good oil.

HAMILTONIA SUAVEOLENS Roxb.

FAM.—Rubiaceæ.

COM. NS. :—M. Gidesa, Jitasai.

CHAR. :—A small deciduous shrub, with divaricate herbaceous branches; *L.*—rather rigid, opposite, 12.5–20 × 3.8–9 cm., elliptic-lanceolate, acute, glabrous or pubescent above, hairy on the nerves beneath, stipules triangular, hairy; *Fl.*—many, sessile, in subglobose heads; terminal trichotomous panicles, white or blue; *Fr.*—capsule, ovoid; *Sd.*—3-quetrous with loose lace-like covering; *Fl. t.*—Oct.–Feb.

HABITAT :—Hills.

LOC. :—Konkan—Karanja Island, hills near Nagothana; Deccan—Mahabaleshwar, Katraj Ghat, Sinhgad hills; Kanara; hills in Supa Taluka.

DISTR. :—Tropical and sub-tropical Himalayas, Western Peninsula, Madhya-Bharat, China.

PARTS USED :—Root.

PROPERTIES AND USES :—*Root*—paste is applied to diabetic carbuncle; this is said to be a specific remedy and cures the ailment without any operation. (Kirtikar and Basu).

HELICTERES ISORA Linn.

FAM.—Sterculiaceæ.

COM. NS. :—G. Mursasing; H. Jonkaphal, Maraphali, Marosi; K. Edamuri, Kavargi, Murudi; M. Kewan, Murudseng; Sk. Avartant, Mrigashringa.

CHAR. :—Large shrub or small tree; young shoots clothed with stellate hairs; *L.*—biferous, 7.5–12.5 × 5–10 cm., ovate orbicular, obliquely cordate, irregularly crowded, scabrous above; *Fl.*—in axillary clusters 2–6 together, bilabiate, red at first fading to lead colour; *Fr.*—follicle of 5–6, beaked, spirally coiled, 5–6.3 cm. long; *Sd.*—numerous, angular; *Fl. t.*—Aug.–Dec.

LOC. :—Throughout the forests of the State; abundant in the undergrowth of many N. Kanara ghat forests.

DISTR. :—From the Punjab and Bengal to Ceylon, Burma, Malaya, Australia and West Indies.

PARTS USED :—Root, bark and fruit.

PROPERTIES AND USES :—*Root* and *bark* expectorant, demulcent, astringent to bowels, anti-galactagogue; lessens griping; a cure for scabies when applied locally (Yunani).

LOC. USES :—The *root-juice* has a beneficial effect in epipyemia and stomach affections. In the Konkan it is used in diabetes. The *bark* is used in diarrhoea and dysentery. *Fruits* are made into liniment for sores of the ear and they are administered internally for colic. They are demulcent, mildly astringent, and useful in griping of bowels and flatulence in children.

See—Fibres.

HEMIDESMUS INDICUS R. Br.

FAM.—Asclepiadaceæ.

COM. NS. :—E. Indian sarsaparilla; G. Durivel, Kapurimathuri, Upalsali; H. Hindisalse, Magrabu; K. Hamadaberu; Sugandhiballi; M. Anantmula, Upalsari; Sk. Anantmula, Dhaval kashtha, Utpalashariva.

CHAR. :—A perennial prostrate or twining shrub; root-stock woody; stems thickened at the nodes; *L.*—very variable, dark-green, often variegated with white above; *Fl.*—in cymes in opposite axils; *C.*—tubular, greenish outside, purplish inside; *Fr.*—follicle cylindric, tapering; *Sd.*—with silvery white coma; *Fl. t.*—throughout the greater part of the year.

HABITAT :—In hedges.

LOC. :—Throughout the State; common in hedges, Konkan, Deccan and S.M. Country.

DISTR. :—Upper Gangetic plain, eastwards to Bengal and to Sundribans and from Madhya Pradesh to S. India, Ceylon.

PARTS USED :—Root, stem, and leaves.

PROPERTIES AND USES :—*Root*—cooling; aphrodisiac, antipyretic, alexiteric; antidiarrhoeal, astringent to bowels; cures all skin-diseases, fevers, foul body odour, low appetite, asthma, bronchitis, “tridosh”, blood diseases, leucorrhoea, “Kapha”, “Vata”, dysentery, diarrhoea, thirst, burning sensation; useful in piles, rat-bites, poisoning, eye troubles, epileptic fits, and wasting diseases in children (Ayurveda). *Root* and *stem*—laxative, diaphoretic, diuretic, useful in syphilis and leucoderma. *Root* useful in hemicrania, joint-pains, syphilis. *Stem* lessens inflammation; good for brain, liver and kidney diseases; useful in gleet, urinary discharges, uterine complaints, paralysis, cough, asthma; gargle good for toothache (Yunani).

▲ Bk VI. 1–8

LOC. USES.—Root of the plant known as “Indian sarsaparilla” has long been employed as alterative and tonic. It is also diuretic, demulcent, tonic, useful in loss of appetite, fevers, skin-diseases, syphilis and leucorrhœa. It is prescribed usually in the form of syrup. Powdered root mixed with cow’s milk is given in cases of gravel and strangury. It is said to purify blood. Root roasted in plantain leaves, then beaten into pulp with cumin and sugar, and mixed with ghee, is a remedy in genito-urinary diseases.

In the Konkan milky juice is dropped into inflamed eyes.

The properties of the plant were recognised by the medical profession in Europe, and as early as 1864, it was made official in the British Pharmacopœia. Clinical trials show that its medicinal value is in no way inferior to sarsaparilla (Chopra).

HIBISCUS ROSA-SINENSIS Linn.

FAM.—Malvaceæ.

COM. NS.:—*E.* Shoe flower; *G.* Jasuva; *H.* Jasum, Jasut; *K.* Dasavala, Dasanihu, Kempupundrika; *M.* Jasavand; *Sk.* Aruna, Harivallaba, Japapushpa, Raktapushpi, Rudrapushpa.

CHAR.:—A perennial shrub; *L.*—short petioled, ovate or ovate lanceolate, irregularly serrate towards the top, entire near the base; glabrous; *Fl.*—axillary, solitary; pedicel jointed above the middle; involucrel bracts 5-7; *C.*—7.5 cm. diam., tubular below, red; petals thrice as long as the calyx; staminal tube exerted far beyond the petals; *Fr.*—no fruits produced in India; *Fl. t.*—during most of the year. There are single and double forms with different colour shades of orange, yellow, crimson, bright red, magenta, etc.

HABITAT:—Cultivated.

LOC.:—Cultivated in gardens everywhere.

DISTR.:—Cultivated in gardens throughout India. Native country probably China.

PARTS USED:—Root, leaves, flowers.

PROPERTIES AND USES:—*Buds* have a sweet or sour and bitter taste; cooling, astringent, remove burning of body, urinary discharges, seminal weakness, piles, uterine and vaginal discharges; promote growth of foetus; cause vomiting and intestinal worms. *Flowers* fried in ghee check excessive menstruation (Ayurveda).

LOC. USES:—In Bombay the roots are dried and sold in the shops as a substitute for Althæa (Gulkhaira). In the Konkan, fresh root-juice of the wild flower variety is given for gonorrhœa, and the powdered root for menorrhagia. Root is valuable in coughs. *Leaves* are considered emollient and aperient. Flowers are emollient and demulcent; *bark* and petals are demulcent; administered in the form of infusion in *ardor-urinæ*, strangury and irritable conditions of the genito-urinary tracts. It is also a refrigerant drink in fevers; an oil made by mixing petal-juice and olive oil and boiling till water evaporates is useful as a stimulating application for the hair.

See—Ornamental Plants.

HIBISCUS SABDARIFA Linn.

FAM.—Malvaceæ.

COM. NS.:—*E.* Red sorrel, Rozelle; *G.* Lal ambadi; *H.* Lal ambari; *Patwa*; *K.* Kempu-pundrike, Pundi-bija or soppu; *M.* Lal ambadi.

CHAR.:—An annual, erect, glabrous; stem and branches purple; *L.*—5.7-5 cm. long, base cuneate, 3-5 lobed, (lower leaves sometimes entire), lobes oblong; mid-lobe the longest, serrate, often blotched with purple with darker centre; *Fl.*—axillary, involucrel bracts 10, purple, calyx fleshy, purple; *C.*—purple with darker centre; *Fr.*—capsule, ovoid, beaked, hairy; *Sd.*—large, black-brown, covered with minute hairs; *Fl. t.*—Oct.-Dec.

HABITAT:—Cultivated.

LOC.:—Cultivated in gardens throughout the State especially in Gujarat.

DISTR.:—Generally cultivated in hotter parts of India, Ceylon, tropics of the old world.

PARTS USED:—Leaves, flowers, fruits and seeds.

PROPERTIES AND LOC. USES:—*Leaves* are regarded as emollient. The succulent calyx is used for the preparation of “Rozelle Jelly” and when dried is an article of diet like tamarind, much used in curries. In bilious conditions a drink is made by boiling it with water, and adding a little salt, pepper, asafoetida and molasses. The fruit possesses antiscorbutic properties, *Seed decoction* is useful in cases of dysuria, strangury and mild forms of dyspepsia and debility.

In Guinea leaves are much used as diuretic, sedative and refrigerant.

See—Vegetables, Fibres.

HIPTAGE BENGHALENSIS Kurz.

(HIPTAGE MADABLOTA Gærtn.)

FAM.—Malpighiaceæ.

COM. NS.:—*G.* Madhavi, Ragotpiti; *H.* Atimukta, Kampti, Madhalata, Madmalati; *K.* Adimurtte, Adirganti, Madhavi, Vasantduti; *M.* Haladvel, Madhavi, Madhumalati; *Sk.* Atimukta, Chandravalli, Kamuka, Madhavi, Malati, Vasantduti, Vasanti.

CHAR.:—A large woody much branched climbing shrub; young parts silky; *L.*—coriaceous, 10-18 × 4.3-7.5 cm., elliptic-oblong, acuminate, entire glabrous, petioles silky; *Fl.*—in erect racemes, 1.2-2 cm. across, fragrant, white; *C.*—petals 5, orbicular, clawed, fringed on the margins, uppermost petal broader, 5th petal yellow at the base; *Fr.*—1-3, 3-winged, 2-lateral wings 2-cm. long; *Sd.*—solitary, globose; *Fl. t.*—Jany.-Mar.

HABITAT:—Near water-courses and in moist places.

LOC.:—Throughout the State, Grows abundantly on the W. Ghats, Konkan, Deccan, Kanara.

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DISTR. :—Throughout hotter parts of India, Madras State, N. Circars, Karnatak, Siwalik, Mt. Abu, Kumaon, Assam, Ceylon, Nepal, Burma, Andamans, Malay Peninsula, Thailand (Siam), China, Malay Archipelago to Formosa and the Philippines.

PARTS USED :—Bark and leaves.

PROPERTIES AND USES :—*Leaves* and *Bark*—hot, acrid, bitter, insecticidal, vulnerary; remove “Tridosh”, biliousness, cough, burning sensation, thirst and inflammation; cure skin diseases and leprosy (Ayurveda).

LOC. USES :—*Leaf-juice* is an effectual insecticide and a valuable application in scabies, if rubbed well and frequently over the affected parts. *Leaves* are esteemed useful in cutaneous diseases; useful in chronic rheumatism and asthma. *Bark* is a good sub-aromatic bitter (Graham).

The plant contains glucoside *hiptagin*.

See—Ornamental Plants.

HOLARRHENA ANTIDYSENTERICA Wall.

FAM.—Apocynaceæ.

COM. NS. :—*E. Conessi* bark tree, Kurchi tree; *G. Hath*, Kaduindrajav, Kuda; *H. Dudhi*, Karohi, Karuindrayan, Kura; *K. Hale*, Kudasige, Kudsalu, Veppale; *M. Kuda*, Pandhara Kuda; *Sk. Indrayana*, Kaling, Kutaja.

CHAR. :—A large shrub or a small deciduous tree, branchlets drooping; *L.*—10-20 × 5-11.5 cm., broadly ovate or elliptic; main nerves conspicuous; *Fl.*—in terminal corymbose cymes; inodorous; *C.*—tubular, white; throat hairy inside; *Fr.*—follicles 20-48 cm. long, cylindric, often dotted with white spots; *Sd.*—with deciduous coma of brown hairs; *Fl. t.*—Feb.-June.

HABITAT :—Deciduous monsoon forests.

LOC. :—Throughout the State; common in deciduous monsoon forests from Bombay southwards.

DISTR. :—Tropical Himalayas from the Chenab westwards; throughout India to Travancore and Malacca.

PARTS USED :—Bark, leaves, flowers and seeds.

PROPERTIES AND USES :—*Bark*—pungent, heating, acrid, anthelmintic; cures dysentery, diarrhoea, fevers, piles, leprosy, “Kapha”, thirst, skin and spleen diseases, biliousness. *Flowers*—acrid, cooling, appetiser; cure blood diseases, leucoderma; cause “Vata”. *Seeds*—appetiser, astringent to bowels; cure pains, leprosy, burning sensation, skin diseases; good in erysipelas, bleeding piles, fatigue, hallucinations (Ayurveda). *Bark*—bitter; vulnerary, styptic; good in headache; strengthens gums; lessens inflammations, excessive menstrual flow; smoke good for piles. *Leaves*—astringent, galactagogue, tonic; remove muscular pains; cool the brain; good in chronic bronchitis, lumbago, urinary discharges, boils, ulcers, wounds; used to fumigate the child and mother after delivery. *Seeds*—carminative, tonic, aphrodisiac; given in chest affections, asthma, colic, diuresis (Yunani).

LOC. USES :—In the Konkani root-bark infusion, combined with that of *Tinospora cordifolia* is given for fevers of long standing. *Bark* constitutes the principal medicine for dysentery in Hindoo

Pharmacopœia. Its juice made into pills is used for diarrhoea and dysentery. Bark dried and ground is rubbed over the body in dropsy. *Seeds* combined with honey and saffron are made into pessaries which are supposed to favour conception. They are also used after delivery. They are astringent, febrifuge, useful in fevers, diarrhoea, dysentery and intestinal worms.

The plant is neither anthelmintic nor stimulant, nor astringent, nor styptic. It is a bitter which increases appetite and digestive power. Its antidysenteric value compares favourably with that of any medicine in vogue. The antidiarrhoeal properties are not dependant on any chemical constituent in particular but on the entire bark or seed (Caius and Mhaskar 1927). The simple administration of Kurchi tree bark gave surprisingly good results. (R. Knowles, Ind. Med. Gaz. Aug. 1928).

The bark contains alkaloids *connesine*, *kurchine*, and *kurchicine*.

HORDEUM VULGARE Linn.

FAM.—Gramineæ.

COM. NS. :—*E. Barley*; *G. Jav. Ymvah*; *H. Jav.*, Jawa, Suj; *K. Javegodhi*; *M. Java*, Satu; *Sk. Divya*, Hayapriya, Shaktu, Yava.

HABITAT :—Cultivated.

LOC. :—Cultivated in Gujarat and Deccan as a *rabi* crop.

DISTR. :—Cultivated chiefly in N. India, widely cultivated in temperate regions.

PARTS USED :—Seeds.

PROPERTIES AND USES :—Cooling, sweetish, acrid; aphrodisiac, appetiser, fattening; causes constipation; useful in bronchitis, biliousness, asthma; improves voice; good for ulcers, burns, anæmia, urinary discharges (Ayurveda). Tasteless; lowers the pulse; allays thirst; useful in biliousness, bronchitis, headache, pains in chest, inflamed gums, fevers (Yunani).

LOC. USES :—Barley is demulcent and easy of digestion and therefore used in the dietary of the sick. *Cruel* of parched grains is much used in cases of painful atonic dyspepsia. Partially germinated grain is a source of *malt extract* which is more nutritious as it contains dextrine, malt sugar and diastase. It is a valuable vehicle for other medicines, especially cod-liver oil. The decoction of barley (Barley water) is a valuable treatment in affections of mucous membrane and is excellent diluent drink in fevers.

Germinated barley, with radicle attached to it, is used in China and Malaya as peptic, stomachic, demulcent and expectorant.

In Patna *leaf-ashes* are used for formation of cooling sherbats. In Punjab stalk ashes are prescribed in indigestion.

The grains contain vitamin B.

See—Food Plants.

HYDNOCARPUS LAURIFOLIA Denn.

(HYDNOCARPUS WIGHTIANA Blume.)

FAM.—Bixaceæ.

COM. NS. :—K. Bhutabi, Garudphala, Niradivittulu; M. Kadukavata, Kastel, Kowti; Sk. Garudphala.

CHAR. :—Large evergreen tree 12-15 m. high, young parts brown pubescent; L.—ovate or oblong lanceolate, acuminate, more or less coriaceous; 12.5-23 × 3.8-7.5 cm.; Fl.—solitary or in racemes, white, dioecious; C.—petals fringed with soft white hairs; Fr.—berry, globose or ovoid, size of small apple, tomentose; Sd.—numerous, broadly ovate, flat; Fl. t.—Jany.-Apl.

HABITAT :—Tropical rain forest.

LOC. :—Endemic from Konkan southwards. Common in N. Kanara evergreen forests.

DISTR. :—Endemic in tropical forests along the W. Ghats, Malabar, common in Travancore.

PARTS USED :—Seeds.

PROPERTIES AND LOC. USES :—The seeds have long been used in certain obstinate skin diseases, ophthalmia and for dressing wounds and ulcers. The oil from seeds is used in scabby eruptions mixed with equal quantities of *Jatropha curcas* oil, sulphur, camphor and lime-juice. For scald-head, equal parts of oil and lime-water are used as a liniment. In the Konkan the oil has a reputation as a remedy for *Barasati* in horses. Fruits are used for poisoning fish.

The fatty oil from the seeds very closely resembles Choulmogra oil both in physical characters and chemical composition.

In Travancore half tea-spoonful doses are given internally in leprous affections and the oil beaten up with kernels and shells of castor oil seed used as a remedy for itch.

See—Oils, Poisonous Plants and Fish Poisons.

HYMENODICTYON EXCELSUM Wall.

FAM.—Rubiaceæ.

COM. NS. :—G. Amarachala, Bharnarasalya, Dondra; H. Bandaru, Bhanina, Bhoswar, Phaldu; K. Betaga, Doti, Gandle; M. Bhorsal, Dondru; Sk. Bhrijatuaka, Bhiringamallika, Kshiradru, Ugragandha.

HABITAT :—Deciduous monsoon forests; sometimes along river banks.

LOC. :—Throughout the Deccan and Konkan Ghats; Panch Mahals in Gujarat; S. M. Country and Kanara.

DISTR. :—W. Peninsula, dry hills at the base of the Himalayas, Bihar, Madhya Pradesh, Southern and Western India.

PARTS USED :—Bark and wood.

PROPERTIES AND USES :—Bark is hot, pungent, bitter, increases taste and appetite; good for the throat; cures all tumours (*Ayurveda*).

LOC. USES :—The inner bark is bitter and astringent and is used as a febrifuge. The outer layer is tasteless. In Indo-China, the powdered wood is used for herpes.

The plant contains an alkaloid *hymenodictine*.

See—Timbers, Fodder Plants.

ICHNOCARPUS FRUTESCENS R. Br.

FAM.—Apocynaceæ.

COM. NS. :—H. Kalidudhi, Siamalata; K. Gorwiballi, Karihambu; M. Kantebhovari, Krishnasariva; Sk. Bhadra, Chandangopa, Gopini, Kalagantika, Sariva.

CHAR. :—A large twining shrub; young branches finely fulvous tomentose; L.—4.5-7 × 2.3-8 cm., elliptic oblong, glabrous above, slightly pubescent and pale beneath, base rounded; Fl.—in axillary and terminal, rusty pubescent, trichotomous cymes, greenish white, numerous; C.—tube with narrow portion below, middle portion much inflated, upper constricted, lobes with white hairs on the upper side; Fr.—follicle, 10-15 cm. × 4 cm. straight or slightly curved, very slender, cylindric; Sd.—linear, black with white scanty coma; Fl. t.—Nov.-Dec.

HABITAT :—Evergreen forests.

LOC. :—Konkan; S. M. Country; Kanara. Common in the evergreen forests of N. Kanara.

DISTR. :—More or less throughout India, Ceylon, Java, Australia.

PARTS USED :—Root, stalks and leaves.

PROPERTIES AND USES :—Root—sweetish, cooling, aphrodisiac; cures "Kapha", thirst, vomiting, fever, biliousness, "Vata", blood diseases; in other respects it behaves like the root of *Hemidesmus indicus* (*Ayurveda*).

LOC. USES :—The root is considered to possess alterative tonic properties and has been employed as a substitute for *sarasaparilla*. It is used in the treatment of skin eruptions. The stalks and leaves are used in the form of decoction in fevers.

IPOMCEA AQUATICA Forsk.

FAM.—Convolvulaceæ.

COM. NS. :—G. Nalanibhaji; H. Kalmisag, Karmi, Potuasaga; M. Nalichibhaji; Sk. Kalaka, Kalambika, Nadika, Pechuli, Shradhashaka.

CHAR. :—Annual or biennial herb; stems long, prostrate, trailing on mud or floating, thick, hollow, rooting at the nodes; L.—5-12.5 × 3-7.5 cm. elliptic-oblong or subdeltoid, acute, cordate, or hastate; Fl.—1-5 flowered peduncles; C.—limb very pale-purple (nearly white), throat and tube dull purple; lobes obscure; Fr.—capsule, ovoid; Sd.—4 or 2, pubescent; Fl. t.—Nov. Apl.

HABITAT :—Margins of tanks and other moist places.

LOC. :—Throughout the State; very common in Gujarat.

DISTR.:—Throughout India, Ceylon, tropical Asia, Africa and Australia.

PARTS USED:—The whole plant.

PROPERTIES AND USES:—Aphrodisiac, galactagogue, anthelmintic; useful in leucoderma, leprosy, biliousness and fevers; increases "Kapha" and "Vata" (Ayurveda). Carminative; lessens inflammation; useful in fever, jaundice, biliousness, bronchitis, liver complaints. (Yunani).

LOC. USES:—*Dried juice* has purgative properties. In Assam plant is considered very wholesome for females who suffer from nervous and general debility. In Burma, the juice is said to be employed as an emetic in cases of arsenic or opium poisoning. In Cambodia, the buds are used in the treatment of shingles; the stems and leaves are prescribed in febrile delirium.

IPOMCEA DIGITATA Linn.

FAM.—Convolvulaceæ.

COM. NS.:—*E.* Giant potato; *H.* Bikaikand; *K.* Bhunichahragadde, Nila-kumbala; *M.* Bhuikohala; *Sk.* Bhumikushmanda, Swadu Vidarikand.

CHAR.:—Perennial, root large, ovoid; stem long, thick, twining; *L.*—10-15 cm. long, often broader than long, deeply palmately divided, lobes 5-7, ovate-lanceolate, entire, pale, glabrous; *Fl.*—in many flowered corymbosely paniculate cymes; peduncle solitary axillary; purple, 3-8-6-3 cm. long; *Fr.*—capsule, 4-celled, 4-valved, enclosed in fleshy sepals; *Sd.*—clothed with brown cottony hairs; *Fl. t.*—July-Sept.

HABITAT:—Moist monsoon forests, near sea coast.

LOC.:—Throughout the Konkan and N. Kanara sea coast.

DISTR.:—Throughout tropical India in moist regions; tropical Asia, Africa, America, Australia in moist climate.

PARTS USED:—Root, leaves, flowers (rarely).

PROPERTIES AND USES:—*Root*—cooling, indigestible, tonic, aphrodisiac, galactagogue, diuretic, stimulant, alterative; useful in leprosy, burning sensation, vomiting, blood diseases; improves voice and complexion. *Flower* causes "Vata", "Kapha"; cures biliousness. (Ayurveda).

Root—heating, dry; carminative, expectorant, anthelmintic, stomachic, appetiser; useful in syphilis, gonorrhœa and inflammation. *Leaves* enrich blood. (Yunani).

LOC. USES:—The large tuberous roots are very much used in Indian medicine, being regarded as tonic, alterative, aphrodisiac, demulcent and lactagogue. The powdered root-stock is given with wine to increase secretion of milk; to children in case of emaciation, debility and want of digestive power. It is used as purgative in spleen diseases, also useful in liver complaints.

Plant yields resin similar to jap resin.

See—Gums and Resins.

IPOMCEA NIL Roth.

(IPOMCEA HEDERACEA Jacq.)

FAM.—Convolvulaceæ.

COM. NS.:—*E.* Indian jalap, Morning glory; *G.* Kaladana, Kalokumpo; *H.* Kaladanah, Mirchai; *K.* Ganribij; *M.* Nilvel, Nilpushpa; *Sk.* Krishna—Shyama-bija, Shyamala-bijak.

CHAR.:—An annual herb; stems twining, sparsely hairy; *L.*—5-12-5 cm. diam., ovate-cordate, deeply three-lobed; lobes ovate; *Fl.*—in 1-5 flowered axillary cymes; bracts linear; *C.*—3-8-5 cm. long tubular funnel-shaped, blue tinged with pink; *Fr.*—capsule, subglobose or ovoid, 3-celled; *Sd.*—4-6.

HABITAT:—Cultivated and apparently wild.

LOC.:—Grown in gardens all over the State.

DISTR.:—Throughout India; cultivated and wild up to 1800 m. in the Himalayas; believed to be of American origin.

PARTS USED:—Seeds.

PROPERTIES AND USES:—Laxative, carminative; cures inflammations, abdominal diseases, fevers, headache, diseases of head, bronchitis (Ayurveda). Purgative, bechic, anthelmintic; useful in liver and spleen diseases, pains in joints, leucoderma, scabies and biliousness; dries the phlegm; removes bad humours from body (Yunani).

LOC. USES:—Roxburgh was the first to make these seeds known to European physicians, and it may be said that they now hold an important position as a useful and cheap substitute for *Jalap* (Kirtikar and Basu). *Seeds* usually known in the bazar as "Kaladana" is a very useful and cheap purgative.

Seeds are undoubtedly one of the few good and cheap cathartics India possesses, and also one of those purgatives which are very efficient and satisfactory when used alone (Moideen Sheriff).

The plant contains a glucoside.

See—Ornamental Plants.

IPOMCEA RENIFORMIS Chois.

FAM.—Convolvulaceæ.

COM. NS.:—*G.* Undirkani; *H.* Mushekani; *K. M.* Undirkani; *Sk.* Bhumichari Mushakaparni, Vrishchikparni.

CHAR.:—A herb; stems many, filiform, creeping and rooting at the nodes, clothed with long hairs; *L.*—1-3-2-5 cm. broad, reniform or ovate-cordate, crenate, glabrous; petioles hairy; *Fl.*—yellow, axillary, solitary or 2-3 together on a very short peduncle; *Fr.*—capsule, subglobose, surrounded by ciliate sepals; *Sd.*—dark chestnut coloured; *Fl. t.*—Sept.-Oct.

HABITAT:—Water-logged places.

LOC.:—Konkan, Deccan, S. M. Country.

DISTR.:—Western Peninsula, Ceylon, S. E. Africa, tropical Africa.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—Bitter, acrid, pungent; cooling, anthelmintic, laxative, carminative; useful in diseases of kidney, bladder, uterus, lungs, heart and abdomen; good in pain, fevers, strangury, urethral discharges, anæmia, fistula, leucoderma; reduces tumours (Ayurveda). *Rose-flowered* variety is useful in brain and nose diseases, good for weakness, paralysis, wounds, inflammations, headache. *Yellow-flowered* variety is diuretic, laxative; applied in diseases of eye and gums; antipyretic, useful in spleen enlargement; other properties like the rose-flowered (Yunani).

LOC. USES :—*Plant* is described as deobstruent and diuretic (Sakharam Arjun). It is also alterative; used in rheumatism and neuralgia. The Hindoos administer the juice in rat-bite and drop it into the ear to cure sores in that organ. The properties appear to be more fanciful than real, like others of the genus; it is a purgative if taken in large doses (Dymock).

IPOMCEA TURPETHUM R. Br.

FAM.—Convolvulaceæ.

COM. NS. :—*E.* False-Indian jalap, Indian rhubarb, Turbith root; *G.* Nahatara, Nashotar; *H.* Nishoth, Pithori; *K.* Bili-Alutigadde Nagdanti; *M.* Nishottara; *Sk.* Kalaparni, Nandi, Rechani, Triputi, Trivrit.

CHAR. :—Large perennial herb with milky juice; root long, fleshy, much branched, stems very long, twining and twisted together, angled and winged; *L.*—5-10 × 1-3-7 cm., ovate or oblong, mucronate, rarely slightly lobed, base cordate or truncate; *Fl.*—in few flowered cymes; bracts large, often pinkish, pedicels thickened upwards; *C.*—white, 3-8-5 cm. long; *Fr.*—capsule, globose, enclosed in enlarged sepals; *Fl. t.*—Oct.-Jany.

HABITAT :—Wild; sometimes cultivated.

LOC. :—Common in the dry Deccan districts, also in the Konkan and N. Kanara. Common in southern Gujarat.

DISTR. :—Throughout India; Ceylon, Malay Islands, tropical Africa and America; Mauritius, Philippines.

PARTS USED :—Root.

PROPERTIES AND USES :—*Black* variety is a drastic purgative; useful in loss of consciousness, burning sensation and intoxication; *white* variety is a mild cathartic; useful in bilious fevers, inflammations and abdominal diseases; *red* variety useful in "Kapha" (Ayurveda). *Root*—bitter, purgative, bechic, expectorant; useful in bilious tremors of body, brain diseases, paralysis, muscular pains, bronchitis, pains of chest and joints; removes bad humours. *Black* variety should not be used (Yunani).

LOC. USES :—There are two varieties of root—black or *krishna* and white or *sveta*. *Black* one is an irritant and drastic purgative and should be avoided. The white one is used by Indian physicians as a mild cathartic. Root with bark should be used. Turpeth root (white) is quite equal to jalap and is a very efficient and satisfactory purgative, when used alone; the root bark contains resinous substance *turpethin* and to this is credited the purgative property.

Most of the *turpeth* available in the market consists of aerial stems or a mixture of stems and roots. If attempt is made to obtain pure roots only it would stand on a level with the imported *Ipomœa* drugs.

The plant contains glucoside *turpethin*.

IXORA COCCINEA Linn.

FAM.—Rubiaceæ.

COM. NS. :—*E.* Flame of the woods; *K.* Guddedasal, Kepala, Kisukare; *M.* Bakali, Pankul, Pendgul; *Sk.* Bandhuka, Parali, Raktaka.

CHAR. :—A glabrous shrub 0-6-0-9 m. high; *L.*—opposite, 5-10 × 3-2-6-3 cm., coriaceous, pale when dry, sessile, oblong, obtuse; stipules 3-2-6-3 coriaceous, pale when dry, sessile, oblong, obtuse; stipules with a long rigid point; *Fl.*—numerous, bright scarlet in dense sessile corymbiform cymes; *C.*—tubular, tube long, very slender; lobes 4 (rarely); *Fr.*—globose, size of a pea, smooth, fleshy, purple when ripe; *Fl. t.*—throughout the year.

HABITAT :—Monsoon forests near sea coast, also along river banks.

LOC. :—Bombay southwards; very common in Konkan and N. Kanara on the ghats and along river banks. Also cultivated as an ornamental plant.

DISTR. :—Western Peninsula; cultivated throughout India as an ornamental shrub. Ceylon.

PARTS USED :—Root and flowers.

PROPERTIES AND USES :—*Root* with long pepper and a little water is said to be a valuable remedy in acute dysentery. *Flowers* fried in ghee and rubbed down with cumin and Nagkeshar and made into a bolus with butter and sugar-candy are administered in cases of dysentery. Flowers are also given in dysmenorrhœa.

See—Ornamental Plants.

JASMINUM GRANDIFLORUM Linn.

FAM.—Oleaceæ.

COM. NS. :—*E.* Catalonian—Spanish jasmin; *G.* Chambeli; *H.* Chambali; *K.* Ajjige, Anemallige, Jajimalle; *M.* Jai; *Sk.* Chambeli, Jati, Priyanvada, Surabhigandha.

CHAR. :—A large subscandent shrub; *L.*—opposite, imparipinnate, 5-12-5 cm., petiole and rachis margined; leaflets 7-11, terminal rather larger; distal pair confluent with the terminal, proximal petiolulate, intermediate sessile; *Fl.*—3-8 cm. across, white, often tinged with pink outside, in lax axillary and terminal cymes; *Fr.*—ripe carpels 2; *Fl. t.*—July-Sept.

HABITAT :—Cultivated; wild.

LOC. :—Often cultivated in gardens throughout the State.

DISTR. :—Cultivated throughout India; wild in the sub-tropical Himalayas Salt Range, Trans-Indus regions eastwards to Kumaon, hills of Rajastan and Madhya-Bharat.

PARTS USED :—Root, flowers and oil.

PROPERTIES AND USES :—*Flowers*—acrid, heating; emetic, alexiteric, vulnerary; useful in stomatitis, diseases of mouth, head, teeth, eyes and ear; suppurative; given in blood diseases, leprosy, ulcers, biliousness (Ayurveda). *Plant*—deobstruent, anthelmintic, diuretic, emmenagogue. *Root*—purgative, expectorant, soporific, intoxicating; cures headache, biliousness, paralysis, pneumatism. *Flowers*—tonic, alexiteric, aphrodisiac; good in asthma, caries of teeth, stomatitis. *Oil*—lessens inflammations, softens skin, brain tonic; good for pains in joints and ear, and for scabies (Yunani).

LOC. USES :—*Leaves* are administered internally in skin diseases, aphthæ, otorrhœa; fresh *juice* is a valuable application for soft corns between toes. In ulceration and eruptions of the mucous membrane of the mouth leaves are chewed. Leaves are also used in tooth-ache. From flowers perfumed oil is prepared; it is cooling and applied externally in skin-diseases, headache and weak eyes.

The plant contains an alkaloid.

See—Ornamental Plants.

JASMINUM SAMBAC Ait.

FAM.—Oleaceæ.

COM. NS. :—*E.* Arabian Lily, Sambac, Tuscan jasmine; *G.* Mogro; *H.* Banmallika, Chamba, Mogra, Motia; *K.* Mallige, Irvantige; *M.* Mogara; *Sk.* Ananga-mallika, Navamallika, Pramodini, Vanchandrika.

CHAR. :—A sub-erect shrub, scarcely climbing; *L.*—opposite, membranous, variable in shape, usually broadly ovate or elliptic, entire, base rounded or subcordate; *Fl.*—white, very fragrant, solitary or usually in 3-many flowered terminal cymes; *Fr.*—ripe-carpels 1-2, subglobose, black, surrounded by calyx-teeth; *Fl. t.*—more or less throughout the year; abundant in April-May.

HABITAT :—Cultivated.

LOC. :—Cultivated in gardens all over the State.

DISTR. :—Cultivated throughout India; in the tropics of both the hemispheres.

PARTS USED :—Leaves and flowers.

PROPERTIES AND USES :—Cooling; alexiteric, cures "Tridosh" biliousness, useful in diseases of eye, ear, mouth and skin. The medicinal properties are the same as those of *Jasminum grandiflorum* (Ayurveda).

Flower has bitter taste; tonic to brain; allays fevers; stops vomiting and hiccup (Yunani).

LOC. USES :—The *plant* is considered cool and sweet; it is used in cases of insanity, weakness of sight and affections of mouth. The *leaves* and *flowers* are considered valuable as a lactifuge. The application of bruised material to the breasts arrests secretion of milk in the puerperal state in cases of threatened abscess.

Dried *leaves* soaked in water and made into poultice are used in indolent ulcers.

In Goa, the *root* of the wild variety is used as an emmenagogue; the *flowers* yield a fragrant essential oil.

See—Ornamental Plants.

JATROPHA CURCAS Linn.

FAM.—Euphorbiaceæ.

COM. NS. :—*E.* Barbados Physic nut; *G.* Jangali erandi, Ratanjot; *H.* Jangali-Pahari erand; *K.* Adalu-Dodda Kade-Mar-haralu, Dundigu; *M.* Mogali-Ran-erand; *Sk.* Akhuparnika, Kananerand, Sutashreni.

CHAR. :—A large deciduous soft-wooded shrub or small tree; juice sticky opalescent; *L.*—alternate, 10-15 × 7.5-12.5 cm., broadly ovate, cordate, palmately 3 or 5 lobed; *Fl.*—monœcious, 7.5 mm. across, yellowish green in loose axillary cymose panicles; male flowers, corolla lobes 5, villous within, longer than calyx; female corolla scarcely exceeding the calyx; *Fr.*—ovoid, black, breaking up into 3-valved cocci; *Sd.*—ovoid oblong, dull brownish black, 1.8 cm. long.

HABITAT :—Grown as a fence.

LOC. :—Commonly grown as fence round the gardens and fields in the State.

DISTR. :—Native of tropical America.

PARTS USED :—Wood, leaves, fruits and seeds.

PROPERTIES AND USES :—*Fruit* and *seeds* are anthelmintic; useful in chronic dysentery, thirst, "Tridosha", urinary discharges, abdominal complaints, biliousness, anæmia, fistula, heart-diseases (Ayurveda).

LOC. USES :—*Root-bark* is applied externally for rheumatism in Goa; in the Konkan it is mixed with asafoetida and buttermilk and prescribed in diarrhœa and dysentery (Dymock). *Bark* of root is ground and used as dressing for sores. *Leaves* are rubefacient and a decoction of warmed leaves applied externally to breasts excite secretion of milk. Leaves warmed and rubbed with castor-oil, when applied to boils, have suppurative effect. *Sticks* are used as tooth-brushes and are said to strengthen and cure gums; *stem-juice* is hæmostatic and styptic and is used to arrest bleeding from wounds etc. and also promotes healing. The viscid juice has been successfully used in skin diseases. The *seeds* act as drastic purgative. The acrid, emetic and drastic principle appears to reside chiefly in the embryo. If the embryo be wholly removed seeds may be used as a gentle and safe purgative; externally applied oil is held in high esteem for itch, herpes, chronic rheumatism and as a cleansing application for wounds and ulcers.

Seeds contain active principle *curcin*.

See—Poisonous Plants and Fish Poisons.

JATROPHA MULTIFIDA Linn.

FAM.—Euphorbiaceæ.

COM. NS. :—*E.* Coral plant, French or Small physic nut; *K.* Simeavadala, Vilayati haralu; *Sk.* Bhadranti; Jyotishka, Virechani.

CHAR. :—A handsome, garden shrub; *L.*—orbicular, long-petioled, 7.5-12.5 cm. diam, palmately cut into narrow caudate segments, stipules capillary, multifid; *Fl.*—in flat-topped cymes, coral-red, disk of female flower urceolate; *Fr.*—capsule, large, subfleshy, yellow, 3-lobed.

HABITAT :—Cultivated.

LOC. :—Cultivated in gardens all over the State as an ornamental plant.

DISTR. :—Cultivated in gardens all over India; native of N. America.

PARTS USED :—Fruit and seed.

PROPERTIES AND USES :—*Fruit*—pungent, heating; purgative, useful in piles, wounds, enlarged spleen, pains, skin-diseases. *Seed*—oleaginous, aphrodisiac, fattening tonic; causes “Kapha”, “Vata” and “Pitta”, vomiting and burning sensation (Ayurveda).

LOC. USES :—*Seeds* are regarded as powerful purgative; they are also emetic.

In Cambodia, leaves, latex and oil from seeds are used medicinally. Leaves are used in scabies; latex is applied over wounds and ulcers; oil is used both internally and externally as an abortifacient.

See—Poisonous Plants and Fish Poisons.

JUSTICIA GENDARUSSA Burm.

FAM.—Acanthaceæ.

•COM. NS. :—*H.* Nilnirgandi; *K.* Karinchki, Nachukaddi; *M.* Bakas, Kala adulsa; *Sk.* Bhutakeshi, Krishna-nirgundi, Nilmanjari, Shindhuka.

CHAR. :—A strong scented under-shrub 0.6-1.2 m. high; branches subterete with raised lines; *L.*—lanceolate or linear-lanceolate, 7.5-12.5 cm. long; *Fl.*—white spotted, purple within, in interrupted spikes, 5-12.5 cm. long from the upper-most leaf-axil and often forming a terminal panicle; *Fr.*—capsule; clavate, glabrous.

HABITAT :—Shady positions.

LOC. :—Planted in gardens as edgings in shady places, all over the State.

DISTR. :—A native of China, often met with in Bengal; wild in Tenasserim.

PARTS USED :—The plant (leaves particularly).

PROPERTIES AND USES :—Pungent, bitter, hot, dry; useful in bronchitis, inflammations, vaginal discharges, dyspepsia, tympanitis, fevers, eye diseases (Ayurveda).

LOC. USES :—The *leaves* and tender shoots are diaphoretic and are given in chronic rheumatism in the form of decoction. An *oil* prepared from leaves is said to be useful in eczema and leaf-infusion is given internally in cephalalgia, hemiplegia and facial paralysis. The *juice* of fresh leaves is dropped into the ear for earache and in nostrils for hemicrania.

In Malaya *plant* is used as a febrifuge and in Java as an emetic.

In Madagascar *root decoction* boiled in milk is given in jaundice, rheumatism and dysentery.

JUSTICA PROCUMBENS Linn.

FAM.—Acanthaceæ.

COM. NS. :—*Bomb.*—Ghati pitpapda; *M.* Karambal, Kalmashi.

CHAR. :—A diffuse herb with divaricate branches; *L.*—variable, elliptic, ovate or lanceolate, obtuse at both ends, softly pubescent; *Fl.*—in cylindric terminal spikes; bracts linear lanceolate with ciliate margins; *C.*—2-lipped, pale violet pink, tube funnel-shaped; upper lip notched, lower 3-lobed; *Fr.*—capsule, oblong shortly pointed, constricted between the seeds; *Sd.*—finely tuberculate; *Fl. t.*—Oct.-Mar.

HABITAT :—In hilly parts.

LOC. :—Konkan, Western Ghats; Deccan, Panchgani.

DISTR. :—Western Peninsula, Madras State, Travancore, Ceylon, Malaya, Australia.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—*Plant*—cooling, expectorant, constipating; increases “Vata”; removes indigestion, biliousness, fever, burning of body, tired feeling, wandering of mind, intoxication, urinary discharges, vomiting, thirst; enriches blood; good in leprosy (Ayurveda).

Plant diuretic, stomachic; purifies blood in skin diseases; strengthens lungs, teeth; gives lustre to eyes; stops vomiting; good in spleen diseases. (Yunani).

It has the same therapeutic properties as *Fumaria parviflora* and can be substituted for it.

LOC. USES :—*Leaf-juice* is squeezed into the eyes in cases of ophthalmia (Ainslie). The dried plant is regarded as efficacious in low fever and is also used as anthelmintic, diuretic, diaphoretic, aperient and to purify blood in skin diseases. Along with black pepper it is used in the treatment of ague.

KÆMPFERIA GALANGA Linn.

FAM.—Scitamineæ.

COM. NS. :—*H.* Chandramala; *K.* Kachchura; *M.* Kachri, Kapurkachri; *Sk.* Chandramulika, Sugandhavachai.

CHAR. :—Stemless herb; root-stock tuberous, aromatic; *L.*—2, spreading horizontally, lying flat on the ground, 6.3-12.5 × 4.5-9 cm., round, oval, thin, deep green, petioles channelled; *Fl.*—6-12 from the centre of the plant, fugacious, fragrant; *P.*—lobes lanceolate, pure white, lip deeply 2-lobed with a lilac spot at the base, connective produced into a quadrate 2-lobed appendage; *Fl. t.*—June-July.

HABITAT :—Cultivated.

LOC. :—N. Konkan, South Konkan, Malabar in the Deccan.

DISTR. :—More or less throughout India. Cultivated in gardens. Malay Islands.

PARTS USED :—Tubers.

PROPERTIES AND LOC. USES :—The *tubers* reduced to powder and mixed with honey are given with much benefit in coughs and pectoral affections.

Roasted in oil the tuber is externally applied to stoppages of nasal organs (Rheede).

Tubers yield an essential oil.

KÆMPFERIA ROTUNDA Linn.

FAM.—Scitamineæ.

COM. NS. :—*G.* Bhuichampo ; *H.* Bhuichampa ; *K.* Nelasampige ; *M.* Bhuichapha ; *Sk.* Bhuchampaka.

CHAR. :—Stemless plant, with a tuberous root-stock and many thick succulent roots bearing oblong tubers ; *L.*—30 × 7·5-10 cm., oblong, mottled green above and pale red-purple beneath ; *Fl.*—sweetly fragrant, of various shades of purple and white, borne from the ground only in a crowded radical spike, only 1 or 2 opening at a time ; *Fl. t.*—Apl.

HABITAT :—Cultivated.

LOC. :—Cultivated in the State but not indigenous.

DISTR. :—Throughout India from the Himalayas to Ceylon and the Malay Peninsula, Malay Islands.

PARTS USED :—Root and the whole plant.

PROPERTIES AND LOC. USES :—According to Sanskrit writers the root, used in the form of poultice, promotes suppuration. It is useful in anasarca swellings. The belief that the tubers are useful in reducing swellings is universal in India. In Bombay powder of the tubers is used as a popular local application in mumps. The whole plant, when reduced to powder and used in the form of an ointment, has wonderful efficacy in healing fresh wounds.

Tubers yield an essential oil.

LAGENANDRA TOXICARIA Dalz.

FAM.—Aroideæ.

COM. NS. :—*M.* Vatsanabhi.

CHAR. :—An aquatic herb ; rootstock reaching 5 cm. thick, creeping, simple, coriaceous, annulate ; *L.*—15-37·5 × 5-12·5 cm. ; elliptic-oblong, margins undulate, entire, midrib very stout, petiole as long as blade, semicylindric, spathe 7·5-23 cm. long, tubular below ; *Fl.*—inflorescence, female cylindric ; anthers crowded, yellow, inflorescence of many ovaries, in many cycles, crowded in a globose head ; *Fr.*—globose 3·8-5 cm. diam., carpels partially dehiscent ; *Sd.*—narrowly oblong, furrowed ; *Fl. t.*—Feb.-Mar.

HABITAT :—Marshy places.

LOC. :—Konkan, S. M. Country, N. Kanara.

DISTR. :—Mysore, Coorg, Cochin, Travancore, Ceylon.

PARTS USED :—The whole plant.

PROPERTIES AND LOC. USES :—The plant is said to have insecticidal properties ; very poisonous ; remedy for itch.

See—Poisonous Plants and Fish Poisons.

LAGENARIA VULGARIS Ser.

FAM.—Cucurbitaceæ.

COM. NS. :—*E.* Bottle-gourd, Calabash ; *G.* Dudhi, Dudio Tumbada ; *H.* Alkaddu, Kaaddu, Kadu—Mithi tumbi, Lauka ; *K.* Halagumbala ; *M.* Dudhya bhupala, Kadu bhupala ; *Sk.* Dantabija, Katutumbi, Labuka, Tumbaka.

MEDICINAL PLANTS

HABITAT :—Cultivated ; wild (rarely).

LOC. :—Grown in gardens all over the State throughout the year especially in the Konkan.

DISTR. :—*Wild* in Malabar and moist forests of Dehra Dun ; the Moluccas and Abyssinia ; cultivated throughout India and tropical and warm regions of the world.

PARTS USED :—Root, leaves, flowers, fruits and seeds.

There are two varieties ; sweet, bitter.

PROPERTIES AND USES :—*Sweet variety* cures biliousness ; causes bronchitis, flatulence ; laxative, oleaginous, cardiac and general tonic, aphrodisiac, cooling, fattening ; increases "Vata" ; improves taste ; cures leucorrhœa ; wholesome to foetus. *Bitter variety* is diuretic ; useful in vaginal and uterine complaints, earache ; emetic, alexiteric ; cures asthma, "Vata", bronchitis, inflammations, ulcers, pains (Ayurveda). *Sweet variety*—indigestible liver tonic, vulnerary, anti-periodic, diuretic, antipyretic, anti-bilious ; cures blood diseases, muscular pains, dry cough, piles, fever, scalding of urine, earache ; styptic, brain-tonic ; lessens inflammations. *Seeds*—good for hot constitution. *Bitter variety*—root diminishes inflammations. *Flowers* cooling ; good in ophthalmia and tooth-ache ; cause hæmoptysis. *Fruit* good in bronchitis. *Seeds* emetic (Yunani).

LOC. USES :—*Leaves* are purgative ; decoction mixed with sugar is given in jaundice. *Flesh* of fruit is diuretic, refrigerant and anti-bilious, useful in coughs and antidote to certain poisons ; externally it is used as a poultice and a cooling application to the shaved head in delirium ; it is also applied to the soles in burning of feet. *Seeds* yield a clear oil which is applied to relieve headache.

In the Gold-Coast ground leaves are used as an enema. In Guinea seeds are prescribed in dropsy.

The fruit has trace of vitamin A.

See—Vegetables.

LAGERSTRÆMIA SPECIOSA Pers.

(LAGERSTRÆMIA FLOS-REGINÆ Retz.)

FAM.—Lythraceæ.

COM. NS. :—*H.* Arjuna, Tarul ; *K.* Challa, Holematti, Nirbendeka ; *M.* Bandhara, Taman ; *Sk.* Arjuna.

HABITAT :—Along the banks of *nalas* and rivers and in swampy localities.

LOC. :—North Kanara and S. Konkan Ghats ; sometimes cultivated as an ornamental tree.

DISTR. :—Western Peninsula, Assam, Ceylon, Malaya, China, in many cases only cultivated.

PARTS USED :—Root, bark, leaves, fruits and seeds.

LOC. USES :—*Root* is prescribed as an astringent. It is considered stimulant and febrifuge.

Bark and *leaves* are purgative ; *seeds* are narcotic. In the Andamans, the *fruit* is used as a local application for aphthæ of the mouth.

See—Timbers, Ornamental Plants.

A Bk Vf 1-9

LASIOSIPHON ERIOCEPHALUS Dene.

FAM.—Thymelaeaceæ.

