

# MEDICINAL PLANTS

(Indigenous and Exotic) Used in Ceylon

## PART III

FLACOURTIACEAE—LYTHRACEAE

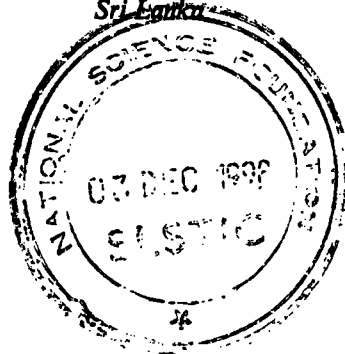
with 138 illustrations including eight colour plates

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**A PUBLICATION**

OF

**THE NATIONAL SCIENCE COUNCIL OF SRI LANKA**

COLOMBO, 1981

Published by  
The National Science Council of Sri Lanka  
47/5, Maitland Place  
Colombo 7, Sri Lanka

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	Page
21. <i>Cassia auriculata</i> Linn. ... ..	177
22. <i>Cassia fistula</i> Linn. ... ..	179
23. <i>Cassia obovata</i> Collad. ... ..	181
24. <i>Cassia occidentalis</i> Linn. ... ..	183
25. <i>Cassia sophera</i> Linn. ... ..	185
26. <i>Cassia tora</i> Linn. ... ..	187
27. <i>Cicer arietinum</i> Linn. ... ..	189
28. <i>Clitoria ternatea</i> Linn. ... ..	191
29. <i>Crotalaria juncea</i> Linn. ... ..	193
30. <i>Crotalaria verrucosa</i> Linn. ... ..	195
31. <i>Desmodium gangeticum</i> DC. ... ..	197
32. <i>Desmodium heterophyllum</i> DC. ... ..	199
33. <i>Desmodium triflorum</i> (Linn.) DC. ... ..	201
34. <i>Dichrostachys cinerea</i> Wight & Arn. ... ..	203
35. <i>Dolichos biflorus</i> Linn. ... ..	205
36. <i>Entada phaseoloides</i> (Linn.) Merr. ... ..	207
37. <i>Erythrina variegata</i> Linn. ... ..	209
38. <i>Glycyrrhiza glabra</i> Linn. var. <i>glandulifera</i> Regel & Herder ... ..	211
39. <i>Indigofera aspathaloides</i> Vahl ex DC. ... ..	213
40. <i>Indigofera enneaphylla</i> Linn. ... ..	215
41. <i>Indigofera tinctoria</i> Linn. ... ..	217
42. <i>Lens culinaris</i> Medikus ... ..	219
43. <i>Mimosa pudica</i> Linn. ... ..	221
44. <i>Mucuna prurita</i> Hook. ... ..	223
45. <i>Phaseolus mungo</i> Linn. ... ..	225
46. <i>Phaseolus radiatus</i> Linn. ... ..	227
47. <i>Pongamia pinnata</i> Merr. ... ..	229
48. <i>Psoralea corylifolia</i> Linn. ... ..	231
49. <i>Pterocarpus marsupium</i> Roxb. ... ..	233
50. <i>Pterocarpus santalinus</i> Linn. f. ... ..	235
51. <i>Saraca indica</i> Linn. ... ..	237
52. <i>Sesbania grandiflora</i> Pers. ... ..	239
53. <i>Sesbania sesban</i> (Linn.) Merr. ... ..	241
54. <i>Smithia conferta</i> Sm. ... ..	243
55. <i>Tamarindus indica</i> Linn. ... ..	245
56. <i>Tephrosia purpurea</i> Pers. ... ..	249
57. <i>Tephrosia villosa</i> Pers. ... ..	251
58. <i>Trigonella corniculata</i> Linn. ... ..	253
59. <i>Trigonella foenum-graecum</i> Linn. ... ..	255
60. <i>Uraria picta</i> Desv. ... ..	257
61. <i>Vigna marina</i> Merr. ... ..	259
57. LILIACEAE	
1. <i>Aloe vera</i> Linn. var. <i>littoralis</i> Koen. ... ..	261
2. <i>Asparagus falcatus</i> Linn. ... ..	263
3. <i>Asparagus racemosus</i> Willd. ... ..	265
4. <i>Gloriosa superba</i> Linn. ... ..	267
5. <i>Sansevieria zeylanica</i> (Linn.) Willd. ... ..	269
6. <i>Smilax zeylanica</i> Linn. ... ..	271
58. LINACEAE	
<i>Hugonia mystax</i> Linn. ... ..	273
59. LOGANIACEAE	
1. <i>Strychnos nux-vomica</i> Linn. ... ..	275
2. <i>Strychnos potatorum</i> Linn. f. ... ..	277

	Page
60. LYCOPODIACEAE	
1. <i>Lycopodium cernum</i> Linn. ... ..	279
2. <i>Lycopodium phlegmaria</i> Linn. ... ..	281
3. <i>Lycopodium pulcherrimum</i> Wall. ex Hook. et Grev. ... ..	283
61. LYTHRACEAE	
1. <i>Lagerstroemia speciosa</i> Pers. ... ..	285
2. <i>Lawsonia inermis</i> Linn. ... ..	287
3. <i>Woodfordia fruticosa</i> (Linn.) Kurz ... ..	289

INDEX TO PLANTS ACCORDING TO THERAPEUTIC PROPERTIES AND SPECIFIC DISEASES	291
INDEX TO SINHALESE NAMES	311
INDEX TO TAMIL NAMES	313
INDEX TO SCIENTIFIC NAMES	317

## INTRODUCTION

Part III of the Medicinal Plants used in Ceylon includes descriptions of 141 species of plants belonging to 16 families—Flacourtiaceae to Lythraceae. Of these about 40 species are exotics, cultivated either for medicinal purposes or for food. Some species like *Crocus sativus* L., *Glycyrrhiza glabra* var. *glandulifera* Regel and Herder and *Desmostachya bipinnata* Stapf do not grow at all in Ceylon owing to climatic and other conditions being unfavourable to them. The Island's requirements of these drugs are imported from India or from the Mediterranean regions.

Some grasses like *Eleusine coracana* Gaertn., *Panicum miliare* Lamk. and *Setaria italica* P. Beauv. are chena crops cultivated for their grains which are edible.

All species described are illustrated, except *Garcinia mangostana* L., *Ocimum gratissimum* L. and *Asparagus racemosus* Willd. Eight of the illustrations are in colour.

Five endemic species are included. These have been in use as medicinal plants from time immemorial and have established themselves. They are *Hydnocarpus venenata* Gaertn., *Exacum trinerve* Druce, *Calophyllum walkeri* Benth. and Hook. f., *Litsea longifolia* Benth. and Hook. f. and *Barringtonia ceylanica* Gard. They are mentioned as medicinal plants for the first time.

Three substitutes are being used for the genuine drug. *Alhagi camelorum* Fisch. which is doubtfully referred to "Wel-kahambiliya" and for which *Tragia involucrata* L. is used, *Alysicarpus vaginalis* DC. which is mistakenly used for *Desmodium gangeticum* DC. and *Abrus precatorius* L. used instead of the genuine liquorice plant.

Most of the illustrations were made from fresh material or from authentic herbarium specimens deposited in the Herbarium of the Department of Agriculture, Peradeniya. Others were redrawn from their collection of paintings.

I am grateful to Mr. K. L. D. Ameratunge, Systematic Botanist, for allowing me to refer to herbarium material, drawings and literature in his charge, and to Mrs. Nimala Amarasuriya of the National Science Council for editing the publication.

D. M. A. JAYAWEERA

# CONTENTS

	Page
Introduction	iii
<b>46. FLACOURTIACEAE</b>	
1. <i>Casearia zeylanica</i> (Gaertn.) Thw.	3
2. <i>Flacourtia cataphracta</i> Roxb.	5
3. <i>Flacourtia ramontchi</i> L' Herit.	7
4. <i>Gynocardia odorata</i> R.Br.	9
5. <i>Hydnocarpus wightiana</i> Blume	11
6. <i>Hydnocarpus venenata</i> Gaertn.	13
<b>47. GENTIANACEAE</b>	
1. <i>Canscora decussata</i> (Roxb.) J. A. & J. H. Schult.	15
2. <i>Exacum trinerve</i> (Linn.) Druce	17
3. <i>Swertia chirata</i> Buch.—Ham.	19
<b>48. GRAMINEAE</b>	
1. <i>Brachiaria mutica</i> (Forsk.) Stapf	21
2. <i>Cymbopogon citratus</i> (DC.) Stapf	23
3. <i>Cymbopogon nardus</i> (Linn.) Rendle	25
4. <i>Cymbopogon polyneuros</i> (Steud.) Stapf	27
5. <i>Cynodon dactylon</i> (Linn.) Pers.	29
6. <i>Desmostachya bipinnata</i> (Linn.) Stapf	31
7. <i>Echinochloa crus-galli</i> (Linn.) Beauv.	33
8. <i>Eleusine coracana</i> (Linn.) Gaertn.	35
9. <i>Eleusine indica</i> (Linn.) Gaertn.	37
10. <i>Heteropogon contortus</i> (Linn.) Beauv. ex R. & S.	39
11. <i>Hordeum vulgare</i> Linn.	41
12. <i>Imperata cylindrica</i> (L.) Beauv. var. <i>major</i> (Nees) C. E. Hubb.	43
13. <i>Oryza sativa</i> Linn.	45
14. <i>Panicum antidotale</i> Retz.	47
15. <i>Panicum miliare</i> Lamk.	49
16. <i>Paspalum scrobiculatum</i> Linn.	51
17. <i>Saccharum arundinaceum</i> Retz.	53
18. <i>Saccharum officinarum</i> Linn.	55
19. <i>Setaria italica</i> (Linn.) P. Beauv.	57
20. <i>Vetiveria zizanioides</i> (Linn.) Nash	59
<b>49. GUTTIFERAE</b>	
1. <i>Calophyllum inophyllum</i> Linn.	61
2. <i>Calophyllum tomentosum</i> Wight	63
3. <i>Calophyllum walkeri</i> Wight	65
4. <i>Garcinia cambogia</i> Desrouss.	67
5. <i>Garcinia mangostana</i> Linn.	69
6. <i>Garcinia morella</i> Desrouss.	71
7. <i>Mesua ferrea</i> Linn.	73
<b>50. HIPPOCRATEACEAE</b>	
1. <i>Salacia prinooides</i> DC.	75
2. <i>Salacia reticulata</i> Wight	77
<b>51. IRIDACEAE</b>	
<i>Crocus sativus</i> Linn.	79

	Page
<b>52. LABIATAE</b>	
1. <i>Anisochilus carnosus</i> (Linn.) Wall. ex Benth. ... ..	81
2. <i>Anisomeles indica</i> O. Ktze. ... ..	83
3. <i>Coleus amboinicus</i> Lour. ... ..	85
4. <i>Dysophylla auricularia</i> (Linn.) Blume ... ..	87
5. <i>Leonotis nepetaefolia</i> (Linn.) R. Br. ... ..	89
6. <i>Leucas marrubioides</i> Desf. ... ..	91
7. <i>Leucas zeylanica</i> (Linn.) R.Br. ... ..	93
8. <i>Mentha arvensis</i> Linn. ... ..	95
9. <i>Mentha sylvestris</i> Linn. ... ..	97
10. <i>Ocimum americanum</i> Linn. ... ..	99
11. <i>Ocimum basilicum</i> Linn. ... ..	101
12. <i>Ocimum gratissimum</i> Linn. ... ..	103
13. <i>Ocimum sanctum</i> Linn. ... ..	105
14. <i>Plectranthus zeylanicus</i> Benth. ... ..	109
15. <i>Pogostemon heyneanus</i> Benth. ... ..	111
16. <i>Pogostemon parviflorus</i> Benth. ... ..	113
<b>53. LAURACEAE</b>	
1. <i>Cinnamomum camphora</i> F. Nees & Eberm. ... ..	115
2. <i>Cinnamomum zeylanicum</i> Blume ... ..	117
3. <i>Litsea glutinosa</i> (Lour.) C. B. Rob. ... ..	119
4. <i>Litsea longifolia</i> Benth. & Hook. f. ... ..	121
5. <i>Neolitsea involucrata</i> Alston ... ..	123
<b>54. LECYTHIDEAE</b>	
1. <i>Barringtonia acutangula</i> (Linn.) Gaertn. ... ..	125
2. <i>Barringtonia ceylanica</i> (Miers) Gard. ex C. B. Clarke ... ..	127
3. <i>Barringtonia racemosa</i> (Linn.) Blume ... ..	129
4. <i>Careya coccinea</i> A. Chev. ... ..	131
<b>55. LEEACEAE</b>	
<i>Leea indica</i> (Burm. f.) Merr. ... ..	133
<b>56. LEGUMINOSAE</b>	
1. <i>Abrus precatorius</i> Linn. ... ..	135
2. <i>Acacia catechu</i> Willd ... ..	139
3. <i>Acacia chundra</i> Willd. ... ..	141
4. <i>Acacia nilotica</i> var. <i>indica</i> (Benth.) A. F. Hill ... ..	143
5. <i>Albizzia odoratissima</i> Benth. ... ..	145
6. <i>Alhagi camelorum</i> Fisch. ... ..	147
7. <i>Alysicarpus vaginalis</i> DC. ... ..	149
8. <i>Arachis hypogaea</i> Linn. ... ..	151
9. <i>Bauhinia acuminata</i> Linn. ... ..	153
10. <i>Bauhinia racemosa</i> Lam. ... ..	155
11. <i>Bauhinia tomentosa</i> Linn. ... ..	157
12. <i>Bauhinia variegata</i> Linn. ... ..	159
13. <i>Butea monosperma</i> O. Kuntze ... ..	161
14. <i>Caesalpinia bonduc</i> (Linn.) Roxb. ... ..	163
15. <i>Caesalpinia digyna</i> Rottl. ... ..	165
16. <i>Caesalpinia major</i> (Medic.) Dandy & Excell ... ..	167
17. <i>Caesalpinia sappan</i> Linn. ... ..	169
18. <i>Cassia absus</i> Linn. ... ..	171
19. <i>Cassia alata</i> Linn. ... ..	173
20. <i>Cassia angustifolia</i> Vahl ... ..	175

MEDICINAL PLANTS

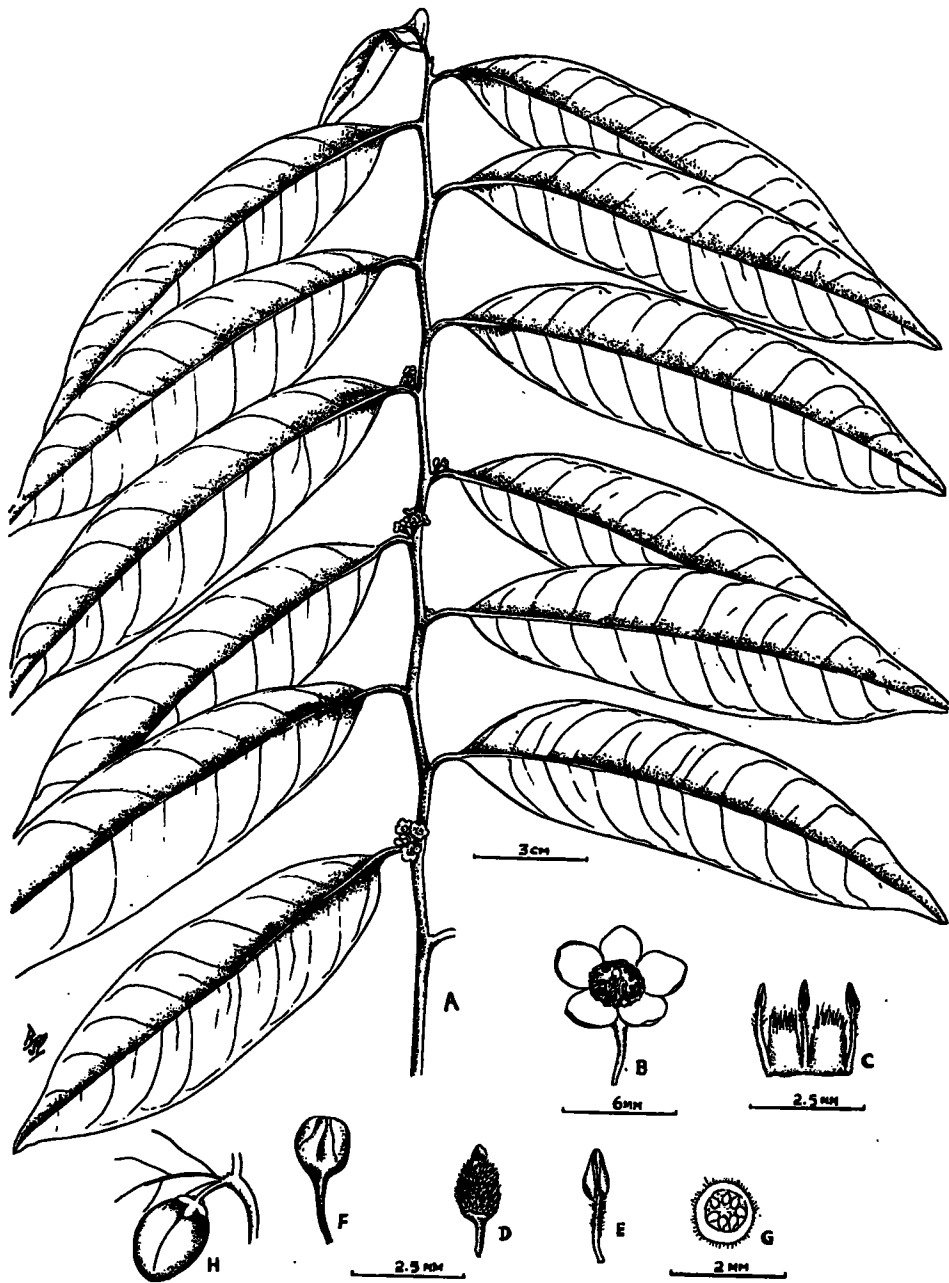


FIG. 219. *Casearia zeylanica*. A, branch with leaves and clusters of flowers. B, flower, front view. C, stamens alternating with staminodes. D, ovary. E, stamen. F, young fruit. G, transverse section of ovary. H, mature fruit.

## 46. FLACOURTIACEAE

### 1. *Casearia zeylanica* (Gaertn.) Thw. Enum. 19. 1858. (Fig. 219).

*Casearia esculenta* Roxb.—*Casearia laevigata* Dalz.—*Casearia championii* Thw.—*Casearia varians* Thw.—*Vareca zeylanica* Gaertn.

*Sinh.* Wal-waraka, Wal-tembili; *Tam.* Kakkaippilai, Kilar, Kottargovai, Kolayayili, Kutti, Venjanduvar; *Sans.* Bhurigandha, Bhutagandha, Daitya, Divya, Gandhadhya, Gandhakuti, Ghandhamadini, Ghandhini, Kuti, Mura, Muramansi, Puragandhavati, Surabhi, Talaparni, Talaparnika.

A small tree with yellowish white, smooth bark, slender branchlets and glabrous young parts; leaves simple, alternate, 2-ranked, stipulate, 5—12.5 cm long, narrow lanceolate to oval tapering to base, shortly acuminate, obtuse or subacute, entire or faintly serrate in the upper part, glabrous, rather thick, petioles short, stipules persistent; flowers small, greenish, regular, bisexual, few or many in clusters on raised bosses in axils of past and present leaves; pedicels stout, articulated at base and surrounded by numerous small bracts; sepals 5, free, ovate, obtuse, persistent; petals absent; stamens 6 or 8 with alternating staminodes as long, filaments slightly connate at base, hypogynous, oblong, ciliate or hairy; ovary superior, unilocular with several ovules; fruit 1.8 cm long, broadly ovoid, apiculate, glabrous or very slightly pubescent, orange-yellow, dehiscing by 3 (or 2) thick valves, seeds several, almost entirely covered by the large, fleshy, lacerate, scarlet aril.

Flowers from February to May.

*Illustrations.* Beddome, *Flor. Sylvat.* pl. 208. 1868—69; Kirtikar and Basu, *Indian Med. Plants*, pl. 438. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs along the west and east coasts of India, Malayan peninsula and Ceylon. In Ceylon, it is found in both moist and dry regions ascending up to 5000 feet altitude. Hunnasgiriya, Haputale, Mullativu, Batticaloa, Buttala, Ratnapura, Galle, Hewaheta, Puttalam, etc.

*India.* Nilghiri and Kurg, *Hook. f. and Thomson*; Madras. *Fischer* 3145, Nov. 1911; *Beddome*, May 1866. *Ceylon.* *Thwaites C. P.* 3365; *Thwaites C. P.* 2604; *Thwaites C. P.* 415; *Thwaites C. P.* 2657. Northern Prov., Mullativu, *Alston* 1001, March 1927. Central Prov., Hewaheta, *Alston* 1010. April 1927; Haputale, *Herb. Peradeniya*, Sept. 1890. Sabaragamuwa Prov., Karawita kande, *J. M. Silva*. Uva Prov., Buttala, *Alston* 2463, May 1928. Malaya. Perak, *King's Collector* 10550, July 1886.

*Uses.* The root of this tree is used as a purgative. It is also a popular remedy for diabetes.

MEDICINAL PLANTS

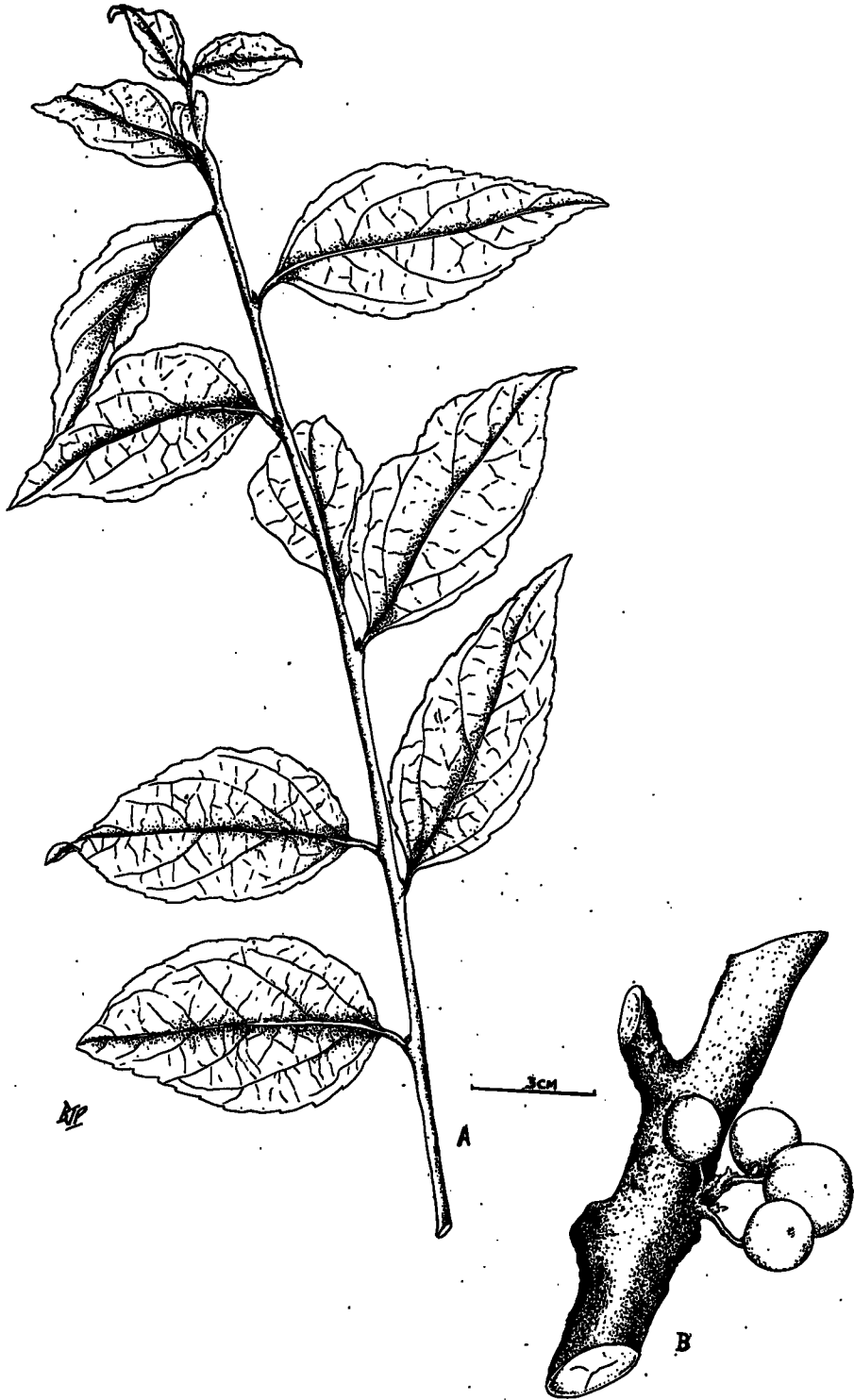


FIG. 220. *Flacourtia cataphracta*. A, branch with leaves. B, portion of stem with fruits.

2. *Flacourtia cataphracta* Roxb. in Willd. Sp. Pl. 4: 830. 1805. (Fig. 220).

*Flacourtia jangomas* Miq.—*Roumea jangomas* Spreng.—*Spina spinarum* Rumph.—*Stigmarosa jangomas* Lour.

*Sinh.* Rata-ugressa; *Tam.* Saralu, Talisam, Talipatri, Vayangarai; *Hindi* Paniala, Paniaunvola, Talipatri; *Sans.* Ahini, Kalameshi, Khadiraparni, Paniamalaka, Prachinamalaka, Talishapatra, Varibadaram, Vidara.

A small tree about 9 m high with a fairly smooth, pale brown bark; stems up to 75 cm in girth often armed low down with stout, compound spines; leaves simple, alternate, 5—10 cm long, 2.3—3.8 cm broad, oblong or ovate, acuminate, crenate-serrate, glabrous, 3—5-nerved at base, dark green above and shining on both surfaces, petioles 3.5—5 mm long, minutely pubescent; flowers small, dioecious, 2.5—3.8 mm diam. in glabrous, few-flowered racemes 7.5—25 mm long; sepals 4—5, imbricate; petals absent; stamens many, anthers versatile, 2-celled, hypogynous, free; ovary superior, fruit an indehiscent berry, fleshy, 1.8—2.3 cm long, obovoid, green turning purplish brown when ripe.

Flowers during June.

**Illustrations.** Roxburgh, Pl. Corom. 3: pl. 222. 1852; Kirtikar and Basu, Indian Med. Plants, pl. 84A. 1933.

**Distribution.** Grows in India, Burma and Malay Peninsula. It is cultivated in Ceylon.

**India.** Assam. *Masters.* Bengal: *J. D. Hooker and T. Thomson*; Calcutta, Bot. Gard., cultivated, *Wallich* 6674E; Dhaka, *Clarke* 17168A,E, June 1872; *Clarke* 17182D; Manipur, *Watt* 7219, 1882. Burma. Upper Burma, Kachin Hills, *Mokin*, 1898; Burma and Malay Peninsula, *Herb. Griffith* 203, Kew Distribution 1861—2. Ceylon. Central Prov., Peradeniya, Bot. Gard., cultivated, *Herb. Peradeniya*, 1884; Pussellawa, *Herb. Peradeniya*, June 1895.

**Uses.** The leaves and young shoots possess astringent and stomachic properties and are prescribed for diarrhoea. A decoction of the bark is given for biliousness and is also used as a gargle for sore throat. The fruit is useful in bilious conditions, relieves nausea and checks purging.



FIG. 221. *Flacourtia ramontchi*. A, branch with leaves. B, male flower. C, stamen. D, branch with fruits.

3. *Flacourtia ramontchi* L/ Herit. Stirp. 59. tt. 30 & 30 B. 1784. (Fig. 221).

*Flacourtia sapida* Roxb.

*Sinh.* Uguressa; *Tam.* Katu-kali, Malukkarai, Sottaikala; *Hindi* Kuke; *Sans.* Kuramba, Swadukantaka, Sweta-kuntaka.

A shrub or small tree, deciduous, armed with axillary spines and often with tufts of branched spines on the stem; leaves simple, alternate, variable, 2.9 cm long, 2.5 cm broad, ovate, broadly elliptic, obovate or suborbicular, crenate or serrate, acute, acuminate or rounded at apex, glabrous or pubescent above, pubescent beneath, petioles 5—8 mm long; flowers dioecious, greenish yellow in short, simple or branched, usually tomentose racemes; sepals 4—5, imbricate, about 2 mm long, ovate or orbicular, hispid and ciliate; petals absent; stamens numerous, anthers small, versatile; ovary superior on a glandular disc; stigmas 5—11, free or connate; fruit a globose, red or dark brown or dark purple berry, 0.8—1.2 cm diam. with 8—13 hard seeds.

Flowers in January and July.

**Illustrations.** Wight, Ic. Pl. Ind. Orient. *pl.* 85. 1838; Roxburgh, Pl. Corom. 1: *pl.* 69. 1795; Kirtikar and Basu, Indian Med. Plants, *pl.* 84B. 1933.

**Distribution.** Grows in the dry forests of the Indian Peninsula and Burma. It is cultivated in Ceylon in the mid and low country. Kandy, Bibile, Nilgala, etc.

**Ceylon.** Central Prov., Peradeniya, cultivated, *Herb. Peradeniya*, July 1884. Uva Prov., Bibile, *Trimen*, Jan. 1888.

**Uses.** The fruit is a cholagogue and astringent and is used for internal haemorrhages and bleeding from haemorrhoids. The root is an expectorant and diuretic and is useful for fevers accompanied with congestion of the liver, for acute laryngitis, bronchitis, pyelitis, cystitis and gonorrhoea. It is also employed as an antilithic for urinary gravel and calculi. The fruits are given for jaundice and enlarged spleen. In Decca, the seeds are ground into a paste with turmeric and applied on women after childbirth to prevent rheumatic pains. The gum forms an ingredient of mixtures given for the treatment of cholera. In Madagascar, the root is prescribed for nephritic colic.



FIG. 222. *Gynocardia odorata*. A, branch with leaves and clusters of male flowers. B, female flower, front view. C, fruit. D, seed. E, section of seed showing albumen and cotyledon.

4. *Gynocardia odorata* R.Br. in Roxb. Pl. Corom. 95. 1819. (Fig. 222).

*Chaulmoogra odorata* Roxb.—*Chilmoria dodecandra* Ham.

*Engl.* Chaulmoogri; *Sinh.* Taliennoe; *Hindi* Chaulmogra; *Sans.* Alasakapaha, Kushthapala, Sagarodbhuta, Tuvataka.

A large much branched tree with slender branches and smooth, ash-coloured bark; leaves simple, alternate, somewhat drooping, distichous, shortly stalked, exstipulate, 15—25 cm long, rounded at base, suddenly acuminate, acute, entire, glabrous, shining above, veins very prominent beneath; flowers regular, unisexual, fragrant, pale yellow, dioecious, large on smooth curved peduncles 2.5—5 cm long, coming off in large clusters usually from the trunk in the female, or in smaller ones from the younger branches in the male tree; bracts minute, round the base of peduncles; male flowers: calyx cup-shaped, irregularly splitting into 3 segments; thick, smooth; petals 5, large, spreading, strongly imbricate in the ovoid, bluntly pointed buds, about 1.8 cm long, oval, obtuse, thick with thin margins, smooth, pale yellow, each with an ovate, acute, denticulate, thin, dark yellow, spreading petaloid scale attached to its base and scarcely  $\frac{1}{3}$  its length; stamens very numerous, hypogynous, spreading, shorter than petals, filaments tapering, hairy, anthers linear, basifixed, pistil absent; female flowers: calyx and corolla as in the male, but the petals somewhat larger; stamens represented by 10—15, small, linear, erect, hairy staminodes around the ovary; ovary superior, very large, ovoid, rounded on the summit, smooth, unilocular with numerous ovules attached to 5 parietal placentas, styles 5, short, distant, spreading in a circle, stigmas peltate, dilated, lobed; fruit nearly spherical on a woody stalk, very large, 8.7 cm diam., rough, ash-grey, indehiscent, pericarp hard, thick; seeds many, immersed in pulp, 2.5—3.7 cm long, irregularly ovoid and variously flattened, pale yellowish grey, smooth, albuminous, testa brittle.

Flowers during April and May.

*Illustrations.* Roxburgh, Pl. Corom. pl. 299. 1819; Bentley and Trimen, Med. Plants, pl. 28. 1880; Kirtikar and Basu, Indian Med. Plants, pl. 85. 1933.

*Distribution.* Grows in India from Sikkim to Khasia Hills and eastwards to Chittagong, Rangoon and Tenasserim. It is cultivated in Ceylon.

*India.* Sikkim: *T. Thomson*, 1857; *J. D. Hooker*. Assam: Sibsagar, *Pearl* 301, 1890. Ceylon. Central Prov., Peradeniya, cultivated, *Herb. Peradeniya*.

*Uses.* The oil extracted from the seeds is used both externally and internally for leprosy and other skin diseases. The seeds are given internally for scrofula and rheumatism.

Seeds of *Hydnocarpus wightiana* Bl. and *Hydnocarpus venenata* Gaertn. have similar properties and can be used as substitutes.

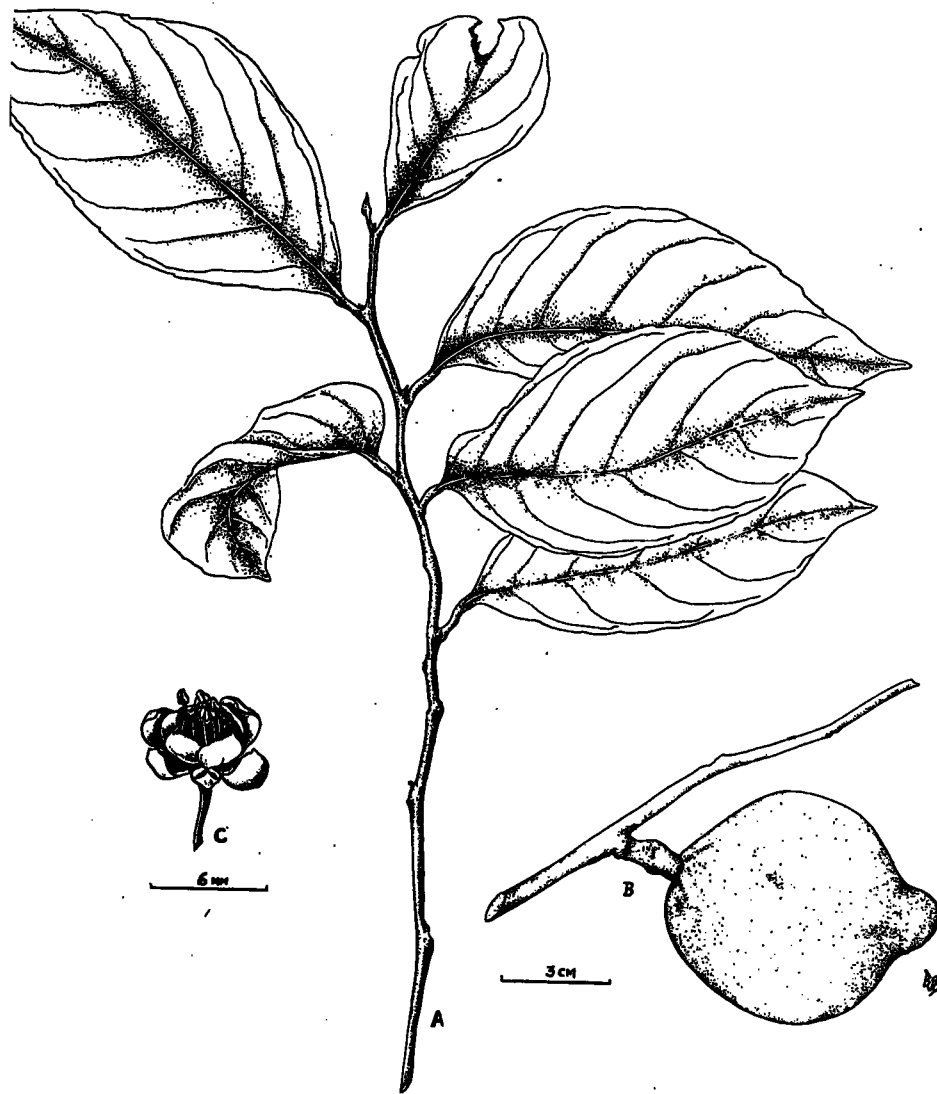


FIG. 223. *Hydnocarpus wightiana*. A, twig with leaves. B, fruit. C, male flower, front view.

5. *Hydnocarpus wightiana* Blume, Rumph. 4: 22. 1848. (Fig. 223).

*Hydnocarpus inebrians* Wall.—*Munnicksia* sp.

*Sinh.* Makulu; *Tam.* Maravathai, Maravetti, Niradimuttu; *Sans.* Garudaphala.

A tree about 12—15 m high; leaves simple, alternate, 12.5—22.5 cm long, 3.7—7.5 cm broad, ovate, oblong or lanceolate, acuminate, entire or serrate, glabrous, base acute or rounded, petioles 0.6—1 cm long, stipules lanceolate and deciduous; flowers regular, unisexual, dioecious, 1—1.2 cm diam., solitary or in small racemes; sepals 5, imbricate, the outer ovate, the three inner much larger, very concave; petals 5, with a scale at the base of each, broadly oblong or orbicular, rounded at the top, fringed with soft white hairs, scales about half the size of petals, ovate, densely hairy; male flowers: stamens 5, opposite petals, filaments subulate, hairy at base, about equalling petals; female flowers: stamens 5, sterile; ovary superior, globose, hairy, unilocular, ovules many on 3—6 parietal placentas, stigmas 3—6, flat on top of ovary, each cuneate and 2-lobed; fruit berry globose or obovoid, about the size of a small apple, tomentose, pericarp woody, seeds numerous, yellowish and obtusely angular.

Flowers from January to April.

**Illustrations.** Wight, *Ill.* 1: *pl.* 16. 1840; Kirtikar and Basu, *Indian Med. Plants*, *pl.* 87. 1933.

**Distribution.** Endemic to western parts of India along the Western Ghats extending southwards as far as Travancore up to an altitude of 2000 feet. It is cultivated in Ceylon.

**India.** Canara: *Talbot*, March 1882. Ceylon. Western Prov., Gampaha, *Bot. Gard.*, cultivated, *Simpson* 8884, Dec. 1931.

**Composition.** The fatty oil extracted from the seeds resembles chaulmoogra oil and the acids obtained from the oil consist of chaulmoogric and hydnocarpic acids.

**Uses.** The seeds are used as a remedy for certain persistent skin diseases, ophthalmia and as a dressing for wounds and ulcers. The oil from the seeds is applied on scabby eruptions and on scalds.

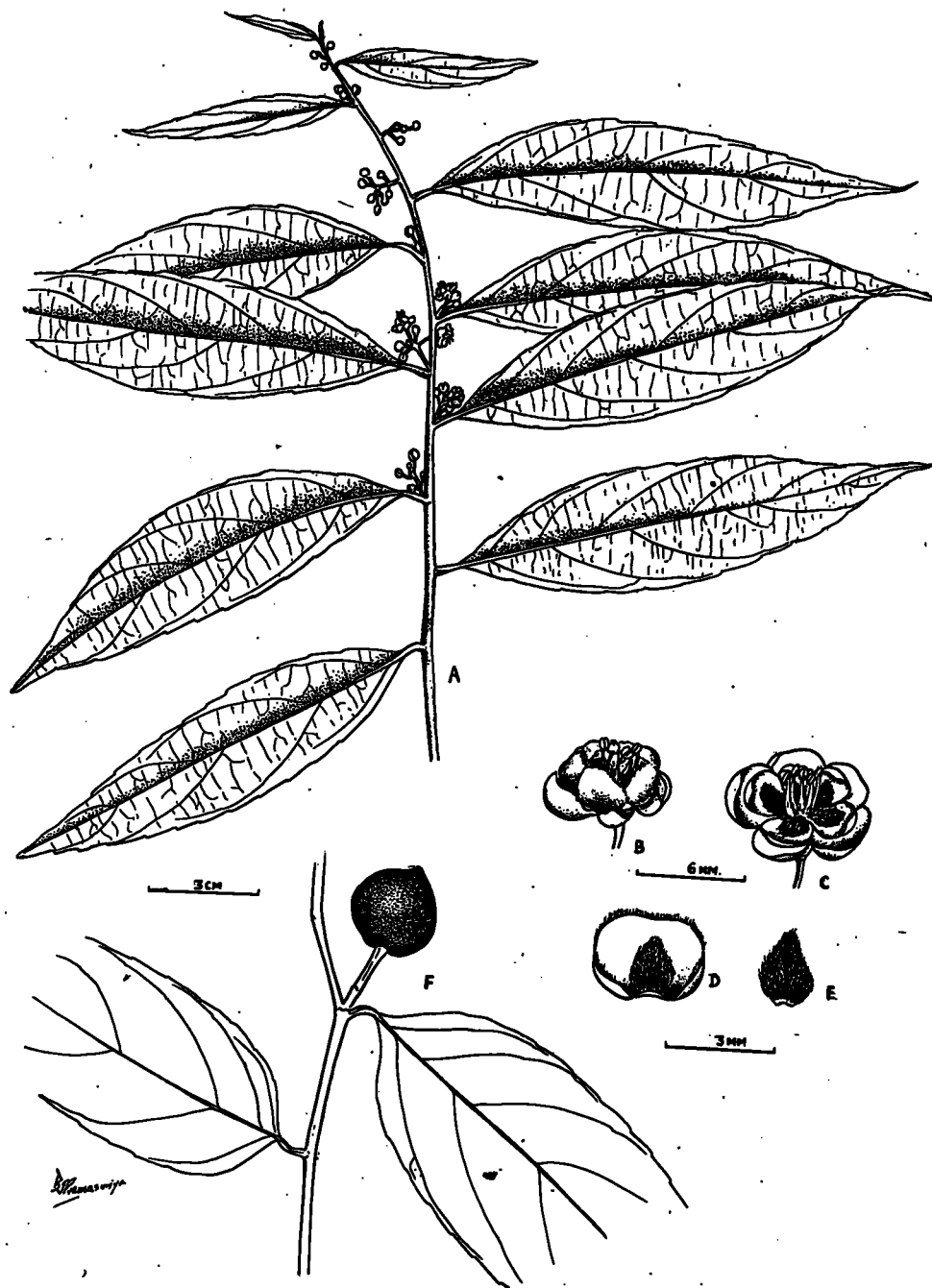


FIG. 224. *Hydnocarpus venenata*. A, branch with leaves and clusters of male flowers. B, male flower, lateral view C, male flower, front view. D, petal with a scale at the base inside. E, hairy scale. F, branch from female tree with fruit.

6. *Hydnocarpus venenata* Gaertn. Fruct. 1: 288. 1788. (Fig. 224).*Hydnocarpus inebrians* Vahl non Wall.

Sinh. Makulu, Tam. Niridumuttu.

A large tree with a smooth whitish bark and pubescent young shoots; leaves simple, alternate, 12—18 cm long, 2.5—6.5 cm broad, lanceolate or oblong—or elliptic—lanceolate, narrowed at base, attenuate, shallowly serrate, coriaceous, glabrous above, pubescent on very oblique veins beneath, thick; petioles 0.7—1.2 cm long, stout, pubescent; stipules minute, soon falling; flowers regular, unisexual, dioecious, axillary, 0.9—1.2 cm diam., solitary or few-flowered, tomentose fascicles, racemes or panicles; sepals 5, imbricate, rotundate, two larger, ciliate, tomentose at the back; petals 5, rotundate, glabrous, shorter or longer than sepals with a villous, golden brown, very hairy, acuminate scale at the base of each; male flowers: stamens 5, equalling the petals; ovary absent; female flowers: stamens as in male but reduced to staminodes; ovary superior, unilocular, globular, shaggy with golden brown hairs, stigmas deeply bifid, flat, spreading, bright green; fruit a subglobose berry with a short blunt beak, 1.8—2.5 cm diam., densely covered with thick ferruginous tomentum, pericarp woody; seeds about 6, densely packed and angular.

Illustrations. Gaertner, Fruct. I pl. 60, f. 3. 1778.

Distribution. A common endemic tree growing on the banks of rivers in the low-country up to 2000 feet altitude. Kurunegala, Hantane, Peradeniya, Eastern and Western Provinces.

India. Pen. Ind. Or., *Herb. Wight* 87, Kew Distribution 1866—7. Ceylon. *Thwaites C.P.* 1630 O; *Thwaites C.P.* 1630 O. Eastern Prov., *Nevill*, Nov. 1890. North Western Prov., Wilpattu National Park, Kuruthu Pandi Villu, *Mueller-Dombois and Cooray* 68091004, Sept. 1968. Western Prov.; Gampaha, Bot. Gard., *Simpson* 8883, Nov. 1931. Southern Prov., Ruhuna National Park, Veddangewadiya, *Wirawan* 663, Oct. 1968; Kumana Ford, *Cooray* 68060604R, June 1968; Kataragama, *Mueller-Dombois and Wirawan* 68102312, Oct. 1968.

Uses. The oil extracted from the seeds of this tree is used as an external application for certain cutaneous diseases and is regarded as a remedy for leprosy.

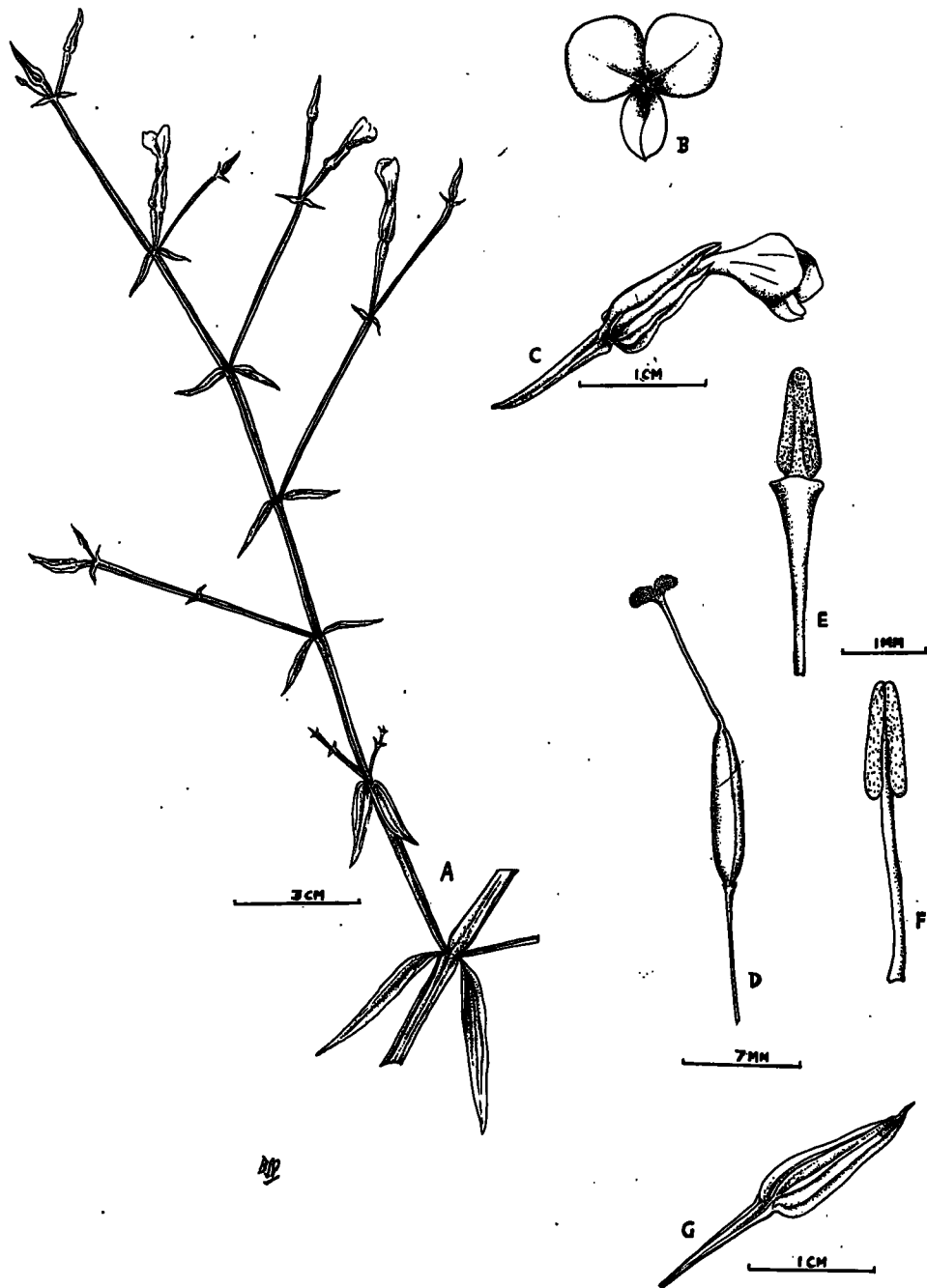


FIG. 225. *Canscora decussata*. A, branch with leaves and flowers. B, flower from above. C, flower, lateral view. D, pistil. E, receptacle with bracteole. F, stamen. G, fruit.

## 47. GENTIANACEAE

1. *Canscora decussata* (Roxb.) J. A. & J. H. Schult. Mant. 3: 229. (Fig. 225).

*Pladera decussata* Roxb.

*Sinh.* Dandupul, Sakmal; *Hindi* Kalameg, Sankha huli; *Sans.* Akshapida, Dantot-pala, Drihapada, Kambupushpi, Mahatikta, Maheshvari, Nakuli, Netramila, Patratanduli, Sankhapushpi, Shankhapushpi, Shankhini, Sukshmapushpi, Tikta, Tiktayava, Tunduli, Visarpini, Yashasvini, Yavatikta, Yavi.

An annual erect herb, 15—45 cm tall, branched above; stem quadrangular, winged; leaves simple, opposite, rather numerous, sessile, the lowest ones about 2.5 cm long, upper ones smaller, all ovate or oblong-lanceolate, rounded at base, acute, 3-nerved; flowers irregular, bisexual, pale yellow in few-flowered, very lax, terminal cymes; pedicels long, quadrangular, strongly winged; sepals 4, fused into a tubular calyx 1.2 cm long, 4-winged, segments very short, lanceolate, very acute; petals 4, fused into a 2-lipped corolla, corolla-tube as long as the calyx, lobes rounded, two lower ones much narrower, connate nearly to the apex; stamens 4, one only fertile, inserted higher in the corolla-tube between the two narrower corolla lobes; ovary superior, unilocular with numerous ovules on two placentas, stigmas 2, short; fruit capsule 2-valved with minute seeds.

Flowers from February to April.

*Illustrations.* Curtis, Bot. Mag. pl. 3066. 1831; Kirtikar and Basu, Indian Med. Plants, pl. 638A. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs throughout India, Ceylon, Burma and tropical Africa. In Ceylon, it is rather rare growing in wet places up to an elevation of 4000 feet. Badulla, Hantane, Trincomalee, etc.

*India.* Chota Nagpore, Clarke 25123, Dec. 1874; Clarke 21047, Oct. 1873. Bengal: Calcutta, T. Thomson. Chittagong: Clarke 6561, Feb. 1868. Ceylon. Thwaites C.P. 2400. Uva Prov., Ella, J. M. Silva, June 1924. Galmodera, Alston, grows among grass in open places.

*Uses.* The entire plant is used as a laxative, alterative and a nerve tonic. The fresh juice is given for insanity, epilepsy and applied on enlargement of the scrotum.



FIG. 226. *Exacum trinerve*. A, branch with leaves and flowers. B, flower, front view. C, longitudinal section of flower. D, fruit.

2. *Exacum trinerve* (Linn.) Druce in Rep. Bot. Exch. Cl. 1913, 418. 1914. (Fig. 226).

*Chironia trinervia* Linn.—*Exacum zeylanicum* Roxb.—*Lisianthus zeylanicus* Spreng.

*Sinh.* Bindara, Ginihiriya.

An erect annual herb, stems stout, 30—75 cm tall, more or less quadrangular and branched above; leaves simple, opposite, 6.2—8.7 cm long, ovate or narrowly lanceolate, glabrous, tapering to base, much attenuate, very acute, rather thick, strongly 3-nerved, nearly or quite sessile; flowers numerous, large, 3.7—4.3 cm diam., brilliant blue, slightly irregular, bisexual in large, leafy, dichotomous, terminal cymes; sepals 5, fused, papery, winged at the back, segments lanceolate, very acuminate, wing rounded or narrowed at base; petals 5, fused, rotate, lobes oval or obovate-oval, usually very obtuse and contorted; stamens 5, inserted in the throat of the corolla, anthers large, 0.8—1.2 cm long, tapering upwards and opening by terminal pores; ovary superior, 2-locular with numerous ovules in each loculus, style long and curved, stigma capitate; fruit capsule septicidally dehiscent, 2-valved with numerous, minute, angular seeds.

Flowers from August to October and December to February.

**Illustrations.** Curtis, Bot. Mag. *pl.* 4423. 1849; Burmann, Thes. Zeyl. *pl.* 67. 1737; Herb. Peradeniya drawing.

**Distribution.** A very common and endemic herb. It grows in moist regions upto 4000 feet altitude.

**Ceylon.** North Central Prov., Ritigala, *Willis*, March 1905. Central Prov., *Thwaites* C.P. 38; Delwella, *Thwaites* C.P. 512, April 1863; Delgoda, *Lewis*, March 1919; Hakgala, *Willis*, March 1906; Demodara, *J. M. Silva*, April 1924.

**Uses.** The entire plant is used as a tonic and alterative for mild fevers.

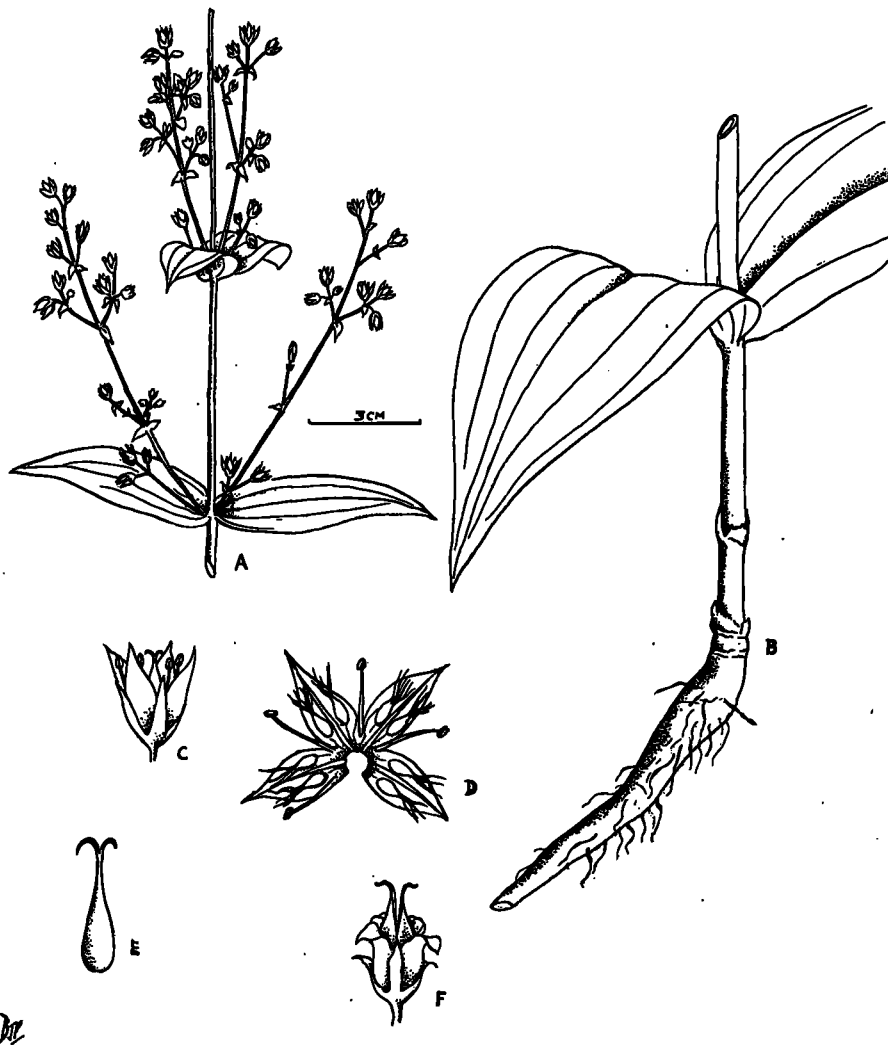


FIG. 227. *Swertia chirata*. A, apical portion of stem with leaves and inflorescences. B, base of stem and root. C, flower, lateral view. D, corolla of the flower opened out showing the honey-secreting glands and stamens. E, pistil. F, dehiscent fruit with persistent calyx and corolla. C—F, enlarged.

3. *Swertia chirata* Buch.—Ham. ex Wall. Cat. 4372. 1829. (Fig. 227).

*Gentiana chirayita* Roxb.—*Gentiana chirata* Wall.—*Gentiana floribunda* Don —*Agathodes chirata* D. Don—*Ophelia chirata* Griseb.

*Sinh.* Binkohomba, Hin-binkohomba; *Tam.* Nilavembu, Shirattakuchi; *Hindi* Charayatah; *Sans.* Anaryatikta, Ardhatikta, Bhunimaba, Chiratika, Chiratikta, Haima, Jvarantaka, Kairata, Kanditiktaka, Kiranta, Kirataka, Kiratatikta, Naditikta, Naipala, Nepalnimba, Nidrari, Ramasenaka, Sannipatha, Sutiktaka, Trinimba, Viktaka.