COM. NS.:—*E.* Woolly-headed gnidia; *K.* Kukurgal, Mukute, Rami; *M.* Rametha.CHAR.:—A much branched large shrub, bark mottled; *L.*—opposite or scattered, subsessile, 5.7.5 × 2.2.5 cm., oblong lanceolate, glabrous above, silky beneath; *Fl.*—in erect, dense terminal heads 2.5.3.8 cm. diam., surrounded at the base by an involucre of silky villous bracts; yellow; perianth-tube densely silky villous; lobes 4, oblong flat, with a linear 2-fid scale at each division; *Fr.*—ellipsoid-oblong, pointed, enclosed in the perianth; *Fl. t.*—Dec.-May.

HABITAT:—Monsoon forests.

LOC.:—Konkan southwards; Deccan hills, common at Mahabaleshwar; S. M. Country, Belgaum hills; N. Kanara, common on the Supa Ghats.

DISTR.:—W. Peninsula—Ceylon.

PARTS USED:—Leaves and bark.

PROPERTIES AND LOC. USES:—A powerful vesicant but uncertain in its action. The *bark* is used to poison fish. *Leaves* are acrid and poisonous. In the Deccan the leaves are applied to contusions, swellings etc. (B. D. Basu).

See—Poisonous Plants and Fish Poisons.

LATHYRUS SATIVUS Linn.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS.:—*E.* Chickling—White vetch; *G.* Lang; *H.* Khesari, Kassar, Latri; *M.* Lakh; *Sk.* Sandika, Triputi.

HABITAT:—Cultivated.

LOC.:—Extensively cultivated in Broach district; in fairly large quantities in Nasik and Surat districts.

DISTR.:—Cultivated in many parts of India—probably indigenous in the regions extending from the south of Caucasus to the north of India.

PARTS USED:—Leaves (rarely) and seeds.

PROPERTIES AND USES:—*Seed*—astringent to bowels, cooling, tonic; improves taste; removes “Kapha” and biliousness; causes much flatulence, lameness, heart-troubles, pain, inflammation, burning, piles and wandering of the mind. (Ayurveda).The *oil* from the seeds is a powerful, but dangerous cathartic.

Grains contain vitamin A.

See—Food Plants, Poisonous Plants and Fish Poisons.

LAWSONIA ALBA Lam.

FAM.—Lythraceæ.

COM. NS.:—*E.* Henna plant, Tree mignonette; *G.* Medi, Mehndi; *K.* Gorantha, Madaranga; *M.* Mendi; *Sk.* Medika, Nakharanjaka, Ragangi, Yavaneshta.CHAR.:—A glabrous much branched shrub, lateral branches 4-gonous, often ending in spinous point; *L.*—opposite, elliptic or broadly lanceolate, mucronate; *Fl.*—in terminal, pyramidal and paniced cymes, many, fragrant, white or rose coloured; *Fr.*—capsule, globose, veined outside, supported by persistent calyx; *Sd.*—angular, truncate; *Fl. t.*—Apl.-July.

HABITAT:—Hedges near the sea-coast.

LOC.:—Throughout the State in hedges principally near the sea-coast; planted as hedge. Indigenous in Gujarat (Dalz. & Gib.).

DISTR.:—Coromandel coast and Madhya Bharat; common on the sand-dunes near Tuticorin; in the drier parts of the Indian Peninsula, Ceylon; wild in Arabia, Iran and Baluchistan.

PARTS USED:—Leaves, flowers, seeds.

PROPERTIES AND USES:—*Leaves* are emetic, expectorant; allay burning sensation; cure leucoderma. *Seeds*—astringent to bowels and antipyretic, cure insanity (Ayurveda).*Leaves*—bitter, vulnerary, diuretic; useful in headache, lumbago, bronchitis, boils, ulcers, stomatitis, ophthalmia, syphilitic sores, amenorrhœa, scabies, diseases of spleen; enriches blood; favours hair-growth. *Seeds*—tonic to brain (Yunani).LOC. USES:—The *bark* is given in jaundice, enlargement of the spleen and calculous affections; as an alterative in leprosy and obstinate skin diseases; in decoction it is applied to burns and scalds. *Leaves* are valuable external application in headache, a leaf-decoction is used as an astringent gargle in sore-throat. *Fresh leaves* beaten into a paste with lime-juice are rubbed to the soles of burning feet. They are similarly used with benefit in rheumatism. *Henna* is used as an emollient poultice. *Leaves* yield a dye and are used for dying hands, finger nails and hair; applied to the hair they promote healthy growth. Leaf-juice mixed with water and milk is given in spermatorrhœa. *Flowers* are refrigerant; they are also soporific and are placed in pillows. The *oil* and *essence* keep the body cool.

The plant contains a glucoside.

See—Dyes.

LENS ESCULENTA Moen.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS.:—*E.* Lentil; *G.* Masuridal; *H.* Masur; *K.* Chanangi, Massur; *M.* Masura; *Sk.* Gabholika, Gurubija, Masur, Ragadali, Sura.

HABITAT:—Cultivated.

LOC.:—Grown in Nasik, Belgaum and Poona districts.

DISTR.:—A cold weather crop throughout India; indigenous in S. E. Europe and in temperate W. Asia.

PARTS USED:—Leaves (rarely) and seeds.

PROPERTIES AND USES:—*Seeds*—cooling astringent to bowels, diuretic; improve appetite; remove “Kapha” and biliousness; cause pain and diseases due to “Vata”; cure strangury tumours, dysentery, skin diseases; useful in diseases of heart and of

eyes (Ayurveda). Seeds—indigestible, constipating, tonic, laxative; enrich blood; useful in diseases of chest, bronchitis, stomatitis; good for eye diseases and inflammation of breast (Yunani).

LOC. USES :—Seeds are reputed to be useful in cases of constipation and other intestinal affections. They are mucilaginous and laxative. The covering is styptic and astringent. Seed paste is useful for cleansing applications in cases of foul and indolent ulcers.

In Germany a *decoction* is given to facilitate the eruptions in small-pox; pulse is used in the form of poultice as an application to ulcers occurring after small-pox.

Grains contain vitamins A and B.

See—Food Plants.

LEPIDIDIUM SATIVUM Linn.

FAM.—Crucifereæ.

COM. NS. :—*E.* Garden cress; *G.* Asahio, Halim; *H.* Chavnsar, Halim, Hurfi; *K.* Allibija, Kurutige; *M.* Ahaliva; *Sk.* Ashalika, Chandrashura, Chandrika, Raktabija, Suvasura.

CHAR. :—An erect glabrous annual; *L.*—entire or variously lobed or pinnatisect, often with linear segments; the lower petiolate, upper sessile; *Fl.*—small, white; *C.*—petals 2-4 or 0; *Fr.*—pods obovate or broadly elliptic, emarginate (with 3 valves) slightly winged above.

HABITAT :—Cultivated.

LOC. :—Cultivated in gardens in the State.

DISTR. :—Cultivated throughout India; very likely indigenous in W. Asia.

PARTS USED :—Root, leaves and seeds.

PROPERTIES AND USES :—Hot, bitter; tonic, galactagogue, aphrodisiac; destroys "Vata" and "Kapha"; cures dysentery; good for pain in abdomen, blood and skin diseases, tumours and injuries, eye diseases (Ayurveda).

Hot and dry; diuretic, aperient, bechic, aphrodisiac; good in inflammations, affections of spleen, chest complaints, bronchitis, rheumatism, and muscular pains; improves brain power and brightens intellect (Yunani).

LOC. USES :—*Herb* and *seed* contain aromatic volatile oil. Seeds contain fatty oil. *Seeds* are tonic and alterative and useful in hiccup, diarrhoea and skin-diseases caused by impurity of blood.

In the Punjab the *plant* is administered in cases of asthma, cough with expectoration and bleeding piles. *Root* used in secondary syphilis and tenesmus (Honigberger). *Seeds* are considered to be galactagogue and are administered after being boiled with milk to cause abortion (Bellew). *Leaves* are mildly stimulant and diuretic, serviceable in scorbutic diseases (Balfour).

Leaves are used as pot-herb. They contain vitamin B.

See—Vegetables.

LINUM USITATISSIMUM Linn.

FAM.—Linaceæ.

COM. NS. :—*E.* Common flax, Linseed; *G.* Alshi; *H.* Alsi, Tisi; *K.* Alashi, Alsi; *M.* Alashi, Javas; *Sk.* Alasi, Haimwati, Madagandlia, Malina, Tailottama.

HABITAT :—Cultivated in deep moisture-holding soils.

LOC. :—Extensively cultivated in the Deccan and S. M. Country.

DISTR. :—Cultivated throughout India; native country probably Egypt.

PARTS USED :—Bark, leaves, flowers, seeds and oil.

PROPERTIES AND USES :—*Seeds*—oily, hot, hard to digest, tonic, aphrodisiac; remove biliousness, back-ache, inflammations; heal ulcers, urinary discharges; cure leprosy; remove "Vata", "Pitta", "Kapha"; bad for eyesight; lead to impotency; used in consumption. *Leaves* remove asthma (Ayurveda). *Seeds*—mucilaginous; diuretic, aphrodisiac, galactagogue, emmenagogue; good for cough and kidney troubles. *Bark* and *leaves* good for gonorrhoea; burnt bark styptic and healing. *Flowers*—brain and heart tonic. *Oil* from seeds removes biliousness and bad blood; causes loss of appetite; useful in internal wounds and ring-worm (Yunani).

LOC. USES :—*Flowers* are used as a cardiac tonic. *Seeds* are used internally for gonorrhoea and irritation of genito-urinary system (Emerson). Mucilage from seed is dropped into the eyes as an emollient; with honey it is prescribed in coughs and colds. Roasted seeds are astringent. Fumigation with the smoke is recommended for colds in head and hysteria. *Linseed poultice* is used as an external application in abscesses, boils, bronchitis, gouty and rheumatic swellings; linseed oil is a common basis for embrocation and liniment; linseed tea is a useful drink in diarrhoea, dysentery, urinary complaints, colds and throat complaints.

In Europe seed meal is used for cataplasms. Oil mixed with lime water has been a favourite application to burns.

The plant contains glucoside *linamarin*. *Seeds* contain vitamin A. See—Oils, Fibres.

LITSEA CHINENSIS Lam.

FAM.—Lauraceæ.

COM. NS. :—*E.* Common tallow laurel; *H.* Carbijaur, Maidelakri; *M.* Maidalakadi; *Sk.* Jivanika, Medini, Sedhavi.

CHAR. :—A small evergreen tree, bark somewhat corky, lenticellate; branchlets densely tomentose; *L.*—crowded at the ends of branches, usually alternate, 10-25 × 5-10 cm., elliptic ovate or oblong-lanceolate, base narrowed, glossy dark-green above, pale beneath; *Fl.*—in umbellate heads arranged in corymbs, yellowish. 8-12 together in heads; perianth lobes wanting; *Fr.*—globose, black, 7-5 mm. diam., supported by the thickened pedicel; *Fl. t.*—May-July.

HABITAT :—In rain-forests.

LOC. :—Throughout the Konkan and N. Kanara; common in Siddapur and Kumpta Talukas.

DISTR. :—Throughout the hotter parts of India, Ceylon, Malay Islands, Australia

PARTS USED :—Root, bark, leaves, fruits and seeds.

PROPERTIES AND USES :—*Root*—cooling, aphrodisiac, galactagogue; useful in biliousness, burning sensation, bronchitis, consumption, fever, “vata”, leprosy (Ayurveda). *Root*—astringent, tonic, expectorant, aphrodisiac; useful in inflammations, overheated brains, pains in joints, thirst, throat troubles, spleen diseases, paralysis. *Seeds*—aphrodisiac (Yunani).

LOC. USES :—The feebly balsamic mucilaginous *bark* is one of the best known and most popular native drugs. It is largely employed as a demulcent and mild astringent in diarrhoea and dysentery. It is esteemed as an aphrodisiac. It is used as an emollient in bruises and styptic dressings for wounds. It acts as anodyne. *Leaves* are mucilaginous. They are used as an infusion or as a poultice. *Oil* from the berries is used for rheumatism.

The bazar drug is known as “Maida-lakadi”.

LOBELIA NICOTIANÆFOLIA Heyne.

FAM.—Lobeliaceæ.

COM. NS. :—*E.* Wild tobacco; *G.* Nali; *H.* Nal, Narsala; *K.* Kalahogesoppu, Kandeale; *M.* Dhaval, Devnal; *Sk.* Bibhishana, Devanala, Dhamana, Mrityupushpa, Narttaka, Sthulanala.

CHAR. :—A very large biennial or perennial herb; stem stout, hollow, 1.2-3 m. high, branched upwards; *L.*—alternate, many, nearly sessile, light green, lower much longer, the uppermost passing into floral leaves or bracts, all oblong, lanceolate, finely serrulate, midrib white; *Fl.*—in terminal racemes sometimes more than 30 cm. long, pedicels supported by leaf-like bracts; *C.*—2-lipped, 2.5-3.9 cm. long, much curved, white, lobes linear, 3 usually connate throughout; *Fr.*—capsule, subglobose, opening by 2 valves; *Sd.*—numerous, very small, yellowish brown; *Fl. t.*—Nov.-Mar.

HABITAT :—Western Ghats.

LOC. :—Konkan, Deccan and S. M. Country.

DISTR. :—Western Ghats of Madras State up to 2,100 m.

PARTS USED :—Leaves and seeds.

PROPERTIES AND USES :—*Leaves*—sweet, acrid, bitter, heating, aphrodisiac, stomachic, diuretic; cure cough, strangury, diseases of blood, heart, uterus, vagina, burning sensation, biliousness, erysipelas (Ayurveda).

LOC. USES :—*Infusion* of the leaves is used as an antispasmodic in asthma; the *leaves* and *seeds* are acrid and poisonous.

The plant contains alkaloid *lobeline*.

See—Poisonous Plants and Fish Poisons.

LUFFA ACUTANGULA Var. AMARA Clarke.

FAM.—Cucurbitaceæ.

COM. NS. :—*E.* Ridge gourd; *G.* Kadvi-turai or ghisodi; *H.* Jhinga, Karvituri; *K.* Kahiré; *M.* Divali, Kadudodka, Ranturai; *Sk.* Ghontali, Katukoshataki, Jalini.

CHAR. :—A large climber, stems 5-angled, tendrils usually 3-fid; *L.*—small, at first whitish and softly villous, at length scabrid, pale green, palmate, 5-7 lobed, base cordate; *Fl.*—morpæcious; males in axillary 12-20 flowered racemes; *C.*—petals yellow with green veins; females solitary in the same axil as males; *Fr.*—obovoid, obtusely conical at both ends, 5-10 cm. long and about 2.5-3.8 cm. thick; 10-ribbed, bitter; *Fl. t.*—Sept.

HABITAT :—Common in hedges.

LOC. :—Common in hedges in the Konkan and Belgaum district during the rains.

DISTR. :—Throughout India, especially in western Peninsula; Ceylon.

PARTS USED :—Leaves, fruit and seeds.

PROPERTIES AND USES :—Slightly pungent, acrid, bitter, laxative, carminative, digestible, alexiteric, tonic to intestines; cures “Vata”, “Kapha”, biliousness, anæmia, liver complaints, leucoderma, piles, inflammations, bronchitis, ascites, jaundice, tumours, tuberculous glands, uterine and vaginal tumours; useful in rat-bite; cures urinary discharges, asthma; used as an errhine for headache (Ayurveda). *Root-bark* is abortifacient, hydrogogue, cathartic, diuretic. *Fruit* cures fever, cough, asthma, piles. *Seeds* beneficial in amenorrhœa (Yunani).

LOC. USES :—*Plant* is bitter, tonic and diuretic; recommended in splenic enlargement. The entire plant is useful in skin diseases and asthma (Koman).

The *leaves* are applied locally in splenitis, hæmorrhoids and leprosy. *Juice* of fresh leaves is dropped into eyes of children in granular conjunctivitis. The *fruit-pulp* is given in dog and other kinds of bites. *Juice* of the roasted young fruit is applied to cure headache. The *dried fruit* is used as snuff in jaundice. Ripe seeds are emetic and cathartic; in small doses they are expectorant and demulcent. The *kernel* of the seed has a great control over dysentery; a valuable substitute for ipecacuanha (Moideen Sheriff).

The plant contains a bitter substance *luffin*.

MADHUKA INDICA Gmel.

(BASSIA LATIFOLIA Roxb.)

FAM.—Sapotaceæ.

COM. NS. :—*E.* Butter tree, Mahua tree; *G.* Mahuda, Mahura; *H.* Mahua, Mahula, Mowa; *K.* Doddippa, Hunage, Pokka; *M.* Moha, Mhowra, Mowda; *Sk.* Gudapushpa, Madhuka, Madhusrava.

HABITAT :—Deciduous forests; prefer dry sandy and rocky soils; thrives in Deccan trap.

LOC. :—Common in the deciduous forests throughout the State, also in Konkan and N. Kanara (rare); often cultivated and self-sown near the villages.

DISTR. :—Forests of Central India (Madhya Bharat), Madhya Pradesh, W. Bengal to the W. Ghats and Kumaun Tarai; Burma.

PARTS USED :—Bark, leaves, flowers and fruits.

PROPERTIES AND USES :—*Plant*—acid; cooling, fattening, aphrodisiac, anthelmintic; cures biliousness, burning sensation, leprosy, ulcers, fatigue; causes "Kapha"; heals wounds; used in fractures. *Flowers*—oleaginous, good in heart diseases. *Fruit*—tonic; cures blood diseases, thirst, bronchitis, consumption. *Milky juice* hastens suppuration (Ayurveda). *Flower*—sweet, galactagogue, aphrodisiac, expectorant, carminative. *Oil*—emollient (Yunani).

LOC. USES :—*Bark decoction* is astringent and tonic; used as a remedy for rheumatic affections; rubbed on the body as a cure for itch. *Leaves* boiled in water form a good stimulant embrocation. *Flowers* are regarded as cooling, tonic and nutritive. *Dried flowers* are used as fomentation in orchitis for their sedative effect; *honey* from flowers is used in the treatment of eye diseases.

Flowers yield on distillation a spirit which is heating, astringent, tonic, and appetiser (Sushruta). Flowers mixed with milk are useful in impotence due to general debility. *Smoke* produced in burning the cake is reputed to kill insects and rats.

Leaves and seeds contain glucoside *saponin*. There is a trace of alkaloid.

See—Timbers, Oils, Liquors.

MADHUKA LONGIFOLIA Macbr.

(BASSIA LONGIFOLIA Linn.)

FAM.—Sapotaceæ.

COM. NS. :—*E.* Honey tree, Mahuva of S. India; *G.* Mahuda, Movanuhjad; *H.* Moha, Mehua; *K.* Ippe, Huli, Movaro; *M.* Mohache jhad, Mohwa; *Sk.* Madhuka.

HABITAT :—Monsoon-forests and along the banks of rivers and *nalas*.

LOC. :—Konkan, and Kanara.

DISTR. :—Western peninsula, Ceylon, often planted; Mysore, Karnatic, and Upper Burma.

PARTS USED :—Bark, flowers and oil.

PROPERTIES AND LOC. USES :—Astringent and emollient; yields two important products, fixed oil and a spirit. *Oil* is good for skin-diseases; *flowers* act as a mild purgative.

Bark decoction is an astringent and emollient, and also a remedy for itch.

Seeds contain glucoside *mowrin*.

See—Timbers, Oils, Famine Plants.

MALLOTUS PHILIPPINENSIS Muell.

FAM.—Euphorbiaceæ.

COM. NS. :—*E.* Monkey-face tree; *G.* Kapilo; *H.* Kamala, Kambhal, Raini; *K.* Hullichillu, Kapila, Kesarimavu; *M.* Shendri; *Sk.* Kapila, Kampillaka.

HABITAT :—Monsoon and open thorn forests.

LOC. :—Throughout the State; more common in the Konkan (jungles and hills), also in the Deccan and Gujarat. Introduced.

DISTR. :—Throughout tropical India, Sind, Ceylon, Malay Islands, China, Australia.

PARTS USED :—Root (rarely), leaves, fruits and seeds.

PROPERTIES AND USES :—*Leaves*—bitter, cooling; appetiser; cause flatulence and constipation. *Fruit*—heating, purgative, anthelmintic, vulnerary, detergent, maturant, carminative, alexiteric; heals ulcers, wounds, tumours, stone in bladder; useful in bronchitis, diseases of abdomen, enlargement of spleen (Ayurveda).

LOC. USES :—Glands and hair on the fruit are bitter, anthelmintic, styptic; lessen intestinal pains; useful in skin-diseases.

Fruit powder is used as an anthelmintic, vermifuge and purgative. It is also said to possess cathartic properties. In medicine *Kamala* has attained a considerable reputation as a remedy for tape-worm. *Kamala* is quite ineffective against hook-round-whip worms (Caius and Mhaskar).

See—Timbers, Dyes.

MANGIFERA INDICA Linn.

FAM.—Anacardiaceæ.

COM. NS. :—*E.* Cuckoo's Joy, Mango tree; *G.* Ambo, Amri; *H.* Am; *K.* Mavin-mara, Mavu, Rasala; *M.* Amba; *Sk.* Amra, Chuta, Kamarasa, Sahakara.

HABITAT :—Common everywhere; wild and cultivated.

LOC. :—Rain-forests of Konkan and N. Kanara, Ghats and the Satpudas; cultivated throughout the State.

DISTR. :—Tropical Himalayas, Bhutan, Bihar, Khasia Hills, Burma, Sikkim. Cultivated throughout India for its fruit.

PARTS USED :—Root, leaves, flowers, fruits and seeds.

PROPERTIES AND USES :—Acrid, sour, sweet, cooling; astringent to bowels; cure "Vata", "Kapha", "Pitta"; improve taste and appetite; cure leucorrhœa, bad blood; good in dysentery, bronchitis, biliousness, urinary discharges, in "Tridosh", throat troubles, ulcers, dysentery, vaginal troubles; aphrodisiac, tonic; beautifies complexion; good in heart trouble, vomiting; cures stomatitis (Ayurveda). Astringent, styptic; improves cough; enriches blood; tonic to body, liver, spleen; laxative, diuretic, stomachic, removes bad smell from mouth; improves complexion; clears brain, dispels langour and burning of body; good in cough, hiccup, piles, thirst, liver pain. *Seeds*—astringent to bowels; used in chronic diarrhœa; aphrodisiac; a good collyrium (Yunani).

LOC. USES :—*Bark* contains tannic acid; it exudes a pink coloured gum. *Bark infusion* is used in menorrhagia and leucorrhœa and in bleeding piles, in cases of hæmorrhage from lungs and intestines. Resinous *juice* from the bark is anti-syphilitic. It is used on the Malabar coast in diarrhœa, dysentery and for curing cutaneous affections. *Smoke* of the burning leaves has a curative effect in throat affections. *Decoction* or *powder* of dried flowers is a useful astringent in diarrhœa, chronic dysentery and gleet. *Gum*

of the tree is applied with benefit to cracked feet. Fruit is the most delicious of Indian fruits. Unripe fruit is useful in ophthalmia and eruptions. Rind of the fruit is astringent and stimulant tonic. Ripe fruit is laxative. Kernel is astringent and used just as the bark. It is also anthelmintic; useful in bleeding piles. Juice of kernel, if snuffed, stops nasal bleeding. Fruit is dried in the sun and recommended as anti-scorbutic. Confection made from ripe mango juice, with addition of sugar and aromatics is recommended as a restorative tonic.

Ripe fruit contains vitamins A and C.

See—Timbers, Fruit Trees.

MARSDENIA VOLUBILIS Cooke.

(DREGEA VOLUBILIS Benth.)

FAM.—Asclepiadaceæ.

COM. NS.:—G. Dodi; Kharkhodi; H. Nakchhikni; K. Dugdhi; M. Ambri, Harandori, Hari, Khandodi; Sk. Hemajyoti-valli, Madhumalati, Suparnika.

CHAR.:—A large twining shrub, older branches ash coloured, with lenticels and black dots; L.—6.3-15 × 4.5-11.5 cm., broadly ovate or suborbicular, few glands above the petiole cordate; Fl.—many, green or yellowish green, in lateral dropping umbellate cymes; C.—rotate with broad lobes, overlapping to the right; corona lobes large, fleshy; Fr.—follicles, 7.5-10 cm. long, slightly tapering to a very black point, rugosely striate; Sd.—broadly ovate, flattened, margined, pale yellowish brown; coma copious; Fl. t.—Apl.-May

HABIT:—Twining over shrubs.

LOC.:—Deccan and S. M. Country.

DISTR.:—Bengal, Assam, all plains districts of Madras State, Ceylon, Java.

PARTS USED:—Root and leaves.

PROPERTIES AND USES:—Tonic, cooling, aphrodisiac; cures "Vata", biliousness, burning sensation, tumours, piles, leucoderma, asthma, urinary discharges; useful in diseases of eye, alexiteric, antipyretic, astringent to bowels; good for dyspepsia, inflammations, rat-bite (Ayurveda).

LOC. USES:—Roots and tender stalks are considered emetic and expectorant; leaves are much employed as an application to boils and abscesses. The plant is used in colds and eye-diseases to cause sneezing.

MELIA AZADIRACHTA Linn.

(AZADIRACHTA INDICA A. Juss.)

FAM.—Meliaceæ.

COM. NS.:—E. Nim or Margosa tree; G. Limbada, Limbra; H. Nim, Nimla; K. Bevu, Nimba; M. Balant-nimba, Kadulimb; Sk. Nimba, Nimbaka, Paribhadra.

HABITAT:—Dry regions.

LOC.:—Natural and planted along roadsides in the State; common in the Deccan and Karnatak. Found self-planted in denuded trap hills of the Deccan.

DISTR.:—Cultivated throughout India and many hot countries; Burma.

PARTS USED:—Root, bark, leaves, flowers, fruits and seeds. Almost every product of this invaluable tree is largely employed medicinally in India.

PROPERTIES AND USES:—Bitter, refrigerant, anthelmintic, maturant, pectoral, astringent; relieves "Kapha", "pittadosh", vomiting, burning sensation near heart, fatigue, fever, thirst, bad taste in the mouth, cough; cures ulcers and inflammations; good for leprosy, blood complaints, urinary discharges; alexiteric, insecticidal; good in ophthalmia, biliousness, skin diseases, asthma, piles, tumours, toothache; useful in consumption (Ayurveda). Tonic, antiperiodic, carminative, expectorant, anthelmintic, aphrodisiac, maturant, resolvent, stimulant and stomachic; lessens inflammation, earache, rheumatism; useful in syphilitic sores, boils, leucoderma, lumbago, leprosy, piles; a decoction as an errhine relieves nose troubles; good as a gargle in stomatitis and for bad gums (Yunani).

LOC. USES:—The tree is believed to be advantageous to health when planted around villages as a prophylactic against malaria; almost every part of the plant is used medicinally. The root-bark and young fruits are astringent, tonic and antiperiodic. The bark contains a bitter principle of resinous nature; it is a general vermifuge; it is used in the form of powder or fluid extract in cases of intermittent fevers, general debility, convalescence, and loss of appetite. The leaves are used as stimulant in the form of paste or poultice to boils and ulcers; in hot decoction they form a valuable antiseptic and healing lotion, like a weak solution of carbolic acid, for unhealthy ulcers, swollen glands, sprains, bruises.

The flowers are stimulant, tonic, stomachic; given in infusion in cases of atonic dyspepsia and general debility. The fruit is markedly antiseptic, used as a dressing for foul ulcers and as an external stimulant in leprosy and other skin-diseases; it is also used internally as anthelmintic. It is applied as an insecticide for destruction of lice. Dry seeds possess the same properties when bruised and mixed with water. The gum exuding from the bark is a stimulant and demulcent tonic used in catarrhal affections. The fermented sap from the tree acts as a refrigerant nutrient and alterative tonic, valuable in consumption, chronic leprosy. The tender twigs are used as tooth-brush, and are believed to keep the breath and mouth clean and healthy.

See—Timbers, Oils.

MELILOTUS PARVIFLORA Desf.

FAM.—Leguminosæ (Papilionaceæ).

COM. NS.:—E. Small melilot; H. Banmethi; M. Ranmethi; Sk. Vanmethika.

CHAR. :—An erect annual herb, 30-45 cm. high; *L.*—3-foliate; leaflets toothed, oblanceolate, rounded, truncate at the apex, glabrous or slightly hairy; petiolules of lateral leaflets very short, of terminal rather long; *Fl.*—small, in spicate close racemes; *C.*—pale yellow, standard exceeding the wings and keel; *Fr.*—pod, ellipsoid, tapering at both ends, glabrous; *Sd.*—one, oblong-ellipsoid, brown; *Fl. t.*—Jany.

HABITAT :—In pasture grounds.

LOC. :—Common in Deccan.

DISTR. :—India (tropical zone); Europe, S. Iran, Afghanistan; introduced into many other regions.

PARTS USED :—Plant and seeds.

PROPERTIES AND USES :—The properties are the same as those of *Trigonella fœnum-græcum* Linn.; increases "Vata" (Ayurveda).

LOCAL USES :—The seeds are said to be useful in bowel complaints and infantile diarrhoea, given as a gruel (Murray). The plant has been used as a discutient and emollient. Externally used as a fomentation, poultice or plaster for swellings.

MELOTHRIA MADARASPATANA Cogn.

FAM.—Cucurbitaceæ.

COM. NS. :—*H.* Agamaki, Bilari; *M.* Ghugri.

CHAR. :—An annual scandent or prostrate herb, stem angular, very hispid; young parts white-hairy; tendrils simple; *L.*—variable in size, deltoid-ovate entire, 5-angled or 3-5 lobed, scabrid, base cordate, lobes dentate or serrate; *Fl.*—monœcious; male fascicled on short peduncles, females sessile; *Fr.*—size of a pea, slightly echinulate, at first green and variegated with yellow, finally red.

HABITAT :—In hedges.

LOC. :—Common in Deccan and the Konkan; also in S. M. Country and Gujarat.

DISTR. :—Western Peninsula, north Bengal, Assam, Sikkim, Khasia, Ceylon, Malaya and Africa.

PARTS USED :—Tender shoots, leaves and seeds.

PROPERTIES AND LOC. USES :—Root decoction is useful in flatulence and when root is masticated it relieves toothache. Tender shoots and bitter leaves are used as a gentle aperient and recommended in vertigo and biliousness. Seeds in decoction are sudorific.

In Chota Nagpur crushed seeds are applied on aching bodies, especially in strained back.

It has expectorant properties to some extent.

MENTHA ARVENSIS Linn.

FAM.—Labiatae.

COM. NS. :—*E.* Corn—March mint; *G.* Pudina; *H.* Pudina; *K.* Chatinmaragu; *M.* Pudina.

CHAR. :—A perennial erect herb; stem short, hairy; *L.*—narrowed below, stalked, ovate, oblong, lanceolate, toothed; the upper similar and large; *Fl.*—in axillary distant whorls, none at the top; *C.*—sub-equally 4-lobed, lilac, lined with hairs and hairy outside; *Fr.*—nutlets, dry, smooth.

HABITAT :—Cultivated.

LOC. :—Grown in gardens all over the State.

DISTR. :—Western Himalayas, Kashmir, Europe, North and West Asia, China.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—Plant has a strong smell; expectorant, emmenagogue, tonic to kidneys; useful in liver and spleen diseases, asthma, pains in joints (Ayurveda).

LOC. USES :—Dried plant is refrigerant, diuretic, and stimulant. It possesses antispasmodic and emmenagogue properties. It is used in jaundice and is frequently given to stop vomiting. Plant is an excellent diaphoretic; infusion is given in fevers, indigestion and cephalgia. Leaf-juice is applied to the sting or bite of poisonous animals. Plant yields by distillation an aromatic essential oil. The plant is used in chutneys.

MESUA FERREA Linn.

FAM.—Guttiferae.

COM. NS. :—*E.* Assam Iron-wood, Ceylon Iron-wood; *H.* Naghas, Nagkesara; *K.* Nagkesara, Nagsampige; *M.* Nagchapha; *Sk.* Naga-keshara, Nagkinjalka, Suvarna.

HABITAT :—Evergreen rain-forests.

LOC. :—Scattered throughout the evergreen rain-forests of S. Konkan and N. Kanara; often cultivated in the supari gardens and planted near temples; S. M. Country.

DISTR. :—E. Himalayas, E. Bengal, Assam, Travancore, Burma Tenasserim, Andamans; Ceylon.

PARTS USED :—Bark, leaves, flowers and fruits.

PROPERTIES AND USES :—Hot, dry; digestive, alexipharmic; good for fevers, sweats, biliousness, foul breath, skin diseases, small tumours, headache, blood and heart troubles, sore-throat, cough, hiccup, vomiting, thirst, dysentery and bleeding-piles (Ayurveda). Carminative, binding, cardiotonic; good in asthma and sweats; cures ulcers and piles (Yunani).

LOC. USES :—Root, bark and other parts of plant exude an aromatic oleo-resin which has demulcent properties. Bark is mildly astringent and feebly stomachic; combined with ginger it is given as a sudorific. Flowers are astringent and stomachic; used for cough. Dried flowers are much used as a fragrant adjunct to decoctions and oils: they are also used in thirst, irritability of stomach and excessive perspiration. A paste of flowers with butter and ginger is used in bleeding piles and in burning of feet. In N. Kanara oil from seeds is used as an embrocation in rheumatism and is found useful in itch.

See—Timbers, Gums and Resins, Oils.

MICHELIA CHAMPAKA Linn.

FAM.—Magnoliaceæ.

COM. NS.:—*E.* Golden champa, Yellow champa; *G.* Champo, Pilo-champo, Sonchampo; *H.* Champa, Champaka; *K.* Champaka, Sampige; *M.* Pivala chapha, Sone chapha; *Sk.* Champaka, Hem-pushpa, Surabhi, Suvarna chanupaka, Vanamallika.

HABITAT:—Wild in evergreen rain-forests; cultivated.

LOC.:—Cultivated all over the State, near temples and in gardens, common in many parts of Sirsi and Siddapur talukas; evergreen rain-forest of N. Kanara.

DISTR.:—Wild in the Eastern Sub-Himalayan tract and lower hills upto 900 m., Assam, Burma, W. Ghats, S. India. Much cultivated in various parts of India and Burma, Yunnan, Indo-China, Thailand (Siam) and Malaya.

PARTS USED:—Root, bark, leaves, flowers and fruits.

PROPERTIES AND USES:—*Bark*—bitter, acrid, destroys poisons; facilitates micturition; diuretic, diaphoretic, aphrodisiac; removes worms, "Kapha", "Vata", bile, blood affections. *Leaves* mixed with other drugs remove foetid odour of vaginal discharges. *Flowers*—stomachic, diuretic; remove biliousness; good in leprosy, skin diseases and ulcers (Ayurveda). *Flowers*—expectorant, useful in cough, rheumatism; their smell a good stimulant (Yunani).

LOC. USES:—Dried root and root bark mixed with curdled milk is applied to abscesses; *infusion* is a valuable emmenagogue; also used as purgative. Bark is aromatic febrifuge, stimulant. Leaf-juice acts as vermifuge; it is given with honey to relieve colic; young leaves contused and macerated in water and instilled into eyes are said to relieve vision. Flower-infusion is used as a stimulant tonic and carminative in cases of dyspepsia, nausea and fevers; flowers beaten up with oil form an excellent application to foetid discharges from nose, rheumatism, in vertigo, ophthalmia, gout. They are also useful as diuretic in renal diseases and gonorrhœa. Fruit and seeds are used for healing cracks in feet. Oil from seeds rubbed over abdomen relieves flatulence.

See—Timbers, Dyes.

MIMOSA PUDICA Linn.

FAM.—Leguminosæ (Mimosoideæ).

COM. NS.:—*E.* Sensitive plant, Humble plant; *G.* Lajalu, Risemani; *H.* Lajalu, Lajjavati; *K.* Lajja, Muthmurika, Nachike-gidda; *M.* Lajalu, Lajari; *Sk.* Lajjika, Raktamula, Sankochini, Sparshalajja.

CHAR.:—A diffuse under-shrub, 45-90 cm. high; stems and branches sparingly prickly, clothed with glandular hairs; *L.*—bipinnate, sensitive, digitate; petioles hairy; pinnæ 1-2 pairs, 5-7.5 cm. long, rachis bristly; leaflets 15-20 pairs, glabrous above, hairy beneath; *Fl.*—4-merous, pink, in globose heads; *Fr.*—pod flat, slightly recurved, with 3-5 one-seeded joints; *Fl. t.*—Sept.-Oct.

HABITAT:—Open situations in the moist coast region.

LOC.:—Naturalised in the Konkan and N. Kanara; gregarious and spread over considerable areas of coast region of N. Kanara (Kumta and Honawar). Along roadsides in Sirsi and Siddapur sub-divisions; cultivated in gardens in pots.

DISTR.:—Naturalised throughout India, probably a native of tropical America.

PARTS USED:—Root and leaves.

PROPERTIES AND USES:—*Root*—bitter, acrid; cooling, vulnerary, alexpharmic; cures "Kapha", biliousness, leprosy, dysentery, vaginal and uterine complaints, inflammations, burning sensation, fatigue, asthma, leucoderma, blood diseases (Ayurveda). *Root* is resolvent, alterative; useful in diseases arising from corrupted blood and bile, bilious fevers, piles, jaundice, leprosy, ulcers, small-pox (Yunani).

LOC. USES:—*Root decoction* is considered useful in gravel and similar complaint. It is also resolvent and alterative, useful in blood and bile diseases. Roots and leaves in powdered state are given in milk, in piles and fistula. *Juice* is applied externally. In the Konkan leaves are rubbed into a paste and applied to hydrocele. Their juice with equal quantity of horse-urine is made into "Anjan" to remove films in conjunctiva. Juice is used to impregnate cotton for dressing sinuses.

In the Gold-Coast leaves are used for guinea-worm.

In Brazil root is used as emetic. In Madagascar plant is much used in convulsions of children. In Cambodia ~~plant~~ is used externally in rheumatism and uterine tumours.

See—Ornamental Plants.

MIMUSOPS ELENGI Linn.

FAM.—Sapotaceæ.

COM. NS.:—*G.* Japhuli, Borsalli, Varsuli; *H.* Bakul, Bolsari, Mulsari; *K.* Bakul, Kalhala, Mugule, Ranjal; *M.* Bakul, Vovali; *Sk.* Anangaka, Bakia, Mukul, Sharadika.

HABITAT:—Evergreen forests.

LOC.:—Common in the rain-forests of N. Kanara and Konkan; often planted in gardens.

DISTR.:—Western Peninsula; Ceylon, Malaya; cultivated in the tropics.

PARTS USED:—Bark, flowers, fruits and seeds.

PROPERTIES AND USES:—*Bark*, flowers and fruits acrid, sweet; oleaginous, astringent to bowels, cooling. *Bark* cardio-tonic, alexipharmic, stomachic, anthelmintic; cures biliousness, teeth and gum diseases. *Flowers* give taste; cure blood diseases. *Fruit* causes flatulency. *Seeds* fix loose teeth; as an errhine cure head-troubles (Ayurveda). *Root*, fruit and seeds astringent to bowels, good for gonorrhœa. *Root* as a gargle cures relaxation of gums. *Flowers*—expectorant; cure biliousness, liver complaints, headache, nose diseases; smoke good in asthma (Yunani).

LOC. USES:—*Barks* astringent and useful as a gargle in diseases of gums and teeth; also used in discharges from mucous membranes

of bladder and urethra. It is also tonic and febrifuge. In the Punjab it is used to increase fertility in women. Volatile oil from flowers is a useful stimulant medium. In the Konkan unripe fruits and flowers are used to prepare lotion for sores and wounds. Unripe fruit is astringent and is chewed for fixing loose teeth. *Pulp* of ripe fruit is edible; it is applied to relieve headache; it is also used in curing chronic dysentery. Bruised *seeds* are applied locally within the anus of children in case of constipation. In Bengal snuff made of dried flowers is given in a disease called "An Ahwah"—a strong fever accompanied by headache and pain in neck.
See—Timbers, Oils, Fruit Trees.

MIRABILIS JALAPA Linn.

FAM.—Nyctagenaceæ.

COM. NS.:—*E.* Four o'clock plant, Marva of Peru; *H.* Guleaabbas; *K.* Chandra—Sanji-mallige; *M.* Gulbas; *Sk.* Krishnakali, Sandhya-kali or Raga.

CHAR.:—A herbaceous plant, 30-75 cm. high with large perennial tuberous roots, and rather fleshy stems; *L.*—membranous, cordate; *Fl.*—large, clustered on the branches of leafy panicles, each one surrounded by an involucre; Perianth salver-shaped to campanulate, brightly coloured (dark crimson, yellow, white or crimson striped with white, yellow); *Fr.*—nut ellipsoid or obpyramidal, often ribbed or rugose, blackish; *Fl. t.*—continually in bloom.

HABITAT:—Cultivated and found as an escap.

LOC.:—Grown in gardens all over the State as an ornamental plant.

DISTR.:—Grown throughout India; native of tropical America.

PARTS USED:—Roots and leaves.

PROPERTIES AND USES:—*Root* is aphrodisiac; good for syphilitic sores. *Leaves* are maturant; lessen inflammations (Yunani).

LOC. USES:—Dried root is said to possess sore nutrient qualities. Powdered and fried in ghee with spices it is given in milk as a *poushtika*. Rubbed with water it is applied; *lep* in contusions. *Leaves* bruised and heated are applied as poultice to boils and abscesses to hasten suppuration.

Roots are used as purgative in the Philippin Islands.

Root contain alkaloid trigonelline.

See—Ornamental Plants.

MOMORDICA CHARANTIA inn.

FAM.—Cucurbitaceæ.

COM. NS.:—*E.* Carella fruit; *G.* Karela, Karelo; *H.* Karela, Kareli, Karala; *K.* Hagala, Hagalkai; *M.* Karli; *Sk.* Kandura, Karavalli.

HABITAT:—Cultivated.

LOC.:—Grown in gardens as a vegetable all over the State.

DISTR.:—Cultivated throughout India; also in Malaya, China, tropical Africa, and America.

PARTS USED:—Root, leaves and fruit.

PROPERTIES AND USES:—*Root* used in ophthalmia and in *prolapsus vaginae*. *Fruit*—bitter, cooling, digestible, laxative, antipyretic, anthelmintic, appetiser; cures biliousness, "Kapha", blood diseases, anæmia, urinary discharges, asthma, ulcers, bronchitis; *juice* useful in cholera (Ayurveda). *Fruit*—very bitter, carminative, tonic, stomachic, aphrodisiac, anthelmintic; astringent to bowels but laxative for plethoric constitution; lessens expectoration; used in syphilis, rheumatism, spleen troubles and ophthalmia (Yunani).

LOC. USES:—*Root*—astringent and useful in hæmorrhoids. In the Konkan *leaf-juice* is given in bilious affections as an emetic or purgative; *juice* is rubbed in burning of the soles of feet and with black pepper is rubbed round the orbit for night-blindness. *Leaves* act as galactagogue. *Fruit* is tonic, stomachic, antibilious, laxative and anthelmintic. It is useful in gout, rheumatism, diseases of spleen and liver. It is supposed to purify blood and dissipate melancholia. The fruit and leaves are both administered in leprosy, piles, jaundice etc., the whole plant mixed with cinnamon, long-pepper, rice and maro-ty-oil forms a good ointment in many skin diseases. The juice of the whole plant mixed with chalk is used in aphthæ and as an emmenagogue in dysmenorrhœa. Externally it is applied to the scalp in pustular eruptions, burns, boils, etc.

Fruits contain vitamins A, B and C.

See—Vegetables.

MOMORDICA DIOICA Roxb.

FAM.—Cucurbitaceæ.

COM. NS.:—*G.* Kantolan, Kantoli; *H.* Beksas, Golkandra; *K.* Gid-hagalu, Karehiballi; *M.* Kartoli; *Sk.* Kanta, Karkotaki, Nagarali, Vandhya, Vishakankini.

HABITAT:—Cultivated.

LOC.:—Widely cultivated in the Deccan; sparingly in Konkan, S. M. Country and Gujarat.

DISTR.:—Throughout India, Ceylon, Malaya.

PARTS USED:—Root, leaves and fruit.

PROPERTIES AND USES:—*Root* useful in head troubles, urinary calculi, all kinds of poisoning, in elephantiasis and as an errhine in jaundice. *Leaves*—aphrodisiac, anthelmintic, cure "Tridosh", fever, consumption, asthma, bronchitis, hiccup, piles. *Fruit*—bitter, hot; alexiteric, stomachic, laxative; cure "Vata", leprosy, tumours, urinary discharges, excessive salivation, heart-troubles. Plant cures diseases of blood, eye and heart, erysipelas (Ayurveda).

LOC. USES:—Roasted root is used to stop bleeding from piles and also in bowel complaints. In the Konkan root-juice is a domestic remedy for the inflammation caused by contact with the urine of house-lizard. Tuberous root of female plant is used as an expectorant, and externally in ague as an absorbent.

Powder or infusion of dried fruit, introduced into the nostrils produces a powerful errhine effect and provokes a copious discharge. Unripe fruit is used as a vegetable and given as a delicacy to patients recovering from fever.

See—Vegetables.

MORINDA CITRIFOLIA Linn.

FAM.—Rubiaceæ.

COM. NS. :—*E.* Indian mulberry; *G.* Ab, Saraoji; *H.* Achi, Al, Ak; *K.* Ainshi, Haladipavate, Mulgule, Tagase; *M.* Aal, Bartondi; *Sk.* Achchuka, Ashyuka.

HABITAT :—Along the sea-coast.

LOC. :—Cultivated in the State especially in Khandesh and near Pandharpur. Introduced var. *bracteata*—common along the coast of the Konkan, quite near the sea and certainly indigenous.

DISTR. :—Cultivated widely in many places throughout India, Burma, China, Formosa.

PARTS USED :—Root, leaves and fruits.

PROPERTIES AND LOC. USES :—The *root* is used as a cathartic. The charred leaves made into decoction with mustard are used in infantile diarrhoea. The *leaf-juice* is applied externally in gout to relieve pain. In Bombay the leaves are used as a healing application to wounds and ulcers; internally they are tonic and febrifuge. The unripe berries charred and mixed with salt are applied successfully to spongy gums. A crystalline principle called *Morindin* has been isolated from the root bark.

See—Dyes, Famine Plants.

MORINGA OLEIFERA Lam.

FAM.—Moringaceæ.

COM. NS. :—*E.* Drum-stick Tree, Indian horse radish; *G.* Sargavo, Seglô; *H.* Munigha, Sajina, Segua; *K.* Guggala, Mochaka, Nuggi; *M.* Shevaga; *Sk.* Mochaka, Murangi, Rochana, Tikshnamula, Ugra.

HABITAT :—Cultivated; also wild.

LOC. :—Cultivated in fields and gardens all over the State.

DISTR. :—Indigenous in the sub-Himalayan tract from the Chenab to the Sarada; also in the Oudh forests; cultivated throughout India and Burma.

PARTS USED :—Root, bark, leaves, flowers, fruits and seeds.

PROPERTIES AND USES :—Hot, digestible, astringent to bowels, aphrodisiac, alexiteric, anthelmintic, analgesic; causes burning sensation, biliousness; makes blood impure; improves appetite; useful in heat-complaints, eye diseases, “Kapha”, “Vata”, all “tridosha” fevers, inflammations, dyspepsia, spleen enlargement, tuberculous glands in neck, tumours, ulcers, ear-ache, stuttering; removes all kinds of pains; fattening. *Oil*—useful in leprous ulcers (Ayurveda). *Root*—tonic to body and lungs; emmenagogue,

laxative, expectorant, diuretic; enriches blood; good for inflammations of throat and chest, wounds, bronchitis, piles, loss of appetite; cures gleet, urinary discharges, stomatitis, obstinate asthma, lumbago; increases biliousness. *Flower* and *leaf*—anthelmintic, expectorant, carminative; cure biliousness and bronchitis (Yunani).

LOC. USES :—*Root-juice* with milk or decoction of root-bark is useful for administration in asthma, gout, rheumatism, enlarged spleen or liver, internal inflammations and calculous affections. Fresh juice of root-bark is poured into ear to relieve otalgia; exuded gum is also used for the same purpose. Externally fresh *root* has been used as vesicant, and is a good remedy in bites of rabid animals, epilepsy and hysteria; a useful rubefacient in rheumatism. In Bombay root-bark *decoction* is used as fomentation to relieve spasms. In the Konkan bark is used with other ingredients to destroy guinea-worms. Root and bark are used to procure abortion. *Leaf* paste, with garlic, turmeric, salt and pepper, is given internally in dog-bite and applied externally. *Pods* are used as vegetable and act as preventive against intestinal worms. *Seeds* yield a fixed oil; it is used to relieve gouty and rheumatic pains. Plant is used as a cardiac tonic.

The plant contains an alkaloid. Fruits contain vitamins A, B and C.

See—Vegetables, Oils, Gums and Resins.

MORUS INDICA Linn.

FAM.—Moraceæ.

COM. NS. :—*E.* White mulberry; *G.* Shetur; *H.* Siahtut, Tut, Tutri; *K.* Kambali, Karihannu; *M.* Ambat, Tut; *Sk.* Madhu pippali, Tuda, Tuta.

HABITAT :—Wild and cultivated.

LOC. :—Very sparingly cultivated in the Deccan; common about villages in N. Kanara.

DISTR. :—Wild in sub-Himalayan tract from the Sutlej eastwards; outer hills of the Punjab and the valley of Sikkim. Cultivated largely in Bengal and Burma and sparingly in W. Peninsula.

PARTS USED :—Root, bark, leaves and fruit.

PROPERTIES AND USES :—*Fruit*—acid, sweetish, sour; cooling, laxative; useful in “Vata” and “Kapha”, biliousness, burning sensation (Ayurveda). *Root* is purgative; *leaves* good for sore-throat and scabies. *Fruit*—tonic, aphrodisiac, fattening, diuretic, anthelmintic, appetiser; enriches blood; good for brain, heart, spleen; useful in small-pox, lumbago, diarrhoea, ulcerated intestines. *Seeds* heal cracks in the soles of feet (Yunani).

LOC. USES :—*Root* is considered anthelmintic and astringent; *bark* is supposed to be a vermifuge and purgative; *leaf-decoction* is used as a gargle in inflammation and thickening of the vocal cords; *fruit* has an agreeable, aromatic and acid flavour; it is cooling, laxative, allays thirst and is beneficial in fevers. *Fruits* are eaten fresh or made into preserves or syrup.

See—Fruit Trees, Fibres.

A Bk Vf 1-10a

MUCUNA PRURITA Hook.

(MUCUNA PRURIENS Bak.)

FAM.—Leguminosæ (Papilionoideæ).

COM. NS.:—*E.* Cowhage; *G.* Kavatch, Kiyanch; *H.* Goncha, Havanch, Kivanchha; *K.* Hasaguni, Kadvare, Nayi songuballi, Turashi; *M.* Kavach, Kuhili; *Sk.* Atmagupta, Kapikachu, Tikshna, Vanari.

CHAR.:—An annual twiner; *L.*—3-foliate, grey-silky beneath; petioles 6.3-11.3 cm. long, silky; leaflets membranous, terminal smaller, lateral very unequal sided; *Fl.*—in drooping racemes, 6-30 flowered, dark-purple; *Fr.*—pod, 5.7.5 × 1.2 cm., turgid-shaped, covered with tawny stinging hairs; *Sd.*—5-6 small; *Fl. t.*—Oct.-Nov.

HABITAT:—In hedges.

LOC.:—Throughout the State from the coast inland; common in hedges, sometimes cultivated.

DISTR.:—Punjab plains, from the base of the Himalayas to Ceylon and Burma; cosmopolitan in the Tropics and often cultivated.

PARTS USED:—Root, pods and seeds.

PROPERTIES AND USES:—*Root* given in dysentery and in uterine troubles. *Fruit*—aphrodisiac, tonic; cures blood diseases, “Vata”, consumption, biliousness; indolent ulcers (Ayurveda). *Root*—emmenagogue; its smoke accelerates delivery and lessens inflammation; improves blood; *juice* given for headache. *Seeds*—alexipharmic, laxative, tonic; useful in gonorrhœa (Yunani).

LOC. USES:—This has long been known and valued in Indian medicine being mentioned in Sushruta and Bhavaprakash. *Root* is considered tonic and useful in diseases of the nervous system, such as facial paralysis and hemiplegia. Strong root infusion, with honey is given in cholera. *Root* useful for delirium in fevers. *Pods* are covered with stiff hairs, which produce intense irritation of skin. They are used as anthelmintic. Hairs mixed with honey have been used as vermifuge. An ointment prepared with hairs acts externally as a local stimulant and mild vesicant. *Seed* is considered a nervine tonic; used in powder form in leucorrhœa, spermatorrhœa etc.

MUSA PARADICIACA L. Var. SAPIENTUM O. Kunth.

FAM.—Scitamineæ.

COM. NS.:—*E.* Adam's Fig, Banana, Plantain; *G.* Kela; *H.* Kela, Maoz kela; *K.* Bale; *M.* Kela; *Sk.* Dirghapatra, Kadali, Rambha, Urustambha.

HABITAT:—Humid areas; cultivated.

LOC.:—Cultivated in coastal and ghat districts of the State. Several forms are cultivated in Western India.

DISTR.:—Indigenous to Bihar and E. Himalaya up to 1200 m., Ceylon; cultivated throughout India and the Tropics.

PARTS USED:—Root, stem, leaves, flowers and fruit.

PROPERTIES AND USES:—Acriid, anthelmintic, tonic; increases appetite; useful in “Kapha”, biliousness, ear-pain, menstrual disorders, blood diseases, diabetes, dyspepsia, leprosy; in thirst, strangury, urinary discharges, diseases of uterus and vagina, in “Vata”, consumption and bronchitis; astringent to bowels; antidysenteric, aphrodisiac, appetiser; improves complexion (Ayurveda). *Root-juice* is anthelmintic. *Burnt stem* is vulnerary. Leaves good for scabies and inflammation. *Fruit*—sweet, indigestible; causes bronchitis; thickens blood; tonic, aphrodisiac; astringent to bowels; good for dry bronchitis, sore-throat, kidney troubles (Yunani).

LOC. USES:—*Root* is antibilious and in powder form it is used in anæmia and cachexia. *Juice* of tender roots is used with mucilage for checking hæmorrhage from genital and air passages. *Root-juice*, with burnt borax and nitre is given in retention of urine; mixed with ghee and sugar is given in gonorrhœa. *Juice* of sheathing petiole and leaf is given to children suffering from overdose of opium. *Ashes* produced by burning the plant contain potash salts, and are used in acidity, heart-burn and colic. Young tender *leaves* are used as a cool dressing for inflamed and blistered surfaces; they are also useful as a substitute for oiled silk and gutta-percha in the water-dressing of wounds and ulcers. *Juice* of the flower mixed with curds is used in dysentery and menorrhagia. Unripe fruit is much used in diabetes; *gum* obtained from unripe fruit mixed with rice water is used in diarrhœa. Green skinned ripe fruits are given to check diarrhœa. *Ripe fruit* is a valuable food in chronic dysentery and diarrhœa; fully ripe fruit is a laxative if taken regularly early morning.

Fruits contain traces of vitamins A, B and C.

See—Fruit Trees, Fibres.

MUSSÆNDA FRONDOSA Linn.

FAM.—Rubiaceæ.

COM. NS.:—*H.* Bédina; *K.* Bellotti, Hastygida, Ipparati; *M.* Bhutakes, Lawsat, Serwadh; *Sk.* Nagavalli, Shrivalli.

CHAR.:—A rambling shrub, climbing by its divaricate hairy branches; *L.*—opposite or 8-nately whorled, broadly elliptic, pubescent; stipules twin, broad at base, linear, hairy; *Fl.*—in terminal cymes, buds densely hairy; *C.*—tubular, tube slender, very hairy outside, with yellow hairs blocking the mouth; deep golden yellow; lobes broadly ovate; *Fr.*—berry, subglobose; *Fl. t.*—July-Oct.

HABITAT:—Moist monsoon and rain-forests.

LOC.:—Konkan and N. Kanara where there is heavy rainfall.

DISTR.:—S. Kanara, Malabar and Tinnevely Hills; Tropical Himalayas, Assam, Andamans.

PARTS USED:—Root, leaves, flowers and fruit.

PROPERTIES AND LOC. USES:—In the Konkan *root* is given in cow's urine in white leprosy. *Root* rubbed in water is applied as a paste to relieve the burning of sore-eyes; *leaf* and *fruit-juice* are applied with benefit in weakness of eyesight. White leaves are given in milk in jaundice.

In Indo-China *flowers* are considered pectoral and diuretic. They are given in asthma, intermittent fevers and dropsy. Externally they are applied as a detergent to ulcers.

MYRISTICA MALABARICA Lamk.

COM. NS.:—*E.* False nutmeg; *K.* Kanage; *M.* Kaiphal, Rampatri; *Sk.* Kamuka, Malati.

HABITAT:—Rain-forests.

LOC.:—Konkan and N. Kanara Ghats; common in the Kumtataluka.

DISTR.:—Western Peninsula, Malabar.

PARTS USED:—Seeds.

PROPERTIES AND LOC. USES:—The *seed* bruised and subjected to boiling yields a yellowish concrete oil which, when melted with a small quantity of any bland oil, is regarded as an excellent application to indolent and ill-conditioned ulcers, allaying pain, cleaning surface and establishing healthy action; used also as an embrocation in chronic rheumatism. *Rampatri* is considered to be a nervine tonic; used in stopping vomiting. It is used as a substitute for true mace.

See—Timbers, Condiments and Spices.

MYRTUS COMMUNIS Linn.

FAM.—Myrtaceæ.

COM. NS.:—*E.* Myrtle; *H.* Habules, Murad, Vilayantimendhi; *M.* Malati.

CHAR.:—A shrub; *L.*—small, ovate to lanceolate, very sweet smelling; *Fl.*—solitary, axillary on slender peduncles, small, white; *Fr.*—berry, ellipsoid, black when ripe.

HABITAT:—Cultivated in gardens.

LOC.:—Grown in ornamental gardens, all over the State.

DISTR.:—Often grown in gardens throughout India; indigenous from the Mediterranean to N. W. Himalayas.

PARTS USED:—Leaves, fruits and oil.

PROPERTIES AND USES:—*Leaves* are laxative; applied locally to relieve pain; *smoke* beneficial to piles. *Fruit*—tonic to brain and heart; diuretic, emmenagogue; enriches blood; promotes growth of hair; cures headache; used in bronchitis and menorrhagia (Yunani).

LOC. USES:—The myrtle occupies a prominent place in the writings of Hippocrates, Pliny, Dioscorides, Galen and the Arabian writers. It is credited with opposite qualities. Volatile oil from leaves is antiseptic and rubefacient. It is also used in certain affections of the respiratory organs and bladder and as a local application in rheumatic affections. *Powdered leaves* are used as an astringent especially for sores in children. *Leaves* are considered useful in cerebral affections, especially epilepsy, also in dyspepsia and diseases of stomach and liver. A *decoction* is employed as

a mouth-wash in cases of aphthæ. *Fruit* is carminative and is given in diarrhœa, dysentery, hæmorrhage, internal ulcerations and rheumatism.

See—Ornamental Plants.

NAREGAMIA ALATA W. & A.

FAM.—Meliaceæ.

COM. NS.:—*E.* Goanese jpecacuanha; *K.* Belakanji, Nelanaringa; *M.* Kapurbhendi, Pitmari, Papra-vel, Timpani; *Sk.* Amlavalli, Kandabahula, Kandalu.

CHAR.:—A small branching undershrub; *L.*—alternate, 3-foliate, petiole winged; *Fl.*—white, solitary or 2 together, axillary; petals 5, free, linear spatulate, disk annular; *Fr.*—capsule, ovoid-globose, 3-valved, cells 2-seeded; *Sd.*—pendulous, curved, muricate, fleshy; *Fl. t.*—Nov.-Dec.

HABITAT:—Along the sides of *nalas*.

LOC.:—Konkan, plentiful on the sides of *nalas* near Vengurla; Kanara.

DISTR.:—W. Ghats of Madras State and Travancore-Cochin.

PARTS USED:—Root, stem, leaves.

PROPERTIES AND USES:—The *root* is sweet and cooling; alexiteric, vulnerary; cures asthma, bronchitis, biliousness, ulcers (Ayurveda).

LOC. USES:—The *root* is a good emetic and cholagogue. It has been found useful in acute dysentery and as an expectorant. In the Konkan *leaves* and *stem* are given in decoction with bitters and aromatics as a remedy for biliousness. The plant *juice* mixed with cocoanut oil is used in cases of psora.

The plant contains alkaloid *naregamin*.

NELUMBO NUCIFERA Gærtn.

(NELUMBIUM SPECIOSUM Willd.)

FAM.—Nymphæaceæ.

COM. NS.:—*E.* Chinese water-lily, Egyptian or Pythagorian bean, Indian sacred lotus; *G.* Suriyakamal; *H.* Ambuj, Kamal, Padam; *K.* Kamala, Tavari-bija or gadde; *M.* Kamal; *Sk.* Ambuja, Aravinda, Kamal, Padma, Pankaja, Pundarika, Sarasija.

CHAR.:—A large aquatic herb, with slender, elongate, creeping stem rooting at the nodes; *L.*—membranous, 0.3-0.6 m. in diam., orbicular, concave or cupped, erect, peltate, entire, radiately nerved; petioles very long, rough with distant prickles; *Fl.*—solitary, 10-25 cm. diam., white or rosy; *C.*—petals many 5-12.5 cm. long, elliptic; anthers with clavate appendages; torus 18 mm. high, spongy, top flat. Ripe carpels, ovoid, glabrous; *Fl. t.*—July.

HABITAT:—Tanks in warmer parts.

LOC.:—Cultivated in tanks in the State.

DISTR.:—Throughout the warmer parts of India; from Iran eastwards to Australia.

PARTS USED :—Root, stem, leaves, flowers, fruit, seeds, honey.

PROPERTIES AND USES :—Nearly every part of the plant has a distinct name and economic use and supplies one or more drugs. Cool, slightly bitter, gives tone to breast; removes worms, allays thirst, fever, biliousness, vomiting, strangury; cures cough, ulcers and sores of mouth; good in blood-complaints, inflammations and poisoning; useful in piles, diseases of skin and eye; aphrodisiac; astringent to taste; removes "Kapha" and "Pitta", sedative to uterus (Ayurveda). Cool, diuretic; good in throat-troubles, chest-pains, spermatorrhœa, leucoderma, small-pox, menorrhagia, bronchitis, leucorrhœa and internal injuries; useful in fevers; heart and brain tonic; allays thirst; improves watery eyes (Yunani).

LOC. USES :—Powdered root is prescribed for piles as a demulcent; also for dysentery and dyspepsia; used as paste in ring-worm and other cutaneous affections; large leaves are used as cool bedsheets in high fever with burning of the skin. The milky viscid juice of the leaves and stalks is used in diarrhœa. Flowers are used as an astringent in diarrhœa, also cholera, in fever and liver-diseases; also recommended as cardiac tonic. Seeds are used to check vomiting and given to children as diuretic and refrigerant. They form cooling medicine for skin diseases and leprosy and are considered an antidote to poison. Filaments are astringent and cooling, useful in burning sensation of the body, bleeding piles and menorrhagia. In bleeding piles filaments are given with honey and fresh butter. A sherbat of the plant is used as refrigerant in small-pox.

In China and Malaya dried red petals, and yellow fragrant stamens are used as a cosmetic application to the face to improve complexion.

The plant contains an alkaloid *nelumbin*.

See—Ornamental Plants.

NERIUM ODORUM Soland.

FAM.—Apocynaceæ.

COM. NS. :—*E.* Sweet scented oleander; *G.* Kaner; *H.* Karber, Kanel, Kaner; *K.* Kanagile, Karvira, Paddali; *M.* Kanher; *Sk.* Ashwamarak, Karvira, Pratihasa, Vishavrikshanka.

CHAR. :—A large glabrous evergreen shrub with milky juice; *L.*—in threes, coriaceous, 10-15 cm. long, linear-lanceolate, tapering into short petiole, dark green and shining above; *Fl.*—red, rose or white, fragrant; *C.*—funnel-shaped, lobes rounded, throat scaly; *Fr.*—follicles, 15-23 cm. long, rigid, at length separating; *Sd.*—tipped with coma of light brown hairs; *Fl. t.*—flowers more or less throughout the year.

HABITAT :—Along banks of rivers.

LOC. :—Grows wild by the banks of Deccan rivers; established along the banks of rivers in Khandesh and Nasik districts; planted in gardens throughout the State; also as a hedge plant.

DISTR. :—Madhya Bharat, S. India, Upper Gangetic Plains, Himalayas from Nepal westwards to Kashmir, Salt Range, Waziristan, Baluchistan, Sind; extensively cultivated throughout the greater part of India as well as in China and Japan.

PARTS USED :—Root, leaves, flowers.

PROPERTIES AND USES :—The medicinal properties are the same as those of *Thevetia nerifolia* (Ayurveda). Root—aphrodisiac, tonic; good for chronic pain in abdomen and in joints; very poisonous. Flowers—aphrodisiac; good for lumbago, inflammations, headache, scabies (Yunani).

LOC. USES :—All parts of plant, especially root, are poisonous and are used externally. Root made into paste with water is used as an external application in cancers and ulcerations; also applied in leprosy. It is a powerful resolvent and attenuant and is used externally. Juice of young leaves is poured into eyes in ophthalmia. Leaf decoction is recommended to reduce swellings. Oil from root-bark is used in skin diseases.

INDIAN PREPARATION :—*Karaviradiya taila* used in eczema and other skin diseases.

The plant contains a glucoside.

See—Ornamental Plants, Poisonous Plants and Fish Poisons.

NICOTIANA TABACUM Linn.

FAM.—Solanaceæ.

COM. NS. :—*E.* Tobacco; *G.* Tabak, Tamaku; *H.* Bujjarbhang, Tambak; *K.* Hoge soppu; *M.* Tambakhu; *Sk.* Dhumrapatrika, Kalanja, Krimighni, Tamakhu, Tamarakuthika.

CHAR. :—An erect glandular-pubescent herb with ~~erect~~ stem; *L.*—alternate, large (especially lower ones), oblong or elliptic, sessile or shortly stalked (upper ones become smaller), base wedge-shaped; they differ greatly according to the variety from narrowly linear-lanceolate to broadly oblong, the surface is plain or bullate; *Fl.*—in open corymbose panicles; *C.*—pink or white, about 1.8 cm. across, funnel-shaped, lobes spreading. *Fr.*—capsule, conical.

HABITAT :—Cultivated.

LOC. :—Extensively cultivated in upper Gujerat (Kaira dist.) and in the area west of the Deccan and S. M. Country (Satara and Belgaum districts).

DISTR. :—Native of America; cultivated in all tropical countries.

PARTS USED :—Leaves.

PROPERTIES AND USES :—Heating, laxative, tonic, emetic, arminative, anthelmintic; useful in bronchitis, asthma, caries of teeth, skin diseases, inflammations; cures bad eye-sight (Ayurveda). Poisonous to fish; useful in caries of teeth, bronchitis, sores, foul nose, scabies, wounds, tubercular glands of neck, dimness of sight; smoke constipating, disinfectant, a mental stimulant; water from hookha is diuretic; black oil in the pipe heals sinuses; cures night-blindness and purulent ophthalmia (Yunani).

LOC. USES :—Leaves are narcotic, sedative and emetic. Excessive smoking gives rise to chronic inflammation of bronchial mucous membrane, nervous depression and sleeplessness. Leaf decoction is a useful external application in inflammatory swellings; tobacco leaves have been used in orchitis; used also in syphilitic nodes and skin diseases. Nicotine has been recommended in tetanus and as an antidote to strychnine. For spongy gums and toothache chewing of tobacco leaf is a favourite remedy in India. An ointment made

by simmering the leaves in hard is used in curing ulcers and painful tumours. Tobacco chewing is resorted to in cases of asthma.

In Guiana *smoke* is considered excellent for strangulated hernia.

NYGTANTHES ARBOR-TRISTIS Linn.

FAM.—Oleaceæ.

COM. NS. :—*E. Coral*—Night-flowering Jasmine; Indian Mourner; *G. Jayaparvati*; *H. Har*, *Har-singhar*, *Sephali*; *K. Harsing*, *Parijata*; *M. Parijata*, *Prajakta*; *Sk. Kharapatraka*, *Nalkumkuma*, *Parijata*, *Prajakta*, *Sephalika*.

CHAR. :—A large shrub or a small tree, rough all over with stiff whitish hairs; young branches quadrangular, hairy; *L.*—opposite 5-10 × 2.5-6.3 cm., ovate acute, rough above with bulbous hairs, densely pubescent beneath; *Fl.*—fragrant, in pedunculate bracteate fascicles of 3-5; peduncles 4-angled, axillary, solitary, in terminal trichotomous cymes; *C.*—lobes white, tube orange-coloured; *Fr.*—capsule, obcordate or merely orbicular, compressed, 2-celled, separating into 2 flat 1-seeded carpels; *Fl. t.*—more or less throughout the year; abundant July-Sept.

HABITAT :—Cultivated.

LOC. :—Widely cultivated in gardens all over the State; found wild in the Satpuda forests of Khandesh.

DISTR. :—Outer Himalayan ranges from the Chenab to Nepal, Assam, Burma, Bengal, Madhya Bharat, southwards to the Godavari. Cultivated in many parts of India.

PARTS USED :—Root, bark, leaves, flowers and seeds.

PROPERTIES AND USES :—*Leaf-juice* is bitter acrid; cures fevers. *Bark* cures bronchitis; a decoction of root, bark, leaves and flowers is given in excessive diuresis and in spleen enlargement. The oil from the bark is used for pain in the eye. (Ayurveda). *Flowers* have a bitter bad taste; stomachic, carminative, astringent to bowels; lessen inflammation; tonic to hair. *Buds* are tonic. *Leaves* are useful in obstinate fevers. *Seeds* are used in piles and skin diseases (Yunani).

LOC. USES :—*Leaves* are regarded as antibilious and expectorant, useful in bilious fevers. *Leaf-juice* is a safe purgative for infants. It is used with honey in chronic fever. With honey and common salt it is used as an anthelmintic. A decoction of the leaves is recommended as a specific for obstinate sciatica. Powdered seeds are employed to cure scurvy, scalp affections etc.

See—Ornamental Plants.

NYMPHÆA PUBESCENS Willd.

(NYMPHÆA LOTUS Linn.)

FAM.—Nymphaeaceæ.

COM. NS. :—*E. Lotus*, *G. Kanval*, *Nilophbal*; *H. Chotakanwal*, *Kanwal*; *K. Bilitavarai*, *Nyadale huvu*; *M. Lalkamal*; *Sk. Alipriya*, *Aravind*, *Kumada*, *Rakta*—*Kalhara*—*Kamala*, *Shonapadma*.

CHAR. :—Large aquatic herb; root stock tuberous, short, erect, roundish; *L.*—peltate, 15-25 cm. diameter, orbicular or reniform (younger subsagitate), deeply cordate at the base, irregularly sinuate-dentate, and nigropunctate above, pubescent and prominently veined beneath; glabrous, petioles very long, cylindric, submerged; *Fl.*—solitary, 7.5-20 cm. across, red, pale rose or white, open in the morning only, peduncles very long; *C.*—petals about 12, oblong, obtuse, stamens about 40, filaments dilated at the base; *Fr.*—3 cm. diam., fleshy, green, globose, ripening beneath the water; *Sd.*—ovoid, rough; *Fl. t.*—all the year.

HABITAT :—Aquatic in warmer regions.

LOC. :—Cultivated in many places in the State.

DISTR. :—Common throughout India in warmer parts, Africa, Hungary, Java, Philippines.

PARTS USED :—Root-stock, leaves and flower.

PROPERTIES AND USES :—The flower has an acrid, bitter taste, cooling; removes impurities from blood; febrifuge, aphrodisiac; lessens bile, "Vata", "Kapha"; allays thirst, cough and vomiting (Ayurveda).

LOC. USES :—Powdered root-stock is given in dyspepsia, diarrhoea and piles; a decoction of the flowers is prescribed in palpitation of the heart.

See—Ornamental Plants.

OCIMUM BASILICUM Linn.

FAM.—Labiatae.

COM. NS. :—*E. Common* sweet basil; *G. Damaro*, *Nasabo*, *Sabja*; *H. Bahari*, *Barbar*, *Rihan*, *Sabzah*; *K. Ramkasturi*, *Sajjebija*; *M. Sabja*, *Tukhamariya*; *Sk. Ajagandhika*, *Barbar*, *Surabhi*, *Surasa*, *Tungi*, *Manjarki*.

CHAR. :—An erect herb 0.6-0.9 m. high; glabrous or hispidly pubescent; stems and branches green or purplish; *L.*—ovate, acute, entire, toothed or lobed; *Fl.*—in whorled racemes; terminal raceme longer than the lateral; bracts stalked; *C.*—2-lipped, 8-13 mm. long, white, pink or purplish, glabrous or pubescent. *Fr.*—nutlets about 2 mm. long, ellipsoid, black and pitted.

Var. thyrsiflora, purple stem, pink flowers in thyrsoid racemes.

HABITAT :—Cultivated and wild.

LOC. :—*Var. thyrsiflora* is cultivated in gardens in the Bombay State.

DISTR. :—Indigenous on the lower hills of the Punjab; cultivated throughout the greater part of India, Ceylon, Burma.

PARTS USED :—Roots, leaves, flowers and seeds.

PROPERTIES AND USES :—*Plant* is pungent and dry; stomachic, anthelmintic, alexipharmic, antipyretic; improves taste; useful in diseases of heart and blood, biliousness, "Kapha", "Vata", leucoderma, itch; causes burning sensation. *Seeds* allay thirst (Ayurveda). *Plant* has a sharp, bitter, hot taste; diuretic, emmenagogue; useful in diseases of heart and brain, chronic pain in joints, asthma, inflammations, enlarged spleen; *juice* gives lustre to

OCIMUM SANCTUM Linn.

FAM.—Labiatae.

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BOMBAY STATE GAZETTEER (BOTANY)

eye; good for toothache, earache, headache; mixed with camphor it stops nasal hæmorrhage (Yunani).

LOC. USES :—*Roots* are used for the bowel complaints of children. *Leaves* are useful in the treatment of croup, for which the juice warmed with honey is given. *Leaf-juice* forms an excellent nostrum for the cure of ring-worm. It is dropped into the ear in ear-ache and dullness of hearing; mixed with pepper and ginger it is given during the cold stages of ague. The *flowers* possess, stimulant, diuretic and demulcent properties. *Seeds* are mucilaginous and cooling, given in infusion in gonorrhœa, diarrhœa and chronic dysentery; a cold infusion is said to relieve the after-pains of parturition; they are also used in internal piles and constipation which they relieve; they are also aphrodisiac.

The whole plant is aromatic and on distillation with water the leaves yield an essential oil which solidifies into basil-camphor.

OCIMUM GRATISSIMUM Linn.

FAM.—Labiatae.

COM. NS. :—*E.* Large basil, Lemon-shrubby basil; *G.* Avachibavachi, Rantulasi; *H.* Ban-Mal tulasi; *M.* Rama-Ran tulasi; *Sk.* Ajaka, Ram Tulasi, Sumukha, Vanabarbarika Gandhapanijaka.

CHAR. :—A perennial shrub, 1.2–1.8 m. high, branched, woody below; stems and branches subquadrangular; young ones pubescent; *L.*—6.3–12.5 × 3.8–5.7 cm., elliptic-lanceolate, coarsely crenate-serrate, pubescent, gland-dotted; *Fl.*—in simple or branched racemes, in close whorls; rachis quadrangular; *C.*—2-lipped, pale greenish yellow, lower lip longer; *Fr.*—nutlets subglobose, brown, rugose. *Fl. t.*—July-Oct.

HABITAT :—Wild and cultivated.

LOC. :—Konkan, Deccan, S. M. Country, Gujarat.

DISTR. :—Throughout India; often cultivated: Ceylon, Java.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—*Plant* has pungent taste with some flavour; heating, alexiteric; useful in vomiting, fits, “Vata”, “Kapha”, skin diseases, inflammations, strangury; causes insomnia (Ayurveda). *Plant* has bitter, sharp taste; carminative, aphrodisiac; useful in diseases of brain, heart, liver and spleen; removes foul breath; strengthens gums; good for griping and piles (Yunani).

LOC. USES :—The plant has aromatic and stimulant properties; aromatic baths and fumigations are advised in the treatment of rheumatism and paralysis. In the aphthæ of children a strong decoction is found effective. During fever when the extremities are cold, leaf-paste is applied to fingers and toe-nails. The same preparation is used for the cure of parasitic diseases of the skin. The leaf-decoction is of value in seminal weakness and is an esteemed remedy in gonorrhœa. The *seeds* are given in headache and neuralgia. On the Gold-Coast leaves are mashed and used as an enema by newly delivered women. It is also styptic, diuretic and stimulant.

COM. NS. :—*E.* Holy-Monk's—Rough-Sacred basil; *G.* Tulasi; *H.* Tulasi, Vranda; *K.* Kala tulasi, Tulasi; *M.* Tulasa; *Sk.* Krishna tulasi, Manjari, Pavitra, Suravallari, Vishnuvallahba, Vrinda.

CHAR. :—An annual plant, 30–60 cm. high, stems and branches subquadrangular, purplish, clothed with soft hairs; *L.*—2.5–5 × 1.6–3.2 cm., elliptic-oblong, obtuse or acute, entire or serrate, pubescent, minutely gland-dotted; *Fl.*—in racemes 15–20 cm. long in close whorls; *C.*—2-lipped, purplish, upper lip pubescent on the back; *Fr.*—nutlets, smooth, yellow with black marking.

HABITAT :—Cultivated.

LOC. :—Grown in and near many Hindoo houses and temples all over the State.

DISTR. :—Throughout India (cultivated); Malay Archipelago, Australia, West Asia, Arabia.

PARTS USED :—Root, leaves and seeds.

PROPERTIES AND USES :—*Plant*—pungent, bitter; heating, stomachic, cholagogue, anthelmintic, alexiteric, antipyretic; useful in heart and blood diseases, leucoderma, strangury, “Kapha”, “Vata”, asthma, bronchitis, vomiting, foul smells, lumbago pains, hiccup, painful eye, purulent discharge of ear; causes burning sensation (Ayurveda).

LOC. USES :—Most sacred plant of the Hindoos. *Root* is given in decoction as a diaphoretic in malarial fevers. Fresh roots are ground with water and applied to stings and bites of insects and leeches. Bruised plant is applied to the bites of mosquitoes (Roberts). *Leaves* are expectorant in chronic cough, especially in children, and are given with honey; used in catarrh and bronchitis; they are applied to the skin in ring-worm and other skin diseases; *juice* poured into ear is a first-rate remedy for ear-ache. *Leaf infusion* is used in gastric disorders of children and in hepatic affections; dried leaves are powdered and used as snuff in ozæna and also for dislodging maggots. *Seeds* are mucilaginous and demulcent, and are given in disorders of genito-urinary system.

See—Sacred Plants.

OLDENLANDIA CORYMBOSA Linn.

FAM.—Rubiaceæ.

COM. NS. :—*G.* Parpat; *H.* Damanpaper; *M.* Papli, Phapti; *Sk.* Parapate.

CHAR. :—An annual herb, varying from 7.5–38 cm. high; stems numerous; *L.*—sessile, linear or linear-lanceolate, margins recurved and scabrous, stipules with bristles; *Fl.*—on filiform pedicels, usually 2–3 cm. long, lobes acute; *Fr.*—capsule, globose or pyriform; *Sd.*—pale brown, angular; *Fl. t.*—Sept-Nov.

HABIT :—A common weed.

LOC. :—Konkan, Deccan and S. M. Country.

DISTR. :—Throughout India, Ceylon, Tropical E. Asia to Java and the Philippines.

PARTS USED :—The whole plant.

PROPERTIES AND USES :—By Sanskrit authors it is considered a cooling medicine of importance in the treatment of fever (remittent fevers with gastric irritability) and nervous depressions; a decoction of the whole plant is said to be a good febrifuge and is used in chronic malaria; it is also used in liver complaints. In the Konkan juice of plant is applied to palms and soles when they burn from fever. Juice is given internally with a little milk and sugar in the burning at the stomach-pit and to cure heat eruptions.

OPUNTIA NIGRICANS Haw.

FAM.—Cactaceæ.

COM. NS.:—*E.* Prickly pear, Slipper thorn; *G.* Chorhothalo, Zhoratheylo; *H.* Hathathoria, Nagaphani; *K.* Mullugalli, Nagdali; *M.* Phadyanivdung, Nagaphana, Sher; *Sk.* Nagaphana, Nagadru, Snuka, Vajrakantaka.

CHAR.:—A woody shrub branched from the base, 3 m. or more high; *L.*—7.5 mm. long, subulate, recurved, reddish at the tips. Joints variable in size, about 18-30 × 10-18 cm. obovate or elliptic, rather thin, dull bluish-green. Areoles bearing about 4-5 upto 10 slender straight prickles, largest 3.5 cm. long; glochidia hidden among the woolly hairs, rusty brown; *Fl.*—5 cm. across, yellow or orange; perianth rotate, outer segments ovate red in the centre, yellow at the edges, inner spatulate; *Fr.*—berry, pyriform, angular or warty, bearing tufts of glochidia and a few prickles, reddish purple when ripe.

HABITAT :—Common in waste places; xerophyte.

LOC.:—Growing all over the State near villages and in waste places forming a pest. Grown as hedge.

(The introduction of cochineal insects has wiped out this plant all over the State. Since last 2 years it is found to reappear in some places).

DISTR.:—Probably indigenous in Mexico; introduced into India.

PARTS USED :—Stem-joints, flowers and fruits.

PROPERTIES AND USES :—*Plant*—hot; laxative, stomachic, carminative, antipyretic, alexiteric; cures biliousness, burning, leucoderma, "Vata", urinary complaints, tumours, ascites, loss of consciousness, piles, inflammations, vesicular calculi, anaemia, ulcers, spleen enlargement. *Flowers*—cure bronchitis and asthma. *Plant juice*—heating; cures syphilis (Ayurveda). *Plant bitter*, digestive, carminative, diuretic, purgative; cures bronchitis in children; good for leucoderma, spleen enlargement; used in ophthalmia, liver complaints, lumbago; cures inflammations; juice cures ear-ache (Yunani).

LOC. USES :—Joints mashed into pulp and applied as poultice allay heat and inflammation in scorbutic ulcers. Hot joints applied to boil are said to hasten suppuration. Joints pulp is applied to eyes in ophthalmia. *Fruit* is considered refrigerant and is useful in gonorrhoea; when baked and made into syrup acts as an expectorant and is a good remedy in asthma and whooping cough; it has the effect of increasing bile secretion; milky juice given with sugar is purgative.

I have used joints warmed for poultice in guinea worm abscesses with marked effect (K. R. K.).

OROXYLON INDICUM Vent.

FAM.—Bignoniaceæ.

COM. NS.:—*E.* Indian trumpet flower; *G.* Podval, Tetu; *H.* Arlu, Pharri, Ullu; *K.* Alangi, Bagi, Mokka, Tetu; *M.* Tetu; *Sk.* Araluka, Dirghavrinta, Mayarjangha, Shyonaka, Tuntaka.

HABITAT :—In moist-forests.

LOC.:—The Konkan and the N. Kanara ghats; very common in rain-forests near Nilkund (Kanara).

DISTR.:—Throughout India except in the Western drier area, Ceylon, Malaya, Cochin-China, Ava.

PARTS USED :—Root-bark and fruit.

PROPERTIES AND USES :—*Root-bark*—acid; astringent to bowels; cooling, aphrodisiac, tonic, appetiser; useful in "Vata", biliousness, bronchitis, fevers, intestinal worms, vomiting, dysentery, leucoderma, asthma, inflammations, anal troubles. *Fruit*—acid, stomachic, anthelmintic, good in heart and throat diseases, piles, bronchitis (Ayurveda). *Fruit*—expectorant; improves appetite; useful in leucoderma (Yunani).

LOC. USES :—Root-bark is well known and much esteemed being an ingredient of the *Dashamula* of Hindoo medicine. It is astringent and tonic, useful in diarrhoea and dysentery. Root-bark paste boiled with sesamum oil is recommended for otorrhoea; decoction of root-bark is used in rheumatic swellings. Tender fruits are beneficial carminative and stomachic. Seeds are purgative.

Powder made from bark along with *hardi* is a useful cure for sore-backs of horses.

The plant contains a bitter principle *oroxylin*.

See—Timbers, Tans, Dyes.

ORYZA SATIVA Linn.

FAM.—Gramineæ.

COM. NS.:—*E.* Rice; *G.* Chokha; *H.* Chaval; *K.* Akki; *M.* Tandula, Bhat; *Sk.* Nivara, Shali, Tandula, Vrihi.

HABITAT :—Aquatic.

LOC.—Many varieties are grown in the Bombay State. Extensively cultivated in Konkan and Deccan (Maval) close to W. Ghats. Fairly large areas in Gujarat, S. M. Country and Kanara (Rabi crop).

DISTR.:—Widely cultivated.

PARTS USED :—Grain.

PROPERTIES AND USES :—Grain acid, sweet; oleaginous, tonic, aphrodisiac, fattening, diuretic; improves taste; useful in biliousness; increases "Vata" and "Kapha" (Ayurveda).

LOC. USES :—In India rice is used variously in invalid diet. Rice is nutritious and easy to digest for weak stomachs. Rice

conjee is good, taken as a drink in an inflammatory or irritable state of stomach, bowels or kidneys. It is a pleasant, demulcent and refrigerant drink in fevers. Rice water, to which a little lemon juice is added, forms an excellent drink in ordinary fevers, small-pox, measles, scarlet fever, gonorrhœa and in cases where there is pain and difficulty in passing urine. Plain rice-water is used as an enema in bowel affections. Rice flour dusted thickly over the surface forms a cooling and soothing application in skin diseases, also in burns and scalds. Rice poultice is used also as a substitute for linseed meal poultice. It is an excellent application to abscesses, boils, buboes, ulcers, inflamed piles. In chronic bronchitis and coughs, if applied to chest, gives great relief.

The grains contain vitamin C.

See—Food Plants.

OXALIS CORNICULATA Linn.

FAM.—Oxalidaceæ.

COM. NS.:—*E.* Indian Sorrel; *H.* Amrul; *K.* Hulitiuniche-gida Pullampurchi-soppu; *M.* Ambuti; *Sk.* Ambastha, Amlalonika, Changeri, Chukrita, Shuklika.

CHAR.:—A small procumbent acrid herb; stems rooting, pubescent; *L.*—palmately 3-foliate, petioles very slender; leaflets 1.2–2.5 cm. long, obcordate, base cuneate subsessile, margins ciliate; *Fl.*—axillary, sub-umbellate; *C.*—petals 5, yellow, oblong, rounded at the apex; *Fr.*—capsule, linear-oblong, 5-angled, beaked; *Sd.*—many, ovoid, transversely striate, brown; *Fl. t.*—Oct-May.

HABITAT:—A troublesome weed in gardens.

LOC.:—Throughout the State.

DISTR.:—Cosmopolitan: throughout the warmer parts of India, Ceylon; in the Himalayas up to 2700 m.

PARTS USED:—Leaves.

PROPERTIES AND USES:—Hot and bitter; easy to digest, good appetiser; removes “Kapha”, “Vata” and piles; astringent; cures dysentery, diarrhœa, skin diseases and quartan fevers (Ayurveda).

LOC. USES:—*Leaves* have been used in fever, dysentery and scurvy. In dysentery, fresh juice of the leaves mixed with honey and sugar is said to be useful. Infusion of small leaves is given as a cooling medicine in fevers; used externally, *juice* removes warts and opacities of the cornea; curry from fresh leaves improves appetite and digestion of dyspeptic patients; bruised, they form a good poultice over inflamed parts; prepared with hot water they form good poultice for boils. In the Konkan the plant is rubbed in water, boiled and mixed with onion and then applied to the head in bilious headache.

In slight forms of dysentery leaves boiled in butter-milk and given twice or thrice a day prove very useful (Koman).

OXYSTELMA ESCULENTUM R. Br.

FAM.—Asclepiadaceæ.

COM. NS.:—*G.* Jaladudhi; *H.* Dudhialata, Dugdhica, Kyirin; *K.* Dugdhike; *M.* Dudhani, Dudhari, Dudhatani; *Sk.* Dudhialata, Dugdhika, Kshiravi, Marudbhava.

CHAR.:—A perennial twining herb with milky juice; roots fibrous from the lower nodes; stems many, much branched; *L.*—deciduous, 4.5–9 cm. × 3–8 mm. linear or linear-lanceolate, thin, pale-green; *Fl.*—large, strikingly handsome, drooping in subumbellate or racemose 2–4 flowered cymes; *C.*—tubular with saucer-shaped limb, pale rose or white, mouth with pubescent ring; lobes ciliate; purple veined; corona staminal; *Fr.*—follicles 3.8–6.3 cm. long, ovoid-lanceolate tapering; *Sd.*—very numerous, black, coma present; *Fl. t.*—Dec.

HABITAT:—Usually near water.

LOC.:—Konkan; Deccan, Poona Sangam; S. M. Country—Belgaum; Kanara.

DISTR.:—Throughout the plains and lower hills of India usually near water; Ceylon, Java.

PARTS USED:—Plant, root, fruit, milky juice.

PROPERTIES AND USES:—*Plant*—pungent, dry; indigestible; causes flatulence; diuretic, laxative, aphrodisiac; anthelmintic; useful in leucoderma and bronchitis (Ayurveda).

Fruit—tonic, expectorant, anthelmintic; *juice* is used in gleet, gonorrhœa, pain in the muscles, cough; given to children as an astringent (Yunani).

LOC. USES:—The fresh roots are said to be used as a specific for jaundice. A decoction of the plant is used as a gargle in aphthous ulcerations of the mouth and in sore-throat. Milky sap forms a wash for ulcers. In combination with turpentine it is prescribed for itch. Milky juice is supposed to be galactagogue and is said to possess marked antiperiodic properties.

PANDANUS ODORATISSIMUS Linn.

FAM.—Pandaneæ.

COM. NS.:—*E.* Screw pine, Umbrella Tree; *G.* Kewoda; *H.* Gogandhul, Keora, Ketgi; *K.* Kedige, Ketaki, Mundige; *M.* Kevada; *Sk.* Chama-pushpa, Gandha-pushpa, Ketaka, Giripriya, Dhulipushpika.

CHAR.:—A shrub up to 6 m. high, rarely erect; stem supported by aerial roots; *L.*—glaucous green, 0.9–1.5 m. long, coriaceous ensiform, margins and midrib spiny; *Fl.*—dioecious; *male flower* spadix with many cylindric spikes enclosed in long white or yellow fragrant spathes; *female flower* spadix solitary; *Fr.*—oblong or globose, yellow or red; drupes 50–80 each consisting of 5 to 12 carpels.

HABITAT:—Sandy places near the sea-coast.

LOC.:—Konkan and N. Kanara.

DISTR.:—Sea-coast of Indian Peninsula on both sides, Sundarbans, Burma, Andamans; often planted.

PARTS USED:—Root, leaves, anthers, fruit and oil from bracts.

PROPERTIES AND USES:—*Leaves* are pungent, bitter, with flavour, alexiteric, aphrodisiac, somniferous; useful in strangury and tumours. *Flowers* improve complexion. *Anthers* useful in pruritus. *Fruit* is useful in “Vata”, “Kapha”, and urinary discharges (Ayurveda).

Leaves are useful in leprosy, small-pox, syphilis, scabies, heat of body, pain, leucoderma, diseases of heart and brain; tonic, aphrodisiac.

Anthers are useful in earache, headache, leucoderma, eruptions, diseases of blood. *Oil* cools and strengthens brain (Yunani).

LOC. USES :—The oil and the otto obtained from the bracts are considered stimulant and antispasmodic and are used in headache and rheumatism. It is also useful in earache and leprosy. Medicinal oil is prepared from the roots.

In Cambodia root is considered diuretic, depurative, and tonic.
See—Oils.

PAVETTA INDICA Linn.

FAM.—Rubiaceæ

COM. NS. :—*E.* Indian Pellet Shrub; *H.* Kankra, Kathachampa, Papri; *K.* Nitile, Pavate, Sulebottu; *M.* Papadi, Papat; *Sk.* Kakachedi, Papata, Tiriakphala.

CHAR. :—A stout bushy shrub 0.6–1.2 m. high; bark yellowish, smooth; *L.*—7.5–15 × 2.5–6.3 cm. membranous, variable in shape and size, elliptic-oblong or lanceolate glabrous; *Fl.*—in terminal sessile corymbose cymes, white, odorous, tubular. *Fr.*—globose, black, smooth; *Fl. t.*—Mar.-May. There are two varieties; *var. indica* proper which is non-hairy, *var. tomentosa* which is hairy.

HABITAT :—*Var. indica* proper—monsoon and rain-forest along ghats; *var. tomentosa*—dry deciduous forests.

LOC. :—Very common on hills throughout the State; Konkan—Karanja Hills; Deccan—Mahabaleshwar (very common).

(2) Lateite near sea-coast and forests of Dharwar district.

DISTR. :—Throughout India, Ceylon, Malay Peninsula, Malay Archipelago, S. China and N. Australia.

PARTS USED :—Root, wood and leaves.

PROPERTIES AND LOC. USES :—*Root* is bitter and aperient; it is commonly prescribed in visceral obstructions. It is pulverised and mixed with ginger and rice-water and given in dropsy. Boiled in water a fomentation is made from the leaves for hæmorrhoidal pains.

In Indo-China wood infusion is given as a cure for rheumatism.

The plant contains a glucoside.

PAVONIA ODORATA Willd.

FAM.—Malvaceæ.

COM. NS. :—*G.* Kalowalo; *H.* Sugandha-bala; *K.* Balarakkari-gida, Mudivala; *M.* Kala-vala, Sugandha-bala; *Sk.* Bala, Kachamoda, Udichya, Varapinga.

CHAR. :—An erect branching annual, 45–90 cm. high; stems and branches viscous pubescent; *L.*—2.5–7.5 cm. long, roundish-ovate, cordate, shallowly 3–5 lobed, dentate or lower ones entire, hairy, felted and whitish beneath; *Fl.*—solitary, clustered at the ends of branches; involucre bracts 10–12, linear, with long white hairs, pink, twice the length of calyx; *Fr.*—carpels glabrous, not winged; *Fl. t.*—Oct.

HABITAT :—Wild in waste places and open woods.

LOC. :—Konkan, S. M. Country and Deccan.

DISTR. :—N. W. India, Bundelkhand, W. Rajastan, Bengal, N. Circars, Karnatic, Sind, Baluchistan, Ceylon.

PARTS USED :—Root.

PROPERTIES AND USES :—Appetiser and strengthener; refrigerant, stomachic, tonic; removes “Kapha” and “Pitta”; prescribed in diseases of heart and blood complaints; cures dysentery, excessive salivation and ulcers; good for vomiting, thirst, skin eruptions, fever and asthma (Ayurveda).

LOC. USES :—The herb has a musk-like odour. Roots also have an odour; they are cooling and stomachic. They enter into the composition of a well known drink (Sadanga Paniya), given in fevers. It is also used in hæmorrhage from internal organs and in inflammations.

It is prescribed as an astringent and tonic in cases of dysentery (Taylor). Plant is used as a cure for rheumatism (Hughes-Buller).

Preparation of the root with “bel” fruit (*Aegle marmelos*) is considered useful in dysentery.

See—Sacred Plants.

PEDALIUM MUREX Linn.

FAM.—Pedaliaceæ.

COM. NS. :—*G.* Kadava—Ubho-gokharu; *H.* Bara—Kadya-gokhar; *K.* Ane-neggilu, Dodda-neggilu; *M.* Motha—Malvi-gokharu; *Sk.* Gajadaunstraka, Gokshura, Titta-gokshura.

CHAR. :—A much branched annual herb, 15–38 cm. high; stems and branches rough with scaly glands; *L.*—opposite, pale green, fleshy, broadly-ovate, obtuse, coarsely crenate-serrate or lobed, glabrous above, covered with scales beneath; *Fl.*—axillary, solitary; *C.*—tube slender below, enlarged above, 2 cm. across at the mouth, bright yellow, lobes broad, rounded. *Fr.*—narrowed at the base, pyramidal ovoid above. The stems, bluntly 4-angled with horizontal, spines from the angles; *Fl. t.*—Oct.

HABITAT :—Sandy shores.

LOC. :—Konkan, S. M. Country (Badaini Sandstone area), Gujarat and Sourashtra.

DISTR. :—S. India, Ceylon and tropical Africa.

PARTS USED :—Stems, leaves and fruits.

PROPERTIES AND USES :—The properties are the same as *Tribulus terrestris* (Ayurveda).

LOC. USES :—*Leaves* are used very largely as a healing application to ulcers. The fresh leaves and stems, briskly agitated in cold-water speedily convert it into a thick mucilage. This is a highly prized remedy in gonorrhoea and dysuria. The fruit is demulcent, diuretic, antispasmodic, and aphrodisiac. The juice is used in aphthæ as a local application. The decoction is useful in irritation of the urinary organs. It is given as a remedy for spermatorrhea, incontinence of urine and impotence.

The juice of the fruit is an emmenagogue; used in puerperal diseases and to promote lochial discharges. The leaves are used as

curry in splenic enlargement. The decoction of the root is antibilious (Thompson).

The plant contains an alkaloid.

PEGANUM HARMALA Linn.

FAM.—Rutaceæ.

COM. NS.:—*E.* Foreign Henna; Harmala; Syrian wild rue; *G.* Ispun; *H.* Harmal, Isbandlahouri, Kaladana; *K.* Simegoranti; *M.* Harmala.

CHAR.:—A bush 30-90 cm. high, dichotomously and corymbosely branched; *L.*—alternate, 5-7.5 cm. long, multifid, segments narrow, linear acute; *Fl.*—solitary, sessile or pedicelled, white; *Fr.*—capsule, globose, deeply lobed, veined, glabrous; *Fl. t.*—Oct.-Dec.

HABITAT:—Drier parts.

LOC.:—Konkan, Deccan, S. M. Country, Cutch.

DISTR.:—Bihar, Uttar Pradesh, Sind, Baluchistan, Waziristan, Iran, Central Asia, Mediterranean.

PARTS USED:—Root, leaves and seed.

PROPERTIES AND USES:—There are two varieties, dark and white seeded, with the same therapeutic properties. Expectorant, strengthening, fattening, diuretic, anthelmintic, laxative, emmenagogue; enriches blood; useful in lumbago, paralysis, weakness of muscles and of brain, diseases of children, ophthalmia, rheumatism; relieves asthma and chronic bronchitis; inhalation of smoke relieves toothache and pain in liver (Yunani).

LOC. USES:—According to Mooideen Sheriff the seeds are narcotic, antispasmodic, hypnotic, anodyne, nauseant, emetic and emmenagogue. He recommends their use in cases of asthma, hiccup, hysteria, rheumatism, impaction of calculus in the ureter and of gall-stone in the gall-duct, colic, jaundice, dysmenorrhœa and neuralgia; in all of which they relieve pain and procure sleep.

The seeds contain alkaloids *harmaline* and *harmine*.

PEUCEDANUM GRAVEOLENS Benth.

FAM.—Umbellifereæ.

COM. NS.:—*E.* Anet, Dill; *G.* Suah, Surva; *H.* Sowa, Sutopoha *K.* Sabbasiga; *M.* Balantshopa, Shopha; *Sk.* Avakapushpi, Shatapushpa, Shophaka, Vajana.

CHAR.:—A glabrous perennial herb, 30-90 cm. high; *L.*—2-3 pinnate, ultimate segments linear; bracts and bracteoles; *Fl.*—in compound umbels, yellow; *Fr.*—4 × 2 mm., narrowly winged, dorsal intermediate, ridges distinct, as broad as thick; vittæ large, solitary in each furrow, 2 on the commissure.

HABITAT:—Cultivated.

LOC.:—Extensively cultivated in the Khandesh district and part of Gujarat.

DISTR.:—Throughout tropical and sub-tropical India, often cultivated; cultivated in South Europe and Western Asia.

PARTS USED:—Root, leaves (rarely) and fruit.