An erect herb with robust, usually branching stems 0.6—1.6 m high, terete except near the top; leaves opposite, almost sessile, broadly lanceolate, 10 cm long, 3.7 cm broad, acute; flowers regular, bisexual, about 1.2 cm diam. in paniculate or corymbose cymes; calyx and corolla 4-lobed, calyx segments lanceolate, acute, corolla lobed nearly to the base, greenish yellow tinged with purple, lobes acute each furnished near the base with two green honey-secreting glands fringed with long hairs; stamens 4, attached to the base of the corolla; ovary superior, unilocular, style short, stigma 2-lobed; fruit capsule sessile and oblong.

Flowers from September to November.

**Illustrations.** Wallich, *Pl. As. Rar.* 3: *pl.* 252; Bentley and Trimen, *Med. Plants*, *pl.* 183. 1880; Kirtikar and Basu, *Indian Med. Plants*, *pl.* 641B. 1933.

**Distribution.** Occurs in the temperate Himalaya in India from Kashmir to Bhutan, Khasia Hills and in Africa. It is not indigenous to Ceylon but it is cultivated.

**India.** Sikkim Himalaya: *J. D. Hooker; Treutler* 739, Sept. 1874; *Clarke* 25329B, Oct. 1870; *Kaysing, Clarke* 25068B, Oct. 1875; Darjeeling: *Clarke* 27614E, Sept. 1875; *Clarke* 27614F, Sept. 1875; *Clarke* 27614G, Sept. 1875. Ceylon. *Thwaites* C.P. 3723, probably an Indian specimen mixed with Ceylon plants.

**Composition.** Contains two intensely bitter substances—chiratin and ophelic acid, in addition to tannin, wax, a soft resin and sugar. It also contains another bitter substance, amarogetin.

**Uses.** A decoction or infusion of the plant is taken as a tonic, stomachic and febrifuge. It is a laxative and anthelmintic and useful for skin diseases. In India, it is used for liver disorders and in the treatment of cholera, while in Africa it is taken as a bitter tonic.



FIG. 228. *Brachiaria mutica*. A, plant. B, flower panicle. C, flower from behind glumes. D, base of lamina showing ligule. C—D, enlarged.

## 48. GRAMINEAE

1. *Brachiaria mutica* (Forsk.) Stapf in Prain Fl. Trop. Afr. 9: 526. 1919; Bor, Grass. Burma, 284. 1960. (Fig. 228).

*Panicum muticum* Forsk.—*Panicum barbinode* Trin.—*Panicum amphibium* Steud.—*Panicum molle* Griseb.—*Panicum pictigluma* Steud.—*Panicum purpurascens* Raddi.

*Engl.* Mauritius Grass, Water Grass; *Sinh.* Diyatanakola; *Tam.* Tanni-pillu.

A perennial grass with a stout stem 2—2.6 m long, ascending from a stout creeping base, leafy, internodes 7.5—15 cm long, nodes woolly; leaves 15—25 cm long, 1.2—1.6 cm broad, linear-lanceolate from a rounded pubescent base, finely acuminate, flat, thin, glabrous, faintly scaberulous, margins scabrid, sheath upto 20 cm long, loose, glabrous, margins ciliate, ligule a tomentose ridge; panicle 7.5—20 cm long, erect, pyramidal, compound rhachis, stout, smooth, angular, lower branches 12.5 cm long with many short spikes, upper branches 5—7.5 cm long, spiciform, rhachis of spike 1.3 mm broad, stout, dorsally compressed, glabrous or villous towards the base, margins ciliolate; spikelets very many, 2.5—3 mm long, crowded, secund, solitary, binate or ternate, rarely fascicled, shortly pedicelled, oval or ovoid, acute, glabrous, pedicel pubescent and with a few long white spreading hairs; flowers bisexual, glumes 4, palea usually as long as the glume, membranous; lodicules 2, cuneate; stamens 3, hypogynous, one at the base of the flowering glume and one opposite each vein of the palea; ovary superior, unilocular with a single, basal, erect ovule; grain free but tightly embraced by the hardened glumes and the palea.

*Illustrations.* Trinius, Sp. Gram. Ic. pls. 174 & 318; Desfontaines, Fl. Atlant. 1: pl. 11; Herb. Peradeniya, drawing.

*Distribution.* Occurs in marshes in India, Ceylon, Java, Africa and America. It was introduced to Ceylon as a fodder grass and now naturalized along water courses in the North Central and Western Provinces. Polonnaruwa, Muthurajawela, Negombo, Colombo, etc.

*India.* Pen. Ind. Orient. Herb. Wight 2039. Ceylon. Thwaites C.P. 899. Central Prov., Peradeniya, F. W. de Silva 467, June 1934. Western Prov., Colombo, Jowitt, Aug. 1905.

*Uses.* Used for fomentation of swollen rheumatic joints.

MEDICINAL PLANTS



FIG. 229. *Cymbopogon citratus*. A, plant with rhizome. B, leaf showing the lamina, sheath and ligule. C, panicle. D, raceme with spikelets and spatheole. E, bisexual flower dissected. F, male flower and grain.

2. *Cymbopogon citratus* (DC.) Stapf in Kew Bull. 1906, 357. 1906. (Fig. 229).

*Andropogon citratus* DC.—*Andropogon citriodorum* Desf.—*Andropogon roxburghii* Nees.

*Engl.* Lemon Grass; *Sinh.* Sera; *Tam.* Karpurappillu, Vasanappillu; *Hindi* Gandhatrina; *Sans.* Abichhatraka, Atigandha, Badhira, Badhiradhavnibodhana, Bhustrina, Bhutika, Bhutina, Chhatra, Gochhalaka, Guchhala, Guhyabija, Gundardha, Jambukapriya, Karenduka, Kutimbaka, Malatrinaka, Punsavighraha, Putigandha, Rohisha, Samalambi, Shringaroha, Sugandha.

A tall perennial herb throwing up dense fascicles of leaves from a sparingly branched rhizome, usually barren but occasionally giving rise to stout, erect 7—8-noded culms; leaf blades about 90 cm long, 1.6—1.8 cm broad, linear, long attenuated towards the base, tapering to a setaceous point at apex, very firm, glaucous green, glabrous, midrib stout below and whitish on the upper side, ligules short; leaf sheaths terete, tightly clasping each other, 10—30 cm long, glabrous and smooth, cinnamon coloured, sheaths of the culms shorter than internodes, finely pubescent; spatheate panicle decompound, loose, 30—60 cm long, nodding, internodes 4—6 rapidly decreasing in length upwards; spathes and spatheoles narrow-lanceolate, acuminate, reddish to rich russet in colour; peduncles glabrous, racemes 2-nate, spreading at right angles tinged with dull purple, loosely villous; homogamous pair of spikelets, one at the base of the sessile raceme, its sessile member slightly differing from the fertile one; fertile spikelet linear, reddish, glabrous, callus short, minutely bearded; involucreal glumes subequal, lower floral glumes hyaline, linear-oblong to linear, ciliolate above, shorter than involucreal glumes; palea absent, lodicules 2, minute, glabrous; stamens 3, laterally exerted, styles terminal, grain oblong.

**Illustration.** Kirtikar and Basu, Indian Med. Plants, pl. 1018. 1933.

**Distribution.** This herb is known only in cultivation. It is probably of Indian origin and now widely distributed in both hemispheres.

**Ceylon.** Uva Prov., Bandarawela, *Jowitt*, May 1906. Southern Prov., Labuduwa, *Simpson* 8408 July 1931.

**Composition.** This grass yields an aromatic oil which contains citral. The leaves and roots contain traces of hydrocyanic acid. An insulin-like principle which is neither an alkaloid nor a glucoside has been isolated from the plant.

**Uses.** Lemon grass oil is a valuable remedy for flatulent and spasmodic ailments of the bowels, gastric irritability and in cholera allaying and arresting vomiting. Used externally, it is an excellent embrocation for chronic rheumatism, sprains and other ailments. In Ghana the leaves are boiled in water and drunk for fever.

The oil is used for soaps and medicines. Citral, in the oil, is a valuable flavouring agent in perfumes, bath salts, cosmetics, etc.

In the Philippines, the leaves are used to flavour wines, sauces and as a spice. A decoction of the root is taken internally, as a diuretic.



FIG. 230. *Cymbopogon nardus*. A, branching caudex. B, panicle. C, leaf. D, a sessile spikelet and a pedicelled one. E—G, glumes. H, stamens. I, ovary, styles and stigmas. J, pedicelled male spikelet.

3. *Cymbopogon nardus* (Linn.) Rendle in Cat. Welw. Afr. Pl. 2: 155. 1899. (Fig. 230).

*Andropogon nardus* Linn.—*Andropogon ampliflorus* Steud.

*Engl.* Citronella Grass; *Sinh.* Hin-pengiri, Lena-batu-pengiri; *Tam.* Kavatampillu, Kamachipillu, Karpurapillu, Mandappillu, Sunnaripillu, Vasanapillu; *Hindi* Ganjni, Ganjnikaghas, Pustburu.

A perennial montane grass; stems 60—150 cm high, erect from a stout, woody base, which sometimes form a caudex nearly 2.5 cm diam., emitting dense masses of long, stout fibrous roots; leaves 30 cm long, 0.4—2.5 cm broad, linear, tapering from the middle to a filiform tip and downwards to a narrow base, rigidly coriaceous, more or less scabrid on both surfaces and margins, glaucous beneath, midrib broad and white above, slender and green beneath, sheaths shorter than the internodes, terete, coriaceous, smooth, mouth with rounded auricles, ligule ovate, scarious, ciliolate, panicle very variable, elongate, interrupted, leafy, profusely flowered, contracted or effuse, general and proper bracts 1.2—2.5 cm long, narrowly lanceolate, acuminate, glabrous, coriaceous, margins not membranous; spikes binate on short pedicel, unequal, often at length deflexed; internodes much shorter than spikelets and with the compressed pedicels of upper spikelets copiously and villously ciliate, deeply hollowed; spikelets few, binate, a sessile bisexual and pedicelled male; sessile spikelet 0.3—0.36 cm long, oblong-ovate, obtuse or subacute, callus short, bearded, glumes 4, palea absent or very minute, ciliate, lodicules 2, cuneate, retuse with one angle produced into a tooth; stamens 3, anthers narrow; ovary superior, unilocular with a basal erect ovule, styles and stigmas short and laterally exerted; pedicelled spikelet oval-oblong or obovoid, glabrous, glumes 4, anthers as in the sessile spikelet; grain fusiform enclosed in and adnate to a membranous pericarp.

There are two forms of this species, the cultivated form and a wild form referred to as "Maana" grass of the patanas.

*Illustrations.* Bentley and Trimen, *Med. Plants*, pl. 297. 1880; Kirtikar and Basu, *Indian Med. Plants*, pl. 1017. 1933.

*Distribution.* Occurs in the hotter parts of India, Ceylon, Burma, Malay Peninsula, Africa and Australia. In Ceylon, it is often cultivated in the southern province and covers a considerable area in the central province up to an elevation of 2000 to 4000 feet.

*Ceylon.* Uva Prov., Bandarawela, *Jowitt*, Nov. 1910.

*Composition.* Leaves on steam distillation yield the citronella oil of commerce. It contains geraniol and citronellal.

*Uses.* Citronella oil is used as a rubefacient. It is a stimulant carminative, antispasmodic and diaphoretic. The roots are diuretic, sudorific and antiperiodic.

It is a mosquito repellent and is used in perfumery and soap-making. In South Africa, this grass is used as a vermifuge, febrifuge and a remedy for colds.



FIG. 231. *Cymbopogon polyneuros*. A, panicle with bracts and spikes. B, spike.

4. *Cymbopogon polyneuros* (Steud.) Stapf in Kew Bull. 1906, 361. 1905. (Fig. 231).

*Andropogon polyneuros* Steud.—*Andropogon versicolor* Nees—*Andropogon schoenanthus* subsp. *genuinus* var. *versicolor* Hack.—*Cymbopogon versicolor* (Nees) Wats.

*Engl.* Geranium Grass, Delft Grass; *Sinh.* Pengiri; *Tam.* Sakanarupillu; *Hindl* Bujina, Mirchiagand, Musel, Palakhari, Rohisha, Rousaghas, Saundhiya; *Sans.* Bhuti, Bhutika, Devajagdha, Dhupagandhika, Dhyama, Dhyamaka, Katrina, Paura, Putimugdala, Rohisha, Rohishatrina, Saugandhika, Shyamaka, Sugandhatrinashika, Sushitala.

A perennial grass; stems 60–90 cm high, rather slender, erect or ascending from a woody base, leafy upwards, simple or branching nodes glabrous; leaves 15–25 cm long, 0.4–0.8 cm broad, narrowly linear-lanceolate, tip capillary, flat, thinly coriaceous, quite smooth on both surfaces, glaucous beneath, margins faintly scaberulous, base narrow and rounded; sheaths smooth, glabrous, mouth auricled, ligule ovate, scarious; panicle solitary, leafy, narrow, interrupted, of scattered or crowded bracteate fascicles of spikes; bracts lanceolate, spathiform, glabrous, proper bracts as long as the spikes or longer, green or coloured; spikes unequal in length, the longest of 4–6 internodes and the shorter ones of 3–4 internodes much shorter than spikelets; spikelets binate consisting of a sessile and a pedicelled spikelet; sessile spikelet in the upper part of the spike bisexual, 0.4 cm long, lanceolate, glumes 4; palea minute, ovate; lodicules 2, minute, cuneate; stamens 3, anthers linear; ovary superior, unilocular with a single basal ovule, styles 2 terminated by feathery penicillate stigmas; fruit adnate to a membranous pericarp; sessile spikelets in the lower part of the spike are shorter and male; pedicelled spikelets male, narrowly oblong, glabrous, glumes 3, anthers and lodicules as in the upper sessile spikelets.

**Illustration.** Kirtikar and Basu, *Indian Med. Plants*, pl. 1016. 1933.

**Distribution.** Occurs in India, Ceylon, Africa and China. In Ceylon, it grows in the lower montane zone especially in the dry patanas and in the more elevated areas in the Central Province; Uva, Hakgala, Palugama, etc., right down to Colombo.

**Ceylon.** Northern Prov., Talaimannar, *J. M. Silva*, July 1916. Eastern Prov., Trincomalee, *Fergusson* 308, Dec. 1885. Central Prov., Hakgala, *Trimen* 21, March 1884. Uva Prov., Palugama, *J. M. Silva*, June 1927.

**Uses.** A decoction of this grass is given as a febrifuge. The oil distilled from the plant is applied for rheumatism and neuralgia. It is a very good pasture grass.



FIG. 232. *Cytodon dactylon*. A, portion of the stem with tufted roots and panicle. B, panicle. C, portion of spike. D, base of leaf showing the ligule. E, grain.

5. *Cynodon dactylon* (Linn.) Pers. Syn. Pl. 1: 85. 1805. (Fig. 232).

*Cynodon erectus* J. S. Presl. ex C.B.—*Cynodon linearis* Willd.—*Cynodon maritimus* H. B. & K.—*Cynodon occidentalis* Willd. ex Steud.—*Cynodon portoricensis* Willd. ex Steud.—*Chloris cynodon* Trin.—*Fibichia umbellata* Koel.—*Dactylon officinale* Vill.—*Digitaria dactylon* (Linn.) Scop.—*Digitaria littoralis* Salisb.—*Digitaria maritima* (H.B.K.) Spreng.—*Panicum dactylon* Linn.—*Agrostis burmudiana* Tussac ex Kunth—*Agrostis filiformis* Koen. ex Kunth—*Capriola dactylon* (Linn.) O. Kuntze—*Paspalum dactylon* (Linn.) Lamk.—*Milium dactylon* (Linn.) Moench—*Digitaria stolonifera* Schrad.—*Cynodon tenuis* Trin.

*Engl.* Bahama Grass, Bermuda Grass, Couch Grass, Doub Grass; *Sinh.* Durva, Haritali, Hin-etora, Ruha; *Tam.* Arugampillu, Hariali; *Hindi* Dhoboghas, Dub, Dubra, Durba, Kabbar, Kalighas, Khabbal, Romghas; *Sans.* Amari, Amrita, Ananta, Anuvallika, Asitalata, Bahuvirya, Bhargavi, Bhutahantri, Dhurta, Dhurva, Durmara, Gauri, Guna, Harasallika, Harita, Haritali, Jaya, Kachharuha, Mahaushadhi, Mahavari, Mangala, Nanda, Niladurva, Ruha, Sahsravirya, Saumya, Shadvala, Shambhavi, Shanta, Shashpa, Shataparva, Shatagranthi, Shatavalli, Shatmula, Shita, Shitakumbhi, Shitala, Shiva, Shiveshta, Shyama, Tiktaparva, Vamini, Vijaya.

A perennial, glabrous grass with slender, prostrate, widely creeping stems forming matted tufts, with slender erect or ascending flowering branches 7.5–30 cm high; leaves simple, narrow, flat, 2.5–7.5 cm long, 1.2–8 mm broad, narrowly linear or lanceolate, acuminate, soft, smooth, sheaths of the lower short, of the upper long, ligule of a few hairs; spikes 2–5, pale green, radiating from the top of a very slender peduncle, 3.7–5 cm long, rhachis compressed and angled, scaberulous; spikelets minute, 1.6–2 mm long and as broad, 1-flowered, sessile, unilateral, biseriate and imbricate, slender, not articulate at the base, laterally compressed; glumes 3 awnless, third glume articulate at the base by a minute glabrous callus, 3-veined with margins incurved, palea nearly as long as the glume, linear-oblong, 2-keeled; lodicules 2, very minute; stamens 3, hypogynous, one at the base of the flowering glume and one opposite each vein of the palea, anthers short; ovary superior, glabrous, unilocular with a single, basal, erect ovule, styles short, stigmas laterally exerted, short, plumose; grain free in the glume, fusiform.

**Illustrations.** Burmann f. Fl. Ind. pl. 10, f. 2. 1765; Duthie, Ill. Ind. Fodder Grasses, N.W. India, pl. 33. 1886; Kirtikar and Basu, Indian Med. Plants, pl. 1020. 1933; Bor, Grass. Burma, pl. 52. 1960.

**Distribution.** Indigenous to the tropics and subtropics of both hemispheres. In Ceylon, it is common in the dry zone, along roadsides and sea coast and other warm parts of the Island. It is drought resistant and soil binding, used in lawns and as a fodder grass.

**Ceylon.** Negombo, Jowitt, Jan. 1907; Murukkan, J. M. Silva, Oct. 1917; Polonnaruwa, Mueller-Dombois and Comanor 17072607, July 1967.

**Composition.** Contains starch, cynodin and triticine. It develops hydrocyanic acid if allowed to wilt under certain conditions. It is rich in vitamin C.

**Uses.** The expressed juice is an astringent and is applied to cuts and wounds to stop bleeding. It is a diuretic and used in dropsy and anasarca, chronic diarrhoea and dysentery, epilepsy, hysteria and insanity. Its roots are used for chronic gleet and secondary syphilis. In Madagascar, the plant is applied topically for gout and rheumatic affections: In Africa, a decoction of the root is a remedy for indigestion and used as a blood purifier. It is also used as a lotion to bathe sores and swellings. In the Philippines, a decoction of the root is used as a diuretic and pectoral.



FIG. 233. *Desmostachya bipinnata*. A, plant with inflorescence. B, portion of spike. C, flower.

6. *Desmostachya bipinnata* (Linn.) Stapf in Dyer Fl. Caps. 7: 632. 1900. (Fig. 233).

*Eragrostis cynosuroides* (Retz.) P. Beauv.—*Poa cynosuroides* Retz.—*Leptochloa bipinnata* (Linn.) Hochst.—*Briza bipinnata* Linn.—*Cynosurus durus* Forsk.—*Uniola bipinnata* Linn.—*Pogonarthria bipinnata* (Linn.) Chiov.—*Stapfiola bipinnata* (Linn.) O. Ktze.

*Sinh.* Kusatana; *Hindi* Dab, Davdi, Durva.

A tall perennial grass branched from base with a stout, creeping rootstock, stolons very stout, covered with shining sheaths; stems 30—90 cm high, tufted, smooth, erect, stout; leaves many, basal leaves fascicled, about 50 cm long, 1 cm broad at the base, rigid, acuminate with filiform tips and hispid margins, sheaths glabrous, ligule a hairy line; flowers irregular, bisexual in erect narrowly pyramidal or columnar, often interrupted panicles 15—45 cm long, 1.2—3.7 cm broad, rachis puberulous, branches many, short, about 2.5 cm long, crowded and clothed from the base with sessile imbricating spikelets; spikelets secund, biseriate and crowded, deflexed, pale brown, rather shining, 1.2 cm long, up to 30-flowered; involucre glumes very unequal, floral glumes ovate, palea shorter than its glumes with two minutely scabrid keels, lodicules 2, small and fleshy; stamens 3, anther 0.8 mm long; ovary unilocular with an erect basal ovule, styles distinct and stigmas plumose and laterally exerted; grain obliquely ovoid, laterally compressed, obscurely trigonous.

Flowers in December.

**Illustration.** Duthie, Fodd. Grass. N. India, *pl.* 40. 1886.

**Distribution.** Occurs in India, Persia, Arabia, Syria and North Africa, but not in Ceylon.

**India.** Assam A. C. Chatterjee, May 1902.

**Uses.** The culms of this grass possess diuretic and stimulant properties. It is prescribed with other drugs as a remedy for dysentery, menorrhagia, etc. It is also used in the preparations for the treatment of gonorrhoea, syphilis, poisoning caused by snake-bite and dogbite, eczema, leucoderma and bleeding piles.

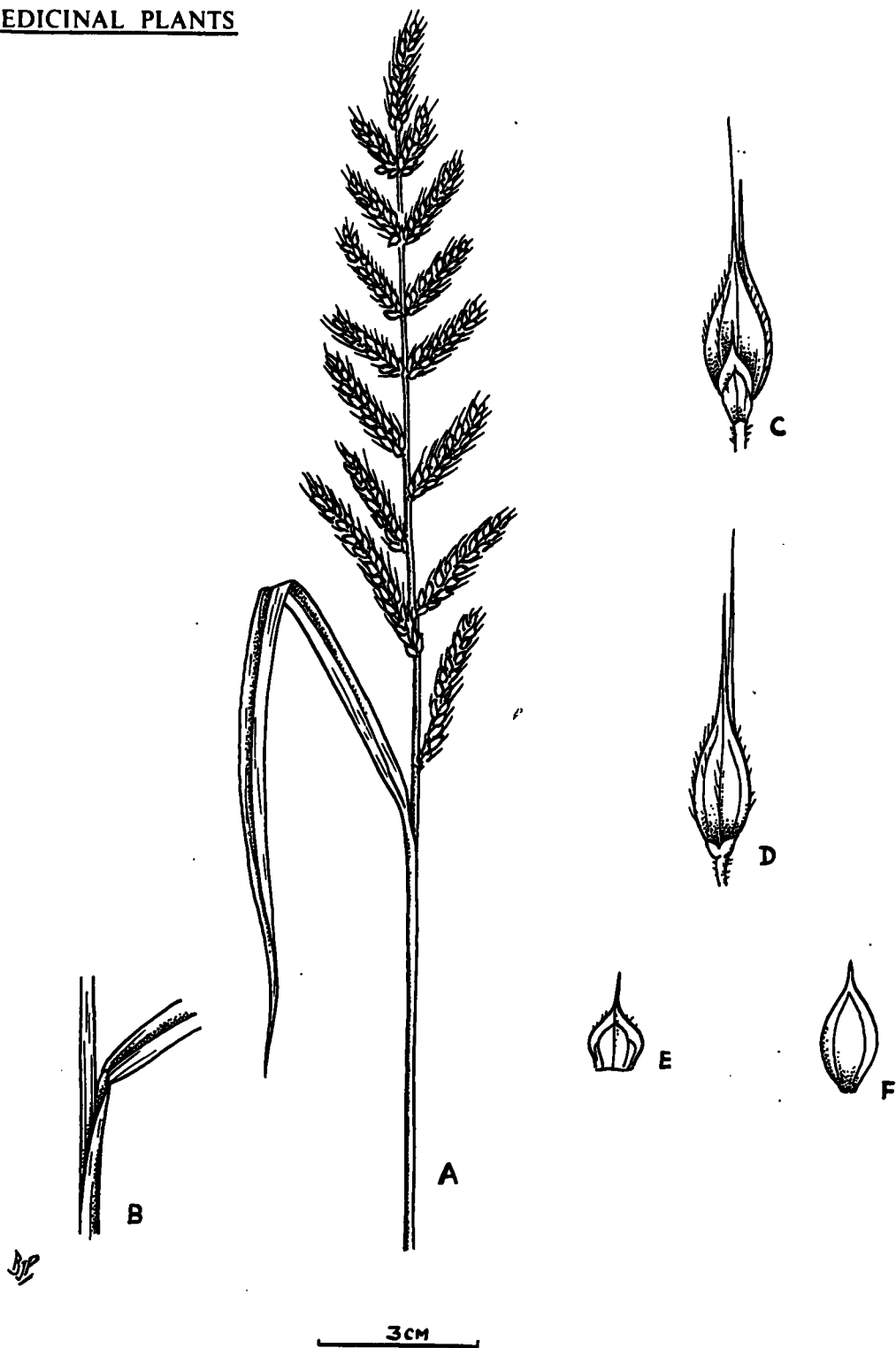


FIG. 234. *Echinochloa crus-galli*. A, inflorescence. B, portion of the stem and base of leaf showing the ligule. C, front view of the spikelet. D, ventral view of the spikelet. E, lower glume. F, fruiting glume with its palea.

7. *Echinochloa crus-galli* (Linn.) Beauv. Ess. Agrost. 161. 1812. (Fig. 234).

*Panicum crus-galli* Linn.—*Panicum hispidulum* Retz.—*Panicum grossum* Salisb.—*Milium crus-galli* (Linn.) Moench—*Pennisetum crus-galli* Baumg.—*Echinochloa hispidula* Nees.

*Engl.* Cockspur Grass, Barnyard Grass; *Sinh.* Wel-marukku, Marathu; *Tam.* Kutiraival-pillu; *Hindi* Samak, Sanwak; *Sans.* Jalsamoka.

An annual grass with a stem 30—90 cm high, simple or branched, stout or slender, erect or base decumbent, leafy, internodes up to 15 cm long, nodes glabrous or hairy; leaves 15—25 cm long, narrowly linear-lanceolate, up to 1.2 cm broad, finely acuminate, smooth or scaberulous, flat, mid vein very stout, sheaths 5—15 cm long, loose glabrous, ligule a semilunar glabrous or hairy ridge; panicle 10—20 cm long, erect or drooping, rhachis stout, angled, glabrous, smooth or scaberulous, usually bearded at the insertion of the spikes; spikes 1.2—7.5 cm long, green or purplish, gradually shorter upwards, longer than the internodes, sessile, secund, suberect or spreading, rhachis stout, angular, much narrower than the spikelet, ciliate with scattered white bristles; spikelets secund, densely packed in 3—5 series, 2.5—3 mm long (including the awn), sessile, turgidly ovoid, hispid with unequal, often tubercle-based bristles; glumes 4, third glume abruptly narrowed into a stout scabrid awn 0.4—1.2 cm long; flowers bisexual, palea usually as long as the glume, membranous; lodicules 2, cuneate; stamens 3, hypogynous, one at the base of the flowering glume and one opposite each vein of the palea; ovary superior, unilocular with a single, basal, erect ovule, styles 2, distinct, stigmas exerted near the top of the spikelet; grain free but tightly embraced by the hardened glume and palea, ovoid, acute and smooth.

**Illustrations.** Duthie, Indig. Fodd. Grass. N.W. India, *pl.* 5. 1886; Herb. Peradeniya, drawing.

**Distribution.** Occurs throughout tropical Asia and temperate regions. In Ceylon, it is a very common weed in rice fields, swamps in the low and mid-country elevations and in the lower montane zone.

**India.** Maisor and Carnatic, *G. Thomson*. Ceylon. Uva Prov., Bandarawela, *Jowitt*, June 1904. Indo-China. Hue and vicinity, *Squires* 131, Jan-May 1927.

**Composition.** This plant contains an alkaloid.

**Uses.** Used to check haemorrhage and is prescribed for diseases of the spleen.



FIG. 235. *Eleusine coracana*, plant with roots, leaves and inflorescence.

8. *Eleusine coracana* (Linn.) Gaertn. Fruct. 1: 8. 1789. (Fig. 235).*Cynosurus coracanus* Linn.

**Sinh.** Kurahan, Kurakkan; **Tam.** Kayur, Kelvagaru; **Hindi** Makra, Mandua, Marua, Rotka; **Sans.** Bahupatraka, Bhuchara, Guchha, Kadhina, Kanisha, Lanchhana, Maliyassa, Narttaka, Nrityakunda, Ragi, Raji, Rajika.

An annual grass, 60—120 cm high with long leaves often overtopping the stem, 5—7 mm broad with compressed loose sheaths and ligule of hairs; spikes 4—7, interrupted with their ends frequently incurved, rachis often pubescent at base, somewhat 3-gonous; spikelets much congested, awnless, 3—6-flowered; flowers bisexual, involucrel glumes 2, subequal, persistent, membranous, strongly keeled, flowering glumes similar, variable in size; palea slightly shorter than glumes, 2-keeled, keels winged; lodicules 2, minute, cuneate; stamens 3; ovary superior, glabrous, styles slender, distinct, stigmas plumose, laterally exerted; grain oblong or globose, pericarp loose, delicate, breaking up irregularly, seed globose, dark brown, smooth with a depressed black hilum and slightly flattened on one side.

**Illustrations.** Gaertner, Fruct. 1: *pl.* 1, *f.* 11. 1789; Panz. in Muench. Denkschr. 4: *pl.* 8. 1814; Duthie, Field and Gard. Crops, *pl.* 28.

**Distribution.** Cultivated in the tropical regions of the Old World, India, Ceylon and other eastern countries.

**India.** Plan. Ganget. Inf. *T. Thomson Ceylon. Thwaites C.P.* 938. Uva Prov., Jowitt, July 1904.

**Composition.** The seed of this grass contains eleusin, an alcohol soluble protein and vitamins.

**Uses.** The grain is the main source of food among cultivators when rice is in short supply. Medicinally, it is used as an astringent.

In South Africa, it is used with *Plumbago zeylanica* L. as an internal remedy for leprosy. The juice of the leaves is given to women at childbirth. In Indo-China, it is used as a diaphoretic and a remedy for liver diseases, while in Sumatra it is given as a vermifuge. It is a popular diuretic among the Vietnamese. The Indonesians eat it as a vegetable. In Goa, the flour is used as a remedy for chest conditions. It is grown in South Africa and Southern Rhodesia for the millet which produces a kind of beer, while in the U.S.A. and India the popular 'ragi' flour is obtained from the powdered seed.



FIG. 236. *Eleusine indica*. Plant with leaves, roots and flower spikes.

9. *Eleusine indica* (Linn.) Gaertn. Fruct. 1: 8. 1788. (Fig. 236).*Cynosurus indicus* Linn.

*Engl.* Goose-grass; *Sinh.* Belathana, Walkurakkan; *Tam.* Tippa-ragi; *Hindi* Malankuri.

An annual grass with tufted, short, erect, slightly compressed, glabrous stems 30—60 cm high and strong root fibres; leaves distichous, as long as the stem, 3—4 mm broad, narrowly linear, flat, rather flaccid, glabrous or sparsely hairy, margins nearly smooth, base not contracted, sheath compressed, mouth not auricled, ligule a ridge of hairs; spikes 2—7, pale green, digitate with sometimes 1—2 detached, 5—12 cm long, suberect or slightly recurved, axils glandular, and hairy, rhachis slender, dorsally flattened, smooth, margins minutely scaberulous, bearing 2 or more seriate spikelets from base to tip; spikelets very variable in size, 2—4 mm long, 3—5 flowered, sessile, pointing forwards; glumes rather membranous, flowering glumes ovate, keels of palea faintly scabrid; lodicules 2, very minute; stamens 3, hypogynous, one at the base of the flowering glume and one opposite each vein of the palea, anthers short, of two parallel cells; ovary superior, unilocular with a single, basal, erect ovule, styles 2, short, free, stigmas slender, laterally exerted, feathery; grain small, oblong, obtusely trigonous, pericarp loose, seed tubercled in wavy, concentric ridges.

**Illustrations.** Duthie, Fodd. Grass. N. India, *pl.* 69. 1887; Senaratne, Grasses of Ceylon, *pl.* 9. 1956.

**Distribution.** Occurs throughout the warm countries of the Old World including India, Ceylon, Malaya, Burma, etc. It is a very common weed in Ceylon in lawns and by the roadside.

**Ceylon.** *Thwaites* C.P. 937; Polonnaruwa, *Senaratne* 3520; June 1943; Peradeniya, *Jowitt*, Sept. 1910; Talawakelle, *Willis*, May 1906.

**Composition.** This grass contains an alkaloid.

**Uses.** Useful for sprains and dislocations. It is considered diaphoretic and antipyretic in Cambodia and is used for liver complaints. In Guiana, a decoction of the plant is given to children for convulsions and in the Philippines as a diuretic and for dysentery. In Malaya, the juice of the leaves is given to women after childbirth to bring about the discharge of the placenta. In Central Sumatra, it is used as an anthelmintic. The Africans use it as a remedy for cough, haemoptysis and dysentery, while in Brazil it is considered anti-malarial and anti-diarrhoeic.

This grass causes poisoning of livestock by the release of hydrocyanic acid during dry periods.



FIG. 237. *Heteropogon contortus*. A, plant with leaves and flower spikes. B, upper sessile spikelet.

10. *Heteropogon contortus* (Linn.) Beauv. ex Roem. & Schult, Syst. 2: 836. 1817. (Fig. 237).*Andropogon contortus* Linn.

*Sinh.* Ithana, Kusadala, Laderuthana; *Tam.* Arukkam-pillu, Elmada, Durjara; *Hindi* Sarol, Shurighas, Shurval; *Sans.* Gandha, Golomi.

A perennial grass with densely tufted, erect, slender stems compressed towards the base; leaves 15—30 cm long, 2.5—5 mm broad, linear, shortly and abruptly acuminate, flat, suberect, rigid, sparingly ciliate towards the base; sheaths compressed, keeled, glabrous, the mouth shortly auricled; ligule short, truncate, ciliolate; racemes 3.8—7.5 cm long, spikelets binate, closely imbricating the lower 2—6, sessile, awnless, male or neuter, the upper sessile spikelets narrow, long-awned, female; female spikelets 6 mm long, callus bearded with reddish brown hairs, involucre glumes 2, floral glumes 2, the upper floral glume represented by the base of a hirsute awn, palea small, lodicules reduced, stamens 3, rudimentary, stigmas exerted terminally or laterally; grain linear slightly compressed; pedicelled spikelets male or neuter, much longer than sessile, pedicel very short often twisted; involucre glumes 2, the upper hispid with long, bulbous-based hairs, floral glumes 2, stamens 3.

**Illustration.** Duthie, Indig. Fodd. Grass. N.W. India, *pl.* 19. 1886.

**Distribution.** Occurs in the tropical and subtropical regions including the Mediterranean countries.

**Ceylon.** North Central Prov., Dambulla, *Thwaites* C.P. 69, March 1863. Uva Prov., Bandarawela, *Jowitt*, June 1902; Ambale Patana, *Senaratne* 2885, July 1939. Southern Prov., Ruhuna National Park, *Mueller-Dombois* 67120802, Dec. 1967; *Fosberg* 50294, April 1968.

**Uses.** A specific for asthma and other bronchial diseases. Internally, it acts as a cholagogue, diuretic, and diluent and is useful in jaundice, pyelitis, cystitis, gonorrhoea and strangury. Externally, it is used along with other ingredients for dressing of wounds and ulcers and to reduce swellings.



FIG. 238. *Hordeum vulgare*, apical portion of plant with an ear of grain.

11. *Hordeum vulgare* Linn. Sp. Pl. 84. 1753. (Fig. 238).*Hordeum sativum* Pers.

*Engl.* Barley; *Sinh.* Yawa; *Tam.* Barliyarisi; *Hindi* Jau, Jav, Jawa, Suj; *Sans.* Akshata, Dhanyaraja, Divya, Hayapriya, Hayeshta, Kanchuki, Medhya, Pavitradhanya, Praveta, Shaktu, Shvetashunga, Sitashuka, Sitrishuka, Tikshnashuka, Turagapriya, Yava, Yavaka.

Erect, stout annual, 0.5—1 m tall, culms simple, glabrous or scabrous beneath the spike; leaves 0.6—1.8 cm broad, rather short, long-tapering to a point; sheaths loose, glabrous, ligules short and thin; spike terminal, 7.5—10 cm long, densely flowered, erect with many stout very long, erect, rough beards that overtop the spike, rhachis not disarticulating; spikelets 1-flowered, sessile, 3 together abreast at each node of the jointed rhachis, alternating, one or all of the spikelets fertile, the lateral ones sometimes reduced to awns; glumes narrow, short-awned, lemma longer with very flat awn, 7.5—15 cm long; stamens 3, anthers versatile; ovary superior, unilocular with a single basal ovule, stigmas 2 plumose; grain tightly enclosed in the lemma and the palea.

**Illustrations.** Host, Gram. Austr. 3: pl. 34. Kirtikar and Basu, Indian Med. Plants, pl. 1023. 1933.

**Distribution.** Barley is widely cultivated in temperate regions including North India. In Ceylon, it had been cultivated at various times in the upper montane zone.

**Ceylon.** N'Eliya, Jowitt, Jan. 1903.

**Composition.** Barley (grain) contains starch and proteins. The leaves contain an alkaloid, gramine and the roots, hordenine and N-methyl tyramine.

**Uses.** Barley is a demulcent of easy digestion. The germinated barley is used in China and Malaya as a peptic, stomachic, demulcent and expectorant. In Punjab, the ashes of the stalk are prescribed for indigestion.



FIG. 239. *Imperata cylindrica*. A, plant. B, panicle of flowers on a long stalk. C, spikelet, enlarged.

12. *Imperata cylindrica* (Linn.) Beauv. var. *major* (Nees) C.E. Hubb. in C. E. Hubb. and Vaughan, Grass. Maurit. and Rodriguez, 96. 1940. (Fig. 239).

*Imperata arundinacea* Cyril—*Imperata cylindrica* (Linn.) Beauv.—*Imperata koenigii* Beauv.—*Imperata cylindrica* var. *koenigii* Dur. and Schinz.—*Imperata conferta* (Presl.) Ohwi.—*Saccharum koenigii* Retz.—*Saccharum confertum* Presl.

*Sinh.* Illuk, Illup, Digupath, Tharana; *Tam.* Tappan-pillu; *Sans.* Iksurapathraka.

An erect, perennial grass with a stoloniferous often creeping rootstock, culms 15—100 cm high, slender to moderately stout, 1—3-noded; leaves 15—45 cm long, 3—8 mm broad, tapering from the middle to a finely acuminate tip and to a narrow, often ciliate base, smooth above, scaberulous beneath and on the margins, sheaths glabrous or with the margins ciliate, bearded at the mouth, the upper sheaths more often long-bearded at the nodes with silky hairs; ligule truncate, 0.5—1 mm long; panicles spike-like, 7—20 cm long, silvery white with dark purple anthers and stigmas; spikelets 3—4 mm long, the hairs about 10 mm long; glumes 2, membranous, subequal, 3—7-nerved; lemmas 2, hyaline, nerveless, erose and ciliate; anthers 2, 2—3 mm long on slender filaments.

*Illustration.* MacMillan, Trop. Planting and Gardening, p. 451. 1956.

*Distribution.* An obnoxious weed growing in tropical and warm temperate regions of Asia, Australia and Africa. It occurs all over the island in Ceylon, in waste land.

*Ceylon.* *Thwaites* C.P. 968. North Western Prov., Kalpitiya, *Trimen's Collector* 9, Aug. 1883; Negombo, *Simpson* 7919, April 1931. Central Prov., Peradeniya, *Livera*, Jan. 1926; Lahugala, *Mueller-Dombois and Comanor* 67072535, July 1967.

*Uses.* A diuretic and diluent and is useful in acute and chronic pyelitis, cystitis, gonorrhoea and strangury. The rhizomes are used in decoction to relieve retention of urine and passing of blood along with the urine.

The leaves are used for thatching and paper making.

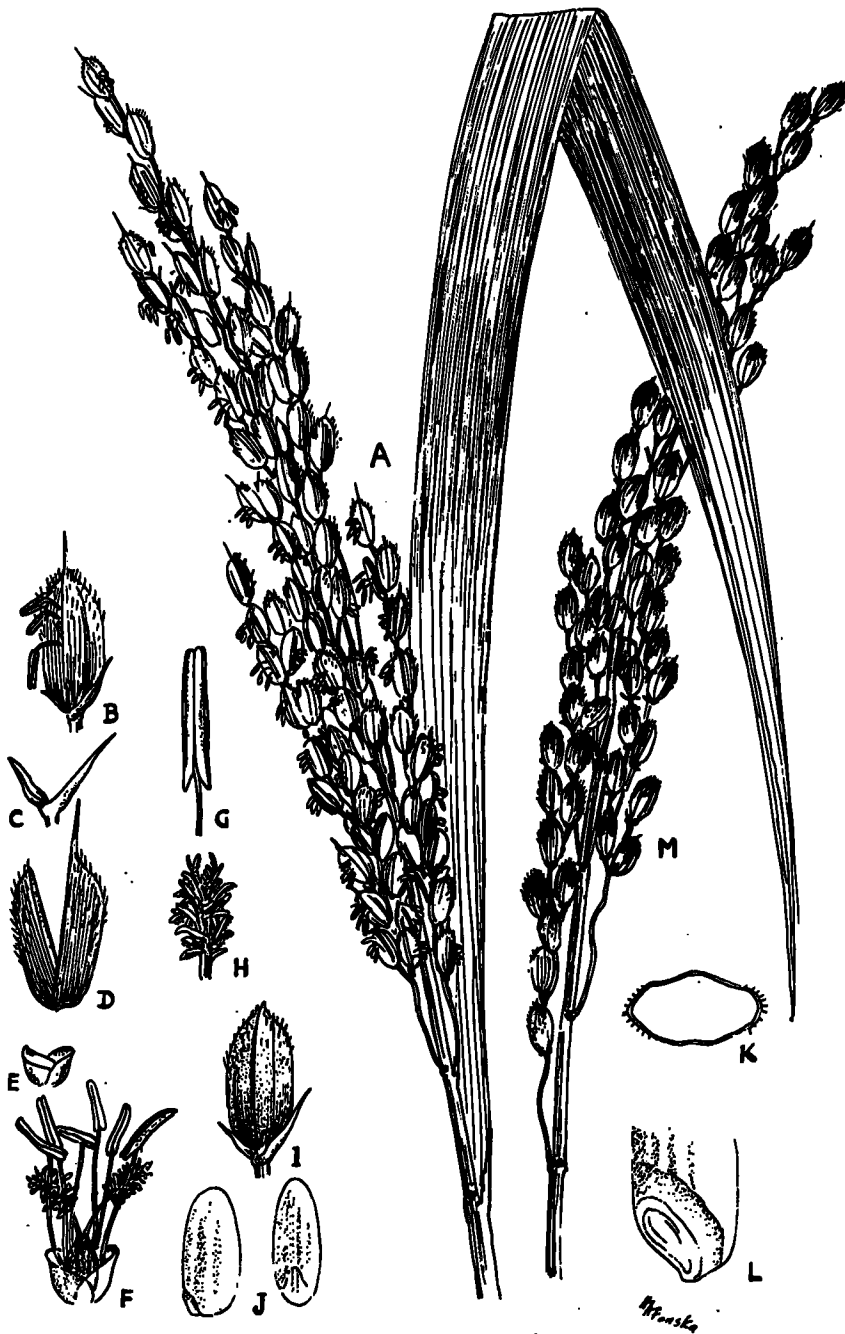


FIG. 240. *Oryza sativa*. A, panicle with the upper leaf. B, external view of spikelet. C, glumes. D, paleas. E, lodicules. F, flower showing stamens and pistil. G, anther. H, stigma. I, grain enclosed in the paleas. J, grain with paleas removed. K, transverse section of fruit. L, longitudinal section of seed showing the embryo. M, ear of grain.

13. *Oryza sativa* Linn. Sp. Pl. 333. 1753. (Fig. 240).

*Engl.* Paddy, Rice; *Sinh.* Goyan (plant), Hal (polished grain), Wee (unpolished grain with husk), Uruvi, Elwi (hill var.); *Tam.* Arishi, Arisi, Nelli; *Hindi* Chaval, Dhan; *Sans.* Dhanya, Nivara, Shali, Tandula, Vrihi.

A tall, annual grass; stem 0.6—3 m tall, erect or with a long stout creeping or floating base rooting at nodes, internodes long, smooth, nodes glabrous; leaves simple, alternate, 30—60 cm long, 0.6—0.8 cm broad, linear, acuminate, scabrid on both surfaces and on margins, base narrow, sheath 10—15 cm long, loose, smooth, mouth with ciliate auricles, ligule long upto 1.8 cm, lanceolate, bifid or bipartite; panicle terminal, 15—37 cm long, at first erect, afterwards drooping, loosely branched, peduncle long, smooth, rachis rather stout, angled or grooved, branches alternate or lower ones fascicled and rarely spreading, 5—10 cm long, flexuous, slightly rough; spikelets 1-flowered, 0.6—0.8 cm long, erect, sessile or very shortly pedicelled; glumes 2, very small, paleas 2, equal about three or four times the length of the glumes, the lower palea somewhat gibbous above, blunt, acute or terminating in a sharp awn articulating at base, the upper palea 3-veined, coriaceous with membranous margins; beneath the palea, the rachis is expanded into a small knob or callus; lodicules 2, collateral, thick, fleshy, entire or 2-lobed; stamens 6, hypogynous, anthers exerted, linear, versatile; ovary superior, unilocular with a basal ovule, styles 2, short, stigmas with rough spreading hairs on all sides; grain oblong, angular enclosed in the persistent paleas, which however are not adherent to it, pericarp very thin, adherent to testa.

**Illustrations.** Duthie, *Field and Garden Crops*, pl. 4; Senaratne, *Grass. Ceyl.* pl. 4. 1956.

**Distribution.** A plant cultivated for its grain in most tropical and subtropical countries. In Ceylon, it is cultivated from sea level to about 4000 feet altitude. A wild variety occurs towards the north and east.

**Ceylon.** Uduwila, *Molegoda*, Feb. 1914. **Burma.** *McLelland*. **Philippine Islands.** Sulu Prov., Tawitawi, *Ramos and Edano* 44051, July—Aug. 1924.

**Composition.** Starch is the main constituent of the seed. It also contains globulin, albumen, oryzagenin and vitamin B. The leaves contain the alkaloid, hardenine, and the seeds the alkaloids, stachydrine and trigonelline.

**Uses.** Rice is the staple diet of people in most parts of the tropics. Beer and wines are manufactured from the grain, the bran used as cattle food, while the straw is used for thatching purposes and paper making.

Medicinally, a decoction of the roots is given for absence of urinary secretion (anuria). Water in which rice has been boiled or conjee is an excellent demulcent refrigerant drink for febrile and inflammatory conditions of the intestines. A poultice of soft rice applied to the chest relieves chronic bronchitis and coughs. Popped rice with other ingredients is recommended for hiccough and vomiting. In China, rice is given for diarrhoea, while in Cambodia the husk of the grain is considered antidyenteric.



FIG. 241. *Panicum antidotale*. A, apical end of the plant with leaves and leaf-sheaths. B, inflorescence. C, spikelet showing glumes and stigmas.

14. *Panicum antidotale* Retz. Obs. Bot. fasc. 4: 17. 1786. (Fig. 241).*Panicum subalbidum* Kunth.

*Engl.* Blue Panicum; *Sinh.* Krimisastru; *Tam.* Nasiampul; *Hindi* Ghemor, Gunara, Jamur.

A perennial grass about 1.5 m high with a stout, creeping, stoloniferous rootstock; stem 60—90 cm long, rather stout, leafy, solid, internodes 5—7.5 cm long, nodes glabrous or puberulous; leaves 15—30 cm long, 0.8—1.2 cm broad, linear, very finely acuminate with capillary tips, flat, thin, glabrous, scaberulous on both surfaces and margins, base narrowly cordate, sheaths glabrous, margins ciliate, ligule short, membranous, villously ciliate; panicle 15—25 cm long, effuse, pyramidal, rhachis very slender, slightly scabrid, branches fascicled, lower 7.5—10 cm long, filiform, spreading and drooping, much divided, naked below, branchlets capillary; spikelets bisexual, pale brown, loosely crowded on the branchlets, 2—3 mm long, ovoid, acute, glabrous, rather shining; glumes 4, first three empty and thin, palea usually as long as the glume, membranous; lodicules 2, cuneate; stamens 3, hypogynous, one at the base of the flowering glume, one opposite each vein of the palea, anthers capillary of two parallel cells; ovary superior, unilocular, with a single basal ovule, styles 2, distinct, stigmas penicillate, exerted near the top of the spikelet; grain free but tightly embraced by the hardened glume and palea.

*Illustrations.* Kunth, Revis. Gram. 2: pl. 112; Duthie, Fodd. Grass. N.W. India, pl. 3. 1886.

*Distribution.* Occurs in India, Ceylon, Australia and tropical Africa. In Ceylon, it grows in the low-country dry zone. Ridiagama, Dambulla, etc.

*India.* Plan. Ganget. sup, T. Thomson. Ceylon. Thwaites C.P. 971. North Central Prov., Dambulla, Herb. Peradeniya Dec. 1881. cultivated in the vicinity of the Rock Temple. Central Prov., Jowitt, Aug. 1904.

*Uses.* Smoke from burning this grass is used for fumigating wounds or as a disinfectant for small-pox. The plant is employed in throat affections. The seed is regarded as a vermifuge and given to children for worm complaints.

It is poisonous to cattle but it is an excellent sand binder.



FIG. 242. *Panicum miliare*, plant with leaves and inflorescences.

15. *Panicum miliare* Lamk. Tab. Encycl. Meth. Bot. 1: 173. 1791. (Fig. 242).

*Panicum menieri* Koen. ex Nees—*Panicum miliaceum* Thw.

*Engl.* Little Millet; *Sinh.* Hin-meneri, Meneri; *Tam.* Chamai, Samai, Shamai; *Hindi* Kungu, Kutki.

An annual grass with a tufted, erect stem, 30—60 cm high, rather slender, simple or sparingly branched, leafy up to near the panicle, internodes 5—10 cm long, nodes glabrous; leaves 30—45 cm long, 0.4—0.8 cm broad, erect, narrowly linear, finely acuminate, smooth, glabrous or very sparsely hairy, base narrow, not cordate, margins smooth, sheaths long, eciliate, sometimes with a few tubercle-based hairs, ligule represented by a ridge with a few hairs; panicle oblong, 5—25 cm long, inclined, rhachis filiform, quite smooth, branches distant, binate or solitary, suberect, lowest 5—15 cm long, sparingly divided bearing distant, sessile and pedicelled, erect spikelets; spikelets bisexual, 2.5—3 mm long, dorsally compressed, ovoid, oblong or ellipsoid, acute, glabrous, glumes 4, palea usually as long as the glume, membranous; lodicules 2, cuneate; stamens 3, one at the base of the fruiting glume and one opposite each vein of the palea; ovary superior, unilocular with a single basal erect ovule, styles 2, distinct, stigmas exerted near the tip of the spikelet; grain free but tightly embraced by the hardened glume and palea.

**Illustrations.** Duthie, *Field and Garden Crops*, pl. 26; Duthie, *Ill. Indig. Fodd. Grass N.W. India*, pl. 46. 1886; Herb. Peradeniya, drawing.

**Distribution.** This millet is cultivated throughout the tropical regions of the world including India and Ceylon. It is a chena crop in the low-country in Ceylon.

**Ceylon.** Southern Prov., Munamalwatte, *Trimen's Collector* 39, March 1887; Horana, *T. C. de Silva*, Sept. 1942, cultivated. Uva Prov., Bandarawela, *Jowitt*, July 1905.

**Uses.** The grain is used as food and the straw as cattle fodder. Medicinally, the grain made into a conjee is given for acidity and biliousness. It is also used for the treatment of snake-bite poisoning.

MEDICINAL PLANTS



FIG. 243. *Paspalum scrobiculatum*. A, plant with leaves and inflorescences. B, flower.

16. *Paspalum scrobiculatum* Linn. Mant. 1: 29. 1767. (Fig. 243).*Paspalum kora* Willd.

*Sinh.* Amu, Karal-amu, Wal-amu; *Tam.* Varagu, Varaku; *Hindi* Koda, Kodaka, Kodava, Kodo; *Sans.* Koddara, Kodrava, Koradusha, Kordrawa, Kuddala, Madanagraka, Uddala, Vanakodrava.

Perennial grass with stems 60—90 cm high, tufted, erect or suberect, rather stout, leafy from the base upwards; leaves bifarious, erect or suberect, 15—22.5 cm long, 0.2—0.8 cm broad, flat, finely acuminate, mid-vein slender, margins scaberulous; sheath 10—20 cm long, compressed, loose, mouth hairy, ligule very short, membranous; spikes 2-6, sessile, usually distant and spreading, 2.5—15 cm long, rachis filiform or broad and concave, margins ciliate; spikelets closely imbricate in 2—3 series, sessile or shortly pedicelled from nearly orbicular to subovoid, obtuse or subacute, biconvex, glabrous, very rarely or sparsely hairy, drying brown; glumes 3, palea orbicular, tumid, thickly coriaceous, strongly inflexed below the middle forming 2, broad, membranous auricles that embrace the grain; stamens 3, hypogynous, one at the base of the flowering glume and one opposite each vein of the palea, anthers of two parallel cells; ovary superior, unilocular with a single basal erect ovule, styles 2, free, stigmas purple, plumose exerted from near the top of the spikelet, grain biconvex, free but tightly enclosed within the hardened glume and palea.

**Illustrations.** Trinius, Sp. Gram. Ic. pls. 138, 125 and 143; Duthie, Field and Gard. Crops, pl. 27; Duthie, Ill. Ind. Fodd. Grass. N.W. India, pl. 1. 1886; Herb. Peradeniya, drawing.

**Distribution.** Occurs in the tropics of the Old World including India, Malaya, Ceylon and Philippine Islands. It is very abundant in the warmer parts of Ceylon up to Nuwara Eliya.

**Ceylon.** North Central Prov., Anuradhapura, *Alston* 1054, March 1927. Central Prov., Kandy, Barigama, *Jowitt*, March 1905.

**Uses.** This plant is styptic and useful for inflammation and diseases of the liver. The expressed juice of the stem is applied on corneal opacity. The roots and rhizomes are employed in decoction as an alterative in childbirth. The camphor-like substance in the internodes of the stem (which glows in the dark) is used in the treatment of snake-bite poisoning.



FIG: 244. *Saccharum arundinaceum*. A, inflorescence. B, flower.

17. *Saccharum arundinaceum* Retz. Obs. 4: 14. 1786. (Fig. 244).*Erianthus arundinaceus* (Retz.) Jeswiet

*Engl.* Devil Sugar Cane, Reedy Sugar Cane, Wild Sugar Cane; *Sinh.* Rambuk; *Tam.* Elhundugirananal, Mungi, Peykarum; *Sans.* Gundra, Munja, Sara, Tejanaka.

A tall perennial grass; stem erect from a stout rootstock, 2—7 m high, spongy within, internodes 15—30 cm long, terete, smooth, uppermost glabrous under the panicle; leaves 90—150 cm long, 2.5—5 cm broad below the middle, tapering thence upwards to a long filiform point and slightly downwards to the base, coriaceous, smooth on both surfaces, glaucous beneath, margins spinulose, midrib up to 0.6 cm broad, shining, veins many, very slender, sheaths terete, coriaceous, mouth not auricled, sides bearded, ligule short, lunate, hairy; panicle pale brown or purplish, 30—60 cm long, dense-flowered, ovoid or oblong, erect, decompound, rhachis stout, glabrous, branches half whorled, spreading in flower, ascending in fruit, filiform; spikes 2.5—7.5 cm long, rhachis filiform, fragile, villous; spikelets 1-flowered 2.5 mm long, clothed with long, soft, creamy or purplish, woolly hairs up to 0.6 cm in length callus very short, flowers bisexual, glumes 4, palea quadrate, ciliate; lodicules irregular in shape; stamens 3, hypogynous, one at the base of the flowering glume, one opposite each vein of the palea, filaments capillary, anthers 1.2 mm long; ovary superior, unilocular with a basal erect ovule, style and stigmas short, laterally exserted, grain oblong or subglobose.

*Illustrations.* Duthie, Ill. Indig. Fodd. Grass. N.W. India, *pl.* 16. 1886; Kirtikar and Basu, Indian Med. Plants, *pl.* 1014 A. 1933.

*Distribution.* Occurs in India, Burma; Ceylon, extending eastwards to China. It is abundant by streams and canals in Ceylon upto 2000 feet altitude.

*India.* Sikkim. *J. D. Hooker.* Ceylon. Western Prov., Colombo, *Thwaites C.P.* 3939.

*Uses.* The root is demulcent and diuretic. It is useful in acute and chronic pyelitis, cystitis, gonorrhoea and strangury. It has antilithic properties and is useful for urinary gravel and calculi. The pith is a powerful emmenagogue and ecbolic and given to increase the lochial discharge. It is administered in decoction for protracted labour, puerperal fever and other diseases. The pith is boiled in cow's milk and applied externally as a poultice on boils and abscesses, to hasten suppuration.