PROPERTIES AND USES:—Hot, stomachic, antipyretic, carminative, anthelmintic; digestible; cures "Vata", "Kapha", ulcers, abdominal and uterine pains, eye-diseases; causes biliousness (Ayurveda). *Fruit*—hot, carminative, antidyenteric, stomachic, alexiteric, diuretic, laxative, emmenagogue, maturant, vulnerary; relieves griping pains due to cold, hiccup, ear-ache; good for liver, spleen, bladder, chest; useful in gleet, syphilis and piles (Yunani).

• LOC. USES:—*Leaves* moistened with oil are used as poultice. *Fruit* is used as a condiment and medicine; an infusion of it is given as a cordial to women after confinement. Dried fruits are carminative and stomachic; given in children's complaints in the form of dill-water. *Seeds* bruised and boiled in water and mixed with roots are applied externally in rheumatic and other swellings. *Seeds* yield an essential oil which is a valuable carminative.

PHASEOLUS MUNGO Linn.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS.:—*G.* Aded, Arad; *H.* Dord, Thikiri, Urid; *K.* Hesaru, Uddu; *M.* Udid; *Sk.* Baladhya, Kuruvinda, Masha, Pitri-bhojana.

HABITAT:—Cultivated.

LOC.:—Largely cultivated in the Deccan, Satara, Bijapur; S. M. Country, Dharwar and Belgaum.

DISTR.:—Extensively cultivated all over India.

PARTS USED:—Root (rarely) and seed.

PROPERTIES AND USES:—*Seeds*—sweet, oily, laxative, aphrodisiac, tonic, appetiser, diuretic, galactagogue; cure "Vata", piles, asthma; good for heart and in fatigue; causes thirst, "Kapha" and leprosy-like skin-diseases. (Ayurveda). *Seeds*—aphrodisiac, tonic, diuretic, galactagogue, styptic; useful in scabies, leucoderms, gonorrhœa, pains, epistaxis; indigestible (Yunani).

LOC. USES:—This is a highly valued article of diet and is also used in Hindu medicine. The seeds are much used, in the form of decoction, both internally and externally, in paralysis, rheumatism, and affections of the nervous system; also used in fevers; considered hot and tonic; useful in piles, affections of the liver and cough. It is used as a poultice for abscesses and inflammations; as a lactagogue in the form of cooked *dal*.

Root is said to be narcotic and is remedy for aching bones. In Indo-China seeds are considered diuretic; they are prescribed for dropsy and cephalalgia.

The grains contain vitamins A and B.

INDIAN PREPARATIONS:—*Svalpa Mash taila*—useful in rheumatism, contracted knee joint and stiff shoulder joint, etc.

See—Food Plants.

PHASEOLUS RADIATUS Linn.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS.:—*E.* Green-gram; *G.* Lilamag, Mag; *H.* Harrimung; *Mung*, Pessara; *K.* Hesaru; *M.* Mug; *Sk.* Hayananda, Mudga, Rassottoma, Varnarha.

HABITAT :—Cultivated.

LOC. :—Largely grown in Ahmedabad, Khandesh, Ahmednagar, Satara, Dharwar, Belgaum, Kolaba and Kanara, as a *kharif* crop.

DISTR. :—Largely cultivated throughout India.

PARTS USED :—Seeds.

PROPERTIES AND USES :—*Seeds*—cooling, digestible, laxative, antipyretic; cure biliousness, blood diseases, "Kapha"; good for eyes; cause much flatulence (Ayurveda). *Seeds*—tonic, astringent to bowels; enrich blood; good in fevers, eye troubles, headache, nose complaints, throat inflammations, bronchitis, kidney diseases; cure biliousness and diseases of blood (Yunani).

LOC. USES :—The *pulse* is considered cool, light and astringent. It is used to strengthen the eye and as a diet in fever.

The Sutos rub the powdered bean into scarifications over tumours and abscesses to promote suppuration.

The grains contain vitamins A and B.

See—Food Plants.

PHASEOLUS TRILOBUS Ait.

FAM.—Leguminosæ (Papilionoidæ).

COM. NS. :—G. Adabammagi, Adavada, Magavala; H. Mugani, mugavana, Trianguli; K. Kohesaru; M. Ranmath, Ranmug; Sk. Kosbila, Kurangika, Shinbiparni, Vamaudga.

CHAR. :—Annual or perennial, stems numerous from a woody root-stock, prostrate, wiry, glabrous or hairy; *L.*—3-foliate, petioles grooved; leaflets 1.3–2.5 cm. long, commonly 3-lobed (middle the largest, broadly spatulate; lateral oblong or more or less spatulate) all pale green, membranous; *Fl.*—in sub-capitate, few flowered racemes, peduncles 10–23 cm. long, yellow; *Fr.*—pod, 2.5–5 cm. long, straight subcylindric, slightly recurved; *Sd.*—6–12; *Fl. t.*—Oct.

HABITAT :—Borders of cultivated fields.

LOC. :—Very common throughout the State; Konkan, Deccan and Gujarat. Occasionally cultivated as a mixed crop for fodder.

DISTR. :—On the Himalayas upto 2200 m. and southwards to Ceylon, Sind, Burma, Malay Islands, Afghanistan, Abyssinia.

PARTS USED :—Leaves and fruit.

PROPERTIES AND USES :—*Fruit*—cooling, dry, bitter; aphrodisiac, astringent, styptic, anthelmintic; good for the eyes; cures consumption, inflammations, fever, burning sensation, thirst, "Tridosh", piles, dysentery, cough, gout, biliousness. The *juice* of the plant is prescribed in rat-bite fever (Ayurveda).

LOC. USES :—*Leaves* are considered tonic and sedative; they are used in cataplasms for weak eyes. In Bihar they are administered in decoction in cases of irregular fever.

PHENIX SYLVESTRIS Roxb.

FAM.—Palmae.

COM. NS. :—E. Date sugar palm; Indian wine palm, wild date palm; G. Kajuri, Kherk, Tadi; H. Khaji, Khajuri, Sendhi; K. Ichelamara, Kalli-chalu, Kallu, Siyindu; M. Boichand, Shindi; Sk. Kapila, Kashayi, Kharjuri, Kharjurika, Swadi.

CHAR. :—A tall graceful palm, 9–15 m. high; trunk rough with leaf-stalk scars; crown hemispherical, large and thick; *L.*—pinnate, 3–4.5 m. long, greyish-green, petioles compressed towards the apex, triangular, spiny at the base; pinnules many, densely fascicled; 15–45 × 2–2.5 cm., rigid, ensiform, spinous, pointed; *Fl.*—dioecious; *male* white, scented, spadix 60–90 cm. long, erect, spathes separating into 2 boat-shaped valves, flowers very many, angular, oblique; *female* spadix and spathe as in the male; flowers distant, roundish; *Fr.*—2.5–3.2 cm. long, oblong-ellipsoid, orange-yellow; *Sd.*—rounded at the ends, deeply grooved on one side; *Fl. t.*—Jan–Feb.

HABITAT :—Moist situations in dry regions.

LOC. :—Found fairly in Surat, Sholapur, Poona and Belgaum districts, usually along banks, and in beds of streams and water courses.

DISTR. :—Tolerably common throughout India, wild or more often cultivated; Bengal, Bihar, Coromandel Coast, Rohilkhand, Mysore, Siwalik, outer Himalayas.

PARTS USED :—Root (rarely), fruit and juice of the tree.

PROPERTIES AND USES :—*Fruit* is sweet, cooling, oleaginous, cardiotonic, fattening, constipating, aphrodisiac; good in heart and abdominal complaints, fevers, vomiting, wandering of mind, loss of consciousness (Ayurveda).

LOC. USES :—The *root* is used in toothache and is also good in nervous debility. The *fresh juice* obtained from the tree is a cooling beverage. This is called *neera*. The central tender part is used in gonorrhœa and gleet. Pounded fruits mixed with almonds and other spices form a restorative *poushtika*.

A fermented drink is prepared from the juice.

• See.—Fibres, Famine Plants.

PHYLA NODIFLORA Greene.

(LIPPIA NODIFLORA Mich.)

FAM.—Verbenaceæ.

COM. NS. :—G. Ratoliya, Ratuliyo; H. Bhuiokra, Jalapipati, Okra; M. Jalapimph, Ratoliya; Sk. Agnijwala, Jalpippali, Langali, Sharadi, Toyavallari, Vashira.

CHAR. :—A creeping perennial herb; stems rooting at the nodes, much branched, clothed with appressed white hairs; *L.*—opposite, subsessile, spatulate, rounded at the apex, sharply serrate in upper part; *Fl.*—sessile, densely packed in long peduncled axillary heads; *C.*—white or pale-pink; 2-lipped, upper 2-lobed, lower 3-lobed; *Fr.*—globose, oblong; *Fl. t.*—more or less all the year.

HABITAT :—Grassy and sandy places.

LOC. :—Common in grassy and sandy places in the Deccan and Gujarat.

DISTR. :—Throughout India, Ceylon, Baluchistan, Africa, most tropical and sub-tropical regions.

PROPERTIES AND USES :—*Plant*—acrid, cooling, aphrodisiac, anthelmintic, alexiteric; useful in diseases of heart, blood and eye;

improves taste; good for ulcers, wounds, burning sensation, asthma, bronchitis, thirst, loss of consciousness (Ayurveda). *Plant*—hot, dry; diuretic, maturant; useful in fevers, colds and urinary concretions (Yunani).

LOC. USES :—The tender stalks and leaves are slightly bitter and prescribed in the form of infusion to children suffering from indigestion and to women after delivery. A poultice composed of fresh plant is a good maturant for boils. In Bombay it is used as a demulcent in gonorrhœa.

It is valuable in scurvy, stoppage of bowels and pain in the knee-joint (Honingberger).

Chutney made from leaves and fruits gives temporary relief to the irritation of internal piles (Koman).

PHYLLANTHUS NIRURI Linn.

FAM.—Euphorbiaceæ.

COM. NS. :—G. Bhumyamali; H. Bhumyamali, Bhuianvalah, Jaramla, Sadahazurmani; K. Kiranelligida; M. Bhuiavli; Sk. Ajata, Amala, Bhumyamalaki, Sukshmadala, Vituntika.

CHAR :—An annual herb, 30-60 cm. high; stem branched at the base, angular; *L.*—numerous, distichous, elliptic-oblong, 6-13 × 3-6 mm; *Fl.*—yellowish, very numerous, axillary, monœcious; males 1-3; females solitary; disk of the male of minute glands, of female, annular, lobed; *Fr.*—capsule, very small, globose, smooth, scarcely lobed; *Sd.*—3-gonous, longitudinally ribbed on the back; *Fl. t.*—July-Aug.

HABIT :—A weed in cultivated fields.

LOC. :—Konkan and Deccan.

DISTR. :—Throughout India, Ceylon; Tropics generally, except Australia.

PARTS USED :—Root, leaves, fruit, milky juice. The whole plant.

PROPERTIES AND USES :—Acrid, cooling; alexipharmic; useful in thirst, bronchitis, leprosy, anæmia, urinary discharges, anuria, biliousness, asthma, hiccup; used also as a diuretic and in menorrhagia (Ayurveda). Stomachic, good for sores and in chronic dysentery; *Fruit* useful for tubercular ulcers, wounds, sores, scabies, ringworm (Yunani).

LOC. USES :—The *plant* is much used as a diuretic in dropsy, gonorrhœa and other troubles of the genito-urinary tract. *Fresh root* is said to be an excellent remedy for jaundice. In the Konkan root rubbed down with rice-water is given as a remedy for menorrhagia. Powdered roots and leaves made into poultice with rice-water are used to lessen œdematous swellings and ulcers. *Leaves* are stomachic. *Leaf-poultice* with salt cures scabby affections and without salt may be applied to bruises.

Decoction of root and leaves is very useful in inveterate intermittents with infarcts of spleen and liver. Infusion is a good tonic and a diuretic when taken cold in repeated doses.

The plant contains a bitter substance *phyllanthin*.

PIPER BETLE, Linn.

FAM.—Pipereceæ.

COM. NS. :—E. Betel leaf vine, Betel pepper; G. Pan, Tambola, H. Pan; K. Eleballi, Panu, Vileyad-ele; M. Pan, Vidyache-pan; Sk. Bhakshyapatra, Nagavalli, Saptashira, Tambulavalli.

HABITAT :—Cultivated in hotter and damper regions.

LOC. :—Chief centres of cultivation: Dharwar, Poona, Satara, Sholapur, Thana and Kanara districts of the State; generally in Konkan.

DISTR. :—Cultivated in hotter and damper parts of India and Ceylon.

PARTS USED :—Root (rarely), leaves, and fruits (rarely).

PROPERTIES AND USES :—*Leaf*—pungent, acrid; heating, carminative, tonic, stomachic, aphrodisiac, laxative; useful in "Vata", "Kapha", foul smell in the mouth, ozæna, bronchitis, elephantiasis; improves appetite (Ayurveda). *Leaf*—improves taste and appetite; tonic to brain, heart and liver; strengthens teeth; clears throat; vulnerary; styptic (Yunani).

LOC. USES :—Slender roots with black-pepper are used to produce sterility in women. Betel-leaf, chewed as *pan* acts as a gentle stimulant, tonic and digestive. It increases saliva. It is said to act as an aphrodisiac. It sweetens breath, improves voice, removes all foulness from mouth. It contains an aromatic essential oil. Fresh leaves, leaf juice and oil are aromatic, carminative and astringent. Warm leaves, smeared with oil, form a valuable application to the chest in difficulty of breathing and coughs in children and also in liver congestion. Essential oil has been successfully used in catarrhal disorders and as an antiseptic; leaf-juice is dropped into eye in painful eye-affection and in ear in earache; given with milk in hysteria. It is used to relieve cerebral congestion, satyriasis and to allay thirst. Leaves applied hot to the chest act as galactagogue.

See—Condiments and Spices.

PIPER NIGRUM Linn.

FAM.—Pipaeraceæ.

COM. NS. :—E. Black-pepper; G. Kalamiri, Kalam-rich; H. Golmirch; Malimirich; K. Mensinballi, Menasu, Menasin-kallu; M. Kalimiri; Sk. Kaphavirodhi, Kalaka, Marich, Tikshna.

HABITAT :—Wild and cultivated.

LOC. :—Wild in the N. Kanara forests; cultivated in Konkan and N. Kanara.

DISTR. :—Cultivated in the Tropics generally; Ceylon.

PARTS USED :—Fruits.

PROPERTIES AND USES :—Pungent, hot; anthelmintic, alterative; useful in "Kapha", "Vata", asthma, pains, throat diseases, piles, urinary discharges, ozæna, night blindness; increases biliousness; brings in sleep in epileptic fits (Ayurveda). *Fruit*—pungent, carminative, bechic, aphrodisiac, purgative, alexipharmic; useful in toothache, inflammations, liver and muscular pains, spleen diseases,

leucoderma, lunabago, chronic fevers, paralysis; facilitates menstruation; dries body humours (Yunani).

LOC. USES :—Black pepper has held an important place in Hindoo medicine for many centuries. It is much employed as an aromatic stimulant in cholera, weakness following fevers, vertigo, coma; as a stomachic in dyspepsia and flatulence; as an antiperiodic in malarial fevers; as an alterative in paraplegia and arthritic diseases. Externally it is rubefacient; as a local application used for relaxed sore-throat, piles and some skin-diseases; as a resolvent to boils in the form of paste.

Fruits contains alkaloids *piperin*, *piperidine* and an essential oil.

INDIAN PREPARATION :—*Prunada Gutika*: confection given in hæmorrhoids.

See—Condiments and Spices.

PITTOSPORUM FLORIBUNDUM W. & A.

FAM.—Pittosporaceæ.

COM. NS. :—K. Tammata; M. Vehkali; Vikhari.

HABITAT :—Dry and rocky situations.

LOC. :—Tolerably common along the ranges of ghats; Konkan, Deccan, Khandala (pretty common), N. Kanara in ghat forests.

DISTR. :—Sub-tropical Himalayas from the Punjab to Sikkim. Khasia Hills, Burma. W. Ghats to Nilgiris and southwards; hills of S. Arcot and Salem.

PARTS USED :—Bark and oil.

PROPERTIES AND LOC. USES :—Bark is bitter and aromatic, and possesses narcotic properties; used as febrifuge; used in chronic bronchitis. It is a good expectorant.

In physiological action, the oil is alterative, tonic and a local stimulant. It has specific effect on skin-diseases. It has been recommended for trial as a local application in rheumatism, leprosy, sprains, bruises, sciatica, chest affections, ophthalmia and phthisis. Internally it may be prescribed with caution in cases of leprosy, various forms of cutaneous diseases, secondary syphilis and chronic rheumatism.

Bark contains a glucoside. It yields an essential oil.

See—Timbers.

PLANTAGO MAJOR Linn.

FAM.—Plantaginaceæ.

COM. NS. :—E. Greater plantain; H. Lahuriya, Bartang.

CHAR. :—A perennial herb with an erect stout root-stock; L.—alternate, radial 2.5-12.5 cm. long, variable in width, ovate or oblong, entire or toothed, base tapering into petiole, petiole longer than leaf-blade; Fl.—scattered or crowded in long lax spikes 5-15 cm long; C.—lobes 4, lanceolate or greenish; Fr.—capsule, ovoid;

dehiscing a little above the base, top coming off as a conical lid; Sd.—4-8, angled, dull-black; Fl. t.—Sept.-Feb.

HABITAT :—Along river banks.

LOC. :—Konkan: Deccan, Mahabaleshwar along the Yenna river.

DISTR. :—Temperate Himalayas; Assam, W. Ghats, Nilgiris; Pami hills, Burma, Baluchistan, Ceylon, Malaya, Afghanistan and westernwards to the Atlantic. Wild or introduced in these and many other parts.

PARTS USED :—Roots, leaves, and seeds.

PROPERTIES AND USES :—Plant is useful in rheumatism and gripping pain of the bowels. Leaves and roots are astringent and used in fevers. Seeds useful in dysentery (Yunani).

LOC. USES :—In Europe leaves are considered cooling, alterative and diuretic. Fresh leaves rubbed on parts of body stung by insects etc., afford relief. They are used in diarrhoea and piles. Leaves are applied to open wounds or sores; they are also used in form of poultice or decoction.

The expressed juice of the plant has proved to have curative effect in tubercular consumption with spitting of blood. Root and leaves are still much used against intermittent fevers.

A bunch of leaves made hot and applied to the foot is good to draw out thorn or splinter. Seeds are considered stimulant, warm and tonic and an efficient remedy in dysentery; they are used as a good substitute for those of *Plantago ovata* (Isphagid).

The plant contains glucoside *aucubin*.

PLUMBAGO ROSEA Linn.

FAM.—Plumbaginaceæ.

COM. NS. :—E. Fire plant, Lead-wort, Rosy-coloured leadwort; G. Lachitrak, Ratochatro; H. Chitra, Lachitrak, Lachita; K. Kempuchitramula; M. Lalachitraka; Sk. Agnishikha, Chitraka, Mahanga, Raktachitraka.

CHAR. :—A shrub 60-90 cm. high; stems herbaceous, erect, striate; L.—large, oblong, attenuate, obtuse, base passing into amplexicaul, exauriculate petiole; Fl.—3-5 cm. long in long terminal axillary, lax spikes; C.—tube slender, limb wide, rosy scarlet; Fl. t.—throughout the year.

HABITAT :—Cultivated.

LOC. :—Cultivated as an ornamental plant in gardens all over the State.

DISTR. :—Cultivated throughout India, perhaps a native of Sikkim and Khasia.

PARTS USED :—Roots.

PROPERTIES AND USES :—Root has some properties as *Pl. zeylanica*. Fattening, alterative; cures leprosy (Ayurveda).

LOC. USES :—Bruised root—in natural state—is acrid and stimulating; when tempered with bland oil is applied externally in rheumatism and paralytic affections. It contains a crystalline principle called *Plumbagin*. Root-bark paste raises blisters when applied externally. Internally it acts as stimulant and in large doses as an acronarcotic

poison. It is used in procuring abortion. It is used as a powerful sialogogue. In S. India dried root is highly valued in secondary syphilis and leprosy. Milky juice is useful in ophthalmia and as an external application in scabies.

Owing to its property of setting up irritation of the skin, it may be used in chronic skin diseases, and in leucoderma. Vyas and Lal have got fairly good results from use in early cases of leucoderma and baldness of head but further work is necessary (Chopra).

See—Ornamental Plants, Poisonous Plants and Fish Poisons.

PLUMBAGO ZEYLANICA Linn.

FAM.—Plumbaginaceæ.

COM. NS.:—*E.* Ceylon—White flowered leadwort; *G.* Chitaro Chitrak, Chitra; *H.* Chitra; *K.* Bile—Chitra-mula, Vahni; *M.* Chitrak, Chitramula; *Sk.* Agnishikha, Chitra, Chitraka, Chitranga, Jyotishka, Vallari.

CHAR.:—A perennial subscandent herb; stems 0.6-1.5 m. long, woody, spreading, terete, striate; *L.*—thin, ovate, entire, attenuated into a short petiole; petiole amplexicaul at the base and dilated into auricles; *Fl.*—in elongate spikes, rachis glandular; *C.*—white, lobes 5; *Fr.*—capsule, oblong, pointed; *Fl. t.*—Aug.-Sept.

HABITAT:—Shady and rocky places.

LOC.:—Planted in gardens as ornamental plant in the State.

DISTR.:—Throughout India, cultivated; wild in Western Peninsula, Bengal; Malay Peninsula, Ceylon, Tropics of the old world.

PARTS USED:—Root, root-bark, leaves, juice.

PROPERTIES AND USES:—Root and root-bark are bitter, hot, stomachic, carminative, astringent to bowels, anthelmintic, alterative; cure intestinal troubles, dysentery, leucoderma, inflammations, piles, bronchitis, "Vata" and "Kapha", itching, diseases of liver, consumption, ascites, "Tridosha"; good in anæmia (Ayurveda). Root—bitter, bechic, laxative, expectorant, stomachic, tonic, abortifacient, alexipharmic; appetiser; useful in laryngitis, rheumatism, diseases of spleen, leucoderma, ring-worm, scabies; leaves are caustic, vesicant and aphrodisiac (Yunani).

LOC. USES:—Root is a powerful poison and its internal use is said to be attended with great danger. It enters into the composition of several Indian preparations used as caustics. It is said to increase digestive power and to promote appetite; it is useful in dyspepsia, piles, anasarca, skin disease, diarrhoea, leprosy; a paste is made with milk, vinegar or salt and water for external use in skin diseases; a tincture of root-bark is an antiperiodic and a powerful sudorific. The milk juice is applied to unhealthy ulcers and scabies. Root contains an active principle called *plumbagin*.

The use of *Pl. zeylanica* in indigenous medicines as a rubefacient, vesicant, local ecboic and sudorific has a rational basis (Bhatia and Lal, Ind. Journ. Medi. Res. January 1933).

INDIAN PREPARATION:—*Shaddharana Yoga*, a favourite medicine for flatulence.

See—Ornamental Plants, Poisonous Plants and Fish Poisons.

PLUMERIA ACUTIFOLIA Poir.

FAM.—Apocynaceæ.

COM. NS.:—*E.* Frangipani, Pagoda tree; *G.* Radha-champo; *H.* Goleurchampa, Golainchi; *K.* Belchampaka, Devagangile, Kadu-sampigē; *M.* Khairchapha, Rhuruchapha; *Sk.* Champakam.

CHAR.:—A small deciduous tree with much milky juice; *L.* spirally arranged, 15-30 cm. long, oblong-lanceolate, with an intra-marginal vein, acute at both ends; *Fl.*—large, very fragrant, white with a pale yellow centre; *C.*—salver-shaped; *Fr.*—follicles, divaricate, 12 cm. long, cylindrical, rarely maturing, *Fl. t.*—practically throughout the year, abundant from Mar.-May.

HABITAT:—Cultivated near temples and villages.

LOC.:—All throughout the State, cultivated.

DISTR.:—Native of tropical America. Cultivated and naturalised throughout India.

PARTS USED:—Root, bark, leaves and milky juice.

PROPERTIES AND USES:—Root-bark—bitter, pungent, acrid, heating, carminative, laxative; useful in leprosy, itching, ulcers, pains, ascites (Ayurveda). Root-bark is purgative; useful in gleet, urinary discharges, venereal sores; cures tumours and rheumatic pains (Yunani).

LOC. USES:—Root-bark is a strong purgative, and also a useful remedy in gonorrhoea and for venereal sores. Plasters made of the bark are said to be useful in dispersing hard tumours. Bark is given in the Konkan with cocoanut, ghee and rice in diarrhoea. The core of young wood is given to lying-in women to allay thirst and for cough. The blunt-ended branches are introduced into the uterus to procure abortion. Leaves made into poultice are used to dispel swellings. Flower-buds are eaten with betel leaves in ague; milky juice is employed as a rubefacient in rheumatism; with sandalwood oil and camphor it is used as a cure for itch.

The plant contains a bitter glucoside.

See—Ornamental Plants, Poisonous Plants and Fish Poisons.

POGOSTOMON PARVIFLORUS Benth.

FAM.—Labiatae.

COM. NS.:—*M.* Pangli, Phangla.

CHAR.:—A small shrub 1.2-1.8 m. high; stems and branches quadrangular, purple, smooth, shining; *L.*—with a strong odour of black currants when bruised, 7.5-18 × 3.8-9 cm., broadly ovate, irregularly doubly toothed; *Fl.*—in dense pubescent spikes forming pyramidal lax panicles, whorls close, many flowered; *C.*—2-lipped, 4-lobed; upper lip white shot with purple, 3-lobed, lower lip white, entire; *Fr.*—nutlets ellipsoid, inner face angular, rounded, shining black; *Fl. t.*—Dec.-Feb.

HABITAT:—Hilly parts.

LOC.:—Konkan, common; Deccan, Mahabaleshwar, abundant; S. M. Country, Kanara.

DISTR.:—More or less throughout India.

PARTS USED:—Root and leaves.

PROPERTIES AND LOC. USES :—The fresh *leaves*, bruised, are applied as cataplasm in order to clean wounds and promote healthy granulations. In Satara, *juice* is given in colic and fever. *Root* is reputed remedy for hæmorrhage and has been successful in uterine hæmorrhage (C. J. F. Gracie).

The plant contains an alkaloid and leaves yield an essential oil.

PONGAMIA PINNATA Pierre.

(PONGAMIA GLABRA Vent.)

FAM.—Leguminosæ (Papilionoideæ).

COM. NS. :—*E.* Indian beech; *G.* Kanaji, Karanj; *H.* Kanja, Karanj, Kirmal; *K.* Honge, Huligili, Karanjmara; *M.* Karanja; *Sk.* Karanja, Naktamala, Gaura.

HABITAT :—In moist situations along rivers and *nalas*.

LOC. :—Throughout the State along the banks of rivers; very common near the sea-coast in tidal and beach-forests in Konkan; along Deccan rivers; also planted.

DISTR. :—Throughout the State along rivers and streams near the sea-coast; throughout tropical Asia and the Seychelles Islands.

PARTS USED :—Root, bark, leaves, flowers, fruits and seeds.

PROPERTIES AND USES :—Anthelmintic, alexipharmic; useful in diseases of eye, vagina, skin and in keratitis; good for tumour, wounds, ulcers, itching, ascites, enlargement of spleen and abdomen, urinary discharges; cures biliousness, "Vata", "Kapha", piles, head and brain diseases. *Oil*—anthelmintic; cures eye diseases, rheumatic pains, leucodermia, skin diseases, wounds (Ayurveda). *Seeds*—acid; carminative; purify and enrich blood; relieve inflammation; cure earache, chest complaints, lumbago, chronic fever and hydrocele. *Oil*—styptic, anthelmintic; good in scabies, leprosy, piles, lumbago, chronic fever, liver pain. *Ash* strengthens teeth (Yunani).

LOC. USES :—*Root-juice* is used for cleansing foul ulcers and sores. *Fresh-bark* is used internally in bleeding piles; a bath prepared from leaves is used for relieving rheumatic pains. *Leaf-poultice* is applied to ulcers infested with worms. *Powdered seeds* are supposed to be febrifuge and tonic in asthenic and debilitating conditions; they are also used as expectorant in bronchitis and whooping cough. *Oil* expressed from seeds is held in high esteem as an application in scabies, herpes and other cutaneous diseases.

Finding of an essential oil in seeds is significant in view of the popularity of seeds as a remedy for troublesome cough (Chopra). The oil causes slight rise in blood pressure and slight relaxation of the bronchial muscles (Chopra).

See—Timbers, Oils.

PREMNA INTEGRIFOLIA Linn.

FAM.—Verbenaceæ.

COM. NS. :—*G.* Arni; *H.* Arni, Agetha, Ustabunda, *K.* Agnimandha, Ichu; *M.* Aran, Chamari; *Sk.* Agnibijaka, Arand, Jayanti, Kanika, Pavaka.

CHAR. :—A small tree reaching 9 m. high; bark yellowish; trunk and branches sometimes thorny; *L.*—5.9 × 3.2–3 cm., broadly elliptic, entire or upper part dentate; *Fl.*—in paniculate corymbose cymes, small, greenish yellow; *C.*—tubular, cylindric, hairy in the throat, lobes 4; *Fr.*—globose, smooth, blue-black, seated on the calyx; *Sd.*—hard, rough-tubercled; *Fl. t.*—June–July.

HABITAT :—Near the sea-coast.

LOC. :—Throughout the Konkan and N. Kanara; common about Karwar.

DISTR.—India (near the sea from Bombay to Malacca), Ceylon, Andamans, Nicobars and Malaya.

PARTS USED :—Root and leaves.

PROPERTIES AND USES :—*Root*—bitter, pungent, heating; laxative, stomachic; useful in anæmia, "Vata", diabetes, chyluria, inflammations, bronchitis, dyspepsia, piles, constipation, fever. *Leaves*—good as an external application to piles and tumours (Ayurveda). *Root* is laxative, stomachic; good for liver complaints (Yunani).

LOC. USES :—*Root* is given in decoction as a cordial and tonic. It forms an ingredient of *Dashamula*, preparation prescribed in obstinate fevers. Soup made of leaves is used as a stomachic and carminative. *Leaves* rubbed along with pepper are given in colds and fevers. Decoction of the plant is used in rheumatism and neuralgia.

See—Famine Plants.

PSIDIUM GUAYAVA Linn.

FAM.—Myrtaceæ.

COM. NS. :—*E.* Guava tree; *G.* Jamud-ruk, Peru, Piyara; *H.* Amrut, Safedsafari; *K.* Gova, Jamphal, Perala; *M.* Jamb, Peru; *Sk.* Dridhabija, Perala, Peruka, Vastula.

HABITAT :—Cultivated in medium soils.

LOC. :—Cultivated all over the State; chief centre is Poona district and the Deccan.

DISTR. :—A native of Mexico and possibly of other parts of tropical America. Cultivated and naturalised throughout India and most tropical countries.

PARTS USED :—Leaves, flowers, fruits and gum.

PROPERTIES AND USES :—*Fruit*—acid, sour; cooling, aphrodisiac; causes "Kapha"; cures "Vata" and "Tridosha" and biliousness (Ayurveda). *Leaves* used for wounds and ulcers; as an astringent to bowels. Flowers cool body; used in bronchitis; applied to sore eyes. *Anthems*—dry wound, cool heated brain. *Fruit*—tonic, cooling, laxative after food; good in colic and for bleeding gums. *Gum* is tonic. *Ash*—caustic (Yunani).

LOC. USES :—*Root-bark* is astringent and is used in diarrhoea of children. It is given in the form of decoction; decoction applied with much benefit to the *prolapsus ani* of children. It is also employed in scurvy, for unhealthy ulcers, as a mouth-wash for swollen gums. *Leaf decoction* is given internally in cholera for arresting vomiting and diarrhoea. Young leaves are tonic in the

diseases of the digestive functions. Leaves when chewed are a remedy in toothache. Leaf and shoot decoction is prescribed as febrifugal and antispasmodic baths. Leaf infusion is used in cerebral affections, nephritis and cachexia. Leaves are applied locally in rheumatism; an extract is used in epilepsy and chorea. Ripe fruit is a good aperient; raw one is used in diarrhoea.

Fruit contains traces of A and C vitamins.

See—Fruit Trees.

PSORALEA CORYLIFOLIA Linn.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS.:—*E. Babachi*; *G. Bowach-chi*; *H. Babachi*, Bhavanj, Bukchi; *K. Bavachi*; *M. Bavachi*; *Sk. Bakuchi*, Chandralekha, Kalameshi, Kushtaghni, Vanguji.

CHAR.:—An erect annual, 0.6-1.2 m. high; stem and branches grooved; studded with glands and white hairs; *L.*—simple; 3.8 × 2.5–5 cm. broadly elliptic inciso-dentate, rounded and mucronate at the apex, white hairy, nigro-punctate, petioles hairy and gland-dotted; *Fl.*—in dense axillary, solitary, 10-30 flowered racemes; *C.*—bluish purple; standard orbicular, clawed; *Fr.*—pod, ovoid-oblong, closely-pitted, mucronate, black; *Sd.*—one, smooth; *Fl. t.*—Aug-Dec.

HABITAT:—Waste places.

LOC.:—A common weed in waste places in the Deccan, Korkan and S. M. Country.

DISTR.:—Throughout India and Ceylon.

PARTS USED:—Root, leaves, fruit and seeds.

PROPERTIES AND USES:—*Root*—useful in caries of teeth. *Leaves*—good for diarrhoea. *Fruit*—diuretic, causes biliousness; cures “Vata”, vomiting, difficulty in micturition, piles, bronchitis, inflammation, anæmia; improves hair and complexion. *Seeds*—refrigerant, alterative, laxative, antipyretic, anthelmintic, alexiteric; bitter taste; good for heart troubles, “Rakta-pitta”, urinary discharges; heals ulcers. Fruits and seeds cure asthma, leprosy, skin diseases. Oil used in elephantiasis (Ayurveda). *Seed*—purgative, stomachic, anthelmintic, vulnerary, stimulant, aphrodisiac; improves appetite; good for leucoderma, scabies, biliousness; cures blood diseases; applied externally and given internally in skin diseases (Yunani).

LOC. USES:—In the Konkani *seeds* are used in making a perfumed oil applied to the skin. Seeds of the plant have been in use in the Hindoo medicine for a long time. They have been specially recommended in leprosy internally and also used as paste or ointment externally. The drug was considered so efficacious that it was given the name “*Kushthanashini*”. Seeds are also used as an anthelmintic, diuretic, diaphoretic in febrile conditions.

Local applications of oleo-resinous extract from seeds are beneficial in treatment of cases of leucoderma of non-syphilitic origin (Chopra and Chatterji).

Active principle of the seeds is an essential oil.

PTEROCARPUS MARSUPIUM Roxb.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS.:—*E. Indian kino-tree*, Malabar kino-tree; *G. Bia*, Bibla, Bio; *H. Bija*, Bigsah, Hirdokhi; *K. Benga*, Bibla, Honne; *M. Bibla*, Honi; *Sk. Bijak*, Mahakutaj, Pitasar.

HABITAT:—Deciduous, monsoon-forests.

LOC.:—Throughout the State in deciduous monsoon-forests; scattered but not gregarious; ascends to 1100 m. in Akrani, Khandesh and Dangs. Common in N. Kanara; also in Konkan.

DISTR.:—Western Peninsula and S. India, Ceylon.

PARTS USED:—Leaves, flowers and gum.

PROPERTIES AND USES:—*Plant* and *gum* hot and bitter; laxative, anthelmintic, alterative; cures “Vata”, “Kapha”, blood diseases, body eruptions, leucoderma, erysipelas, urinary discharges, anal troubles, leprosy; useful in eye troubles, elephantiasis. *Flowers*—improve appetite; cause flatulence (Ayurveda). *Gum*—bitter; useful in all body diseases; styptic, vulnerary, liver tonic, antipyretic, anthelmintic; good for biliousness, griping, ophthalmia, boils, gleet, urinary discharges (Yunani).

LOC. USES:—Bruised leaves are used in external application to boils, sores and skin diseases (Rumphius).

Gum, called kino, is a natural exudation obtained by incision in the trunk. It is a simple astringent administered in diarrhoea, somewhat milder in action than catechu. It is also used for toothache on the Coromandel coast.

See—Timbers, Gums and Resins.

PUNICA GRANATUM Linn.

FAM.—Punicaceæ.

COM. NS.:—*E. Pomegranate tree*; *G. Dadam*; *H. Anar*, Dhalim, Dharimb; *K. Dadima*, Dalimba, Hulidalimb; *M. Dalimb*; *Sk. Dadima*, Dadimba, Raktabija-pushpa, Sunila, Valka-phala.

HABITAT:—Cultivated in rather poor soils.

LOC.:—Extensively cultivated in the eastern part of Poona district. Ahmedabad and Ahmednagar districts also claim some cultivation.

DISTR.:—Widely in Iran, Kabul and Baluchistan; from the Balkans to the Himalayas; cultivated in many parts of India.

PARTS USED:—Root, bark, flowers and fruits.

PROPERTIES AND USES:—*Root*—an external vermicide. *Bark* and *seeds*—useful in bronchitis. *Flowers*—useful in epistaxis. *Fruit*—appetiser, tonic; useful in vomiting, biliousness, “Tridosh”, thirst, burning sensation, fever, heart-disease, sore-throat, stomatitis. *Fruit-rind*—anthelmintic; useful in diarrhoea and dysentery (Ayurveda). *Bark*—astringent; strengthens gums; used in piles, prolapsus ani, colic. *Flowers*—check vomiting; useful in biliousness, ulcers; applied to hydrocele; vulnerary. *Fruit*—sweet, tonic, laxative, fattening, diuretic; enriches blood; allays thirst; used in sore throat, sore eyes; brain diseases, spleen complaints, chest troubles, scabies, earache. *Seeds*—used in liver and kidney troubles (Yunani).

LOC. USES :—Pomegranate is a much prized fruit and its medicinal virtues have been known for a long time. The rind of the fruit, root-bark and juice of fresh fruit are used medicinally. It has been hailed as almost a specific for tape-worm infection. *Root-bark* is a reliable remedy for the expulsion of tape-worm. It is given in the form of decoction. Fluid extract of fresh bark is equally effectual. Bark and rind of fruit are astringent and are used in the treatment of chronic diarrhoea and dysentery. *Flower-buds* and *leaf-juice* are used as styptic and astringent. Flower buds powdered are useful in bronchitis. *Juice* of the fresh fruit is esteemed as a cooling beverage in fevers and sickness. Decoction of rind with addition of alum is a very useful gargle in relaxed sore-throat and an astringent injection in vaginal discharges; pulp is cardiac and seeds are stomachic.

The plant contains an alkaloid *pelletierine*. Fruit contains vitamin C.

QUISQUALIS INDICA Linn.

FAM.—Combretaceæ.

COM. NS. :—*E.* Chinese honeysuckle, Rangoon creeper, jasmine; *G.* Barmasinivel; *H.* Rangoonkibel; *M.* Lalchameli, Rangoonchavel.

CHAR. :—A strong climber, *L.*—opposite, elliptic, acuminate, base rounded, dark green, glabrous above, hairy beneath; *Fl.*—in axillary and terminal spikes, numerous, pendant, 7.5 cm. long, at first white then deep red; calyx tube long, nearly 6 cm. *C.*—petals 5, lanceolate; *Fr.*—ellipsoid, acutely 5-angled, brown (rarely produces fruit in Bombay State); *Fl. t.*—Mar.-Aug.

HABITAT :—Cultivated.

LOC. :—Extensively cultivated in gardens as an ornamental plant all over the State.

DISTR. :—Indigenous in Burma and the Malay Peninsula, Malaya; widely cultivated all over India.

PARTS USED :—Leaves and seeds.

LOC. USES :—In Amboyana, the *leaves* are given in a compound decoction for flatulent distension of the abdomen. In China, the ripe seeds are roasted and given in diarrhoea and fever.

Seeds are a popular anthelmintic among the inhabitants of Tongking, Annam, Moluccas and Malay Peninsula. They are given chiefly in the case of lumbrici in children.

See—Ornamental Plants.

RANDIA DUMETORUM Lamk.

FAM.—Rubiaceæ.

COM. NS. :—*E.* Emetic nut; *G.* Midhola, Mindhola; *H.* Karhar Mainphal; *K.* Karigidda, Mangari-kai, Minkare; *M.* Gelphal, Gela; *Sk.* Dharaphal, Madana, Pinditak.

HABITAT :—Monsoon and dry forests.

LOC. :—Common throughout the State in deciduous forests from Khandesh southwards. Konkan, S. M. Country and Kanara.

There is a distinct arborescent variety common on the laterite at Mahabaleshwar (1350 m.) with evergreen leaves and decurved margins.

DISTR. :—Throughout India, Ceylon, Java, Sumatra, S. China, E. Tropical Africa.

PARTS USED :—Bark and fruit.

PROPERTIES AND USES :—Bitter, sweet, heating, aphrodisiac, emetic, antipyretic, carminative, alexiteric; cures abscesses, ulcers, inflammations, tumours, skin-diseases, "Vata" and "Kapha", piles (Ayurveda). Bitter, bad taste; emetic, purgative, carminative; useful in chronic bronchitis, muscular pains, paralysis, inflammations, leprosy, boils, eruptions; used in diseases of the brain, asthma, leucoderma (Yunani).

PROPERTIES AND USES :—*Bark* is astringent, used in diarrhoea and dysentery. Given internally and also applied externally when bones ache during fever; it is a sedative and nervine calmative. *Rind* and *pulp* of fruit are generally used to produce emesis. The ancient Hindoo depended chiefly upon this drug for causing emesis. *Fruit-pulp* is believed to have anthelmintic properties and sometimes used as an abortifacient. Ground into coarse powder and applied to tongue and palate is highly esteemed domestic remedy for incidental ailments of children while teething. *Fruit* pasted in rice-water is applied over navel in colic. It is a useful substitute for ipecacuanha; it is equal to it in every respect; its action is very safe, certain and regular. It is also used to poison fish.

The plant contains glucoside *saponin*. It also contains an essential oil.

INDIAN PREPARATION :—*Pancha Kashaya*—used for causing emesis.

See—Timber, Poisonous Plants and Fish Poisons.

RAPHANUS SATIVUS Linn.

FAM.—Cruciferae.

COM. NS. :—*E.* Radish; *G.* Mula, Mura; *H.* Muli, Muro; *K.* Bili Mulangi; *M.* Mula, Muri; *Sk.* Hastidanta, Ksharmula, Mulak, Ruchira.

HABITAT :—Cultivated as a vegetable.

LOC. :—Grown in almost all the districts of the State.

DISTR. :—Cultivated all over India in temperate and warm countries.

PARTS USED :—Root, leaves, flowers, fruit and seeds.

PROPERTIES AND USES :—Hot, stomachic, binding, anthelmintic, destroys "Vata"; good in tumours, piles, and all inflammations; useful in diseases of heart, amenorrhoea, hiccup, leprosy, cholera; juice relieves earache. *Flowers* are bechic and cholagogue (Ayurveda).

Root—useful for urinary complaints and piles. *Seeds*—sharp, bitter, laxative, tonic, emmenagogue, carminative; good for spleen and in paralysis; produce alopecia (Yunani).

LOC. USES :—*Root* is a reputed medicine for piles and gastrodynic pains; given also in urinary and syphilitic complaints. *Juice* of

A Bk Vf 1-12a

fresh leaves is used as a diuretic and laxative. Roots and seeds contain an essential oil; *seeds* are considered peptic, expectorant, diuretic, laxative, carminative, corrective and emmenagogue. Eaten before a meal radish improves appetite and increases digestive power.

Root contains vitamins A, B and C.

See—Vegetables.

RAUWOLFIA SERPENTINA Benth.

FAM.—Apocynaceæ.

COM. NS.:—*H.* Chhotachand, Harkaichand, Nai, Nakulikand; *K.* Chandrika, Garudpatala, Sivanabhi; *M.* Harki, Mungusavel; *Sk.* Chandrika, Sarpagandha, Sarpakshi.

CHAR.:—An erect perennial shrub, with a long, irregularly nodular, yellowish root stock; rarely reaching in the Bombay State 0.9 m.; *L.*—in whorls of 3, thin, 7.5-18 × 2.5-6.3 cm., lanceolate, acute, bright green above, pale beneath; *Fl.*—in irregular corymbose cymes, white, often tinged with violet; bright red; *C.*—tubular, swollen a little above the middle; *Fr.*—drupe, single or didymous, black shining; the inflorescence of this plant with red pedicels and calyx and white corolla is striking; *Fl. t.*—Mar.-May.

HABITAT:—Moist forests; shady open places near rain-forests.

LOC.:—Throughout the moist forests of the Konkan and N. Kanara.

DISTR.:—Sub-Himalayan tracts from Sirhind eastwards to Burma. Western Peninsula, Andamans, Ceylon, Java.

PARTS USED:—Root, leaves (rarely).

PROPERTIES AND USES:—*Root*—bitter, acrid, heating, sharp, pungent, anthelmintic; cures "Tridosha", ulcers (Ayurveda).

LOC. USES:—*Root* is much valued in the painful affections of the bowels. In the Konkan, the root is given in cholera with *Aristolochia indica*. It is used in fevers along with *Andrographis*, ginger and black salt. It is said to have been long known to Indians as an antidote to poison and poisonous bites and stings. Decoction of the root is employed in labour to increase uterine contractions.

It is hypnotic, sedative, used in hyperpiesis; specific for insanity.

In Java leaf-juice is instilled in the eyes for removing opacity of cornea.

Root contains the following alkaloids:—

Group A—Ajmaline, ajmalinine, ajmalicine.

Group B.—Serpentine, serpentinine.

RHINACANTHUS HIRSUTA Kurz.

(RHINACANTHUS COMMUNIS Nees.)

FAM.—Acanthaceæ.

COM. NS.:—*H.* Juipani, Palakjuhi; *K.* Doddapatike; *M.* Gajakarni; *Sk.* Yuthikaparni.

CHAR.:—Undershrub, 0.9–1.5 m. high; stems obscurely angled; *L.*—5-10 × 2.5 cm., elliptic lanceolate, entire; *Fl.*—nearly sessile, solitary, or 2 to 3 together on divaricate branches of very large lax terminal panicles; bracts ovate lanceolate, glandular, pubescent; *C.*—lipped, white, hairy outside; upper lip bifid; *Fr.*—capsule, narrow, pointed, velvety hairy; *Sd.*—tuberculate, black; *Fl. t.*—Oct.-Jany.

HABITAT:—Hills.

LOC.:—Deccan, Mahabaleshwar, Khandala; S. M. Country; hills near Belgaum.

DISTR.:—Throughout India, cultivated; perhaps wild in the Deccan Peninsula, Ceylon (wild); Straits-Settlements, Java, Madagascar (cultivated), tropical Africa.

PARTS USED:—Root, leaves and seeds.

PROPERTIES AND USES:—The root, leaves and seeds are a useful remedy for ringworm and other cutaneous affections (Yunani).

LOC. USES:—*Root* powdered and made into a paste with lime-juice is applied with much benefit in eczema and ring-worm (dhobi-itch). Root boiled in milk is said to possess extraordinary aphrodisiacal properties.

RICINUS COMMUNIS Linn.

FAM.—Euphorbiaceæ.

COM. NS.:—*E.* Castor oil plant, Palma christi; *G.* Divald, Divaligo, Tirki; *H.* Arand, Erand; *K.* Eranda, Haralu, Vardhaman; *M.* Erand; *Sk.* Erand, Chitrabija, Triputipphala, Vardhamana.

HABITAT:—Grows well in good soil; generally cultivated.

LOC.:—Extensively grown in Gujarat (Kaira and other districts) fairly largely in S. M. Country (Dharwar, Belgaum, Sholapur). Very little in other districts of the State.

DISTR.:—Probably of African origin; widely cultivated in tropical countries.

PARTS USED:—Root, leaves, flowers and seeds.

PROPERTIES AND USES:—*Root*—heating, carminative; useful in inflammations, pains, ascites, fevers, glands, asthma, eructations, bronchitis, leprosy, diseases of rectum and head. *Leaves* useful in "Vata" and "Kapha", intestinal worms, strangury, night-blindness, earache; increase biliousness. *Flowers* useful in glandular tumours, anal troubles, vaginal pains. *Fruit*—appetiser; useful in pains, tumours, piles, liver and spleen diseases. *Seed* and oil—cathartic, aphrodisiac; oil—anthelmintic, alterative; useful in heart diseases, some fevers, ascites, inflammations, typhoid, pain in back, lumbago, leprosy, elephantiasis, convulsions; increases "Kapha"; causes biliousness (Ayurveda). *Root-bark*—purgative, alterative; useful in skin-disease. *Leaves*—galactagogue; good for burns. Seeds and oil have a bad taste; purgative; useful in liver troubles, body pains, lumbago, boils, piles, ring-worm, paralysis, inflammations, ascites, asthma, rheumatism, dropsy, amenorrhoea (Yunani).

LOC. USES:—*Root* is particularly used in lumbago and sciatica. Root-bark and leaves are used as purgative. Warmed leaves applied to breasts or leaf decoction or the fluid extract of the leaves given internally increases the flow of milk. Cattle are fed with leaves for

the same effect. Leaves applied to abdomen are said to promote menstrual discharge. They are also applied to painful joints. Leaf applied to head relieves head-ache. Bruised leaves are used for caries of teeth. Oil from seed is a non-irritant, mild and safe purgative, seldom griping or causing flatulency. It is administered in all sorts of bowel complaints in children, adults, etc. In constipation it is used as an enema. In cases of foreign bodies causing pain and irritation to the eye, a few drops of oil temporarily relieve the pain. It is very efficient in chronic rheumatic affections.

Seeds contain a toxic substance called *ricin*, which is a powerful poison.

See—Oils, Poisonous Plants and Fish Poisons.

ROSA DAMASCENA Mill.

FAM.—Rosaceæ.

COM. NS. :—*E.* Bussora—Damascas—Persian Rose; *G.* Gulab; *H.* Gulab, Sudburj; *K.* Pannira, Tarana; *M.* Gulab; *Sk.* Atimanjula, Soumyagandha, Shatadala, Lakshmipushpa.

CHAR. :—A perennial shrub, attaining 1.5 m., stems with stout and hooked prickles, sometimes glandular, hairy; *L.*—pinnate, leaflets usually 5 (sometimes 7), ovate oblong, serrate, 2.5-6.3 cm. long, stipules scarcely dilated; petioles prickly; *Fl.*—usually corymbose, double, red, pink or white, sometimes striped; pedicels and receptacle glandular-hispid; *Fr.*—obovate; *Fl. t.*—all the year.

HABITAT :—Cultivated in gardens.

LOC. :—Cultivated in gardens all over the State.

DISTR. :—Origin unknown. Introduced into Europe from Asia-Minor; cultivated all over India, Punjab and U. P. Ghazipur is a chief centre. Extensive cultivation in Bulgaria, France, Italy, Greece and Germany.

PARTS USED :—Flowers.

PROPERTIES AND USES :—*Flower*—bitter, acrid, with a good odour; cooling, laxative, aphrodisiac, antipyretic; cures leprosy, "Vata", biliousness, burning sensation; removes bad odour from mouth; improves appetite (Ayurveda).

Flower—bitter, sweetish, tonic, laxative, expectorant, cardiotonic; good for eyes, head-ache, tooth-ache, stomatitis; benefits lungs, kidneys, liver; used in heat of body, chronic fevers, inflammations, intestinal affections, excessive perspiration; astringent when dry (Yunani).

LOC. USES :—Rose-buds are more astringent than expanded flowers; they are cold, dry, cephalic, cardiotonic, aperient removing bile and cold humours. Rose-water forms an agreeable vehicle, much used in lotions and collyria; from the petals syrup is sometimes made and a conserve named *Gulkand* which has mild laxative properties; otto of roses is used for perfuming emollients.

See—Ornamental Plants.

RUBIA CORDIFOLIA Linn.

FAM.—Rubiaceæ.

COM. NS. :—*E.* Indian Madder; *H.* Majit, Manjit; *K.* Manjishtha; *M.* Manjishtha; *Sk.* Aruna, Chitralata, Manjishha, Rohini, Tamravalli.

CHAR. :—Perennial, climbing herb; roots very long, cylindric, with a thin red bark; stems very long, grooved, branches quadrangular; *L.*—in whorls of 4, one pair with longer petioles ovate, lower leaves larger, all scabrous with white prickles, five-nerved, petioles triangular, prickly; *Fl.*—in terminal paniced cymes, greenish; *Fr.*—didymous or globose, smooth, shining, purplish black when ripe; *Fl. t.*—Oct.-Jany.

HABITAT :—Higher ghats.

LOC. :—Tolerably common on the higher ghats of the Deccan, the Konkan and S. M. Country.

DISTR. :—Throughout India in hilly districts, Ceylon, Malay Peninsula, Java, Japan, tropical Africa.

PARTS USED :—Root, leaves and fruit.

PROPERTIES AND USES :—*Root*—sweet, bitter, acrid; heating, alexiteric, antidyenteric, antipyretic, analgesic, anthelmintic; improves voice and complexion; cures "Kapha", inflammations, diseases of uterus, vagina, eye, ear, blood, leucoderma, erysipelas, ulcers, urinary discharges, jaundice, piles. *Leaves*—sweet, oleaginous; increase appetite; cure "vata" and biliousness (Ayurveda). *Root*—bitter, laxative, analgesic, lactagogue, emmenagogue, diuretic; used in eye-sores, paralysis, lethargy, liver complaints, spleen-enlargement, pains in joints, rheumatism, leucorrhœa, leucoderma, dysentery, uterine pains (Yunani).

LOC. USES :—*Plant* was considered emmenagogue and diuretic, and was much used in dropsy, paralysis, jaundice, amenorrhœa and visceral obstructions. Decoction tinges blood, urine and even bones red. *Fruit* is useful in hepatic obstruction. Paste made by rubbing root with honey is a valuable application for the removal of freckles and other discoloration of skin. It is regarded astringent and useful as an application in external inflammations, ulcers and skin-diseases.

If taken (in doses of 3 drachms) several times daily, it powerfully affects the nervous system, inducing temporary delirium with evident deterioration of the uterine system.

Zulu men take the decoction to cure lack of seminal emission and females take it to hasten the inception of menstruation.

The plant contains glucoside *manjistin*.

RUMEX VESICARIUS Linn.

FAM.—Polygonaceæ.

COM. NS. :—*E.* Bladder, Dock, Sorrel; *H.* Ambat Chuka; *M.* Chuka; *Sk.* Amlavetasa, Chukra, Gulmketu, Raktasara.

CHAR. :—Annual, erect glabrous herb, 15-30 cm. high; branched from the root; *L.*—2.5-7.5 cm., obtuse, elliptic, ovate, base cuneate, cordate or hastate; *Fl.*—Monœcious in leaf-opposed and terminal racemes; inner perianth-segments membranous, orbicular; *Fr.*—white or pink; valves hyaline.

HABITAT :—Cultivated.

LOC. :—Cultivated as vegetable in gardens; generally in the Deccan.

DISTR. :—Western Punjab, Trans-Indus Hills, Afghanistan, Persia, N. Africa.

PROPERTIES AND USES :—Very sour, laxative, stomachic; useful in heart troubles, pains, tumours, constipation, alcoholism, diseases of the spleen, hiccup, flatulence, asthma, bronchitis, dyspepsia, vomiting, piles; causes biliousness (Ayurveda). Cooling; tonic, analgesic; useful in scabies, leucoderma, toothache, bites and stings of poisonous animals; checks nausea and promotes appetite (Yunani).

LOC. USES :—*Leaves* are cooling, aperient and diuretic. The *juice* allays tooth-pain, checks nausea and promotes appetite. It is cooling and is of use in heat of stomach, and externally as an epithem to allay pain caused by bites or stings. The seeds have the same properties; they are prescribed, roasted, in dysentery.

See—Vegetables.

RUNGIA REPENS Nees.

FAM.—Acanthaceæ.

COM. NS. :—*G. Khatselio*; *H. Kharmor*; *M. Ghati pittapapada*; *Sk. Parpatha*.

CHAR. :—A herb; stems usually decumbent, often rooting near the base, then erect; *L.*—subsessile, oblong lanceolate, acute; *Fl.*—in erect terminal imperfectly 1-sided spikes, bracts elliptic, ciliate; *C.*—white, blue or pink, with darker spots, 2-lipped, upper emarginate, lower shortly 3-lobed; *Fr.*—capsule, ovoid oblong, acute, with scarious faces and hard ridges, *Sd.*—suborbicular, rugose with furrow, pale brown; *Fl. t.*—Nov.—Jany.

HABITAT :—Common everywhere.

LOC. :—Common throughout the State, Konkan, Deccan, S. M. Country, Kanara.

DISTR. :—Throughout the warmer parts of India, Ceylon.

PARTS USED :—The whole plant.

PROPERTIES AND LOC. USES :—*Leaves* resemble both in smell and taste those of thyme; while fresh they are bruised, mixed with castor oil and applied to the scalp in cases of *tinea capitis*. The whole plant dried and pulverised is given in fevers and coughs; also considered as a vermifuge.

RTA GRAVEOLENS Linn.

FAM.—Rutaceæ.

COM. NS. :—*E. Common—Garden-rue*; *G. Satapa*; *H. Pismarum Sadab*, *Satri*; *K. Havananju*, *Nagadali*, *Sadabu*; *M. Satap*; *Sk. Sadapaha*, *Vishapaha*.

CHAR. :—A strong smelling herb; glandulose punctate; *L.*—alternate, petioled, decompound; segments cuneate, spathulate or linear-oblong; *Fl.*—in divaricately spreading corymbs; *C.*—petals 4; oblong-obovate, clawed, yellowish; *Fr.*—capsule, obtuse; *Sd.*—angled.

HABITAT :—Cultivated in gardens.

LOC. :—Largely grown below ghats in the Konkan; grown in gardens, in pots, all over the State.

DISTR. :—Egypt and Algeria, cultivated throughout India.

PARTS USED :—Leaves, and oil.

PROPERTIES AND USES :—The *plant* is bitter; laxative, heating to body; removes "Kapha" and "Vata" (Ayurveda).

There are three varieties, garden, forest and mountain. The plant is tonic, digestive, diuretic, emmenagogue, abortifacient, anti-aphrodisiac; heats body; increases mental activity; useful in gleet and urinary discharges (Yunani).

LOC. USES :—It is an acro-narcotic poison; it may be given internally in hysteria, amenorrhœa, epilepsy, flatulence, colic, etc., and externally used as a rubefacient. The oil is the best form for administration, but the rue-tea is a popular remedy. The herb and the oil act as stimulant, chiefly in the uterine and nervous systems. Rue in all its forms is considered injurious to pregnant women. The dried *leaves* are used as fumigatory for children suffering from catarrh; tincture from fresh leaves used externally in the first stages of paralysis. Powdered and combined with aromatics, dried leaves are given as a remedy for dyspepsia. Plant *juice* is given to children as a remedy for worms. The plant has strong antispasmodic properties. The juice undoubtedly possesses antispasmodic and expectorant properties. I have found it useful in bronchial catarrh and acute bronchitis of children (Koman).

Commercial oil of rue is quite ineffective as an anthelmintic. The higher boiling fraction acts as a fairly potent vermicide to hook-worms (Caius and Mhaskar).

The plant contains glucoside *glutin*.

See—Ornamental Plants.

SACCHARUM OFFICINARUM Linn.

FAM.—Gramineæ.

COM. NS. :—*E. Sugarcane*; *G. Naisakar*, *Sherdi*; *H. Ganna*, *Kumad*, *Rikhu*, *Ukh*; *K. Ingotu*, *Kabbu*, *Tanigarbu*; *M. Us*; *Sk. Gudakastha*, *Gudatrina*, *Ikshu*, *Madhuyashti*, *Rasala*.

HABIT :—Cultivated.

LOC. :—Cultivated in many districts of the State, particularly Deccan; Poona, Satara, Ahmednagar and Nasik districts claim most of the cultivation; S. M. Country and Kanara cultivate sparingly.

DISTR. :—Grown everywhere in India; S. Asia is very likely the original home of the species.

PARTS USED :—Plant and sugar.

PROPERTIES AND USES :—*Cane*—sweet; oleaginous, indigestible, diuretic, tonic, cooling, aphrodisiac; useful in fatigue, thirst, leprosy,

intestinal troubles, anæmia, erysipelas; causes "Kapha", inflammations, ulcers. *Sugar* causes "Kapha", intoxication and intestinal worms (Ayurveda). *Cane*—sweet, laxative, diuretic, fattening, aphrodisiac; purifies blood; good for lungs; bad for liver (Yunani).

LOC. USES :—*Roots* are cooling and diuretic and a good bechic. The Hindoos set a great value upon sugar, and in medicine it is considered by them as nutritive, pectoral and aphrodisiac.

It is good in calculous complaints.

In the Punjab, *sugar* is considered heavy, tonic and aperient, useful in heat, delirium, bile, disorders and wind.

In cases of poisoning by copper, arsenic or corrosive sublimate, *sugar* has been successfully employed as an antidote; white fine *sugar* is sprinkled upon ulcers with unhealthy granulations.

The juice contains vitamins A and B.

See—Food Plants.

SALVADORA PERSICA Linn.

FAM.—Salvadoraceæ.

COM. NS. :—*E.* Tooth-brush tree; *G.* Kharijal, Pilu, Piludi; *H.* Jal, Pilu; *K.* Goni; *M.* Khakan Mirjoli; *Pilu*; *Sk.* Brihat madhu pilu, Pilu, Mahaphala.

CHAR :—Usually a small evergreen tree; branches numerous, drooping, finely striate, shining, white; *L.* opposite, fleshy, elliptic-lanceolate or ovate, often mucronate at the apex; *Fl.*—in compound lax axillary terminal panicles, numerous, greenish-yellow; *C.*—very thin, deeply cleft, lobes much reflexed; *Fr.*—drupe, 3 mm. diam., globose, smooth, red when ripe; *Fl. t.*—Nov.-Feb.

HABITAT :—Saline soils and littoral forests.

LOC. :—Dry districts of the State; near the coasts of Gujarat; the Konkan and N. Kanara in littoral forests.

DISTR. :—Drier parts of India, often planted near Muslim tombs; Sind, Ceylon, dry regions of W. Asia, Egypt, Abyssinia.

PARTS USED :—Bark, leaves, fruits seeds and oil.

PROPERTIES AND USES :—*Fruit*—aphrodisiac, alexiteric, stomachic; improves appetite; useful in biliousness; *oil* is digestible; cures "Vata" (Ayurveda). *Leaves*—bitter; corrective, deobstruent, astringent to bowels, tonic to liver, diuretic, analgesic, anthelmintic; useful in nose-troubles, piles, scabies, leucoderma; lessen inflammation; strengthen teeth. *Fruit*—aphrodisiac, carminative; useful in biliousness. *Seeds*—purgative; improve diuresis (Yunani).

LOC. USES :—*Root-bark* is remarkably acrid; applied to the skin acts as external stimulant; sometimes it raises blisters; *stem-bark* is warm and acrid and is given in decoction in low fever and as a stimulant and tonic in amenorrhœa. Shoots and leaves are given as antidote to all poisons; *leaf-juice* is given in scurvy; leaves are used as an external application in rheumatism. *Fruits* are deobstruent, carminative and diuretic.

The plant contains an alkaloid trimelkylamine.

SANTALUM ALBUM Linn.

FAM.—Santalaceæ.

COM. NS. :—*E.* Sandal-wood Tree; *G.* Suket, Sukhad; *H.* Chandal, Chandan, Sandal; *K.* Agarugandha, Bhadrasri, Shrigandhalmara; *M.* Chandan; *Sk.* Bhadrasara, Bhogivallabha, Chandan, Malayaja, Mangalya.

HABITAT :—Dry deciduous thorn and monsoon-forests.

LOC. :—Western Peninsula from Nasik southwards; common in the dry deciduous thorn and monsoon forests of the Deccan, S. M. Country and N. Kanara.

DISTR. :—Western Peninsula; Mysore and parts of Madras State. Cultivated elsewhere.

PARTS USED :—Wood, Oil.

PROPERTIES AND USES :—*Wood*—cooling, exhilarating, alexiteric, antipyretic, aphrodisiac, useful in diseases of heart, "Kapha", thirst, biliousness, burning sensation, cold in head, strangury, bronchitis, vaginal discharges, small-pox (Ayurveda).

Wood—tonic to heart and brain, astringent to bowels; laxative; useful in inflammations, gleet, gonorrhœa, head-ache (Yunani).

LOC. USES :—*Wood*, ground, up with water into a paste, is applied to local inflammations, to temples in fever, in skin-diseases, to allay heat and pruritus; acts as diaphoretic. In cases of morbid thirst wood-powder is taken in cocoanut water. A bolus of ground sandal checks hæmoptysis in mild form. Essential oil from wood is a popular remedy as demulcent, diuretic and mild stimulant in gonorrhœa and chronic cystitis. *Oil* from the seeds is used in skin diseases.

See—Timbers, Oils.

SAPINDUS TRIFOLIATUS Linn.

FAM.—Sapindaceæ.

COM. NS. :—*E.* Soap-Nut tree; *G.* Aritha, Arithan; *H.* Ritha; *K.* Antharalo, Anthuvala, Burugukayi, Kugale, Phenilu; *M.* Ritha, Ringni; *Sk.* Arishtaka, Kumblabijaka, Phenila, Rishta.

HABITAT :—Evergreen monsoon-forests.

LOC. :—Along the Western Ghats from Konkan southwards to N. Kanara Ghats in evergreen monsoon forests; often planted.

DISTR. :—Indian Peninsula, chiefly in S. India, much cultivated; Ceylon.

PARTS USED :—Root, fruit and seed.

PROPERTIES AND USES :—*Fruit*—digestible, emetic, abortifacient, alexipharmic; cures "Tridosha"; sedative to uterus (Ayurveda). *Root*—expectorant, used as a collyrium in sore-eyes and ophthalmia. *Fruit*—bitter, tonic, stomachic, alexiteric, aphrodisiac; useful in chronic dysentery, diarrhœa, cholera, hemiparesis, tubercular glands, paralysis, lumbago, epileptic fits of children; allays uterine pains. *Seeds* used locally to stimulate uterus in child-birth and to increase menstruation (Yunani).

LOC. USES :—*Root* is said to be expectorant. *Fruit* is considered tonic and alexipharmic; it is given internally as an emetic, nauseant and expectorant; as an errhine it is used as a remedy in hemicrania, asthma, hysteria and epilepsy; externally it is detergent and is used in stings and bites of poisonous insects. Both root and fruit are anthelmintic. *Pessaries* made of seed-kernels are used to stimulate the uterus to child birth and amenorrhœa. *Fruits* are used as substitute for soap. Soap-nut pulp is quite equal to ipecacuanha as an emetic. Soap-nut deserves to be brought into general use by the medical profession (Moideen Sherif).

The plant contains saponin.

See—Timbers.

SAPIUM INSIGNE Benth.

FAM.—Euphorbiaceæ.

COM. NS. :—*H. Khina*, Lendwa; *K. Kannupada*, Kurda, Nanaka; *M. Dudla*, Hure, Ura.

CHAR. :—A middle-sized deciduous tree, with thick milky juice; *L.*—alternate, bright green, crowded towards the ends of branches, 12.5-25 × 5-8 cm., elliptic or oblong-lanceolate, crenate-serrate, with a few glands on the margins, and with 2 glands at the apex of the petiole. *Fl.*—monœcious, in unisexual spikes, appearing when the tree is bare; male sessile, in round clusters, central flower opening first; female very shortly pedicellate, female spikes much thickened in fruit. *Fr.*—capsule, 2-3-celled, globose, fleshy first, dry when ripe, packed closely along the rachis; *Fl. t.*—Dec.-Feb.

HABITAT :—Dry rocky laterite soil near the sea-coast and in moist forests.

LOC. :—Konkan and N. Kanara (common); Deccan in the ghats. Lonavla, Phondaghat.

DISTR. :—Sub-Himalayas, Assam, Chittagong, W. Peninsula, Ceylon.

PARTS USED :—Milky juice.

PROPERTIES AND LOC. USES :—Milky juice poisonous. When applied to the skin produces vesication.

See—Poisonous Plants and Fish Poisons.

SARACA INDICA Linn.

FAM.—Leguminosæ (Cæsalpinioidæ).

COM. NS. :—*E. Ashok Tree*; *G. Ashopalava*; *H. Asok*; *K. Ashoka*, Ashuge, Anthunala, Kenkali, Kusge; *M. Ashok*, Jasundi; *Sk. Ashoka*, Kankelli, Karnapurak, Pindipushpa, Vanjula.

HABITAT :—Rain-forests.

LOC. :—Rain-forests of the Konkan and N. Kanara; rather common in Western Ghats in the Deccan and S. M. Country.

DISTR. :—Central and E. Himalayas, E. Bengal, West Peninsula, Burma, Ceylon, Malaya.

PARTS USED :—Bark, flowers, seeds.

PROPERTIES AND USES :—*Bark*—acrid, refrigerant, astringent to bowels, alterative, anthelmintic, demulcent, emollient; cures dyspepsia, thirst, burning sensation, blood diseases, biliousness, effects of fatigue, tumours, enlargement of abdomen, colic, piles, ulcers, bloody discharges from uterus, menorrhagia; useful in bone-fractures; beautifies complexion. *Seeds*—useful in urinary discharges (Ayurveda).

LOC. USES :—*Bark* is strongly astringent, as it contains tannin. Decoction of bark in milk is used in uterine affections, especially in menorrhagia. Bark is useful in internal hæmorrhoids also. *Flowers* pounded and mixed with water are useful in hæmorrhagic dysentery.

The drug does not appear to have marked therapeutic effects, though many clinicians appear to vouch for its efficacy in menorrhagia and other uterine disorders (Chopra).

INDIAN PREPARATIONS :—*Ashok Ghrita*.

See—Timbers, Sacred Plants, Ornamental Plants.

SCHLEICHERA OLEOSA Merr.

(SCHLEICHERA TRIJUGA Willd.)

FAM.—Sapindaceæ.

COM. NS. :—*E. Ceylon Oak*, Gum Lac Tree, Honey tree; *G. Kossama*; *H. Gausam*, Kesum; *K. Hulimaya*, Kukuta, Sagada, Sharagodi; *M. Kohan*, Kasimb, Kusumb, Peduman; *Sk. Ghanas-kanda*, Kosha-Rakta-Vanamra.

HABITAT :—Dry and moist mixed forests.

LOC. :—Common throughout the State in both dry and moist mixed forests, ascends to over 1050 m. in Khandesh Satpudas.

DISTR. :—Sub-Himalayan tract from the Sutlej to Nepal, Chota-Nagpur, Madhya Bharat and the Peninsula, Ceylon, Burma.

PARTS USED :—Bark, fruit and seed.

PROPERTIES AND USES :—*Bark* cures leprosy, skin diseases, inflammations, ulcers and "Kapha". *Unripe fruit*—sour, heating to body, heavy to digest; causes biliousness; destroys "Vata"; astringent to bowels. *Ripe fruit*—sweet, digestible; increases taste and appetite. *Seeds*—tonic, cure biliousness. *Oil*—tonic, stomachic, anthelmintic, purgative; cures skin-diseases; heals ulcers (Ayurveda).

LOC. USES :—The *bark* is astringent; rubbed up with oil, it is used as a cure for itch. The *Santals* apply it externally to relieve pains in the back and the loins. The *oil* is used for the cure of itch. The oil of the seeds is very efficient and stimulating agent for the scalp, both cleansing it and promoting the growth of hair. The medicinal effects are variously reported as purgative (in U. P.); as prophylactic against cholera (in Thana Division, Bombay); used externally in massage for rheumatism (Bombay); cure of headache (C. P.). It is said to be very effective in removing itch and other skin diseases. The powdered seeds are applied to ulcers of animals for removing maggots.

Oil :—Well known Macassar oil is extracted from seeds.

The plant contains a glucoside.

See—Timbers, Oils.

SCILLA INDICA Baker.

FAM.—Liliaceæ.

COM. NS.:—*E.* Indian squill; *G.* Jangli—Ran Kanda; *H.* Jangli piaz; *M.* Rankanda; *Sk.* Kula-puta Kand, Panjala, Vanapalandu.

CHAR.:—A small herb; bulb ovoid or globose; *L.*—appearing with the flowers, variable, 7.5–15 × 1.3–2.5 cm., narrowed into a sheathing petiole, dull green above often blotched with black; scape rather stout, 5–12.5 cm. long; *Fl.*—in racemes, greenish purple; perianth segments linear oblong; *Fr.*—capsule; *Fl. t.*—May–July.

HABITAT:—Pasture lands.

LOC.:—S. Konkan, Deccan, Mahabaleshwar. Common also in plains round about Poona, S. M. Country.

DISTR.:—Bihar, Madhya Bharat, Chota Nagpur, W. Peninsula, Ceylon, Abyssinia.

PARTS USED:—Bulb.

PROPERTIES AND USES:—The bulbs have the same therapeutic properties as those of *Urginea indica*.

The assays carried out by Chopra and De (1926) show that *S. indica* is in no way inferior to either *Urginea scilla* or *U. maritima* of the British and American Pharmacopœias (In. Med. Gaz. Dec. 1931).

SECURINEGA VIROSA Pax & Hoff.

(FLUGGEA MICROCARPA Blume.)

FAM.—Euphorbiaceæ.

COM. NS.:—*G.* Shaunavi; *H.* Dalme, Patala; *K.* Belahuli, Bilisuli, Gudahale; *M.* Kodarsi, Pandharpali; *Sk.* Bhuriphala, Dhusara; Panduphali, Patali.

CHAR.:—A large glabrous shrub; bark grey with lenticular specks; branchlets angular; *L.*—alternate, variable, thin, 2.5–7.5 × 1.6–4.5 cm., elliptic, rounded, obtuse; *Fl.*—axillary clusters from a crowd of minute bracts; males numerous, females 1–5; male pedicels filiform; stamens 3–5; pistillode large, 3-fid; female, styles 3, deeply divided into 2 linear segments; *Fr.*—globose of 2 kinds, small with dry pericarp, larger white with a fleshy pericarp, edible; *Fl. t.*—May–June.

HABITAT:—Deciduous forests.

LOC.:—Widely spread throughout the State.

DISTR.:—Throughout India, Malay Peninsula, China, Malay Islands, Australia, Tropical Africa.

PARTS USED:—Roots, leaves, plant.

PROPERTIES AND USES:—*Plant*—cooling; tonic, aphrodisiac; good in strangury, biliousness, blood diseases (Ayurveda).

LOC. USES:—*Roots* are used to cure gonorrhœa. *Leaf-juice* or leaf-paste with tobacco is used to destroy worms in sores. They are used to cure constipation; for this purpose leaves are boiled in water, and the water is drunk.

It is a fish poison. The plant contains an alkaloid.

See—Poisonous Plants and Fish Poisons.

SEMECARPUS ANACARDIUM Linn.

FAM.—Anacardiaceæ.

COM. NS.:—*E.* Marking Nut Tree; *G.* Bhilamu; *H.* Bhela, Bhilav, Bilaran; *K.* Gerkayi, Keruvija, Keru; *M.* Biba, Bibwa; *Sk.* Agni-mukhi, Bhallataka, Shailabija, Vatari.

HABITAT:—Deciduous dry forests.

LOC.:—Throughout the State; abundant in dry forests of Konkan, Deccan and Gujarat.

DISTR.:—Sub-Himalayan tract from the Bias eastwards; Assam, Khasia Hills, Chittagong, Madhya Bharat and Western Peninsula, E. Archipelago, N. Australia.

PARTS USED:—Gum from the bark, fruit-pulp and oil.

PROPERTIES AND USES:—*Fruit*—hot, digestible, aphrodisiac, anthelmintic; stays looseness of bowels; removes “Vata”, “Kapha”, ascites, skin diseases, piles, dysentery, tumours, fevers, loss of appetite, urinary discharges; heals ulcers; strengthens teeth; useful in insanity, asthma. *Rind*—oleaginous, acrid, stomachic, laxative; cures bronchitis, leprosy, inflammations; causes ulceration (Ayurveda). *Sweet fruit*—carminative. *Leaves*—lessen inflammation, stomatitis, piles, fever, weakness; expel bad humours from body. *Oil*—hot, dry, anthelmintic, aphrodisiac, tonic, makes hair black; good for leucoderma, coryza, epilepsy, other nervous diseases; useful in paralysis, superficial pains; causes burns, ulcers and blebs (Yunani).

LOC. USES:—The brown gum from the bark is regarded by the Hindus as a valuable medicine in scrofulous, venereal and leprous affections. *Juice* of pericarp is used internally in small doses, diluted with some bland oil in scrofulous affections and syphilis; also in epilepsy and other diseases of the nervous system. The oil from the nut is used externally as a counter-irritant in rheumatism and sprains. It should be used with caution. In Goa, nut is used internally in asthma and is also given as vermifuge. In Konkan nut-oil with milk is given in cough caused by relaxation of uvula and palate.

POISONOUS PROPERTIES:—The juice of the tree is so poisonous and acrid that people are afraid of cutting it and they only do so after killing it by removing the bark. It is said that disagreeable consequences often result by even sleeping under the tree.

See—Timbers, Oils, Poisonous Plants and Fish Poisons.

SESAMUM INDICUM Linn.

FAM.—Pedaliaceæ.

COM. NS.:—*E.* Gingelly, Sesame; *G.* Tal, Til; *H.* Gingli, Til, Tir; *K.* Ellu, Wollellu, Yallu; *M.* Til; *Sk.* Homadhanya, Jacila, Pavitra, Pitra-tarpana, Tailaphala, Tila.

HABITAT:—Cultivated, and wild (in heavy rainfall tracts).

LOC.:—Cultivated in practically all the districts of the State except Kanara and S. Konkan. Extensively grown in Gujarat and the Deccan; wild form is found in Thana and Kolaba Districts.

DISTR. :—Cultivated all over India, Waziristan, Baluchistan; probably a native of tropical Africa.

PARTS USED :—Root, leaves, seeds, oil.

PROPERTIES AND USES :—*Seeds*—acid, oleaginous, indigestible; tonic, cooling, galactagogue, diuretic, astringent to bowels, aphrodisiac; promote hair growth; useful in diarrhoea, gouty joints, urinary concretions, eye diseases; applied to ulcers and piles; cause "Kapha" and biliousness (Ayurveda). *Roots and seeds*—aphrodisiac, hair-tonic; enrich blood; useful in sore-throat, inflammations, strangury, bleeding piles, spleen troubles; cure menorrhagia; applied to gouty joints. *Seed-oil*—fattening, strengthening; useful in dry cough, asthma, lung diseases, burning sensation, diseases of eye and ear, scabies, small-pox, syphilitic ulcers, inflammations (Yunani).

LOC. USES :—*Leaves* which abound in mucilage act as demulcent and are useful in bowel affections, such as dysentery etc.; an emollient poultice is also made from them. *Decoction* of leaves and roots is employed as a hair-wash and is supposed to blacken hair. There are three varieties of seeds: black, white and red. Black variety is common, yields best quality of oil and is suited for medicinal purposes. *Seeds* are taken in decoction or as sweetmeat in cases of piles and constipation. Ground to paste with water they are given with butter in bleeding piles. They are also emmenagogue. They are nourishing, tonic, diuretic and lactagogue; compound decoction with linseed is aphrodisiac. They have been used to procure abortion. A hot hip bath with some bruised seeds in it, is said to give relief in dysmenorrhoea. *Seed poultice* is applied to ulcers. *Seeds* yield clear non-drying oil. It is used medicinally for all the purposes in place of olive oil, and as an oil-dressing for ulcers, suppurating wounds, etc.

Seeds contain vitamin A.

See—Oils.

SESBANIA ÆGYPTIACA Poir.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS. :—G. Raysingani; H. Janjhan, Jayanti, Rasin; K. Jayanti, Jinangi; M. Jayat, Shewari; Sk. Jaya, Jayanti, Jayantika, Nadeyi.

CHAR. :—A soft-wooded shrub, 4-5 m. in height, branches striate, obscurely angled; *L.*—abruptly pinnate, 7.5-15 cm. long, rachis shortly produced above the last pair of leaflets; leaflets 9-14 pairs, opposite, linear-oblong; *Fl.*—in lax, few flowered axillary racemes, yellow; *C.*—standard as broad as long, mottled with purple on the outside, furnished at the base with 2 keel-like appendages running down winglike, into claw; *Fr.*—pod, pendulous, 15-23 cm. long, slightly torulose, beaked, septate between the seeds; *Sd.*—20-30.

HABITAT :—Cultivated.

LOC. :—Cultivated in the State for fodder or as wind-break.

DISTR. :—Throughout the tropics of the old world.

PARTS USED :—Root, bark, leaves, seeds.

PROPERTIES AND USES :—*Root*—hot, carminative, alterative, anthelmintic; removes "Kapha", biliousness, inflammations; cures

tuberculous glands, fevers, ulcers, diabetes, leucoderma; relieves throat-troubles. *Bark*—astringent. *Seeds* remove small-pox eruptions (Ayurveda). *Leaves*—purgative, anthelmintic, matyrant, demulcent, useful for hydrocele and all pains and inflammations. *Seeds*—emmenagogue, stimulant, astringent; heal chronic ulcers and eruptions; useful in diseases of spleen, diarrhoea, and excessive menstrual flow (Yunani).

LOC. USES :—*Leaves* in the form of poultice promote suppuration of boils and abscesses and absorption of hydrocele and inflammatory swellings; *juice* of fresh leaves is given as an anthelmintic. *Seeds* mixed with flour are applied externally for itching of skin.

See—Fodder Plants.

SESBANIA GRANDIFLORA Pers.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS. :—G. Agathio; H. Augusta, Bak, Basna, Hatiya; K. Agase, Kempagase; M. Agasta, Agati; Sk. Agasti, Dirghashimbi, Kanali, Munidruma, Vranari.

CHAR. :—A soft wooded tree; 6-9 m. high; *L.*—pinnate, 15-30 cm. long; leaflets 16-30 pairs, linear oblong; *Fl.*—in racemes; 2-4 white or red; *C.*—7.5-8.8 cm. long, very showy; *Fr.*—pod, 50 cm. long; *Fl. t.*—flowers at various times.

HABITAT :—Cultivated.

LOC. :—Grown about temples and villages all over the State.

DISTR. :—Cultivated in many parts of India. Indigenous from Malaya to N. Australia.

PARTS USED :—Root, leaves, flowers, fruits.

PROPERTIES AND USES :—*Root*—removes "Vata", "Kapha" and inflammation. *Bark*—astringent. *Leaves*—indigestible, anthelmintic, alexiteric; cure itching, leprosy, night-blindness, epilepsy, gout; useful in ophthalmia. *Flowers*—cooling; improve appetite; cure quartan fever; useful in oozæna, bronchitis, gout, biliousness. *Fruit*—laxative; cures "Tridosh" pains, anæmia, tumours; allays thirst; improves taste; brightens intellect (Ayurveda). *Leaf*—tonic and antipyretic; cures night-blindness and biliousness (Yunani).

LOC. USES :—*Root* from the red-flowered variety, rubbed into a paste with water, is applied in rheumatism. *Root-juice* is given with honey as an expectorant in catarrh. Paste made of root with an equal quantity of stramonium root, is applied in painful swellings. *Bark* is very astringent and is recommended as a tonic. An *infusion* is given in small-pox.

In Bombay the juice of leaves and flowers is a popular remedy in nasal catarrh and head-ache.

In Cambodia it is used in diarrhoea, dysentery and paludism.

Leaf-poultice is a popular remedy in Amboyna for bruises. Flower-juice is squeezed into the eyes to relieve dimness of vision (Murray).

The plant contains vitamin A.

See—Vegetables, Ornamental Plants.

A Bk Vf 1-13

SIDA CARPINIFOLIA Linn.

FAM.—Malvaceæ.

COM. NS. :—G. Bala; H. Bariara, Kareta, Kharanti; K. Bhiman-Visha Kaddi; M. Chikna, Pata, Tukti; Sk. Bala, Pata, Rajbala.

CHAR. :—A shrub; branches slender, minutely hairy; L.—2.5-6.3 cm., long, lanceolate, base rounded, sharply serrate, glabrous; Fl.—1-2 in each axil, pedicel jointed about the middle; C.—yellow, petals connate at the base with staminal tube; Fr.—5-6 mm. diam., carpels 5-9, strongly reticulated, puberulous, dorsal margins toothed; awns 2, linear; Sd.—smooth, black; Fl. t.—Nov.-Dec.

HABITAT :—Waste places—especially in plains.

LOC. :—Konkan (common), Deccan and S. M. Country.

DISTR. :—Hotter parts of India; in tropical and sub-tropical regions of both the hemispheres.

PARTS USED :—Root.

PROPERTIES AND USES :—Root removes “tridosha”, digestive, diuretic; useful in fever, burning of body and urinary discharges (Ayurveda).

LOC. USES :—In the Konkan root is applied with sparrow's dung to mature boils. Leaves made warm and moistened with a little gingelly oil are employed to hasten suppuration (Ainslie). In Bengal leaf-juice is used in the form of electuary in the treatment of intestinal worms.

SIDA CORDIFOLIA Linn.

FAM.—Malvaceæ.

COM. NS. :—E. Country Mallow; G. Baladana, Kherati; H. Barial, Khareti, Kumghi; K. Chittu-haratu, Hettutti-gida, Kisangi; M. Chikna; Sk. Bala, Batyalaka, Jayanti, Prahasa, Samanga, Vatyapushpi.

CHAR. :—An annual or perennial herb or undershrub; softly hairy all over; L.—2.5-5 cm. long, cordate, ovate-oblong, crenate, obtuse; Fl.—solitary or few together, pedicel jointed much above the middle, yellow; Fr.—6-8 mm. diam., carpels 7-10, strongly reticulated; upper margins ciliate, dorsal scabrid; awns 2, linear, scabrid-hairy; Fl. t.—Oct.-Nov.

HABITAT :—Moist places; a weed.

LOC. :—Konkan, Gujarat and S. M. Country.

DISTR. :—Tropical and sub-tropical regions of both the hemispheres.

PARTS USED :—Root, bark, leaves and seeds.

PROPERTIES AND USES :—Plant—tonic, astringent, emollient, aphrodisiac; removes “Vata”, “Pitta”, “Kapha”; good in cough as a pectoral and bechic. Bark cures urinary troubles and discharges; cooling; useful in blood and throat diseases, bleeding piles, phthisis and insanity (Ayurveda).

LOC. USES :—Bala is considered to be one of the most valuable drugs of Hindu medicine. Root—cooling, astringent, stomachic and tonic; infusion is given in nervous and urinary diseases and also in disorders of blood and bile; decoction, with ginger, is given

in intermittent and other fevers attended with shivering; juice is used for healing wounds; bark-powder is given with milk and sugar in micturition and leucorrhœa. Leaves are used in ophthalmia. Leaves mixed with rice are given to alleviate bloody flux. Seeds are aphrodisiac and are used in gonorrhœa, cystitis, also in colic and tenesmus. Juice of the whole plant is used in rheumatism and spermatorrhœa.

INDIAN PREPARATIONS :—Maha baladi Kvatha, administered in hemiplegia, stiff-neck, facial paralysis, noise in ears, and head-ache. Bala Taila—used as an external application in above diseases.

Seeds are called “Bijaband”.

Plant contains a small quantity of ephedrine. It is quite possible that by proper cultivation and collection the alkaloidal content could be increased.

Sanskrit writers make mention of five species of Bala under the name “Panch Bala”.

Bala—*Sida cordifolia*, Linn.

Mahabala—*Sida rhombifolia* var. *rhomboides* Roxb.

Nagbala—*Sida spinosa* Linn.

Atibala—*Sida rhombifolia* Linn.

Bala Phanijivaha—*Sida carpinifolia* Linn.

SIEGESBECKIA ORIENTALIS Linn.

FAM.—Compositæ.

COM. NS. :—G. Pilibadkadi; M. Katampu.

CHAR. :—A large annual herb, 0.6-1.2 m. high; stem stiff, erect, with horizontal branches below and dichotomously branched above, tinged with purple; L.—opposite, triangular-ovate, deeply and irregularly toothed; uppermost leaves much smaller and entire, all running down wing-like into petiole; Fl.—heads small in leafy panicles; Fr.—yellow, those of the ray red beneath; involucre bracts 2 rows, 5 outer clavate, 5 inner boat-shaped; pappus 0; Fr.—achene, slightly rough, black; Fl. t.—Nov.-Dec.

HABITAT :—In waste places along roadsides &c.

LOC. :—Deccan, common; S. M. Country.

DISTR. :—Throughout India, Ceylon; most tropical and sub-tropical regions of both hemispheres.

PARTS USED :—The whole plant.

PROPERTIES AND LOC. USES :—It has a high reputation as a valuable depurative, and also for its healing properties in gangrenous ulcers and sores. It is strongly recommended in diseases of urethra.

Externally, a mixture of equal parts of the tincture and glycerine has been tried in Europe with good effect in ringworm and similar parasitic affections. In Indo-China the whole plant is prescribed as a cardio-tonic. In La Reunion the plant is used as a stimulant, diaphoretic, antiscorbutic and sialogogue. It is also used to favour menstruation.

The plant contains a crystalline bitter substance.

A Bk Vf 1-13a

SOLANUM INDICUM Linn.

FAM.—Solanaceæ.

COM. NS.:—*E.* Indian Nightshade; *G.* Mhotiringni, Ubhi-bhuringni; *H.* Barhanta, Kattarta, Vadikadheri; *K.* Habba-Kirigulla, Kadusonde, Vayase; *M.* Dorli, Ranringni; *Sk.* Brihati, Hinguli, Mahotika, Vartaki.

CHAR.:—A much branched undershrub, 0.5–1.5 m. high, very prickly; prickles large, sharp, recurved; stem stout, covered with stellate hairs; *L.*—5–15 × 2.5–7.5 cm., ovate, subentire, or triangular-ovate, lobed, sparsely prickly and hairy on both sides, base unequal-sided; petiole prickly; *Fl.*—in racemose extra-axillary cymes; *C.*—pale-purple, clothed outside with purple hairs; *Fr.*—berry; 8 mm. diam., globose, dark-yellow when ripe; *Sd.*—minutely pitted; *Fl. t.*—Aug.-Oct.

HABITAT:—Hilly parts.

LOC.:—Common in the Konkan and Deccan hills.

DISTR.:—Throughout tropical India, Ceylon, Malaya, China, Philippines.

PARTS USED:—Root, leaves (rarely) and fruits.

PROPERTIES AND USES:—Heating, digestive, astringent to bowels, anthelmintic; removes foulness of the mouth; beneficial in cardiac troubles; useful in leucoderma, fever, asthma, pain, bronchitis, vomiting, *pruritus ani*; “Vata”, “Kapha”, loss of appetite, eye diseases (Ayurveda).

LOC. USES:—The root forms an ingredient of the much esteemed *Dashamula Kwatha* of Hindu medicine. It is seldom used alone. The root is employed in difficult parturition and in tooth-ache. It is expectorant and useful in cough and catarrhal affections. It is prescribed in cases of dysuria and incontinence. *Leaf-juice* along with fresh ginger juice is given to stop vomiting. The leaves and fruit rubbed up with sugar is useful as an external application to itch. The vapour of burning seeds relieves the pain in tooth-ache.

The plant contains alkaloids *Solanine* and *Solanidine*.

SOLANUM MELONGENA Linn.

FAM.—Solanaceæ.

COM. NS.:—*E.* Brinjal, Egg Plant; *G.* Rigana, Vantak, Vengni; *H.* Baingan, Bhanta; *K.* Badanikai, Bhantaki; *M.* Vange; *Sk.* Bhantaki, Hinguli, Nilaphala, Vrittaphala.

HABITAT:—Cultivated, rarely wild.

LOC.:—Cultivated all over the State in gardens.

DISTR.:—Widely cultivated in India.

PARTS USED:—Root, leaves, fruit and seeds.

PROPERTIES AND USES:—*Fruit*—heating, improves appetite, aphrodisiac, cardiotonic, enriches blood; beneficial in “Vata” and “Kapha”; causes biliousness; increases asthma and bronchitis (Ayurveda). *Root* is applied to lessen pain. *Fruit*—cardiotonic, laxative, analgesic, maturant; lessens inflammations; bad for piles if taken internally, but beneficial if applied externally (Yunani).

LOC. USES:—*Leaves* are used as narcotic. *Fruit* pierced all over with a needle and fried in gingelly oil is employed as a cure for toothache. It has been recommended as an excellent remedy for those suffering from liver complaints. The *seeds* are used as a stimulant, but they are apt to lead to dyspepsia and constipation.

In Madagascar *leaves* and *fruits* are commonly used in cholera, bronchitis, fever, dysuria and asthma.

In S. Africa root decoction is taken internally in the treatment of syphilis.

Fruit contains vitamins A, B and C.

See—Vegetables.

SOLANUM NIGRUM Linn.

FAM.—Solanaceæ.

COM. NS.:—*E.* Black Night-shade, Hound's Berry, Morellet; *G.* Piludi; *H.* Gurkamai, Kabaiya, Makoi; *K.* Kakamunchi; *M.* Kakamachi, Kamoni; *Sk.* Kakamachi, Katuphala, Vayasi, Tiktika.

CHAR.:—A variable annual herb; stem erect, much divaricately branched; *L.*—many, ovate-lanceolate, entire or sinuate toothed, tapering into petioles; *Fl.*—small, in extra-axillary, sub-umbellate, 3-8 flowered cymes; *C.*—divided more than half way into 5 oblong lobes; *Fr.*—berry, 6 mm. diam., usually purplish black (sometimes red or yellow), smooth, shining; *Sd.*—discoid, yellow, minutely pitted; *Fl. t.*—Sept.-Jany.

HABIT:—A weed of cultivation.

LOC.:—A weed occurring in cultivated fields all over the State.

DISTR.:—Throughout India, Ceylon, all temperate and tropical regions of the world.

PARTS USED:—Root, bark, leaves and fruit.

PROPERTIES AND USES:—Oleaginous, bitter, heating, laxative, alterative, aphrodisiac, tonic, diuretic; improves appetite, taste; useful in heart and eye-diseases, in pains, piles, inflammation, “Tridosha”, leucoderma, itch, worms in ear, dysentery, hiccup, vomiting, asthma, bronchitis, fever, urinary discharges; improves voice; favours conception and facilitates delivery; useful in erysipelas and rat-bite (Ayurveda). *Root-bark*—laxative; useful in diseases of eye, ear and nose; good for neck ulcers, throat burning, liver inflammation, chronic fever, griping; not to be given to pregnant women. *Leaves* used for head-ache and nose diseases. *Fruit* useful in thirst due to fever, inflammation. *Seeds*—laxative; useful in giddiness, gonorrhœa (Yunani).

LOC. USES:—In Bombay *plant-juice* is used in chronic liver enlargement and is a valuable alterative. It acts as a hydrogogue, cathartic and diuretic. The syrup acts as an expectorant and diaphoretic. In Konkan young *shoots* are used in chronic skin diseases, and used with success in psoriasis. Black berries have been used as diuretic and diaphoretic for a long time in heart diseases when attended with swellings of legs and feet.

In Bengal berries are employed in fevers, diarrhœa, eye-diseases, hydrophobia, etc.

The plant contains the alkaloid *Solanine*.

SOLANUM XANTHOCARPUM Schr. & Wendl.

FAM.—Solanaceæ.

COM. NS. :—*G.* Bhoyaringni ; *H.* Katai, Kateli, Ringui ; *K.* Chikka-gonde, Nele—Rama-gulla ; *M.* Bhui—Kate-ringni ; *Sl.* Brihati, Dhavani, Kantakari, Kantakini, Nidigdhika.

CHAR. :—A very prickly diffuse, bright green perennial herb ; stem zig-zag ; prickles compressed, straight, yellow and shining, often exceeding 1.3 cm. long ; *L.*—5-10 × 2.5-5.7 cm., ovate or elliptic, sinuate or subpinnatifid, hairy on both sides, armed on midrib and nerves with long yellow prickles, base unequal-sided, petiole prickly ; *Fl.*—in extra-axillary few flowered cymes ; *C.*—purple, lobes deltoid, hairy outside ; *Fr.*—berry, 3.2 cm. diam., yellow or white with green veins, surrounded by enlarged calyx ; *Fl.* t.—June.

HABITAT :—Roadsides and waste lands.

LOC. :—Common in the Deccan ; Konkan.

DISTR. :—Throughout India, Ceylon, S. E. Africa, Malaya, tropical Australia, Sind.

PARTS USED :—Root, leaves, flowers, fruits and seeds.

PROPERTIES AND USES :—Bitter, heating ; appetiser, laxative, stomachic, anthelmintic ; useful in bronchitis, asthma, fever, "Vata" and "Kapha", ozæna, strangury, lumbago, pains, piles, thirst, urinary concretions, heart disease, prurites ; aphrodisiac ; causes biliousness (Ayurveda). *Root*—aphrodisiac. *Leaves*—good application for piles. *Fruit*—laxative ; good in inflammation, chronic bronchitis, asthma, biliousness, fevers, muscular pains, dysuria ; stone in bladder, sterility in women. *Seeds*—anthelmintic ; good for boils and scabies (Yunani).

LOC. USES :—*Root* is one of the important medicinal ingredients of the Hindoo physicians and has been recognised for a long time as an effective diuretic, expectorant and febrifuge. It is used in asthma, catarrhal fever and chest pain. *Root-decoction* with that of *Tinospora cordifolia* is said to be tonic in fever and cough. In the Konkan root with ginger and chiretta is given in decoction as a febrifuge. *Juice* of berry is useful in sore-throat ; stems, flowers and fruits are bitter and carminative ; they are used in the burning of feet. Fumigation with vapour of burning seeds is in high repute in tooth-ache. *Juice* of fresh plant with *Hemidesmus* juice is used as diuretic. Plant decoction is used in cases of gonorrhœa.

In the Punjab leaf-juice is used with black-pepper in rheumatism (B. D. Basu).

SORGHUM VULGARE Pers.

FAM.—Gramineæ.

COM. NS. :—*E.* Sorgho, Durrah, Great Indian millet ; *G.* Jowar, Sundia ; *H.* Jonera, Jowari, Jundri ; *K.* Jolah, Kenjal, Nirgol, Yengara ; *M.* Jondhala, Shalu ; *Sk.* Dirghashara, Ikshupatraka, Vrittatandula, Yuvanala.

HABITAT :—Cultivated.

LOC. :—Cultivated during *kharif* and *rabi* seasons all over the State ; Sholapur, Bijapur and E. Khandesh claim about three-quarters.

of the *rabi* area ; Poona, Satara and Dharwar also have large area of *rabi* jowar ; Dharwar, Bijapur and E. Khandesh claim half of the total *kharif* area, while Belgaum, Ahmedabad, Satara and Poona have, also very large areas of *kharif* jowar.

DISTR. :—Widely cultivated in India. Cultivated in warmer parts of Europe, Asia and Africa ; introduced into America and Australia.

PARTS USED :—Seeds.

PROPERTIES AND USES :—The grain is cooling, aphrodisiac, indigestible, constipating ; improves appetite and taste ; useful in "Kapha", biliousness, diseases of blood, piles, ulcers, tumours (Ayurveda).

LOC. USES :—*Seeds*—diuretic and demulcent. American negroes take the decoction of the seeds as a remedy for urinary, bladder and kidney complaints.

The plant contains glucoside *dhurin*. Grains contain vitamin B.

See—Food Plants.

SOYMIDA FEBRIFUGA A. Juss.

FAM.—Meliaceæ.

COM. NS. :—*E.* Bastard Cedar, Indian Red-Wood ; *G.* Rohani, Rohina ; *H.* Rawtarohan, Rohun ; *K.* Some, Sumbi, Swami-mara ; *M.* Ruhin ; *Sk.* Agniruha, Rohini, Vritta.

HABITAT :—Open situations, on dry stony hills.

LOC. :—Throughout the State in dry forests and stony hills ; common in Gujarat, Khandesh and S. M. Country.

DISTR. :—Dry forests of W. Peninsula extending northwards to Merwara, Mirzapur hills and Chota Nagpur ; Ceylon.

PARTS USED :—Bark.