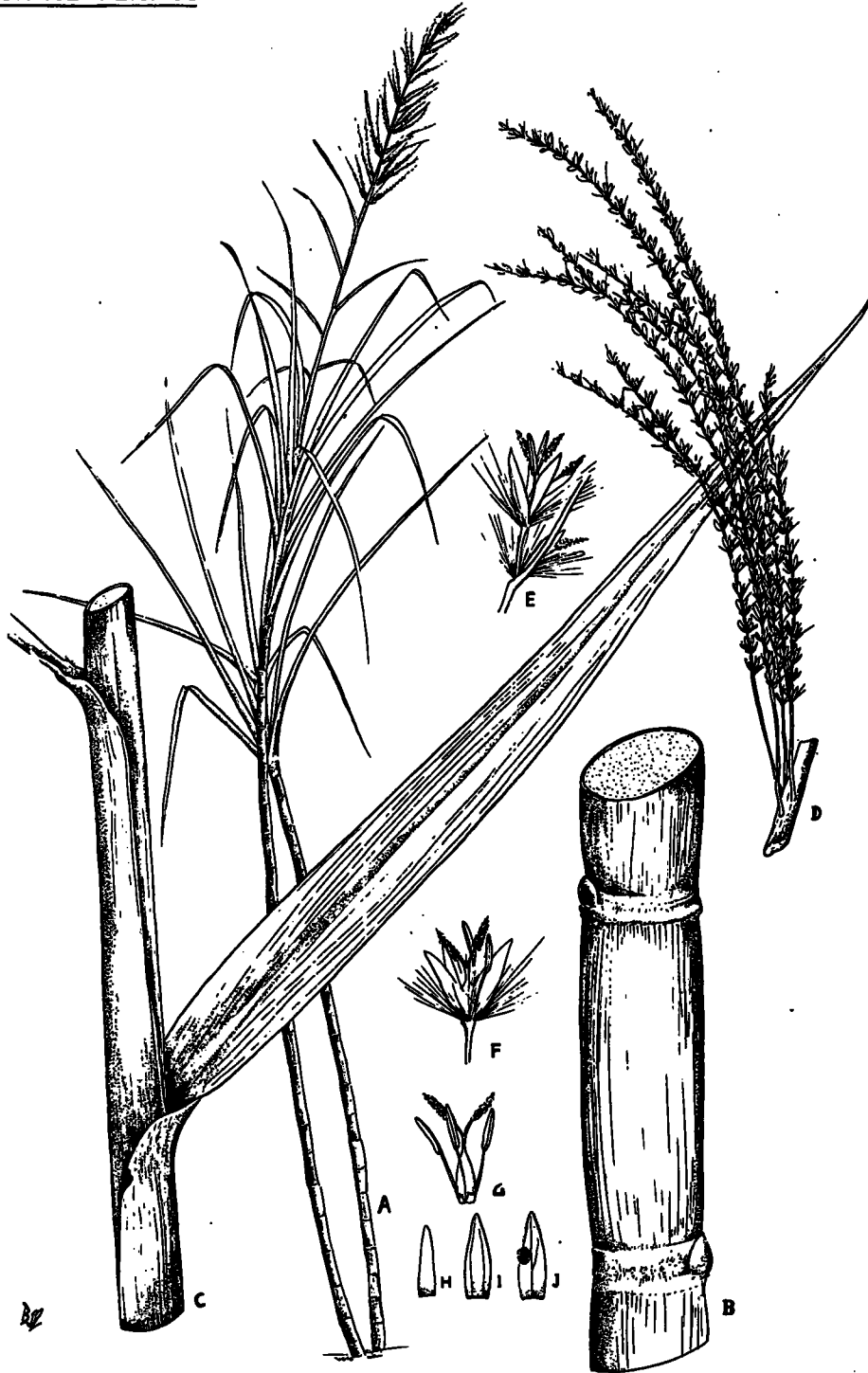


FIG. 245. *Saccharum officinarum*. A, clump with two canes, one bearing an inflorescence. B, portion of the stem showing nodes, buds and internode. C, leaf with leaf sheath. D, portion of the inflorescence. E, spikelets in pairs. F, spikelet. G, flower with glumes removed. H, palea. I, lower glume. J, upper glume.

18. *Saccharum officinarum* Linn. Sp. Pl. 54. 1753. (Fig. 245).

*Engl.* Sugarcane; *Sinh.* Uk-gas; *Tam.* Angarigai, Asibattiragam, Ikku, Kalai, Kannal, Karumbu, Madudirunam, Paruvayani, Pundaram, Ukkiragandan, Velam, Vengarumbu; *Hindi* Ganna, Ikh, Kumad, Naishakar, Rikhu, Uk. Ukh; *Sans.* Adhipatra, Asipatra, Bhurirasa, Dirghachhada, Gandidi, Gudada, Gudadaru, Gudakashtha, Gudamula, Gudatrina, Ikshu, Ikshura, Kantara, Kantaraka, Karkotaka, Khadgapatraka, Koshakara, Madhutrina, Madhuyashti, Maharasa, Mrityupushpa, Payadhara, Pundraka, Rasalu, Sustra, Sukumasaka, Trinadhiya, Vansha, Vipularasa, Vrishya.

A very large perennial herb with a thick, solid, jointed rhizome giving off root fibres above each joint; stems many, erect, 2—4 m high, cylindrical, solid, succulent within, with numerous joints at a distance of 3.7—7.5 cm, internodes shorter at the base, slightly swollen, about 3.7 cm diam., smooth, shining, polished, yellow, purple or striped, not branched but with a bud at each node and with numerous scar-like dots arranged in 3 irregular rings above each node from which lower ones produce root-fibres; leaves very large, numerous, distichous, closely placed, deciduous from the lower part of the stem, sheaths about 30 cm long, rather close, striate, smooth or with farinose pubescence which is easily removed, ligule very short, entire, leaf blade 90 cm or more long, at first erect, then spreading, 7.5 cm wide, acute, very finely serrulate on the margin, smooth on both surfaces, ciliate on the sides at the base with long, erect, white hairs, central vein wide and thick, prominent on the back; spikelets very small, very numerous, 1-flowered, all hermaphrodite, arranged in pairs, one being sessile, the other stalked, each surrounded by a dense ring of long, white, straight, spreading, silky hairs, arising immediately below and coming away with the spikelet; the couples placed rather distantly on alternate sides of the very long, slender, erect or curved, straight or flexuose, smooth branches of greatly elongated narrow panicles which are themselves branches given off in irregular whorls of 6—8 from the stout, erect, smooth, obtusely angled rhachis, the whole forming a very large, feathery, somewhat drooping, terminal, grey inflorescence about 60 cm or more in length; glumes 2, nearly equal, oblong-lanceolate, membranous, not awned, palea solitary; lodicules 2, free, 2—3-lobed or torn; stamens 3, anther linear-oblong, pale yellow; ovary superior, unilocular, smooth, styles 2, spreading, the upper portion densely plumose, dark purple.

**Illustrations.** Morris in Journ. Linn. Soc. 28: pl. 23. 1890; Bentley and Trimen, Med. Plants, pl. 298. 1880; Kirtikar and Basu, Indian Med. Plants, pl. 1014B. 1933.

**Distribution.** Sugarcane is cultivated widely in the warmer and humid parts of India, Ceylon, Malay Archipelago, Philippines, West Indies and Africa. It is probably indigenous to India.

**Composition.** The juice of the stem contains sucrose, while the leaf has vitamin C.

**Uses.** The root is considered demulcent, emollient, diuretic and stimulant. It has antiperiodic properties and frequently used in chronic malarial affections. A conjee made out of the pounded leaves is used for coughs due to heat. The fresh juice of the stem with cow's milk and king-coconut water is given to women in labour. In Cambodia, sugarcane enters into the composition of remedies used for treatment of ulcers in the skin and mucous membranes. A decoction of the stem is given for diarrhoea in children. Sugar in addition to being a food is an antidote against copper and arsenic poisoning. Powdered sugar is used externally as an antiseptic and sprinkled upon ulcers. It is often used for preserving meat and fruits. The treacle is slightly laxative and along with molasses used for the preparation of rum.



FIG. 246. *Setaria italica*. A, fruiting panicle. B, flowering panicle.

19. *Setaria italica* (Linn.) P. Beauv., Ess. Agrost. 51, 170. 178. 1812. (Fig. 246).

*Setaria germanica* P. Beauv.—*Panicum germanicum* Mill.—*Panicum italicum* Linn.—*Chaetochloa italica* (Linn.) Scribn.—*Pennisetum italicum* (Linn.) R. Br.—*Pennisetum germanicum* (P. Beauv.) Baumg.—*Setaria italica* var. *germanica* Schrad.—*Setaria californica* Kellog.—*Panicum italicum* var. *californicum* Koen. et Wern.—*Chasmaeraphis italica* O. Ktze.—*Ixophorus italicus* (Linn.) Nash.—*Chaetochloa germanica* (Mill.) Smyth.

*Engl.* Italian Millet; *Sinh.* Thanahal; *Tam.* Tenai, Tennai; *Hindi* Bertia, Chena, Kakni, Kalakangni, Kangni, Kangu, Kauni, Kirakang, Kiranj, Koni, Kora, Rala, Rawla, Tangan; *Sans.* Chinaka, Kangu, Kanguni, Kangunika, Pitatandula.

An annual herb with tufted, erect, smooth stems 0.6—1.6 m tall, sometimes decumbent near the base and rooting at the lower joints; leaves flat, linear-lanceolate, long-pointed, 45—60 cm long, 2.5 cm broad, rough, sheaths softly hairy, spikelets on branches about 2.5 cm long, crowded in a compact, nearly cylindrical, interrupted, nodding panicle 10—25 cm long and 1.2—2.5 cm diam.; spikelet usually 1-flowered, ovoid, jointed on very short stalks bearing an involucre of long, minutely barbed bristles variable in length; glumes usually 3, membranous, the lowest small, second and third nearly equal, uppermost sometimes containing a male or rudimentary flower, palea deeply concave containing a bisexual flower; stamens 3; ovary superior, unilocular containing a single basal ovule, styles 2, long, free to the base; grain free, enclosed within the hardened glume and palea.

**Illustrations.** Duthie, Field and Garden Crops, *pl.* 25; Ames, Eco. Ann. and Human Cultures. *pl.* 05. 1939.

**Distribution.** This millet is cultivated in most tropical and temperate countries.

**India.** Maisor and Carnatic, *G. Thomson*. Khasia, *J. D. Hooker and T. Thomson*, cultivated. **Ceylon.** Northern Prov., Jaffna, *Herb. Peradeniya*, Oct. 1900; *Moon*, Sept. 1820. Uva Prov., Bibile, *F. W. de Silva*, Nov. 1929; Bandarawela, *Jowitt*. Feb. 1906.

**Composition.** The leaves of this plant contain an alkaloid.

**Uses.** A popular remedy to alleviate labour pains. It acts as a diuretic and astringent. It is used externally for rheumatism. In China, the grain is considered an emollient and astringent in diarrhoea and choleraic ailments. The grain is edible.

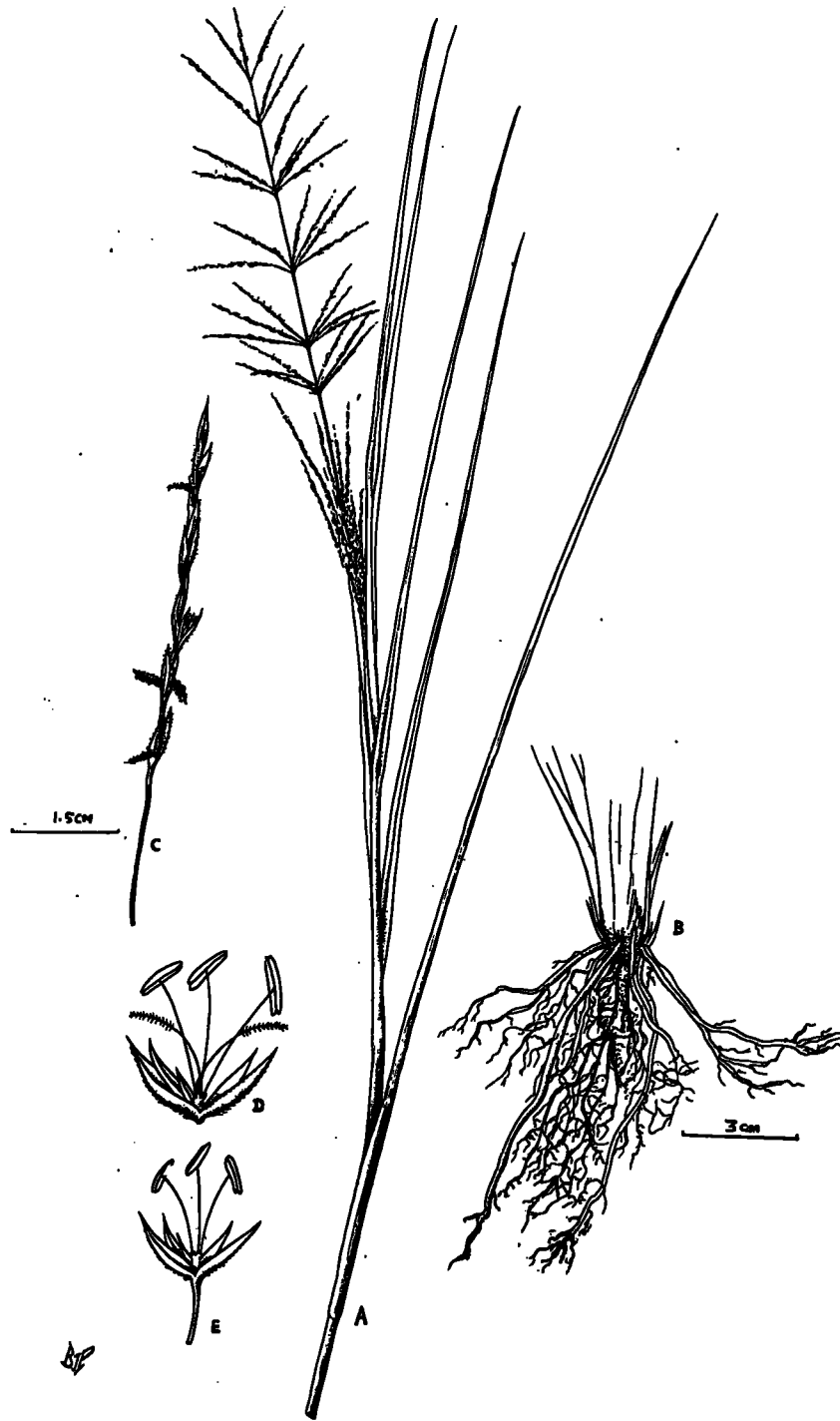


FIG. 247. *Vetiveria zizanioides*. A, portion of the stem with leaves and inflorescence. B, base of the stem with roots. C, spike. D, bisexual spikelet. E, pedicelled male spikelet. D—E, enlarged.

20. *Vetiveria zizanioides* (Linn.) Nash in Small, Fl. South-East U.S. 67., 1903. (Fig. 247).

*Phalaris zizanioides* Linn.—*Andropogon muricatus* Retz.—*Agrostis verticillata* Lamk.—*Anatherum muricatum* (Retz.) P. Beauv.—*Anatherum zizanioides* (Linn.) Hitchc.—*Vetiveria odorata* Virey—*Vetiveria muricata* (Retz.) Griseb.—*Vetiveria arundinacea* Griseb.—*Sorghum zizanioides* (Linn.) O. Ktze.—*Andropogon zizanioides* (Linn.) Urban—*Andropogon festuoides* J.S. Presl. ex C.B. Presl.—*Andropogon squarrosus* (Linn. f.) Trimen.—*Holcus zizanioides* (Linn.) O. Ktze.

*Engl.* Khus-khus Grass; *Sinh.* Sevendera; *Tam.* Ilamichamver, Vettiver, Vilhalver, Viranam; *Hindi* Bala, Balah, Bena, Ganrar, Khas, Onei, Panni; *Sans:* Abhaya, Amrinala, Avadaha, Dahaharana, Gandhadhya, Haripriya, Indragupta, Ishtakapatha, Jalamoda, Jalashaya, Jalavasa, Rambhu, Katayana, Laghubhaya, Lamajjaka, Nalada, Ranapriya, Samagandhika, Sevya, Shishira, Shitamulika, Sugandhimula, Ushira, Vira, Virabhadra, Virana, Virataru, Vitanamulaka.

A perennial herb with a branched, densely tufted rootstock with long spongy, aromatic, brown root fibres; stems 60–90 cm high, stout, erect, leafy, solid, smooth and hard and polished; leaves 30–60 cm long, 0.8–1.8 cm broad, sub-bifarious, erect, narrowly linear, firmly acuminate, flat, strongly keeled towards the base, smooth, margins usually scaberulous, sheaths coriaceous, glabrous, not auricled, ligule a ridge of minute hairs; panicle 10–30 cm long, erect, narrowly thyriform, of fascicled, suberect, slender, articulate spikes, 5–7.5 cm long, spikelets in alternate pairs, a sessile bisexual and a pedicelled male; sessile spikelet 1-flowered, 0.4 cm long, glumes 4, palea ovate-lanceolate; lodicules very minute, broadly quadrate, many-veined, connate; stamens 3, hypogynous, one at the base of the flowering glume, one opposite each vein of the palea, filaments capillary, anthers of two parallel cells; ovary superior, unilocular with a basal erect ovule, style and stigmas short; pedicelled spikelet oblong-lanceolate, pedicel as long as the internode, tip bearded; glumes 4, palea linear-oblong, obtuse; lodicules cuneate, anthers linear.

*Illustrations* Duthie, Ill. Fodd. Grass. N.W. India, pl. 24. 1886; Kirtikar and Basu, Indian Med. Plants, pl. 1015B. 1933.

*Distribution.* Occurs in India, Ceylon, Burma, Malaya and tropical Africa. It is cultivated in the Philippines. In Ceylon, it is found in the warmer parts of the Island on margins of tanks. Trampaikkulam, Polonnaruwa, Ritigala. Batticaloa, Dambulla, Colombo, etc.

*India.* Assam. *Jenkins.* Ceylon. North Central Prov., Polonnaruwa, *Jowitt*, Feb. 1911; Ritigala, *J. C. Willis*, March 1905. Central Prov., Dambulla, *Herb. Peradeniya.*, Dec. 1881; *Thwaites C.P.* 871. Maldiv Islands. *Didi* 29, 1896. Laccadives. *H.M.I.M. Investigator*, 1891. *Philippine Islands.* Luzon. Tarlac Prov., *Clemens* 18205, May 1928.

*Composition.* The oil distilled from the roots of this plant contains vetivenes, vetivenol, vetivenic acid, vetivenyl acetate and similar compounds.

*Uses.* The root acts as a bitter stomachic, carminative and cholagogue and as such is useful in anorexia, chronic dyspepsia, flatulence, acute and chronic congestion of the liver and jaundice. Its value is attributed to its eliminative powers as a diaphoretic, diuretic and cholagogue. It is often employed as an antiperiodic in malarial fevers.

In Ceylon, it is used for preparations in the treatment of typhoid fever, haemoptysis, phthisis, anaemia, skin and blood diseases, urinary disorders, piles, oedema, etc. The bruised roots mixed with milk are often applied on the head for congestive headache for the delirium caused by typhoid, pneumonia and meningitis.

The dried roots are used for scenting clothes, for making fans and mats. The oil contains considerable quantities of high grade perfumes.

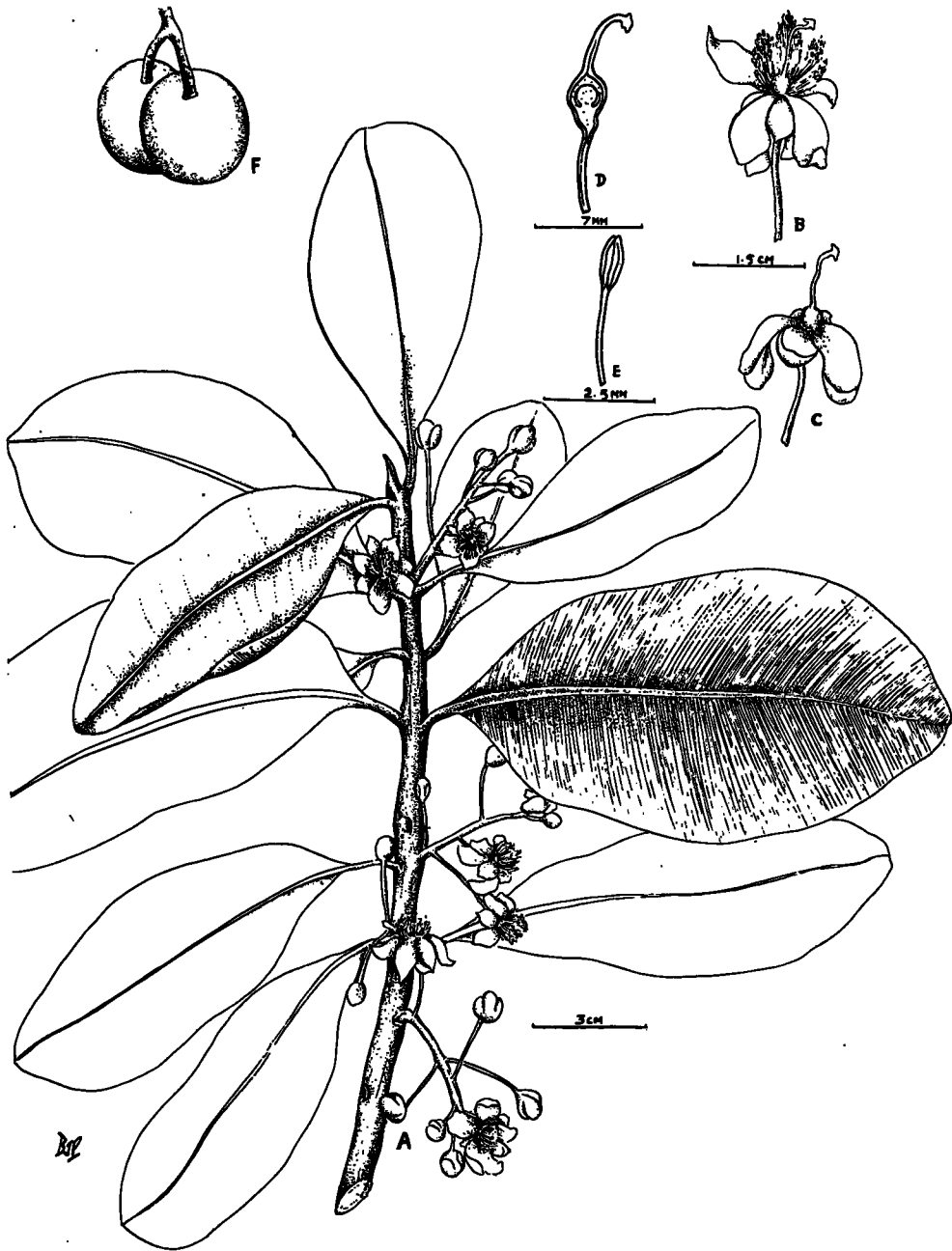


FIG. 248. *Calophyllum inophyllum*. A, branch with leaves and flowers. B, flower, front view. C, flower with the petals and stamens removed. D, longitudinal section of pistil. E, stamen. F, fruits.

## 49. GUTTIFERAE

### 1. *Calophyllum inophyllum* Linn. Sp. Pl. 513. 1753. (Fig. 248).

*Calophyllum bintagor* Roxb.

*Engl.* Alexandrian Laurel; *Sinh.* Domba, Dombagaha, Teldomba; *Tam.* Nagam, Nameru, Pinmai, Punnagam, Punnai; *Hindi* Undi; *Sans.* Nagachampa, Nameru, Punnaga, Purasakeshara, Surangi, Tungakeshara.

A moderate sized tree with a crooked trunk and smooth grey bark; young parts glabrous; leaves large, opposite, 10—20 cm long, 7.5—10 cm broad, oval or oblong-oval, entire, acute, rounded or emarginate at apex, acute at base, smooth and shining; petioles short stout, and flat, 0.6—1.9 cm long; flowers regular, bisexual, fragrant, white, 2.5—3.7 cm diam. in stalked racemes from the upper leaf, axils shorter than leaves, pedicels stout, glabrous, 1.2—1.9 cm long; sepals 4, imbricate, ovate, obtuse, concave, reflexed, ciliolate, the two inner ones longer; petals 4, oblong, obtuse, spreading, free and imbricate; stamens numerous, connate at base into 4—6 bundles, spreading; ovary superior, unilocular with a single basal ovule, style long and twisted, stigmas large and capitate; fruit a large, globose drupe, 3.2—3.8 cm diam, smooth with a hard endocarp and a single seed.

*Illustrations.* Wight,  *Ic. Pl. Ind. Orient. pl. 77.* 1838; Kirtikar and Basu, *Indian Med. Plants, pl. 106.* Herb. Peradeniya, drawing.

*Distribution.* Occurs in the east and west coasts of the Indian Peninsula, Malay Peninsula, Andaman Islands, Ceylon, Australia, Polynesia and East African Islands. In Ceylon, it is common along the sea coast in the low-country.

*India.* *Ind. Orient. Herb. Wight 137,* Kew Distribution 1866—7. *Ceylon.* Eastern Prov., *E.P., 1915.* Western Prov., Colombo, *Thwaites C.P. 2764.* *Andaman Islands.* *Heinig 65,* Aug. 1896. *Maldive Islands.* *Didi 56,* 1896; *Gardiner, 1899—1900;* Hulule, *Gardiner 47,* 1899—1900. *Malay Peninsula.* Perak, *King's Collector 5446,* Jan. 1884. *British North Borneo.* Janbongan Island, *Cabiling 3874,* Oct. 1927.

*Composition.* The oil extracted from the seeds contains a poisonous resin. The bark contains tannin and exudes an oleoresin which contains benzoic acids.

*Uses.* The bark acts as an antiseptic and disinfectant. Rubbed with water or lime juice, it makes a useful application on armpits, groins and feet in bromidrosis. The bark taken internally, acts as an expectorant and is useful in chronic bronchitis and phthisis. Externally, the bruised seeds and oil are applied to chronic rheumatism, inflammation of bones and joints and ankylosis. The oleoresin taken internally is supposed to be beneficial for lung ailments and externally applied on chronic ulcers and wounds with beneficial results. The resin mixed with strips of bark and leaves, steeped in water and the oil which rises to the surface is a household application for sore eyes. The astringent juice of the bark is a purgative and given in the form of a decoction for internal haemorrhages. The oil from seeds is used externally on rheumatism and gout and is a specific for scabies.

In Cambodia, the leaves are prescribed as an inhalation for migraine and vertigo and the oil for scabies. In Madagascar, the leaves are applied to sore eyes, the pounded bark for orchitis, the gum resin a vulnerary resolvent and anodyne, oil from seeds a reputed anti-psoric and anti-rheumatic, and a decoction of the root for dressing ulcers. In Java, the tree is supposed to possess diuretic properties, while in Samoa the plant is considered a virulent poison and the sap from the bark is used for the preparation of an arrow poison.

The oil from seeds is used for soap making.

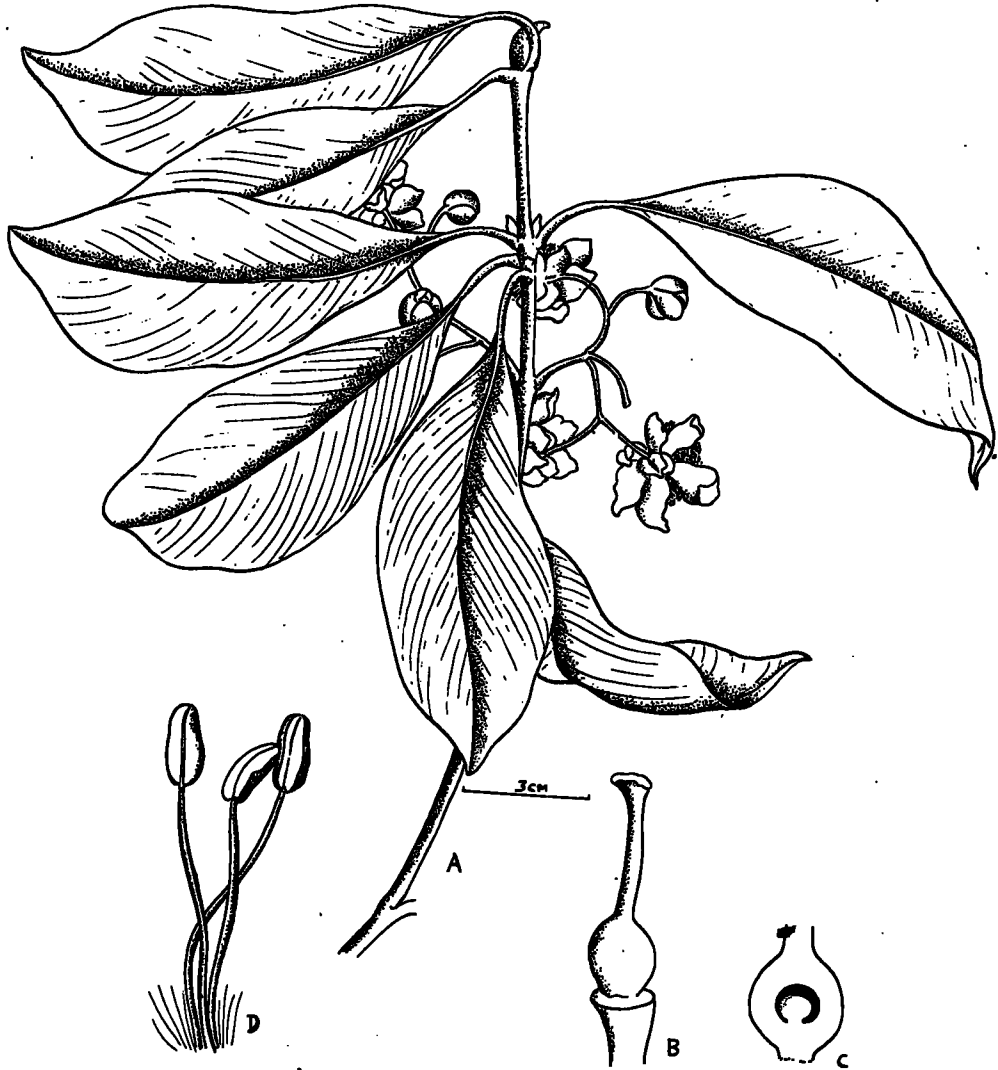


FIG. 249. *Calophyllum tomentosum*. A, branch with leaves and flowers. B, pistil. C, longitudinal section of ovary. D, stamens. B—D, enlarged.

2. *Calophyllum tomentosum* Wight Ill. 1: 128. 1838. (Fig. 249).*Calophyllum elatum* Bedd.

*Engl.* Malabar Poon; *Sinh.* Keena, Kina; *Tam.* Kattupinnai, Kine, Pinnai, Pongu, Pungu.

A large tree with a straight trunk, reddish brown bark with wide grey panels, quadrangular twigs, together with the buds, densely tomentose with rusty hair; leaves simple, opposite, without stipules, 10—12.5 cm long, lanceolate or oblong-lanceolate, entire, numerous, acute at base, acuminate at apex, stiff, slightly undulated, new flush pinkish and the old leaves yellow, veins conspicuous beneath and very fine; petioles 1.2—1.8 cm long, stout, densely pubescent, afterwards glabrous; flowers regular, bisexual, numerous, white, 1.8—2.5 cm diam. in lax axillary racemes or panicles, shorter than leaves, pedicels slender, tomentose; sepals 4, distinct, imbricate, petaloid in two rows, ovate, obtuse, concave, reflexed, the two inner ones longer; petals 4, distinct, imbricate, oblong, obtuse, spreading; stamens numerous, spreading, filaments connate at base, anthers dehiscing vertically; ovary superior, unilocular with a solitary, erect ovule; fruit nearly globular, 1.8 cm long, apiculate, smooth.

Flowers during March and April.

*Illustrations.* Wight,  *Ic. Pl. Ind. Orient. pl.* 110. 1839; Worthington, *Ceylon Trees, pl.* 35. 1959; *Herb. Peradeniya*, drawing.

*Distribution.* Occurs in rain forests in India extending from Concan southwards, Ceylon and Malaya. In Ceylon, it is common in the moist up-country from 2000—4000 feet altitude.

*India.* Madras. *Herb. Beddome.* Ceylon. *Thwaites C.P.* 1171. Central Prov., Peradeniya, *Bot. Gard., Herb. Peradeniya*, Nov. 1889; *de Silva*, Feb. 1915; *de Silva*, June 1928; Maha Oya, *Tomaline*, June 1915; *Walker*.

*Uses.* The orange coloured oil extracted from the seeds of this tree is used as an application on fractures and contusions with beneficial results.

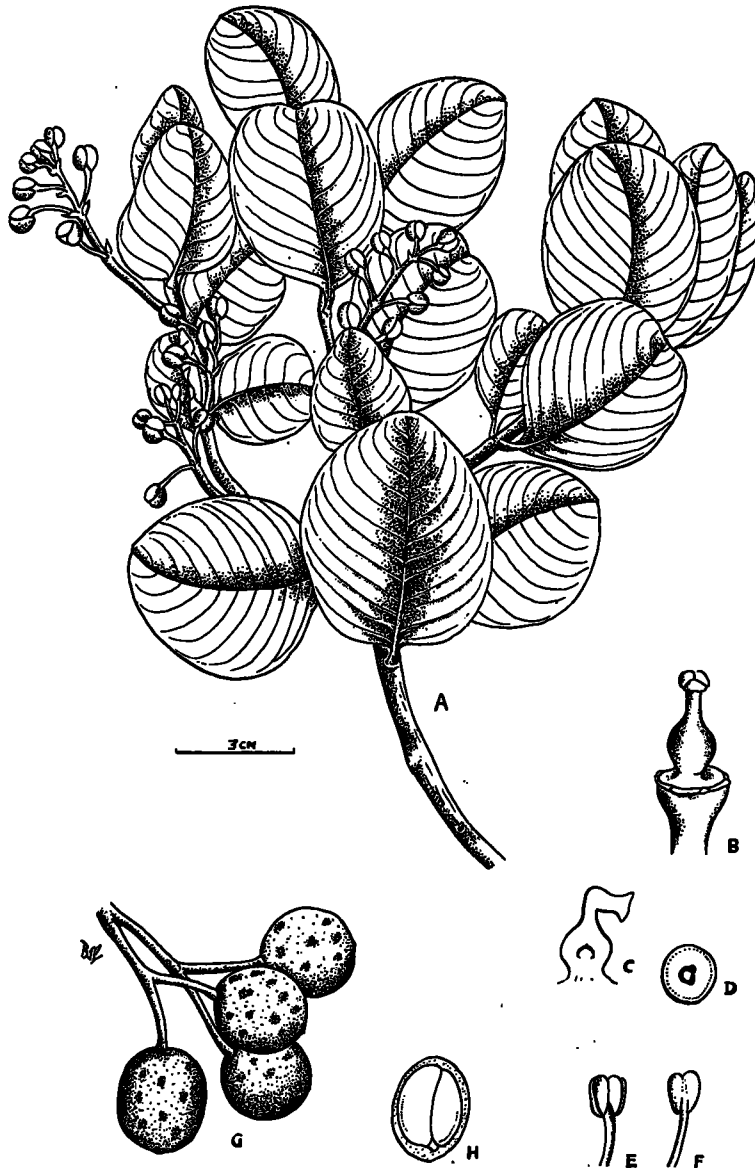


FIG. 250. *Calophyllum walkeri*. A, branch with leaves and flowering racemes. B, pistil. C, longitudinal section of pistil. D, transverse section of ovary. E—F, stamens, front and back view. G, fruits. H, section of fruit. B—F, enlarged.

3. *Calophyllum walkeri* Wight III. 1: 128. 1838. (Fig. 250).

*Calophyllum decipiens* Wight.

*Sinh.* Keena, Kina.

A very large tree with a straight, tall trunk, reddish brown bark and a rounded head, twigs quadrangular, glabrous; leaves simple, opposite, entire without stipules, 3.2—5 cm long, crowded, rotundate or obovate-oval or obcordate, cuneate or rounded at apex, very stiffly coriaceous, lateral veins not prominent, petioles very short and stout; flowers white or pinkish, sweet scented, regular, bisexual, large, 2.5 cm diam., numerous in axillary and terminal racemes forming together large panicles exceeding the leaves in length, pedicels 1.2—1.8 cm long, glabrous; sepals 4, distinct, imbricate, petaloid in two rows, the inner ones twice as long as the outer ones; petals 8, distinct, imbricate, longer than sepals, inner row smaller, stamens numerous, slightly coherent at base, anthers dehiscing vertically, ovary superior, unilocular with a single erect ovule, fruit globose, about 2 cm long, apiculate, smooth, pale yellow, mottled with brown.

Flowers once in 3 or 4 years during January to April.

**Illustrations.** Wight, III. Ind. Bot. 1: *pl.* 45. 1838; Worthington, *Ceylon Trees*, *pl.* 37. 1959; *Herb. Peradeniya*, drawing.

**Distribution.** An endemic tree common in the higher elevations of Ceylon from 4000 to 7000 feet altitude. Nuwara Eliya, Adam's Peak, Ambagamuwa, Knuckles hills, etc.

**Ceylon.** Central Prov., Ambagamuwa, *Thwaites C.P.* 1170; Nuwara Eliya. *Plummer; Walker* 2/115. Uva Prov., Namunukula, *de Silva*, March 1907.

**Uses.** The oil extracted from the seeds of this tree is used as an external application on fractures and contusions.

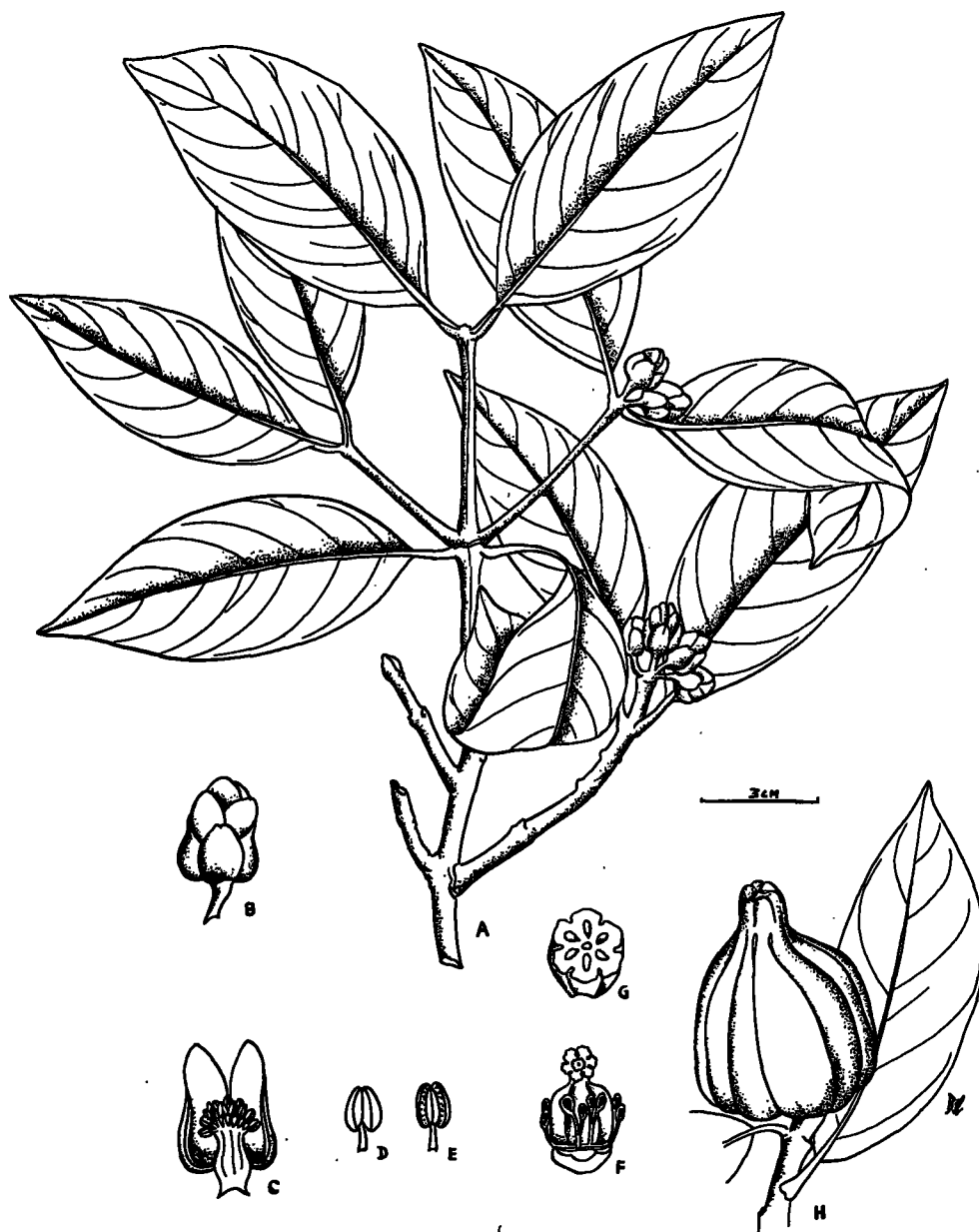


FIG. 251. *Garcinia cambogia*. A, branch with leaves and flowers. B, male flower, lateral view. C, male flower showing stamens. D—E, stamens. F, female flower with the perianth removed. G, transverse section of ovary. H, fruit.

4. *Garcinia cambogia* Desrouss. in Lam. Encl. 3: 701. 1789. (Fig. 251).

*Mangostana cambogia* Gaertn.—*Garcinia quaesita* Pierre.

*Sinh.* Goraka, Kana-goraka; *Tam.* Korakkaipuli, Korukkai; *Sans.* Madurammala.

A moderate-sized or large tree with a round head and rather drooping branches, bark rough, dark brown, young shoots quite glabrous; leaves simple, 8.5—12.5 cm long, lanceolate, oblong-lanceolate or oval, much tapering at base, acute or acuminate, glabrous, lateral veins very oblique, petioles 1.2—1.5 cm long, stout; flowers axillary, polygamously dioecious; male flowers: 3 or 4 together in simple umbels in axils of fallen leaves, pedicels 1.5—2.5 cm long, stout, stiff, much thickened upwards; sepals 4, obtuse, very thick; petals 4, more than twice as long as sepals, oval-oblong, obtuse, concave; stamens numerous, monadelphous, forming a central globular head; female flowers; larger than male, 1—3 from axils of terminal pair of leaves, sepals and petals as in the male; stamens 10—20 in a ring round the ovary, free or slightly connate at base; ovary superior, grooved, stigma 7—12-rayed; fruit large, 6—7.5 cm long, more or less globular, depressed, variable in form with 7—13 very deep vertical grooves forming as many blunt lobes and a terminal prominent or depressed mamilla, smooth, orange or yellow, pericarp very thick and fleshy; seeds as many as lobes, each surrounded with a copious, juicy, red or white aril, 2 cm long, oval, compressed, testa pale brown.

Flowers during February and March.

*Illustrations.* Beddome, *Flor. Sylvat. pl.* 85. 1868—1873; Gaertner, *Fruct.* 2: *pl.* 105. 1791.

*Distribution.* Occurs in the western side of the Indian Peninsula. It is common in Ceylon in the moist low-country up to 1500 feet altitude.

*Ceylon.* *Thwaites* C.P.1172 ♂. Southern Prov., Deiyandara, *Herb. Peradeniya*, ♀. Feb. 1881; *Hiniduma*, *Herb. Peradeniya*, ♂, March 1881; *Walker* ♀; *Dambamulattenne*, *J. M. de Silva*, Feb. 1927.

*Uses.* The dried rind of the fruit of this tree is astringent and antiseptic and is useful in decoction for washing ulcers and as a gargle in weak and spongy gums. Internally, it acts as a stomachic and is used in anorexia and chronic dyspepsia. The dried rind is often employed for flavouring curries.

5. *Garcinia mangostana* Linn. Sp. Pl. 635. 1753.

*Engl.* Mangosteen; *Sinh.* Mangus; *Tam.* Sulambali; *Hindi* Mangustan.

A slow-growing compact tree, 6—9 m tall with a smooth bark but a yellow latex; leaves simple, opposite, 15—25 cm long, 6.3—10.5 cm broad, elliptic-oblong, acute, base cuneate, thickly coriaceous, deep, shining green with numerous nerves curving and fusing with a double extramarginal nerve; petioles 20—25 mm long; flowers axillary or terminal, solitary, paired or fascicled; staminate flowers not seen and probably male form is extinct; female flowers solitary or paired, 5 cm diam., terminal on stout pedicels 1.3 cm long, sepals 4, rounded, yellowish; petals 4, larger, ovate, dark rosy pink; stamens 15—20, free, slender with small elliptic white anthers, all abortive; ovary superior, globular, 4—8-locular, stigma sessile, 4—8-rayed, yellow; fruit globular, 7.5 cm across, reddish purple, the large leathery sepals persistent, rind thick and tough enclosing 5—7 white segments; seeds 6—8 formed apomistically enclosed in a white juicy aril.

**Illustrations.** Kirtikar and Basu, *Indian Med. Plants*, pl. 102. 1933; Herb. Peradeniya drawing.

**Distribution.** Indigenous to Malaya and cultivated in the west coast of India and Ceylon. It is a common fruit tree in most village gardens in Ceylon, both in the mid and wet low-country.

**Ceylon.** Central Prov., Peradeniya, cultivated, *Herb. Peradeniya*, May 1889.

**Composition.** The rind of the fruit contains tannin, a resin and a bitter principle called mangostin. The edible aril contains saccharose, dextrose and kerrellose.

**Uses.** The rind of the fruit which contains resin is used in diarrhoea and dysentery. The bark and young leaves are also used for the same purpose and for ailments of the genito-urinary tracts and as a wash for aphthae of the mouth. A decoction of the roots is drunk for dysmenorrhoea. In Cambodia, the bark and the rind of the fruit are used for diarrhoea and dysentery as astringents.

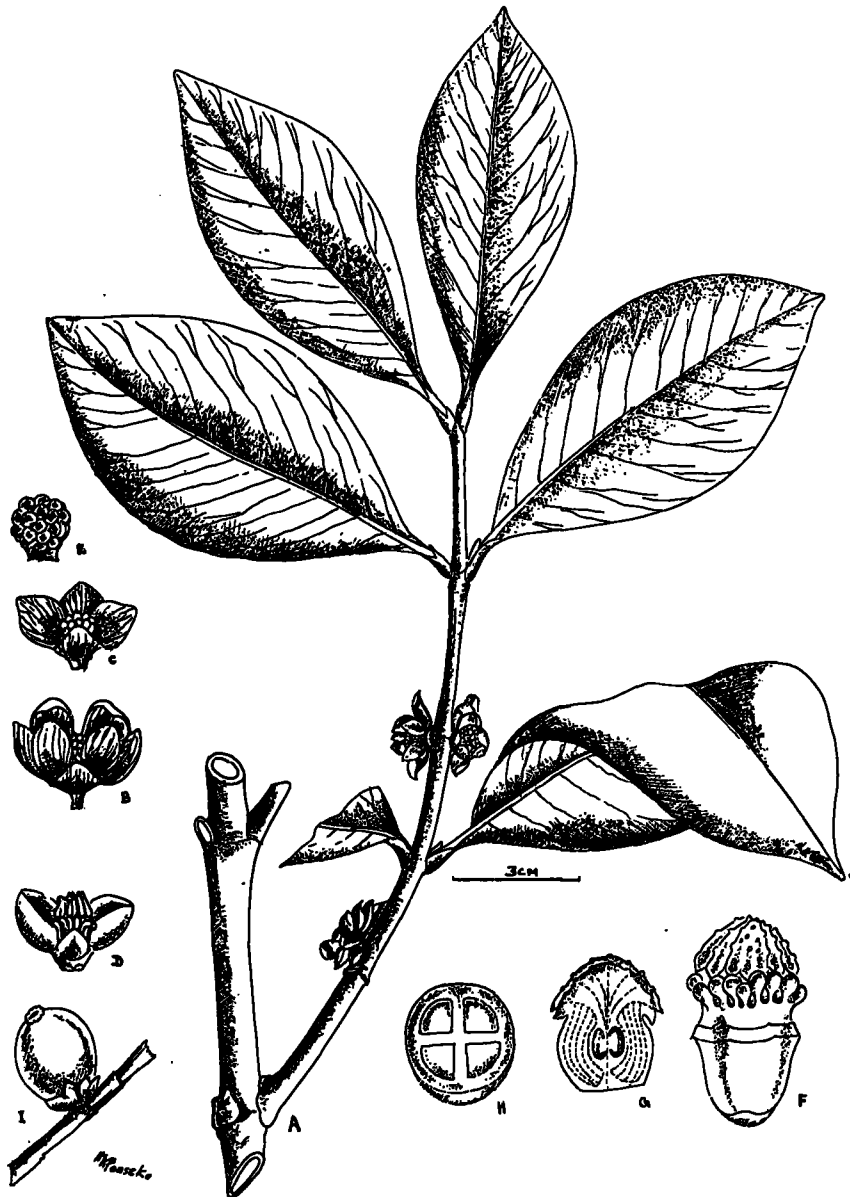


FIG. 252. *Garcinia morella*. A, twig with male flowers. B, male flower, lateral view. C—D, male flower with corolla removed. E, bundle of stamens. F, female flower with calyx and corolla removed. G, longitudinal section of pistil. H, transverse section of ovary. I, fruit.

6. *Garcinia morella* Desrouss. In Lam. Encycl. 3: 701. 1789. (Fig. 252).

*Garcinia pictoria* Roxb.—*Garcinia lobulosa* Wall.—*Garcinia elliptica* Wall.—*Garcinia acuminata* Planch. and Trian.—*Garcinia gutta* Wight—*Garcinia cambogioides* Royle—*Hebradendron cambogioides* Graham.

*Engl.* Gamboge Tree; *Sinh.* Kana-goraka, Kokatiya, Gokatu, Goraka; *Tam.* Irevalsinni, Makki, Solaippuli; *Sans.* Amritadruma, Kalaskandha, Kalatala, Lokaskandha, Mahabala, Niladvaja, Nilatala, Tama, Tamala, Tapichcha, Tapinja, Tapitha.

A small pyramidal tree with a smooth brown bark and spreading branches, young twigs quadrangular; leaves simple, opposite without stipules, 7.5—12.5 cm long, 3.8—6.3 cm broad, broadly lanceolate or oval, thick, smooth, acute at base, subacute at apex, shining, paler beneath, lateral veins inconspicuous, very oblique, petioles 0.6 cm long; flowers greenish white, male, female and bisexual occurring on separate trees, sessile in the axils of fallen leaves, males 2 or 3 together, females solitary; sepals 4, distinct, imbricate; petals 4, larger than sepals, imbricate; males: stamens numerous, monadelphous, filaments fused into a subquadrangular column but free at their ends, anthers dehiscing transversely; females: stamens about 12, connate in a ring round the ovary, non-functional; ovary superior, smooth, globular, 4-locular with a single axile ovule in each loculus, stigma peltate, irregularly lobed and tubercled; fruits small, glabrous, 1.9 cm diam., globose, surrounded at base by persistent sepals; seeds 4, slightly compressed, ovoid, kidney-shaped, testa finely muriculate, blackish brown.

Flowers during May.

*Illustrations.* Desrousseaux in Lamk. Encycl. 3: *pl.* 405, *f.* 2. 1789; Beddome, *Flor. Sylvat. pls.* 86 & 87. 1868—1873; Wight,  *Ic. Pl. Ind. Orient. pls.* 102 & 120. 1839; Herb. Peradeniya., drawing.

*Distribution.* Occurs in India, Ceylon, Malaya and Thailand. It is common in Ceylon in the moist low-country upto 2000 feet altitude.

*India.* East Bengal: *Griffith* 847, *Kew Distribution* 1861—2; *Beddome* 230; *Khasia: J. D. Hooker and T. Thomson*; *Silhet: Wallich* 4869. *Ceylon Thwaites C.P.* 322; *Walker.* Central Prov., Peradeniya, Bot. Gard., *Willis* 135, May 1907; *Deltota, Appuhamy*, June 1949. *Malaya.* Perak: *Larut, King's Collector* 3063, June 1882. *Cochin-China.* *Pierre* 92, Oct. 1866; *Pierre* 1268, March 1873.

*Composition.* The rind of the fruit contains morellin and the seeds 30% fat.

*Uses.* Gamboge possesses anthelmintic properties and is used for dropsical ailments amenorrhoea, chronic constipation and as a vermifuge. It is a valuable hydragogue cathartic and useful for anasarca and ascites. The stem when rubbed with water and applied on pimples and boils gives beneficial results. The gum-resin has antilithic properties and is frequently employed for urinary gravel and calculi.

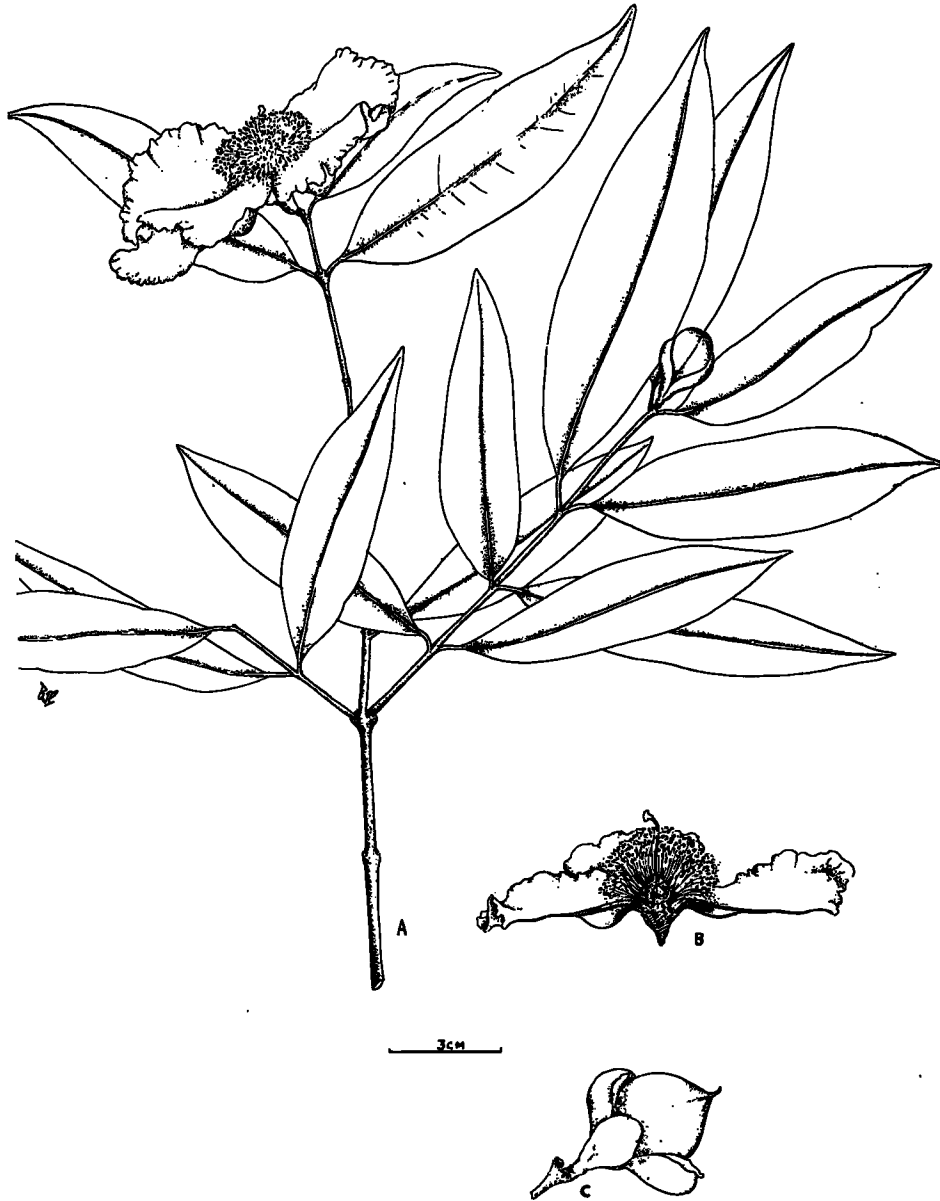


FIG. 253. *Mesua ferrea*. A, branch with leaves and flowers. B, longitudinal section of flower. C, fruit with persistent sepals.

7. *Mesua ferrea* Linn. Sp. Pl. 515. 1753. (Fig. 253).

*Mesua speciosa* Chois.—*Mesua pedunculata* Wight—*Mesua roxburghii* Wight—*Mesua coromandeliana* Wight—*Mesua walkeriana* Planch. and Trin.—*Mesua pulchella* Planch. and Trin.—*Mesua sclerophylla* Thw.—*Mesua nagana* Grod.