PROPERTIES AND USES :—*Bark*—acid, refrigerant, anthelmintic, aphrodisiac, laxative ; good for sore-throat, ulcers, leprosy and dysentery ; removes "Vata" and blood impurities ; cures "Tridosha", fevers, cough and asthma (Ayurveda). *Bark*—astringent to bowels and useful in fevers (Yunani).

POPULAR USES :—The bark is astringent, tonic and antiperiodic ; hence used in intermittent fevers, general debility, in advanced stages of diarrhœa and dysentery ; it has been used with success in other cases requiring the use of astringents ; the decoction forms a good substitute for *oak-bark* and is well adapted for gargles, vaginal injections and enemas.

See—Timbers, Fibres, Tans, Gums and Resins.

SPHÆRANTHUS INDICUS Linn.

FAM.—Compositæ.

COM. NS. :—*G.* Bodiakalara, Gorakmundi ; *H.* Gorakmundi ; *K.* Karanda-gida ; *M.* Gorakhamundi ; *Sk.* Aruna, Kumbhala, Mahamundi, Munditika, Pravrajita.

CHAR. :—A much branched herb about 30 cm. high, stem and branches cylindric, with toothed wings, glandular, hairy ; *L.*—sessile.

decurrent, ovate-oblong, glandular hairy, serrate or dentate; *Fl.*—compound heads, globose ovoid, peduncles with toothed wings; *C.*—purple, involucre bracts linear, ciliate near the ends; *Fr.*—achene, glabrous, stalked; *Fl. t.*—Nov.-Jan'y.

HABITAT :—Common in rice-fields.

LOC. :—Common in the Konkan, Dharwar and Belgaum districts.

DISTR. :—Throughout India, Ceylon, Africa, Malay Islands, Australia.

PARTS USED :—Root, bark, leaves, flowers and seeds.

PROPERTIES AND USES :—Hot, laxative, digestible, tonic, fattening, alterative, anthelmintic, alexipharmic; used in insanity, tuberculous glands, indigestion, bronchitis, spleen diseases, elephantiasis, anaemia, pain in uterus and vagina, piles, strangury, biliousness, epileptic convulsions, asthma, leucoderma, dysentery, vomiting, urinary discharges, rectal pain, looseness of breasts, hemicrania (*Ayurveda*). Tonic, laxative, emmenagogue; increases appetite; enriches blood; lessens inflammations; cools brain; gives lustre to eyes; good for eyesore, jaundice, scalding of urine, gleet, biliousness, boils, scabies, ring-worm of waist, chest diseases. Oil from the root aphrodisiac, used in *prolapsis ani* (*Yunani*).

LOC. USES :—Root and seeds are considered stomachic and anthelmintic. They are given in powder form, in cases of worms and indigestion; with honey they are given in cough. Powdered root is given as tonic. Bark ground and mixed with whey is a valuable remedy for piles; used also for local application. Flowers are highly esteemed as alterative, depurative, cooling, and tonic (Stewart); useful in skin diseases. Plant is pounded with a little water and the juice expressed is used as styptic. Juice boiled with a little milk and sugar-candy is taken for cough. Plant is also used in glandular swellings, urethral discharges and jaundice.

The plant contains an essential oil and an alkaloid.

It is also used as fish and crab poison.

See—Poisonous Plants and Fish Poisons.

SPILANTHES ACMEILLA Murr.

FAM.—Compositæ.

COM. NS. :—*E.* Pellitary; *H.* Akarakara; *M.* Akkalkara; *Sk.* Akarakarava.

CHAR. :—Annual herb, stem and branches hairy; *L.*—opposite, ovate, irregularly crenate-serrate, base usually acute; *Fl.*—in heads ovoid, solitary or subpanicked, peduncles reaching 10 cm. long; involucre bracts oblong-lanceolate; ray flowers and ligules very often absent; the latter when present minute. Pappus 0. *Fr.*—Achene, oblong, truncate, compressed; *Fl. t.*—Nov.

HABITAT :—Wild and cultivated.

LOC. :—Deccan, S. M. Country and Kanara; sometimes grown in gardens.

DISTR. :—Throughout India, Ceylon; all warm countries.

PARTS USED :—Root, leaves and flower-heads.

PROPERTIES AND LOC. USES :—The flower-heads are by far the most pungent part. They are chewed to relieve toothache.

In Assam the plant is administered to women after child-birth. Leaves are rubbed on the skin-rash to soothe the itching. The seeds are chewed to provoke salivation when the mouth is dry.

In Indo-China the plant is boiled in water and the whole is given in dysentery.

In Philippine Islands root decoction is given as purgative; leaf decoction is used internally as diuretic and lithotriptic, and externally as a bath in rheumatism or as a lotion in scabies and psoriasis.

Dr. W. Farquhar has recommended a tincture of flower-heads for tooth-ache. It is a specific for inflammation of the peristomium of jaws.

SPONDIAS MANGIFERA Willd.

FAM.—Anacardiaceæ.

COM. NS. :—*E.* Bile Tree, Indian Hog-Plum, Wild Mango; *H.* Amra, Ambodha; *K.* Amate, Avatekayi, Marahunise; *M.* Ambada, Ran-amba; *Sk.* Amrataka, Kapichuta, Pitana, Tungi.

CHAR. :—A tree 9-10.5 m. high; trunk straight; bark smooth, ash-coloured; branches nearly horizontal; *L.*—alternate imparipinnate 30-45 cm. long; leaflets 3-5 pairs and a terminal one 7.5-18 × 3.8-7.5 cm., oblong, entire, oblique, strong intramarginal nerve joining horizontal straight nerves; *Fl.*—1 or 2 sexual in terminal panicles, pinkish green; *C.*—petals 4-5, ovate oblong; *Fr.*—drupe, ovoid, yellow, 3.8 cm. long; stone woody, hard, round with furrows and cavities. *Sd.*—usually 1; *Fl. t.*—Feb.-Apl.

HABITAT :—Cultivated.

LOC. :—Often planted throughout the State; Konkan, Gujarat; widely planted, S. M. Country, Kanara.

DISTR. :—Sub-Himalayan tract and outer valleys from the Chenab eastwards. Salt Range, Western Peninsula, Burma, Andamans, Ceylon, Indian Archipelago, Hongkong.

PARTS USED :—Bark, leaves and fruit.

PROPERTIES AND USES :—Leaves—tasty, appetising, astringent; Fruit—indigestible, destroys "Vata", enriches blood; cures rheumatism, biliousness, ulcers, burning sensation, phthisis, blood complaints; good for sore-throat; refrigerant, tonic, aphrodisiac, astringent to bowels (*Ayurveda*).

LOC. USES :—Bark is refrigerant. It has been found useful in dysentery. Bark ground and mixed with water is rubbed on in both articular and muscular rheumatism. Infusion of pounded bark is drunk against diarrhoea and dysentery. Leaf-juice is applied locally in ear-ache. Fruit is a useful antiscorbutic; the pulp is acid and astringent and is used in bilious dyspepsia. Gum is demulcent.

See—Gums and Resins.

STEREOSPERMUM PERSONATUM Chatterji.

(STEREOSPERMUM SUAVEOLENS DC)

FAM.—Bignoniaceæ.

COM. NS. :—*H.* Padal, Padiala, Pandri, Parur; *K.* Giri Hadari, Hude, Hulava, Kariguddada; *M.* Padal, Pahad, Patala; *Sk.* Ali-vallabha, Kalavrinta, Kamduti, Kumbhi, Patala, Toyadhivasini.

HABITAT :—Monsoon-forests.

LOC. :—In forests south of Bombay; common in the deciduous forests of Dharwar and in N. Kanara.

DISTR. :—Throughout India in more or less dry localities; sub-Himalaya, from Kashmir to Sikkim; Travancore, Burma. Planted in Ceylon.

PARTS USED :—Root, flowers, fruit.

PROPERTIES AND USES :—Root—bitter, heating, useful in "Kapha" and "Vata", inflammation, cructations, vomiting, asthma, fevers, blood diseases, thirst, loss of taste. Flowers—acid; useful in bilious diarrhoea, burning sensation. Fruit—useful in hiccup, leprosy and strangury (Ayurveda).

LOC. USES :—Root-bark is an ingredient in *Dashapula*. It is regarded as cooling, diuretic, tonic. Flowers rubbed up with honey are given to check hiccup. In Tanjore flowers are taken up in the form of confection as an aphrodisiac.

The ashes of the plant are used in the preparations of alkaline water and caustic paste.

* See—Timbers.

STRYCHNOS NUX-VOMICA Linn.

FAM.—Loganiaceæ.

COM. NS. :—*E. Crow Fig*; Kachita, Nux-vomica or strychnine tree, Poison Nut; *C. Kuchla*; *H. Kajra*, Kuchala, Nirmal; *K. Hemushti*, Ittangi, Kajavara, Kangira; *M. Kajra*, Kuchla; *Sk. Kelakutaka*, Kakatinduka, Kupaka, Visha-druma, Vishamushti, Karaskara.

HABITAT :—Moist monsoon-forests.

LOC. :—Very common in Konkan and N. Kanara; abundant on laterite along sea-coast.

DISTR. :—More or less throughout tropical India. N. Circars, Karnatak, west coast of Madras State, Travancore; Ceylon, Indo-China, Laos.

PARTS USED :—Wood (rarely), leaves, fruit, seeds.

PROPERTIES AND USES :—Fruit—acid, pungent, bitter; heating, appetiser, tonic, astringent to bowels, antipyretic; cures leucoderma, "Vata", "Kapha", blood diseases, itching, piles, ulcers, anæmia, jaundice, urinary discharges (Ayurveda). Fruit—bitter, poisonous; heating, tonic, aphrodisiac, diuretic, emmenagogue; cures pains in joints, lumbago, ring-worm, piles; useful in paralysis and weakness of limbs (Yunani).

LOC. USES :—A fine paste of root-bark with lime juice (made into pills) is effectual in cholera. Root is used to cure intermittent fevers. Bark infusion or decoction is employed as tonic and febrifuge. Leaves are applied as poultice for wounds or ulcers when maggots have formed. In Bombay the wood is said to be a popular remedy in the dyspepsia of vegetarians. Juice of fresh bark is given in cholera and acute dysentery. The paste made by rubbing the seeds is used in rat-bites; seed-paste mixed with dry ginger and the horn of antelope rubbed on the stone is used with benefit in muscular and chronic rheumatism. In the Konkan small doses of seeds with

aromatics are given in colic. Small quantities of seeds are taken in lieu of opium.

Nux-vomica is one of the most important drugs used in medicine. It is a powerful nervine tonic and stimulant to spinal cord. In excessive doses it is a virulent poison. As a respiratory stimulant it is used in bronchitis and phthisis.

INDIAN PREPARATIONS :—*Sainiragaja Kesari*—used in diseases of the nervous system. *Shulaharanyoga*—used in dyspepsia with pain and diarrhoea. (*Rasendrasarasangraha*). The plant is the chief source of strychnine. India exports large quantities of seeds to foreign countries which manufacture strychnine. No attempts are made to manufacture this drug in India where there is available a large amount of raw material. The demand for strychnine is increasing. If attention is paid to proper cultivation of the trees and better and cheap methods of collection and transport of seed the industry can be developed successfully in India.

See—Timbers, Poisonous Plants and Fish Poisons.

STRYCHNOS POTATORUM Linn.

FAM.—Loganiaceæ.

COM. NS. :—*E. Clearing Nut Tree*; *H. Nelmal*, Nirmali; *K. Aduguchali-bija*, Chittu bija; *M. Nivali*; *Sk. Ambuprasadini*, Kataka, Shodhanatmaka.

HABITAT :—Deciduous dry forests.

LOC. :—Sand-stone hills of S. M. Country; also in Konkan, Kanara and Khandesh.

DISTR. :—Western Peninsula, Madhya Bharat, Burma, Ceylon.

PARTS USED :—Root (rarely), fruit and seeds.

PROPERTIES AND USES :—Root cures leucoderma. Fruit useful in eye diseases, thirst, poisoning, hallucinations; increases "Vata", emetic, diaphoretic, alexiteric; cures inflammations, anæmia, jaundice; causes biliousness. Seeds—acid, alexipharmic, lithotriptic; cure strangury, urinary discharges, head-diseases (Ayurveda). Seeds—bitter, astringent to bowels, aphrodisiac, tonic, diuretic; good for liver, kidney complaints, gonorrhœa; improve eye-sight; relieve colic (Yunani).

LOC. USES :—Mature fruit is regarded as an emetic; pulp is a good substitute for ipecacuanha in the treatment of dysentery and bronchitis. It is also regarded as a remedy for diabetes. Seeds are used as local application in eye diseases. They are rubbed up with honey and a little camphor and the mixture applied to the eyes in lachrymation. Rubbed with water and rock-salt they are applied to chemosis in conjunctiva. Rubbed up in fine paste with butter milk and given internally they are effectual in long-standing chronic diarrhoea. Powdered seed is given internally with milk in irritation of the urinary organs and in gonorrhœa. Seeds are used for clearing maddy water.

See—Timbers.

SWEERTIA DECUSSATA Nimmo.

FAM.—Gentianaceæ.

COM. NS.:—M. Kadu.

CHAR.:—An erect herb, 0.3-0.9 m. high; stem densely leafy, quadrangular, 4-winged; L.—sessile, demissate, broadly ovate, 5-nerved; FL.—very many in dense corymbose cymes; C.—lobes 4-5, white with blue veins, 1 nectary at the base of each lobe; Fr.—capsule, ovoid or oblong, 2-valved; Sd.—many, winged; Fl. t.—Oct.-Jany.

HABITAT:—Hilly parts.

LOC.:—Western Ghats; Deccan; common at Mahabaleshwar and Panchgani, Torna fort, etc.

DISTR.:—India (W. Peninsula).

PARTS USED:—Root.

PROPERTIES AND USES:—The whole plant is bitter.

"It is an excellent substitute for Gentian or Chiretta" (Dr. Broughton).

"The Plant is sold in the Mahabaleshwar Bazar under the name of 'Kadu' (Dymock)".

The plant contains bitter substance *chiratin*.

SYMPLOCOS RACEMOSA Roxb.

FAM.—Symplocaceæ.

COM. NS.:—E. Californian Cinchona, China Nora, Lodh Tree; G. Loder; H. Lodh; K. Balaloddujinamara; M. Lodh, Lodhra; Sk. Bhilli, Lodhra, Lodhraka, Shavaraka, Tillaka, Tiritaka.

HABITAT:—Evergreen forests and moist places near *nalas*.

LOC.:—Konkan and N. Kanara Ghats and borders of evergreen forests near *nalas*; Deccan, Mahabaleshwar, S. M. Country.

DISTR.:—W. Peninsula, Chota Nagpur, throughout N. E. India from Terai of Kumaon, to Assam and Pegu, Burma.

PARTS USED:—Bark, flowers (rarely).

PROPERTIES AND USES:—Bark—acid; cooling, digestible, astringent to bowels, alexiteric; useful in eye-diseases, bleeding gums; cures cough, biliousness, diseases of blood, dysentery, inflammations, vaginal discharges, leprosy, useful in abortions; good for ulcers in vagina (Ayurveda). Bark—bitter, acid; aphrodisiac, emmenagogue, tonic for persons of plethoric constitutions; good for all eye-diseases (Yunani).

LOC. USES:—In Hindoo medicine the bark is described as cooling, astringent and useful in bowel complaints, eye-diseases and ulcers; a decoction is used as a gargle for giving firmness to bleeding and spongy gums. Used in Bombay in the preparation of plasters (lep); it is given in menorrhagia due to the relaxation of uterine tissues.

Lodh is used in raw condition, in powder or in fresh decoction. Alcoholic or watery extracts if kept for some time deteriorate and become physiologically inert (K. C. Bose).

The plant contains alkaloids *loturine*, *colloturine* and *loturiaine*.

See—Timbers, Dyes.

SYZYGIIUM CUMINI Skeel.

(EUGENIA JAMBOLANA Lan.)

FAM.—Myrtaceæ.

COM. NS.:—Black-Java Plum, Jambul; G. Jambu, Jambudi, Jambura; H. Jam, Jāmen, Pharenda; K. Jambu-Nayinerale, Nerate, Neralu; M. Jambul; Sk. Jambu; Jambula, Nilphala, Shukapriya, Surabhipriya.

HABITAT:—Along river banks and moist localities.

LOC.:—Throughout the State, both wild and cultivated; common along river banks; common at Mahabaleshwar, Khandesh Akrani and highest hills of Nasik and Satara districts.

DISTR.:—Throughout India, Ceylon, Malaya, Australia; very often planted.

PARTS USED:—Bark, sprouts, fruits and seeds.

PROPERTIES AND USES:—Bark—acid; digestive, astringent to bowels, anthelmintic; good for sore-throat, bronchitis, asthma, thirst, dysentery, ulcers, blood impurities. Fruit—acid, sweet; cooling, dry, astringent to bowels; increases "Vata"; removes bad smell from mouth, biliousness. Seed—good for diabetes (Ayurveda). Leaf-ash used for strengthening gums and teeth. Fruit—a general and liver tonic; enriches blood; strengthens gums and teeth; useful astringent in bilious diarrhoea; good gargle for sore-throat; good lotion for ring-worm in head; fruit vinegar is tonic, astringent, carminative; useful in spleen diseases. Seeds—diuretic; stop urinary discharges (Yunani).

LOC. USES:—Bark is astringent and is used in the preparation of astringent decoctions, gargles and washes; used in cases of chronic diarrhoea and dysentery and in sore-throat and spongy gums, etc. Juice of tender leaves is given in goat's milk in the diarrhoea of children. Expressed juice of leaves is used as an astringent in dysentery; also used in spongy and painful gums. Vinegar from the juice of ripe fruit is an agreeable stomachic, carminative and diuretic. Powder of dried seeds is said to diminish quantity of sugar in urine in diabetes. Seeds in combination with those of mango are astringent, used in diarrhoea and dysentery.

The plant contains a glucoside and an essential oil.

See—Timbers, Fruit Trees.

SYZYGIIUM JAMBOS

(EUGENIA JAMBOS Linn.)

FAM.—Myrtaceæ.

COM. NS.:—E. Malay-Rose apple; H. Gulabjaman; K. Jambu, Pannerali; M. Gulab-Jamb; Sk. Jambu, Jamburaj, Kokileshta, Nenda, Shukapriya.

HABITAT:—Cultivated in gardens; also wild.

LOC.:—Cultivated in gardens in the State; some fine trees are planted on the hill-fort of Pratapgad near Mahabaleshwar.

DISTR. :—Sikkim Terai, Yunnan to Australia. Cultivated in many places.

PARTS USED :—Bark, fruit and seeds.

PROPERTIES AND USES :—*Bark* is sweet, acrid, hot, astringent to bowels; improves voice; used in asthma, thirst, fatigue, dysentery, heavy speech, bronchitis. *Fruit*—sweet and tasty; indigestible, astringent to bowels, removes "Tridosha" (Ayurveda). The fruit is sweet with a flavour, indigestible, tonic to brain; used in liver complaints. *Seeds* are astringent to bowels; used in syphilis (Yunani).

LOC. USES :—In Burma the leaves are boiled and used for sore eyes.

The plant contains an alkaloid *jambosine*, and an essential oil.

See—Timbers.

TABERNÆMONTANA DIVARICATA R. Br.

(TABERNÆMONTANA CORONARIA Willd.)

FAM.—Apocynaceæ.

COM. NS. :—*E.* Wax flower; *G.* Tagar; *H.* Chandani, Taggar; *K.* Kottuhale, Maddarasa gida; *M.* Ananta, Tagar; *Sk.* Ashvathabheda, Nandi, Tagara.

CHAR. :—A glabrous evergreen dichotomously branched shrub, with milky juice; *L.*—opposite, 7.5-15 × 2.5-5 cm.; elliptic or elliptic-lanceolate; glossy green above, pale beneath, margins wavy; *Fl.*—snow-white, double, in 1-8 flowered solitary or twin cymes 2.5-5 cm. across, fragrant at night, inodorous during the day; *C.*—lobes overlapping to the left, lobes 5 in single, salver-shaped; *Fr.*—follicles, divaricate, 1-3 ribbed, orange within. *Fl. t.*—rainy season.

HABITAT :—Cultivated in gardens.

LOC. :—Cultivated in gardens all over the State.

DISTR. :—Upper Gangetic Plain, Garhwal, E. Bengal, Khasia Hills, Assam, Hills of Visakhapatnam, Burma, Trinidad; cultivated in many parts.

PARTS USED :—Root, wood and oil.

PROPERTIES AND USES :—*Root* is acrid, bitter; heating, astringent to bowels, alexipharmic, digestible; useful in "Kapha," biliousness, blood-diseases (Ayurveda). *Root*—bitter; emmenagogue, aphrodisiac, tonic, purgative, tonic to brain, liver and spleen; removes bad humours; useful in paralysis, weakness of limbs, stranguary; lessens pains in limbs and joints; cures epilepsy. Charcoal is good in ophthalmia (Yunani).

LOC. USES :—*Wood* is employed medicinally as a refrigerant. Root chewed relieves tooth-ache; rubbed with water it kills intestinal worms; with lime-juice it removes opacity of cornea. It is very cooling in ophthalmia. Milky juice mixed with oil is rubbed into the head to cure pain in the eyes. The milk is very cooling and is applied to wounds to prevent inflammation.

The plant contains an alkaloid.

See—Ornamental Plants.

TABERNÆMONTANA HEYNEANA Wall.

FAM.—Apocynaceæ.

COM. NS. :—*K.* Halmeti, Maddarssa, Nagaskuda; *M.* Nagakuda, Pandarakuda.

CHAR. :—A shrub or a small tree 2.4-4.5 m. high, bark grey, rough; *L.*—opposite, 7.5-20 × 3.2-7.5 cm. coriaceous, oblong lanceolate; *Fl.*—white, 2.5 cm. across in pedunculate cymes; *C.*—tube inflated near the top, with crisped lobes overlapping to the right; *Fr.*—follicle, yellow when ripe, somewhat boat-shaped, with a beak and two sharp side-ribs; *Sd.*—surrounded by red pulp; *Fl. t.*—Mar-Apr.

HABITAT :—Rain-forests.

LOC. :—Western Ghats from the Konkan southwards; throughout the Konkan and N. Kanara; common in rain-forests.

DISTR. :—Malabar, Travancore up to 7,000 m.

PARTS USED :—Root, wood, oil.

PROPERTIES AND USES :—Same as *T. divaricata*.

TAGETES ERECTA Linn.

FAM.—Compositæ.

COM. NS. :—*E.* French Marigold; *G.* Guljharo, Makhamala; *H.* Genda, Gultora, Kalaga, Makhamali; *M.* Makhamal, Zendu; *Sk.* Sthulapushpa, Sandu, Zanduga.

HABITAT :—Cultivated.

LOC. :—Grown abundantly in the gardens as an ornamental plant all over the State.

DISTR. :—Native of Mexico; grown in gardens all over India.

PARTS USED :—Leaves and flowers.

PROPERTIES AND USES :—*Flower*—pungent, bitter, acrid; useful in fevers and epileptic fits (Ayurveda). *Leaves*—good for piles, kidney troubles, muscular pains. *Juice*—used for ear-ache and ophthalmia. *Flower*—bitter; astringent, carminative, stomachic; good for teeth; lessens inflammation; useful in scabies, belching, liver complaints and bleeding piles (Yunani).

LOC. USES :—*Leaves* are used as an application to boils and carbuncles; their juice is given in ear-ache. The flowers are used in eye-diseases and unhealthy ulcers; internally they are said to purify blood; juice is given as a remedy for bleeding piles.

See—Ornamental Plants.

TAMARINDUS INDICA Linn.

FAM.—Leguminosæ (Cæsalpinioidæ).

COM. NS. :—*E.* Tamarind; *G.* Amli; *H.* Amli, Ihli, Nuli, Teter; *K.* Amla, Amlike, Chinch; *M.* Chinch; *Sk.* Amala, Amlika, Chinchika, Tintidika, Tintrani.

HABITAT :—Shady parts of rain-forests.

LOC. :—Evergreen forests of Konkan and N. Kanara; cultivated and self-sown near villages in waste lands all over the country.

DISTR. :—Throughout India, Tropics generally. Indigenous in tropical Central Africa.

PARTS USED :—Bark, leaves, flowers, fruit and seeds.

PROPERTIES AND USES :—*Bark* used topically for loss of sensation in paralysis; ash given for urinary discharges and gonorrhœa. *Leaves* applied to reduce swellings, tumours, ringworm; useful in blood-diseases, small-pox, eye-diseases, earache. *Flowers*—appetising; cure “Vata” and “Kapha”, urinary discharges. *Fruit*—sour, tasty, indigestible, astringent to bowels, laxative, heating, tonic to heart, anthelmintic, causes cough, biliousness, heals wounds and fractures. *Seeds* useful in vaginal discharges and ulcers (Ayurveda). *Bark*—astringent, tonic; heals ulcers. *Leaves*—reduce inflammatory swelling. *Fruit*—sour, sweetish, laxative, useful in liver-complaints, vomiting, thirst, scabies, sore-throat, stomatitis; causes biliousness and impoverishes blood. *Fruit-pulp*—tonic to heart. *Seeds* astringent, aphrodisiac; useful in giddiness and vertigo; applied externally in liver complaints (Yunani). *Seeds* are now used for manufacture of Pectins for industrial purposes, and for sizing materials.

LOC. USES :—*Ripe fruit* is astringent, digestive, carminative, and laxative, useful in diseases caused by deranged bile, such as body-burning, costiveness, intoxication &c. *Fruit-pulp* as well as leaf-poultice is recommended to be applied to inflammatory swellings. A gargle of tamarind water is recommended in sore-throat. *Seeds* are good astringent; boiled they are used as a poultice. Powdered with water they are applied to the crown of the head in cough and relaxation of uvula. *Bark* is considered to have astringent and tonic properties. *Leaves* crushed with water and expressed yield an acid fluid, used in bilious fevers and scalding of urine.

Flour poultice is used in inflammatory affections of the conjunctiva; their juice is given internally for bleeding piles.

Tamarind pulp contains vitamins A and C.

See—Timbers, Condiments and Spices.

TECTONA GRANDIS Linn.

FAM.—Verbenaceæ.

COM. NS. :—*E. Teak*; *G. Sag*, *Sagach*; *H. Sagun*, *Sagwan*; *K. Tega*, *Tegu*; *M. Sag*, *Sagwan*; *Sk. Anil*, *Arna*, *Mahapatra*, *Teka*.

HABITAT :—Monsoon and thorn-forests.

LOC. :—Throughout the State in monsoon and thorn-forests, abundant all along the slopes of W. Ghats to the Mahi River in Gujarat. Best teak forests are on the slopes of Kala-nuddi and the Gangavali rivers of N. Kanara.

Cultivated also.

DISTR. :—Western Ghats of Madras State, Circars, Madhya Bharat, Malay Peninsula, Sumatra and Java, Burma.

PARTS USED :—Root, bark, wood, flowers and seeds.

PROPERTIES AND USES :—*Roots* given in anuria and retention of urine. *Flowers*—acid, bitter, dry; increase “Vata”; useful in bronchitis, biliousness, urinary discharges. *Wood*—acid, cooling, laxative, sedative to gravid uterus; useful in piles, leucoderma and dysentery (Ayurveda).

Oil from the flower promotes growth of hair; useful in scabies. *Wood* good for head-ache, biliousness, burning pain over the region of liver; allays thirst; anthelmintic, expectorant; *ashes* are applied to inflamed eyelids (Yunani).

LOC. USES :—The plaster of the powdered wood is recommended in headache and inflammatory swellings; taken internally it is said to be beneficial in dyspepsia; it acts also as a vermifuge. The ashes of wood are applied to swollen eyelids and are said to strengthen eye-sight. *Bark* is an astringent. Nut oil promotes the growth of hair and removes itchiness of skin. Flowers and seeds are diuretic.

In the Konkan the tar is used as an application to prevent maggots in sores of working animals.

See—Timbers.

TEPHROSIA PURPUREA Pers.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS. :—*G. Ghodakan*, *Jhila*, *Sarpankho*; *H. Sarphoka*, *Sarphonka*; *K. Empali*, *Kogge*, *Phanike*; *M. Sharapunkha*, *Udhadi*, *Unhali*; *Sk. Kalika*, *Plihari*, *Sharapunkha*.

CHAR. :—A perennial herb, 30–60 cm. high, branches spreading; *L.*—imparipinnate 5–10 cm. long; leaflets 11–21, oblanceolate, mucronate, 2–2.8 × 0.8–0.1.2 cm., glabrous above, silky-hairy beneath; *Fl.*—in leaf-opposed lax racemes, lower flowers of the raceme fascicled; *C.*—petals clawed, standard, suborbicular, pubescent on the back, red; *Fr.*—pod 3–4.5 cm. long, linear, slightly curved, mucronate; *Sd.*—5.6; *Fl. t.*—Oct.–June.

HABITAT :—Open situations, along forest borders, cultivated lands and roadsides.

LOC. :—Most common and widely distributed all over the State. Deccan, Gujarat, S. M. Country, Konkan.

DISTR. :—All over India, Malay Peninsula.

PARTS USED :—The whole plant, root, leaves and seeds.

PROPERTIES AND USES :—*Plant*—digestible, anthelmintic, alexiteric, antipyretic, alterative; cures diseases of liver, spleen, heart, blood, tumours, ulcers, leprosy, asthma, poisoning. *Seeds*—useful in rat-bite poisoning (Ayurveda). *Root*—diuretic; allays thirst; enriches blood; cures diarrhœa; useful in bronchitis, asthma, liver, spleen diseases, inflammations, boils and pimples. *Leaves*—tonic to intestines; improve appetite; useful in lung and chest diseases; good in piles, syphilis, gonorrhœa (Yunani).

LOC. USES :—*Root* is given in tympanitis, dyspepsia and chronic diarrhœa; fresh root-bark, ground and made into a pill, with a little black pepper is given in obstinate colic. *Plant* is used internally as a blood purifier and is considered a cordial. It appears to act as tonic and laxative. It is employed as an anthelmintic for children in Ceylon.

In French Guiana root is used to poison fish.

The plant contains the glucoside *rutin*.

TERMINALIA ARJUNA W. & A.

FAM.—Combretaceæ.

COM. NS.:—*E.* White Marudān; *G.* Arjun-Sadada, Sadado; *H.* Arjan, Arjuna, Kahu, Koha; *K.* Bili-Holo-Nir-Tora matti; *M.* Arjuna, Arjun Sadada, Sadura; *Sk.* Arjuna, Dhanvi, Indradruma, Kakubha, Karvirak.

HABITAT:—Banks of rivers and streams.

LOC.:—Konkan and Deccan; very common in South Konkan.

DISTR.:—Throughout the greater parts of India; in the sub-Himalayan tract, Chota-Nagpur, Madhya-Bharat, Madhya-Pradesh, Madras State, Ceylon.

PARTS USED:—Bark, leaves, fruit (rarely).

PROPERTIES AND USES:—Alexiteric, styptic, tonic, anthelmintic; useful in fractures, ulcers, blood-diseases, intoxication, urinary discharges, "Kapha", biliousness, strangury, heart disease, anæmia, excessive perspiration, asthma, tumours, leucoderma, false presentation of foetus; allays thirst and relieves fatigue (Ayurveda). Expectorant, aphrodisiac, tonic, diuretic; useful in biliousness, externally in wounds and fractures, both externally and internally in gleet and urinary discharges (Yunani).

LOC. USES:—Powdered bark is taken internally, with milk, in fractures and contusions with excessive ecchymosis. A decoction used as a wash in ulcers and chancres. Bark is astringent and febrifuge. It is given in decoction with milk as a tonic in heart-disease. It is also useful in bilious affections and as an antidote to poison. Juice of fresh leaves is a remedy for ear-ache.

See—Timbers.

TERMINALIA BELERICA Roxb.

FAM.—Combretaceæ.

COM. NS.:—*E.* Bastard Myrobalan, Bedda Nut, Belleic Myrobalan; *G.* Behedo, Bahaza, Bera; *H.* Bahara, Baire, Buhura, Sagona; *K.* Shantimara, Tara, Tari, Vibhata; *M.* Behada, Hela, Votting; *Sk.* Aksha, Beheduk, Bibhitiki, Kalidrum, Karshaphala, Kushika, Vibhitika.

HABITAT:—In deciduous mixed monsoon-forests.

LOC.:—Common in deciduous mixed monsoon-forests throughout the State ascending to about 1200 m. in Khandesh Akrani.

DISTR.:—Throughout the forests of India, Burma, Ceylon below elevation of about 900 m. except in dry arid regions, Rajasthan and Sind.

PARTS USED:—Bark, fruit and seed.

PROPERTIES AND USES:—Bark useful in anæmia and leucoderma. Fruit—pungent, acrid; digestible, laxative, anthelmintic; useful in bronchitis, sore-throat, biliousness, inflammation, strangury,

asthma, diseases of eye, nose, heart and bladder. Seed—acid, intoxicating; useful in thirst, vomiting, corneal ulcers; relieves "Vata" (Ayurveda). Fruit—astringent, tonic, attenuant, aperient, antipyretic; useful in dyspepsia, bilious headache, diarrhoea; applied to eyes, piles; brain tonic (Yunani).

LOC. USES:—The bark is mild diuretic. Behada is astringent and laxative and useful in coughs, hoarseness, eye diseases etc. It is a constituent of "Triphala", a remedy prescribed in a large variety of cases such as diseases of the liver and intestinal tracts. In the Konkan the kernel with that of the marking nut is sometimes eaten with betelnut and leaf in dyspepsia. Unripe fruit is used as laxative and the dried ripe fruit as an astringent in dropsy, piles and diarrhoea; the fully ripe or dried fruit, mixed with honey, is used as an application in ophthalmia. Kernel has narcotic properties. It is used as an external application to inflamed parts. Oil expressed from the fruit is used as a dressing for hair.

See—Timbers, Dyes, Gums and Resins.

TERMINALIA CHEBULA Retz.

FAM.—Combretaceæ.

COM. NS.—*E.* Black myrobalan, Chebulic myrobalan; *G.* Hirdo; *H.* Har, Harara, Haria; *K.* Alate, Harade, Haritaki; *M.* Hirda; *Sk.* Abhaya, Haritaki, Jivantika, Jivanti.

HABITAT:—Moist parts and monsoon-forests.

LOC.:—Moist parts of the Deccan trap and common along ghats; common in Khandesh Akrani; in the monsoon-forests of Belgaum district and N. Kanara.

DISTR.:—Throughout the greater part of India up to 1500 m. in the outer Himalayas and up to 1800 m. in Travancore, Burma, Ceylon.

PARTS USED:—Bark and fruit.

PROPERTIES AND USES:—Fruit—dry, heating; stomachic, tonic, carminative, expectorant, anthelmintic, antidysenteric, astringent; useful in asthma, sore-throat, thirst, vomiting, hiccup, diseases of eye, heart and bladder, strangury, vesicular calculi, urinary discharges, ascites, biliousness, inflammations, tumours, bleeding piles, typhoid fever, leucoderma, dyspepsia, itching pain, constipation, anæmia, gout, elephantiasis, delirium (Ayurveda). Unripe fruit is astringent and aperient; useful in dysentery and diarrhoea. Ripe fruit—purgative, tonic, carminative; enriches blood; good in ophthalmia, diseases of spleen, piles, cold in head; strengthens brain, eyes, gums; used in paralysis (Yunani).

LOC. USES:—Fruit forms one of the constituents of Triphala, a valuable preparation used in many diseases. Dried unripe fruit is astringent and is commonly used as purgative and antibilious. It is a popular liver regulator and aperient. A conserve is made of the large ripe fruits, which is considered a good digestive. Fruit finely powdered is used as a dentifrice, useful in caries of teeth, bleeding and ulceration of gums; fruit coarsely powdered and smoked in pipe affords relief in fits of asthma; decoction of fruit is a good astringent wash. A fine paste obtained by rubbing the fruit with water mixed with caron oil and applied to burns and scalds effects

a more rapid cure than when carron oil alone is used. Water in which fruits are kept overnight is considered a very cooling wash for the eyes. The *ashes* mixed with butter form a good ointment for sores. Equal parts of fried myrobalans in combination with embolic and beleric myrobalans and catechu rubbed into a thick paste with ghee or bland oil make an excellent ointment for chronic ulcerations, ulcerated wounds and skin diseases attended with profuse discharge.

The *bark* is diuretic and cardiotonic (Caius, Mhaskar and Issac).

INDIAN PREPARATIONS :—*Pāthyakadi kvath*—used as purgative. *Amrit Haritaki*—used in dyspepsia and indigestion (Bhāishajya-Ratnavali).

The author of the Makhazan-el-adwiya distinguishes six kinds of fruits gathered at different stages of maturity and having different therapeutic properties.

See—Timbers, Dyes, Tans.

THESPESIA POPULNEA Soland.

FAM.—Malvaceæ.

COM. NS. :—*E. Portia* Tree, Tulip Tree; *G. Bhindi*, Paraspiplo; *H. Bhandi*, Gajadanta, Paraspipal, Parasipu; *K. Arasi*, Bugari, Gandarati, Hucerasi, Jogiyarale; *M. Bhend*, Paras-piper, Ranbhendi; *Sk. Kandarala*, Kuberaksha, Parisha, Phalisha, Suparshuakan.

HABITAT :—Wild along sea-shores; also planted as roadside tree.

LOC. :—Districts of Konkan and N. Kanara.

DISTR. :—Coast forests of India, Bengal, Eastern and Western Peninsula; Burma; largely grown as a roadside tree in tropical regions.

PARTS USED :—Bark, leaves, flowers and fruit.

PROPERTIES AND USES :—*Fruit*—sour, acrid; difficult to digest; produces worms in intestines; increases “Kapha”; aphrodisiac; removes “Vata” and “Pitta”; burning of body; good for heart disease and throat troubles (Ayurveda).

LOC. USES :—In Madhya Pradesh *root* is taken as a tonic. Decoction of bark is given internally as alterative. It is also used in chronic dysentery. *Leaves* are employed as a local application in inflamed and swollen joints; leaves ground up into paste are applied locally in children's eczema. *Flowers* are employed in the cure of itch. *Fruit* yields a yellow viscid juice, which forms a valuable local application in scabies, ring-worm and other cutaneous diseases.

Rumphius speaks highly of the value of the heart-wood as a remedy for bilious attacks and colic.

Compound oil of the bark and capsule was given in cases of urethritis and gonorrhœa with beneficial results (Koman).

In Tahiti yellow sap from the peduncles is a cure for insect bites, especially centipedes.

See—Timbers, Fibres, Sacred Plants.

THEVETIA NERIFOLIA Juss.

FAM.—Apocynaceæ.

COM. NS. :—*E. Exile* or yellow Oleander; *G. Pila kaner*; *H. Pila kanir*, Zard kunel; *M. Pivali kanher*; *Sk. Ashvaghna*, Haripriya, Karvira, Shatakumbha.

CHAR. :—Large evergreen glabrous shrub, with milky juice; *L.*—spirally arranged, 7.5–12.5 cm. long, linear, bright green and shining above, crowded; *Fl.*—in terminal cymes, 5 cm. across, yellow; *C.* tubular, throat campanulate, lobes 5; corona in the throat; *Fr.*—broadly obovate, elliptic, exocarp fleshy, mesocarp bony, endocarp corky; *Sd.*—generally 4.

HABITAT :—Often planted.

LOC. :—Planted all over the State as an ornamental tree or hedge.

DISTR. :—Native of S. America and W. Indies; often planted in India.

PARTS USED :—Bark, seeds and milky juice.

PROPERTIES AND USES :—Bitter, pungent, acrid, hot; astringent to bowels; useful in urethral discharges, worms, skin diseases, leucoderma, wounds, piles, eye-troubles, fevers, bronchitis; cures “Vata”; very poisonous (Ayurveda).

LOC. USES :—The *bark* is bitter and powerfully cathartic; said to be antiperiodic in small doses; but its use is attended with considerable danger. The milky juice is highly poisonous and the kernel is a powerful acro-narcotic poison. The *oil* from the seed is emetic and purgative.

The glucoside *Thevetin* is very toxic; it has no action on digestive enzymes; it has pronounced effect on the circulatory system and direct stimulant action on the plain muscles of the intestine, bladder, virgin uterus, and blood vessels; it has cardio-tonic properties (Chopra and Mukharji).

See—Ornamental Plants, Poisonous Plants and Fish Poisons.

TINOSPORA CORDIFOLIA Miers.

FAM.—Menispermaceæ.

COM. NS. :—*E. Heart-leaved* moonseed; *G. Gado*, Gulo, Gulvel; *H. Gulancha*, Gulhel, Gurch; *K. Amritvalli*, Uganiballi; *M. Amarvel*, Gulvel; *Sk. Amrita-Valli*, Jwaranashini, Pittaghni, Vatsadani.

CHAR. :—An extensive climber, bark corky, grooved; *L.*—membranous, 7–9 nerved, 5–10 cm., roundish cordate with a broad sinus; *Fl.*—in axillary and terminal racemes, yellow; male fascicled, females solitary; *Fr.*—drupes, 1–3, dorsally convex, ventrally flat; red, size of a pea; *Fl. t.*—Apl.

HABIT :—In thickets, growing on mango and other trees.

LOC. :—Very common in thickets throughout the State; frequently planted.

DISTR. :—Throughout tropical India; Burma, Andamans and Ceylon.

PARTS USED :—Stem, root.

PROPERTIES AND USES :—*Stem*—bitter; stomachic; stimulates bile secretion; causes constipation; allays thirst, fever, burning sensation, vomiting; diuretic; enriches blood; cures jaundice; useful in skin diseases; *juice* useful in diabetes, vaginal and urethral discharges, low fevers and enlarged spleen (Ayurveda). *Stem*—bitter, tonic appetiser, stomachic, antipyretic, expectorant; good in cough, jaundice, giddiness, vomiting, piles, anaemia, chronic fever; renews blood; mixed with sesamum oil used for body massage (Yunani).

LOC. USES :—It is commonly known in the bazar as *guluncha*. Root and stem are bitter. Watery extract was much used as febrifuge and given the name of *Indian Quinine*. Infusion is a valuable tonic in debilitating diseases, intermittent fever and dyspepsia.

Starch obtained from root and stem is useful in chronic, especially acid, diarrhoea. It is a valuable nutrient when there is intestinal irritability and inability to digest any food. It is useful in relieving symptoms of rheumatism. (Kirtikar).

The plant contains a bitter substance *berberine*.

TODDALIA ACULEATA Pers.

FAM.—Rutaceæ.

COM. NS. :—*E.* Lopezroot Tree, Forest Pepper; *H.*—Dehan, Gangalaki, Mirchi; *K.* Kadu-hakukare, Kadu-menasu, Macimullu; *M.* Jangali-Mirchi, Limri, Manger; *Sk.* Dahan.

CHAR. :—An evergreen scandent shrub, 15 m. high, armed with small hooked prickles; *L.*—alternate, digitately trifoliate; leaflets sessile, 5-10 × 1.8-3.8, oblong, crenulate, coriaceous, dark shining green above; *Fl.*—in axillary cymes, white, unisexual; *male flower* bud globose, ovary rudimentary; *female flower* buds oblong, stigma sessile, 5-7 lobed; *Fr.*—globose, size of a large pea, 3-5 grooved, orange coloured, pitted on the rind; *Fl. t.*—Aug.-Jany.

HABITAT :—Rain-forests.

LOC. :—Common throughout the ghats of Bombay State, common in S. Konkan and Kanara; also in the Deccan hills.

DISTR. :—All over the Madras State; Kumaon to Bhutan; Khasia Hills; Ceylon; Sumatra; Java; China; Philippines; tropical Africa.

PARTS USED :—Root, bark, leaves, fruits.

PROPERTIES AND LOC. USES :—All the parts of the plant are very pungent. *Root-bark* is aromatic, tonic, stimulant and anti-periodic, useful in constitutional debility and in convalescence after febrile fever and other exhausting diseases. Fresh root-bark is administered for the cure of hill-fever. Fresh leaves are eaten raw for pains in bowels. Unripe fruit and root are rubbed down with oil as a stimulant liniment for rheumatism.

Root-bark contains the alkaloid *berberine*. Leaves when distilled yield a yellowish green volatile oil.

TOONA CILIATA Roem.

(CEDRELA TOONA Roxb.)

FAM.—Meliaceæ.

COM. NS. :—*E.* Indian Mahogany, Moulmien or Singapore Cedar, Sandal Neem, Toon; *H.* Lim, Lud, Mahajimbu, Tun, Tun; *K.* Gandhagarige, Garige, Kalngi, Mandurike, Tundu; *M.* Deodari, Kuruk; *Sk.* Apina, Kaechaka, Kuberaka, Nand-vriksha, Tunika.

HABITAT :—More or less common in monsoon and dry forests.

LOC. :—Abundant in evergreen and monsoon-forests of the Konkan and N. Kanara; in dry forests of Khandesh Akrani.

DISTR. :—Sub-Himalayan tracts from the Indus eastwards, Assam, Chota-Nagpur, Nilgiris and other hills of western peninsula; Chittagong, Burma.

PARTS USED :—Bark and flowers.

PROPERTIES AND USES :—*Bark*—acid, digestible, astringent to bowels, cooling, aphrodisiac, tonic, fattening; useful in ulcers, leprosy; removes "Tridosha", burning sensation; cures fevers, itching, headache, biliousness, and blood complaints (Ayurveda). *Bark*—bitter, cardio-tonic, aphrodisiac, expectorant; astringent to bowels; anthelmintic; good for scabies and gleet. *Seeds* have the same properties (Yunani).

LOC. USES :—The *bark* of the tree is a powerful astringent (Pharm. of India). It has been used with success in chronic infantile dysentery (Dr. Waitz). It is used as a local astringent application, in various forms of ulcerations.

Hindu physicians use the bark in combination with bonduc nuts as a tonic and anti-periodic. The flowers are called Gul-tun in Bombay and considered emmenagogue.

The resinous bark is prescribed in dysentery and in intermittent fevers in Indo-China and the Malay Archipelago.

The plant contains a bitter substance *nyetanthin*.

See—Timbers, Dyes, Gums and Resins.

TRAPA BISPINOSA Roxb.

FAM.—Onagraceæ.

COM. NS. :—*E.* Water-chestnut; *G.* Shingoda, Singodi; *H.* Singhafa; *M.* Shingada; *Sk.* Jala-kantaka-valli, Shringa-kanda-taka, Trikona-phala, Trikota.

HABIT :—Aquatic (in tanks).

LOC. :—Throughout the State in tanks, often cultivated; very abundant in tanks all over Gujarat.

DISTR. :—Throughout India; Ceylon; Malaya; tropical Africa.

PARTS USED :—Fruit.

PROPERTIES AND USES :—Cooling; indigestible; aphrodisiac, astringent to bowels, antipyretic; causes "Vata"; removes "Kapha", "Tridosha"; cures leprosy, burning sensation, fatigue, inflammation, blood diseases, urinary discharges, biliousness, strangury; useful in

fractures and erysipelas (Ayurveda). Aphrodisiac, appetiser, antipyretic; useful in chronic fevers, lumbago, pain, thirst, sore-throat, biliousness, bronchitis, bad-teeth (Yunani).

LOC. USES:—Seeds are farinaceous, used as food, considered cool and sweet, useful in bilious affections and diarrhoea. They are also used in the form of poultice.

*In Cambodia the rind of the fruit is considered tonic and febrifuge.

Seeds abound in starch; their nutritive value is equal to that of rice. The kernel and pericarp contain manganese.

See—Food Plants.

TREWIA NUDIFLORA Linn.

FAM.—Euphorbiaceæ.

COM. NS.:—*H. Gamhar*, Pindara, Tumri; *K. Kadu Kange* Kumbala, Kere Padye; *M. Petari*; *Sk. Karahate*, Kurangaha, Pindara.

HABITAT:—Moist monsoon-forests, along *nalas* and in swampy localities.

LOC.:—Throughout the Konkan and N. Kanara.

DISTR.:—Throughout the hotter parts of India, Assam, Ceylon; Malay Peninsula, Sumatra, Java.

PARTS USED:—The whole plant.

PROPERTIES AND USES:—Plant is cooling tonic, alexiteric; improves taste; removes biliousness (Ayurveda).

LOC. USES:—The plant is used for the removal of swellings, bile and phlegm; the root in decoction is given to relieve flatulence, and is applied locally in gouty and rheumatic affections.

The plant contains an alkaloid.

See—Timbers, Fibres.

TRIBULUS TERRESTRIS Linn.

FAM.—Zygophyllaceæ.

COM. NS.:—*E. Calthrope*; *G. Beta*—Nahan Gokhru, Gokhru; *H. Chhota gokhru*, Hussuk, Gokhru, Gokshri; *K. Negalu*; *M. Gokharu*, Sarata; *Sk. Gokhura*, Gokshura, Kantaphala, Shadanga, Trikantaka.

CHAR.:—A procumbent herb; stems and branches pilose, young parts silky; *L.*—opposite, abruptly pinnate, one of each pair smaller than the other; leaflets 3–6 pairs; oblong, mucronate, hairy, base oblique; *Fl.*—axillary or leaf-opposed, solitary, yellow; *Fr.*—globose, of 5 woody cocci, each with 2 pairs of hard, sharp spines, one pair longer than the other; *Sd.*—several in each coccus; *Fl. t.*—throughout the year.

HABITAT:—Dry and hot parts; a common weed of the drier parts.

LOC.:—Saurashtra, Gujarat, Deccan and S. M. Country.

DISTR.:—Throughout India, upto 3300 m. in Kashmir; Ceylon; all warm regions of both the hemispheres.

*PARTS USED:—Root, leaves, fruits, seeds.

PROPERTIES AND USES:—Cooling; tonic, fattening, aphrodisiac, alterative; improves appetite; useful in strangury, urinary discharges, vesicular calculi, *prurites ani*, alleviating burning sensation; reduces inflammation; removes “Tridosha”, cough, asthma, pain; cures skin and heart diseases, piles, leprosy; purifies blood; diuretic; removes stone in the bladder (Ayurveda). Diuretic; removes gravel from urine and stone in bladder; cures strangury, gleet, gonorrhoea, lumbago; tonic; enriches blood; increases menstrual flow; good gargle for mouth troubles and painful gums; reduces inflammation; stomachic, appetiser, emmenagogue (Yunani).