*Engl.* Ceylon Iron Wood; *Sinh.* Diyana, Na, Nagaha; *Tam.* Irul, Karunangu, Malainangu, Mannainangu, Naganchambagan, Nagappu, Nagesuram, Naka, Nangu, Nirnangu, Patai, Pudangoli, Sirunagappu, Tadinangu; *Hindi* Nagakesara; *Sans.* Bhujangakhya, Champeya, Hema, Hemakinjalka, Ibhakhya, Kanchana, Kanchanavhya, Kanakavhya, Kesara, Keshara, Kinjalka, Mahaushadha, Naga, Nagakeshara, Nagakhya, Nagakinjalka, Nagapushpanaga, Nagaya, Phalaka, Phanikeshara, Pinjara, Punnagakeshara, Pushpara-chiana, Rukma, Shatapadapriya, Suvarna, Suvarnakhya, Svaraghatana.

A fair-sized pyramidal tree which is much branched and with pale and smooth bark, young branches virgate, thickened at nodes; leaves simple, opposite, numerous without stipules, 7.5–12.5 cm long, 2.5–3.8 cm broad, oblong-lanceolate, acute at base, acuminate, obtuse, red and drooping when young, coriaceous, glabrous and shining above, covered with a white powder beneath, lateral veins fine and quite inconspicuous, petioles short, 6–8 mm long; flowers regular, bisexual, axillary, white, scented, solitary, nearly sessile, large, 7.5–10 cm diam., bracts absent; sepals 4, bright pink in two rows, rotundate, very obtuse, much concave, somewhat reflexed, finely puberulous outside, persistent, the inner pair twice as large as the outer pair; petals 4, white, imbricate, 5 cm long, obovate with a broad cuneate base, crisped and undulated, wide spreading, fugaceous; stamens very numerous, distinct, yellow, shorter than petals, anthers dehiscing vertically; ovary superior, pyramidal, 2-locular, with 2 erect ovules in each loculus, style long, twice as long as the stamens, stigma capitate, 2-lobed; fruit ovoid or subglobular, pointed, 2.5–3.1 cm long, surrounded by enlarged, crustaceous, persistent sepals, pericarp semi-woody, 2-valved; seeds 1–4, angular, testa crustaceous, smooth, chestnut brown.

Flowers from April to June.

**Illustrations.** Wight,  *Ic. Pl. Orient. pls.* 117–119 & 961, 1839–1845; Kirtikar and Basu,  *Indian Med. Plants*, pl. 108. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs in India, Ceylon, Burma and Andaman Islands. It is common in Ceylon in the moist low-country forests.

**India.**  *Ind. Orient. Herb. Wight* 133, Kew Distribution 1866–7. Canara, Yellapore, Talbot, May 1882; Concan,  *Stocks, Law, etc.* 323. Mysore,  *Hook. f. and Thomson.* Assam, Moran, Watt 11210, April 1895. East Bengal.  *Griffith* 845/1, Kew Distribution 1861–2. Chittagong,  *Gage* 3, March 1899. Tenasserim, Moulmein,  *Falconer.* Ceylon. Central Prov., Peradeniya, Bot. Gard.,  *Herb. Peradeniya*, April 1911; Sabaragamuwa Prov., Ratnapura, Singharaja Forest,  *Thwaites C.P.* 3404. **Malay Peninsula.** Perak, Larut,  *King's Collector* 6662, 1884. **Cochin-China.**  *Pierre*, 1869.

**Uses.** The bark of this tree is a mild astringent and combined with ginger it is given as a sudorific. The flowers are used for cough with expectoration, bleeding piles and uterine haemorrhages. In North Canara, the oil from the seeds is used as an embrocation for rheumatism and in the treatment of itch. The flower buds are used for dysentery and the flowers are useful for acute bronchitis and pneumonia.

MEDICINAL PLANTS



Plate V. *Salacia prinoides*. A, twig with leaves and flower. B, flowers front view. C, twig with fruits.

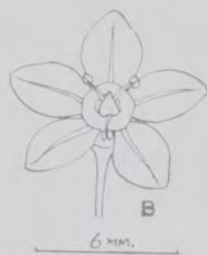


A

3 cm.



C



B

6 mm.

B. Prasad

Plate V. *Salacia prinoides*. A, twig with leaves and flower. B, flowers front view. C, twig with fruits.

## 50. HIPPOCRATEACEAE

### 1. *Salacia prinoides* DC. Prodr. 1: 571 (Plate V).

*Salacia podopetala* Turez.—*Salacia wightiana* Wall.—*Johnia coromandeliana* Roxb.—*Tonsella prinoides* Willd.

*Sinh.* Hin-himbutu-wel; *Sans.* Kushan.

A large climbing shrub with divaricate branches and glabrous angular twigs; leaves simple, opposite, 5—8.8 cm long, oval or lanceolate, acute at base, shortly acuminate, subobtuse, shallowly crenate-serrate, glabrous, rather coriaceous, petioles 0.6 cm long; flowers regular, bisexual, greenish yellow, 0.6—1 cm diam., solitary or two together, from axils of past and present leaves, pedicels 0.6—1 cm long and smooth; sepals 5, fused into a shallow-lobed calyx, pubescent, persistent; petals 5, free, imbricate, ovate-spathulate, clawed, rounded at apex, spreading; disc cup-shaped enclosing the ovary; stamens 3 inserted on the outer face of or combined with the disc; ovary superior, 3-locular with 2 or more ovules in each loculus; fruit an indehiscent berry, less than 1.2 cm long, ovoid or slightly pyriform, blunt, minutely apiculate, supported on the disc and somewhat enlarged, reflexed, persistent calyx, smooth, bright scarlet, 1-seeded.

Flowers in December.

**Illustrations.** Herb. Peradeniya, drawing.

**Distribution.** Occurs in India, Ceylon, Malaya, Philippine Islands and tropical Australia. It is rather rare in Ceylon and found chiefly in the low-country dry regions. Mannar, Jaffna, etc.

**India.** Silhet: *Wallich* 4219G; Goomsur, *Beddome*. Pen. Ind. Orient. *Herb. Wight* 249, Kew Distribution. Ceylon. *Thwaites* C.P. 1165. North Western Prov., Mannar District, Giant's Tank, *Sayaneris*, Feb. 1890. North Central Prov., Mahailupalama, *Willis*, March 1905; *Walker*. Andaman Islands. Escape Bay without collector's name.

**Uses.** The roots are used in decoction for amenorrhoea and dysmenorrhoea and are considered abortive.

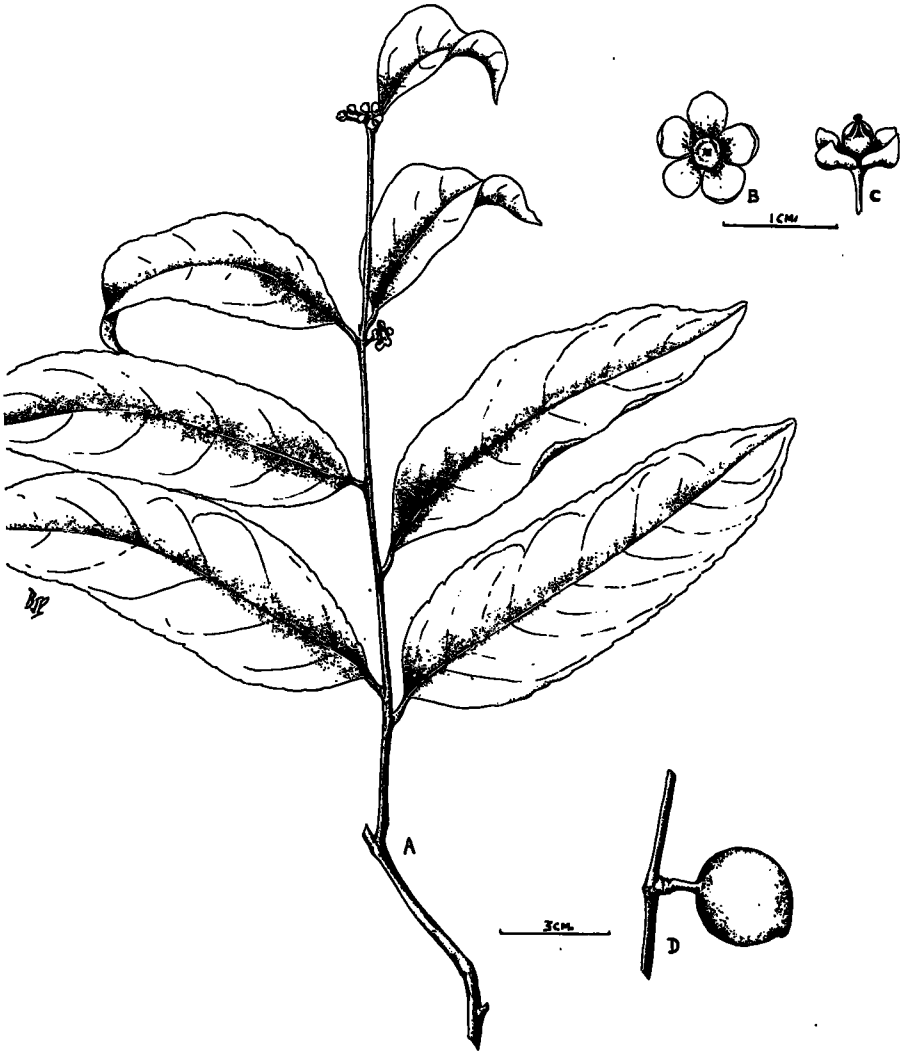


FIG. 254. *Salacia reticulata*. A, twig with leaves and flowers. B, flower from front. C, flower lateral view. D, fruit.

2. *Salacia reticulata* Wight Ill. 1: 134. 1838. (Fig. 254).

*Sinh.* Himbutu-wel, Kothala-himbutu; *Sans.* Kinjalaka.

A large woody climber, much dichotomously branched, pale yellow bark and glabrous young parts; leaves simple, opposite, 6.3—11.4 cm long, oval, narrowed at base, usually shortly acuminate, obtuse, very shallowly crenate-serrate, glabrous and shining above, paler and with prominent reticulations beneath, petioles 0.6 cm long; flowers regular, bisexual, greenish yellow on short, glabrous pedicels, 2—10 together on woody axillary tubercles; sepals 5, fused into a scarcely lobed calyx, glabrous; petals 5, free, imbricate, oblong, obtuse, spreading; disc large, fleshy, closely investing the ovary; stamens 3, inserted on the disc; ovary superior, 3-locular with 2 or more ovules in each loculus, style short, simple; fruit a globular, indehiscent berry, 1.8—3.7 cm diam., smooth, bright pinkish orange, pericarp soft-leathery with 1—4 seeds immersed in the pulp; seed 2.5 cm long, almond-like, testa membranous, yellowish.

Flowers during March and April.

**Illustrations.** Herb. Peradeniya, drawing.

**Distribution.** Occurs along the western portion of India and Ceylon. It is rather common in the moist, low-country in Ceylon up to 3000 feet altitude. Bentota, Hantane, Hunnasingiriya, etc.

**Ceylon.** Sabaragamuwa Prov., Ratnapura, Ekneligoda, *Thwaites C.P.* 2720.

**Uses.** The root bark is used for rheumatism, gonorrhoea and skin diseases. It is frequently used at the initial stages of diabetes.

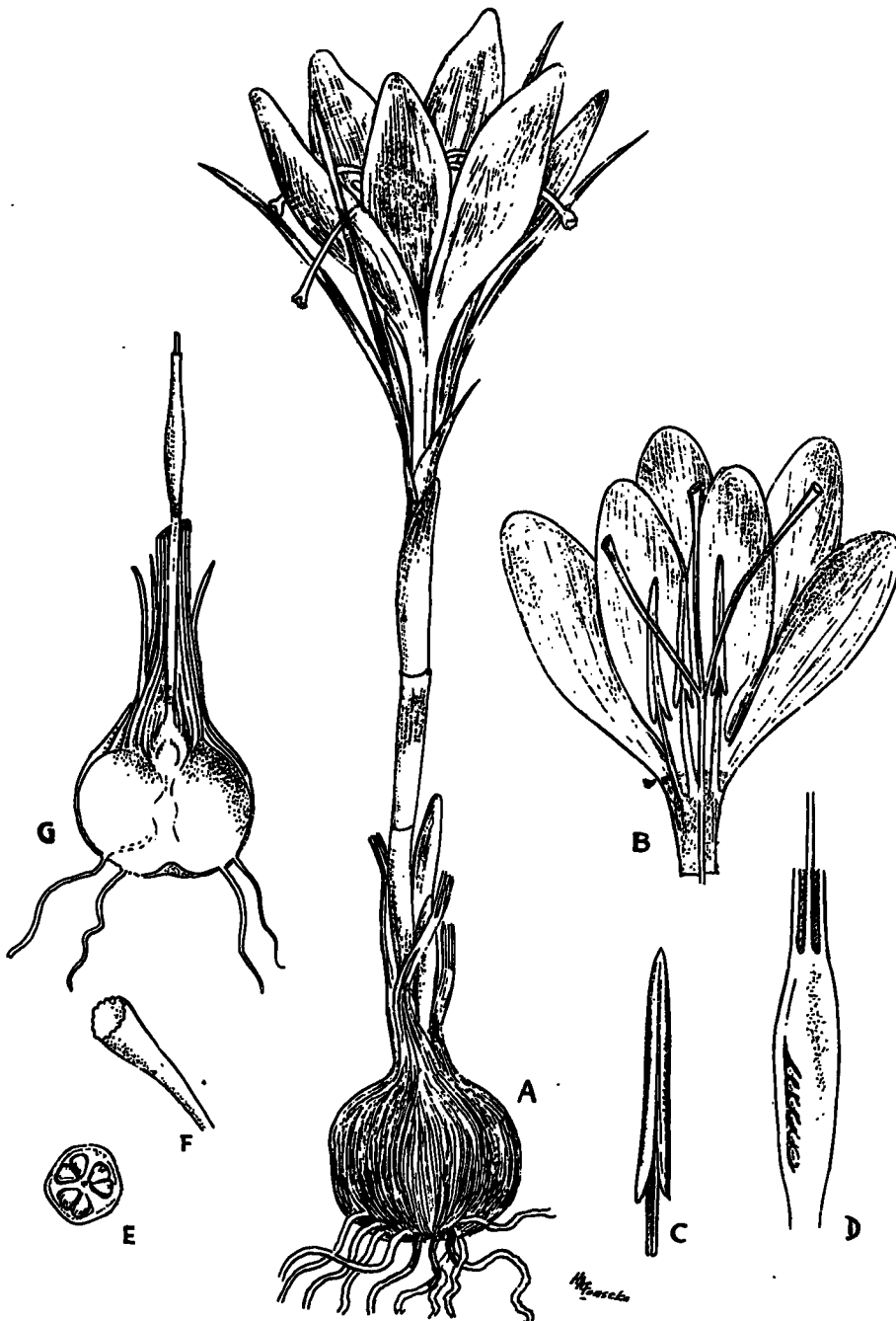


FIG. 255. *Crocus sativus*. A, plant complete with corm, leaf bases and flower. B, upper part of the flower opened out showing perianth, epipetalous stamens. C, stamen. D, longitudinal section of ovary. E, transverse section of ovary. F, stigma. G, longitudinal section of corm.

## 51. IRIDACEAE

*Crocus sativus* Linn. Sp. Pl. 36. 1753. (Fig. 255).

*Crocus sativus* var. *kashmeriana* Royle—*Crocus officinalis* var.—*Crocus orsinii* Parl.

*Engl.* Saffron; *Sinh.* Kunkumappu; *Tam.* Kungumapu; *Hindi* Kesar, Zafran; *Sans.* Agnishekhara, Agnishika, Aruna, Asra, Asrika, Balhika, Chandana, Charu, Dhira, Dipaka, Gaura, Ghusruna, Harichandana, Jaguda, Kaisara, Kaleyaka, Kanta, Kashmara, Kashmiraja, Keshara, Khala, Kunkuma, Kusumatmaka, Lohita, Pishuna, Pitaka, Pitana, Raja, Rakta, Rakta-chandana, Raktasanjna, Ruchira, Rudhira, Sankocha, Sanko-chapishuna, Saubhara, Shatha, Shonita, Shonitavhaya, Vara, Varabalhika, Varenya, Vira.

A perennial herb with a solid, depressed-globular corm about 2.5 cm diam., giving off from its undersurface several slender whitish roots, covered with a thin coating of several layers of fine longitudinal pale brown fibres (remains of leaves, etc., of previous year), and producing on the top one or more buds (corms); leaves produced from the new bud, few (6—9), very closely placed, sessile, forming an erect tuft, which is closely invested in its lower part by 4 or 5 large, broad, obtuse, thin, tough, membranous, sheathing scales 10—15 cm long, linear, acute, entire, stiff, curved outwards, smooth, shining, deep purple, solitary or 2 together, appearing with the leaves and borne on a very short, erect peduncle (scape) from a leaf axil, closely enveloped by a delicate membranous spathe which is bifid at apex; perianth very large, erect, monophyllous, regular with a slender, delicate, cylindrical tube about 10 cm long and adherent to the ovary at the base, and 6, oblong-oval, blunt, concave segments, about 3.7 cm long, in two rows, the outer rather the longer, glossy, pale reddish purple, finely striated; stamens 3, inserted in the mouth of the tube opposite the outer segments, and much shorter than them, anthers linear, longer than the filaments, sagittate at the base, bright yellow; ovary inferior, oblong, 3-locular, with numerous horizontal or ascending ovules in two rows in each loculus, style very long and slender, colourless in the perianth-tube which it exceeds in length, dividing at the level of the anthers into 3 yellow drooping branches which hang out of the flower and become gradually thickened and tubular upward, stigmas dilated, notched or jagged, and often split down on one side, dark orange coloured, fruit not seen.

Flowers during October and November.

*Illustrations.* Royle, Ill. Himal. Bot. pl. 90; Kirtikar and Basu, Indian Med. Plants, pl. 954B. 1933.

*Distribution.* Indigenous to Europe and cultivated in India (Kashmir), China, Spain and France. It does not grow in Ceylon.

*Composition.* This plant contains N-formyl-desacetyl colchicine and the leaves colchicine and desmethyl colchicine. The saffron of commerce contains a polychlorite, a glucoside, cane and grape sugar, gum, a volatile oil and other substances.

*Uses.* Saffron consists of the dried ends of the styles with their attached stigmas. It is invariably mixed with the dried stamens.

It is a stimulant, anti-spasmodic and emmenagogue. It is used for fevers and enlargement of the liver. It is valuable for catarrhal ailments of children. It is a dyeing agent and a condiment.

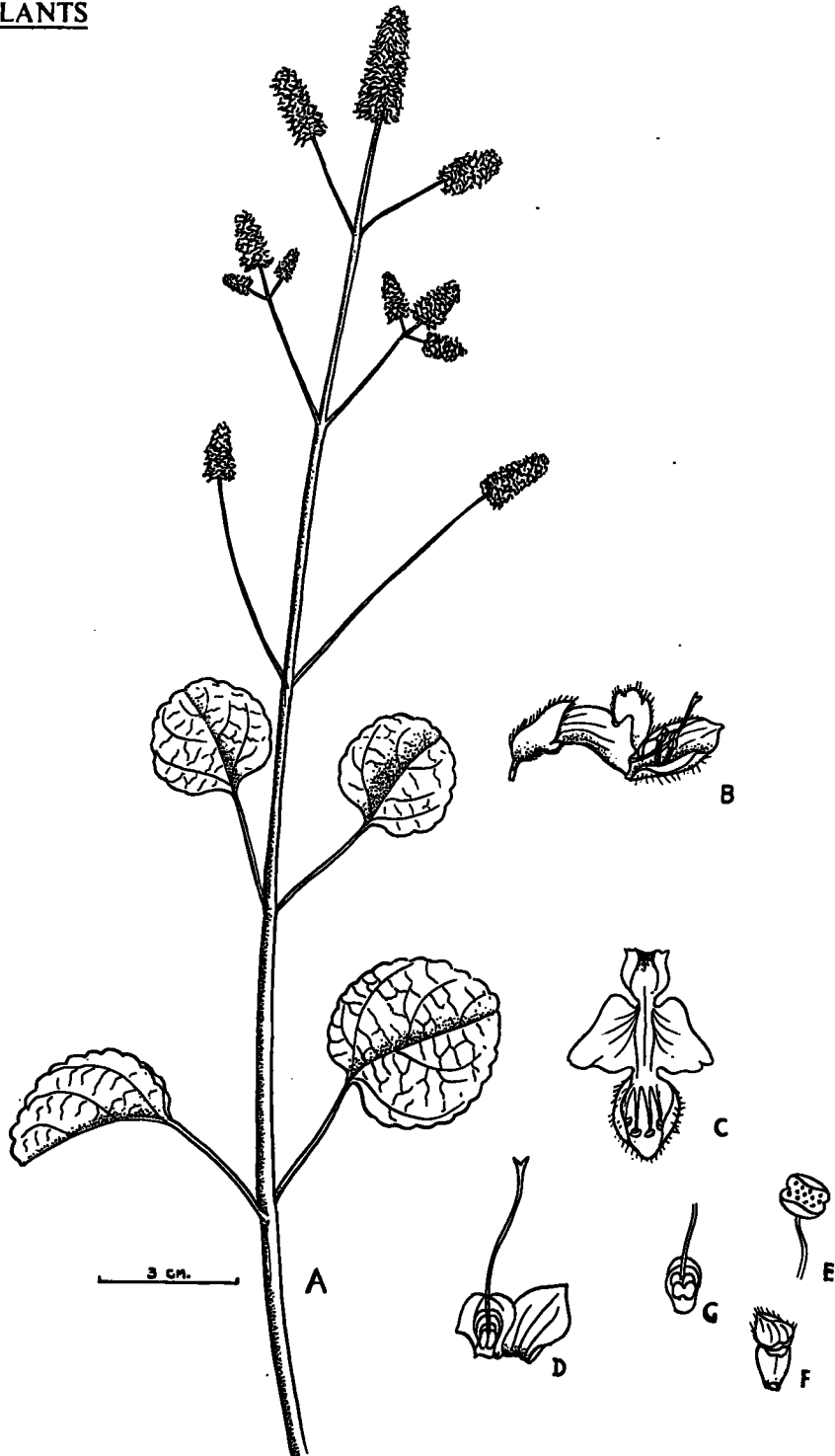


FIG. 256. *Anisochilus carnosus*. A, top of the plant with the inflorescence. B, flower, lateral view. C, corolla opened out. D, pistil with disc and bract. E, stamen. F, persistent calyx. G, fruit. B—G, enlarged.

## 52. LABIATAE

### 1. *Anisochilus carnosus* (Linn.) Wall. ex Benth. Lab. 59. (Fig. 256).

*Anisochilus crassus* Benth.—*Anisochilus glaber* Schrad.—*Anisochilus rupestris* Wight—*Plectranthus strobiliferus* Roxb.—*Plectranthus carnosus* Smith—*Plectranthus dubius* Spr.—*Lavandula carnosus* Linn.—*Origanum watariense* Roxb.

*Sinh.* Gal-kapparawalliya; *Tam.* Karppuravalli; *Hindi* Panjirikapat.

An annual with an erect, stiff, slightly branched, bluntly triangular stem 30—60 cm high, glabrous or very finely pubescent often tinged with red; leaves simple, opposite, rather small, 2.5—5 cm long, 1.3—4 cm broad, broadly oval, rounded or subcordate at base, very obtuse, crenate-dentate, glabrous above, slightly pubescent beneath, rather fleshy; petioles 1.2—2.5 cm long; flowers irregular, bisexual, small, pale violet, sessile in dense, short terminal spikes 1.2—2.5 cm long (becoming 5 cm in fruit), oblong-ovoid, tapering, terminating the spreading branches of the inflorescence; bracts broadly ovate, acuminate, pubescent, glandular, ciliate, caducous; sepals fused into an inflated, finely pubescent, glandular, 2-lipped calyx 5 mm long, upper lip very large, triangular-lanceolate, acute, strongly deflexed, slightly ciliate, lower lip very short, truncate; petals fused into a short, decurved corolla tube inflated at the throat, 2-lipped, upper lip short, 3 or 4-lobed, lower lip long, concave; stamens 4, didynamous, inserted on corolla-tube, filaments distinct, anther cells confluent, disc conspicuous; ovary superior, 2-carpellary, 2-locular with a single erect ovule in each loculus, style bifid; fruit of 4, small, dry, 1-seeded achenes at the base of the persistent calyx, achenes very small, ovoid, compressed, dark brown and polished.

Flowers during March.

**Illustrations.** Linnaeus, *Amoen. Acad.* 10: *pl.* 3; Wight, *Ill. Ind. Bot.* *pl.* 176*b*, *f.* 1; Kirtikar and Basu, *Indian Med. Plants*, *pl.* 753*A*. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs throughout India, Ceylon and Burma. It is rare in Ceylon in the low-country, usually found growing on exposed rocks. Dambulla, Four Korales, etc.

**India.** Maisor and Carnatic. *G. Thomson*. Pen. Ind. Or, *Herb. Wight* 2107; Kew Distribution 1866—7. Ceylon. *Thwaites C.P.* 2055; Dambulla, *Alston* 1333, Feb. 1926; Kurunegala, *Alston* 1332, Jan. 1927.

**Uses.** Useful for coughs in children, as a mild stimulant and expectorant.

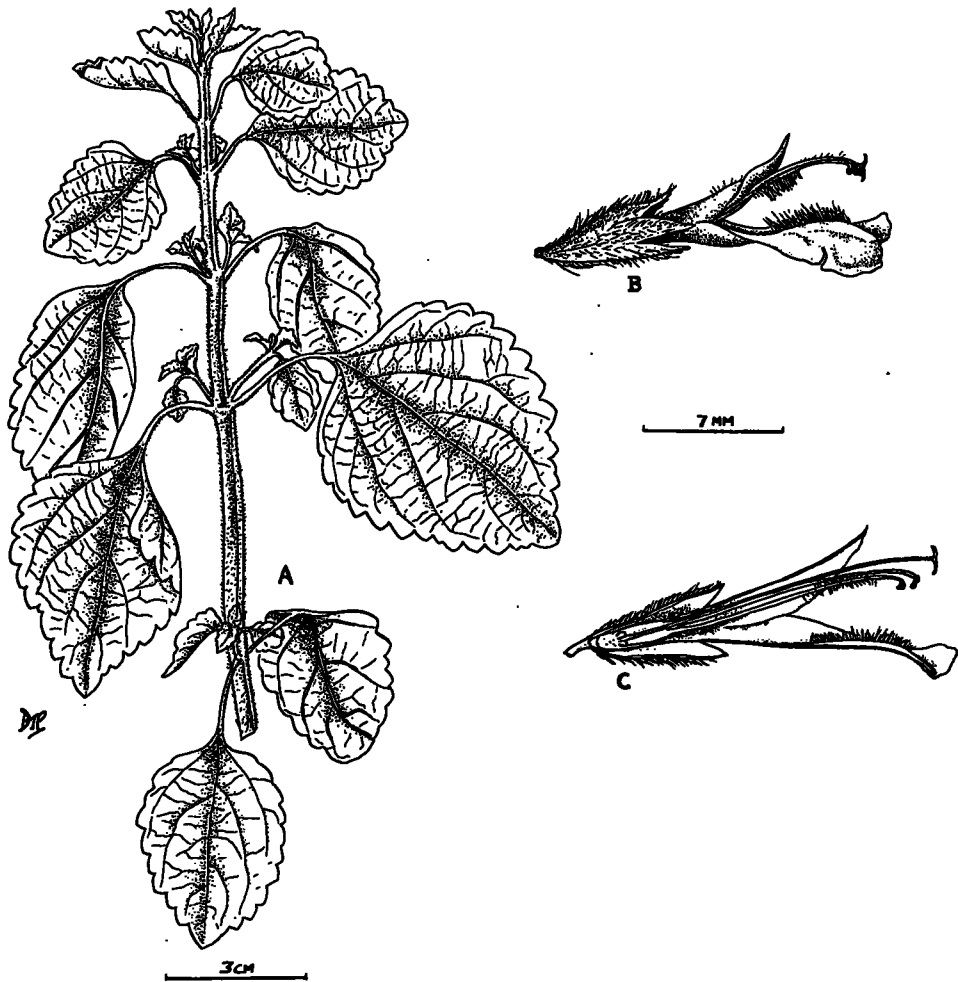


FIG. 257. *Anisomeles indica*. A, twig with leaves. B, flower, lateral view. C, longitudinal section of a flower, side view.

2. *Anisomeles indica* O. Ktze. Rev. Gen. 512. 1891. (Fig. 257).

*Nepeta indica* Linn.—*Nepeta amboinica* Linn. f.—*Nepeta disticha* Bl.—*Ballota disticha* Linn.—*Anisomeles ovata* R.Br.—*Anisomeles glabrata* Benth.—*Anisomeles mollissima* Wall.—*Ajuga disticha* Roxb.—*Marrubium indicum* Burm.—*Marrubium odoratissimum* Burm.—*Monarda zeylanica* Burm.—*Phlomis alba* Blanco—*Phlomis indica* Blanco.

*Sinh.* Yakwanassa; *Tam.* Peyameratti.

A large perennial herb, stems 60—120 cm tall, stout, acutely quadrangular, woolly pubescent; leaves simple, opposite, 3.7—6.2 cm long, 2.5—5.7 cm broad, ovate, acute, deeply crenate-serrate, softly pubescent on both sides, petioles 2.5 cm long and hairy; flowers irregular, bisexual, white with the lower lobes of the lip pale pink-violet, nearly sessile in dense whorls, distant below, approximated above to form a dense spicate inflorescence, bracts linear, hairy; sepals 5, fused into a long-campanulate, glandular, hairy calyx-tube somewhat enlarged in fruit, segments lanceolate, very acute, half as long as the tube; petals 5, fused into a 2-lipped corolla, upper lip oblong-oval, obtuse, small, erect, lower lip large, spreading, broad, 4-lobed with the two middle lobes large, round, deflexed, the lateral ones small; stamens 4, didynamous, on short corolla-tube, exerted, filaments hairy with a tuft of long hairs in front, anthers of long stamens 1-celled, of short stamens 2-celled; ovary superior, 2-carpellary, 4-locular with a single ovule in each loculus, style bifid; fruit of four, small, dry, 1-seeded achenes at the base of the persistent calyx, achenes glabrous.

Flowers from July to September.

**Illustrations.** Wight, Ic. Pl. Ind. Orient. pl. 865. 1843—45; Burmann, Thes. Zeyl. pl. 71, f. 1, 1737; Kirtikar and Basu, Indian Med. Plants, pl. 769. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs in India, Ceylon, Malaya, China and Philippine Islands. It is common in the moist low-country in Ceylon up to 3000 feet altitude.

**India.** Sikkim Himalaya, *Treutler* 763. Khasia, *J. D. Hooker and T. Thomson*. W. India, *Gibson*. Punjab. *T. Thomson*. Silhet, *Wallich* 2040C. E. Bengal, *Herb. Griffith* 4027/2, Kew Distribution 1863—6. Misor and Carnatic, *G. Thomson*. Pen Ind. Or. *Herb. Wight* 2143, Kew Distribution 1866—7. Ceylon. *Thwaites* C.P. 2072 / Monerakande, *Alston*, Dec. 1926. Maldive Islands. Horsburgh Atoll, *Gardiner*, 1899—1900; Veimandu, *Gardiner*, 1899—1900; Hulule, *Gardiner*, 1899—1900; Minikoi, *Gardiner* 30, 1899. **China.** Lantan Island, Kwantung, *Lignan* 16626, Dec. 1927; Canton, Kwantung Prov., *Tsiang Ying* 411, May 1928. **Philippine Islands.** Luzon, Zambeles Prov., Anuling, *Ramos and Edano* 44579, Nov.—Dec. 1924.

**Composition.** Contains a volatile oil and a bitter alkaloid.

**Uses.** An infusion is useful for stomach and bowels ailments, for catarrh and intermittent fevers. The juice of the leaves is given to children for colic dyspepsia and fever due to teething. A decoction of the plant is an excellent fomentation for rheumatic joints and severe pains. In the Dutch East Indies, a decoction of the plant is given for gravel in the kidneys. The oil distilled from the plant is useful for uterine affections.

MEDICINAL PLANTS

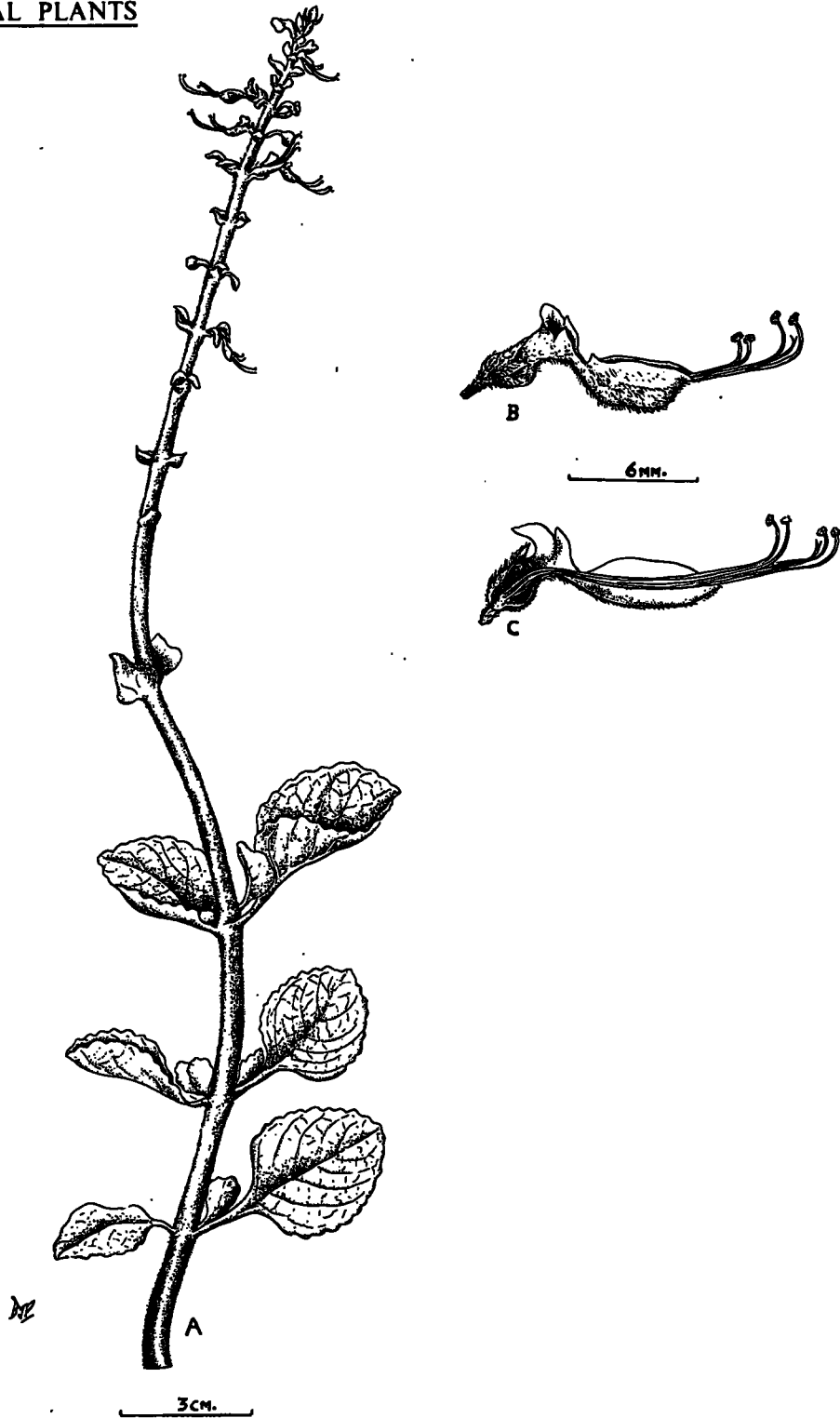


FIG. 258. *Coleus amboinicus*. A, branch with leaves and a terminal inflorescence. B, flower, lateral view. C, longitudinal section of a flower.

3. *Coleus amboinicus* Lour. Fl. Cochinch. 372. 1790. (Fig. 258).

*Plectranthus aromaticus* Roxb.—*Coleus aromaticus* Benth.—*Coleus crassifolius* Benth.—*Coleus suganda* Blanco.

*Sinh.* Kapparawalliya; *Tam.* Kappasa-walle; *Hindi* Pathorchur; *Sans.* Pashan-abhedi.

A villous, perennial herb, shrubby below, stems fleshy, 30—90 cm tall; leaves simple, opposite, 2.5—5 cm long, petioled, broadly ovate, cordate, crenate, fleshy, very aromatic; flowers regular, bisexual, shortly pedicelled, 8—10 mm long, in dense distant whorls along the raceme; sepals 5, fused into a tube, hairy, 2-lipped, upper lip ovate, acute, membranous, lower lip acuminate; petals 5, fused into a 2-lipped, pale purplish corolla, tube short, throat inflated, lips short except the lower lip, hairy; stamens 4, didynamous, shortly exerted, connate below into a sheath separate from the corolla, disc enlarged; ovary superior, 4-partite, style bifid; fruit of four orbicular dry achenes, fruiting calyx suberect.

**Illustrations.** Wight, Ill. Ind. Bot. 2: pl. 175; Edward, Bot. Reg. pl. 1520. 1832; Kirtikar and Basu, Indian Med. Plants, pl. 753B, 1933.

**Distribution.** Mostly cultivated throughout India and Ceylon.

**Ceylon.** Central Prov., Dambulla. *Thwaites C.P.* 3971; *Herb. Peradeniya.*, July 1887.

**Composition.** The fresh leaves contain a volatile oil consisting largely of carvacrol.

**Uses.** A specific for whooping cough in children, laryngitis, bronchitis, pneumonia after measles, chickenpox and smallpox. It is also used for asthma, coughs, epilepsy and other convulsive affections. It is effective on acute dyspepsia, diarrhoea, dysentery, flatulence and colic. It has a specific action on the bladder and hence used for urinary diseases, vaginal discharges, etc. In Malaya, a decoction of the leaves is given after child birth and for pains in the region of the heart and stomach. In Indo-china, the plant is used for asthma and bronchitis, while in Bengal it is employed for colic and dyspepsia.

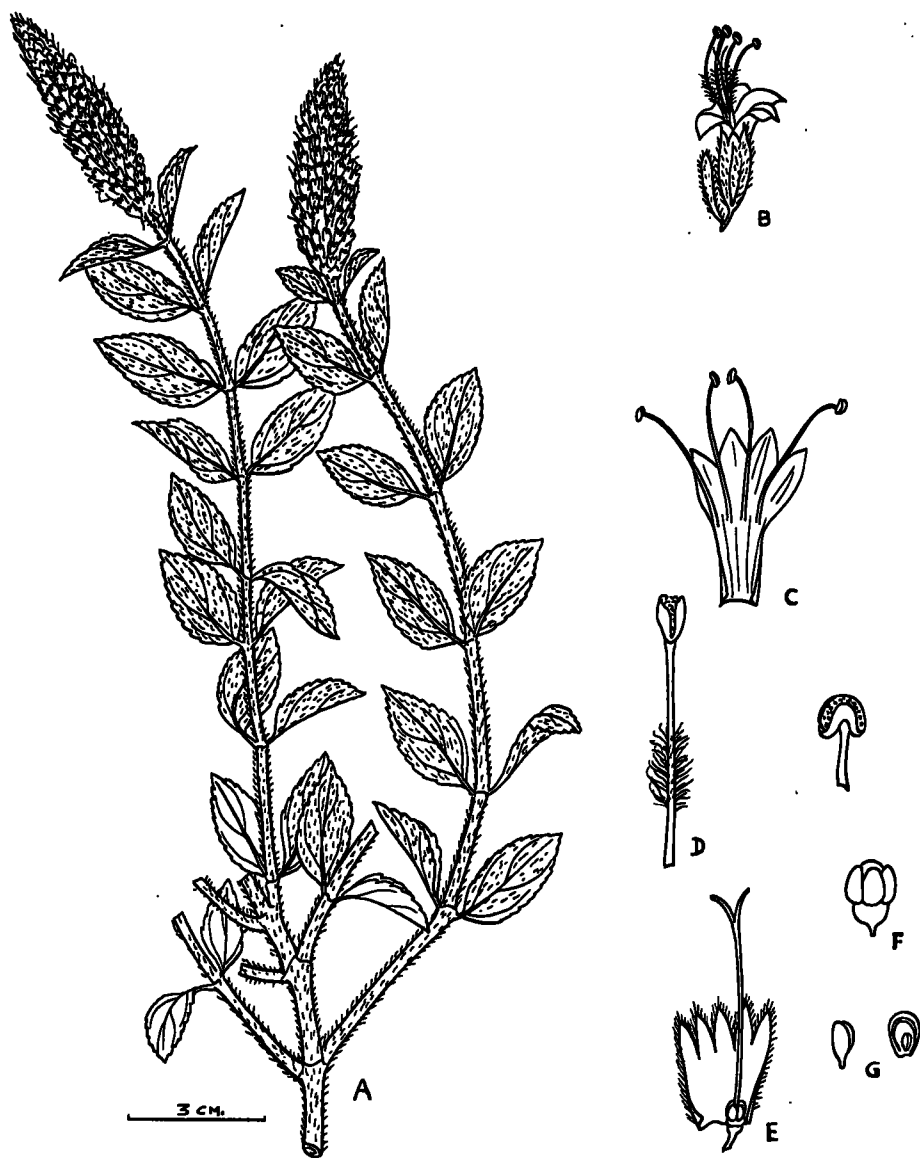


FIG. 259. *Dysophylla auricularia*. A, branch with leaves and inflorescences. B, flower. C, corolla opened out. D, stamen. E, pistil and calyx spread out. F, fruit. G, achene and section of achene.

4. *Dysophylla auricularia* (Linn.) Bl. Bijd. 826. 1825. (Fig. 259).

*Mentha auricularia* Linn.—*Mentha foetida* Burm.

Sinh. Hemanilla.

An erect annual with stems 30—60 cm high and many, long, quadrangular branches, densely covered with long, coarse spreading hair; leaves simple, opposite, 2.5—5 cm long, oval or oblong-oval, rounded at base, subacute, serrate, hairy on both sides, petioles very short; flowers irregular, bisexual, minute, pale lilac, nearly sessile in small whorls, dense along a narrow, cylindrical, terminal spike, 5—10 cm long, bracts ovate, acute, hairy and strongly ciliated; sepals 5, fused into a tubular calyx with long hair, segments equal, oblong, acute; petals 4, fused into a slightly exerted corolla-tube, lobes equal, lanceolate, acute; stamens 4, didynamous, epipetalous, exerted, filaments with a tuft of long hair, anther cells confluent; ovary superior, 2-carpellary, 4-locular with a single ovule in each loculus, style bifid; fruit of 4, one-seeded achenes at base of enlarged, persistent calyx, achenes minute, smooth.

Flowers from December to February.

Illustrations. Wight, Ic. Pl. Ind. Orient. pl. 1445. 1849; Herb. Peradeniya., drawing.

Distribution. Occurs in India, Ceylon, S. China, Borneo and Philippine Islands. In Ceylon, it is common in wet places at the edge of paddyfields in the low-country.

India. Khasia. *J. D. Hooker and T. Thomson*. Silhet. *Wallich 1548A*. Assam. Gowhetty Hills, *Simons*. Mont. Nilghiri and Kurge, *G. Thomson*. Pen. Ind. Or., *Herb Wight 7129*, Kew Distribution 1866—7. Ceylon. Central Prov., Hantane, *Herb. Gardner 662*. Sabaragamuwa Prov., Ratnapura, *Thwaites C.P. 26*. Western Prov., Mirigama, *Alston 677*, June 1927. Southern Prov., Mawarella, *Herb. Peradeniya.*, Feb. 1881. Malaya. Penang, *Wallich 1548*. Upper Burma. *Prazer*, 1890. Sumatra. E. Coast, Asahan, Simpang Kawat, *Yates 2229*. Malacca. *Harvey*, 1891.

Composition. The leaves contain an alkaloid.

Uses. Used as a poultice for stomach trouble in children, worms, kidney ailments and diarrhoea.

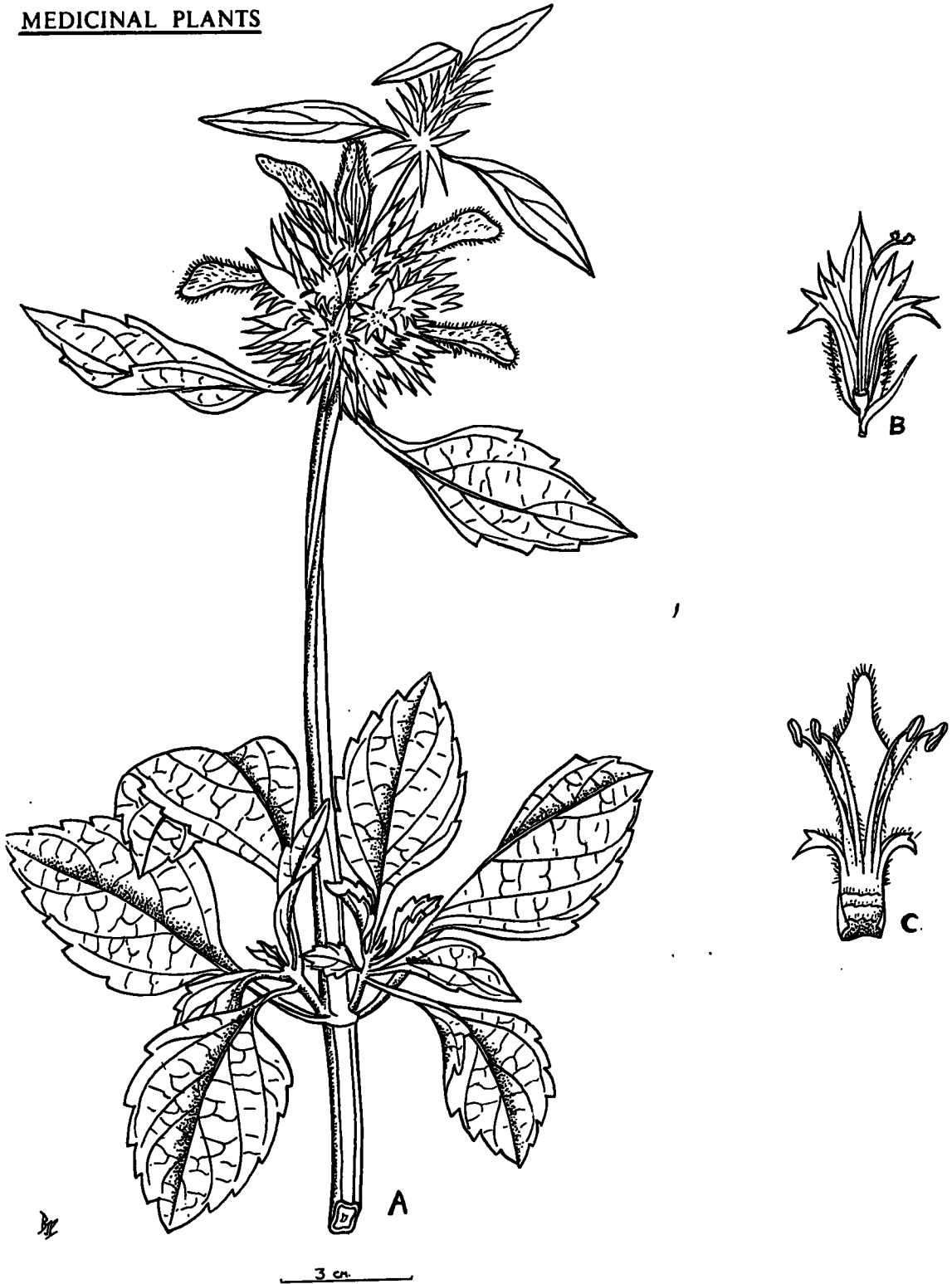


FIG. 260. *Leonotis nepetaefolia*. A, branch with leaves and a whorl of flowers. B, flower opened out showing calyx and pistil. C, corolla opened out showing tube and segments and epipetalous stamens.

5. *Leonotis nepetaefolia* (Linn.) R.Br. in Ait. Hort. Kew. ed. 2, 3: 409. 1811. (Fig. 260).

*Phlomis nepetaefolia* Linn.—*Leonurius globulus* Moench.

*Sinh.* Maha-yakwanassa; *Tam.* Kasitumpai; *Hindi* Hejurchei.

A large annual herb, stem 1.2—1.8 m tall, erect, stout, quadrangular with thickened angles, very finely pubescent; leaves simple, opposite, 6.2—10 cm long, ovate, tapering into petiole, acute, coarsely dentate-serrate, very finely pubescent on both sides, petioles 3.7—5 cm long; flowers irregular, bisexual, large, orange-scarlet, nearly sessile in whorls; whorls few, large, subglobose, very dense; bracts numerous, deflexed, setaceous, spinous; sepals 8—10, fused to form tubular calyx, 1.2 cm long, puberulous, bristly in the upper part, segments unequal, rigid, sharply spinous, uppermost the largest; petals 5, fused into a 2-lipped corolla, over 1.8 cm long, erect, tube long, slightly curved, exerted, upper lip large, hooded, densely woolly at the back, lower lip very small, 3-lobed, middle lobe the longest; stamens 4, didynamous, epipetalous, included, anther cells divaricate; ovary superior, 2-carpellary, 4-locular with a single ovule in each loculus; fruit of 4, one-seeded achenes at the base of a persistent, enlarged calyx, achenes glabrous.

Flowers from December to March.

**Illustrations.** Wight, Ic. Pl. Ind. Orient. *pl.* 867. 1843—1845; Edward, Bot. Reg. *pl.* 281. 1818; Curtis, Bot. Mag. *pl.* 3700; Kirtikar and Basu, Indian Med. Plants, *pl.* 777. 1933; Herb. Peradeniya., drawing.

**Distribution.** Occurs in the warmer parts of India, Ceylon, Malaya, Africa and America. It is common on waste ground in the dry and intermediate regions in Ceylon.

**India.** Malabar, Concan, etc. *Stocks, Law, etc.* Pen Ind. Or., *Herb. Wight* 2166, Kew Distribution 1866—8. Ceylon. Northern Prov., Mullatiyu, *Simpson* 9299, March 1932. Central Prov., *Marimuttu* 8839, Nov. 1931. Uva Prov., Bibile, *Herb. Peradeniya.*, Jan. 1888; *Thwaites C.P.* 2070.

**Composition.** The fresh calyx and flower contain a fixed oil, a brittle substance and resins. The seed yields a fixed oil, sugars, a volatile oil, a phytinlike substance and a proteinlike substance.

**Uses.** The ashes of the flower heads are applied to burns and scalds. Mixed with curd the ash is a cure for ringworm and other itchy skin diseases. The crushed root is used as an application on swollen breasts to allow free flow of milk. In Madagascar, the plant is considered an emmenagogue and laxative and used in amenorrhoea and fever. In Tanganyika, it is used as a tapeworm remedy with pumpkin seeds, while in Central Africa the crushed leaf treated with saltpetre is applied on syphilitic ulcers. It is also recommended for abdominal troubles, fevers, elephantiasis and amenorrhoea. In Northern Nigeria, the leaf is used as an anti-asthmatic and haemostatic. In Brazil, the leaves are applied for rheumatic ailments.

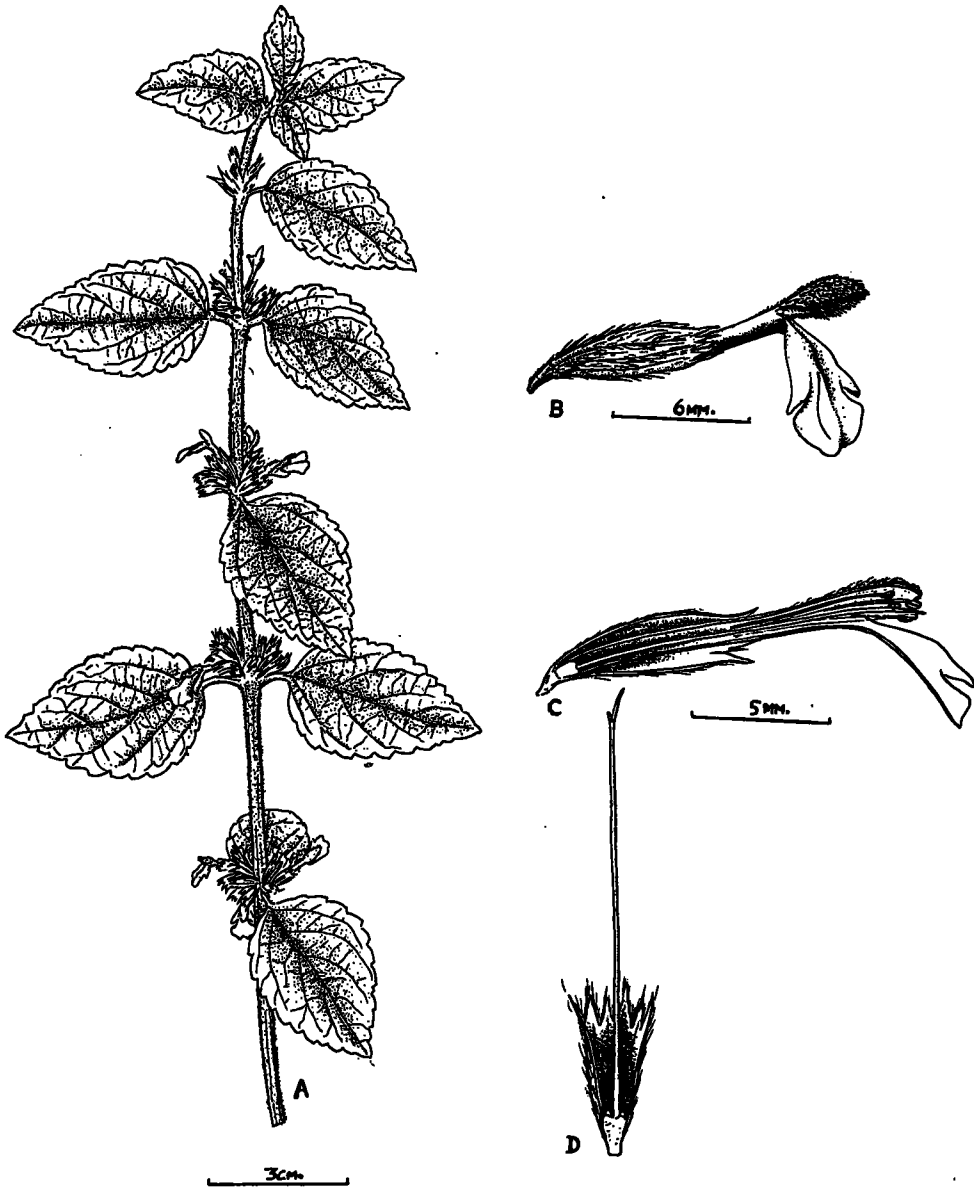


FIG. 261. *Leucas marrubioides*. A, stem with leaves and whorls of flowers. B, flower, lateral view. C, longitudinal section of flower. D, flower with corolla removed showing pistil and calyx spread out.

6. *Leucas marrubioides* Desf., Mem. Mus. 11: 6. 1826. (Fig. 261).

*Sinh.* Sudu-thumbba; *Sans.* Dronapushpi.

A perennial herb, stem 60—90 cm tall, erect, scarcely branched, rather stiff, stout, bluntly quadrangular, densely covered with fine, silky white, deflexed hairs; leaves simple, opposite, 2.5—7.5 cm long, ovate-oval, acute or obtuse at base, coarsely dentate-serrate, velvety above, white with dense silky tomentum beneath, petioles 1.2 cm long and silky hairy; flowers irregular, bisexual, white, sessile, numerous in whorls and the whorls dense and rounded, bracts linear, villous; sepals 8, fused into a tubular calyx, 8-ribbed, villous hairy, teeth triangular-subulate, often unequal, about 1/4 as long as the tube but variable; petals 5, fused into a 2-lipped corolla, corolla-tube straight, slightly exerted, upper lip erect, arched, villous outside, lower lip large, flat, 3-lobed with the lateral ones smaller; stamens 4, didynamous, epipetalous, not exerted, anther cells divaricate, confluent; ovary superior, 2-carpellary, 4-locular with a single ovule in each loculus, style subulate, entire; fruit of 4, one-seeded achenes at the base of an enlarged, persistent calyx, achenes ovoid-triquetrous.

Flowers from May to August.

**Illustrations.** Desfontaines, Mem. Mus. 11: *pl.* 3, *f.* 1. 1826; Herb. Peradeniya, drawing.

**Distribution.** Occurs along Western Ghats in India and Ceylon. It is common in both the moist and dry regions in Ceylon, abundant in rocky banks in Uva country up to 3000 feet altitude.

**India.** Mont. Nilghiri and Kurg. *G. Thomson.* Ceylon. Central Prov., Hakgala, *Willis*, May 1906; Gorindhela, *Willis*, Feb. 1906. Uva Prov., Bibile, *J. M. Silva*, Oct. 1923; Fort Macdonald, *A. M. Silva*, March 1906; *Thwaites C.P.* 2071.

**Uses.** Regarded as a stimulant diuretic and prescribed for jaundice and to expel phlegm and worms. It is useful for coughs and catarrh in children.

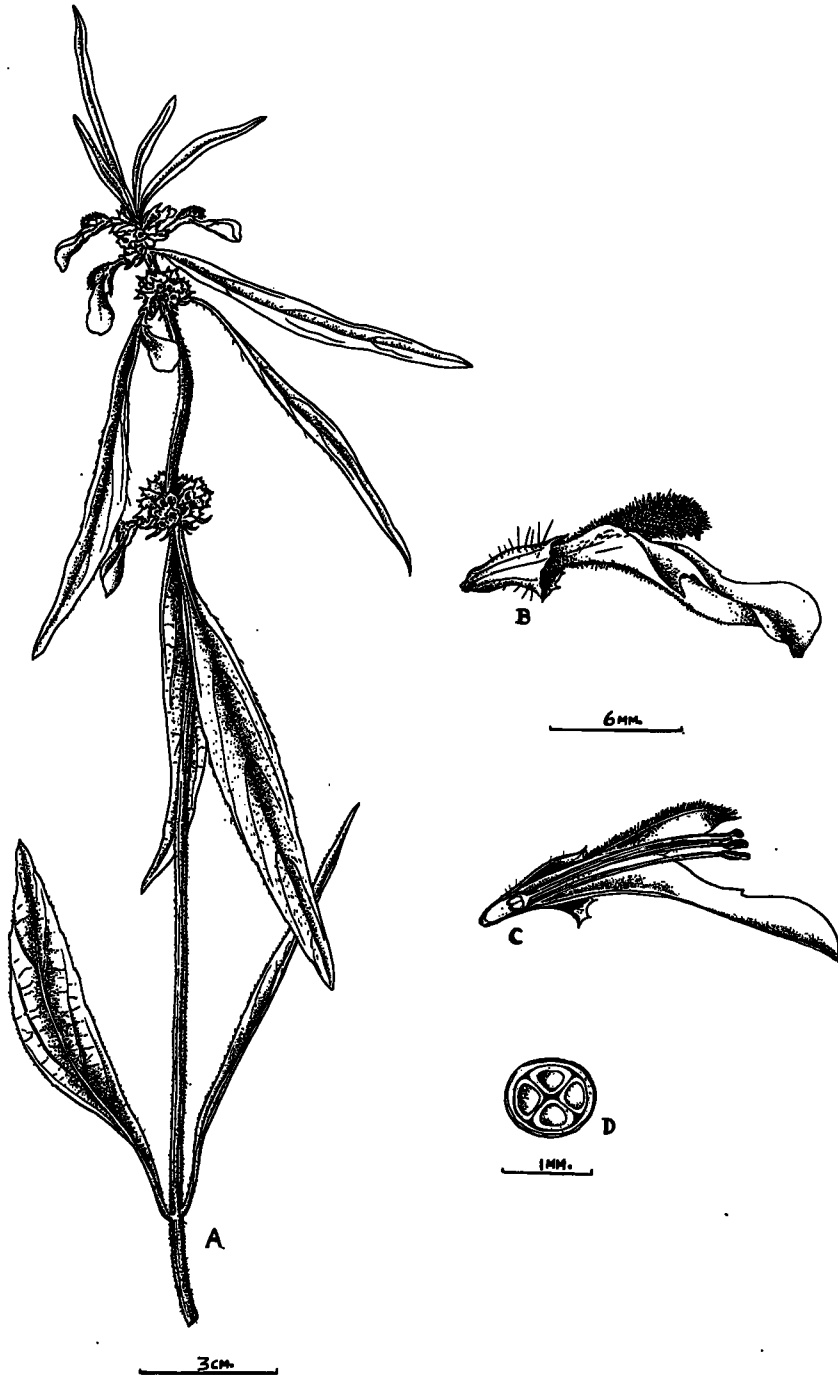


FIG. 262. *Leucas zeylanica*. A, branch with leaves and whorls of flowers. B, flower, lateral view. C, longitudinal section of flower. D, transverse section of ovary.

7. *Leucas zeylanica* (Linn.) R. Br. Prodr. 504. 1810 (Fig. 262).

*Leucas involuocrata* Benth.—*Phlomis zeylanica* Linn.—*Leonurus marrubiastrum* Burm.—*Leucas bancana* Miq.—*Spermacoce denticulata* Walp.

*Sinh.* Geta-thumba; *Tam.* Muditumpai; *Sans.* Kumbhayoni.

An annual herb with an erect stem 30—60 cm tall and long spreading, branches from base overtopping the main stem which is quadrangular and hispid-hairy; leaves simple, opposite, without stipules, variable in size, 2.5—8.7 cm long, 0.8—1.3 cm broad, nearly sessile, linear or lanceolate-linear, tapering to base, obtuse, shallowly serrate, often slightly curved at the margin, hispid on both sides, venation prominent beneath, impressed above, lateral veins very oblique; flowers irregular, bisexual, pure white, nearly sessile, numerous, crowded in two or three whorls usually combined to form a terminal head but the lowest often separate; bracts numerous, linear, bristle-pointed and strongly ciliate; sepals 8, fused into a tubular, funnel-shaped calyx, 0.6 cm long, curved, finely pubescent, mouth oblique, teeth 8, very short, distant, upper one rather large; petals 5, fused into a 2-lipped corolla 2 cm long, corolla-tube short, upper lip erect, arched, villous outside, lower lip with the middle lobe large and truncate, the lateral ones very small, reflexed; stamens 4, didynamous on corolla-tube, not exerted, anther cells divaricate, confluent; ovary superior, 2-carpellary, 4-locular with a single ovule in each loculus, style subulate, entire; fruit of 4, small, dry, 1-seeded achenes at the base of the persistent calyx, achenes brown and shining.

Flowers from September to February.

**Illustrations.** Wight, Ill. Ind. Bot. p., 176. 1839; Kirtikar and Basu, Indian Med. Plants pl. 774. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs in Assam in India, Ceylon, Malaya, Burma, China and Philippine Islands. It is very common in Ceylon, on waste ground.

**Ceylon.** Northern Prov., Mannar, Crawford 79, 1890. Central Prov., Peradeniya, Thwaites C.P. 2076; Hakgala, A. M. Silva, Oct. 1906. Uva Prov., Moragala, Alston 1631, March 1928. **Maldive Islands.** Landu, Gardiner, 1899—1900. **Malaya.** Penang, Curtis 409, Nov. 1885. **Indo-China.** Hue and vicinity, Squires 89, Jan.—May 1927.

**Composition.** This plant contains an essential oil and a volatile alkaloid combined with an acid.

**Uses.** An aromatic stomachic and carminative useful in anorexia, acute and chronic dyspepsia, flatulence and colic. It has antiperiodic properties and combined with other antiperiodics used in cases of malarial fevers, which are rebellious to treatment with quinine. In Malaya and China, the pounded leaves are used as a poultice for wounds, sores, itches, headaches and vertigo. It is also used in mild fevers due to indigestion and relieves pains caused by intestinal worms. The roots and leaves are used for skin diseases. An infusion of the plant serves as an insecticide.

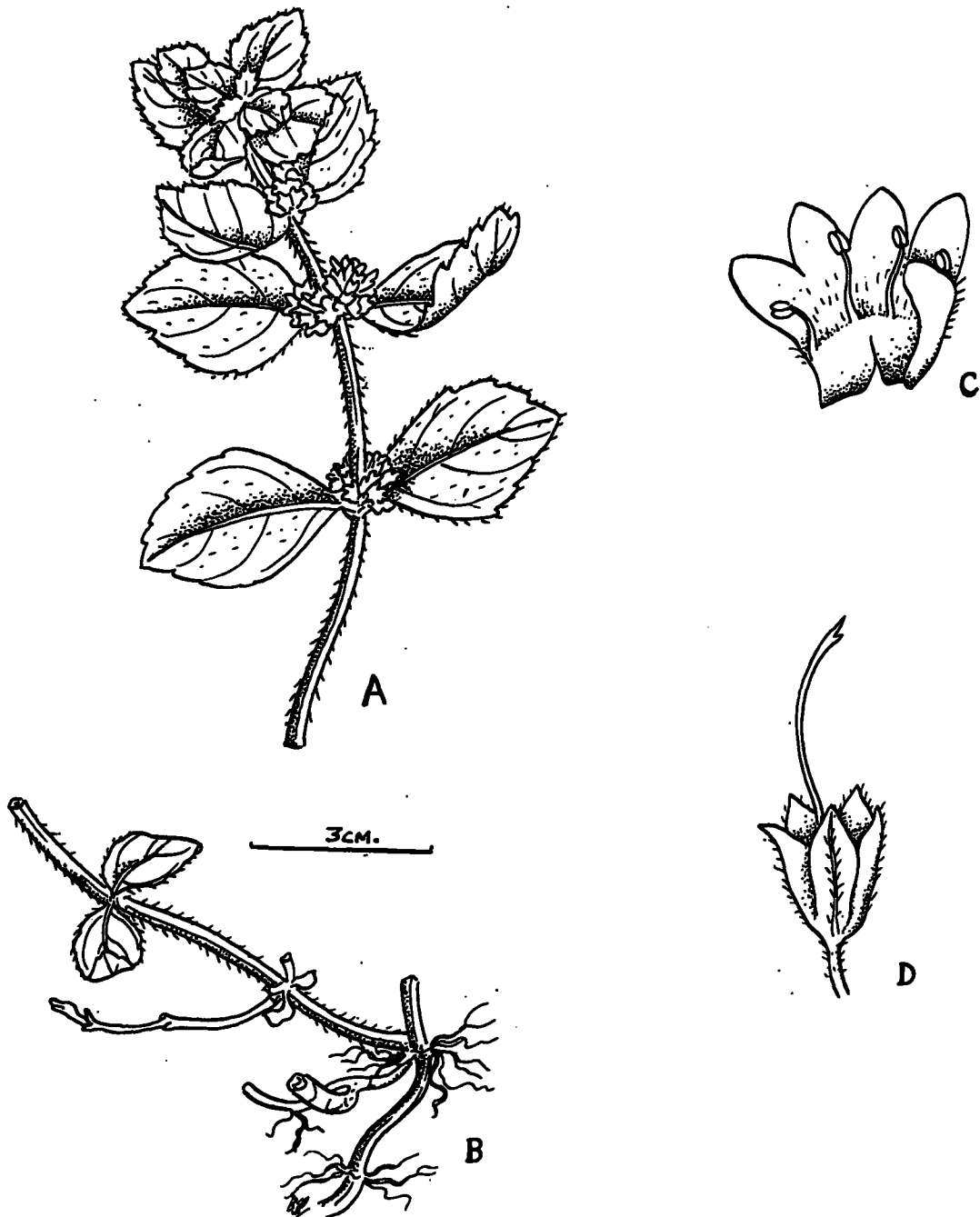


FIG. 263. *Mentha arvensis*. A, branch with leaves and whorls of flowers. B, base of the stem showing roots and branching. C, corolla opened out with epipetalous stamens. D, flower with corolla removed showing the calyx and style. C—D, enlarged.

8. *Mentha arvensis* Linn. Sp. Pl. 577. 1753. (Fig. 263).

*Mentha crispa* Blanco.

*Engl.* Corn Mint, Marsh Mint; *Sinh.* Odutalan; *Tam.* Pudina, Yechakkirai; *Hindi* Pudinah.

A strong-scented, erect, perennial herb; stem short, branched with short hairs, dense and turned back; leaves simple, opposite, 3—3.5 cm long, 2.2 cm broad, ovate, oblong or lanceolate, toothed, petioled; flowers irregular, bisexual, lilac in axillary distant whorls, none at the top; sepals 5, fused into a bell-shaped calyx, hairy, segments triangular, short; corolla 4-lobed, lined with hairs, lobes blunt or oblong; stamens 4, equal, erect, distant, epipetalous, anther cells parallel; ovary superior, 2-carpellary with four loculi, style arms short; achenes dry and smooth.

**Illustrations.** Kirtikar and Basu, *Indian Med. Plants*, pl. 758B, 1933.

**Distribution.** Indigenous to Europe but now naturalized in most countries, including, Ceylon, where it is found bordering paddyfields in the Central Province.

**Ceylon.** Without locality, *Thwaites C.P.* 2077. **China.** Hongkong, *Herb. Hance* 2982, Dec. 1858.

**Composition.** This plant yields a volatile oil which contains pulegone, menthol, menthene, menthenone and limonene.

**Uses.** The dried plant is a stomachic, diuretic and stimulant. It is used for jaundice and is frequently given to stop vomiting. An infusion of the leaves and stems is used in China as a carminative, sudorific and anti-spasmodic. In the Philippines, the flower tops and leaves are used as a carminative and the bruised leaves applied as an antidote for stings of poisonous insects.



FIG. 264. *Mentha sylvestris*, portion of the stem with leaves.

9. *Mentha sylvestris* Linn. Sp. Pl. ed. 2, 804. 1763. (Fig. 264).

*Engl.* Horse Mint; *Sinh.* Minchi; *Hindi* Podina; *Sans.* Ajirnahara, Pudina, Rochani, Ruchishya, Shakashobhana, Sugandhipatra, Vantihara, Vyanjana.

A strongly scented, erect or diffuse herb with a creeping rootstock and hoary-pubescent stems 0.3—1 m long; leaves simple, opposite, nearly sessile, lanceolate, ovate or oblong, 2.5—7.5 cm long, sharply toothed, acute, upper surface hoary-pubescent, lower white tomentose; flowers irregular, bisexual, small, lilac, in large whorls crowded in axillary and terminal, cylindric, tapering spikes lower floral leaves leaf-like, upper smaller, lanceolate; calyx free, persistent, acutely 5-toothed, hairy, bell-shaped; corolla hypogynous, tube included in the calyx, limb erect, 4-lobed, lobes nearly equal; stamens 4, equal, protruding, filaments naked, attached to the corolla-tube alternating with the lobes, disc hypogynous, thick, fleshy; ovary superior, free, 2-carpellary, 4-locular, ovules solitary in each loculus; fruit included within the persistent calyx separating into 1-seeded segments.

Flowers from July to October.

*Illustrations.* Reichenbach, Ic. Fl. Germ. pl. 82; Kirtikar and Basu, Indian Med. Plants. pl. 757B, 1933.

*Distribution.* Occurs in temperate Europe and Asia and in the Western Himalayas. It is cultivated in wet places in the mid and up-country in Ceylon.

*India.* Himal. Bor. Occ., T. Thomson. N.W. India, Duthie 488, July 1883. Tibet: T. Thomson; Afghanistan, Herb. Griffith 3976, Kew Distribution 1863—4. Ceylon. Ambawela, A. M. Silva, Oct. 1906.

*Uses.* Used as a carminative and stimulant. Its leaves are frequently used for culinary purposes.



FIG. 265. *Ocimum americanum*. A, branch with leaves and racemes of flowers. B, flower, latero-frontal view. C, longitudinal section of flower.

10. *Ocimum americanum* Linn. Cent. Pl. 1: 15. 1755. (Fig. 265).

*Ocimum canum* Sims. *Ocimum album* Roxb.

*Sinh.* Heentala; *Tam.* Ganjamkorai; *Sans.* Ajaka, Arjaka, Gambhira, Gandhanirjjaka, Jambhira. Kathinjara, Kshudraparna, Kshudratulasi, Kuthera, Mukharjaka, Uragandha.

An annual herb, stem 30—60 cm long, much branched, subquadrangular, striate, hispid-pubescent with short crisp hair; leaves simple, opposite, small, 3.1—5 cm long, 1—1.3 cm broad, lanceolate or oval, acute at both ends, shallowly serrate, nearly glabrous, gland dotted, petioles 1.2—2.5 cm long, slender with a few hairs; flowers irregular, bisexual, white, in whorls of 6 along a short raceme, whorls rather distant, bracts conspicuous, petiolate, lanceolate, acute, ciliate, with long white hair, racemes 7.5—20 cm long, crisply hairy; sepals 5, fused into a 2-lipped hairy calyx, upper lip squarely rotundate, broader than long, flat, ciliate, lower lip of 4 segments longer than the upper teeth, lanceolate, mucronate; petals 5, fused into a 2-lipped corolla, tube short, upper lip 4-toothed, lower lip entire; stamens 4, didynamous, epipetalous, declinate, exerted, anther cells confluent; ovary superior, 2-carpellary, 4-locular with a single ovule in each loculus, stigma bifid; fruit of 4, small, dry, 1-seeded achenes at the base of a persistent strongly recurved calyx, achenes ovoid, smooth.

Flowers from August to October.

**Illustrations.** Sims in Curtis Bot. Mag. *pl.* 2452. 1824; Kirtikar and Basu, Indian Med. Plants, *pl.* 749A. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs in the plains and lower hills of India, Ceylon, Java, tropical Africa and Madagascar. It is very common in Ceylon in waste and cultivated ground.

**India.** Behar, *J. D. Hooker*; Chittagong, *J. D. Hooker and T. Thomson*; Mohan, Saharampur Siwalik, *Parker* 56. **Ceylon.** Northern Prov., Jaffna, *Thwaites* C.P. 3624. North Central Prov., Polonnaruwa, *Senaratne* 3501, June 1943. Central Prov., Iriyagama, *Hendrick*, June 1928. Southern Prov., Hambantota, *Alston*, Aug. 1926.

**Uses.** The leaves are ground into a fine paste and applied on parasitical diseases of the skin. In Madagascar, the seeds are considered aromatic, tonic, febrifuge and catarrhal expectorant. The seeds are ground in an infusion of leaves and given for malaria. In Ghana the plant is used for fever and dysentery.



FIG. 266. *Ocimum basilicum*. A, branch with leaves and whorls of flowers in a raceme. B, flower, lateral view. C, longitudinal section of flower.

11. *Ocimum basilicum* Linn. Sp. Pl. 597. 1753. (Fig. 266).

*Ocimum minimum* Burm.—*Ocimum hispidum* Lamk.—*Ocimum pilosum* Willd.—*Ocimum menthaefolium* Benth.—*Ocimum caryophyllatum* Roxb.—*Ocimum thrysiflorum* Linn.—*Ocimum citriodorum* Blanco.—*Plectranthus barrelieri* Spreng.

*Engl.* Sweet Basil; *Sinh.* Suwanda-tala; *Tam.* Tirnutpatchi; Tirunitru; *Hindi* Babuitulsi, Babul, Bahari, Kalitulsi, Niyakshbo, Rihan, Sabzah, Tukhmerihan; *Sans.* Ajagandhika, Apetarakhshasi, Asurasa, Barba, Barbara, Barbari, Karahi, Kharapushpa, Manjariki, Munjariki, Surabhi, Surasa, Tulasidvesha, Tungi, Varvara.

An erect branching herb, 60—90 cm high, glabrous or more or less hispid pubescent, stems and branches green or sometimes purplish; leaves simple, opposite, 2.5—5 cm long, ovate, acute, entire or more or less toothed, base cuneate, petioles 1.3—2.5 cm long; flowers irregular, bisexual, white, pink or purplish in whorls along a compound raceme, whorls dense, the terminal raceme usually much longer than the lateral ones; bracts stalked, shorter than the calyx, ovate, acute; sepals 5, fused into a 2-lipped calyx, 5 mm long, the lower lip longer than the rounded upper lip; corolla 8—13 mm long, glabrous or variously pubescent, 2-lipped, upper lip subequally 4-fid, lower lip declinate; stamens 4, didynamous, slightly exserted, upper filaments toothed at the base; ovary superior, 2-carpellary, 4-locular and a 4-partite fruit of four achenes, each achene ellipsoid, black and pitted.

*Illustrations.* Wight,  *Ic. Pl. Ind. Orient.*, pl. 868. 1843—45; Kirtikar and Basu, *Indian Med. Plants*, pl. 750. 1933.

*Distribution.* Occurs in India, Ceylon and Burma, generally cultivated.

*India.* Behar, *T. Thomson*. Silhet, *Wallich* 2713A. Bengal: *J. D. Hooker and T. Thomson*. Ceylon. Central Prov., Peradeniya, Bot. Gard., cultivated, *Herb. Peradeniya*, 1887. *Maldivé Islands.* Horsburgh Atoll, *Gardiner*; Heddufuri, *Gardiner*; Minikoi, *Gardiner* 24, 1899.

*Composition.* The plant yields a volatile oil which contains cineol, methyl chavicol, linalool and terpene hydrate. The Javan variety contains eugenol, ocimene and pinene. The Reunion variety, on the other hand, contains d-d-pinene, cineol, d-camphor, methyl chavicol and linalool, while the variety from the Seychelles Islands has methyl chavicol and anethol.

*Uses.* The plant has carminative, stimulant, diaphoretic and expectorant properties. The roots are used for bowel complaints for children. The juice of the leaves is applied on ring-worm. The leaves and flowers are considered diuretic and stimulant for weak digestion. According to Burkill in Malaya the juice of the leaves is a common remedy for coughs. The seeds are mucilaginous and cooling and given in infusion for gonorrhoea, diarrhoea and chronic dysentery. They are also given for habitual constipation and internal piles and are recommended for removing films and opacities in the eye. In Africa, the plant is used as a hair application. The juice of the leaves is dropped into the ear for earache. In Annam, an infusion of the plant is given for cephalgia and gout and also used as a gargle for foul breath.

12. *Ocimum gratissimum* Linn. Sp. Pl. 1197. 1753.

*Ocimum citrionatum* Ham.—*Ocimum robustum* Heyne.

*Engl.* Large Basil, Lemon Basil; *Sinh.* Gastala, Othala; *Tam.* Elumichantulasi, Peruntulasi; *Hindi* Bantulsi, Malatulsi, Ramtulsi; *Sans.* Ajaka, Doshakleshi, Nidralu, Ramatulsi, Shophahari, Sugandhi, Sukshimatraka, Sumukha, Suprassanaka, Suvakra, Vanabarbarika, Vishagna, Vriddhatulasi.

A semi-woody, perennial herb, stems 1.3—2 m tall, often woody below, much branched, subquadrangular, shortly hispid pubescent; leaves simple, opposite, large, 10—15 cm long, 3.8—5 cm broad, lanceolate, tapering to both ends, acute, coarsely crenate-serrate, pubescent on both sides, thin, gland-dotted; petioles 2.5—6.3 cm long, slender, more or less pubescent; flowers irregular, bisexual, pale greenish yellow, pubescent with short purplish hair, in tolerably dense whorls along rather short racemes; bracts very broad, acuminate, decussate and squarrose in young inflorescences; sepals 5, fused into a 2-lipped calyx, pubescent and with sessile glands, upper segment broadly ovate, acute, lateral ones short, spreading, spinous subulate, 2 lower ones much shorter than the upper, connate to near the top, much curved upwards and closing the mouth in the fruit; petals 5, fused into a 2-lipped corolla, pubescent outside, tube short, upper lip 4-toothed, lower lip entire; stamens 4, didynamous, epipetalous, declinate, anther cells confluent; ovary superior, 2-carpellary, 4-locular with a single ovule in each loculus; fruit of 4, small, dry, 1-seeded achenes at the base of a persistent calyx which is strongly recurved, achenes globose, rugose and dark brown.

Flowers from June to September.

*Illustrations.* Burmann, *Thes. Zeyl. pl.* 80, *f.* 1. 1737; Kirtikar and Basu, *Indian Med. Plants*, *pl.* 749B. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs throughout India, Ceylon, Java, tropical America and Africa. It is a very common weed in waste ground and along roadsides in Ceylon.

*India.* Maisor and Carnatic, *G. Thomson. Ceylon. Thwaites C.P.* 2062; *Thwaites C.P.* 3623. Central Prov., Peradeniya, Bot. Gard., cultivated, *Simpson* 9146, 1932. Maldive Islands. *Didi* 134, 1896.

*Uses.* A decoction of the leaves is an effective remedy for gonorrhoea, seminal weakness and apthae in children. Aromatic baths prepared with the plant are recommended for rheumatism and paralysis. In Madagascar, it is considered aromatic, digestive, antispasmodic, and antineuralgic. The leaves are chewed for toothache.



FIG. 267. *Ocimum sanctum*. A, branch with leaves and inflorescence. B, flower, lateral view, C, flower, longitudinal section.

13. *Ocimum sanctum* Linn. Mant. 1: 75. 1767. (Fig. 267).

*Ocimum monachorum* Linn.—*Ocimum tenuiflorum* Linn.—*Ocimum inodorum* Burm.—*Ocimum album* Blanco—*Ocimum flexuosum* Blanco—*Ocimum virgatum* Blanco.

*Engl.* Holy Basil, Monk's Basil, Sacred Basil; *Sinh.* Madurutala; *Tam.* Alangai, Karuttulasi, Kulimithan, Kullai, Kumuli, Malgodai, Malmurugu, Mudi, Nediyan, Pirundam, Sirttulay, Surasa, Surasam, Suriyagarandai, Savadugundi, Suvi, Tulasi, Tulavam, Tulay; *Hindi* Baranda, Kalatulasi, Tulsi, Varanda; *Sans.* Ajaka, Arjaka, Amrita, Apetarakshasi, Bahupatri, Bharati, Bhutaghi, Bhutaka, Bhutapatri, Brinda, Devadundubhi, Divya, Gandaharini, Gauri, Gramya, Haripriya, Kathinjara, Kayastha, Krishnamula, Krishnatulasi, Kutheraka, Laxmi, Madhavi, Malashreshtha, Manjari, Papaghi, Parnasa, Putrapushpa, Pavani, Pavitra, Pretarakshasi, Punya, Sarasa, Shrikrishnavallabha, Shyama, Subhaga, Sugandha, Sulabha, Surabhi, Suradundubhi, Surasa, Suravallari, Suravalli, Surejya, Suvaha, Tivra, Tridashamanjari, Tulasi, Vaishnavi, Vishnupatini, Vishnuvallabha, Vrinda.

An annual herb, 30—60 cm tall, often slightly woody below, branches numerous, spreading, sub-quadrangular with spreading hair, usually purplish; leaves simple, opposite, small, 2.5—3.7 cm long, oval, obtuse at both ends, apiculate, usually distantly and coarsely serrate, undulate, softly and finely pubescent on both sides, minutely gland dotted; petioles 1.2 cm long, slender, hairy; flowers irregular, bisexual, purplish-pink, very small, in close whorls along a long, narrow, unbranched, hairy raceme, bracts small, broad, acuminate and hairy; sepals 5, fused into a 2-lipped calyx with long, white hair, upper lip rotundate, apiculate, flat, lateral segments broad, tipped with short straight awn, lower lip longer than the upper, lanceolate, sharp, curved upwards; petals 5, fused into a 2-lipped corolla slightly exceeding the calyx, tube short, upper lip 4-toothed, pubescent on the back, lower lip entire; stamens 4, epipetalous on the corolla-tube, didynamous, exerted, declinate, anther cells confluent; ovary superior, 2-carpellary, 4-locular with a single ovule in each loculus; fruit of 4, one-seeded achenes at the base of a persistent calyx which is enlarged, membranous, veined and strongly recurved, achenes oblong-ovoid, dull, pale brown in colour.

Flowers from June to August.

*Illustrations.* Burmann, *Thes. Zeyl. pl.* 80, f. 2. 1737; Kirtikar and Basu, *Indian Med. Plants, pl.* 751. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs throughout India, Ceylon, Malay Peninsula, Australia, Pacific Islands and Arabia. It is a very common herb in Ceylon in waste ground.

*India.* J. D. Hooker and T. Thomson. Calcutta, Bot. Gard., cultivated, *Wallich* 2716B, Ceylon. *Thwaites C.P.* 249; F. W. de Silva, Dec. 1930. North Central Prov., Puliyankulama, *Alston* 1330, March 1927. Maldive Islands. Hulule, *Gardiner* 73, 1899—1900; Kulitula, *Didi* 59, 1896. Indo-China. Hue and vicinity *Squires* 350, Jan.—May 1927. Philippine Islands. Luzon, Tayabas Prov., Casiguran, *Ramos and Edano* 45287, May—June 1925; Sulu Prov., Jolo, *Ramos and Edano* 44419, Sept. 1924.

*Composition.* The plant contains an alkaloid. The leaves yield a volatile oil which consists of cineol, linalool and methyl homoanisic acid.

**Uses.** A decoction of the leaves and roots is a specific remedy for gonorrhoea. The root is also given in decoction as a diaphoretic for malarial fevers. According to Nadkarni, a decoction of the dried plant is a domestic remedy for croup, catarrh, bronchitis and diarrhoea. An infusion of the leaf is given to children for gastric disorders and to adults for hepatic affections. The fresh juice dropped into the ear is a remedy for earache. Internally, it checks vomiting and destroys intestinal worms. In Malaya, the juice is used externally as an embrocation for rheumatism. Seeds are mucilaginous and demulcent and given for disorders of the urino-genital system. The bruised fresh leaves and roots are applied to stings of bees, wasps and bites of mosquitoes and leeches. Internally it acts as an aromatic, stomachic and carminative stimulating the appetite and improving the digestion. It is useful in anorexia, chronic dyspepsia, flatulence, colic, acute and chronic bronchitis, gangrene of the lungs and phthisis. It is a cardiac stimulant. In the treatment of snake bites, it is used as a cardiac and cerebral stimulant when stupor and coma set in.



FIG. 268. *Plectranthus zeylanicus*. A, stem with leaves. B, inflorescence. C, flower, lateral view. D, longitudinal section of flower.

14. *Plectranthus zeylanicus* Benth. Lab. Gen. et Sp. 36. (Fig. 268).

*Sinh.* Iriweriya; *Sans.* Valakan.

A herbaceous, perennial herb, about 60—90 cm tall, stems branching, somewhat prostrate, bluntly quadrangular, reddish and hairy; leaves simple, opposite, aromatic, 5.3—6.5 cm long and as broad, orbicular-ovate, truncate at base, rounded at apex, hairy on both sides, somewhat succulent, dentate, light green on the upper surface, paler below, veins prominent beneath; petioles 2.5—3 cm long, reddish, hairy, faintly grooved above; flowers irregular, bisexual, light blue, 1 cm long and narrow in whorls, each containing about 10 flowers opening at different times along a terminal or branched raceme 15—23 cm long, pedicels 3 mm long, reddish and hairy; sepals 5, fused at the base into a bell-shaped calyx, hairy, segments free, the dorsal sepal the largest, broadly ovate, apiculate, others lanceolate acuminate, acute; corolla 2-lipped consisting of 5 segments, upper lip of 4 short segments and a long, boat-shaped lower lip; stamens 4, didynamous, epipetalous, 2 slightly shorter, all included; ovary superior, 2-carpellary, 4-locular with a single ovule in each loculus, style 7 mm long, stigma bifid; fruit of 4, one-seeded achenes at the base of a persistent calyx.

Flowers in May and June.

**Distribution.** Occurs in the mid and low-country elevations in Ceylon, commonly cultivated in most gardens for medicinal purposes.

**Ceylon.** Central Prov., Ramboda, *Thwaites C.P.* 2083; Muruthalawa, *Alston* 1680, Sept. 1927.

**Uses.** The plant has aromatic, astringent and stomachic properties and is used in decoction for fevers, dysentery, diarrhoea, vomiting and thirst. It acts as a cholagogue and is useful for acute and chronic congestion of the liver. It is also used as a diuretic and diaphoretic. It is administered to infants who pass clay-coloured stools with excellent results. It is an antidote for tarantula bites.

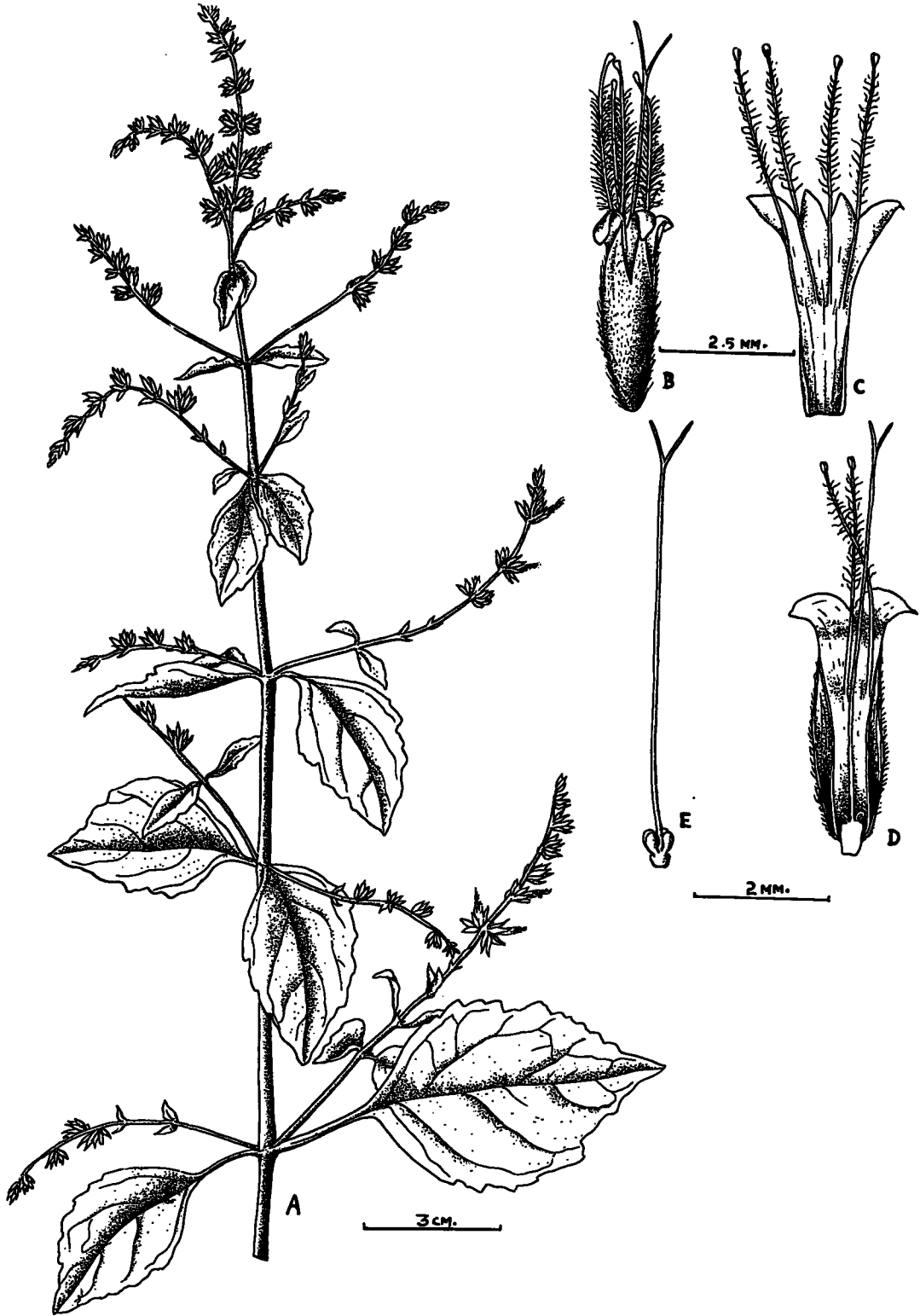


FIG. 269. *Pogostemon heyneanus*. A, branch with leaves and inflorescences. B, flower, lateral view. C, corolla opened out showing the epipetalous stamens. D, longitudinal section of flower. E, pistil.

15. *Pogostemon heyneanus* Benth in Wall. Pl. As. Rar. 1: 31. 1830. (Fig. 269).*Pogostemon patchouli* Pelletier—*Origanum indicum* Roth.*Sinh.* Gan-kollankola, Kollankola; *Sans.* Patraka, Sughandaka.

A large, straggling undershrub, often semi-scandent by its long, horizontal branches, stems very bluntly quadrangular or nearly cylindrical, swollen above the nodes, glabrous, the younger ones adpressed pubescent; leaves simple, opposite, without stipules, large, 5—12.5 cm long, rhomboid-ovate, more or less tapering to base and narrowly decurrent on petiole, acuminate, acute, coarsely and very irregularly crenate-serrate except at the lower part, slightly hairy on both sides, thin, paler beneath, venation pellucid, prominent beneath, petioles 2.5—7.5 cm long; flowers irregular, bisexual, white, numerous, sessile, in small dense fascicles, whorls globose in terminal, narrow, interrupted spikes, bracts small, one to each flower, shorter than calyx and a larger one at the base of fascicle, ovate, glandular pubescent; sepals 5, fused, ovoid, segments narrowly triangular, acute, connivent, glandular-pubescent; petals 5, fused into a 2-lipped and 4-lobed corolla, upper lip 3-lobed, lower lip entire, lobes oval, recurved, corolla-tube slightly longer than the calyx lobes; stamens 4, didynamous, epipetalous, much exserted, pale pink, filaments with copious long hairs, anther cells confluent; ovary superior, 2-carpellary, 4-locular with a single ovule in each loculus, style bifid; fruit of 4, small, dry, 1-seeded achenes at the base of a persistent calyx.

Flowers from April to May.

**Illustrations.** Wight, Ic. Pl. Ind. Orient., pl. 1440. 1849; Herb. Peradeniya, drawing.**Distribution.** Occurs in India, Ceylon, Malay Peninsula and Philippine Islands. It is found towards the hill-country in Ceylon.**India.** Pen. Ind. Or., *Herb. Wight* 2120, Kew Distribution 1866—8. Ceylon. Central Prov., *Thwaites C.P.* 33; Hakgala, *Herb. Peradeniya*, May 1888; *J. M. Silva*, May 1911; *Rhind*, 1948; Kandy, *Alston*, Dec. 1927; Nilleembe, *Herb. Peradeniya*, Jan. 1891; *Walker* 13. Uva Prov., Namunukula, *Willis*, April 1907.**Composition.** The leaves contain an aromatic oil.**Uses.** Useful as a gargle for weak and spongy gums, pyrrhoea and halitosis. Internally, it acts as an aromatic stomachic and carminative with astringent properties and is useful in anorexia, chronic dyspepsia and flatulence. It acts as a stimulating disinfectant, expectorant, diuretic and disinfectant for the genito-urinary mucous membrane. It is also useful in chronic bronchitis, gangrene of the lungs and phthisis, for cardiac dropsy and for gonorrhoea. A decoction of the leaves is given for coughs and asthma, while poultices are applied for boils, headaches, jaundice and bilious fevers. A decoction of the root is a specific for dropsy and rheumatism.



FIG. 270. *Pogostemon parviflorus*, portion of the stem with leaves.

16. *Pogostemon parviflorus* Benth. in Wall. Pl. As. Rar. 1: 31. 1830. (Fig. 270).

*Pogostemon pubescens* Benth.—*Pogostemon frutescens* Grah.—*Pogostemon purpuricaulis* Dalz.—*Pogostemon intermedius* Wall.

*Sinh.* Kollankola; *Sans.* Lomasan.

A shrub 1.3—2 m tall with stems and branches obtusely quadrangular, usually purple, smooth and shining or sometimes slightly pubescent; leaves simple, opposite, 7.5—17.5 cm long, 3.7—8.7 cm broad, broadly ovate, acute or acuminate, coarsely and irregularly doubly-toothed, glabrous or slightly pubescent, base cuneate, petioles 1.5—5 cm long; flowers irregular, bisexual, in dense, pubescent spikes forming pyramidal, lax panicles, whorls many-flowered, usually close; bracts pubescent and ciliate, the outer 0.6 cm long, foliaceous, ovate, acute, the inner membranous, linear-lanceolate often subfalcate, about equalling the calyx; calyx gamosepalous, irregular, subequally 5-toothed, 0.4 cm long, glandular and pubescent, tube pentagonal, teeth 1.2 mm long, lanceolate, corolla gamopetalous, 4-lobed, 2-lipped, tube 0.3 cm long, upper lip white, shot with purple, 3-lobed, the middle lobe oblong, rounded, longer and narrower than the two rounded lateral lobes, lower lip entire, white; stamens 4, exerted, adnate to corolla-tube, filaments purple except just below the anthers where they are white and bearded with purple hairs; ovary superior, 4-partite with a single ovule in each lobe, styles purple, shortly 2-fid, lobe equal, subulate; nuts ellipsoid, less than 1 mm long, the inner face angular, the dorsal face rounded, smooth and shining and black.

Flowers from December to February.

**Illustration.** Kirtikar and Basu, Indian Med. Plants, *pl.* 755A. 1933.

**Distribution.** Occurs throughout India, Burma and China. It is cultivated in Ceylon.

**India.** Assam, *Simons*. Bengal, *J. D. Hooker*. Nilghiri and Kurg., *G. Thomson*.

**Uses.** The fresh leaves are used to clean wounds. The juice is given for colic and fever. The root is a reputed remedy for haemorrhage. According to Kirtikar and Basu, in Ratnagiri district, the root is applied as a paste for bites of the poisonous snake *Echis carinata* with beneficial results.

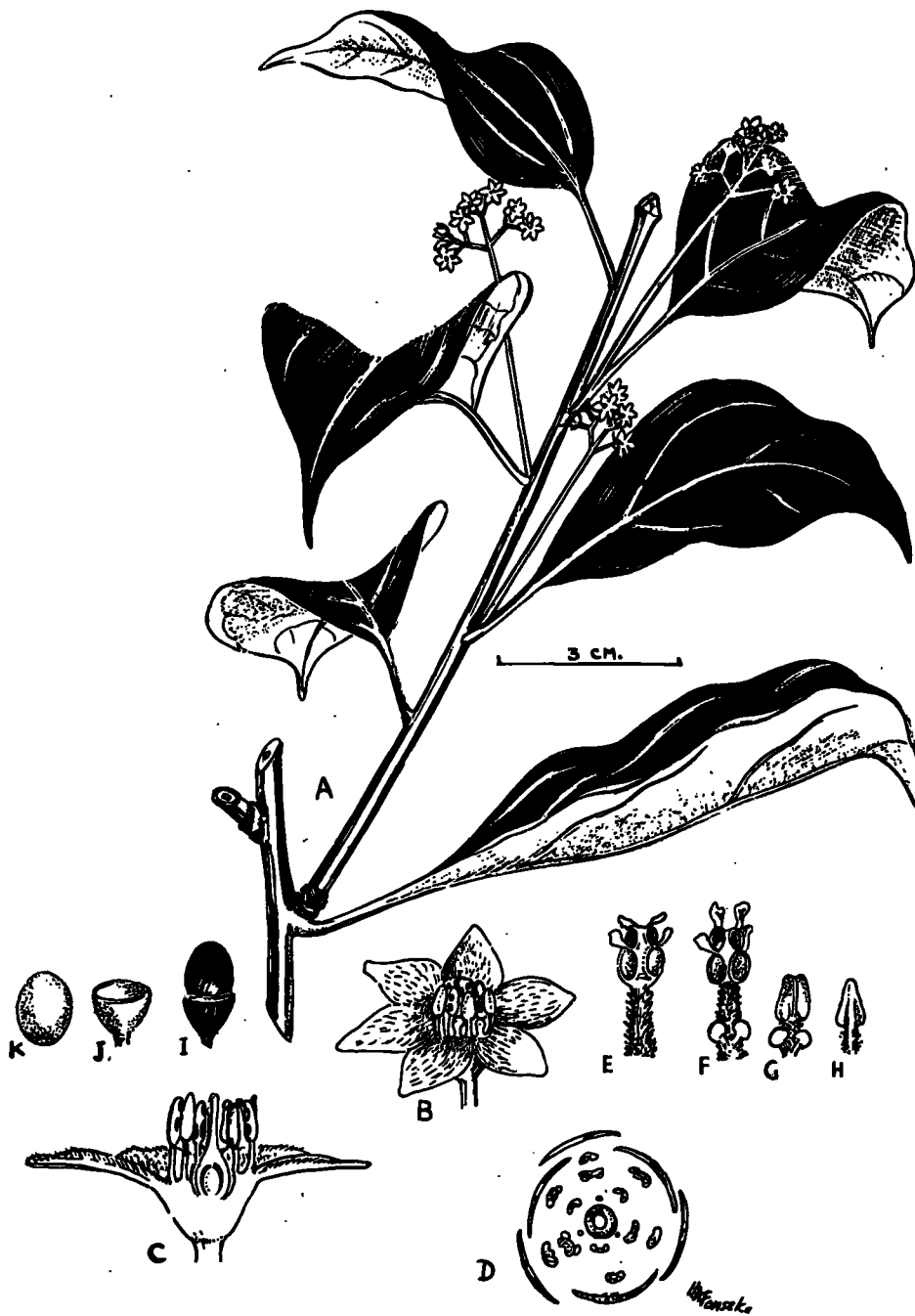


FIG. 271. *Cinnamomum camphora*. A, branch with leaves and flowers. B, flower from front. C, longitudinal section of flower. D, floral diagram. E, outer stamen. F, inner stamen with a pair of glands at the base. G, outer stamen with a pair of glands. H, inner staminode. I, fruit. J, perianth-tube. K, fruit detached from the perianth-tube. B—K, enlarged.

## 53. LAURACEAE

1. *Cinnamomum camphora* F. Nees and Eberm., Handb. Med.—Pharm. Bot. 2: 430. 1830. (Fig. 271).

*Camphora officinarum* Nees—*Laurus camphora* Linn.—*Cinnamomum inunctum* Meism.—*Cinnamomum glanduliferum* Meism.

*Engl.* Camphor Tree; *Sinh.* Kapuru; *Tam.* Kadalichi, Kanasaram, Karuppuram, Kirasemiram, Kuruvukkodi, Palidam, Palugam, Parmaganjari, Pattagesari, Pugalvisuvandiram, Sandiram, Sasi, Sidalam, Soman, Sudan; *Sans.* Karpura.

A moderate sized tree with long, terete branches spreading horizontally, bark smooth green and shining on the branches, leaf-buds with stiff scales, conical, glabrous; leaves numerous, alternate without stipules, evergreen, petioles slender, weak, about 2.5 cm long, often curved downwards at the base, blade 7.5—15 cm long, oval, usually much attenuated at both ends, acuminate, entire, with the margin somewhat cartilaginous, smooth, bright green and highly polished above, pale green and covered with whitish glaucous "bloom" beneath, very stiff, thick but scarcely leathery, the two lowest lateral veins strong and prominent, running for some distance parallel to the edges, and so giving a tripleveined character to the leaf, each with a depressed punctate gland in the axil, which is prominent on the upper surface; flowers very small on slender divaricate pedicels, forming little spreading cymes of 2 or 3, arranged in small, erect, long-stalked axillary panicles shorter than leaves; perianth with a short, campanulate, very thick fleshy tube and usually 6, imbricate, nearly equal, blunt, thick, horizontally spreading segments, smooth externally, densely hairy within, greenish white, afterwards breaking away from the tube; stamens 9 and six staminodes, erect, shorter than perianth segments, the six outer opposite to them *introse*, the three inner opposite outer segments extrorse and provided at the base on either side with a large, stalked, thick, obcordate "gland", filaments hairy, anthers large, oblong, 4-celled with valvular dehiscence; staminodes in two rows, stalked, oblong or sagittate, the outer 3 with two glands at the base, like those of the inner stamens; ovary surrounded by the perianth-tube but free from it, unilocular with a single descending ovule, style slender as long as the stamens, stigma small, fruit ovoid, the size of a large pea, smooth, usually purplish surrounded at the base by the enlarged, persistent perianth-tube; seed solitary.

Flowers in June and July.

**Illustrations.** Bentley and Trimen, *Med. Plants. pl.* 222. 1880; Wight,  *Ic. Pl. Ind. Orient pl.* 1818. 1852; *Herb. Peradeniya*, drawing.

**Distribution.** Indigenous to Formosa, Japan and Central China but cultivated in India, Ceylon, Mauritius, Cape of Good Hope, Brazil, Jamaica and the Mediterranean regions.

**India.** Calcutta, Bot. Gard., cultivated. Ceylon. Central Prov., Peradeniya, Bot. Gard., cultivated, *Herb. Peradeniya*, Dec. 1894; Hakgala, Bot. Gard., *Petch*, April 1917; *Herb. Peradeniya*, Nov. 1919. **Japan.** Nagasaki, *Maximowicz*, 1863; *Oldham* 704, 1862.

**Composition.** Camphor, obtained by steam sublimation of chipped wood contains concrete volatile oils yielding camphoric acid when oxidised with nitric acid.

**Uses.** Camphor dissolved in olive oil is used externally on inflammations, bruises, sprains and to prevent bed sores, while internally it acts as a carminative, antiseptic, stimulant, and anti-spasmodic. It is useful in adynamic fevers, choleraic diarrhoea, whooping cough, epilepsy, asthma, angina pectoris, puerperal convulsions, hysteria, palpitation and ailments of the genito-urinary system. In India, it is given with bananas as an abortifacient and also often used as an incense in Hindu temples. In Africa, camphor water is used to wash the dead and solid camphor inserted to the natural orifices.

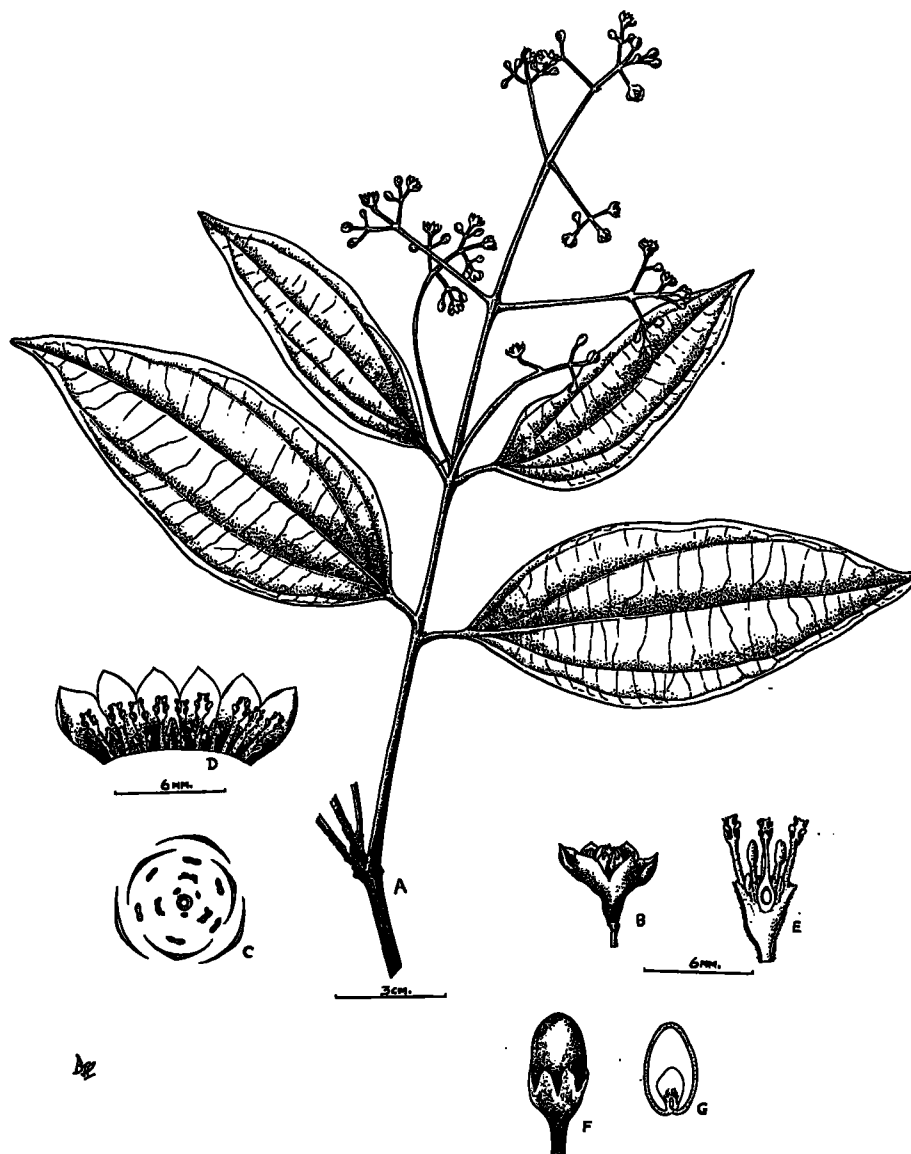


FIG. 272. *Cinnamomum zeylanicum*. A, branch with leaves and inflorescence. B, flower, lateral view. C, floral diagram. D, perianth spread out with stamens and staminodes. E, longitudinal section of flower. F, fruit. G, longitudinal section of seed.

2. *Cinnamomum zeylanicum* Blume Bijd. 588. 1825. (Fig. 272).

*Cinnamomum aromaticum* Grah.—*Laurus cinnamomum* Linn.—*Laurus nitida* Wall.—*Laurus cassia* Burm.

*Engl.* Cinnamon; *Sinh.* Kurundu; *Tam.* Cannalavangapattai, Ilavangam, Ilavangapattai, Karuva, Pulambilavu, Sorachattorachi; *Hindi.* Dalchini, Darchini, Qalamidarchini; *Sans.* Bahugandha, Balya, Bhringa, Bijjula, Chocho, Chola, Darusita, Gudatvacha, Hridya, Kamavallabha, Lataparna, Mukashodhana, Nalada, Patra, Ramavallabha, Rameshta, Satakaat, Shakala, Shita, Sinhala, Surabhivalkala, Surasa, Tamalapatra, Tanutvaka, Tapinchchha, Toacha, Tvaka, Tvakapatra, Utkata, Valkala, Vanapriya, Vara, Varanga, Varangaka.

A moderate sized or large tree with a rather thick, reddish bark, glabrous young parts and finely silky buds; leaves simple, opposite or sub-opposite without stipules, variable in size, 7.5—25 cm long, oval or lanceolate-oval, subacute at base, slightly acuminate, obtuse, glabrous, stiffly coriaceous, strong, 3 or 5-nerved with fine, reticulate venation, shining above, slightly paler beneath, bright pink when young, petioles 1.2—2.5 cm long, stout, flattened above; flowers regular, bisexual or monoecious, pale yellow, small, numerous on rather long, slightly pubescent pedicels in subterminal panicles longer than leaves, lax peduncles often clustered, glabrous or pubescent, bracts absent; perianth about 0.6 cm long, silky, tube short-campanulate, segments 6, oblong-lanceolate, acute or obtuse, usually persistent, imbricated in two rows; stamens 9 in three rows, perigynous, anthers 4-celled, filaments of the first and second rows without glands and filaments of the third row with glands, staminodes 3, sagittate forming the fourth row; ovary superior, unilocular with a solitary ovule pendulous from the top, style shorter than stamens, stigma bilobed; fruit about 1.2 cm long, oblong-ovoid, surrounded by much enlarged perianth, dry or fleshy, dark purple, seed without endosperm.

Flowers in February.

*Illustrations.* Burmann, *Thes. Zeyl. pl.* 27. 1737; Bentley and Trimen, *Med. Plants, pl.* 224. 1880; Beddome, *Fl. Sylvat. pl.* 242. 1868—1873; Wight,  *Ic. Pl. Ind. Orient., pls.* 123, 129, 134, 1839; Curtis, *Bot. Mag., pl.* 1636. 1874; Kirtikar and Basu, *Indian Med. Plants, pl.* 830A, 1933.

*Distribution.* Indigenous to Ceylon, commonly cultivated in the moist low-country. It is also cultivated in India, Burma and Malay Peninsula.

*India.* Quilon, Pen. Ind. Or., *Herb. Wight* 2511, Kew Distribution 1866—8. Ceylon. *Thwaites C.P.* 2284, Central Prov., Peradeniya, Bot. Gard., cultivated, *F. W. de Silva* 24, March 1928; *Herb. Peradeniya.*, April 1925. Western Prov., Suduwelitenne Mukalane, *J. M. Silva* 196, May 1926; Kodiyargawa Mukalane, *J. M. Silva* 198, May 1928. Cuba. Harv. Trop. Gard., cultivated, *Jack* 4110, Feb. 1926.

*Composition.* The chief constituent of cinnamon is the essential oil which consists of cinnamic aldehyde with variable proportions of hydrocarbons. The bark contains besides the oil, sugar, mannite, starch, mucilage and tannic acid. The oil from the leaves contains eugenol which is useful in the perfume and flavouring industries. The oil from the roots contains camphor, eucalyptol and safrol. The seeds contain fat.

*Uses.* The bark of this tree is used for dyspepsia, flatulence, diarrhoea, dysentery, vomiting, bronchitis, gangrene of the lungs and phthisis. The bruised bark is steamed and used externally as a fomentation on boils and abscesses to prevent suppuration. The oil is a rubefacient and is a useful application for acute and chronic rheumatism. Crystalline cinnamic acid is anti-tubercular and used as an injection in phthisis. Cinnamon, is also given for cramps of the stomach, toothache and paralysis of the tongue and used in massive doses in the treatment of cancer. In Africa, it is used as a carminative, stimulant, expectorant and for tuberculosis. The bark is widely used as a spice.



FIG. 273. *Litsea glutinosa*. A, branch with male flowers. B, flower, umbel with bracts. C, flower. D, longitudinal section of male flower. E, stamen with stalked gland. F, fruits.

3. *Litsea glutinosa* (Lour.) C.B. Rob. in Phil. Journ. Sc. Bot. 6: 321. 1911. (Fig. 273).

*Litsea tersa* Merr.—*Litsea chinensis* Lamb.—*Litsea sebifera* Pers.—*Litsea tetranthera* Pers.—*Litsea multiflora* Bl.—*Litsea littoralis* F.—Vill.—*Tetranthera apetalata* Roxb.—*Tetranthera laurifolia* Bl.—*Tetranthera multiflora* Bl.—*Tetranthera racemo-umbellata* Bl.—*Tetranthera roxburghii* Bl.—*Tetranthera laurifolia* Jacq.—*Sebifera glutinosa* Lour.—*Sebifera balongai* Blanco—*Laurus involucrata* Koenig—*Tomex tetranthera* Willd.—*Tomex sebifera* Willd.—*Gaja nippeli* Jones.

*Engl.* Common Tallow Laurel; *Sinh.* Bombi, Bomi; *Tam.* Ama, Elambiragi, Elumpurukki, Pisinbattai; *Hindi.* Garbijaur, Maidalakri, Medh, Menda, Singrauf; *Sans.* Adhvara, Bahurandhrika, Bhavya, Dhira, Drava, Jivani, Jivanika, Madhura, Manichhidra, Meda, Medasara, Medini, Medodbhava, Medovati, Purushadantika, Rasa, Sadhavi, Shalyada, Shalyaparnika, Shreshtha, Snehavati, Snigdha, Svalpaparni, Vasa, Vibhavari.