LOC. USES:—Fruits are cooling, diuretic, tonic, aphrodisiac and are used in calculous affections, urinary disorders and impotence. Infusion is very useful in kidney diseases. Fruit and root are boiled with rice to form a medicated water, which is taken in large quantities. Water rendered mucilaginous by the plant is drunk as a remedy for impotence; and infusion of stem is administered for gonorrhoea.

The drug undoubtedly has diuretic properties but showed no advantage over many of the diuretics in the British Pharmacopœia (Chopra and Ghosh).

INDIAN PREPARATIONS:—*Gokshuradyavaleha*: given in painful micturition, suppression of urine, bloody urine, calculous affections (Bhavaprakash).

TRICHOLEPIS GLABERRIMA DC.

FAM.—Compositæ.

COM. NS.:—*G. Brahmadandi*, Physiaran, Talakanto; *H. Brahmadandi*; *K. Brahmadandi*; *M. Brahmadandi*, Mota-Motachor; *Sk. Ajadandi*, Brahmadandi, Kantapatraphala.

CHAR.:—A glabrous herb; stem erect, slender, branches angled and ribbed; *L.*—sessile, linear-oblong or lanceolate, spinous toothed or serrate, base of the cauline leaves not auricled; *Fl.*—heads 6–8 mm. long, ovoid; *C.*—purple, involucre bracts linear-lanceolate, ciliate; pappus shorter than the achenes, yellowish brown, copious; *Fr.*—achene, oblong, faintly ribbed; *Fl. t.*—Dec.

HABITAT:—Wild in places.

LOC.:—Found growing in the State south of Bombay. Konkan, the Deccan, S. M. Country, S. Kanara.

DISTR.:—Western Peninsula, Central India, West Rajasthan, Mt. Abu, S. Kanara, Coorg and the hills of Mysore.

PARTS USED:—The whole plant.

PROPERTIES AND USES:—Hot, bitter; cures “Kapha”, “Vata”, inflammations; used in leucoderma and skin diseases (Ayurveda).

LOC. USES:—It is believed to be a nervine tonic and an aphrodisiac and it is used in seminal debility (Sakharam Arjun).

TRICHOSANTHES CUCUMERINA Linn.

FAM.—Cucurbitaceæ.

COM. NS.:—*E.* Wild Snake-gourd; *G.* Kadvi-padval or patola; *H.* Jangali chichonda; *K.* Betlada padaval, Kiripodla; *M.* Jangli-Kadu padval, Perula; *Sk.* Jyotsna, Katuka, Panduka, Patola.

CHAR.:—A scandent annual; stems 3·6–4·5 m. long, slender, furrowed, slightly hairy; tendrils 3-fid; *L.*—5–12·5 cm. long, orbicular, reniform or broadly ovate, deeply 5-lobed, distantly denticulate, base deeply cordate; *Fl.*—monœcious, *male* in axillary racemes, bearing 8–15 flowers near the apex, white; *females* solitary, axillary; *Fr.*—2·5–7·5 cm. long, ovoid-fusiform, with a long sharp beak, green with white stripes when raw, scarlet when ripe; *Sd.*—surrounded with red-pulp; *Fl. t.*—July–Oct.

HABITAT:—In hedges.

LOC.:—Found growing in hedges in the Konkan, the Deccan, Gujarat (common) and Kanara.

DISTR.:—Throughout India, Ceylon, Malay Peninsula, Malaya, N. Australia.

PARTS USED:—Root, leaves, fruit, oil.

PROPERTIES AND USES:—*Root*—cathartic; cures bronchitis, headache and boils. *Leaves*—good for biliousness. *Fruit*—hot, bitter, pungent; laxative, antipyretic, alexiteric, stomachic; allays thirst, asthma; cures itching, leucoderma, blood diseases, burning sensation, leprosy, ulcers, erysipelas, eye diseases, “Tridosha” (Ayurveda).

LOC. USES:—The *plant* is a cardiac and general tonic, alterative, antipyretic, useful for boils and intestinal worms. *Root-juice* is very purgative; *leaf-juice* is emetic. In the Konkan leaf-juice is rubbed over the liver or even the whole body in remittent fevers. *Fruit* is bitter and is considered a drastic purgative and emetic. The *seeds* are good for stomach disorders; they are antifebrile and anthelmintic. In Bombay, the plant has a reputation as a febrifuge; it is given in decoction with ginger, chireta and honey.

INDIAN PREPARATIONS:—*Patoladi Kvatha*: given in fever. In bilious fevers a decoction of leaves and coriander in equal parts is given as a febrifuge and laxative (Chakradatta). *Patoladya Churna*: this is used as a drastic purgative in jaundice, anasarca and ascites.

See—Poisonous Plants and Fish Poisons.

TRICHOSANTHES PALMATA Roxb.

FAM.—Cucurbitaceæ.

COM. NS.:—*G.* Ratan-indrayan; *H.* Indrayan, Lal-indrayan, Makal; *K.* Avagude-hannu; *M.* Kaundal, Mukal; *Sk.* Mahakala.

CHAR.:—A large climber often to a height of 9 m., stem robust, woody below; tendrils 3 cleft; *L.*—6·3–12·3 cm. long as well as broad, variable, palmately 3-5 lobed, dark-green above, paler beneath, with dark-coloured glands along the lower side, base cordate; lobes ovate-oblong, dentate or serrate; *Fl.*—male in axillary

5-10 flowered racemes, bracts large; *C.*—petals wedge-shaped, fringed, white, axillary, *female* solitary; *Fr.*—globose 3·8·5 m. diam., red when ripe with 10 orange streaks; *Sd.*—many; *Fl. t.*—Apl.–July.

HABITAT:—Wild in hilly parts.

LOC.:—Wild in Konkan, Deccan and S. M. Country.

DISTR.:—Throughout India to Ceylon ascending to 1500 m. on the Himalayas, Malaya, China, Japan, N. Australia.

PARTS USED:—Root and fruit.

PROPERTIES AND USES:—*Fruit* is useful in asthma, ear-ache and ozæna (Ayurveda). *Fruit*—carminative, purgative, abortifacient; lessens inflammations; cures hemicrania, limb-weakness, heat of brain, ophthalmia, leprosy; used in epilepsy, rheumatism; gargle good for tooth-ache; the smoke causes hæmatemesis. *Seeds*—emetic and purgative (Yunani).

LOC. USES:—*Root-paste* along with colocynth root is applied to carbuncles; *root* is also used in gonorrhœa along with myrobalans and turmeric. *Fruit* pounded and well mixed with warm cocoanut oil, forms a valuable application to sores under ears and nostrils. *Juice* of fruit or root-bark, boiled with gingelly oil, is used as a bath-oil for the relief of long-standing attacks of head-ache. *Fruit* is violent hydragogue and cathartic. *Oil* obtained by boiling it in gingelly or cocoanut oil is said to cure hemicrania and ozæna.

TRIDAX PROCUMBENS Linn.

FAM.—Compositæ.

COM. NS.:—*M.* Ekdandi.

CHAR.:—A perennial straggling herb, 30-60 cm. high; stem and branches hairy; *L.*—1·75 × .75-1 in., ovate-elliptic, acute, deeply inciso-dentate or pinnatisect, glandular, hairy; petioles densely hairy; *Fl.*—head solitary, peduncles very long, sometimes exceeding 30-35 cm. slender, sparsely white hairy; outer involucre bracts ovate, very hairy; inner slightly longer than outer. Ray flowers ligulate, ligules yellow, 3-partite, middle lobe smallest; pappus of numerous feathery bristles; *Fr.*—achene, densely silky hairy, black; *Fl. t.*—throughout the year.

HABITAT:—Weed in cultivated grounds and waste places.

LOC.:—Abundant in the Deccan; all over the State.

DISTR.:—Throughout India, Ceylon.

PARTS USED:—Leaves.

PROPERTIES AND USES:—*Juice* of the leaves is used successfully to check hæmorrhage from cuts, bruises and wounds. This has been proved by actual experience in the Ganeshkhind Botanical Garden, Kirkee, many years ago. No mention of this property of the plant is made anywhere and it is worth while to carry on more detailed investigation about this plant, which is found abundantly all over the country.

TRIGONELLA FOENUM GRÆCUM Linn.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS. :—*E. Fenugreek*; *G. Methi*, *Methini*; *H. Methi*, *Muthi*; *K. Menthe-palle*; *M. Methi*; *Sk. Chandrika*, *Jyoti*, *Methi*, *Pitabija*, *Vedhini*.

HABITAT :—Cultivated.

LOC. :—Grown in garden lands at all times of the year all over the State.

DISTR. :—Punjab, Kashmir, extending through Iran and Abyssinia to the Mediterranean; cultivated in many parts of India.

PARTS USED :—Leaves and seeds.

PROPERTIES AND USES :—Hot, tonic, antipyretic, anthelmintic, appetiser, astringent to bowels; cures leprosy, "Vata", vomiting, bronchitis, piles; removes bad taste from mouth; useful in heart diseases (*Ayurveda*). Hot and dry; suppurative, diuretic, aperient, emmenagogue, useful in dropsy, chronic cough, enlargement of spleen and liver. *Leaves*—useful in external and internal swellings and burns; prevent hair falling off (*Yunani*).

LOC. USES :—A poultice of leaves is useful in external and internal swellings and burns. *Seeds* are mucilaginous and diuretic; they are also aphrodisiac, tonic and carminative, much used in colic, flatulence, dysentery, diarrhoea, dyspepsia with loss of appetite, dropsy, enlargement of spleen and liver. *Seed* infusion is given to small-pox patients as a cooling drink. *Seeds* roasted and infused are used for dysentery. Made into gruel they are given to increase flow of milk; applied to head they promote growth of hair and prevent them from falling off. Powdered seeds are used in veterinary practice.

The plant contains the alkaloid *trigonelline*.

The leaves contain vitamins A and B, and the seeds contain vitamin A.

INDIAN PREPARATIONS :—Several confections under the name of *Methi Modak* are used in cases of dyspepsia and in the diarrhoea of women in child birth and in rheumatism.

See—Vegetables.

TYLOPHORA ASTHMATICA W & A.

FAM.—Asclepiadaceæ.

COM. NS. :—*H. Antamul*, *Janglipikvan*; *K. Adumuttada*, *Kirumanjibelli*, *Nepala*; *M. Pitakari* (*Pitamari*).

CHAR. :—A twining perennial; roots many, long, fleshy; *L.*—opposite, 5-10 × 2.5-5.7 cm., ovate or elliptic oblong, base cordate; *Fl.*—in umbellate cymes; large for the genus; *C.*—deeply lobed, greenish-yellow outside, purplish within; corona gibbous below, narrowed at the apex to a free point; *Fr.*—follicles, 7.5-10 cm. long, tapering to a fine point at the apex; *Sd.*—broadly ovate, with coma; *Fl. t.*—Aug.-Nov.

HABITAT :—Hedges and open forests, also in low and sandy localities.

LOC. :—South of Bombay, Konkan; Kanara. S. M. Country.

DISTR. :—Throughout the plains of India, Ceylon, Thailand (Siam), Malay Islands, Borneo.

PARTS USED :—Roots and leaves.

PROPERTIES AND LOC. USES :—Liniment prepared with the root is applied to head in cephalalgia and neuralgia. Dried leaves are emetic, diaphoretic and expectorant; found useful in dysentery, catarrh and other affections in which *ipecacuanha* has been prescribed. It may be regarded as one of the best indigenous substitutes for *ipecacuanha*.

Decoction of leaves and infusion of root-bark were used in dysentery, asthma and bronchitis and were found to give satisfactory results (Koman).

The plant contains an alkaloid *tylophorine*.

URARIA PICTA Desv.

FAM.—Leguminosæ (Papilionoideæ).

COM. NS. :—*G. Pitavan*; *H. Dabra*, *Pitvan*, *Shankaraja*; *M. Prishna-parni*, *Pithavan*, *Ranganja*; *Sk. Chitra*—*Prishthi-parni*.

CHAR. :—A perennial shrub, 0.9-1.8 m. high, stems downy with hooked hairs; *L.*—imparipinnate, 20-30 cm. long; leaflets on the upper part of the stem, 5-7 (rarely 9), 10-20 cm. long, linear-oblong, blotched with white above, hairy beneath; leaflets on the linear part of the stem 1-3 foliate; *Fl.*—in close fascicles along the rachis of cylindric racemes; rachis and pedicels with hooked hairs; *C.*—purple; *Fr.*—pod, glabrous, pale lead-colored; joints 3-6, polished, folded on one another; *Fl. t.*—Aug.-Sept.

HABITAT :—Wild.

LOC. :—Konkan.

DISTR. :—Throughout India, Ceylon, tropical Africa, Malay Islands, Philippines.

PROPERTIES AND LOC. USES :—The fruit is applied to the sore mouths of children.

URGINEA INDICA Kunth.

FAM.—Liliaceæ.

COM. NS. :—*E. Indian Squill*; *G. Jangli*—*Ran-khanda*; *H. Jagli-piaz*; *M. Rankanda*; *Sk. Kola*—*Putakand*, *Panjala*, *Vanapalandu*.

CHAR. :—A herb; bulb ovoid or globose (like onion), white; *L.*—appearing after the flowers, flat, linear, 15-45 × 1.3-2.5 cm., scape erect 30-45 cm.; *Fl.*—in racemes 15-30 cm. long; perianth campanulate, stalks long, drooping; *C.*—petals lanceolate, light-brown; *Fr.*—capsule, ellipsoid, tapering to both ends; *Sd.*—flattened, black.

HABITAT :—Sandy places.

LOC. :—Common on sandy shores.

DISTR. :—Western Himalayas, Bihar, Chota-Nagpur, W. Peninsula, Burma, tropical Africa.

PARTS USED :—Bulb.

PROPERTIES AND USES :—The bulb is pungent, heating, anthelmintic, alexiteric; useful in vomiting (Ayurveda).

The *bulb* is stomachic, diuretic, emmenagogue, anthelmintic, purgative, alexiteric; useful in paralysis, bronchitis, asthma, dropsy, renal calculi, rheumatism, skin diseases, diseases of nose, internal pains (Yunani).

LOC. USES :—Expectorant, cardiac, stimulant and diuretic. The *bulb* was administered in the form of syrup as an expectorant in bronchial complaints, and was found useful (Koman).

The assays carried out by Chopra and De (1926) show that *U. indica* is in no way inferior to the official *U. maritima* of U. S. A. and *U. scilla* of Great Britain. (In Merl. Gaz., 1931.)

The Indian variety was even made official in British Pharmacopœia in 1914.

VANDA ROXBURGHII R. Br.

FAM.—Orchidaceæ.

COM. NS. :—G. Rasno; H. Banda, Persara, Rasna, Vanda; K. Bandanike; M. Rasna; Sk. Atras, Nakula, Rasna, Sarpagandha, Vriksharuha.

CHAR. :—An epiphyte, stem 30-60 cm. long. stout, scandent by simple or branching roots; *L.*—thickly coriaceous, 15-20 × 1.3-2 cm., recurved, obtusely keeled, complicate, præmorse, with usually 2 unequal rounded lobes, and an acute interposed one; *Fl.*—in 6-10 flowered racemes 15-25 cm. long; sepals and petals yellow with brown lines; lip bluish dotted with purple; side-lobes rising from the mouth of the spur, acute, erect, middle lobe dilated at the fleshy, 2-lobed, tip; column very short; pollinia ellipsoid; *Fr.*—capsule, clavate-oblong with acute ribs 7.5-9 cm. long; *Fl. t.*—July.

HABIT :—Epiphyte.

LOC. :—Konkan, Gujarat and Kanara.

DISTR. :—Bengal, Chota-Nagpur, Bihar, Madhya-Pradesh, W. Peninsula, Travancore, Ceylon.

PARTS USED :—Root and leaves.

PROPERTIES AND USES :—*Root* is bitter; heating, alexiteric, antipyretic; useful in dyspepsia, bronchitis, inflammations, rheumatic pains, diseases of the abdomen, hiccup, tremors (Ayurveda). *Root* is bitter, laxative, tonic to brain and liver; good for piles, bronchitis, lumbago, tooth-ache, boils in the scalp; lessens inflammations; heals fractures (Yunani).

LOC. USES. :—*Rasna root* is said to be fragrant, bitter and useful in rheumatism and allied disorders, in which it is prescribed in a variety of forms. Mixed with several medicated oils it is used for external application in diseases of the nervous system. In Chota-Nagpur leaves pounded and made into a paste are applied to the body during fever; a compound decoction of root is administered in case of hemiplegia.

The plant contains an alkaloid.

VATERIA INDICA Linn.

FAM.—Dipterocarpaceæ.

COM. NS. :—E. Indian Copal or White Dammar tree; H. Kaharub, Safed-damar, Sandras; K. Bilidhupa, Madidhupa, Shandike; M. Dhurpa; Sk. Dhapa, Kundura, Sarjaka, Shala.

HABITAT :—Evergreen rain-forests; also planted.

LOC. :—North Kanara. Tree was formerly planted along avenues or roads by the Sonda Kings. Fine avenues exist near Siddapur and near the sea-coast at Karkul.

DISTR. :—Western India, Travancore, Coorg in Ghats, abundant in S. Kanara.

PARTS USED :—Bark, fruit, resin.

PROPERTIES AND USES :—*Bark*—hot, acrid; alexipharmic; cures cough, anæmia, ear-diseases, urinary discharges, skin eruptions, ulcers and wounds; useful in leprosy, dysentery, itch (Ayurveda). *Resin* of 3 kinds (reddish, dark, whitish), alexipharmic, tonic, bechic, carminative, expectorant, detergent, good for sore-throat, in chronic bronchitis, piles, rheumatism, amenorrhœa, diarrhœa, hemicrania, tuberculous glands, boils and ringworm; *smoke* is good in painful piles and beneficial to foetus in pregnant women (Yunani).

LOC. USES :—Under the influence of gentle heat, the resin (white dammar) combines with wax and oil and forms excellent resinous ointment. It forms a good substitute for officinal resin as a basis for various ointments and plasters. Fine shavings are administered internally to check diarrhœa. *Fruit* (seeds) yields a solid fatty oil, which is reputed as a local application in chronic rheumatism and some other painful affections.

See—Timbers, Gums and Resins, Oils.

VENTILAGO MADARASPATANA Gærtn.

FAM.—Rhamnaceæ.

COM. NS. :—E. Red Creeper; G. Ragatarshado; H. Pitti; K. Haruge, Kubbila, Malamaitra, Poppli; M. Khandvel, Lokhandi, Sekalyel; Sk. Raktavalli.

CHAR. :—A large much branched woody climber; young branches and panicles pubescent; *L.*—5-10 × 2.5-3.8 cm. oblong-lanceolate or elliptic-ovate, entire or crenate; *Fl.*—in large drooping terminal panicles; buds 5-angled; *C.*—petals 5, greenish, with an offensive odour; *Fr.*—nut about 5 mm. diam., yellowish, globular, prolonged into a linear-oblong, 1-nerved wing; *Fl. p.*—Dec.-Jany. (T. Cooke) Rainy season (Talbot's Forest Flora).

HABITAT :—Hotter parts, deciduous and monsoon-forests.

LOC. :—Very common in the deciduous and monsoon forests of the Deccan and Konkan; also in N. Kanara and S. M. Country.

DISTR. :—Madras State, Mysore, Ceylon, Tenasserim.

PARTS USED :—Bark.

PROPERTIES AND LOC. USES :—The powdered root-bark is carminative, stomachic, tonic and stimulant; useful in atonic dyspepsia, debility and slight cases of fever; the powdered bark mixed with gingelly oil is used in S. India as an external application for itch and other skin diseases.

VERBASCUM COROMANDELIANUM O. K.

(CELSIA COROMANDELINA Vall.)

FAM.—Scrophulariaceæ.

COM. NS.:—G. Kalhara, Kulara; H. Gadar-tambaku; M. Kutki; Sk. Bhutakeshi, Kûlhalâ, Sundika, Vishamvâshti.

CHAR.:—An annual herb; stem 0.6–0.9 m. high, hairy, branched near the top; L.—radical 5–10 × 2.3–8 cm. on long petioles, lyrate, compound or pinnatisect, with small leaflets or segments at the base and a large terminal lobe; lower cauline leaves smaller and short petioled, upper cauline becoming smaller and sessile, all coarsely dentate, hairy; Fl.—in simple or branched terminal racemes, yellow, rachis glandular pubescent; C.—rotate, lobes 5, rounded; filament densely bearded with purple hairs; Fr.—capsule, sub-globose; Sd.—oblong, truncate, warted; Fl. t.—Jany.-May.

HABITAT:—Waste places.

LOC.:—Konkan; Deccan; Gujarat.

DISTR.:—Throughout India; Afghanistan; Ceylon; Java; China.

PARTS USED:—Plant, and leaves.

PROPERTIES AND USES:—The plant is useful in “Vata” complaints and blood derangements (Ayurveda).

LOC. USES:—*Leaf-juice* is sedative and astringent; prescribed in several cases of acute and chronic dysentery with manifest advantage. The *juice* mixed with mustard oil, in equal proportions, is applied as an external application for relieving the burning sensation of hands and feet; mixed with sugar and water it is used as a drink in bleeding piles. The juice of the whole plant, squeezed out by pounding, is used in cases of syphilitic eruptions.

VERNONIA ANTHELMINTICA Willd.

FAM.—Compositæ.

COM. NS.:—E. Purple Fleabane; G. Kadvojiri, Kalijiri; H. Kalizhiri, Bakchi, Somaraj, Vapehi; K. Kadu-Kala Jiriga; M. Kalejire; Sk. Agnibija, Somaraj, Vanajiraka.

CHAR.:—Annual, robust, erect, leafy herb; stems 60–90 cm. high; L.—alternate, 5–9 × 2.5–3.2 cm., lanceolate, coarsely serrate, hairy on both sides; Fl.—heads subcorymbose, about 40-flowered, with a linear bract near the top of the peduncle; involucre bracts linear, innermost the longest, with purple tips; pappus reddish; Fr.—achene, oblong cylindric, 10-ribbed, hairy; Fl. t.—Dec.-Feb.

HABITAT:—Common in waste places near villages; often cultivated.

LOC.:—Common in the black soil of the Deccan and S. M. Country.

DISTR.:—Throughout India, often cultivated; Ceylon.

PARTS USED:—Leaves (rarely) and seeds.

PROPERTIES AND USES:—*Seeds*—acrid, astringent to bowels, anthelmintic; cure ulcers, “Vata” and “Kapha”; used in skin-diseases, leucoderma and fevers (Ayurveda). *Seeds*—anthelmintic,

purgative; used for asthma, kidney troubles, hiccup; applied in inflammatory swellings; remove blood from liver; good for sores and itching of eyes; a depilatory (Yunani).

LOC. USES:—*Leaf-juice* is given to cure phlegmatic discharges from nostrils. *Seeds* are highly reputed in Hindoo medicine as a remedy for leucoderma and other skin diseases, and as vermifuge in cases of round worms. They are also used as tonic, stomachic and diuretic; they are also administered in intestinal colic and dysuria; bruised seeds ground up in paste, with lime-juice, are used in destroying pediculi; they are also given in anasarca and as plaster for abscesses. Powdered seeds mixed with salt, fireplace-soot and Spanish pepper is used in stomach-swellings of cattle. Powdered resin is distinctly effective in thread-worm infections (Chopra). In Ceylon, plant is used in fever convulsions.

VERNONIA CINEREA Less.

FAM.—Compositæ.

COM. NS.:—E. Ash-coloured Fleabane; G. Sadodi, Sedardi; H. Sahadevi, Sadori; K. Sahadevi; M. Osari; Sk. Ardhaprasadana, Dandotpala, Sahadevi, Devika.

CHAR.:—Annual, erect herb, 15–75 cm. high; stem stiff, striate, pubescent; L.—simple, alternate, variable in shape (upper smaller) broadly elliptic or lanceolate, irregularly toothed or crenate-serrate; Fl.—pinkish violet; heads small, about 20 flowered in divaricate terminal corymbs; involucre bracts linear-lanceolate, awned, silky on the back; pappus white; Fr.—achene, oblong, clothed with white hairs; Fl. t.—Jan.-Feb.

HABITAT:—Growing in various situations and varying conditions of moisture and soil.

LOC.:—A common weed throughout the State.

DISTR.:—Throughout India; Sind; tropical Asia; Africa; Australia.

PARTS USED:—Plant, flowers, seeds.

PROPERTIES AND USES:—*Plant* is sweet, cold; tonic, stomachic, astringent; cures “Tridosha”, consumption, asthma, bronchitis; *flowers* cure fever (Ayurveda).

LOC. USES:—*Root* is given for dropsy; the *flowers* are administered for blood-shot eyes (conjunctivitis). *Seeds* are employed as an alexipharmic and anthelmintic and as a constituent of *masalas* for horses. The plant-decoction is used to promote perspiration in febrile conditions. The expressed *juice* is given in piles. The plant is given as a remedy for spasms of bladder and strangury.

The *plant* with quinine, made into a bolus with lime-juice, was found very useful in malarial fevers (Koman).

VETIVERIA ZIZANOIDES Stapf.

FAM.—Gramineæ.

COM. NS.:—E. Cuscut grass, Koosa; G. Valo; H. Bala, Bena, Khâs, Panni; K. Lavancha, Mudivala, Kuruvolu; M. Vala; Sk. Shit-Sugandhi-mulak, Ushira, Vecrâm.

CHAR.:—A densely tufted perennial grass; root-stock branching with spongy aromatic roots. Culms stout, up to over 1.8 m. high, usually sheathed all along. *L.*—leaf sheaths compressed, lower ones keeled and fan-like, blades narrowly linear 30-90 cm. long, erect, pale green, margin spinously rough. *Fl.*—panicle up to 30 cm. long; rachis stout, whorls 6-10 with up to 20 rays; racemes up to 5 cm., slender. Sessile spikelets, colour varying from yellowish to black.

HABITAT:—Banks of rivers and rich marshy places.

LOC.:—Common in Gujarat and N. Kanara in damp places; also cultivated.

DISTR.:—Practically over the whole of India eastwards to Burma; Lower Guinea in tropical Africa; throughout the Malayan regions, West-Indies and Brazil.

PARTS USED:—Roots.

PROPERTIES AND USES:—Cooling, bitter; alexiteric, stomachic, astringent; useful in burning sensation, bilious fevers, sweats, foul breath, thirst, strangury, ulcers and blood diseases (Ayurveda). Cooling to brain; bitter, soporific, useful in spermatorrhœa, head-ache, blood diseases (Yunani).

LOCAL USES:—Powdered root is cooling, refrigerant, diuretic, stimulant and tonic. *Infusion* of the root is given as febrifuge. It forms a beneficial drink used in fevers, inflammations and irritability of stomach. Root-paste is rubbed externally on the skin to remove oppressive heat. The *otto* is used as a tonic. Grass used in the form of cigarettes and smoked with benzoin relieves head-ache.

The roots contain an essential oil.

VITEX NEGUNDO Linn.

FAM.—Verbenaceæ.

COM. NS.:—*G.* Nigod, Nirgari; *H.* Sambhalu; *K.* Bilenekki, Lakki, Nirgundi, Nukki; *M.* Nirgud, Nirgundi; *Sk.* Indrani, Nilpushpi, Nirgundi, Sinduvra.

HABITAT:—Waste lands and moist situations.

LOC.:—Throughout the State; very common along the banks of rivers and in moist situations; Konkan and Deccan.

DISTR.:—Throughout India, Sind, Ceylon, Afghanistan, Philippine Islands.

PARTS USED:—Root, leaves.

PROPERTIES AND USES:—*Plant*—acid, bitter; heating, astringent, stomachic, cephalic, anthelmintic; promotes hair-growth; useful in eye diseases, consumption, inflammations, leucoderma, spleen enlargement, bronchitis, asthma, biliousness, painful teething of children (Ayurveda).

LOC. USES:—*Root* is tonic, febrifuge, expectorant and diuretic; root-bark tincture is given in cases of irritable bladder and of rheumatism; powdered roots are used as demulcent for piles and dysentery. *Leaves* are aromatic, tonic and vermifuge; a decoction is given in catarrhal fever; *juice* removes fœtid discharges and worms from ulcers; oil prepared from leaf-juice is applied to sinuses and

scrofulous sores. Leaves are discutient and disperse swellings of joints in acute rheumatism and of testes in suppressed gonorrhœa. Leaf-decoction is used as a bath in the puerperal state of women in India. Europeans in Bombay call it a fomentation shrub and use as foment in contractions of limbs. Dried leaves are smoked for relief of head-ache. *Flowers* are used as cool astringent in cholera, diarrhœa, fever, liver diseases and as cardiac tonic. Dried fruit acts as vermifuge. *Fruit* is nervine, emmenagogue. *Seeds* form a cooling medicine in cutaneous diseases and leprosy.

The plant contains an alkaloid.

See—Timbers.

VITIS VINIFERA Linn.

FAM.—Vitaceæ.

COM. NS.:—*E.* Grape-vine; *G.* Darakh, Draksha; *H.* Angur, Drakh; *K.* Angura, Draksha; *M.* Draksha; *Sk.* Draksha, Guehaphala, Madhuras, Yakshmaghni.

HABITAT:—Cultivated.

LOC.:—Deccan; extensively cultivated in the Nasik district; sparingly in Poona, Ahmednagar, Khandesh, Gujarat and S. M. Country.

DISTR.:—A native of western Asia. Cultivated in many parts of India especially in N. W. India. There are numerous cultivated varieties.

PARTS USED:—Stem, leaves, flowers, fruits, seeds.

PROPERTIES AND USES:—*Fruit*—acid, cooling, laxative, fattening, diuretic, appetiser, aphrodisiac; good for eyes and throat; cures thirst, fever, asthma, "Vata" and "Vatarakta", jaundice, strangury, burning, bad effects of drinking, blood diseases; allays vomiting; difficult to digest; causes gases in the stomach, "Kapha" (Ayurveda).

Leaf-juice cures head-ache, syphilis, piles, spleen inflammation; diuretic; allays vomiting; stops bleeding from mouth; applied in scabies; produces alopecia. *Stem-ashes* good for joint pains, stones in bladder, testicle swellings and piles. *Flowers*—expectorant, emmenagogue; tonic to liver; good in chronic bronchitis; produces constipation. *Fruit*—digestive, stomachic, expectorant; purifies and enriches blood; fattening; good for lungs, liver and kidney; useful in old fevers; skin should not be eaten. *Seeds*—aphrodisiac, astringent to bowels, cooling; *ash* diminishes inflammation (Yunani).

LOC. USES:—Leaves are sometimes used in diarrhœa. *Sap* of young branches, a remedy for skin diseases. Dried fruits (raisins) are demulcent, laxative, sweet, cooling, useful in thirst, heat of body, cough, hoarseness and consumption. In modern native practice raisins are considered cool, aperient, and given in coughs, catarrh, and jaundice. Juice of unripe grapes is used as an astringent in affections of throat.

In Europe *sap* of young branches is a popular remedy for ophthalmia.

The fruits contain vitamin A, and traces of vitamins B and C.

A Bk Vf 1-15a

INDIAN PREPARATIONS :—*Draksharishta*—used in consumption, chest troubles etc. *Drakshasava*—used as tonic.

See—Fruit Trees.

WAGATEA SPICATA Dalz.

FAM.—Leguminosæ (Cæsalpinioidææ).

COM. NS. :—K. Hooliganji, Wagati; M. Wagati, Wakeri.

CHAR. :—A robust woody climber, branches armed with recurved prickles; *L.*—2-pinnate, 23-30 cm. long; main rachis armed with prickles, pinnæ 4-6 pairs, 7.5-12.5 cm. long; leaflets 5-7 pairs, coriaceous, oblong, dark-green; *Fl.*—sessile in dense spicate racemes reaching 60 cm. long; rachis grooved with soft hairs, armed with prickles; *C.*—petals 5, inserted on the top of calyx-tube, obovate-spathulate, dark-orange; *Fr.*—pod, linear oblong, swollen above the seeds, constricted between them; *Sd.*—3-4, oblong, hard, bony *Fl. t.*—Jany.-Feb.

HABITAT :—Dry and moist monsoon-forests.

LOC. :—Konkan jungles; pretty common in the ghats, Deccan, ghats near Mahabaleshwar; Kanara.

DISTR. :—Hills of the Western Peninsula.

PARTS USED :—Root and bark.

PROPERTIES AND LOC. USES :—The roots are given in pneumonia; the bark is used as an application for skin-diseases.

WITHANIA SOMNIFERA Dunal.

FAM.—Solanaceæ.

COM. NS. :—E. Winter-cherry; G. Asan, Asoda, Ghodasoda; H. Asgund, Punir; K. Amangura, Hirimaddina-gadde, Sogada-beru; M. Asgundh, Kanchuki; Sk. Ashvagandha, Balada, Gandhpatri, Kamrupini, Vajini.

CHAR. :—A branched erect undershrub, 0.3-1.3 m. high, branches terete, hoary tomentose; *L.*—5-10 × 2.5-5 cm. ovate, entire, minutely hairy, base dentate; *Fl.*—greenish or lurid yellow, usually about 5 together in a sessile umbellate cyme; *Fr.*—berry, red, smooth, 6 mm. diam., enclosed in inflated calyx, slightly 5-angled; *Sd.*—yellow, somewhat scurfy; *Fl. t.*—Sept.

HABITAT :—Drier regions.

LOC. :—Deccan, Gujarat, (not common.)

DISTR. :—In the drier regions of India; abundant in Sind; Ceylon, Mediterranean regions, Canaries, Cape of Good Hope.

PARTS USED :—Root, leaves, green berries, seeds.

PROPERTIES AND USES :—*Tubers*—bitter, acrid; heating, aphrodisiac, tonic, alterative, anthelmintic; useful in "Vata", "Kapha", inflammations, psoriasis, bronchitis, asthma, consumption, ulcers, scabies, marasmus of children, insomnia, senile debility; alexipharmic. *Leaves* applied to tumours and tubercular glands (Ayurveda). *Tuber*—bitter; tonic, aphrodisiac, emmenagogue; good in asthma, inflammations, leucoderma, bronchitis, lumbago, arthritis; favours constipation (Yunani).

LOC. USES :—*Root* is regarded as tonic, alterative, aphrodisiac and is used in consumption, emaciation of children, debility from old age, rheumatism, lumbar pains. It is narcotic, diuretic and deobstruent. Ground root and bruised leaves are applied to carbuncles, ulcers and painful swellings; leaf-infusion is given, in fever; leaf fomentation is used to cure sore-eyes. Green leaves are bruised and rubbed into ring-worm both in human beings and cattle.

In Transvaal root-decoction is used to give tone to uterus in women habitually miscarrying. Bark-infusion is used for asthma.

The plant contains an alkaloid.

WOODFORDIA FRUTICOSA Kurz.

(WOODFORDIA FLORIBUNDA Salisb.)

FAM.—Lythraceæ.

COM. NS. :—G. Dhawadina, Dhavani; H. Dhaw, Dhawai, Santha; K. Are, Bela; M. Dhaiti, Phulsatti; Sk. Dhateki, Dhavani, Madhavasini, Tamrapushpi, Vanhishikha.

CHAR. :—Large deciduous straggling shrub; branches long; branchlets clothed with white pubescence; *L.*—mostly opposite, simple, ovate-lanceolate, velvety above, nigro-punctate beneath, 5-9 × 1.3-2.5 cm., intramarginal nerve prominent beneath; *Fl.*—numerous, in 2-15 flowered cymes, scarlet; *Fr.*—capsule, 1 cm. long, irregularly dehiscent; *Sd.*—numerous, wedge-shaped, brown, smooth; *Fl. t.*—Dec.-May.

HABITAT :—Monsoon-forests.

LOC. :—Throughout the State in monsoon-forests, on laterite at Mahabaleshwar, on trap in the Akrani; common in the Konkan and N. Kanara near the sea-coast.

DISTR. :—Throughout India, Ceylon, Baluchistan, tropical Africa, Madagascar, China, Japan, Java, Sumatra.

PARTS USED :—Bark and flowers.

PROPERTIES AND USES :—Pungent, acrid, cooling, toxic; alexiteric, uterine sedative, anthelmintic; used in thirst, dysentery, leprosy, erysipelas, blood diseases; useful in leucorrhœa, menorrhagia and tooth-ache (Ayurveda).

The powdered flower is sprinkled over ulcers for diminishing their discharge and promoting granulations (Sharngadhara).

LOC. USES :—The dried flowers are astringent, tonic in disorders of the mucous membrane, hæmorrhoids, and in derangement of liver; also considered safe stimulant in pregnancy. Dried flowers are given in curdled milk in dysentery and with honey in menorrhagia.

See—Tans, Dyes, Ornamental Plants.

WRIGHTIA TINCTORIA R. Br.

FAM.—Apocynaceæ.

COM. NS. :—G. Indrajav, Kalikari; H. Dudhi, Indrajav, Khipri; K. Hale, Hallunova, Kuda; M. Indrajav, Kalakuda; Sk. Hayamaraka, Kodamurki, Madhuindrayava, Swetakutaj.

HABITAT :—Deciduous forests.

LOC. :—Throughout the State in deciduous forests ; common in open forest on the Toranmal plateau, in W. Khandesh at 1050 m.

DISTR. :—Rajasthan, Madhya Pradesh, West-Peninsula, Ceylon, Timor.

PARTS USED :—Bark and seeds.

PROPERTIES AND USES :—*Bark* and *seeds* have the same properties as those of *Holarrhena antidysenterica*; the bark is specially useful in piles, skin diseases and biliousness (Ayurveda). The bark and the seeds have the same properties as *H. antidysenterica* (Yunani).

LOC. USES :—The bark is used as a tonic and the seeds as aphrodisiac.

See—Timbers.

XANTHIUM STRUMARIUM Linn.

FAM.—Compositæ.

COM. NS. :—*E.* Bur-Weed, Clot-Cockle-bur ; *G.* Gadian ; *H.* Banokra, Shankhahuli ; *M.* Dumundi, Dutundi, Sankeshwar ; *Sk.* Aristha, Itara, Kambu-Vanamalini, Sarpakshi.

CHAR. :—Annual herb ; stem short, stout, rough with short hairs ; *L.*—many, 5-7.5 cm. long and broad, broadly triangular-ovate or suborbicular ; 3-lobed, hairy on both sides, irregularly inciso-serrate ; *Fl.*—heads in terminal and axillary racemes, barren heads many, at the top, fertile heads few, axillary ; involucre of fertile head, ovoid in fruit, 1.6 cm. long, with 2 erect beaks, thickly clothed with hooked prickles, hard and tough ; *Fr.*—achene, 1.3 cm., oblong ovoid, compressed ; *Fl. t.*—Jany.-Feb.

HABITAT :—Waste-places and along river banks in warmer parts.

LOC. :—Growing in waste places and along river banks, all over the State. It is spreading fast all over and has become a nuisance.

DISTR. :—Throughout India, Ceylon and warmer parts of the world.

PARTS USED :—The whole plant, especially root and fruit.

PROPERTIES AND USES :—Cooling, laxative, fattening, anthelmintic, alexiteric, tonic, digestive, antipyretic ; improves appetite, voice, complexion, memory ; cures leucoderma, biliousness, poisonous bites of insects, epilepsy, salivation, fever ; good in diseases of teeth in children (Ayurveda).

LOC. USES :—*Root* is bitter, tonic, useful in cancer and strumous diseases. The prickly fruit is considered cooling and demulcent and is given in small-pox. In S. India the prickly involucre is tied down to ear to cure hemiparesis. Plant-decoction is supposed to possess powerful diaphoretic and sedative properties and is used in long-standing cases of malaria.

The *leaves* were formerly official in Europe and were administered internally in scrofula and herpes.

The plant has been reputed to be fatal to cattle and pigs.

The plant contains a glucoside *xanthostrumarin*.

ZINGIBER OFFICINALE Rosc.

FAM.—Scitamineæ.

COM. NS. :—*E.* Ginger ; *G.* Alen ; *H.* Adrate, Ada ; *K.* Alla Adrak, Hasisunthi ; *M.* Alen ; *Sk.* Anupama, Ardraka, Gulmulla, Kandara, Shringavera.

HABITAT :—Cultivated.

LOC. :—Extensively cultivated in the Deccan and Gujarat.

DISTR. :—Widely cultivated in tropical Asia.

PARTS USED :—Rhizome.

PROPERTIES AND USES :—*Rhizome*—pungent, heating, appetiser, laxative, stomachic, aphrodisiac, carminative ; useful in heart and throat diseases, dyspepsia, inflammations, "Kapha", "Vata", bronchitis, asthma, vomiting, pains ; alexiteric ; useful in elephantiasis, piles, eructations, abdominal troubles (Ayurveda). *Rhizome*—pungent, stomachic, aphrodisiac, tonic, expectorant, carminative, removes pain due to cold, gives lustre to eye ; anthelmintic ; good in piles, rheumatism, lumbago, head-ache, pains (Yunani).

LOC. USES :—There are numerous preparations containing ginger included in British and other pharmacopœias. In Indian Pharmacopœia ginger enters into several combinations. It is stimulant, carminative and stomachic and is extremely valuable in dyspepsia, flatulence, colic, vomiting, spasms and other painful affections of the stomach and the bowels unattended by fever, and as a corrective adjunct to purgatives, to prevent nausea and griping. It is given in powder form in combination with carbonate of soda in gout and chronic rheumatism ; it is also given in the form of infusion. *Ginger* paste with water painted on head relieves head-ache ; it is also used in tooth and face-ache. In the collapse stage of cholera powdered ginger rubbed to the extremities checks cold perspiration, improves local circulation and relieves the agonising cramps. Ginger with salt taken before meals is carminative ; it cleans throat, tongue and increases appetite. *Juice* from fresh ginger acts as diuretic and can be used in cases of general dropsy (Koman).

Rhizome contains vitamins A and C.

INDIAN PREPARATIONS :—*Semasarakara Churna*—used in dyspepsia, loss of appetite and piles. *Soubhagya Sunti*—this confection is used as a carminative tonic in dyspepsia and in disorders of alimentary canal in women after confinement (Bhavaprakash) ; *Saindhavadya Taila*—Oil rubbed in sciatica and rheumatism (Chakradatta).

See—Condiments and Spices.

ZIZYPHUS JUJUBA Lamk.

FAM.—Rhamnaceæ.

COM. NS. :—*E.* Chinese Date, Indian Cherry, Plum ; *G.* Ber, Bordi, Bor, Boyedi ; *H.* Ber, Beri ; *K.* Bogari, Bore, Egasi, Ipanji ; *M.* Bor ; *Sk.* Ajapriya, Badari, Dridhabija, Koli, Kuvali.

HABITAT :—Open dry forests, and dry situations, on poor soil and in rocky places.

LOC. :—Throughout the State in dry situations; abundant in the Deccan; on the laterite near the coast in N. Kanara; frequently planted as a fruit tree.

DISTR. :—Indigenous and naturalised throughout India, in the outer Himalayas upto 1400 m., Burma, Ceylon, China, Afghanistan, Africa, Australia.

PARTS USED :—Root, bark, leaves, fruit, seeds.

PROPERTIES AND USES :—*Root*—bitter, cooling, causes cough, biliousness, head-ache. *Bark*—causes boils; good in dysentery and diarrhoea. *Leaves*—antipyretic, reduce obesity. *Fruit*—cöbling, indigestible, aphrodisiac, tonic, laxative; removes biliousness, burning sensation, thirst, vomiting; good in consumption and blood-diseases. *Seeds*—cure eye-diseases; good in leucorrhoea (Ayurveda).

Root and Bark tonic. *Leaves*—anthelmintic; good in stomatitis and gum-bleeding; heal wounds and syphilitic ulcers; cure asthma; good in liver complaints. *Flowers*—afford a good collyrium in eye troubles. *Fruit*—sweet and sour, causes diarrhoea in large doses; useful in fevers, wounds and ulcers. *Seed*—astringent, tonic to heart and brain; allays thirst (Yunani).

LOC. USES :—*Root* is useful as a decoction in fevers; and as a powder it is applied to ulcers and old wounds. *Bark* is a simple remedy in diarrhoea. *Leaves* form a plaster to boils, abscesses and carbuncles and in strangury; berries are considered to purify blood and to assist digestion.

Fruits contains vitamin A.

See—Timbers, Fruit Trees.

APPENDIX I.

Abbreviations used.

Apl.—April.
Aug.—August.
C.—Corolla.
Char.—Botanical characters.
cm.—Centimeter.
Dec.—December.
Dist.—District.
Distr.—Distribution elsewhere—in India and abroad.
E.—English, or East.
Fam.—Family.
Feb.—February.
Fl.—Flowers.
Fl. t.—Flowering time.
Fr.—Fruit.
G.—Gujarati.
H.—Hindi.
Jany.—January.

K.—Kannad.
Loc.—Locality in the Bombay State.
Loc. uses.—Local and popular uses.
M.—Marathi.
Mar.—March.
m.—Meter.
N.—North.
NS.—Names.
Nov.—November.
Oct.—October.
P.—Perianth.
S.—South.
Sd.—Seeds.
Sept.—September.
Sk.—Sanskrit.
S. M.—Southern Maratha.
W.—West.

APPENDIX II.

Glossary of Technical Terms.

Achene—a small, hard, dry, indehiscent fruit, strictly of one free carpel.
Acuminate—having a gradually diminishing point.
Acute—sharply pointed.
Adnate—attached the whole length.
Adventitious—accessory, casual, not occurring in the normal way.
Aerial—living above the surface of the ground.
Alexipharmic—warding off ill effects of poisons.
Alexiteric—protective against infection.
Alopecia—baldness from disease.
Alternative—re-establishing healthy functions of the system.
Alternate—occupying every second place.
Amenorrhœa—absence or abnormal stoppage of the menses.
Amplexicaul—stem clasping.
Analgesic—a drug which relieves pain.
Anasarca—general dropsy of cellular tissues.
Anodyne—relieving pain.
Anthelmintic—destructive to worms.
Anther—a part of the stamen containing pollen grains.
Antilithic—preventing the formation of stone in the kidneys.
Antiperiodic—serviceable against periodic recurrence of malaria or other fevers.
Antipyretic—relieving fever.
Antiscorbutic—curing scurvy.
Antispasmodic—relieving spasms.
Anuria—total suppression of urinary secretion.
Aperient—a gentle purgative.
Apex—tip.
Aphrodisiac—exciting sexual impulses.
Aphthæ—disease having whitish spots in the mouth.
Apiculate—furnished with sharp, short but not stiff point.
Appendage—a subordinate attached part.
Appetiser—that which excites appetite.
Apoplexy—sudden paralysis and coma from cerebral effusion of blood.
Arborescent—resembling a tree in mode of growth.
Ardor (urinal)—sensation of scalding in passing urine.
Areolate—marked with areolæ, divided into distinct spaces.
Aril—an expansion of the funicle, arising from placenta, and enveloping the seed.
Arillate—possessed of an aril.
Armature—anything serving as a defence.
Arthritis—inflammation of the joints.
Ascites—dropsy (accumulation of watery

fluid) of the abdomen.
Asthenia—lack of strength.
Asthma—violent oppression of breathing.
Astringent—medicine used to contract muscular fibres and to constrict vessels to restrain discharge.
Atonic—having no tone or muscular power.
Attenuant—an agent increasing the fluidity or thinness of the blood or other secretion.
Attenuated—slender, thin.
Auricle—a small lobe or ear, an appendage of the leaf.
Awn—a bristle-like appendage occurring on the glumes of grasses.
Axil—the angle formed between the axis and any organ which arises from it, especially of a leaf.
Axillary—situated in the axil.
Basifixed—attached by the base.
Bechic—relieving cough.
Biennial—lasting for two years.
Biferous—producing flowers or fruit twice a year.
Bifid—divided half way into two.
Bilabiate—divided into two lips.
Binate—a simple leaf divided into two; a leaf composed of two leaflets at the end of a common petiole.
Biserrate—doubly notched.
Bisexual—having two sexes.
Bract—a modified leaf intermediate between the calyx and the normal leaf.
Bracteole—small bract.
Bronchitis—inflammation of the bronchial tubes.
Cachexia—a depraved state of nutrition.
Calculus—a stonelike concretion in any organ.
Calyx—the outermost of the floral envelopes.
Campanulate—bell-shaped.
Capitate—pin-headed.
Capsule—a dry dehiscent fruit.
Cardiotonic—having tonic effect on the heart.
Caries—molecular decay of bone.
Carminative—relieving flatulence.
Carpel—a simple pistil answering to a single leaf; a female sporophyll.
Carpophore—that part of the receptacle which is prolonged between the carpels as a central axis.
Catarrh—cold in the head, an increased flow of mucus from the nose.
Catarrhal—pertaining to catarrh.
Cathartic—a medicine producing evacuations from the bowels.

Caudate—tailed.
Cauline—belonging to or growing on stem.
Cephalalgia—headache.
Cephalic—pertaining to the head.
Chemosis—inflammatory swelling of the conjunctiva.
Cholagogue—a remedy promoting the secretion or excretion of bile.
Chyluria—the presence of fat in the urine.
Ciliate—fringed with hairs.
Circinate—rolled up on itself.
Circumciss—cut round.
Cladode—a branch of a single internode simulating a leaf.
Clavate—club-shaped.
Claw—the narrowed base of the petals.
Coccus (Pl. Cocci)—part of a lobed fruit.
Colliquative—characterised by excessive liquid discharge.
Collyrium—eye-lotion.
Coma—the hairs at the end of some seeds.
Conjunctivitis—inflammation of the mucus membrane of the eye.
Connate—united.
Connective—a portion of a stamen distant from the filament which connects the two lobes of an anther.
Convolute—when one part is wholly rolled up in another.
Cordate—heart-shaped, applied to leaves having the petiole at the broader and notched end.
Coriaceous—leathery.
Cornea—the transparent coat of the front part of the eye-ball.
Corolla—the interior perianth, composed of petals.
Corona—crown-like part, a coronet; any body which intervenes between the corolla and the stamen.
Corymb—a flat topped or merely convex and open flower-cluster of the intermediate or the centripetal order.
Corymbose—arranged in corymbs.
Coryza—discharge from the nose.
Crenature—a rounded notch on the margin of a leaf.
Cuneate—wedge-shaped.
Cyathiform—shaped like a drinking cup.
Cymbiform—boat-shaped.
Cyme—a flower cluster of centrifugal type, especially broad and flattened one.
Cymose—bearing cymes.
Cystitis—inflammation of the bladder.
Deciduous—falling in season (as leaves in autumn).
Deciduous forest—forest having trees defoliating in season once a year.
Decomound—several times divided.
Decumbent—reclining, but with the top ascending.