A moderate-sized tree with slender glabrous branchlets and silky young parts, bark somewhat corky and pale brown, buds small and hairy; leaves simple, alternate, somewhat crowded at the ends of branchlets, variable, 6.2—15 cm long, usually oblong-oval, acute at base, obtuse, glabrous on both sides, not thick, lateral nerves 8—13 pairs, conspicuous beneath, petioles 1.2—1.8 cm long; flowers small, regular, dioecious, numerous, greenish yellow, crowded, nearly sessile in umbels 1.2—1.8 cm across, globose before expansion, arranged in axillary stalked corymbs or umbels, bracts 4, concave, tomentose forming an involucre of 2 pairs, imbricate before expansion and looking like sepals; perianth-tube long, silky without segments; stamens about 20 in four rows, filaments very hairy, those of the first and second rows with long-stalked glands, third and fourth without, anther 4-celled, all introrse; ovary superior, unilocular with a single pendulous ovule; fruit nearly globose, 0.6 cm long, purple, seated on a shallowly cup-shaped, enlarged perianth-tube.

Flowers from January to March.

*Illustrations.* Edward, Bot. Reg. *pl.* 893. 1825; Roxburgh, Pl. Corom. 2: *pl.* 147. 1798; Kirtikar and Basu, Indian Med. Plants, *pl.* 833B. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs in the warmer parts of India, Ceylon, Burma, Malaya extending to China, tropical Australia and Philippine Islands. It is very common in the low-country in Ceylon upto 3000 feet altitude.

*Ceylon.* Thwaites C.P. 2276. Central Prov., Peradeniya, Bot. Gard., Herb. Peradeniya. Uva Prov., Namunukula, J. M. Silva, April 1924. *Indo-China.* Hue and vicinity, Squires 351, Jan.—May 1927. *Philippine Islands.* Luzon, Cagayam Prov., Aloba 29303, June 1922.

*Composition.* The leaves and bark contain an alkaloid. The seeds contain an aromatic tallow-like oil which consists of laurostearin and olein.

*Uses.* The mucilaginous bark is employed as a demulcent and mild astringent for diarrhoea and dysentery. The roots and leaves are used for poulticing sprains and bruises. The seeds are pounded and applied on boils and the oil extracted from them is used in rheumatism. In Patna, the plant is considered to be an aphrodisiac.

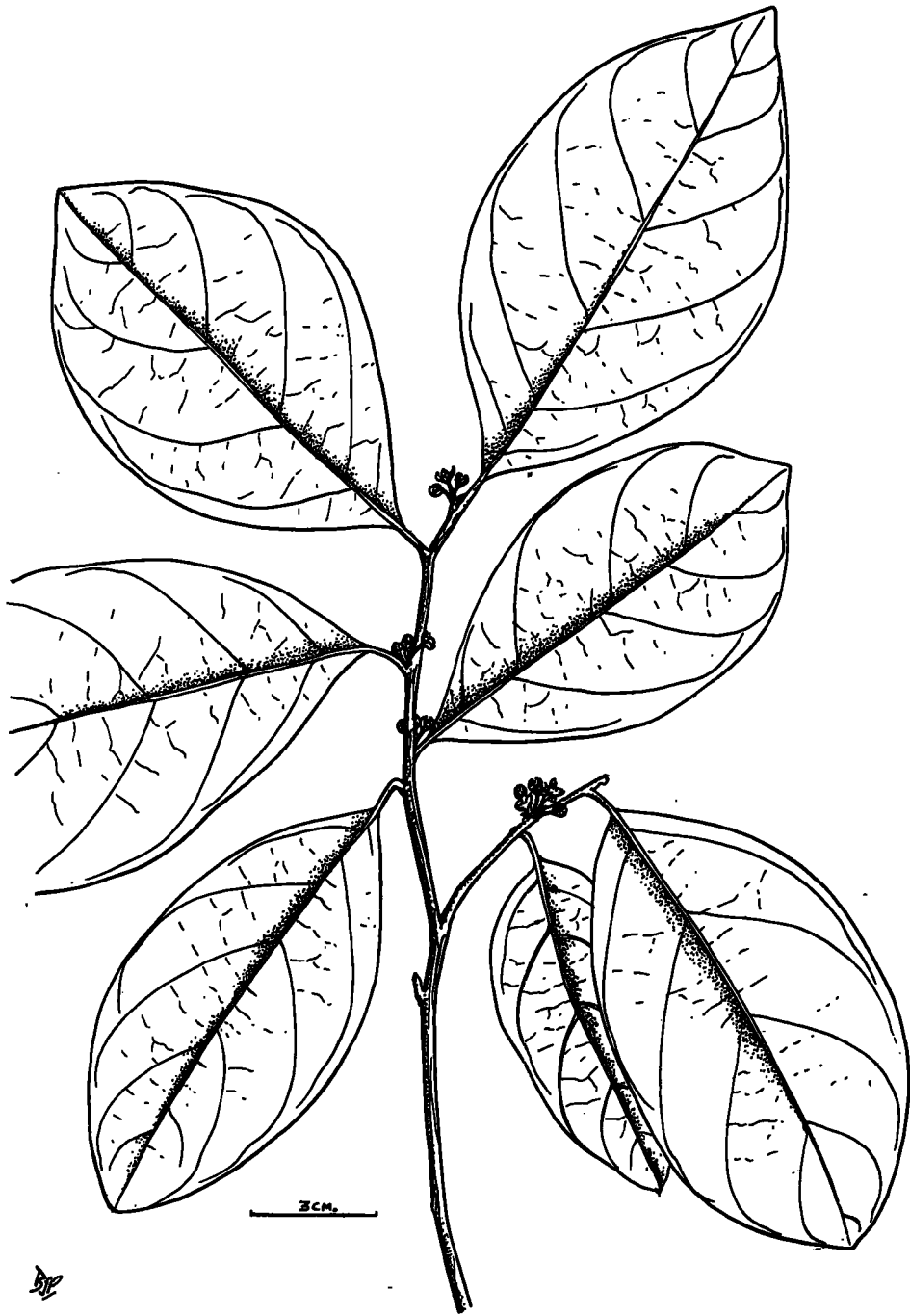


FIG. 274. *Litsea longifolia*, branch with leaves and clusters of flowers.

4. *Litsea longifolia* Benth. & Hook. f., Gen. Pl. 3: 161. 1883. (Fig. 274).

*Tetranthera cauliflora* Moon—*Tetranthera longifolia* Nees—*Litsea cauliflora* Trim.

*Sinh.* Ratkeliya.

A small tree with a rough grey bark and brown-tomentose young parts; leaves simple, alternate, penninerved, 10–25 cm long, oval, acute or rounded at the base, acute, usually glabrous above when mature, more or less rufous-tomentose beneath, rather coriaceous, venation prominent beneath, petioles 1.2–2.5 cm long and stout; flowers small, dioecious on very stout pedicels, umbels small, 4–10 flowered on short pubescent peduncles clustered on small bosses in axils of fallen leaves, often on old branches; bracts 4, pubescent, caducous, imbricate before expansion and looking like sepals; perianth-tube long, top-shaped, pubescent, segments 6, oblong, obtuse, pubescent, deciduous; stamens 9 in three or four rows, filaments hairy at base, first and second rows with glands, anthers 4-celled; ovary superior, unilocular with a single pendulous ovule; fruit globose, 0.8 cm long, seated on a shallow, cup-shaped, much enlarged perianth-tube.

Flowers from November to March.

**Illustration.** Herb. Peradeniya, drawing.

**Distribution.** An endemic species, common in the moist regions of the Central Province of Ceylon up to an elevation of about 3000 feet.

**Ceylon.** Central Prov., Hantane, *Thwaites C.P.* 223; Pasdun Korale, *Herb. Peradeniya*, June 1883; Hewessa, *Herb. Peradeniya*, March 1887; Pelawatta Mukalana, *Herb. Peradeniya*, March 1887.

**Uses.** The bark is used for treating nervous diseases, boils and preparation of an oil.

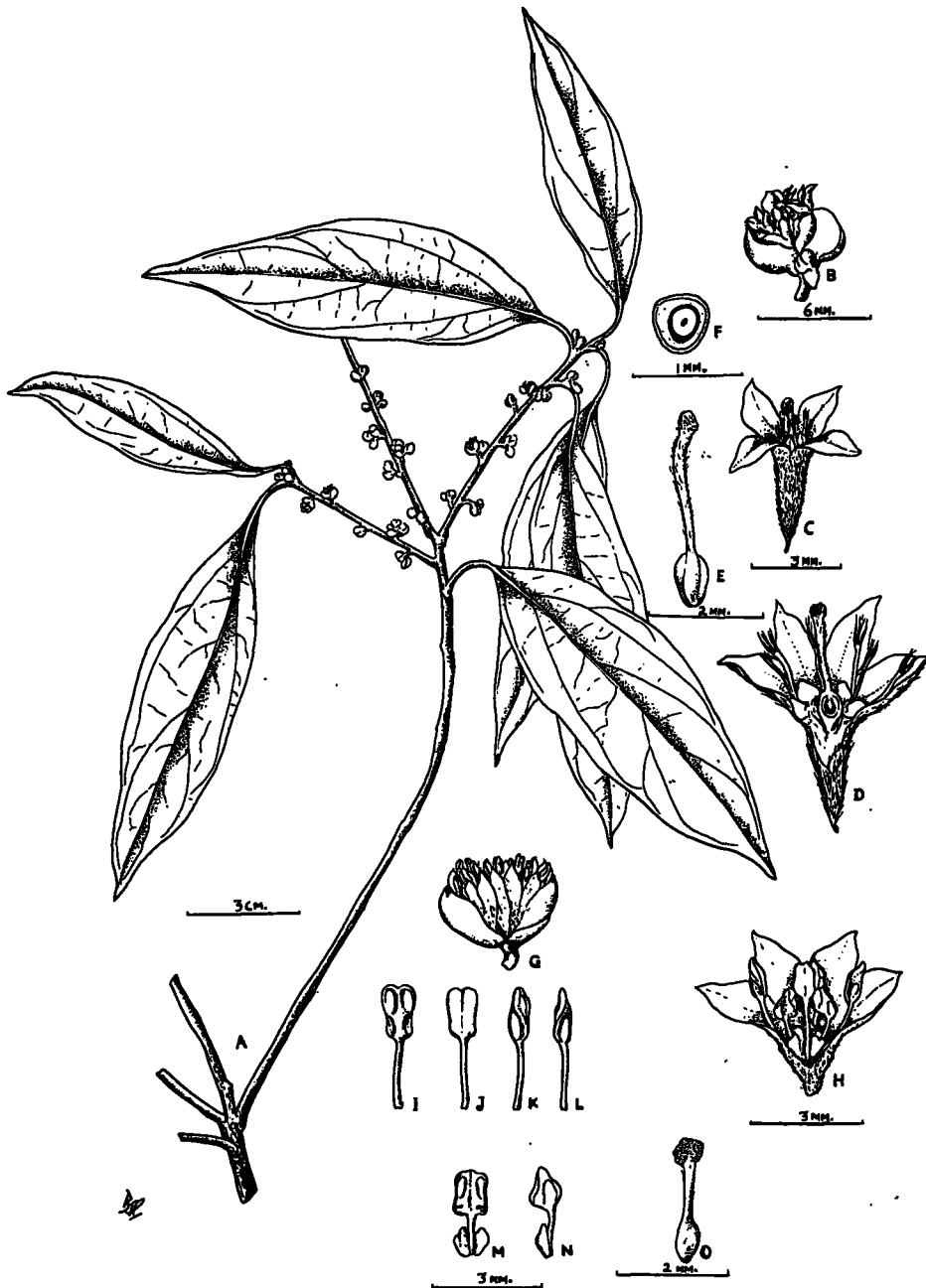


FIG. 275. *Neolitsea involucrata*. A, branch with leaves and clusters of flowers. B, cluster of flowers with bracts. C, female flower, lateral view. D, longitudinal section of female flower. E, pistil. F, transverse section of ovary. G, group of male flowers. H, longitudinal section of male flower. I—N, stamens from front, back and side. O, pistillode.

5. *Neolitsea involucrata* Alston in Trim. Hand. b. Fl. Ceyl. 6: 248. 1931. (Fig. 275).

*Laurus involucrata* Lamk.—*Laurus cassia* Linn.—*Laurus zeylanica* Herm.—*Darwinia quinqueflora* Dennst.—*Litsea zeylanica* Nees—*Litsea striolata* Bl.—*Litsea scrobiculata* Meissn.—*Litsea trinervia* Juss.—*Neolitsea zeylanica* Merr.—*Tetradenia ceylanica* Nees.

*Sinh.* Davul-kurundu, Kudu-dawula, Wal-kurundu.

A small tree with a thick, smooth grey bark, slender branchlets and minutely puberulous small buds; leaves simple, alternate without stipules, numerous, closely placed at the ends of branches, 7.5—12.5 cm long, lanceolate, tapering to both ends, obtuse or subacute, glabrous, not coriaceous, somewhat undulate, more or less glaucous beneath, distinctly 3-nerved at base, minutely reticulate, petioles 0.8—1.8 cm long and slender; flowers regular, dioecious in small, sessile, clustered, 4—5-flowered umbels; bracts 4 forming an involucre of two pairs, imbricate before expansion and looking like sepals, slightly hairy; perianth-tube rather long, hairy, segments 4, acute, deciduous; stamens in 3 or 4 rows, filaments of the first and second rows with glands, anthers 4-celled, all introrse; ovary superior, unilocular with a solitary ovule pendulous from the top; fruit globose or oblong-ovoid, dark purple.

Flowers in April.

**Illustrations.** Beddome, Fl. Sylvat. pl. 294. 1868—1873; Roxburgh, Pl. Corom. 2: pl. 187. 1798; Wight, Ic. Pl. Ind. Orient. pls. 132, 1844 and 1845. 1839—1852. *Herb. Peradeniya*, drawing.

**Distribution.** Occurs in India, Ceylon and Malaya. It is very common in the moist regions in Ceylon up to 4000 feet altitude.

**India.** Simla: *T. Thomson*; East India Co., *Herb. Falconer* 896, Kew Distribution 1869.  
**Ceylon.** North-Central Prov., Ritigala, *Willis*, March 1903. Central Prov., Hantane, *Thwaites C.P.* 2281; *Walker* 109; Katugastota, *Senaratne* 10095, April 1953; Iriyagama, *J. M. de Silva* 191, Sept. 1927; Horton Plains, *J. M. de Silva*, May 1911. Sabaragamuwa Prov., Ratnapura, *Thwaites C.P.* 3449.

**Composition.** The leaves, bark and fruits contain an alkaloid.

**Uses.** The bark and leaves are used for treatment of fractures. The juice of the leaves is mixed with flour for preparation of certain sweetmeats. The powdered leaf is used for dusting the cut surface of coconut inflorescences in the process of toddy tapping.

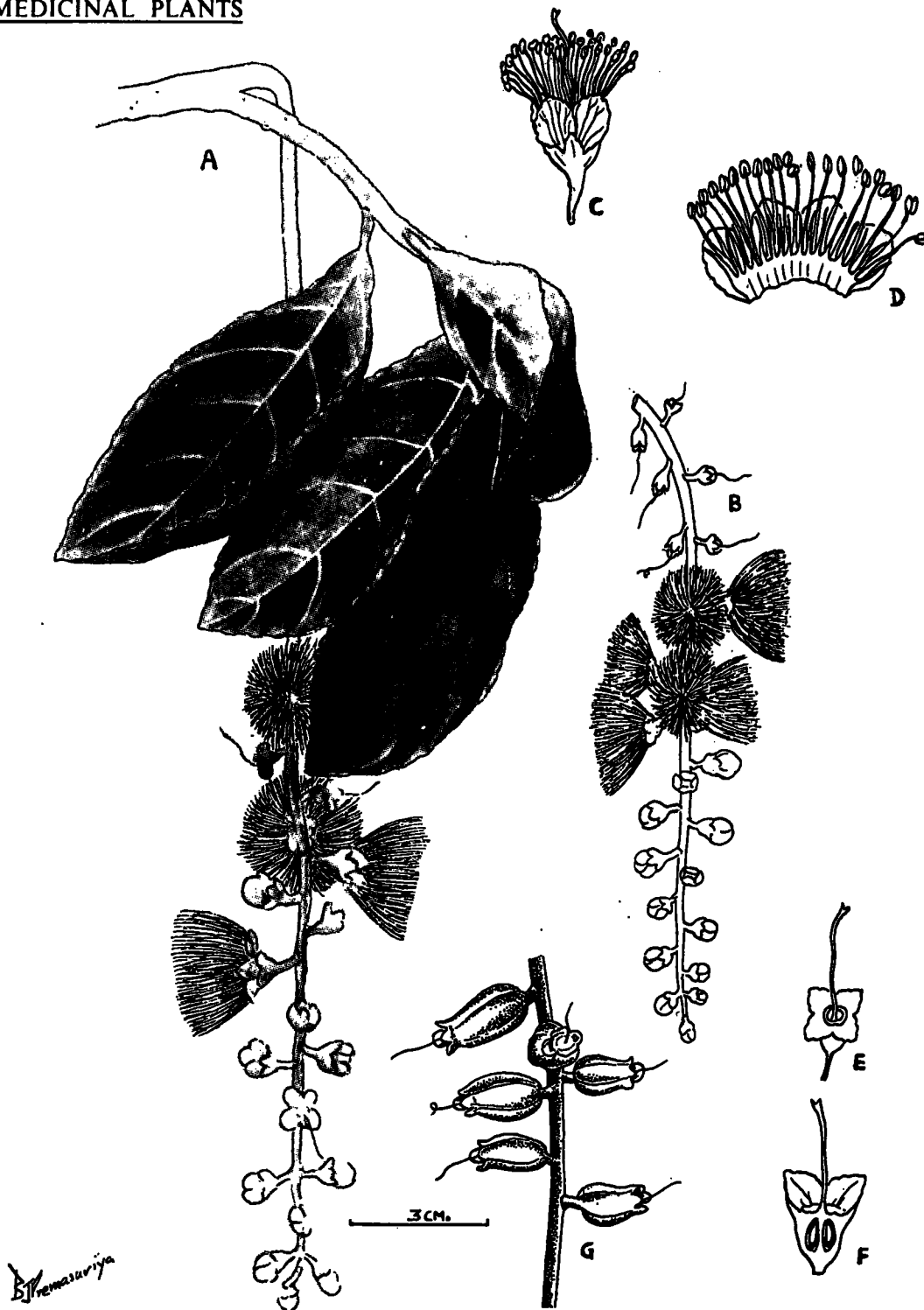


PLATE VI. *Barringtonia acutangula*. A, twig with pendulous raceme. B, raceme with open flower and buds. C, flower lateral view. D, stamen-tube opened out with petals. E, pistil with persistent calyx. F, longitudinal section of pistil. G, fruits.



PLATE VI. *Barringtonia acutangula*. A, twig with pendulous raceme. B, raceme with open flower and buds. C, flower lateral view. D, stamen-tube opened out with petals. E, pistil with persistent calyx. F, longitudinal section of pistil. G, fruits.

## 54. LECYTHIDEAE

### 1. *Barringtonia acutangula* (Linn.) Gaertn. Fruct. 2: 97. 1791. (Plate VI).

*Eugenia acutangula* Linn.—*Stravadium acutangulum* Miers.—*Stravadium rubrum* Wall.—*Stravadium obtusangulum* Miers.—*Stravadium demissum* Miers.—*Stravadium rheedii* Miers.—*Stravadium globosum* Miers.—*Stravadium luzonense* Miers.—*Botryoropsis luzonensis* Presl.—*Barringtonia luzonensis* Rolfe.—*Barringtonia reticulata* Miq.

*Engl.* Indian Oak; *Sinh.* Ela-midella; *Tam.* Adambu, Aram, Kadambu, Kadappai, Kanatti, Niba, Perungaduppai, Sengadambu; *Sans.* Abdhiphala, Ambudhiphala, Ambiya, Dhatriphala, Hijjala, Ijjala, Nichula, Nishula, Samudraphala, Shosha, Sindhuphala, Udadhiphala, Yaha.

A small tree, 7.5—15 m tall with a rough, brownish grey bark and glabrous young parts; leaves simple, alternate, stipulate, 7.5—12.5 cm long, obovate to oblong-oval, tapering to base, subacute at apex, crenate-serrate, bright green, not shining, venation reticulate pellucid, petioles 0.6—1.2 cm long; flowers regular, bisexual, about 2.5 cm diam. with petals cream coloured and stamens dark bright crimson, on short spreading pedicels along terminal, pendulous racemes 22.5—30 cm long; sepals 4, fused into a calyx-tube adnate to the ovary, very short, segments regular, broadly oval, rounded, finely ciliate; petals 4, small, 0.6 cm long, imbricate, distinct; stamens very numerous in several rows, epigynous, filaments about 1.8 cm long, connate at base into a thick tube; ovary inferior, 2—4 locular with several pendulous ovules in each loculus, style long, simple; fruit an indehiscent, fibrous, 1-chambered drupe, 3.1—3.7 cm long, oblong-ovoid, somewhat narrowed at base, truncate at both ends, bluntly quadrangular, capped with small, persistent calyx segments.

Flowers from June to August.

**Illustrations.** Beddome, *Flor. Sylvat. pl.* 204. 1868—1873; Kirtikar and Basu, *Indian Med. Plants, pl.* 427. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs throughout India, Ceylon, Malaya and North Australia. It is rather common in Ceylon around margins of tanks in the dry regions.

**India.** Chota Nagpore, *Clarke* 20347F, Oct. 1873. Calcutta, *Herb. Wallish* 3635F. Canara, *Talbot*, Feb. 1882. Malabar, Concan, etc., *Stocks, Law, etc.* Madras, *Cleghorn*. Pen. Ind. Or. *Herb. Wight* 1062, Kew Distribution 1866—7. **Ceylon.** *Thwaites C.P.* 1592. North Central Prov., Kantalai Tank, *Herb. Peradeniya*, Aug. 1885; Wariapola, Hettipola, *Amaratunge* 447, Jan. 1963; Chilaw-Puttalam Road, *Simpson* 8203, May 1931. **Burma.** Tavoy, *Mokim* 235, Dec. 1900. Upper Burma; *Huk* 114, Nov. 1892. **Indo-China.** *Squires* 16, Jan.—May 1927.

**Composition.** The bark contains caoutchouc, alkaline salts and an active principle.

**Uses.** The juice of the leaves is used for diarrhoea. The bark and root are employed as a febrifuge for malaria as they are supposed to have the same properties as cinchona bark. The fruit is a remedy for coughs, colds and asthma. The seeds are given to children to reduce enlarged abdomen. They are also used in catarrh, respiratory ailments, colic, headache and diarrhoea. In Cambodia, the bark is given as an astringent in diarrhoea and blennorrhagia and as a febrifuge for malaria. Externally, it is applied on stings of insects. In the Philippine Islands the bark is used on wounds and also as a fish poison.

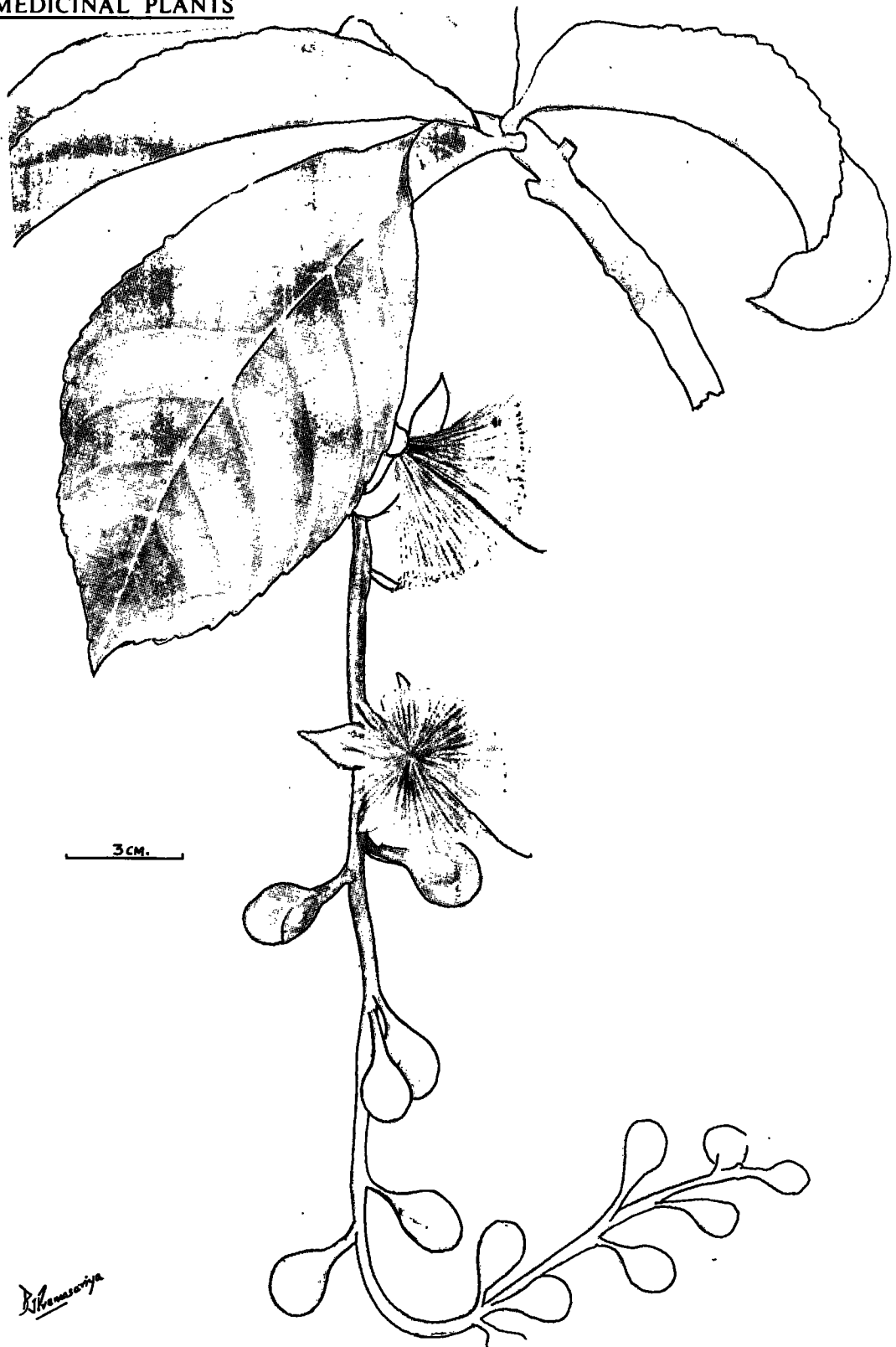


PLATE VII. *Barringtonia ceylanica*. A, twig with leaves and drooping, pendulous raceme.



PLATE VII. *Barringtonia ceylanica*. A, twig with leaves and drooping, pendulous raceme.

2. *Barringtonia ceylanica* (Miers) Gard. ex C.B. Clarke in Hook Fl. Brit. India, 2: 508. 1879. (Plate VII.)

*Barringtonia zeylanica* Bl.—*Barringtonia racemosa* var. Thw.—*Butonica ceylanica* Miers.

*Sinh.* Goda-midella.

A small tree with a rough, grey bark marked with prominent leaf scars; leaves simple, alternate, stipulate, 10—17.5 cm long, subsessile, obovate-lanceolate, much tapering to base, acuminate, acute, finely serrate, glabrous, rather thin; flowers regular, bisexual, yellow petals with pink stamens, about 3.7 cm diam., pedicels 1.2—1.8 cm long, rather slender, divaricate in terminal drooping racemes, buds nearly globose; sepals fused into a calyx-tube, turbinate, adnate to ovary, limb irregularly splitting into 2—4 unequal segments; petals 4, imbricate, slightly connate at base, and adnate to base of filaments of stamens; stamens very numerous in several rows, epigynous, connate at base into a thick tube, filaments 1.8 cm long; ovary inferior, 2—4-locular with several pendulous ovules in each loculus, style long and simple; fruit a single chambered fibrous drupe about 7.5 cm long and 1.8 cm wide, narrowly oblong, tapering to base, crowned with calyx segments, obtusely 4-angled; seed 3.7 cm long.

Flowers in March.

**Illustration.** Herb. Peradeniya, drawing.

**Distribution.** Endemic to Ceylon and confined to the moist low-country. It is somewhat rare.

**Ceylon.** *Thwaites* C.P. 2682. Western Prov., Gampaha, *J. M. de Silva*, Jan. 1925; *Tiriwanaketiya, Alston* 1246, April 1927.

**Uses.** The tender leaves are used for the treatment of dysentery and to arrest bleeding from cuts. The bark and leaves are used for rat-snake bites, rat poisoning and on boils. The seeds along with other ingredients are employed in preparations for treatment of itch, piles, tonsillitis and typhoid fever. The bark is a specific for gastric ulcers.

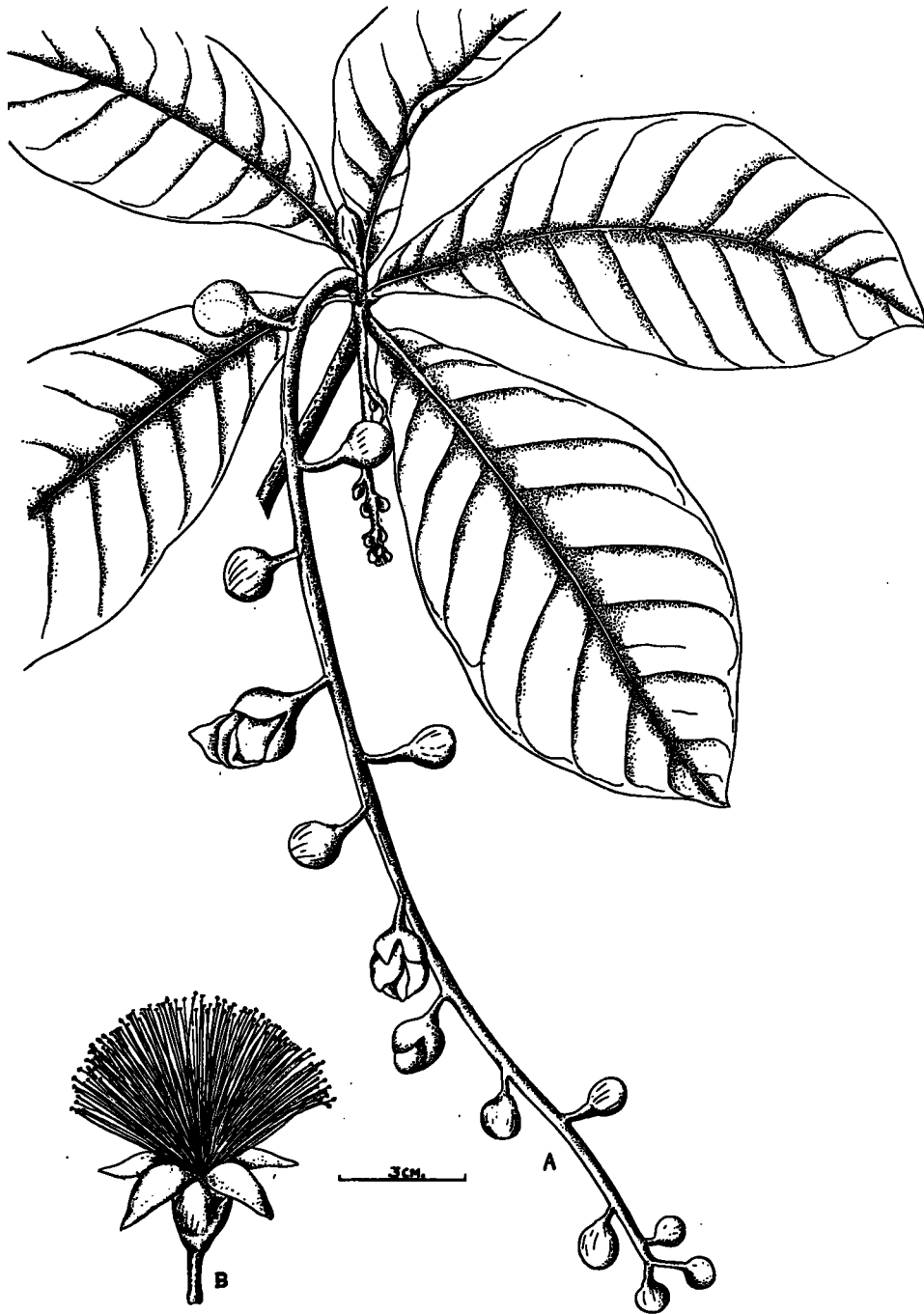


FIG. 276. *Barringtonia racemosa*. A, twig with leaves and drooping racemes. B, flower, lateral view.

3. *Barringtonia racemosa* (Linn.) Blume in DC. Prodr. 3: 288. 1828. (Fig. 276).

*Barringtonia speciosa* Wall.—*Barringtonia alba* Miq.—*Eugenia racemosa* Linn.—*Stravadium album* DC.—*Stravadium rubrum* DC.—*Butonica racemosa* Miers.—*Butonica alba* Miers.—*Butonica rubra* Miers.—*Butonica inclita* Miers.—*Menichea rosata* Sonn.—*Barringtonia stravadium* Blanco.—*Butonica rosata* Miers.

*Engl.* Indian Oak; *Sinh.* Diya-midella; *Tam.* Arattam, Isudaru, Isuvaradaru, Kadambam, Kadambu, Kogali, Kondalai, Kuchidam, Mara, Pitriyagam, Salam, Samuttrakkadambu, Samuthrum, Samuttrappalam, Sugadaru, Sumbal, Vengadambu, Visalam; *Sans.* Nipa.

A small tree with long, drooping branches and grey bark with prominent scars: leaves simple, alternate, stipulate, large, crowded at the ends of branches, sub-sessile, 15—30 cm long, obovate—oval, tapering to base, acute, finely crenate-serrate, glabrous and shining on both sides somewhat bullate between the strongly marked veins; flowers regular, bisexual, large, cream-coloured with pink or crimson filaments, faintly scented, 6.2 cm diam. on stout, minutely puberulous, divaricate pedicels 0.6—1 cm long, laxly arranged in flexible, pendulous racemes 30—60 cm long, terminal or arising from axils of fallen leaves, buds ovoid and bluntly pointed; sepals fused into a turbinate calyx-tube adnate to ovary, puberulous, limb splitting irregularly into 2 or 3 unequal segments one of which often carries with it the top of the calyx leaving the others truncate; petals 4, 1.9—2.5 cm long, elliptic-oblong, acute, connate at base and adnate to stamens, imbricate; stamens numerous in several rows, epigynous, connate at base into a thick tube, filaments over 2.5 cm long, erect, spreading; ovary inferior, 2—4-locular with 3 or 4 pendulous ovules in each loculus, style long, simple; fruit fibrous, 5—6.2 cm long, 4.3 cm wide, ovoid or oblong-ovoid, crowned with persistent calyx segments, circular or bluntly 4-lobed, pericarp leathery, thick, brownish crimson; seed solitary, 4.3 cm long.

Flowers nearly all the year round

**Illustrations.** Curtis, Bot. Mag. *pl.* 3831; Wight, Ic. Pl. Ind. Orient. *pl.* 152. 1839; Kirtikar and Basu, Indian Med. Plants, *pl.* 426. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs along the coasts of India, Ceylon and Malay Peninsula. It is common in the moist low-country in Ceylon, especially near the coast, shores of back waters, lakes, etc.

**Ceylon.** *Thwaites C.P.* 3610; Kulugammana, Dambamultenne Mukalana river side, *J. M. de Silva*, Feb. 1927. **Andaman Islands.** *Prain's Collector*, Dec. 1900. S. Andamans: *King's Collector*, March 1893.

**Composition.** The plant contains triterpinoid saponin which yields two neutral sapogenins barringtogenin and barringtogentin and an acid sapogenin C. The ripe fruit contains barringtogenol and barringtogenic acid. The seed yields a fixed oil and a saponin.

**Uses.** The root has similar properties as cinchona bark and is used as a deobstruent. The fruit is efficacious on coughs, asthma and diarrhoea. It is powdered and used for skin diseases. The seed are aromatic and helpful in colic and parturition. In Madagascar the seed is used as a vermifuge while in Indo-china the root is employed as a febrifuge. In Africa the bark is used as a fish poison. In the Netherlands Indies, the root and bark are given for relief in stomachache and applied externally on skin diseases. The fruit juice is also a useful application on eczema.



FIG. 277. *Careya coccinea*. A, twig with leaves. B, flower spike with one open flower. C, fruit.

4. *Careya coccinea* A. Chev. Cat. Saig. 64. 1919. (Fig. 277).

*Careya arborea* Roxb.—*Meteoros coccineus* Lour.

*Engl.* Patana Oak; *Sinh.* Kahata; *Tam.* Ayma, Karekku, Kumbi, Pela, Pudattanri; *Sans.* Bhadrendrani, Girikarnika, Kaidarya, Kalindi, Katabhi, Katambhara, Kinihi, Kshudrash yama, Kumbhi, Madhurenu, Mahakatambhi, Mahashaundi, Maheshwata, Nabhika, Patali, Pilu, Shatapada, Shaundi, Shirishapatri, Shwetakihini, Shyamala, Sitakatabhi, Svadupushpa, Vishagnika.

A medium sized tree with a very thick, rough, dark grey bark and a small rounded head, young branches with very prominent leaf scars and young parts glabrous; leaves simple, alternate, large 15—30 cm long, usually sessile, broadly ovate, much tapering to base, very obtuse or rounded at apex, denticulate-crenate, thick, smooth and shining on both sides, pale green, veins pellucid; flowers regular, bisexual, large with pale green petals and pale pink filaments, 9—10 cm diam., sessile, crowded in very thick, swollen, hard terminal spikes, each with a central oval bract and two lateral ones; sepals 4, fused into a calyx-tube adnate to ovary, segments imbricate, rounded, stiff, erect, tube campanulate, glabrous and about 2.5 cm long; petals 4, distinct, imbricate 5—6.2 cm long, ovate, obtuse or acute, margin often revolute; stamens very numerous, epigynous in many rows connate at base, filaments about as long as petals; ovary inferior, 4-locular with numerous ovules in axile placentation, style a little longer than stamens; fruit indehiscent 6.2—7.5 cm long, globular, apple-like, green, glabrous, crowned with persistent calyx segments and style, solid with several seeds immersed in the flesh.

Flowers from November to March.

*Illustrations.* Roxburgh, Pl. Corom. 3: pl. 218. 1819; Beddome, Flor. Sylvat. pl. 205. 1868—1873; Kirtikar and Basu, Indian Med. Plants, pl. 428. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs throughout India, Ceylon and Malay Peninsula. It is very common in the moist regions of Ceylon especially in exposed patana lands upto 5000 feet altitude.

*Ceylon.* Without locality, *Thwaites C.P.* 3169; *J. M. Silva*, Nov. 1927.

*Uses.* The bark and fruit are astringent. The flowers and juice of the fresh bark are given with honey as a demulcent in coughs and colds. In Sind, the flowers are given as a tonic after childbirth; while in Cambodia the bark is used as an anti-pyretic and anti-pruritic in eruptive fevers such as smallpox.

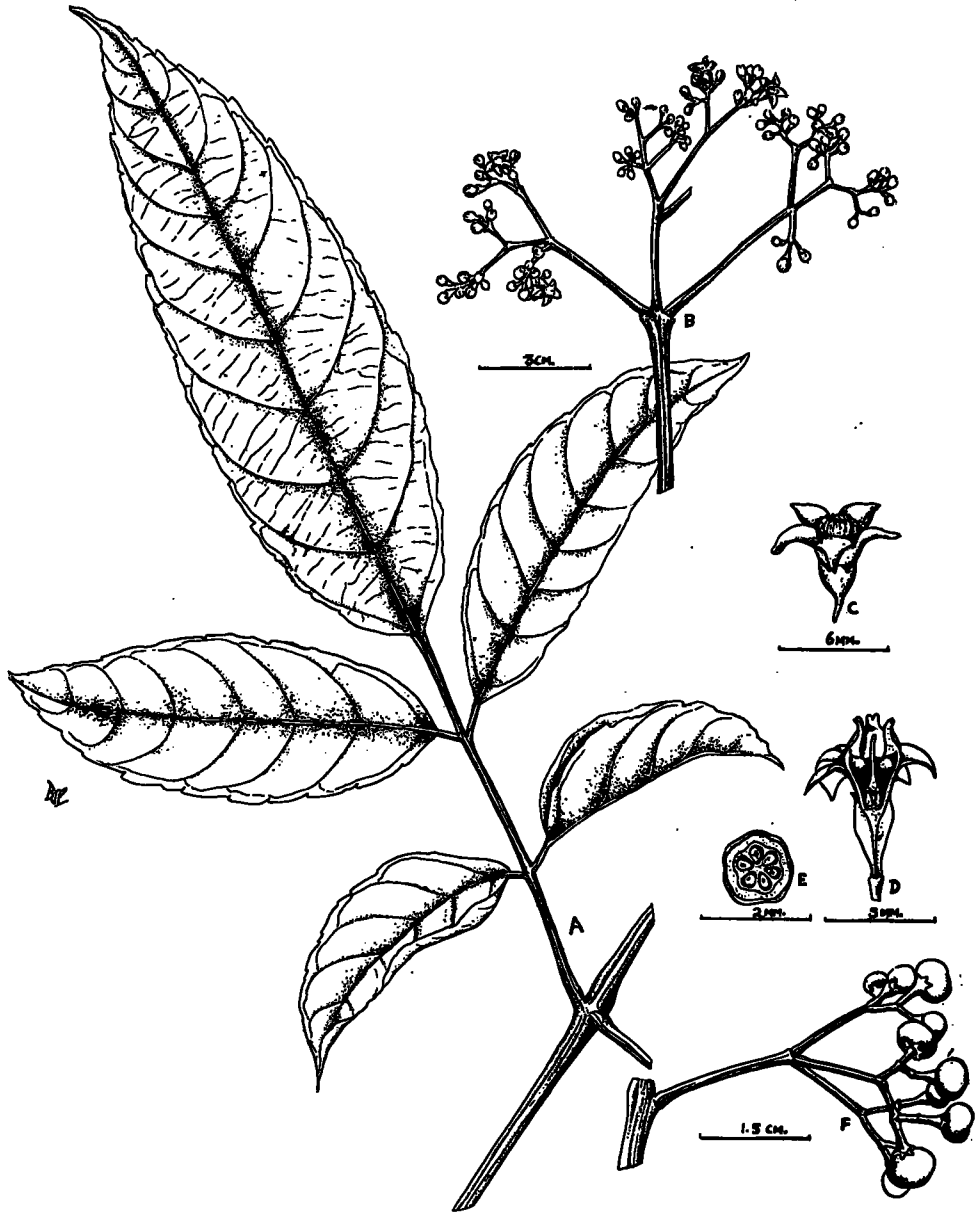


FIG. 278. *Leea indica*. A, portion of a bipinnate leaf showing a pinna and pinnules. B, portion of inflorescence. C, flower, lateral view. D, longitudinal section of flower. E, transverse section of ovary. F, fruits.

## 55. LEEACEAE

*Leea indica* (Burm. f.) Merr. Philip. Journ. Sc. Bot. 14: 145. 1919. (Fig. 278).

*Leea macrophylla* Roxb.—*Leea simplicifolia* Griff.—*Leea sambucina* Willd.—*Leea otillis* DC.—*Leea staphylea* Roxb.—*Staphylea indica* Burm. f.—*Aquilicia sambucina* Linn.—*Aquilicia otillis* Gaertn.

*Sinh.* Burulla, Gurulla; *Tam.* Nalava, Niyakku, Ottunnam; *Hindi* Kurkur, Jihwa; *Sans.* Dholasomudrika, Samudraka.

A large semi-shrubby perennial, 1.2—2 m high, bearing cylindrical, branched, sulcate rough, glabrous stems; leaves alternate, compound with stipules, pinnate or bipinnate, very large, 45—90 cm long, petiole and rachis glabrous, furrowed, rough with small prominences, thickened at the base and joints, leaflets stalked, opposite, 7.5—20 cm long, 3.8—9 cm broad, lanceolate-oblong, acute at base, acuminate, strongly serrate, glabrous, lateral veins very prominent and arched; stipules united to petiole, large, sheathing, deciduous; flowers greenish-white, regular, bisexual, very shortly pedicellate in large, branched, corymbose cymes opposite the terminal leaf; sepals 5, fused into a cup-shaped, 5-lobed calyx; petals 5, connate below, hooded at apex, reflexed; stamens 5, opposite petals, connate below into a wide dome-shaped tube and adnate to corolla-tube, deeply 5-lobed at mouth; ovary superior, 6-locular with a single erect ovule in each loculus; fruit a depressed-globular, smooth, shining, purple-black berry.

Flowers in November.

**Illustrations.** Wight, Ic. Pl. Ind. Orient., *pl.* 1154. 1846; Kirtikar and Basu, Indian Med. Plants, *pl.* 254. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs throughout India, Ceylon, Burma, Malay Peninsula, Thailand, Indo-china, Java, Sumatra, Borneo and Philippine Islands. It is very common in the low-country in Ceylon.

**Ceylon.** Without locality, *Thwaites C.P.* 732. **British North Borneo.** Kudat, *For. Dept.* 3823, March 1928. **Philippine Islands.** Palawan, *Cenabre*, July-Aug. 1925; Panay, Capiz Prov., *Edano* 46170, Oct.—Nov. 1922.

**Uses.** The leaves are astringent and antiseptic and are a reputed remedy for ringworm. A medicinal oil prepared by boiling the bruised leaves in gingelly oil is used as a dressing for wounds and ulcers. A decoction of the root is given in colic and relieves thirst. The juice of the berries is often applied to warts with good effect. The pith of the stem taken internally acts as a diuretic and diluent and is useful in acute cystitis and strangury. In Goa, the root is used for chronic diarrhoea and dysentery. The slimy pulp of the stem is applied on burns.

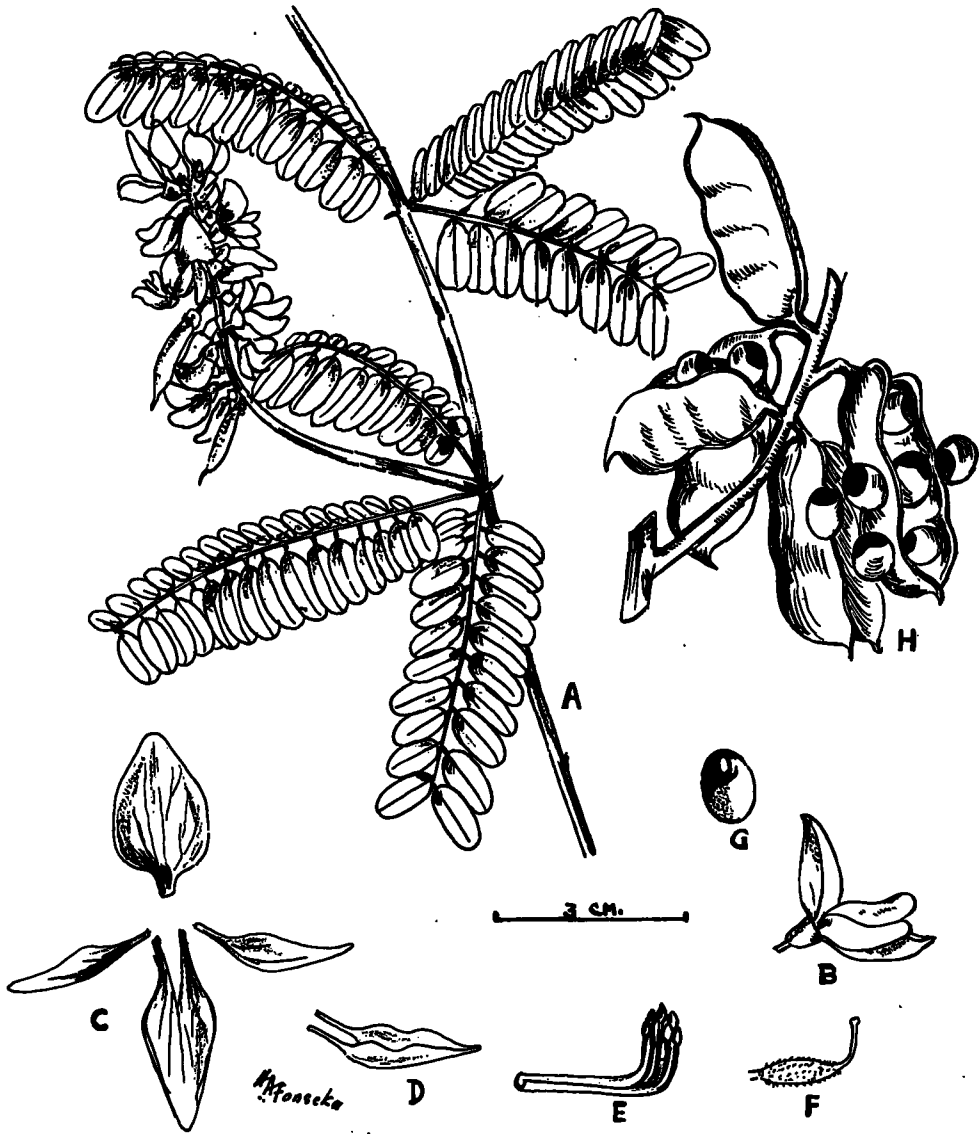


FIG. 279. . *Abrus precatorius*. A, flowering shoot with leaves and a raceme. B, flower, lateral view. C, petals. D, keel petals showing the fusion along one edge. E, stamens. F, pistil. G, seed. H, a cluster of ripe pods showing dehiscence.

## 56. LEGUMINOSAE

### 1. *Abrus precatorius* Linn. Syst. Nat. ed. 12, 472. (Fig. 279).

*Abrus minor* Desv.—*Abrus pauciflorus* Desv.

*Engl.* Indian Liquorice, Wild Liquorice, Rosary Pea; *Sinh.* Olinda; *Tam.* Adisamiyai, Adimaduram, Adingam, Atti, Edalagam, Egunru, Kandam, Kunjam, Kunjuram, Kunri, Kunrimani, Kuruvindam, Maduragam, Singili, Siridam, Sittilai; *Hindi* Gumchi; *Sans.* Angaravallari, Aruna, Bhilabhushana, Chakrashalya, Chataki, Chudala, Chudamani, Dhvan-kshanakha, Durmogha, Gunja, Gunjika, Kaka, Kakachinchi, Kakachinika, Kakadani, Kakajangha, Kakanantika, Kakashimbi, Kakatikta, Kakatundika, Kakavallari, Kakini, Kaksha, Kamboji, Kanchi, Kanichi, Krishnachudika, Krishnala, Mirintika, Rakta, Raktala, Raktika, Saumya, Shangushtha, Shikkandi, Shikkandini, Shitapaki, Shvetabija, Shvetegunja, Shevakamboji, Shevetaraktika, Shvetochchata, Shyamalachuda, Tamrika, Tulabija, Uchchatta, Vaktrashlya, Vanya, Vayasadini.

A slender perennial twiner, glabrous with long internodes, stems slender, cylindrical, branched with smooth wrinkled brown bark; leaves alternate with stipules, paripinnate compound, spreading, rachis 5—10 cm long, thickened at base, very slender, channelled, nearly glabrous, produced beyond the last pair of leaflets as a stiff bristle; leaflets 20—24 or more, opposite, shortly stalked, 1.2—1.8 cm long, oblong, obtuse at both ends, minutely apiculate, glabrous above, slightly hairy beneath, thin; flowers pale violet, irregular, bisexual, rather small, shortly stalked, several together on very short, swollen, knob-like branches crowded at ends of stout, curved, swollen peduncles usually shorter than leaves; sepals 5, fused into a campanulate, truncate tube, glabrous or slightly silky, teeth shallow, membranous, finely pilose; petals 5, the keel petals fused along the inner edge and longer than the wings and the standard; stamens 9, tenth one absent, connate into a tube, split above, adnate at base to the standard; ovary superior, unicarpellary, unilocular, downy with marginal placentation, style glabrous, curved, stigma capitate; fruit a legume 3—4.5 cm long, 1.2 cm wide, flat, oblong, truncate with a sharp deflexed beak, finely silky; seeds 3—5, about 0.6 cm long, ovoid, usually bright scarlet with a black patch on top, polished, exalbuminous.

Flowers during February.

**Illustrations.** Bentley and Trimen, *Medicinal Plants*, pl. 77. 1880; Kirtikar and Basu, *Indian Med. Plants*, pl. 313A. 1933; Herb. Peradeniya, drawing.

**Distribution.** Grows throughout the tropical regions of India, Ceylon, Thailand, Philippine Islands, S. China, tropical Africa and West Indies. It is common in Ceylon, especially in the dry regions.

**India.** Maisor and Carnatic, *G. Thomson*. Ceylon. Northern Prov., Mannar, *Crawford* 149, 1890. Eastern Prov., Trincomalee, *Thwaites C.P.* 1466. North Western Prov., Wetakeyapotha, *Alston* 1454, June 1927. Central Prov., Peradeniya, Bot. Gard. cultivated, *Baker* 110, May 1907. Andaman Islands. Pat Plain Salt Factory, *King's collector*, Jan. 1891 Seychelle Islands. *Neville*, 1867. **Philippine Islands.** Luzon, Bataan Prov., Limay, *Mc Gregor* 44523, Nov. 1924; Cagayan Prov., Penablanca, *Ramos and Edano* 46582, April 1926.

**Composition.** The leaves and roots contain glycyrrhizin, while the leaves contain abrin in addition. The seeds contain a toxalbumin abrine, a glucoside abralin, poisonous proteins, a fat-splitting enzyme, abrussic acid, haemagglutinin and urease.

**Uses.** The root is considered emetic and alexitèric. An aqueous extract of it relieves obstinate coughs and sore throat. It is used as a substitute for liquorice, but this is undesirable as it may contain other toxic substances. The leaves are used in the treatment of conjunctivitis and painful swellings. The seeds are poisonous and are used as an arrow poison. In small doses, they are used in chronic glandular conjunctivitis, nervous affections and as an aphrodisiac. They are also used to prevent conception. Externally, they may be applied as a paste for skin diseases and ulcers.

In Africa, a decoction of the root or leaf is given for pain in the chest. In Eritrea, the seed is mascerated in water and used for purulent eye infections. In East Africa it is a remedy for venereal diseases, the leaf for stomach complaints and the fresh root as an aphrodisiac and snake-bite poisoning. In Central Africa the seed is a remedy for ophthalmia, snake-bite poisoning and internal worms. The powdered seed is used by various African tribes as an oral contraceptive. This action is thought to be due to abrin.

In Ceylon, it is used to cure itch and sores and wounds due to bites of dogs, cats and rats and as a specific on leucoderma along with other ingredients. The leaves have anti-suppurative properties. Ground with lime they are applied on acne, boils and abscesses with much benefit. The plant is largely used in the treatment of tetanus and for the prevention of hydrophobia after rabid dog-bites. The seeds are also used in the treatment of diabetes and chronic Bright's disease.

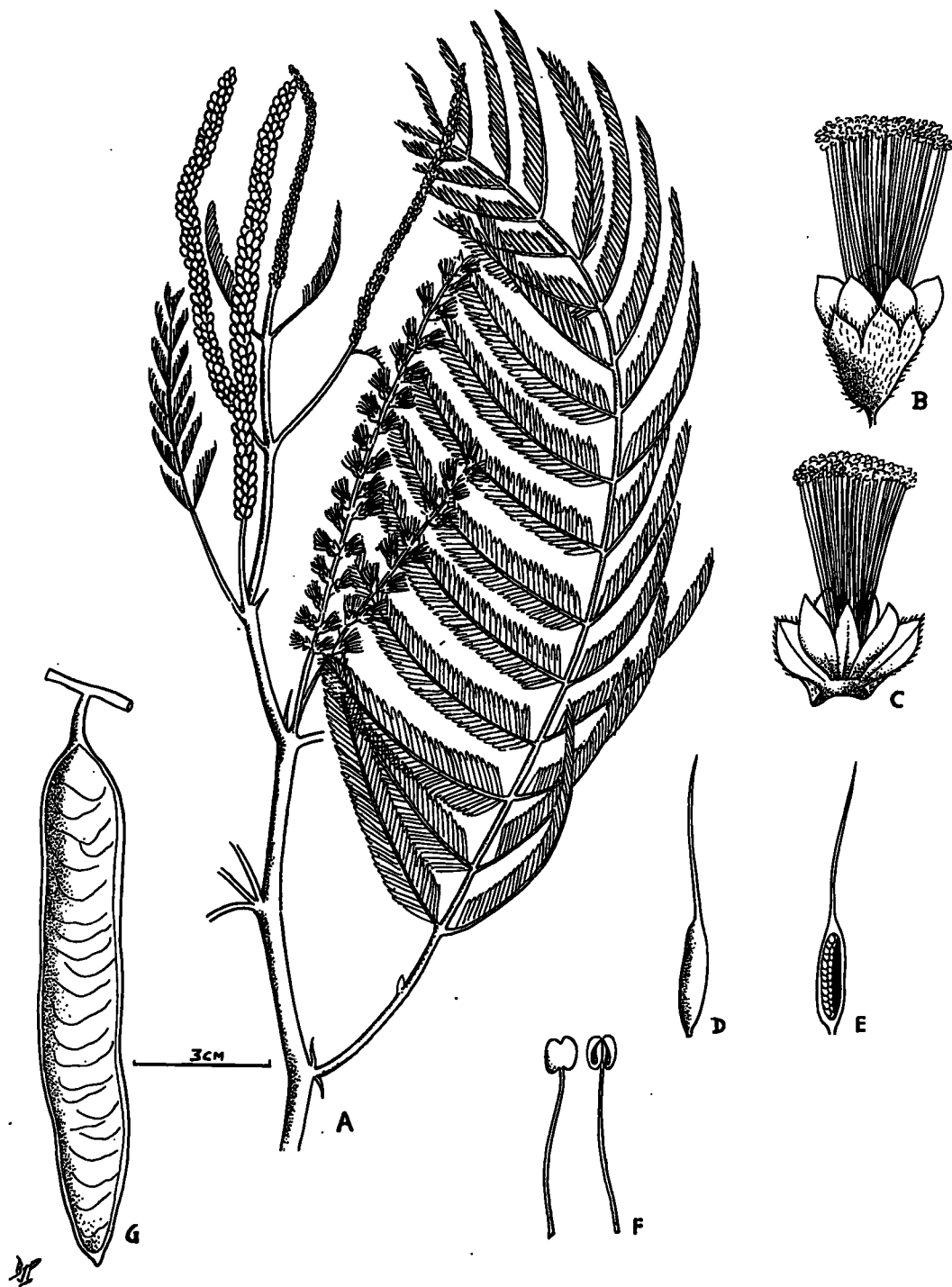


FIG. 280. *Acacia catechu*. A, twig with leaves and flower spikes. B, flower, lateral view. C, flower with calyx spread out showing the corolla and stamens. D, pistil. E, longitudinal section of pistil. F, stamens. G, fruit. B—F, enlarged.

2. *Acacia catechu* Willd. Sp. Pl. 4: 1079. 1805. (Fig. 280).

*Acacia catechoides* Wall.—*Acacia polyacantha* Willd.—*Acacia wallichiana* DC.—*Mimosa catechu* Roxb.—*Mimosa catechoides* Roxb.

*Engl.* Black Catechu, Cutch; *Sinh.* Kaippu; *Tam.* Kadiram, Karangalli, Karungali, Kasukkatti, Kodam, Kudakkini, Odalai, Sengarungali, Sirumarodam; *Hindi* Kathar, Khair; *Sans.* Bahushalya, Balapatra, Balatanaya, Dantadhuvana, Gayatri, Homa, Hihmashalya, Jihvashalya, Jivamanglya, Kantaki, Kantakidruma, Karkati, Khadira, Khadyapatri, Kshiti-kshana, Kushtarhita, Kushthari, Medhya, Mridupatrika, Pathidruma, Prasakha, Raktasara, Saradruma, Sushalya, Tiktasara, Vakrakantaka, Yajnanga, Yajnika, Yupadru.

A moderate-sized tree, 9—12 m high with a short, somewhat crooked trunk and numerous irregular straggling branches, dark brown or dark grey; rough, red and fibrous within, young branches smooth or pubescent with a pair of sharp, hooked, brown prickles just below the position of the stipules of each leaf; leaves numerous, alternate, bipinnate, 12.5—20 cm long, leaflets opposite, 20—30 pairs in each pinna, sessile, overlapping, linear, blunt, 3—6 mm long, glabrous or pubescent, entire, petioles with a prominent gland on the upper surface about the middle and often armed with a few prickles; flowers regular, bisexual, yellow; sessile laxly arranged in slender, cylindrical, erect, stalked spikes often in pairs from the axils of leaves; calyx campanulate, cut about halfway down into 5 narrow-triangular acute segments, glabrous or downy; petals 5, fused into a campanulate tube divided nearly halfway down into acute segments; stamens very numerous, filaments slender, erect, not combined at the base into a tube, anthers small, roundish, a small disc surrounds the stalk of the ovary; ovary superior, shortly stalked, very small, oblong, style terminal, filiform, shorter than stamens, stigma terminal; fruit pod 5—12.5 cm long, 1.8 cm broad, acute, containing 3—10 seeds, brown and shining, much flattened, smooth, coriaceous with faint, transverse anastomosing veins; seeds roundish, very much compressed, marked in the centre with a concave, arched line, exalbuminous.

Flowers in May and June.

**Illustrations.** Roxburgh, Pl. Corom. pls. 175 and 225, 1795—1798; Bentley and Trimen, Med. Plants, pl. 95. 1880; Beddome, Flor. Sylvat. pl. 50. 1868—1873; Kirtikar and Basu, Indian Med. Plants, pl. 377. 1933.

**Distribution.** Grows gregariously in N.W. Himalaya from Punjab to Sikkim and in Burma. It is not found in Ceylon.

**India.** Sikkim. *J. D. Hooker*. Behar, *J. D. Hooker*. Bengal: Sheyrpore, *Clarke* 4828, July 1867. Madras; *G. Thomson*; *Heyne*, June 1814, without locality.

**Composition.** Cutch of commerce is extracted from the heart-wood by boiling with water and later condensing and hardening it into moulds. It is composed essentially of catechin or catechuic acid and catechu-tannic or mimotannic acid. The tree yields a gum composed of D-galactose, L-arabinose, D-rhamnose and L-glycuronic acid.

**Uses.** An extract of the bark is an astringent remedy for chronic diarrhoea and dysentery. It is also used in passive uterine haemorrhages, and in mucous discharges, in addition to hoarseness of the throat. Catechuic acid is often found in cavities in wood. It is valued as a remedy for chest ailments. Mixed with myrrh, it is given to women to promote secretion of milk. It is much used as a masticatory as it is supposed to strengthen the gums. In East Africa, the powdered bark mixed with copper sulphate and egg yolk is applied to cancerous growths.

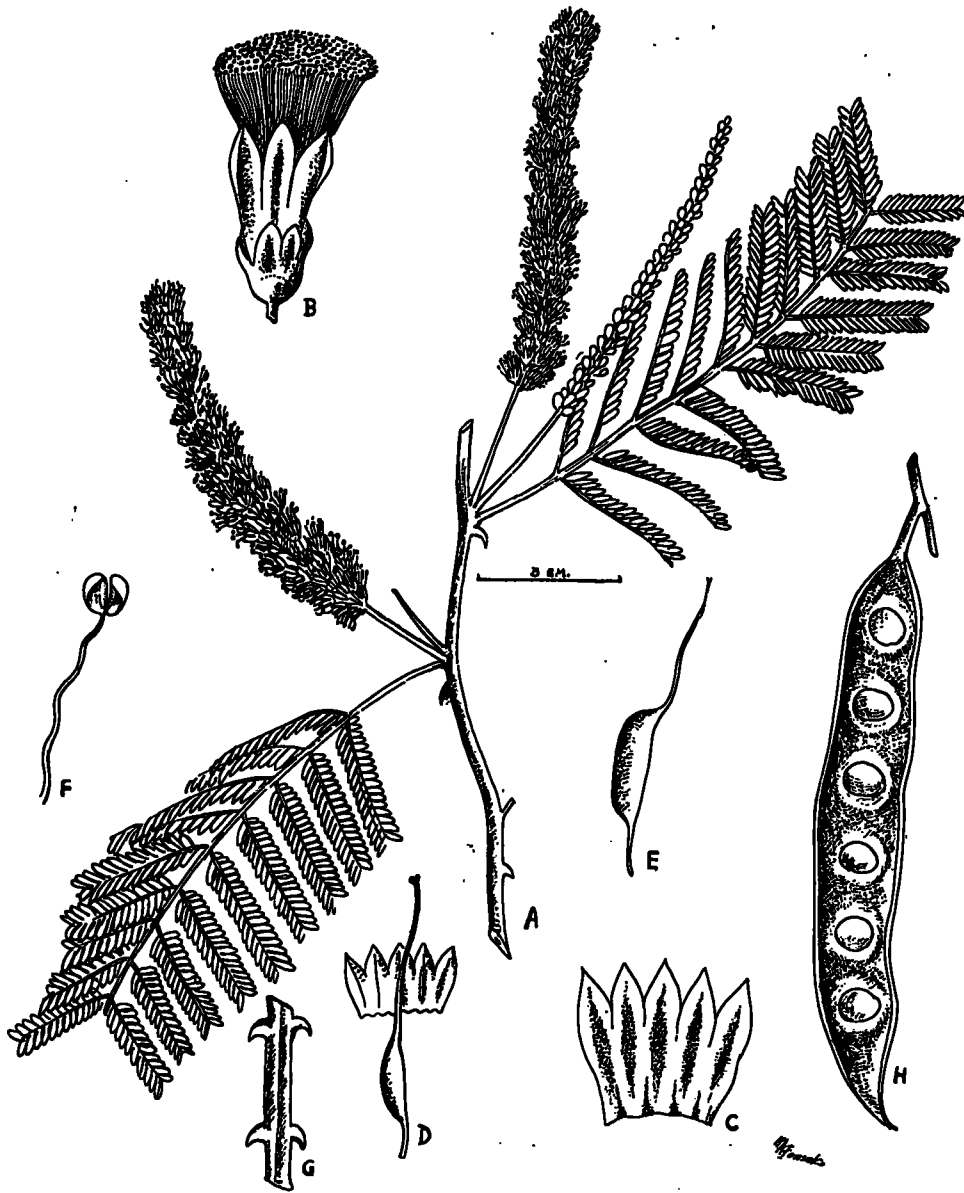


FIG. 281. *Acacia chundra*. A, branch with leaves and flower spikes. B, flower, lateral view. C, corolla opened out. D, pistil with calyx. E, pistil. F, stamen. G, prickles on rachis beneath. B—G, enlarged.

3. *Acacia chundra* Willd. Sp. Pl. 4: 1078. 1805. (Fig. 281).

*Acacia sundra* DC.—*Acacia catechu* Brand.—*Mimosa sundra* Roxb.

*Sinh.* Kihiri, Rat-kihiri; *Tam.* Kodali, Murunkai; *Hindi* Lall Khair; *Sans.* Chandana, Khadira val.

A small tree with a dark brown bark and purple young shoots which are quite glabrous; stipular spines small, decurved, hooked, black, often absent; leaves alternate, bipinnate compound, rachis 10—12.5 cm long, tapering, glabrous with a large, sessile gland between the bases of each pair of pinnae, slightly channelled above, often with recurved prickles beneath, pinnae 9—18 pairs, 2.5—3.1 cm long, leaflets small, 20—30 pairs, 0.3 cm long, sessile, crowded, deciduous, linear, obtuse, quite glabrous; flowers more or less regular, bisexual, pale yellow or pinkish, small, sessile in rather lax, shortly stalked, erect, axillary spikes 7—10 cm long; sepals 5, fused into a campanulate calyx, quite glabrous, segments more or less triangular; petals 5, fused into a 5-lobed corolla three times as long as the calyx, lobes linear-lanceolate; stamens numerous, free, much longer than the corolla, anthers not gland-tipped; ovary superior, unicarpellary, unilocular and marginal placentation; fruit legume dehiscent, 8.9—12.5 cm long, 1.6 cm wide, stalked, nearly straight, tapering to each end, very thin, margin often indented between seeds, quite glabrous, veiny, dark brown; seeds 4—6 broadly oval, much compressed, pale greenish brown.

Flowers in September.

**Illustrations.** Beddome, *Flor. Sylvat. pl.* 50. 1868—1873; Roxburgh, *Pl. Corom. pls.* 175 and 225. 1798; Bentley and Trimen, *Med. Plants, pl.* 95. 1880; *Herb. Peradeniya*, drawing.

**Distribution.** Occurs in the western parts of India, Ceylon, Burma and tropical Africa. It is rare in Ceylon confined to the dry regions of the Northern Province and Sabaragamuwa Province.

**India.** Maisor and Carnatic, *G. Thomson. Pen. Ind. Or., Herb. Wight* 890, *Kew Distribution* 1866—7.

**Uses.** The heartwood of this tree along with other ingredients is used for preparations of pills for the treatment of fevers accompanied with diarrhoea and worms. It is also used with other drugs for preparations of decoctions in the treatment of biliousness, eczema, insanity and poisoning. It is an astringent and tonic similar to *Acacia catechu*. Because of the tannic acid and resin it contains, it is used as an antiseptic and often applied to chronic ulcers and also used as a gargle for bleeding and spongy gums, stomatitis and chronic pharyngitis. Mascerated with fresh tamarind leaves and lime juice, it is a favourite remedy on local inflammations of the skin, for inflamed glands and on boils and abscesses. It is said to possess anti-suppurative and antiseptic properties and used for skin diseases such as eczema, psoriasis, acne and dermatitis.

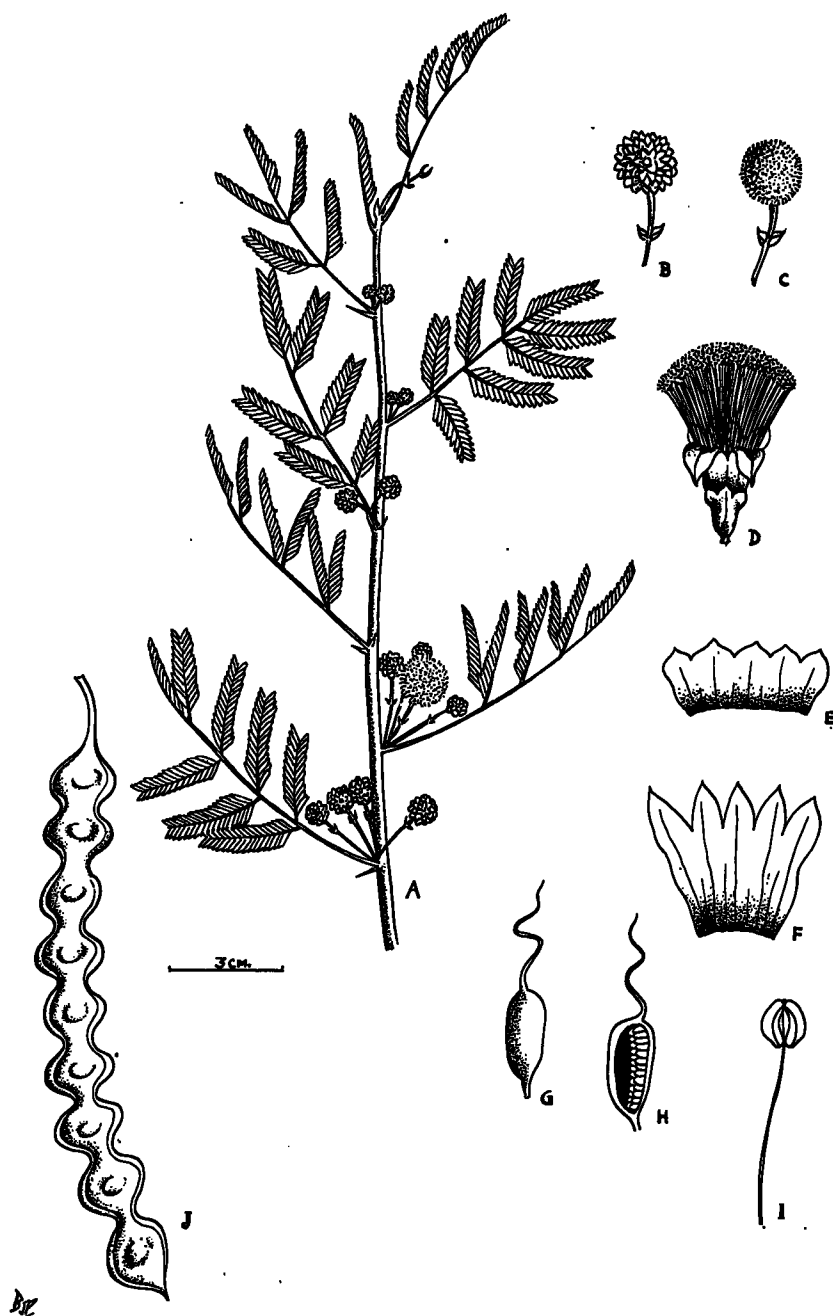


FIG. 282. *Acacia nilotica* var. *indica*. A, branch with leaves and inflorescences. B, flower head with unopened flowers. C, flower head with open flowers. D, flower, lateral view. E, calyx. F, corolla opened out. G, pistil. H, longitudinal section of pistil. I, stamen. J, fruit. D-I, enlarged.

4. *Acacia nilotica* var. *indica* (Benth.) A. F. Hill. (Fig. 282).

*Acacia arabica* Willd.—*Acacia vera* Willd.—*Mimosa arabica* Lam.

*Engl.* Indian Gum Arabic Tree; *Sinh.* Babbula; *Tam.* Iramangandam, Karuwel, Karuvelam, Vel; *Sans.* Ajabaksha, Babbula, Babbulaka, Babula, Barbura, Dirghakantaka, Dridhabija, Dridharuha, Goshringa, Kantalu, Kaphantaka, Kashaya, Kashtaki, Kinkirata, Malaphala, Panktibija, Pitaka, Pitapushpa, Sukshmapatra, Svarnapushpa, Tikshnakantaka, Varvara, Vavvola, Yugalaksha, Yugamakanta.

A small tree with longitudinally fissured dark bark, slender terete straight branches and pubescent young parts; leaves alternate, stipulate, bipinnate compound, small, rachis 2.5—3.7 cm long, distant, pinnules 12—15 pairs, 4 mm long, very shortly stalked, strap-shaped; stipular spines variable from very small and inconspicuous to 5 cm in length, slender, spreading, white, sometimes quite absent; flowers yellow, somewhat regular, bisexual in globular heads, 2—5 together from axils of leaves, peduncles 1.2—1.8 cm long, pubescent with two bractlets above the middle; sepals 5, fused into a campanulate calyx, segments more or less triangular; petals 5, connate into a 5-lobed corolla twice as long as the calyx; stamens numerous, free, much longer than the corolla, anthers not gland-tipped; ovary superior, unicarpellary, unilocular and marginal placentation; fruit legume 10—15 cm long, straight, 8—12-seeded, strongly constricted at the sutures between seeds, densely covered with fine grey tomentum.

Flowers during February and July.

**Illustrations.** Beddome, *Flor. Sylvat. pl.* 47. 1868—1873; Roxburgh, *Pl. Corom. pl.* 149. 1795; Kirtikar and Basu, *Indian Med. Plants, pl.* 375. 1933; *Herb. Peradeniya*, drawing.

**Distribution.** Occurs throughout India, North-West coast of Ceylon, Arabia, Egypt, tropical Africa and Natal. It is very rare in Ceylon being confined to the dry regions.

**India Madras:** *Hook. f. and Thomson.* Ceylon. Northern Prov., Jaffna, *Herb. Peradeniya*, Feb. 1890. Eastern Prov., Trincomalee, *Thwaites C.P.* 3640. North Western Prov., Puttalam, *Simpson* 9169, Feb. 1933. Central Prov., cultivated, *Herb. Peradeniya*, July 1894.

**Composition.** The fruits contain an alkaloid.

**Uses.** The bark is a powerful astringent and demulcent. It is a valuable remedy in prolapsus ani and a useful poultice for ulcers. The tender leaves beaten up with water is given as an astringent for diarrhoea. The gum is said to be useful for diabetes, throat and chest troubles. The fruits are recommended for dysentery and ophthalmia.



FIG. 283. *Albizzia odoratissima*. A, branch with leaves and inflorescence. B, flower, lateral view. C, pistil. D, fruit. B & C, enlarged.

5. *Albizzia odoratissima* Benth. in Hook. Journ. Bot. 3: 99. 1844. (Fig. 283).

*Acacia odoratissima* Willd.—*Acacia lomatarpa* DC.—*Acacia micrantha* Boiv.—*Acacia lebekkoides* Benth.—*Mimosa odoratissima* Linn.—*Mimosa marginata* Lam.

*Sinh.* Hurimara, Suriyamarā; *Tam.* Kalitturinjil, Kaliyunjai, Karuvagai, Purusilai; Silai, Silaiyunjai, Sittilaivagai; *Hindi* Bansa, Bas, Sira; *Sans.* Shirisha, Sirisha, Svetashirisha.

A very large tree with a thick, grey bark, spreading branches and pubescent young parts; leaves alternate, bipinnate compound, large, rachis 10—15 cm long, pubescent with a single large sessile gland near the base and generally one between bases of terminal pair of pinnae, pinnae generally 4 pairs, rather distant, about 10 cm long, pubescent, leaflets 10—14 pairs, sessile, rather large, 1.8—3.1 cm long, 1—1.3 cm broad, rounded, apiculate, with unequal sides, the midrib near the upper margin, glabrous above, finely downy and glaucous beneath and stiff; flowers white, sweet-scented, more or less regular, bisexual, sessile, few in heads which are 1.2—1.6 cm diam., peduncles 1.8 cm long, pubescent, 1-4 together, arranged in terminal panicles; sepals fused into a funnel-shaped calyx, densely pubescent, segments short, broad and deltoid; petals 4, connate halfway up into a corolla-tube, pubescent outside, segments acute; stamens indefinite, filaments pale yellow, slightly monadelphous at base, much longer than the corolla, anthers not gland-tipped; ovary superior, unicarpellary, unilocular with marginal placentation; fruit legume large, dehiscent, 10—17.5 cm long, 2.5—3.7 cm broad, very shortly stalked, abruptly pointed, roughish but glabrous, slightly veiny; seeds 6—12, small, much flattened.

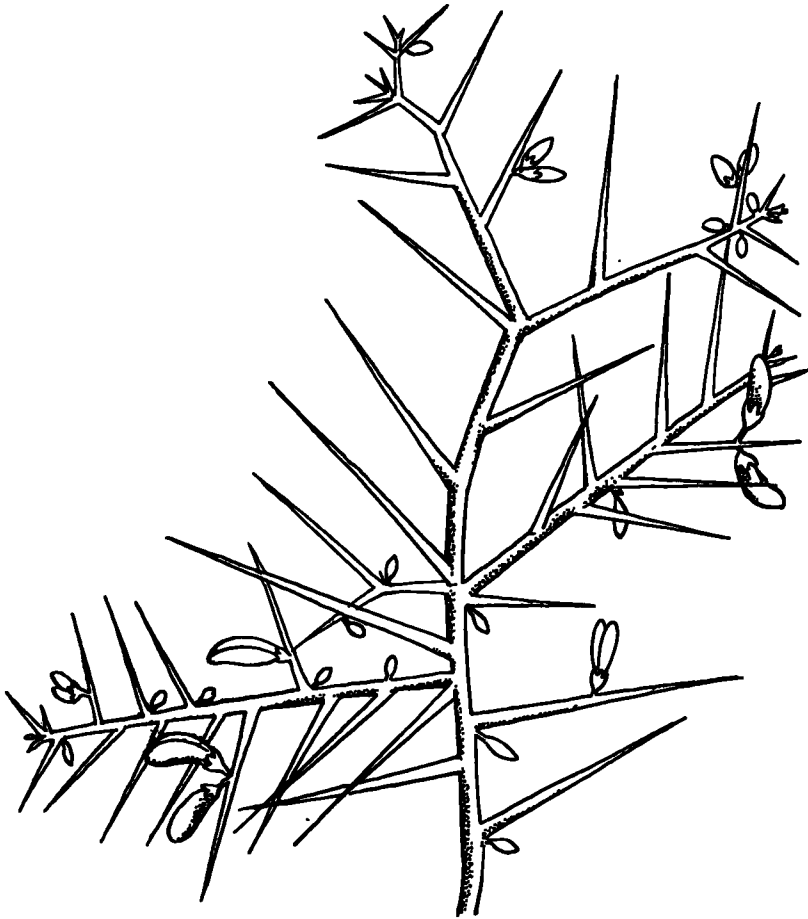
Flowers from May to September.

*Illustrations.* Beddome, *Flor. Sylvat. pl.* 54. 1868—1873; Roxburgh, *Pl. Corom. pl.* 120. 1795; Kirtikar and Basu, *Indian Med. Plants, pl.* 384. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs in India, Ceylon, and Malacca. It is common in the low-country in Ceylon, in both moist and dry regions.

*India.* Bengal: *J. D. Hooker and T. Thomson*; Calcutta, *Wallich* 5234; Parasnath, *Thomson*. Pen Ind. Or., *Herb. Wight* 898, Kew Distribution 1866—7. Ceylon. *Thwaites C.P.* 1529. North Central Prov., Anuradhapura, *Herb. Peradeniya*, March 1883. Central Prov., Peradeniya, *Gardener* 249. Uva Prov., Ella Pass, *Herb. Peradeniya*, Sept. 1890; Bibile Dist., *J. M. Silva*, July 1924; between Kumbukkana and Muppane, *F. W. de Silva*, March 1927.

*Uses.* The bark is used externally for leprosy and inveterate ulcers. The leaves boiled in ghee are used as a remedy for coughs.



5/11

FIG. 284. *Alhagi camelorum*, a branch with leaves, spines and flowers.

6. *Alhagi camelorum* Fisch. Ind. Hort. Gorenk. ed. 2, 72. 1812. (Fig. 284).

*Alhagi maurorum* Desv.—*Alhagi napaulensium* DC.—*Alhagi mannifera* Desv.—*Hedysarum alhagi* Linn.—*Manna hebraica* Don—*Manna nepalensis* Don.

*Engl.* Arabian Manna Plant; *Sinh.* Wel-kahambiliya; *Tam.* Janappa; *Sans.* Adhikantaka, Ananta, Bahukantaka, Balapatra, Duramula, Durlabha, Dusparsha, Dhirgamula, Gandhari, Girikarnika, Kachchura, Kantaluka, Kantaki, Kshudregudi, Marubhava, Rodanika, Samudranta, Sukshmapatra, Tikshanakantaka, Triparnika, Vanadarbha, Vasanta, Vishaghna, Vivarnaka, Yas, Yavasa, Yavasaka.

A low erect shrub, armed with copious hard sharp spines, sometimes about 3.7 cm long and terete, striate, glabrous branches; leaves simple, entire, coriaceous, 0.6—1 cm long, 3—4.5 mm broad, obovate-oblong, obtuse, apiculate, glabrous or puberulous, base cuneate; petioles very short; stipules minute, subulate; flowers irregular, bisexual, red, 5—8 on a spine, pedicels short, slender; calyx campanulate, glabrous, 4 mm long, teeth short and triangular; petals 5, free, imbricate, descending, standard 8 mm long, 5 mm broad, obovate-oblong, auricled at the base above the claw, glabrous, wings falcate oblong, free, keel incurved about equalling the standard and the wings; stamens 10, diadelphous, anthers uniform; ovary superior, glabrous, unilocular, stalked, ovules many on a marginal placenta; pods 1.8—3 cm long, usually falcate, more or less contracted between the seeds, glabrous, seeds blackish brown, smooth and polished.

Flowers during March.

**Illustration.** Kirtikar and Basu, *Indian Med. Plants*, pl. 307B. 1933.

**Distribution.** Occurs in India, Arabia, Persian Baluchistan and Egypt. It does not grow in Ceylon.

**India.** Himal. Bor. Occ., *T. Thomson*. Bengal: Calcutta, *Wallich* 5760B, 1820; banks of Ganges, April 1803, without name of collector.

**Uses.** In Concan, this plant is smoked with black *Datura*, tobacco and ajwan seeds as a remedy for asthma. An infusion of the plant is a diaphoretic and a decoction of the root is used externally for swellings and abscesses.

Attygalle gives the Sinhalese name "Wel-kahambiliya" to this plant. The name suggests that it is a climber whose stems and leaves are covered with stinging hairs. In Ayurvedic practice *Tragia involucrata* Linn. (Euphorbiaceae) is used under the same name. The latter seems to be the correct plant.

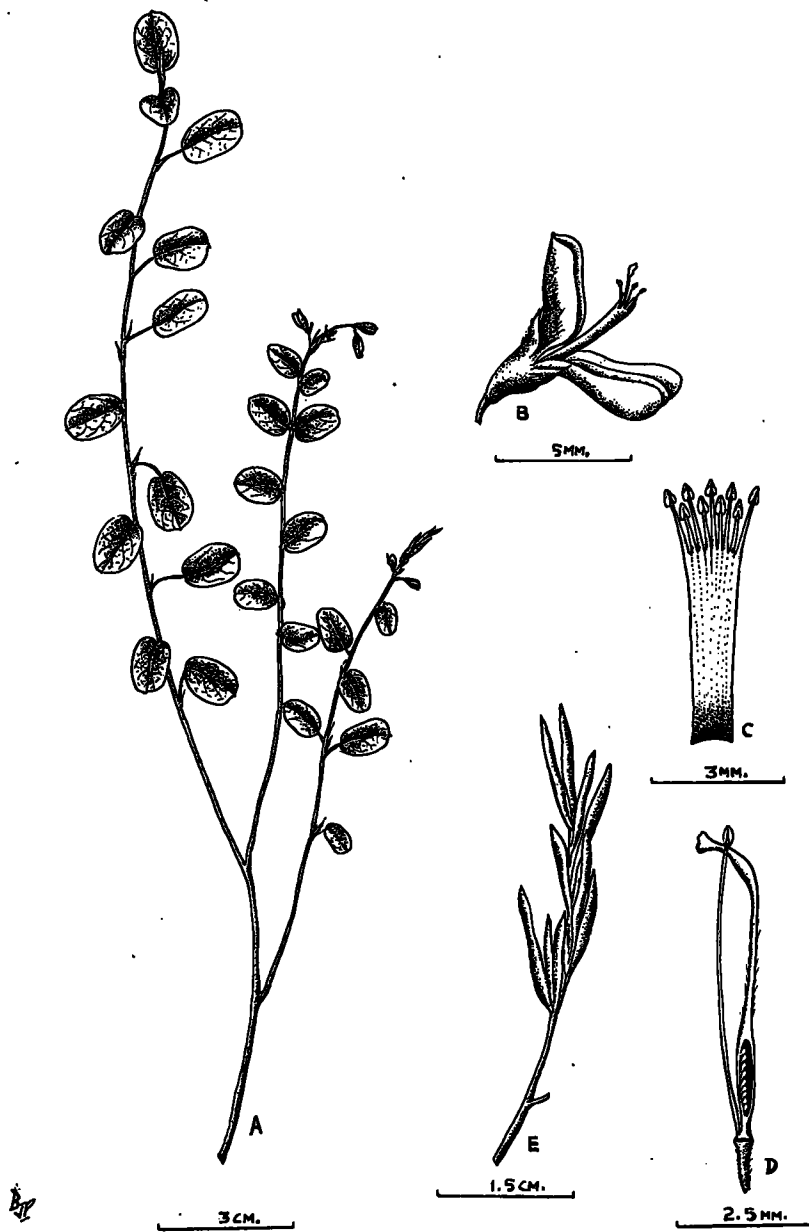


FIG. 285. *Alysicarpus vaginalis*. A, part of the plant with leaves and flowers. B, flower, lateral view. C, stamen tube opened out. D, longitudinal section of pistil with the single free stamen. E, fruits.

7. *Alysicarpus vaginalis* DC. Prodr. 2: 353. 1825. (Fig. 285).

*Alysicarpus rubibarna* Wall.—*Alysicarpus diversifolius* Wall.—*Alysicarpus harnieri* Schweinf.—*Hedysarum vaginale* Linn.

*Sinh.* Aswenna; *Tam.* Pullardi; *Sans.* Sala-parni.

A semi-woody herbaceous annual with numerous long stems 60—120 cm long, ascending, branched, wiry, glabrous, often rooting at the base; leaves alternate, 1-foliolate, variable, 1.2—5 cm long, on petioles about a third as long, varying from linear-lanceolate to broadly oval, often cordate at base, acute, apiculate, glabrous above, whitish with adpressed hair and reticulately veined beneath, stipules scarious, as long as petioles, closely pressed to stem, very acuminate, straw-coloured, persistent; flowers irregular, bisexual, pinkish violet, very shortly stalked, clustered, racemes short on short peduncles; sepals 5, fused into a deeply cleft calyx, slightly pubescent, segments setaceous with a few, long, bristly hairs; petals 5, keel petals obtuse and adnate to wings; stamens 10, diadelphous, anthers uniform; ovary superior, unicarpellary, unilocular with marginal placentation; fruit a legume, 1.2—1.8 cm long, of 4—7 joints, erect, cylindrical, not moniliform, apiculate, glabrous or nearly so, reticulate-venose.

Flowers from December to January.

**Illustration.** Herb. Peradeniya, drawing.

**Distribution.** Occurs in India, Ceylon, Burma, and the tropics of the Old World. It is common in the low-country in Ceylon, especially in the dry regions.

**India.** Decca, *Clarke* 6708, March 1868; *Clarke* 7900, Oct. 1868; Chota Nagpore, Parasnath, *Clarke* 21305B, Sept. 1873. Bengal: *J. D. Hooker*; *Clarke* 8014, Nov. 1868. Maisor and Carnatic: *G. Thomson*; *Herb. Hance* 248, Oct. 1860. Canara: Yellapore, *Talbot*, Aug. 1881. Madras: *Cleghorn* 128. Pen. Ind. Or., *Herb. Wight* 705, Kew Distribution 1866—7. Ceylon. Eastern Prov., Trincomalee, *Thwaites* C.P. 1428. North-Western Prov., Negombo, *Senaratne*; Oct. 1949. Uva Prov., Nilagala, Kahata-ata-hela, *Herb. Peradeniya*, Jan. 1888. Burma. Cambia, Minbu Village, *Mokim* 699, Nov. 1902. Indo-China. Hue and vicinity, *Squires* 74, Jan.—May 1927.

**Uses.** The plant is used with other drugs in decoction for fevers, dysentery and diarrhoea. In Ceylon it is used specifically for dissolving stones in the bladder. It is an anti-periodic and combined with other anti-periodics used in chronic malarial fevers. It is also a diuretic, diluent and demulcent to the urinary tract and is useful in cardiac, renal and hepatic dropsy, chronic pyelitis, cystitis, gonorrhoea and strangury.

This plant is mistakenly used for *Desmodium gangeticum* DC. owing to the wrong translation of the Sanskrit word "Sala-parni" into Sinhalese.

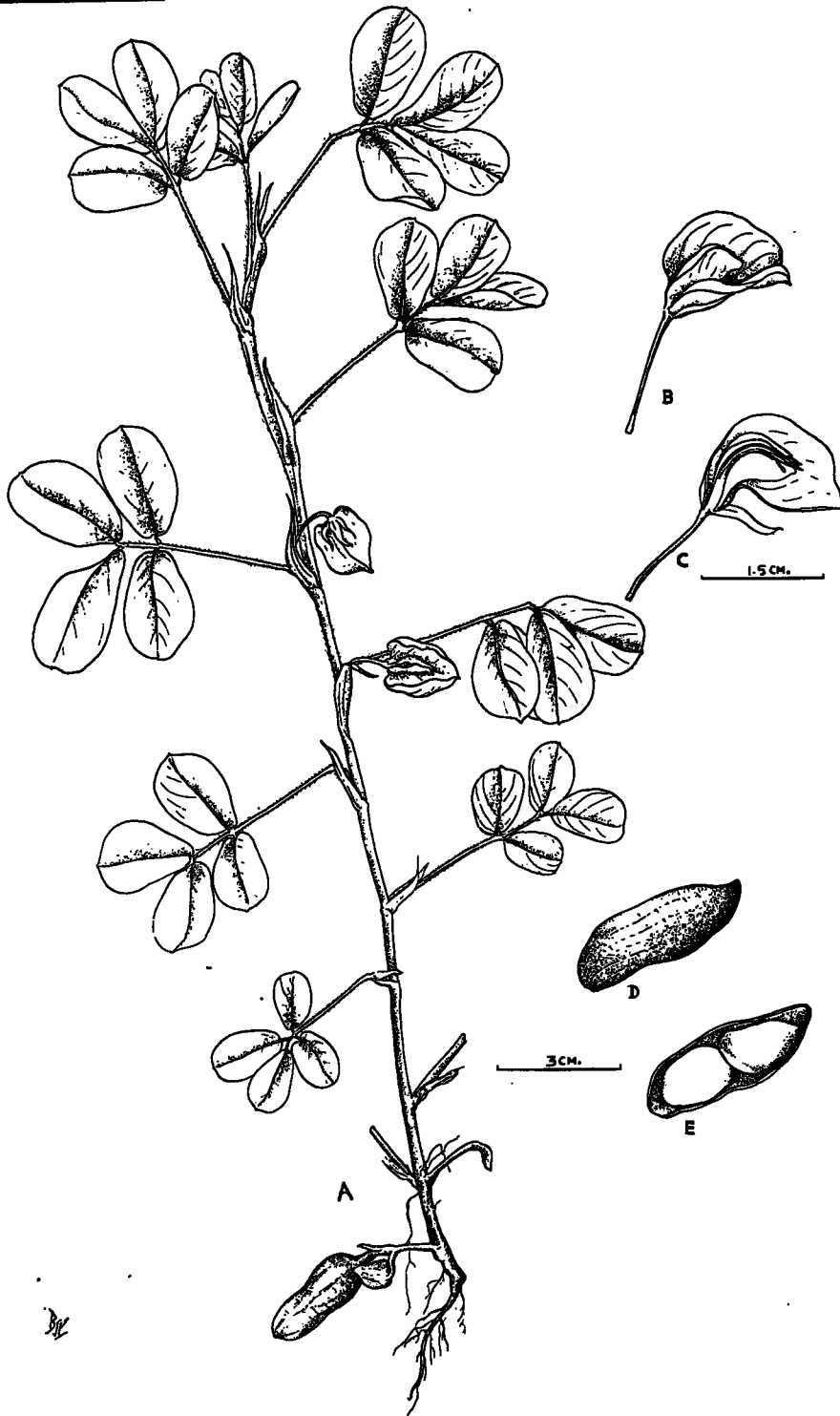


FIG. 286. *Arachis hypogaea*. A, plant with leaves, stipules, flowers and fruit. B, flower, lateral view. C, longitudinal section of flower. D, fruit. E, fruit opened showing the seeds.

8. *Arachis hypogaea* Linn. Sp. Pl. 741. 1753. (Fig. 286).*Arachis asiatica* Lour.

*Engl.* Ground Nut, Peanut; *Sinh.* Kaju-kadala, Kirikaju, Ratakaju; *Tam.* Nilakkadalai, Verkkadalai; *Sans.* Bhuchanaka, Bhumija, Bhushimbika, Bhustha, Mandapi, Raktabija, Snehabijaka, Tribija.

An annual herb about 30 cm high with a thick, erect, angular, more or less hairy, pale green stem and several elongated prostrate branches; leaves alternate, long stalked with large, stiff, erect, linear, attenuate stipules adnate for about half their length to the petioles, abruptly pinnate with two pairs of opposite leaflets; leaflets 2.5—5 cm long, broadly oblong-oval or obovate with a small mucro at apex, entire, slightly thickened at the margin which is ciliate with longish hairs, otherwise nearly smooth; flowers irregular, bisexual, golden yellow, sessile, several densely crowded together in the axils of the lower leaves, or solitary, each subtended by a stipule-like eared bract about 1.2 cm long and very acuminate, and each with two small opposite linear smaller bracts beneath the calyx; calyx with a very long, slender, filiform, delicate, pilose tube about 3.7 cm long (looking like a stalk to the flower), suddenly expanded at the top and there deeply cut into two lips, the upper (formed of the upper four lobes) with 3 or 4 teeth, erect, the lower narrow acute; petals inserted in the throat of the calyx, standard broadly orbicular, notched, wings oval-oblong, keel deep, beaked; stamens 10, inserted with the petals, one often abortive, filaments united throughout nearly their whole length into a tube, anthers alternately large, oval-oblong, short and rounded; ovary superior, minute, almost sessile at the bottom of the calyx-tube, unilocular with 2 or 3 ovules, style very long and slender, thickened in the staminal tube beyond which it projects slightly, stigma very small, capitate; fruit pod about 2.5 cm or more, below the surface of the ground at the extremity of a stiff decurved stalk 5—7.5 cm long, which has grown beneath the ovary after the fall of the flower, ovoid-oblong, 2.5—3.7 cm long, blunt, cylindrical, somewhat narrowed between the seeds but not articulated or provided with partitions, perhaps indehiscent, thin, brittle, wrinkled all over with a large network of raised ribs, pale brownish-yellow; seeds oblong-ovoid, cylindrical often flattened at one end and irregular, testa brownish-red, veined, cotyledons plano-convex, large, exalbuminous.

Flowers during July and August.

*Illustrations.* Bentley and Trimen, *Med. Plants*, pl. 74. 1880; Kirtikar and Basu, *Indian Med. Plants*, pl. 387. 1933.

*Distribution.* A native of tropical America and now widely distributed and cultivated in tropical and subtropical regions of America, Africa and Asia, including India and Ceylon.

*Ceylon.* Peradeniya, Bot. Gard., cultivated, *Herb. Peradeniya*, June 1895; Experiment Station, Drieberg, July 1913. *Malaya.* Singapore, *Anderson* 33, Nov. 1861.

*Composition.* The oil expressed from the seeds contains glycerides of palmitic, oleic, stearic, lignoceric, linolic and arachidic acids. The peanut meal contains sugar, starch and nitrogenous and fatty matter. Three alkaloids, betaine, choline and arachine are found in the seed.

*Uses.* The oil extracted from the seed is an aperient and emollient. It is used as a basis for liniments and ointments. The unripe nut is a lactagogue. In French Guiana, the oil is given for acute abdominal pain and applied hot on dislocations.

The peanut is boiled or roasted and eaten. It is often used in confectionery. The oil is used in salads. Butter and soaps are made from it. Peanut cake is an excellent cattle food.

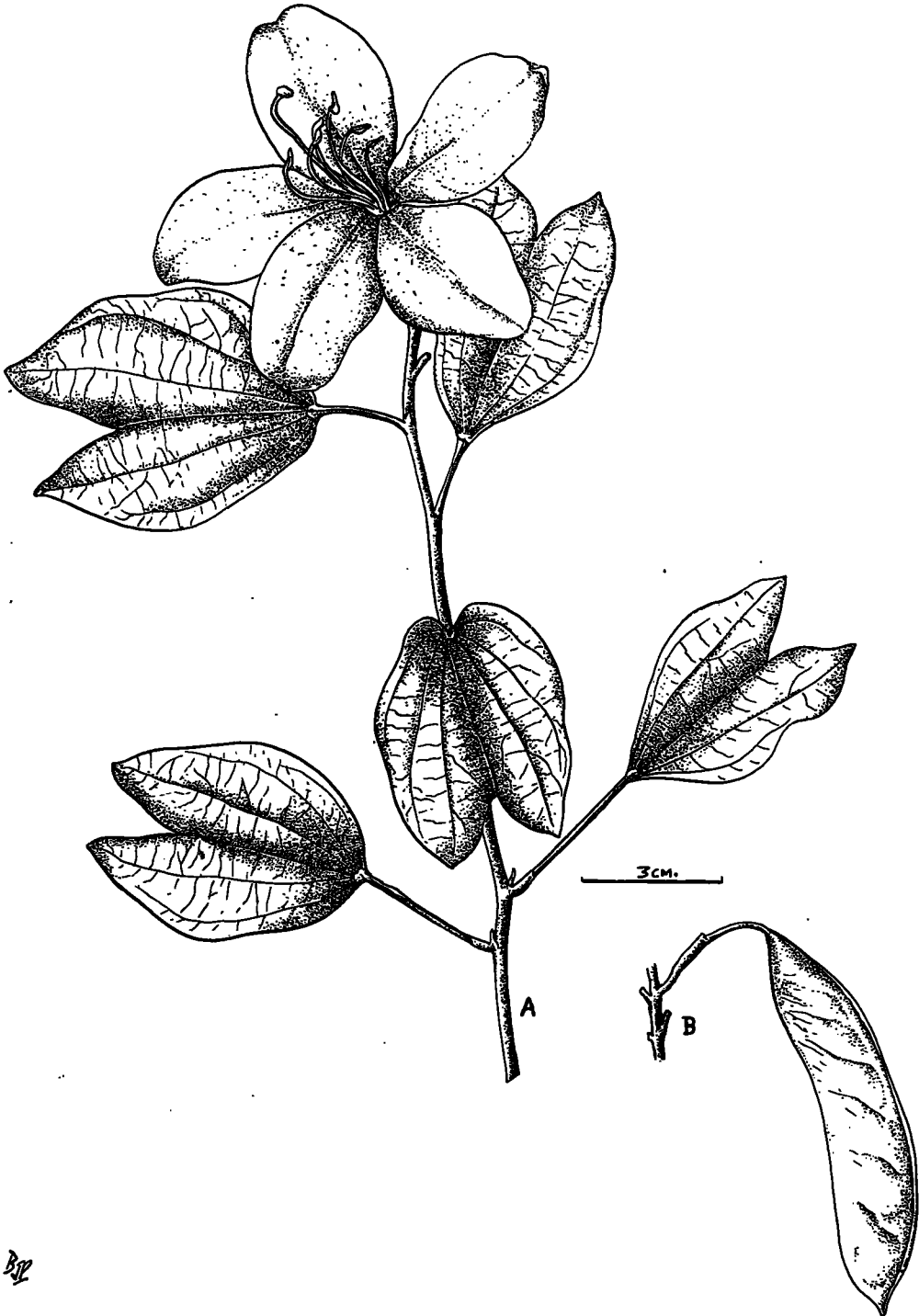


FIG. 287. *Bauhinia acuminata*. A, branch with leaves and a flower. B, fruit.

9. *Bauhinia acuminata* Linn. Sp. Pl. 376. 1753. (Fig. 287).*Bauhinia purpurea* Wall.—*Bauhinia candida* Ait.*Sinh.* Ela-koboleela; *Hindi* Kuchanar; *Sans.* Kovidara.

A shrub about 3 m tall with a whitish grey bark; leaves simple, alternate, 4.5—10 cm long, 3.5—6.5 cm broad, bilobed at apex, lobes acuminate, acute, base rounded, glabrous and dark green on the upper surface, paler and pubescent beneath, margin hairy, stipules lanceolate, 0.6 cm long and hairy; petioles 2.3—3.5 cm long, scantily pubescent with a pulvinus at base; flowers irregular, bisexual, white, 11 cm diam. in few-flowered, short peduncled, axillary racemes, pedicel 1.8 cm long, bracts and bracteoles small, lanceolate or subulate; sepals 5, fused into a tube split open on one side and flapped over, light green, apices distinct and hairy; petals 5, free, almost equal, oblong, 5.3 cm long, 3 cm broad, snow-white, well spread out; stamens 10, free, filaments unequal, white, anthers yellow and hairy; ovary superior, unilocular, flat, 2.5 cm long, style 1.7 cm long, scantily hairy, stigma dark green; fruit a flat glabrous legume, 9—10.4 cm long and 2 cm broad.

Flowers almost throughout the year.

**Distribution.** Grows in India, Ceylon, Malacca, China and Malay Islands. It is commonly cultivated in village gardens in Ceylon in the mid and low-country.

**India.** Bengal: cultivated, *J. D. Hooker and T. Thomson. Pen. Ind. Or., Herb. Wight* 868, Kew Distribution 1866—7. Chittagong, *King's Collector* 466, 1886. Ceylon. Central Prov., Bot. Gard., cultivated, *Thwaites C.P.* 1499; Gampola Road, cultivated, *Johni Singho*, Oct. 1927; Weuda, *Jayaweera* 3155, Dec. 1971. Burma. Pegu, *Kurz* 1683.

**Uses.** This plant and *Bauhinia variegata* are used for the same ailments.

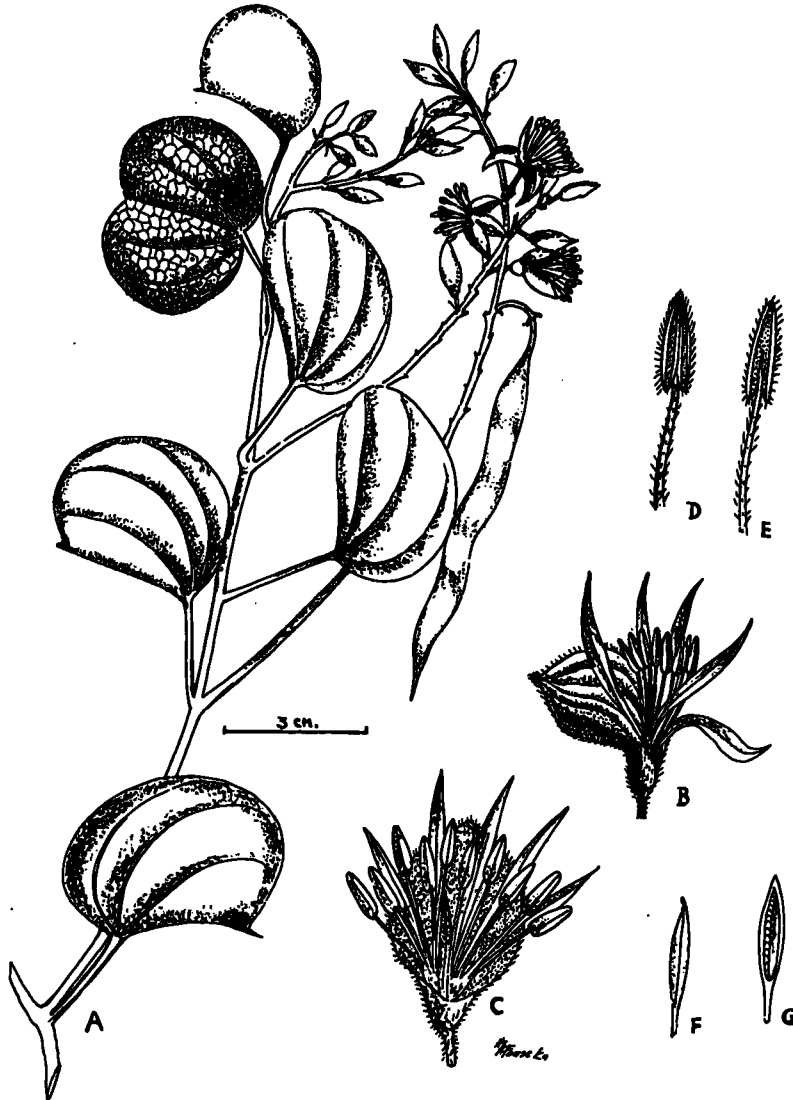


FIG. 288. *Bauhinia racemosa*. A, branch with leaves, flowering raceme and fruit. B, flower, lateral view. C, flower, front view. D & E, stamens. F, pistil. G, longitudinal section of pistil.

10. *Bauhinia racemosa* Lam. Encycl. Meth. 1: 39. 1783. (Fig. 288).

*Bauhinia spicata* Koenig—*Bauhinia parviflora* Wall.—*Bauhinia timoriensis* Decaisne—*Piliostigma racemosa* Benth.

*Sinh.* Mayila; *Tam.* Ar, Arai, Aram, Arikka, Atti, Sallagi, Sittacha, Tadagi; *Sans.* Anupushpaka, Ashmantaka; Kushali, Shlashnatvaka, Svetakanchana, Vanaraja, Yamalapatraka, Yugmapatra.

A small tree with a thick, knotted trunk, much branched, bark blackish, very rough and much furrowed; leaves simple, alternate, small, conduplicate, 3.1—3.7 cm long, broader than long, truncate at base, cut 1/3 down into two broadly oval, rounded lobes, glabrous on both sides, whitish and 9-nerved from the base beneath with finely reticulate venation, rigid, petioles 1.2—1.8 cm long; flowers irregular, bisexual, yellowish white, small, under 2.5 cm in length, pedicels shorter than calyx in erect lax racemes terminating the new growth, buds pointed; sepals 5, fused into 2-or 3-toothed, pubescent calyx-tube, short, limb reflexed; petals 5, distinct, white or pale yellow, imbricate, distant, small, strap-shaped, acute, spreading; stamens 10, distinct, a little longer than petals; ovary superior, unilocular with marginal placentation, stalked, style absent; fruit a very long, shortly stalked legume, 20—25 cm long, 1.8 cm wide, pendulous, tapering to base, blunt at apex, somewhat falcate, leathery, indehiscent, glabrous, 12—20 seeded.

Flowers during April and from June to September.

*Illustrations.* Beddome, *Flor. Sylvat. pl.* 182. 1868—1873, non Vahl; Kirtikar and Basu, *Indian Med. Plants, pl.* 363. 1933.

*Distribution.* Occurs throughout India, Ceylon, Burma, China, Timor and Malay Islands. It is very common in the dry regions of Ceylon.

*India.* Wallich 5789F ex Herb. Heyne; Nilghiri and Kurg. *Hooker f. and T. Thomson.* *Ceylon.* Thwaites C.P. 1497. North-Central Prov., Polonnaruwa, *Herb. Peradeniya*, June 1881. Southern Prov., Bundala, *Herb. Peradeniya*, Dec. 1882. *Burma.* Upper Burma: *Huk*, June 1890.

*Uses.* A decoction of the leaves is used to allay headaches due to malarial fever. The dried flowers and bark of the stem are used as decoction for dysentery, diarrhoea, internal haemorrhages, bleeding and threatened abortion and bleeding from haemorrhoids. It is often employed as a substitute for *Woodfordia fruticosa*.

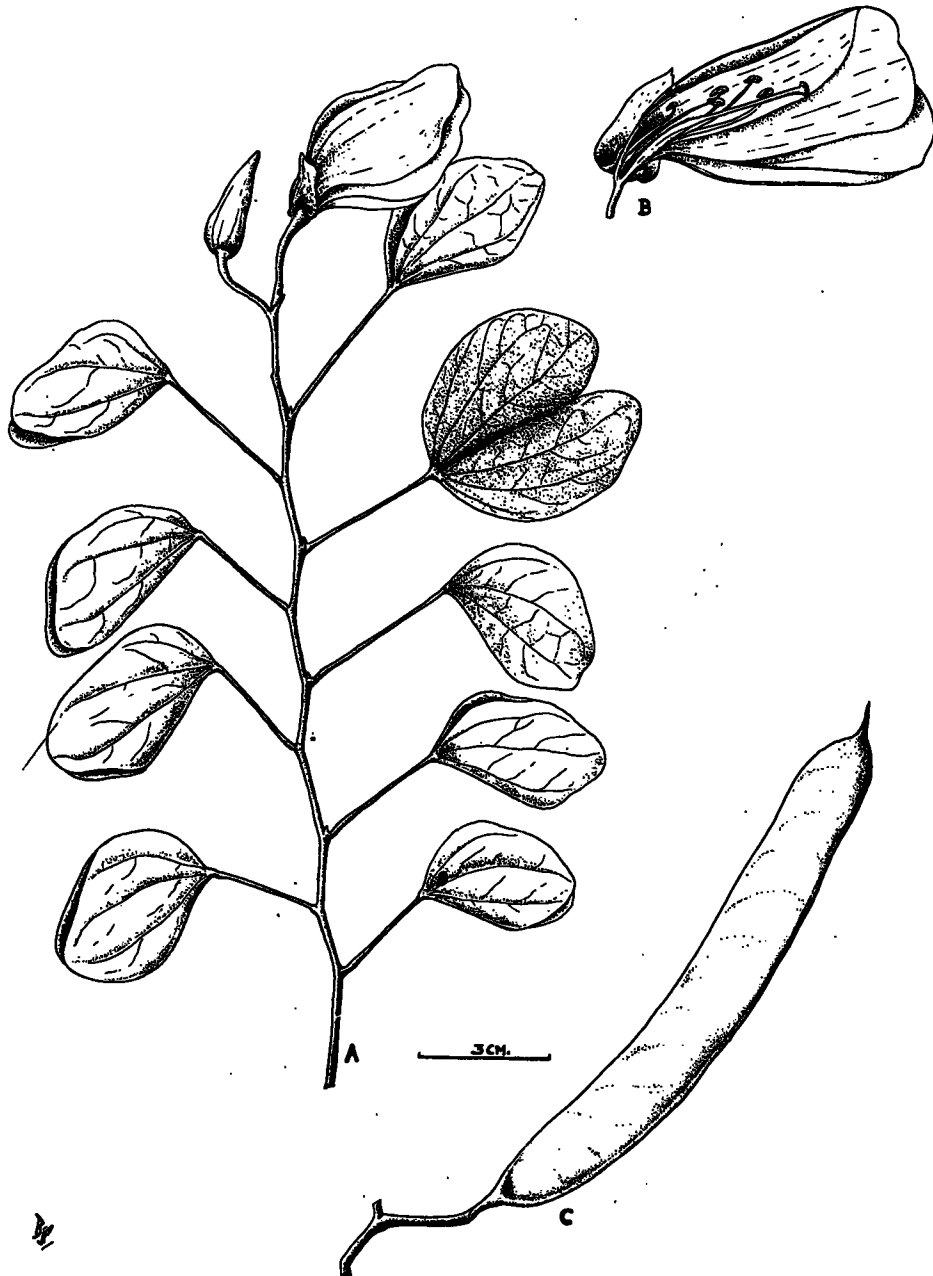


FIG. 289. *Bauhinia tomentosa*. A stem with leaves and raceme. B, longitudinal section of flower. C, fruit.

11. *Bauhinia tomentosa* Linn. Sp. Pl. 375. 1753. (Fig. 289).

*Bauhinia speciosa* Roxb.—*Bauhinia binata* Naves.

*Engl.* Wild Champak; *Sinh.* Kaha-petan, Petan; *Tam.* Iruvaji, Kanjani, Kattatti, Kattumandarai, Siruvatti, Tiruvatti; *Hindi.* Kachnar; *Sans.* Phalgu, Pitakanchana, Ushmadugha.