Decurrent—running down.
Decussate—in pairs alternately at right angles.
Dehiscent—splitting into definite parts.
Deltoid—shaped, like an equilateral triangle.
Demulcent—a substance soothing the mucus membrane.
Dentate—toothed.
Denticulate—minutely toothed.
Deobstruent—a medicine that removes functional obstructions of the body.
Depilatory—having power to remove hair from skin.
Depurative—a medicine that purifies.
Detergent—a drug purifying, cleansing wounds, ulcers, etc.
Diabetes—a disease characterised by an excessive and morbid discharge of urine containing sugar.
Dichotomous—dividing by pairs from top to bottom.
Didymous—growing in pairs.
Diffuse—spreading widely, horizontally and irregularly.
Digitate—branching into divisions like fingers.
Dioecious—unisexual, male and female in different individuals.
Discoid—having a disc.
Discutient—dispersing tumour or morbid matter.
Distichous—having two rows.
Diuresis—increased flow of urine.
Diuretic—increasing the flow of urine.
Divaricate—forked.
Dorsal—pertaining to the back.
Dropsy—an unnatural collection of a watery fluid in any part of the body.
Drupe—a fruit, with fleshy outer covering and stony part inside.
Dysmenorrhœa—painful menstruation.
Dyspepsia—weakness of digestion.
Dysuria—difficulty in making water.
Dyspnœa—difficult breathing.
Ecbolic—that which produces abortion or facilitates parturition.
Ecchymosis—effusion of blood under the skin.
Echinulate—having very small prickles.
Elliptic—shaped like an ellipse.
Elephantiasis—a chronic disease showing hypertrophy of the skin and enlargement of the part affected due to parasitic worms.
Emarginate—having a notch cut out, usually at the extremity.
Emesis—the act of vomiting.
Emetic—causing vomiting.
Emmenagogue—promoting menstrual flow.
Emollient—soothing medicine.
Endocarp—inner layer of a pericarp.
Ensiform—sword-shaped.
Epilepsy—disease characterised by convulsions and loss of sense.

Epiphyte—an air-plant.
Epistaxis—bleeding from the nose.
Errhine—medicine to be snuffed up the nose.
Eruotation—belching of wind from the stomach.
Erysipelas—inflammatory skin disease characterised by extreme redness.
Erythema—superficial redness of the skin.
Evergreen forest—forest bearing foliage all the year.
Exanthematous—eruptive.
Exhilarating—cheerful, delightful.
Exocarp—the outer layer of a pericarp.
Expectorant—a remedy that promotes expulsion of secretion of chest.
Falcate—sickle-shaped.
Fascicled—connected into a close bundle of flowers, leaves, etc.
Febrifuge—a remedy that dispels fever.
Febrile—feverish.
Filiform—thread-like.
Flexuose—zig-zag.
Follicle—a fruit of one carpel opening by ventral suture to which the seeds are attached.
Fontanelle—an aperture in the infant skull at the junction of the sutures.
Frond—leaf of a fern.
Fugacious—dropping soon.
Fulvous—dull yellow.
Furunculosis—diseased condition that accompanies the appearance of a crop of boils.
Fusiform—spindle-shaped.
Galactagogue—increasing the flow of milk.
Gastrodynic—causing pain in the stomach.
Gibbous—having a pouch-like enlargement at the base.
Glandular—consisting of glands.
Glaucous—covered with a bloom.
Gleet—thin discharge after gonorrhoea.
Glochidia—barbed bristles.
Glume—the chaffy two-ranked members of grass flowers.
Gonorrhoea—an inflammatory ailment of sexual organs attended with secretion of mucus mixed with pus.
Gravid—heavy with pregnancy.
Gynophore—the stalk on which the ovary stands in certain flowers.
Habitat—natural abode or locality.
Hematinic—increasing the red colouring matter in the blood.
Hemoptysis—spitting of blood.
Hemostatic—an agent that arrests bleeding.
Hastate—spear-shaped.
Hectic—habitual.
Hemicrania—headache on one side of the head.
Hemiplegia—paralysis of one side of the body.

Hermaphrodite—having both sexes in the same flowers.
Herpes—skin disease marked by clusters of small vesicles.
Hiccup—a convulsion catch of the respiratory muscles repeated at short intervals.
Hispid—rough hairy.
Homogamous—bearing one kind of flowers.
Hyaline—colourless.
Hydragogue—causing watery motions.
Hydrophobia—a disease produced by the bite of a mad animal, especially rabid dog, in which there is morbid dread of water.
Hypnotic—inducing sleep.
Hyperpiciis—abnormally high pressure.
Hypoglycemia—a deficiency of sugar in the blood.
Imbricate—overlapping as tiles on the roof.
Imparipinnate—pinnate with an odd terminal leaf.
Inciso-serrate—having deep-slashed teeth.
Indehiscent—not opening along regular lines.
Infundibuliform—funnel-shaped.
Internode—a portion of stem between two nodes.
Intramarginal—placed within the margin near the edge.
Ischuria—retention of urine.
Involucre—a ring of bracts surrounding several flowers.
Jaundice—disease characterised by yellowness of eyes and skin, and loss of appetite.
Keel—the two anterior and united petals of a papilionaceous corolla forming a ridge like the keel of a boat.
Keratitis—inflammation of the cornea of eyes.
Lachrymation—the secretion and discharge of tears.
Lachrymatory—causing secretion and discharge of tears.
Lactagogue—increasing flow of milk.
Lanceolate—narrow and tapering to each end.
Laxative—mild purgative.
Lenticel—a lenticular corky spot on young bark.
Lenticellate—having lenticels.
Leucoderma—mottling of the skin by abnormal whiteness.
Leucorrhoea—a whitish, viscous discharge from the vagina and uterine cavity.
Ligule—a thin scarious projection from the top of leaf-sheath in grasses, (2) strap-shaped body such as limb of ray florets.
Ligulate—having ligules.
Lithotriptic—agent dissolving vesical calculus.

Lock-jaw—a form of disease consisting in spasmodic rigidity of the under jaw so that the mouth cannot be opened.
Loculicidal—the cavity of a pericarp splitting by the back.
Lodicule—a small scale outside the stamens in the flower of grasses.
Lumbrici—round-worms in the intestine.
Lymphangitis—inflammation of lymphatic vessels.
Lyrate—pinnatifid with the terminal lobes large and round, the lower ones smaller.
Marasmus—wasting away of the body.
Maturant—promoting maturity.
Membranous—having thin flexible texture.
Menorrhagia—excessive menstruation.
Mesocarp—the middle layer of the pericarp.
Micturition—urination.
Monœcious—having male and female flowers on the same plant.
Moniliform—like a string of beads.
Monsoon-forest—tropical deciduous high forest, with heavy rainfall and long dry season.
Mottled—spotted in various colours.
Mucronate—possessing a short and sharp point.
Muricate—rough with short and hard tubercles.
Nephritic—relieving disorder of the kidneys.
Nephritis—inflammation of the kidneys.
Negro-punctate—black-dotted.
Node—the part of the stem to which leaf is normally attached.
Nodular—in the form of little knots.
Nut—a hard and non-splitting one-seeded fruit.
Obconic—having the apex downward; reversed conical.
Obcordate—inversely heart-shaped.
Obovate—reversed ovate.
Obpyramidal—reversed pyramidal.
Edema—dropsical swelling.
Oleaginous—oily.
Opalescent—having play of colours like that of the opal (a semi-precious stone).
Ophthalmia—inflammation of the eye.
Orbicular—of a flat body with a circular outline.
Orchitis—inflammation of the testicles.
Otalgia—ear-ache.
Otorrhoea—discharge from the ear.
Ovate—shaped like a longitudinal section of a hen's egg, the broader end basal.
Ozæna—fetid nasal ulceration and discharge.
Palmate—shaped like the palm of a hand.
Paludine—growing in marshy places.
Panicle—a loose flower cluster.
Paniculate—having panicles.

Papillæ—soft superficial glands.
Pappus—various tufts of hairs on achenes or fruits.
Paripinnate—a compound pinnate leaf ending in two leaflets.
Parturition—the act of giving birth to a child.
Pectoral—pertaining to the chest.
Pedicel—a stalk of a flower.
Pedicellate—having a stalk.
Peduncle—a general term for the stalk of a flower.
Peltate—a leaf attached by its lower surface to the stalk.
Pendulous—swinging.
Penninerved—pinnately veined.
Perennial—continuing for more than two years.
Perianth—the floral envelopes.
Pericarp—the wall of the fructified ovary.
Peristomium—a fringe or its homologue round the mouth of a moss capsule.
Petal—one of the leafy expansions in the corolla.
Petiole—foot stalk of a leaf.
Phlegm—bronchial mucus.
Phthisis—consumption; a wasting disease.
Pilose—hairy.
Pinnæ—the primary divisions of a pinnate leaf.
Pinnate—with leaflets arranged on each side of a common petiole.
Pinnatifid—pinnately divided.
Pistillode—organ similar to the female organ of the flower.
Plethoric—characterised by vascular turgescence, excess of blood, etc.
Pod—a dry and many-seeded indehiscent fruit.
Pollinia—pollen-masses.
Polygamous—with hermaphrodite and unisexual flowers on the same or different individuals on the same species.
Procumbent—lying along the ground.
Prolapsus—falling, as womb or rectum.
Prophylactic—used as a preventive of a disease.
Proximal—nearest.
Prurigo—an itchy eruption of the skin.
Pruritus—intense itching.
Psora—itch.
Psoriasis—cutaneous disease, with a rough and scaly state of the skin.
Puberulous—slightly hairy.
Pubescent—clothed with soft hairs.
Punctate—marked with dots or glands.
Pyrene—a small stone of a drupe or similar fruit.
Pyrexia—fever.
Pyriiform—resembling a pear in form.
Raceme—an indeterminate inflorescence with lengthened axis, and equally pedicellate flowers.
Racemose—having racemes.

Rachis—axis of an inflorescence or a compound leaf.
Radial—shooting out from centre.
Rain-forest—Evergreen forest having over 52 inches of rainfall annually.
Receptacle—that part of the axis which bears one or more organs, the torus.
Refrigerant—having cooling properties or lowering body temperature.
Reniform—kidney-shaped.
Repand—with slightly uneven margin.
Resolvent—that which causes the absorption of inflammatory or other swellings.
Reticulate—net-like.
Revolute—rolled backwards or downwards.
Rheumatism—a painful inflammation affecting muscles of joints of human body.
Rhizome—a dorsiventral stem of root-like appearance lying underground.
Rhombohedral—a solid form having six rhombic planes.
Rhomboid—having a rhomboidal (where opposite sides and angles are equal) form.
Rosulate—collected into rosette of a leaf.
Rotate—wheel-shaped.
Rotund—round, spherical.
Rotundate—rounded.
Rubefacient—a remedy that by irritation causes distension of the capillaries and reddening of the skin.
Rugose—wrinkled.
Sagittate—enlarged at the base into two acute lobes.
Satyriasis—a diseased venereal appetite in males.
Savannah—grass land situated in arid region containing isolated trees.
Scabies—itch, mange.
Scabrid—somewhat rough.
Scabrous—rough to the touch.
Scape—a leafless floral axis or peduncle arising from the ground.
Scarious—thin, dry and membranaceous.
Scrofula—tuberculous disease of lymphatic glands and bone with slowly suppurating abscesses.
Scurvy—a disease due to deficiency of vitamin C accompanied by weakness, anaemia, spongy gums, etc.
Sedative—a medicine which allays irritability and irritation.
Senile—pertaining to old age.
Septate—divided by a partition.
Serrate—notched on the edge like a saw.
Serrature—a notching in the edge.
Serrulate—notched with minute teeth.
Sessile—without stalk.
Sialagogue—a drug producing flow of saliva.
Sinuate—with a deep wavy margin.

Sinus—a recess or a gap.
Somniferous—bringing sleep.
Soporific—an agent which induces sleep.
Sorus (pl. Sori)—clusters of spore-cases on the back of a fern leaf.
Spadix—a form of inflorescence.
Spathe—a large membranaceous leaf-like bract enclosing the base of a spadix.
Spatulate—oblong with the basal end attenuated like a druggist's spatula.
Spermatorrhoea—an involuntary emission of semen.
Spicate—like a spike.
Spiciform—spike-like.
Spike—an indeterminate inflorescence with sessile flowers on a common elongated axis.
Spikelet—a secondary spike; a cluster of one or more flowers subtended by a common pair of glumes as in grasses.
Spinescent—having spines.
Splenitis—inflammation of the spleen.
Spur—a hollow and slender extension of some part of a flower.
Stamen—one of the elements of the androecium of flowers consisting of anther and filament.
Standard—the posterior petal of the papilionaceous corolla.
Stellate—star-like.
Stipe—the support of the gynoecium of flower.
Stipule—an appendage of a leaf on each side of the leaf base in plants.
Stipular—having stipules.
Stolon—a sucker, runner or any basal branch which is disposed to strike root.
Stomachic—exciting action and strengthening the stomach.
Stomatitis—inflammation of the mouth.
Strangury—painful urination drop by drop.
Strigose—beset with sharp pointed, straight, stiff hairs.
Strumous—scrofulous.
Styptic—checking bleeding by contracting blood vessels.
Subscandent—partially climbing.
Succulent—fleshy and juicy.
Sudorific—inducing profuse sweating.
Suffruticose—somewhat shrubby in character.
Supra-axillary—growing above an axil.
Syncarpous—completely united carpels composed of two or more.
Synovitis—inflammation of the lining membrane of joints.
Tenicide—destroying tape-worms.
Tenesmus—painful urging to stools.
Terete—cylindric, usually tapering.
Testa—outer coat of a seed.
Tinea-capitis—ringworm of the scalp.
Tomentose—softly hairy.
Torulose—cylindric with swollen portions at intervals.

Torus—that portion of the axis on which the parts of a flower are inserted.
Trichotomous—branching or dividing by threes.
Trigonous—three-angled.
Truncate—as though cut off at the end.
Tubercled—beset with knotty projections.
Tunicated—having coats.
Turbinate—shaped like a top.
Tympanitis—flatulent distension of the abdomen.
Umbel—an inflorescence in which a cluster of pedicels spring up from the same point like the ribs of an umbrella.
Umbellate—having inflorescence in umbels.
Undulate—wavy.
Unisexual—having one sex.
Urceolate—pitcher-like.
Urethra—the membranous tube through which the urine is discharged from the bladder.
Utricle—a small bladder pericarp.
Variegated—having spots or markings of light colour.

Venereal—connected with sexual intercourse.
Ventral—anterior or inner face of a carpel.
Verrucose—warted.
Vertigo—giddiness.
Vesicant—a blistering drug.
Villous—bearing long weak hairs.
Viscid—sticky.
Viscous—clammy.
Vittæ—the aromatic oil-tubes of the pericarp of umbelliferæ.
Vulnerary—a remedy useful in healing wounds.
Warted—having hard dry growths on the skin.
Whitlow—a purulent infection involving the pulp of the distal phalanx of a finger.
Whorl—the arrangement of organs in a circle round an axis.
Whorled—having whorls.
Wings—a lateral petal of a papilionaceous corolla.

APPENDIX III.

Medicinal plants that are also poisonous

Name.	Poisonous Part.
<i>Abrus precatorius</i> Linn.	Seeds.
<i>Aconitum salviifolium</i> Wang.	Root-bark.
<i>Ammania baccifera</i> Linn.	Plant.
<i>Amorphophallus campanulatus</i> Blume.	Corm.
<i>Anacardium occidentale</i> Linn.	Nut.
<i>Anamirta cocculus</i> W. and A.	Seeds.
<i>Antiaris toxicaria</i> Lesch.	Leaf and bark juice.
<i>Baliospermum montanum</i> Muell.	Seeds.
<i>Calotropis gigantea</i> R. Br.	Milky juice.
<i>Calotropis procera</i> R. Br.	Milky juice.
<i>Cerbera odollam</i> Gaertn.	Fruits.
<i>Croton oblongifolius</i> Roxb.	Seeds.
<i>Croton tiglium</i> Linn.	Seeds.
<i>Cucumis trigonus</i> Roxb.	Fruit.
<i>Datura fastuosa</i> Linn.	Seeds.
<i>Euphorbia tirucalli</i> Linn.	Milky juice.
<i>Gloriosa superba</i> Linn.	Root.
<i>Hydnocarpus laurifolia</i> Denn.	Fruits.
<i>Jatropha curcas</i> Linn.	Seeds.
<i>Jatropha Multifida</i> Linn.	Seeds.
<i>Kaempferia rotunda</i> Linn.	Tuber.
<i>Lagenandra toxicaria</i> Dalz.	Tuber.
<i>Lasiosiphon eriocephalus</i> Dene.	Leaves.
<i>Lathyrus sativus</i> Linn.	Seeds.
<i>Lobelia nicotianæfolia</i> Heyne.	Seeds.
<i>Mallotus philippinensis</i> Muell.	The Kamala Powder.
<i>Melothria madagaspatana</i> Cogn.	Seeds.
<i>Moringa oleifera</i> Lam.	Bark.
<i>Nerium odoratum</i> Soland.	Root.
<i>Pedaliium murex</i> Linn.	....
<i>Plumbago rosea</i> Linn.	Root.
<i>Plumbago zeylanica</i> Linn.	Root.
<i>Securinega virosa</i> Pax. and Hoff.	Bark.
<i>Semecarpus anacardium</i> Linn.	Juice of tree.
<i>Strychnos nux-vomica</i> Linn.	Seeds.
<i>Terminalia bellerica</i> Roxb.	Seed kernel.
<i>Thevetia nerifolia</i> Juss.	Fruit and Seed.
<i>Trichosanthes cucumerina</i> Linn.	Leaves, Fruits and Root.
<i>Trichosanthes palmata</i> Roxb.	Leaves, Fruits and Root.
<i>Withania somnifera</i> Dunal.	Root and Leaves.

APPENDIX IV.

Vitamin Contents of the Plants.

Name of the Plant.	Vitamin A. Carotene Vit. A (Inter- national units) per 100 grams.	Vitamin B. International units per 100 gms.	Vitamin C Mgs. per 100 gms.
<i>Abelmoschus esculentus</i> Linn.	58	21	16
<i>Allium cepa</i> Linn.	25	40	11
<i>Allium sativum</i> Linn.	....	....	13
<i>Amorphophallus campanulatus</i> Blume.	434	20	trace.
<i>Anacardium occidentale</i> Linn.	100	....	....
<i>Ananas sativus</i> Schult.	60	....	63
<i>Anona squamosa</i> Linn.	trace	....	....
<i>Apium graveolens</i> Linn.	5300-7500	trace	62
<i>Arachis hypogæa</i> Linn. (Green)	63	300	....
<i>Areca catechu</i> Linn. (nut)	5	....	....
<i>Artocarpus integrifolia</i> Linn. (edible parts of ripe fruit)	540	....	....
<i>Bambusa bambos</i> Voss	trace	....	....
<i>Benincasa cerifera</i> Sav.	trace	21	1
<i>Borassus flabellifer</i> Linn.	....	....	4
<i>Canavalia ensiformis</i> DC.	40	....	....
<i>Capsicum frutescens</i> Linn.	....	....	46
<i>Carica papaya</i> Linn.	2020	....	....
<i>Carthamus tinctorius</i> Linn.	3500	....	....
<i>Cicer arietinum</i> Linn. (leaves)	6700	....	....
<i>Cicer arietinum</i> Linn. (seeds)	316	100	....
<i>Citrus aurantium</i> Linn.	350	40	68
<i>Citrus medica</i> Linn.	....	....	....
var. <i>Citrus acida</i>	26	....	63
var. <i>Citrus limonum</i> .	trace	....	39
<i>Coccinia indica</i> W & A.	260	....	8
<i>Cocos nucifera</i> Linn.	trace	15	1
<i>Coriandrum sativum</i> Linn. (leaves).	10460-12600	....	135
<i>Coriandrum sativum</i> Linn. (seeds).	1570	....	trace.
<i>Cucumis sativus</i> Linn.	trace	30	7
<i>Cucurbita maxima</i> Duch.	84	20	2
<i>Cucurbita pepo</i> Linn.	trace	....	18
<i>Cuminum cyminum</i> Linn.	870	....	3
<i>Curcuma longa</i> Linn.	50	....	....
<i>Daucus carota</i> Linn.	2000-4300	60	3
<i>Dolichos biflorus</i> Linn.	119	....	....
<i>Eleusine coracana</i> Gaertn.	....	140	....
<i>Emblica officinalis</i> Gaertn.	....	....	600
<i>Ficus carica</i> Linn.	270	1	....
<i>Hordeum vulgare</i> Linn.	....	150	....
<i>Lagenaria vulgaris</i> Ser.	trace	....	....
<i>Lathyrus sativus</i> Linn. (Grants)	200	....	....
<i>Lathyrus sativus</i> Linn. (Leaves)	6000	....	....
<i>Lens esculenta</i> Moen.	450	150	....
<i>Lepidium sativum</i> Linn.	....	50	....
<i>Linum usitatissimum</i> Linn. (Seeds)	50	....	....
<i>Mangifera indica</i> Linn. (Green fruit)	150	....	....
<i>Mangifera indica</i> Linn. (Ripe fruit)	4800	5	1
<i>Melia azadirachta</i> Linn. (Tender leaves)	4000	....	13

Name of the Plant.	Vitamin A.	Vitamin B.	Vitamin C.
	Carotene Vit. A (Inter- national units) per 100 grams.	International units per 100 gms.	Mgs. per 100 gms.
Momordica charantia Linn. ..	210	24	88
Momordica dioica Roxb. ..	....	....	....
Moringa oleifera Lam. (Leaves) ..	11300	70	220
Moringa oleifera Lam. (Fruits) ..	184	....	120
Musa paradisiaca L. var. Sapientum O. Kuntze. (Green) ..	50	15	24
Musa paradisiaca L. var. Sapientum O. Kuntze. (Ripe) ..	....	....	....
Oryza sativa Linn. ..	....	60	....
Phaseolus mungo Linn. ..	64	140	....
Phaseolus radiatus Linn. ..	150	155	....
Piper betle Linn. (Leaves) ..	5000	....	3
Piper nigrum Linn. ..	680	....	....
Psidium guayava Linn. ..	trace	....	299
Punica granatum Linn. ..	....	....	16
Raphanus sativus Linn. ..	21	3	60
Saccharum officinarum Linn. ..	39	....	10
Sesamum indicum Linn. ..	100	....	....
Sesbania grandiflora Pers. ..	9000	....	....
Solanum melongena Linn. ..	5	16	28
Sorghum vulgare Pers. ..	....	115	....
Tamarindus indica Linn. (Pulp) ..	100	....	3
Trapa bispinosa Roxb. ..	20	....	....
Trigonella foenum-græcum Linn. (Leaves) ..	3900	90	....
Trigonella foenum-græcum Linn. (Seeds) ..	160	....	....
Vitis vinifera Linn. ..	15	trace	8
Zingiber officinale Rose. ..	67	....	6
Zizyphus jujuba Lam. ..	70	....	....

Regional distribution of the medicinal plants in the Bombay State.

(a) Plants found particularly in N. Kanara.

Abelmoschus esculentus Linn.	Ipomoea turpethum. R. Br.
Abelmoschus Moschatus Medik.	Ixora coccinea Linn.
Abrus precatorius Linn. *	Kæmpferia galanga Linn.
Acacia concinna DC.	Lagenandra toxicaria Dalz.
Actinodaphne hookeri Meis.	Lagerstrœmia speciosa Pers.
Adhatoda vasica Nees.	Lasiosiphon ericephalus Dcne.
Adiantum lunulatum Burm.	Litsea chinensis Lam.
Alangium salviifolium Wang.	Madhuka longifolia Macbr.
Alstonia scholaris R. Br.	Mangifera indica Linn.
Ammania baccifera Linn.	Mesua ferrea Linn.
Anacardium occidentale Linn.	Mimosa pudica Linn.
Anamirta cocculus W. and A.	Mimusops elengi Linn.
Ananas sativus Schult.	Morus indica Linn.
Andrographis paniculata Nees.	Mussaenda frondosa Linn.
Anisomeles malabarica R. Br.	Myristica malabarica Lamk.
Anona squamosa Linn.	Naregamia alata W. & A.
Anthocephalus cadamba Miq.	Oroxylon indicum Vent.
Antiaris toxicaria Lesch.	Oryza sativa Linn.
Areca catechu Linn.	Oxystelma esculentum. R. Br.
Artocarpus intergrifolia Linn.	Pandanus odoratissimus Linn.
Averrhoa carambola Linn.	Piper betle Linn.
Baliospermum montanum Muell.	Piper nigrum Linn.
Bambusa bambos Voss.	Pittosporum floribundum W. & A.
Barringtonia acutangula Gaertn.	Pogostemon parviflorus Benth.
Blumea lacera DC.	Premna integrifolia Linn.
Cæsalpinia bonducella Flemi.	Pterocarpus marsupium Roxb.
Calophyllum inophyllum Linn.	Randia dumetorum Lamk.
Cerbera odollam Gaertn.	Rauwolfia serpentina Benth.
Cinnamomum zeylanicum Blume.	Salvadora persica Linn.
Cissampelos pareira Linn.	Sapindus trifoliatus Linn.
Cocos nucifera Linn.	Sapium insigne Trim.
Cordia obliqua Willd.	Saraca indica Linn.
Croton oblongifolius Roxb.	Spilanthes acmella Murr.
Curculigo orchoides Gaertn.	Stereospermum personatum Chatter.
Curcuma aromatica Salisb.	Strychnos nux-vomica Linn.
Desmodium gangeticum DC.	Strychnos potatorum Linn.
Diospyros embryopteris Pers.	Symplocos racemosa Roxb.
Drynaria quercifolia Bory.	Tabernamontana heyneana Wall.
Elettaria cardamomum Maton.	Tamarindus indica Linn.
Embelia ribes Burm.	Tectona grandis Linn.
Entada phaseoloides Merr. *	Terminalia chebula Retz.
Erythrina variegata L. var. orientalis Merr.	Thespesia populnea Soland.
Flacourtia ramontchi L'Herit var. Sapida Roxb. *	Toddalia aculeata Pers.
Garcinia indica Chois.	Toona ciliata Roem.
Gardenia gummifera Linn.	Trewia nudiflora Linn.
Gardenia lucida Roxb.	Tricholepis glaberrima DC.
Gymnema sylvestre R. Br.	Trichosanthes cucumerina Linn.
Hamiltonia suaveolens Roxb.	Tylophora asthmatica W. & A.
Helicteres isora Linn.	Vanda roxburghii R. Br.
Hiptage benghalensis Kurz.	Vateria indica Linn.
Hydnocarpus laurifolia (Denn).	Ventilago madaraspatana Gaertn.
Ichnocarpus frutescens R. Br.	Vetiveria zizanoides Stapf.
Ipomoea Digitata Linn.	Wagatea spicata Dalz.
	Woodfordia fruticosa Kurz.
	Zizyphus jujuba Lamk.

(b) Plants found particularly in S. M. Country.

- Acacia arabica Willd.
 Acalypha indica Linn.
 Egle marmelos Corr.
 Aerva lanata Juss.
 Allium sativum Linn.
 Anona squamosa Linn.
 Argyria speciosa Sweet.
 Aristolochia bracteata Retz.
 Aristolochia indica Linn.
 Asclepias curassavica Linn.
 Basella rubra Linn.
 Blumea lacera DC.
 Boswellia serrata Roxb.
 Brassica nigra Koch.
 Bryonia laciniata Linn.
 Bryophyllum pinnatum Kurz.
 Capsicum frutescens Linn.
 Cassia auriculata Linn.
 Centaurium roxburghii Druce.
 Cicer arietinum Linn.
 Citrullus colocynthis Sch.
 Coccinia indica W. & A.
 Costus speciosus Sm.
 Curcuma longa Linn.
 Cymbopogon martini Stapf.
 Daucus carota Linn.
 Desmodium gangeticum DC.
 Dolichos biflorus Linn.
 Echinops echinatus Roxb.
 Enicostema littorale Blume.
 Exacum biflorum Roxb.
 Ficus carica Linn.
 Flacourtia ramontchi L'Herit var. Sapida Roxb.
 Gossypium herbaceum Linn.
 Gymnema sylvestre R. Br.
 Gynandropsis pentaphylla DC.
 Hemidesmus indicus R. Br.
 Ichnocarpus frutescens R. Br.
 Ipomoea reniformis Choisy.
 Lagenandra toxicaria Dalz.
 Lasiosiphon eriocephalus Dene.
 Lens esculenta Moen.
 Linum usitatissimum Linn.
 Lobelia nicotianifolia Heyne.
 Marsdenia volubilis Cooke.
 Melia azadirachta Linn.
 Melothria madaraspatana Cogn.
 Momordica dioica Roxb.
 Nicotiana tabacum Linn.
 Ocimum gratissimum Linn.
 Oldenlandia corymbosa Linn.
 Oryza sativa Linn.
 Oxystelma esculentum R. Br.
 Pavonia odorata Willd.
 Pedalium murex Linn.
 Peganum harmala Linn.
 Phaseolus mungo Linn.
 Phoenix sylvestris Roxb.
 Phylla nodiflora Greene.
 Piper betle Linn.
 Pogostemon parviflorus Benth.
 Psoralea corylifolia Linn.
 Randia dumetorum Lamk.
 Rhinacanthus hirsutus Kurz.
 Ricinus communis Linn.
 Rubia cordifolia Linn.
 Santalum album Linn.
 Scilla indica Baker.
 Sesamum indicum Linn.
 Sida carpinifolia Linn.
 Sida cordifolia Linn.
 Siegesbeckia orientalis Linn.
 Soyimida febrifuga A. Juss.
 Sphaeranthus indicus Linn.
 Stereospermum personatum Chatterji.
 Strychnos potatorum Linn.
 Symplocos racemosa Roxb.
 Tephrosia purpurea Pers.
 Terminalia chebula Retz.
 Tylophora asthmatica W. & A.
 Ventilago madaraspatana Gaertn.
 Vernonia anthelmintica Willd.
 Vetiveria zizanioides Stapf.
 Vitis vinifera Linn.
 Zizyphus jujuba Lamk.

(c) Plants found particularly in the Konkan.

- Abrus procatorius Linn.
 Acacia concinna DC.
 Actinodaphne hookeri Meis.
 Adansonia digitata Linn.
 Adiantum lunulatum Burm.
 Egle marmelos Corr.
 Aloe vera Linn.
 Ammania baccifera Linn.
 Amorphophallus campanulatus Blume.
 Anacardium occidentale Linn.
 Anamirta cocculus W. & A.
 Ananas sativus Schult.
 Andrographis paniculata Nees.
 Anthocephalus cadamba Miq.
 Antiaris toxicaria Lesch.
 Arachis hypogaea Linn.
 Areca catechu Linn.
 Argemone mexicana Linn.
 Argyria speciosa Sweet.
 Aristolochia bracteata Retz.
 Artocarpus integrifolia Linn.
 Asteracantha longifolia Nees.
 Bacopa monnieri Penn.
 Baliospermum montanum Muell.
 Bambusa bambos Voss.
 Barringtonia acutangula Gaertn.
 Bauhinia tomentosa Linn.
 Blumea lacera DC.
 Borassus flabellifer Linn.
 Bridelia retusa Spreng.
 Bryophyllum pinnatum Kurz.
 Buchanania lanzan Spreng.

- Canavalia ensiformis DC.
 Careya arborea Roxb.
 Cassia alata Linn.
 Centaurium roxburghii Druce.
 Cerbera odollam Gaertn.
 Cinnamomum zeylanicum Blume.
 Citrullus colocynthis Sch.
 Clematis triloba Heyne.
 Cleome viscosa Linn.
 Coccinia indica W. & A.
 Cocculus hirsutus Diels.
 Cocos nucifera Linn.
 Coix lachryma-jobi Linn.
 Corchorus capsularis Linn.
 Cordia obliqua Willd.
 Costus speciosus Sm.
 Crinum asiaticum Linn.
 Croton oblongifolius Roxb.
 Croton tiglium Linn.
 Curculigo orchoides Gaertn.
 Curcuma amada Roxb.
 Curcuma aromatica Salisb.
 Cymbopogon martini Stapf.
 Dæmia extensa Linn.
 Desmodium gangeticum DC.
 Desmostachya bipinnata Stapf.
 Diospyros embryopteris Pers.
 Dolichos biflorus Linn.
 Drynaria quercifolia Bory.
 Echinops echinatus Roxb.
 Embelia ribes Burm.
 Emblica officinalis Gaertn.
 Enicostema littorale Blume.
 Entada phaseoloides Merr.
 Erythrina variegata L., var. orientalis Merr.
 Evolvulus alsinoides Linn.
 Exacum bicolor Roxb.
 Ficus glomerata Roxb.
 Flacourtia ramontchi L'Herit var. Sapida Roxb.
 Garcinia indica Choisy.
 Gardenia gummifera Linn.
 Gardenia lucida Roxb.
 Gloriosa superba Linn.
 Hamiltonia suaveolens Roxb.
 Hemidesmus indicus R. Br.
 Hiptage benghalensis Kurz.
 Holarrhena antidysenterica Wall.
 Hydnocarpus laurifolia Denn.
 Ichnocarpus frutescens R. Br.
 Ipomoea digitata Linn.
 Ipomoea reniformis Choisy.
 Ipomoea turpethum R. Br.
 Isora coccinea Linn.
 Justicia procumbens Linn.
 Kæmpferia galanga Linn.
 Lagenandra toxicaria Dalz.
 Lagenaria vulgaris Sering.
 Legerstroemia speciosa Pers.
 Lasiosiphon eriocephalus Dene.
 Litsea chinensis Lam.
 Lobelia nicotianifolia Heyne.
 Luffa acutangula var. Amara Clarke.
 Mallotus philippinensis Muel.
 Mangifera indica Linn.
 Melothria madaraspatana Cogn.
 Mesua ferrea Linn.
 Mimosa pudica Linn.
 Mimosa elengi Linn.
 Momordica dioica Roxb.
 Morinda citrifolia Linn.
 Mussaenda frondosa Linn.
 Myristica malabarica Lamk.
 Naregamia alata W. & A.
 Ocimum gratissimum Linn.
 Oldenlandia corymbosa Linn.
 Oroxyton indicum Vent.
 Oryza sativa Linn.
 Oxystelma esculentum R. Br.
 Pandanus odoratissimus Linn. f.
 Pavonia odorata Willd.
 Pedalium murex Linn.
 Peganum harmala Linn.
 Phaseolus trilobus Ait.
 Phyllanthus niruri Linn.
 Piper betle Linn.
 Piper nigrum Linn.
 Pittosporum floribundum W. & A.
 Plantago major Linn.
 Pogostemon parviflorus Benth.
 Pongamia pinnata Pierre.
 Premna integrifolia Linn.
 Psoralea corylifolia Linn.
 Randia dumetorum Lamk.
 Rauwolfia serpentina Benth.
 Rubia cordifolia Linn.
 Ruta graveolens Linn.
 Salvadora persica Linn.
 Sapindus trifoliatus Linn.
 Sapium insigne Benth.
 Saraca indica Linn.
 Scilla indica Baker.
 Semecarpus anacardium Linn.
 Sida carpinifolia Linn.
 Sida cordifolia Linn.
 Solanum indicum Linn.
 Solanum xanthocarpum Schr. & Wendl.
 Sphaeranthus indicus Linn.
 Strychnos nux-vomica Linn.
 Strychnos potatorum Linn.
 Symplocos racemosa Roxb.
 Tobernemontana heyneana Wall.
 Tamarindus indica Linn.
 Tephrosia purpurea Pers.
 Terminalia arjuna W. & A.
 Thespesia populnea Soland.
 Toddalia aculeata Pers.
 Trewia nudiflora Linn.
 Tricholepis glaberrima DC.
 Trichosanthes palmata Roxb.
 Tylophora asthmatica W. & A.
 Uraria picta Desv.
 Urginea indica Kunth.
 Vanda roxburghii R. Br.
 Ventilago madaraspatana Gaertn.
 Verbascum cormandelianum, O.K.
 Vitex negundo Linn.
 Wagatea spicata Dalz.
 Woodfordia fruticosa Kurz.

(d) Plants found particularly in the Deccan.

- Abroma augusta Linn.
 Acacia arabica Willd.
 Acacia farnesiana Willd.
 Acalypha indica Linn.
 Actinogaphne hookeri Meis.
 Adhatoda vasica Nees.
 Adiantum lunulatum Burm.
 Aegle marmelos Corr.
 Aerva lanata Juss.
 Ailanthus excelsa Roxb.
 Allium cepa Linn.
 Allium sativum Linn.
 Ammania baccifera Linn.
 Amorphophallus campanulatus Blume.
 Anisomeles malabarica R. Br.
 Argyria speciosa Sweet.
 Aristolochia bracteata Retz.
 Ariemisia nilagirica Pamp.
 Asclepias curassavica Linn.
 Asparagus racemosus Willd. var.
 Javanica Baker.
 Asteracantha longifolia Nees.
 Bacopa monnieri Penn.
 Baliospermum montanum Muell.
 Balsamodendron mukul Hook f.
 Basella rubra Linn.
 Blumea lacera DC.
 Boerhaavia diffusa Linn.
 Boswellia serrata Roxb.
 Brassica nigra Koch.
 Bridelia retusa Spreng.
 Bryonia laciniosa Linn.
 Bryophyllum pinnatum Kurz.
 Caesalpinia bonducella Fleming.
 Calotropis procera R. Br.
 Canavalia ensiformis DC.
 Cannabis sativa Linn.
 Carica papaya Linn.
 Carthamus tinctorius Linn.
 Cassia alata Linn.
 Cassia auriculata Linn.
 Cassia fistula Linn.
 Centaurium roxburghii Druce.
 Chenopodium album Linn.
 Cicer arietinum Linn.
 Cissampelos pareira Linn.
 Citrullus colocynthis Sch.
 Citrus aurantium Linn.
 Citrus medica Linn. var. *acida*.
 Clematis triloba Heyne.
 Cleome viscosa Linn. Com.
 Clerodendron serratum Mo.
 Coccinia indica W. & A.
 Coccus hirsutus Diels.
 Coix lachryma-jobi Linn.
 Cordia obliqua Willd.
 Costus speciosus Sm.
 Cucumis melo Linn.
 Cucumis sativus Linn.
 Cucumis trigonus Roxb.
 Curcuma longa Linn.
 Cymbopogon martini Stapf.
- Cyperus rotundus Linn.
 Daemia extensa Linn.
 Daucus carota Linn.
 Desmodium gangeticum DC.
 Dolichos biflorus Linn.
 Echinops echinatus Roxb.
 Emblica officinalis Gaertn.
 Erythrina variegata L., var. *Orientalis* Merr.
 Evolvulus alsinoides Linn.
 Exacum bicolor Roxb.
 Fagonia arabica Linn.
 Feronia elephantum Corr.
 Ficus carica Linn.
 Flacourtia ramontchi L'Herit var.
 Sapida. Roxb.
 Foeniculum vulgare Gaertn.
 Gardenia gummifera Linn.
 Gmelina arborea Roxb.
 Gossypium arboreum Linn.
 Gymnema sylvestre R. Br.
 Gynandropsis pentaphylla DC.
 Hamiltania suaveolens. Roxb.
 Hemidesmus indicus R. Br.
 Hiptage benghalensis Kurz.
 Hordeum vulgare Linn.
 Ipomoea reniformis Choix.
 Ipomoea turpethum R. Br.
 Justicia procumbens Linn.
 Kaempferia galanga Linn.
 Lasiosiphon erioccephalus Deene.
 Lens esculenta Moen.
 Linum usitatissimum Linn.
 Lobelia nicotianifolia Heyne.
 Mallotus philippinensis Muell.
 Mangifera indica Linn.
 Melia azadirachta Linn.
 Melilotus parviflora Desf.
 Melothria madaraspatana Cogn.
 Momordica dioica Roxb.
 Morinda citrifolia Linn.
 Morus indica Linn.
 Nerium odoratum Soland.
 Nicotiana tabacum Linn.
 Nyctanthes arbor-tristis Linn.
 Ocimum gratissimum Linn.
 Oldenlandia corymbosa Linn.
 Oxystelma esculentum R. Br.
 Pavetta indica Linn.
 Pavonia odorata Willd.
 Peganum harmala Linn.
 Peucedanum graveolens Benth.
 Phaseolus mungo Linn.
 Phoenix sylvestris Roxb.
 Phyla nodiflora Greene.
 Phyllanthus niruri Linn.
 Piper betle Linn.
 Pittosporum floribundum W. & A.
 Plantago major. Linn.
 Pogostemon parviflorus Benth.
 Psidium guayava Linn.
 Psoralea corylifolia Linn.

- Pterocarpus marsupium Roxb.
 Punica granatum Linn.
 Randia dumetorum Lamk.
 Rhinacanthus hirsuta Kurz.
 Rubia cordifolia Linn.
 Rumex vesicarius Linn.
 Saccharum officinarum Linn.
 Santalum album. Linn.
 Saraca indica Linn.
 Seilla indica Baker.
 Semecarpus anacardium Linn.
 Sesamum indicum Linn.
 Sida carpinifolia Linn.
 Siegesbeckia orientalis Linn.
 Solanum indicum Linn.
 Solanum xanthocarpum Schr. & Wendl.
 Soyimida febrifuga A. Juss.
 Spilanthes acmella Murr.
 Strychnos potatorum Linn.
 Sweetia decussata Nimmo.

- Syzygium cumini Skeel.
 Tectona grandis Linn.
 Tephrosia purpurea Pers.
 Terminalia arjuna W. & A.
 Terminalia belorice Roxb.
 Terminalia chebula Retz.
 Toddalia aculeata Pers.
 Tribulus terrestris Linn.
 Trichosanthes cucumerina Linn.
 Trichosanthes palmata Roxb.
 Tridax procumbens Linn.
 Ventilago madaraspatana Gaertn.
 Verbascum coromandelianum O. K.
 Vernonia anthelmintica Willd.
 Vitex negundo Linn.
 Vitis vinifera Linn.
 Withania somnifera Dunal.
 Wrightia tinctoria R. Br.
 Zingiber officinale Rose.
 Zizyphus jujuba Lamk.

(e) Plants found particularly in Gujarat.

- Adansonie digitata Linn.
 Ailanthus excelsa Roxb.
 Allium cepa Linn.
 Ammania baccifera Linn.
 Amorphophallus campanulatus Blume.
 Aristolochia bracteata Retz.
 Boerhaavia diffusa Linn.
 Brassica nigra Koch.
 Butea monosperma O. Kuntz.
 Calotropis procera R. Br.
 Cassia auriculata Linn.
 Cicer arietinum Linn.
 Citrullus colocynthis Sch.
 Coccinia indica W. & A.
 Coccus hirsutus Diels.
 Corchorus capsularis Linn.
 Cucumis melo Linn.
 Curcuma amada Roxb.
 Curcuma longa Linn.
 Cymbopogon martini Stapf.
 Daemia extensa Linn.
 Desmostachya bipinnata Stapf.
 Eleusine coracana Gaertn.
 Epicostema littorale Blume.
 Evolvulus alsinoides Linn.
 Fagonia arabica Linn.
 Foeniculum vulgare Gaertn.
 Gossypium arboreum Linn.
 Gossypium herbaceum Linn.
 Grewia asiatica Linn.
 Gynandropsis pentaphylla DC.
 Hibiscus sabdarifa Linn.
 Hordeum vulgare Linn.

- Ipomoea aquatica Forsk.
 Ipomoea turpethum R. Br.
 Lathyrus sativus Linn.
 Lawsonia alba Lam.
 Mallotus philippinensis Muell.
 Melothria madaraspatana Cogn.
 Momordica dioica Roxb.
 Nicotiana tabacum Linn.
 Ocimum gratissimum Linn.
 Pedalium murex Linn.
 Peganum harmala Linn.
 Peucedanum graveolens Benth.
 Phoenix sylvestris Roxb.
 Phyla nodiflora Greene.
 Punica granatum Linn.
 Ricinus communis Linn.
 Salvadoria persica Linn.
 Semecarpus anacardium Linn.
 Sesamum indicum Linn.
 Sida cordifolia Linn.
 Soyimida febrifuga A. Juss.
 Tectona grandis Linn.
 Tephrosia purpurea Pers.
 Trapa bispinosa Roxb.
 Tribulus terrestris Linn.
 Trichosanthes cucumerina Linn.
 Vanda roxburghii R. Br.
 Verbascum coromandelianum O. K.
 Ververvia zizanoides Stapf.
 Withania somnifera Dunal.
 Zingiber officinale Rose.
 Zizyphus jujuba Lamk.

(f) Plants found throughout the Bombay State.

- Abelmoschus esculentus Linn.
 Abelmoschus moschatus Medik.
 Abrus precatorius Linn.
 Acacia catechu Willd, var. *Sundra* Prain

- Achyranthes aspera Linn. var. *Perphyristachya* Hook f.
 Acorus calamus Linn.
 Adhatoda vasica Nees.

Agave americana Linn.
 Alangium salviifolium Wang.
 Albizzia lebbek Benth.
 Aloe vera Linn.
 Alstonia scholaris R. Br. Com.
 Amaranthus spinosus Willd.
 Anogeissus latifolia Wall.
 Anona squamosa Linn.
 Apidin graveolens Linn.
 Arachis hypogaea Linn.
 Argemone mexicana Linn.
 Asparagus racemosus Willd. var.
 Javanica Baker.
 Asteracantha longifolia Nees.
 Averrhoa carambola Linn.
 Baobab prionites Linn.
 Bauhinia variegata Linn.
 Benincasa cerifera Sav.
 Boerhaavia diffusa Linn.
 Bridelia retusa Spreng.
 Butea monosperma O. Kuntz.
 Calotropis gigantea R. Br.
 Calotropis procera R. Br.
 Canna indica Linn.
 Cardiospermum halicacabum Linn.
 Careya arborea Roxb.
 Carum copticum Benth.
 Cassia occidentalis Linn.
 Cassia sophera Linn.
 Cassia tora Linn.
 Celastrus paniculata Willd.
 Centella asiatica Linn.
 Cicca acida Merr.
 Citrus medica Linn.
 Citrus medica var. limonum.
 Cleome viscosa Linn.
 Clerodendron serratum Spreng.
 Clitoria ternatea Linn.
 Coccinia indica W. & A.
 Cocculus hirsutus Diels.
 Coriandrum sativum Linn.
 Gratevia nuxifera Ham.
 Crinum asiaticum Linn.
 Cucumis sativus Linn.
 Cucurbita maxima Duch.
 Cucurbita pepo Linn.
 Cuminum cyminum Linn.
 Curcuma zedoaria Rose.
 Cymbopogon citratus Stapf.
 Cymbopogon martini Stapf.
 Cynodon dactylon Pers.
 Cyperus rotundus Linn.
 Datura fastuosa Linn.
 Daucus carota Linn.
 Eclipta alba Linn.
 Eleusine coracana Gaertn.
 Emblica officinalis Gaertn.
 Euphorbia hirta Linn.
 Euphorbia tirucalli Linn.
 Evolvulus alsinoides Linn.
 Feronia elephantum Corr.
 Ficus bengalensis Linn.
 Ficus carica Linn.
 Ficus glomerata Roxb.

Ficus religiosa Linn.
 Gmelina arborea Roxb.
 Gossypium arboreum Linn.
 Gymnema sylvestre R. Br.
 Helicteres isora Linn.
 Hemidesmus indicus R. Br.
 Hibiscus rosa-sinensis Linn.
 Hibiscus sabdarfa Linn.
 Hiptage benghalensis Kurz.
 Hymenodictyon excelsum Wall.
 Ipomoea nil Roth.
 Jasminum grandiflorum Linn.
 Jasminum sambac Ait.
 Jatropha curcas Linn.
 Jatropha multifida Linn.
 Justicia gendarussa Burm.
 Kienpferia rotunda Linn.
 Lagerflora vulgaris Sering.
 Lawsonia alba Lam.
 Lepidium sativum Linn.
 Madhuka indica Gmel.
 Madhuka longifolia Machr.
 Mallotus philippinensis Muell.
 Mangifera indica Linn.
 Mentha arvensis Linn.
 Michelia champaka Linn.
 Mirabilis jalapa Linn.
 Momordica charantia Linn.
 Moringa oleifera Linn.
 Mucuna pruriata Hook.
 Musa Paradisiaca L. var. sapientum
 O. Kunth.
 Myrtus communis Linn.
 Naregamia alata W. & A.
 Nelumbo nucifera Gaertn.
 Nerium odoratum Soland.
 Nyctanthes arbor-tristis Linn.
 Nymphaea pubescens Willd.
 Ocimum basilicum Linn.
 Ocimum sanctum Linn. Cul.
 Opuntia nigricans Haw.
 Oryza sativa Linn.
 Oxalis corniculata Linn.
 Paudanus odoratissimus Linn.
 Pavetta indica Linn.
 Pavonia odorata Willd.
 Pedalium nurex Linn.
 Peganum harmala Linn.
 Phaseolus mungo Linn.
 Phaseolus radiatus Linn.
 Phaseolus trilobus Ait.
 Plumbago rosea Linn.
 Plumbago zeylanica Linn.
 Plumeria acutifolia Poir.
 Pongamia pinnata Pierre.
 Psidium guayava Linn.
 Pterocarpus marsupium Roxb.
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 Raphanus sativus Linn. Cul.
 Rosa damascena Mill.
 Rungia repens Nees.
 Ruta graveolens Linn. Cul.
 Schleicheria olcosa Merr.
 Securinega virosa Pax & Hoff.

Sesbania aegyptiaca Poir.
 Sesbania grandiflora Pers.
 Solanum melongena Linn.
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Terminalia belerica Roxb.
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 Woodfordia fruticosa Kurz.
 Wrightia tinctoria R. Br.
 Xanthium strumarium Linn.
 Zizyphus jujuba Lamk.

APPENDIX VI.

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