A large erect shrub with slender branches, yellowish grey bark, longitudinally furrowed; leaves simple, alternate, 3.7—7.5 cm long, broader than long, conduplicate, deflexed on petiole, divided more than 1/3 down into two oval rounded lobes with a setaceous mucro between, truncate at base, glabrous above, densely pubescent whitish beneath, 7-nerved from base, petioles 1.2—1.8 cm long, thickened at both ends; flowers irregular, bisexual, large, sulphur yellow, the upper petal with a dark purple blotch at the base, nodding, over 5 cm long, pedicels short, stout, racemes small, terminal, bracts linear; sepals 5, fused into a bifid calyx, about 2.5 cm long, pubescent; petals 5, distinct, imbricate, 3.8—5 cm long, obovate, rounded, very shortly clawed; stamens 10, distinct, subequal, all fertile; ovary superior, stalked, unilocular with marginal placentation, style long, stigma terminal, peltate; fruit a dehiscent legume, 10—15 cm long, 1.5 cm broad, flat, shortly stalked, narrowed to base, pointed, finely pubescent, 8—12-seeded, seeds 6 mm long, ovoid and shining.

Flowers in January, February and August.

*Illustrations.* Curtis, Bot. Mag. pl. 5560. 1866; Kirtikar and Basu, Indian Med. Plants, pl. 363. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs throughout India, Ceylon, Penang, China and tropical Africa. It is very common in the dry regions in Ceylon.

*Ceylon.* Uma Oya, *Thwaites C.P.* 1498; Kuruminiya Kandura, *J. M. Silva*, Dec. 1927.

*Composition.* The pigment in the petals of this flower yields rutin and a small amount of quercetin.

*Uses.* Useful in acute and chronic diarrhoea and dysentery, internal haemorrhages and bleeding from haemorrhoids. In Malabar, a decoction of the root bark is given for inflammation of the liver and as a vermifuge. Externally, the bruised bark is applied on tumours and wounds. The fruit is a diuretic and seeds are eaten for their aphrodisiacal action. The seeds made into a paste with water, is applied on wounds inflicted by poisonous animals with beneficial results. The flowers, flower buds and dried leaves, too, are used for dysentery.



FIG. 290. *Bauhinia variegata*. A, twig with leaves and inflorescence. B, fruit.

12. *Bauhinia variegata* Linn. Sp. Pl. 375. 1753. (Fig. 290).

*Bauhinia purpurea* Wall.—*Bauhinia candida* Roxb.—*Phanera variegata* Benth.

*Sinh.* Rat-koboleela; *Tam.* Mandarai, Segappumandarai, Semmandarai, Vellaippuvatti; *Hindi* Kachnar; *Sans.* Ashmantaka, Asphota, Chamari, Chamarika, Champavidala, Gandari, Girija, Kanakaprabha, Kanchana, Kanchanala, Kanchanaraka, Kantar, Karaka, Karbudara, Kovidara, Kuddala, Kuddara, Kuli, Kundali, Mahapushpa, Pakari, Raktakanchana, Raktapushpa, Shonapushpaka, Suvarnara, Svalpakkesara, Tamrapushpa, Uddalaka, Yamalakhada, Yugapatraka, Yugapatra.

A medium sized deciduous tree with a dark brown bark and nearly smooth, brown and pubescent young shoots; leaves simple, alternate, cordate, orbicular, glabrous, 5—10 cm long, bilobed 1/3 of its length; flowers irregular, bisexual, large, fragrant, white or purplish in small, pubescent corymbs; calyx limb spathe-like, not splitting into segments, tube slender, 1.3—2.5 cm long, tip 5-toothed; petals 5, slightly unequal, oblong, 5 cm long, upper one darker and often tinged with cream and red, margins wavy; stamens 5, free, fertile, anthers versatile, staminodes absent; ovary superior, stalked, pubescent along the edge, unilocular with marginal placentation, style long, cylindrical, stigma terminal, capitate; fruit a glabrous legume, 15—30 cm long, 1.8 cm broad, dehiscent, bearing 6—15 seeds.

Flowers between February and April.

**Illustration.** Kirtikar and Basu, *Indian Med. Plants*, pl. 367. 1933.

**Distribution.** Occurs throughout India from Western Himalaya to Sikkim, Burma and China. It is cultivated in Ceylon.

**India.** Himal. Bor. Occ., *T. Thomson*. Bengal: *Clarke* 26949, Feb. 1896. Pen. Ind. Or., *Herb. Wight* 870, Kew Distribution 1866—7. Ceylon. Central Prov., Dambulla near temple, *Simpson* 8125, May 1931; Peradeniya, Bot. Gard., cultivated, *Herb. Peradeniya*, May 1877. **Cuba.** Harv. Trop. Gard., cultivated, *Jack* 4205, March 1926.

**Composition.** The tree yields a brown gum of little value and the seeds contain a fixed oil.

**Uses.** The bark is used, along with other ingredients for scrofulous enlargements of the glands of the neck, tumours, ulcerations, skin diseases and fistula-in-ano. A decoction of the root is given for dyspepsia and flatulence. It is a vermifuge, anti-diarrhoeic; prevents decomposition of the blood in leprosy. A decoction of the bark is also used for slimming. The dried flower buds are used for piles and dysentery.

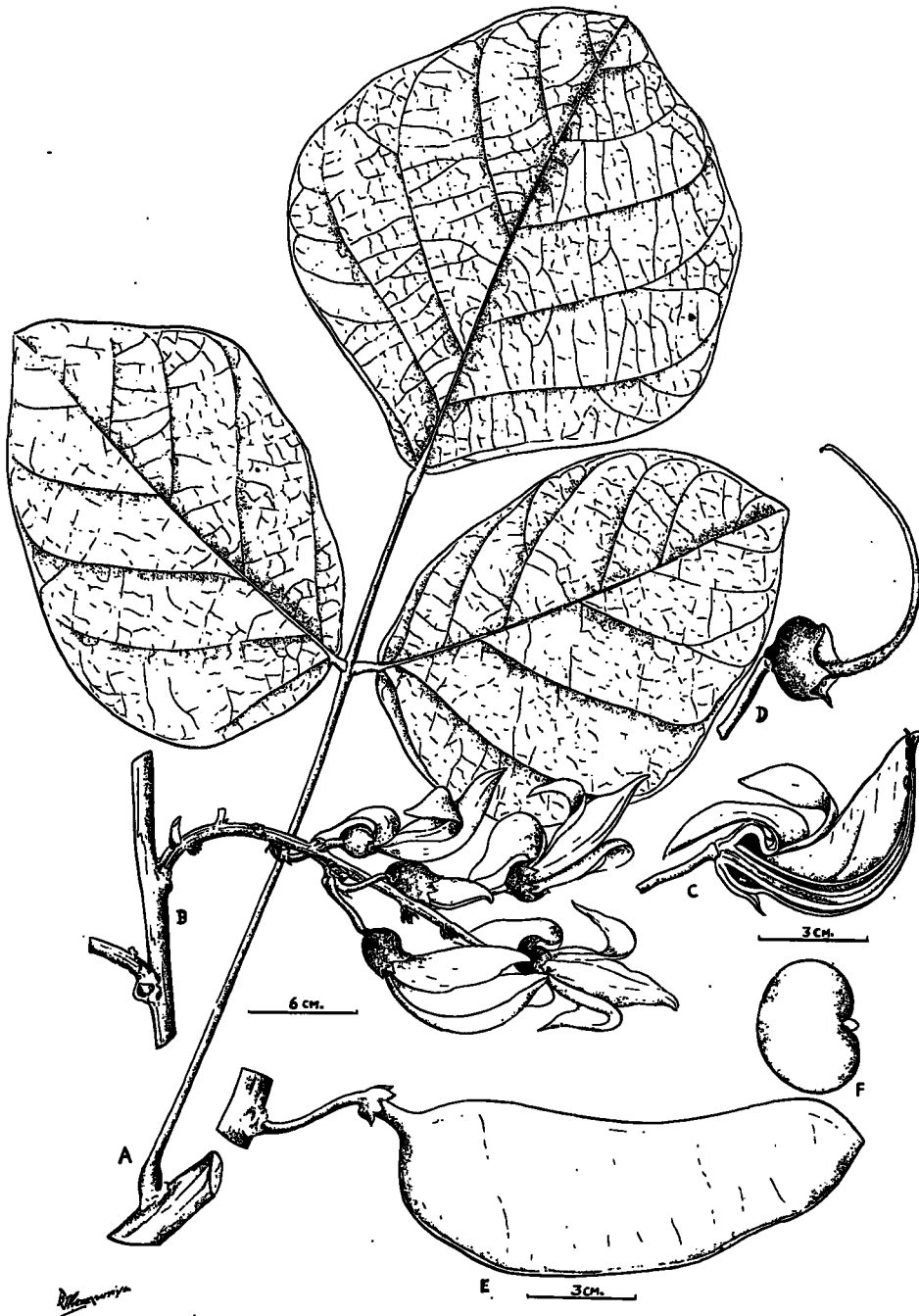


FIG. 291. *Butea monosperma*. A, leaf. B, inflorescence. C, longitudinal section of flower. D, calyx and pistil, lateral view. E, fruit. F, seed.

13. *Butea monosperma* O. Kuntze, Rev. Gen. 202. 1891. (Fig. 291).

*Butea frondosa* Koenig ex Roxb.—*Erythrina monosperma* Lamk.

*Engl.* Bengal Kino; *Sinh.* Gas-kela, Gaskeliya, Kela; *Tam.* Kali, Kattumurukku, Kinjugam, Kirumusatturu, Marrukan, Murukku, Palasu, Punamurukku, Punamurungai, Pungu, Puppalasu Purasu, Sira, Tikkura, Vadabodam, Vallai, Vallaiippurasu; *Hindi* Palash; *Sans.* Bijasneha Bramhapadapa, Bramhavriksha, Bramhapaneta, Kamalāsana, Karaka, Kashtadru, Kinshuka, Krimighna, Ksharashreshtha, Lakshataru, Palasha, Parna, Putadru, Raktapushpaka, Samidvara, Suparni, Tripatraka, Tripatrika, Vakrapushpaka, Vatapotha, Yajnika.

A moderate sized tree, 12—15 m high with a crooked trunk, thick rough bark and irregular branches, densely pubescent young shoots; leaves alternate, stipulate, pinnately 3-foliolate, large, rachis 12.5—20 cm long, slender, pubescent when young, swollen at base, leaflets 10—20 cm long, unequal, the terminal one the largest and rhomboid-orbicular, the lateral ones obovate-oval, dilated on lower half, all very obtuse, glabrous above when mature, closely and finely tomentose and with much raised reticulations beneath; stipules small, linear-lanceolate, deciduous; flowers irregular, bisexual, large, orange scarlet, very silvery outside with silky hair so that the buds appear white, 3.7—5 cm long, on velvety drooping pedicels 1.8—2.5 cm long, 2 or 3 together from the swollen nodes of rigid, stout racemes coming off from woody tuberosities, bracts small, deciduous, rachis and pedicels tomentose; sepals 5, fused into a shallowly campanulate calyx, finely velvety outside, lined with white silvery hair, segments acute, two upper connate, three lower equal; petals 5, nearly equal, standard ovate-attenuate, reflexed, margin involute, wings falcate, acute, wide spreading, keel petals completely connate, deeply boat-shaped, acute; stamens 10, diadelphous, the free filament shorter than the rest, filaments hairy, anthers reniform; ovary superior, unilocular, shortly stalked, densely hairy with marginal placentation, style very long, smooth, deciduous, stigma simple; fruit a pendulous legume, 12.5—20 cm long, 1.8 cm wide, linear-oblong, flat, on a densely woolly stalk 1.8 cm long, obtuse, thickened at the sutures, leathery, transversely veined, densely but finely pubescent especially at the end, the lower 3/4 without seeds and indehiscent, the terminal quarter containing a solitary seed and dehiscent round the edge, seed 3.1 cm long, flat, broadly oval, smooth and reddish brown.

Flowers in July.

*Illustrations.* Roxburgh, *Pl. Corom. pl.* 21. 1795; Bentley and Trimen, *Med. Plants, pl.* 79. 1880; Beddome, *Flor. Sylvat. pl.* 176. 1868—1873; Kirtikar and Basu, *Indian Med. Plants, pl.* 319. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs in India, Ceylon, Burma and Java. It is rather rare in Ceylon but locally abundant in the dry, open country. Jaffna, Batticaloa, Bintenne, Polonnaruwa and Bibile.

*India.* Malabar, Concan, etc., *Stocks, Law, etc.* Ceylon. Northern Prov., Jaffna, *Thwaites C.P.* 1465. Central Prov., Peradeniya, Bot. Gard., cultivated, *Gunawardena*, March 1930. Uva Prov., Bibile, *J. M. Silva*, July 1924; Bintenne, *Seyaneri*, July 1881. *Burma.* Shan States, Nov.—Dec. 1887. without name of collector.

*Composition.* The tree contains essentially tannic acid, gum, a little gallic acid and a very small quantity of pyrocatechin.

*Uses.* The bark is used in diarrhoea, dysentery, polypus in the nose, diabetes and snake bites. Flowers are diuretic and aphrodisiac. The gum exuded from the incised stem is a good astringent and is applied externally on ulcers and sore throat. The expressed juice of the root bark along with other ingredients is used in the treatment of elephantiasis. The powdered seed is used in treatment for worm on dhoby's itch, ringworm, etc. The dried flowers produce beautiful yellow and orange-red dyes.

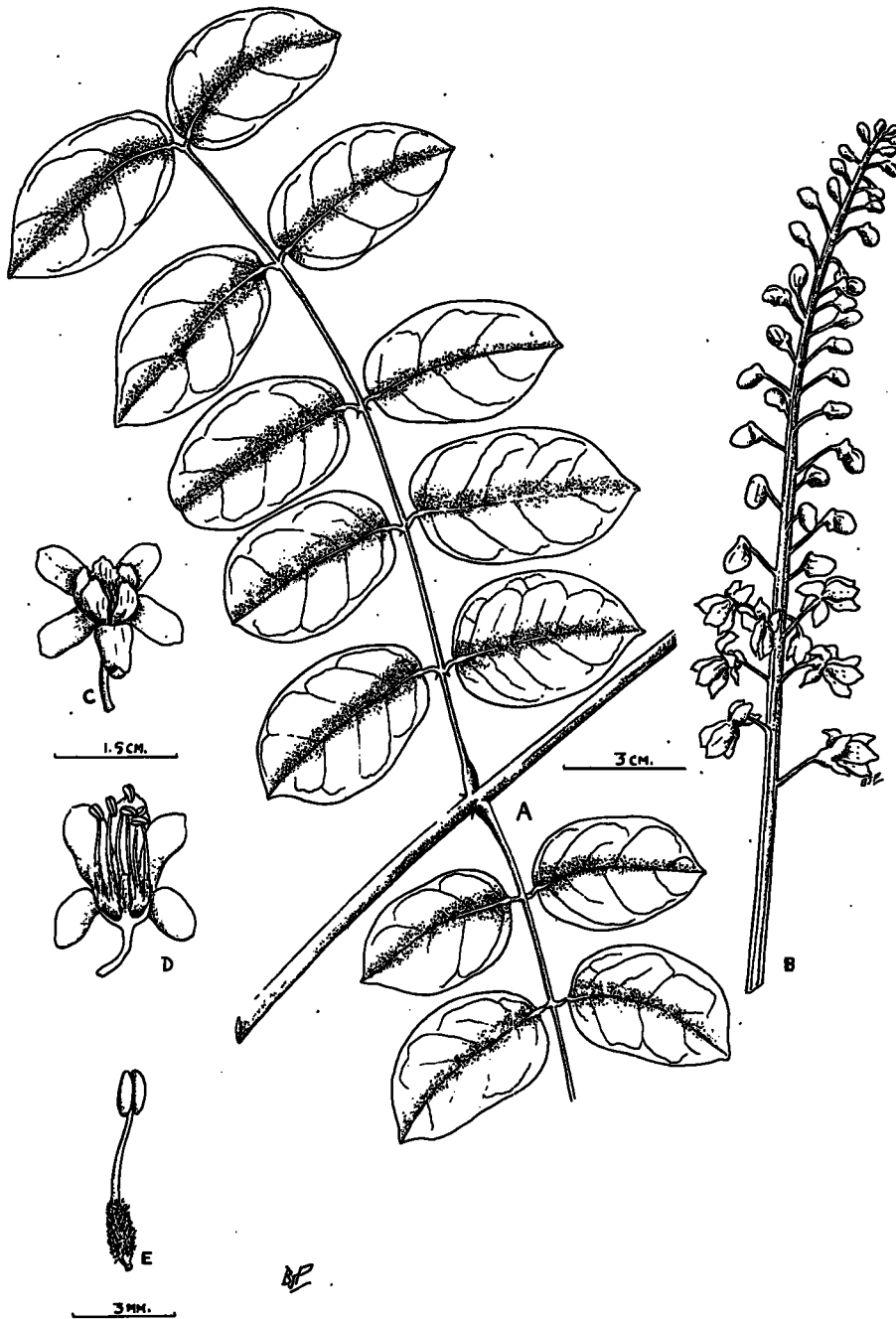


FIG. 292. *Caesalpinia bonduc*. A, part of leaf showing pinna and pinnules. B, inflorescence. C, flower, front view. D, longitudinal section of flower. E, stamen.

14. *Caesalpinia bonduc* (Linn.) Roxb. Hort. Beng. 32. 1814. (Fig. 292).

*Caesalpinia bonducella* sensu Alston.—*Guilandia bonduc* Linn.—*Guilandia glabra* Mill.

*Sinh.* Kumburu-wel; *Tam.* Gech-chakkai; *Sans.* Putikaranji.

A stout climbing shrub with finely grey pubescent stems and straight small prickles; leaves alternate, very large, compound, main rachis 12.5—17.5 cm long, cylindrical, finely woolly-pubescent, pinnae 6—8 pairs, 3.7—6.2 cm long, spreading nearly at right angles, all with numerous hooked prickles, usually in pairs on the undersurface, leaflets 5—7 pairs to each pinna, very shortly stalked, oval or oblong-oval, rounded at base, obtuse, strongly mucronate, glabrous above, pubescent on midrib and margin beneath, stipules absent; flowers irregular, bisexual, bright yellow, moderate-sized, articulated with pubescent pedicels, bracts linear, longer than calyx, caducous, in long-stalked, pyramidal racemes; sepals 5, almost free, imbricate, densely tomentose pubescent; petals 5, free, imbricate, the standard the smallest; stamens 10, distinct, declinate, five often longer than others; ovary superior, unilocular with marginal placentation; fruit a shortly stalked pod, 6.2—9 cm long, 3.7 cm wide, ovoid, compressed, pubescent and covered with numerous long, sharp spines, dehiscent, seeds 1—3, nearly globular, 1.8 cm long with a long funicle, smooth, greenish grey.

Flowers during February.

**Illustration.** Herb. Peradeniya, drawing.

**Distribution.** Occurs in the tropical regions of India, Ceylon, Malaya, Polynesia and West Indies. It is rather common in the low-country in Ceylon, especially near the sea coast.

**Ceylon.** Central Prov., Peradeniya, *Thwaites C.P.* 1524; Eriyagama, *Hendrick*, June 1928. **Malaya.** Penang, *Wallich* 5806, 1822.

**Composition.** The seed of this shrub yields a fixed oil known as bonduc nut oil. It contains a bitter principle called bonducin which is a resinous acid, two phytosterolins, sucrose, saponins, some alkaloid, and a mixture of aliphatic acids. The leaf yields a bitter resin, a bitter principle and some alkaloids, while the bark contains a bitter principle guilandinin but no saponin. The wood possesses two dyes, brasilin and brasilien.

**Uses.** This shrub has anti-suppurative properties. The bruised fresh leaves mixed with common salt are heated and applied on local inflammations prior to suppuration. The kernal of the seeds, ground with cow's milk, makes a useful application for acne vulgaris. Internally, the plant acts as an aromatic stomachic, carminative and anti-spasmodic and is valuable in acute dyspepsia, flatulence and colic. The seeds are anthelmintic against roundworms. In Africa, the powdered seed is used for headaches, fever, stomach and bowel upsets and as an anthelmintic. In Jamaica, the bark is considered a rubefacient and applied locally on sores. The seed and the whole plant are emetic and are used for fever, hydrocele and dropsy. The oil is anti-rheumatic.

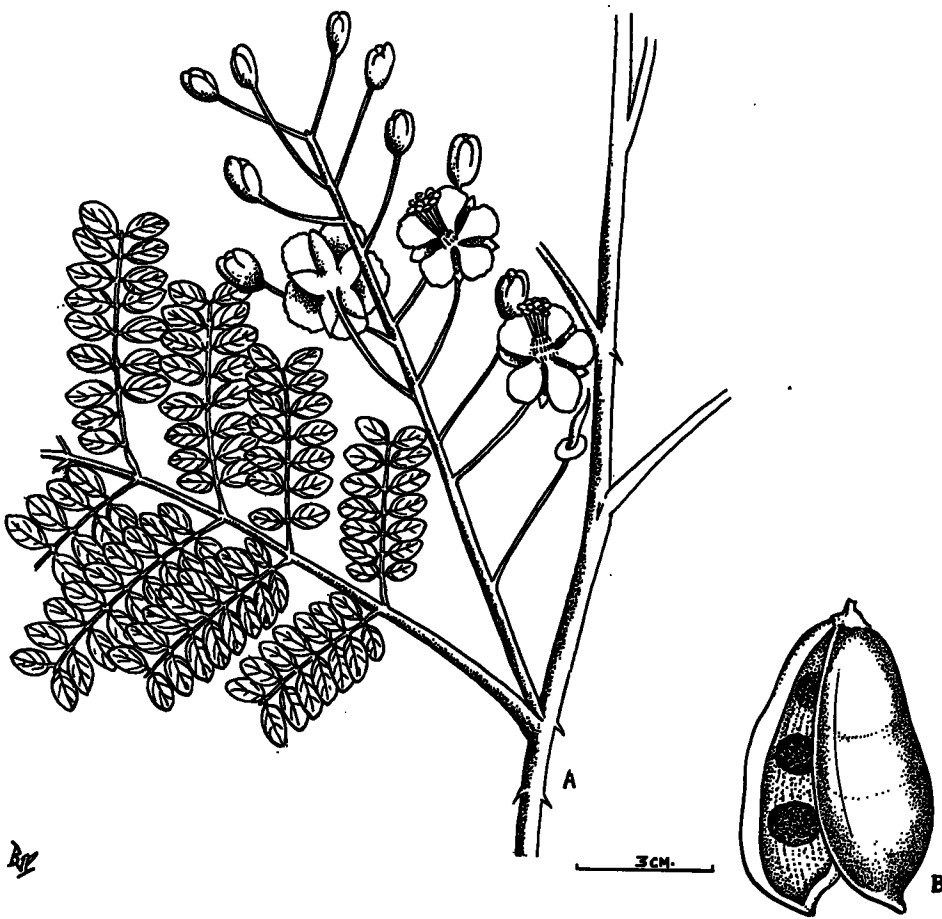


FIG. 293. *Caesalpinia digyna*. A, branch with a portion of the leaf and inflorescence. B, fruit.

15. *Caesalpinia digyna* Rottl. in Oes. Natur, Fr. Neue Schr. 4: 200. 1803. (Fig. 293).

*Caesalpinia oleosperma* Roxb.—*Caesalpinia flavescans* Grah.—*Caesalpinia gracilis* Miq.—*Pterolobium lacerans* Wall.

*Sinh.* Vakirimul; *Hindi* Vakerimul.

A woody climber with glabrous; purple branches, hooked brown prickles and rufous-pubescent young parts leaves alternate, bipinnate compound, narrow, main rachis 15—20 cm long with 9—12 pairs of pinnae with rachis 3.7—5 cm long, pubescent, leaflets 9—12 pairs, 1 cm long, sessile, closely placed, overlapping, oblong, very obtuse, pubescent on both sides and thin; flowers irregular, bisexual, yellow, 1.2 cm long, pedicels 2.5 cm long, horizontally divaricate, slender, racemes stalked, axillary, 15—20 cm long, bracts setaceous, falling very early; sepals 5, almost distinct, with an expanded flattened base, segments very deep, glabrous, separating from the base, imbricate, the lowest being the largest and covering the bud like a hood; petals 5, distinct, clawed, spreading, imbricate, the uppermost is the smallest; stamens 10, distinct, declinate, 5 often larger than the others, little exerted, filaments very woolly for more than the basal half; ovary superior, unilocular with marginal placentation; fruit an oblong, rather fleshy, indehiscent legume, 6.2 cm long, 2.5 cm wide, smooth, torulose 2—4 seeded, seeds ovoid, the size of a large pea.

Flowers in September.

*Illustrations.* Kirtikar and Basu, *Indian Med. Plants*, pl. 348. 1933; *Herb. Peradeniya*, drawing.

*Distribution.* Occurs in India, Ceylon and Malay Islands. It is very rare in Ceylon, confined to the dry zone. Kurunegala, Doluwa Kande, etc.

*Ceylon.* North-Western Prov., Kurunegala, *Thwaites C.P.* 1527; *Herb. Peradeniya*, Sept. 1888. *Malaya.* Penang, *Curtis* 448, Sept. 1885.

*Uses.* The root is astringent and given internally for plithisis and scrofulous affections. It is also used for diabetes. In some parts of Burma, the root is pounded, mixed with water and made into an intoxicating drink.

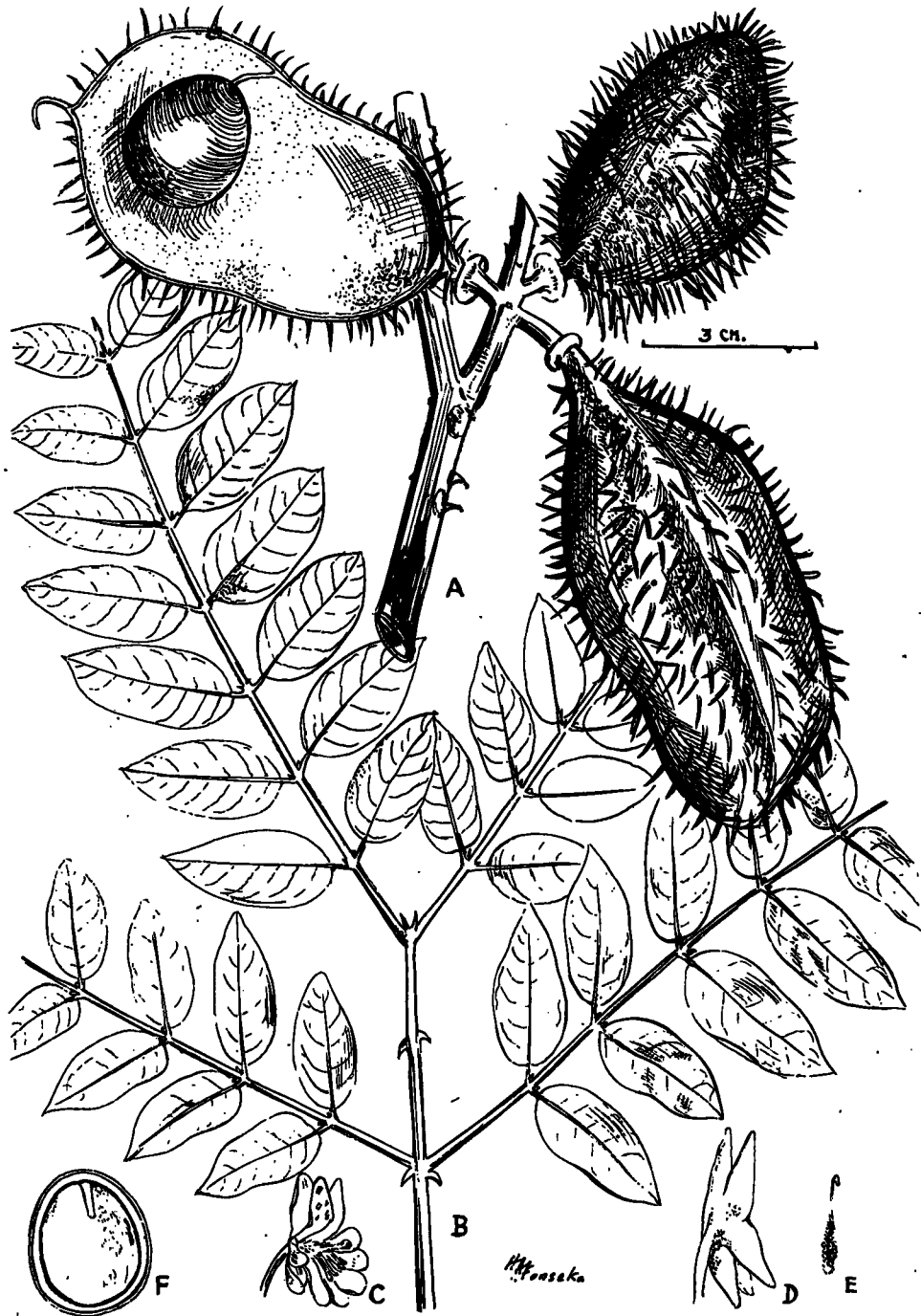


FIG. 294. *Caesalpinia major*. A, portion of branch showing fruits, one of which is open to show the seed. B, upper part of the leaf: C, flower, lateral view. D, calyx, ventral view. E, stamen. F, longitudinal section of seed.

16. *Caesalpinia major* (Medic.) Dandy and Excell., Abeywick., Ceyl. Journ. Sc. 2 (2): 174. 1959. (Fig. 294).

*Guilandia bonduc* W. & A.—*Guilandia bonducella* Linn.—*Guilandia cristata* Small—*Caesalpinia bonducella* Fleming—*Caesalpinia bonduc* sensu Alston.

*Engl.* Fever Nut, Physic Nut; *Sinh.* Kalu-vavuletiya; *Tam.* Avil, Gajji, Kachukkai, Kalal, Kalarsi, Kalargodi, Mulal, Suriyindu; *Sans.* Kakachika, Kantakini, Karanja, Krakachika, Kuberakshi, Latakaranja, Prakiriya, Putikaranja, Putikaranji, Tinagachhika, Tirini, Valli, Varini.

An extensive climber with finely grey, downy branches armed with hooked and straight, hard, yellow prickles; leaves large, abruptly pinnate, 30—60 cm long, petioles prickly, stipules a pair of reduced pinnae at the base of the leaf, each furnished with a long mucronate point, pinnae 6—8 pairs, 5—7.5 cm long with a pair of hooked stipular spines at the base, leaflets 6—9 pairs, 1.8—3.7 cm long, 1.2—2 cm broad, membranous, elliptic-oblong, obtuse, strongly mucronate, glabrous above, more or less puberulous beneath, petiolules very short, stipules of short, hooked spines; flowers irregular, bisexual, yellow in dense, spicate, long-peduncled, terminal or supra-axillary racemes, dense at the top, lax afterwards, 15—25 cm long, pedicels very short, about 5 mm long, brown-downy, bracts squarrose linear, acute, 1 cm long, fulvous hairy; calyx deeply cleft with the disc confined to its base, 6—8 mm long, fulvous hairy, 5-lobed, lobes imbricate, obovate-oblong, obtuse, concave; petals 5, imbricate ascending, distinctly clawed, oblanceolate, the innermost smaller than the others; stamens 10, free, declinate, filaments flattened at the base, clothed with long white, silky hairs, anthers dehiscing longitudinally; ovary superior, unilocular, ovules few on marginal placenta; pod shortly stalked, oblong, 5—7 cm long, 4.3 cm broad, densely armed on the faces with wiry prickles, seeds 1 or 2, oblong, lead-coloured, 1.2 cm long.

Flowers from July to September.

**Illustration.** Kirtikar and Basu, Indian Med. Plants, pl. 343. 1933.

**Distribution.** Occurs throughout the tropics, generally including India, Ceylon, Africa, and Philippine Islands. In Ceylon, it grows in the dry regions: Puttalam, Jaffna, Anuradhapura, etc.

**India.** Silhet: *Wallich* 5803E. Bengal: *H. D. Hooker and Co. Pen. Ind. Or., Herb. Wight* 837, Kew Distribution 1866—7. Ceylon. Northern Prov., Jaffna, *Herb. Peradeniya*, Feb. 1890. North-Western Prov., Puttalam Lagoon, *Alston* 1239, Nov. 1926. North-Central Prov., Anuradhapura, *Alston* 1240, March 1927. Western Prov., Kalutara Dist., Biyagama, *J. M. Silva*, Feb. 1922. Maldiv Islands. *Gardiner*, 1899—1900; Veimandu, *Gardiner*, 1899—1900; Horsburgh Atoll, *Gardiner*, 1899—1900. Timor. *Meyer*, June 1884.

**Composition.** The seeds contain an alkaloid, natin and an active principle bonducin, in addition to a fatty oil.

**Uses.** The tender leaves are effective on disorders of the liver, intermittent fevers and for expelling intestinal worms. An ointment prepared with the seed and castor oil is an excellent application on hydrocele, acute orchitis and glandular swellings. The powdered seed is administered internally for hydrocele and leprosy. A decoction of the roasted seeds is used in consumption and asthma. In La Reunion and Madagascar, the roots are used as an astringent in leucorrhoea and blennorrhagia. The seeds are considered tonic, febrifuge, anthelmintic and a specific in the treatment of hydrocele. The oil extracted from the seeds is used for convulsions and paralysis.

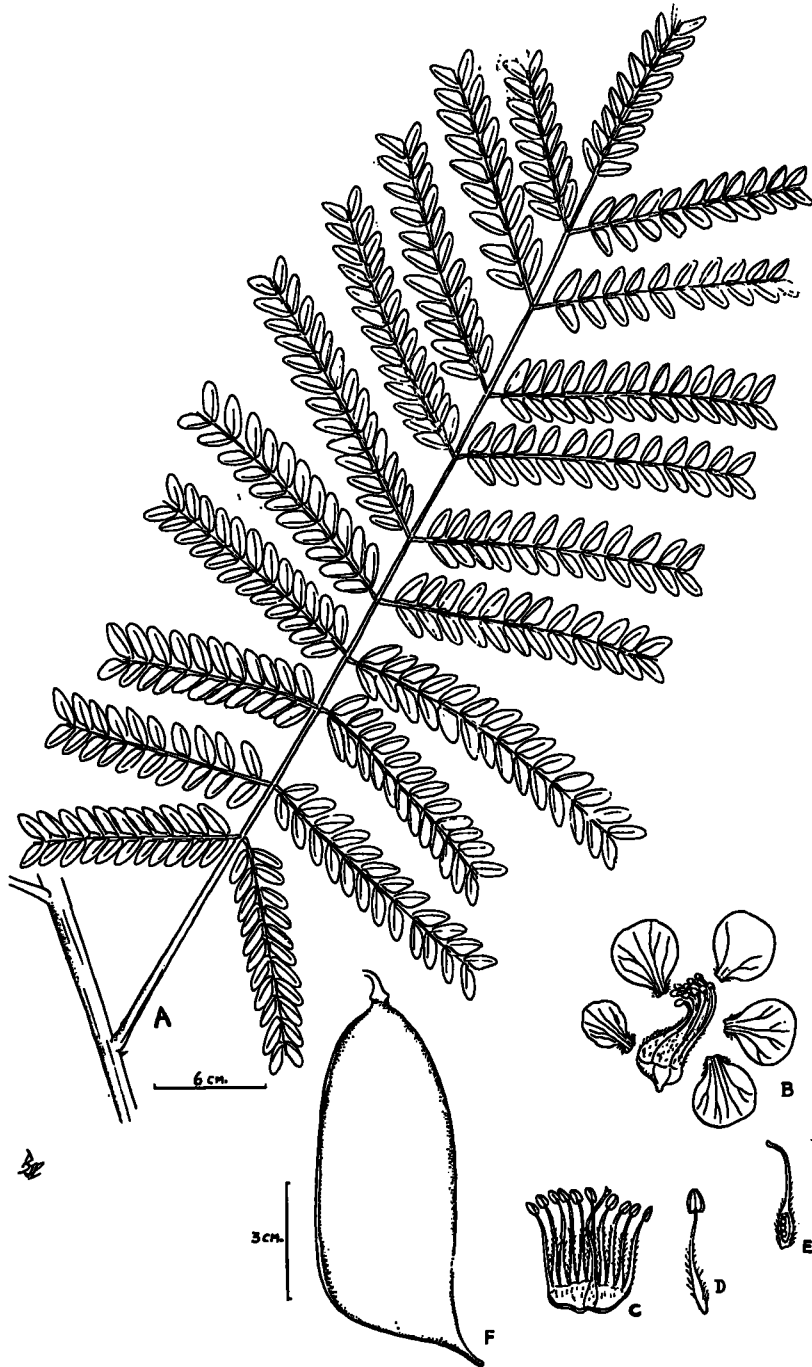


FIG. 295. *Caesalpinia sappan*. A, leaf. B, flower dissected showing the declinate stamens and corolla. C, disc opened with the stamens and pistil. D, stamen. E, longitudinal section of pistil. F, fruit pod.

17. *Caesalpinia sappan* Linn. Sp. Pl. 381. 1753 (Fig. 295).

*Biancaea sappan* Todaro—*Caesalpinia minutiflora* Elm.

*Engl.* Sappan Wood; *Sinh.* Pathangi; *Tam.* Padangam, Patungam, Sappangu, Varattangi; *Sans.* Bharyavriksha, Kashtha, Kuchandana, Lohitaranga, Patanga, Patranga, Pattaranga, Pattaranjaka, Pattranya, Pattura, Raktaka, Raktasar, Ranjana, Rogakashtha, Suranga, Surangada.

A medium-sized tree 6–9 m high with a prickly stem 15–25 cm diam. and rufous pubescent branches armed with a few small prickles; leaves large, abruptly bipinnate, 20–37.5 cm long, pinnae 8–12 pairs, 10–15 cm long, subsessile, with small prickles at the base; leaflets 10–18 pairs, 1.2–1.8 cm long, 1.0 cm broad, subsessile, close, oblong, rounded at the apex, attached at the lowest corner, very unequilateral, upper side the largest, glabrous above, more or less pubescent beneath; flowers irregular, bisexual, yellow, in terminal panicles in the axils of the upper leaves, 30–40 cm long, pedicels 1.2–1.5 cm long, bracts lanceolate, 0.8 cm long, caducous; calyx deeply cleft with the disc confined to the base, 1.05 cm long, leathery, 5-lobed; corolla 1.8 cm across, petals 5, imbricate ascending, orbicular, subequal, the upper with a red spot at the base; stamens 10, free, declinate, waxy-white, filaments densely woolly at the base; ovary superior, unilocular, grey-velvety, ovules few on a marginal placenta; pods 7.5–10 cm long, 3.7–5 cm broad, woody, obliquely oblong, subcompressed, polished, indehiscent, with a hard recurved short beak at the upper angle of the obtuse apex, seeds 3 or 4.

Flowers in September and October.

*Illustrations.* Roxburgh, *Pl. Corom.* 1: *pl.* 16. 1795; Beddome, *Flor. Sylvat. pl.* 13, *f.* 1. 1868–1873; Kirtikar and Basu, *Indian Med. Plants, pl.* 344*B.* 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs in India, Burma, Malay Islands and Philippine Islands. It has been introduced to Ceylon from ancient times and frequently met with in a semi-wild state.

*Ceylon.* Central Prov., Peradeniya, Bot. Gard., cultivated, *Baker* 117, May 1907. *Burma.* Upper Burma: Sagaing, *Huk* 84, Nov. 1892; Rangoon, *Wallich* 5838*E.* *Cuba.* Harv. Trop. Gard., cultivated, *Jack* 4602, Jan. 1927.

*Composition.* The wood of this tree contains brazilin, gallic and tannic acids, while, the leaves contain a volatile oil made up of  $d$ - $\alpha$ -phellandrene, terpene, methyl alcohol and some oscimene.

*Uses.* The heartwood along with other ingredients is used in dysmennorrhoea and leucorrhoea. A decoction of the wood is considered a powerful emmenagogue, a strong astringent and useful in diarrhoea and dysentery in Indo-china. It is also beneficial in certain forms of skin diseases and haemorrhage from the lungs. The leaves are prescribed for sapraemia. In China, the wood is used as a vulnerary for wounds, haemorrhages and disturbances of the menstrual functions.

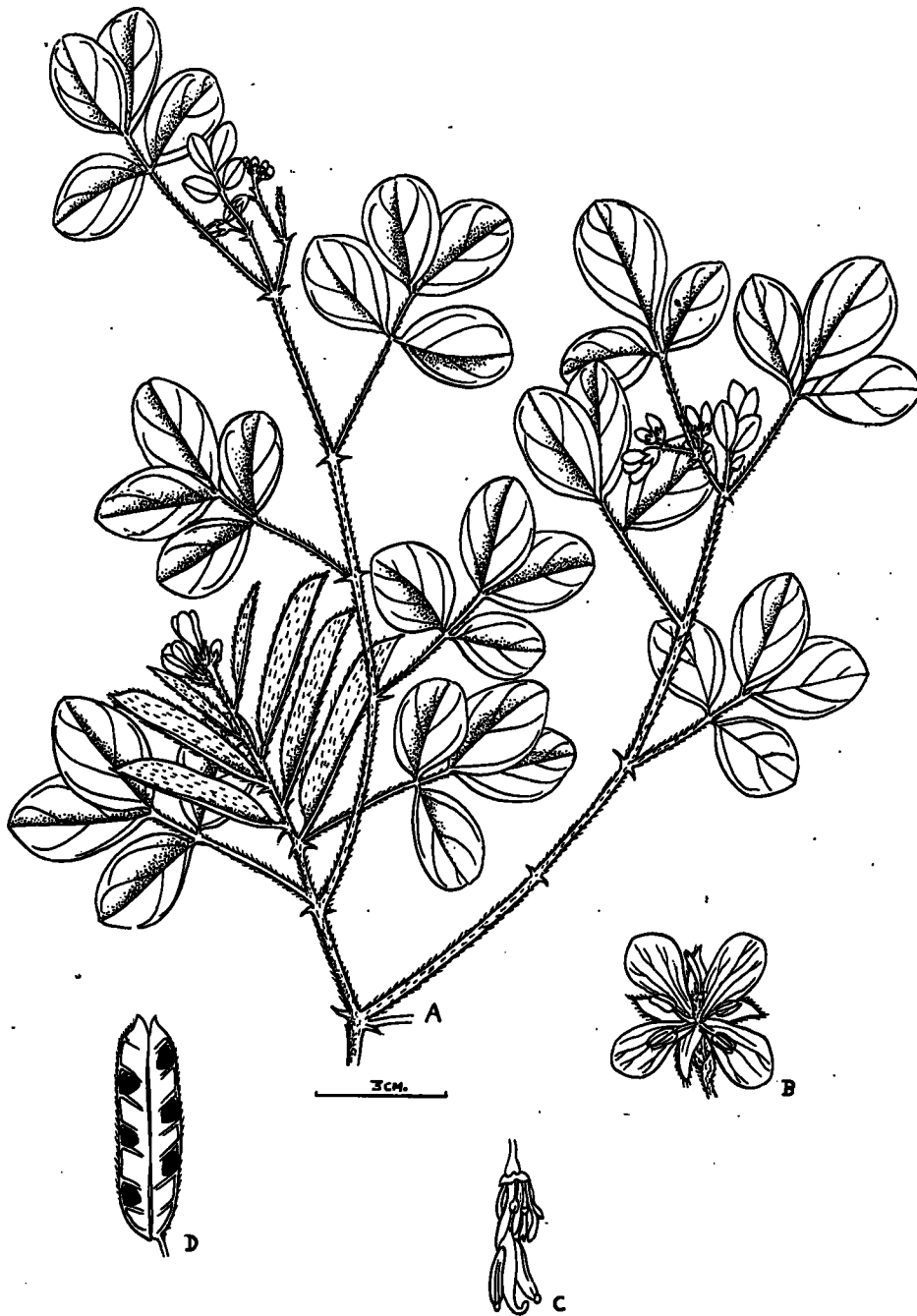


FIG. 296. *Cassia absus*. A, branch with leaves, flowers and fruits. B, flower, front view. C, stamens and pistil. D, fruit opened out. B & C, enlarged.

18. *Cassia absus* Linn. Sp. Pl. 376. 1753. (Fig. 296).

*Cassia exigua* Roxb.—*Cassia coccinea* Wall.—*Senna absus* Roxb.—*Senna exigua* Roxb.

*Sinh.* Butora; *Tam.* Edikkol, Karunganam, Kattukol, Mulaippalvirai; *Sans.* Arangakulitthika, Chakshushya, Chipita, Drikāprasada, Kananottha, Kulani, Kulattha, Kulatthika Kulmasha, Kumbhakarini, Kurubilwaka, Lochanahita.

An erect annual, 15—45 cm tall with a few horizontal branches densely covered with spreading glandular hairs; leaves alternate, stipulate, paripinnate compound, small, spreading or deflexed, rachis 1.8—2.5 cm long, swollen at base, covered with viscous hairs with an erect, minute, linear gland between the leaflets of every pair, leaflets 4, oblique, very shortly stalked, closely placed at end of rachis, 1.6—5.8 cm long, 0.8—2.5 cm broad, broadly oval or obovate-oval, unequal at base, rounded with a minute mucro at apex, glabrous above, slightly hairy but not glandular beneath, the terminal pair the larger; stipules small, a little over 1.2 cm on very viscous pedicels longer than calyx in leaf opposed, erect racemes longer than leaves; sepals 5, distinct, imbricate, slightly glandular hairy, oblong; petals 5, distinct, imbricate ascending, veiny with distinct claws; stamens 5, distinct, usually equal, all fertile opening by slits; ovary superior, unilocular with marginal placentation, densely bristly; fruit a dehiscent legume, 2.5—5 cm long, 0.6—1 cm wide, nearly straight, oblique tipped with short style base, compressed with long, scattered, white, bristly hairs, 6—8-seeded with depressed lines outside all the partitions; seed trapezoid, compressed, dark brown, brilliantly shining.

Flowers in December and January.

**Illustrations.** Kirtikar and Basu, *Indian Med. Plants*, pl. 357. 1933; *Herb. Peradeniya*, drawing.

**Distribution.** Occurs in the tropics of the Old World, including India and Ceylon. It is common in the low-country in Ceylon, especially in the dry regions.

**India.** Canara, Yellapore, *Talbot*, Oct. 1881; Chotanagpore, *Clarke* 20312C and F. Oct. 1873. Maisor and Carnatic, *G. Thomson*. Ceylon. *Thwaites* C. P. 1506. Northern Prov., Jaffna, *Herb. Peradeniya*, Feb. 1890. North-Central Prov., Dolukande, *Herb. Peradeniya*, Sept. 1892. Central, Prov., Dambulla, Mirisgoniyava Rock, *J. M. Silva*, Nov. 1922; Lankatilleke by temple near Kadugannawa, *J. M. Silva*, June 1927.

**Composition.** The seed of this herb contains the alkaloids, chaksine and isochaksine, in addition to a fixed oil.

**Uses.** The seeds are used for ringworm. They are also used in purulent ophthalmia in Egypt, while in Africa a decoction of it is given as a purgative and in the treatment of eye diseases. In Central Africa, the leaf is used as an application on lesions due to yaws. In Ghana, the roots are ground with pepper, boiled in water and drunk with palm wine to cure constipation.

MEDICINAL PLANTS

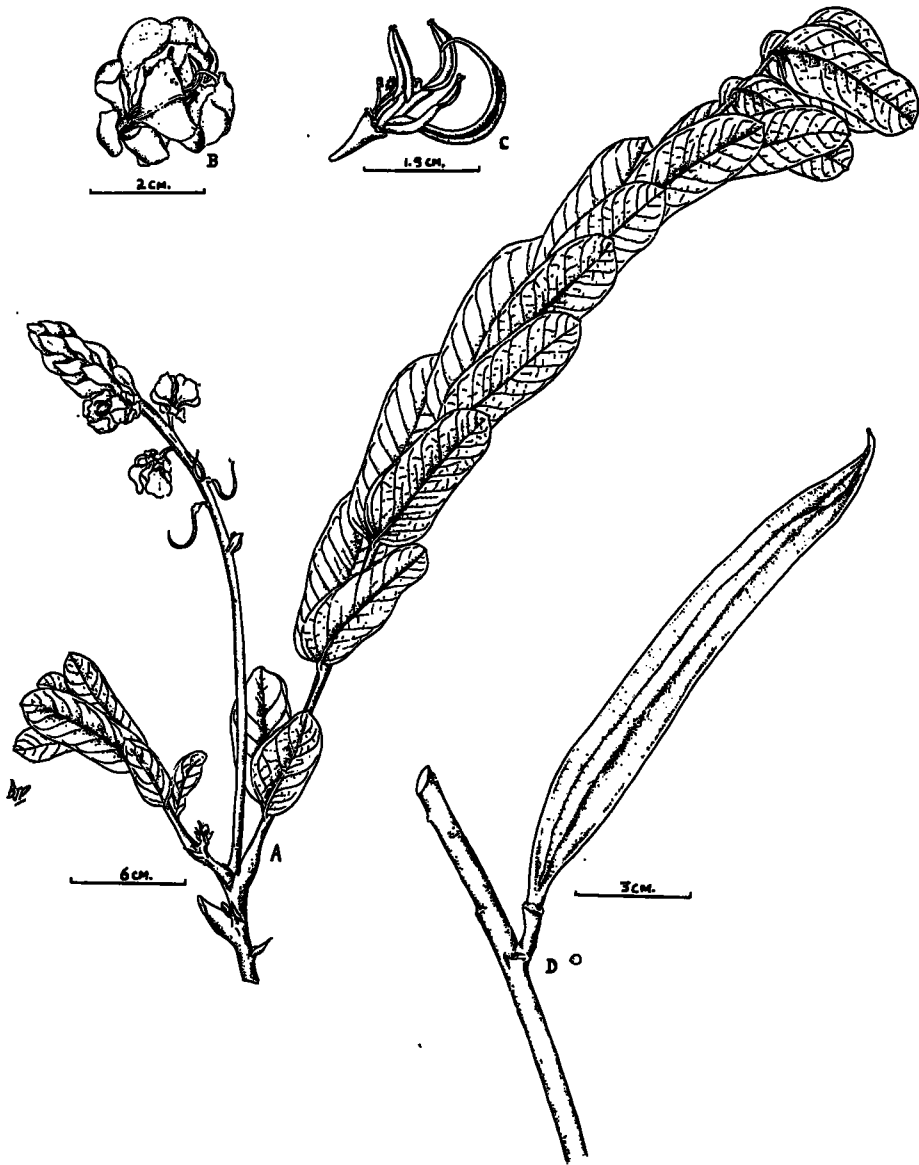


FIG. 297. *Cassia alata*. A, terminal portion of branch with leaves and inflorescence. B, flower, lateral view. C, flower with the perianth removed showing the stamens and the pistil. D, fruit pod.

19. *Cassia alata* Linn. Sp. Pl. 378. 1753. (Fig. 297).

*Senna alata* Roxb.—*Cassia bracteata* Linn. f.—*Cassia herpatica* Jacq.—*Herpatica alata* Raf.

*Engl.* Winged Senna; *Sinh.* Et-tora; *Tam.* Anjali, Simaiyagatti, Vandugolli, Panantakarai; *Sans.* Dadrughna, Dvipagasti.

A large shrub with very thick, finely downy branches; leaves large, subsessile, 30—60 cm long, pinnate, leaflets 8—12 pairs, each 5—15 cm long, oblong-obtuse, minutely mucronate, rigidly subcoriaceous, glabrous or obscurely downy beneath, broadly rounded and oblique at the base, rachis narrowly winged on each side of the face; stipules deltoid, rigid, persistent, articulate, 6 mm long; flowers irregular, bisexual, golden yellow in spiciform pedunculate racemes; buds covered with yellow caducous bracts; sepals 5, imbricate, obtuse; petals 5, free, imbricate ascending, bright yellow with darker veins, 3.2 cm long, broadly ovate; stamens 10, free, very unequal, seven perfect with subequal anthers of which the lowest 2 or 3 are larger than others, the three posterior stamens without anthers; pod long, ligulate, with a broad wing down the middle of each valve, membranous, dehiscent, straight and glabrous, 10—20 cm long, 1.3—1.6 cm broad with about 50 seeds.

Flowers almost throughout the year.

*Illustrations.* Wight,  *Ic. Indies Orient*, pl. 253. 1840; Kirtikar and Basu, *Indian Med. Plants*, pl. 355. 1933; Herb. Peradeniya, drawing.

*Distribution.* Probably a native of West Indies and now naturalized in India and Ceylon. It occurs both in the up-country and low-country in Ceylon.

*India.* Bengal: *Hooker fil. and T. Thomson.* Ceylon. North-Central Prov., Nuwara Wewa, *Simpson* 9359, March 1932; Ganewatte, *Simpson* 8211, June 1931. Central Prov., Peradeniya Bot. Gard., cultivated, *Herb. Peradeniya*, Oct. 1896.

*Composition.* This plant contains an alkaloid, anthracene glucoside which yields chrysophanic acid and tannin. The fruit contains oxymethylantraquinone.

*Uses.* The leaves are a specific for ringworm and other skin diseases. They are ground with lime and applied on the affected parts. An extract or tincture prepared from the leaves is a purgative. An infusion of the leaves and flowers is effective for bronchitis and asthma. A strong decoction of it is used as a wash for eczema with good results. The seeds are used as a vermifuge. In Belgian Congo, the plant is employed as a remedy for leprosy. In Ghana the leaves are crushed, mixed with black pepper and applied on dhoby's itch, craw-craw and ringworm on the head and skin. The leaves are boiled and drunk by women to hasten child-birth. In the Pacific Islands and Mauritius the leaves are used for skin diseases, as an irritant purgative and the seed as a vermifuge. In India and Ceylon, the plant is also used as a snake-bite remedy. The seed ground into a paste with juice of radish root is applied on eczema with beneficial results. Ground with vinegar and resin of *Shorea oblongifolia* (S. Dummala) it is applied on "Alu-han" on the body with good results.



FIG. 298. *Cassia angustifolia*. A, branch with leaves and inflorescences. B, flower, front view. C, pods.

20. *Cassia angustifolia* Vahl, Symb. Bot. 1: 29. 1790. (Fig. 298).

*Cassia lanceolata* Wall.—*Cassia elongata* Lem.—Lisanc.—*Cassia medicinalis* Bisch.—*Senna officinalis* Roxb.—*Senna angustifolia* Batka.

*Engl.* Indian Senna, Tinnevely Senna; *Sinh.* Nilavari, Senekola; *Tam.* Kattunitavarai, Nilavagai, Nilavirai; *Sans.* Bhumiari, Bhumichari, Bhumivalli Bhupadma, Hemapatri, Hemapatrika, Jalatika, Kalyani, Mahaushadhi, Malaharini, Markandika, Mridurechani, Pitapushpi, Rochani, Stholotpala, Svarnamukhi, Svarnapatri, Svarna patrika, Savrnini.

A small shrub with stems 0.6—1 m high, erect, smooth pale green somewhat zigzag with long spreading branches, terete or angular; leaves alternate, spreading, stalked, abruptly pinnate, petiole without a gland, with small, persistent, linear-lanceolate, acute, rigid, spreading stipules, leaflets opposite in 5—8 pairs, 2.5—5 cm long, narrowly lanceolate or obovate-lanceolate, slightly rounded at base, somewhat tapering to a mucronate apex, entire, glabrous or very slightly pubescent beneath, bright green above, glaucous on the under surface; flowers irregular, bisexual, bright yellow, arranged in few-flowered, rather lax, erect, stalked, axillary racemes, at first about the length of the leaves, afterwards much exceeding them, bracts large, thin, ovate, acute, orange-coloured, falling before the flowers expand; calyx very deeply divided into 5 almost distinct, nearly equal, imbricate, oblong, obtuse, membranous, veined sepals; petals 5, imbricate in bud, nearly equal, widely spreading, rounded with an acute claw, veined; stamens 10, distinct, hypogynous, unequal, the three uppermost abortive, very small with short barren anthers, the seven lower fertile with short filaments, anthers of the fertile stamens large, linear-oblong, varying in size, the two lowest much longer than the rest and curved upwards, all two-celled, dehiscing by two round pores at the apex of the cells; ovary superior, unilocular, stalked, oblong, falcately curved upwards, minutely downy, strongly compressed with several marginal ovules, style shorter than the ovary, curved, slender, stigma terminal; fruit pod oblong, 5 cm or more long, 1.5—1.8 cm broad, almost straight, smooth or slightly puberulous, without any crests or other appendage, 2-valved, seeds about 8, obovate, wedge-shaped in outline, compressed, hilum large at the pointed end, scantily albuminous.

**Illustrations.** Royle, Ill. Himal. Bot. pl. 37; Bentley and Trimen, Med. Plants, pl. 91. 1880.

**Distribution.** Occurs in tropical Africa and it is grown in some places in India. It can be cultivated in Ceylon.

**India.** Calcutta, Bot. Gard., cultivated; Pen. Ind. Or., *Herb. Wight* 856, Kew Distribution 1866—7. Ceylon. North-Central Prov., Anuradhapura, cultivated, *Herb. Peradeniya*, Oct. 1883; *Walker*.

**Composition.** Senna contains a glucoside acid called cathartic acid, chrysoretin a yellow colouring matter, a peculiar non-fermentable saccharine crystalline principle termed cathartomannite and two bitter principles sennacrol and sennapicrin. Both leaves and fruits contain oxymethylantraquinone.

**Uses.** The leaves are used in the form of a decoction as a purgative well adapted for children, elderly people and undernourished females. The legumes are used as a purgative as they are milder and do not cause gripe.

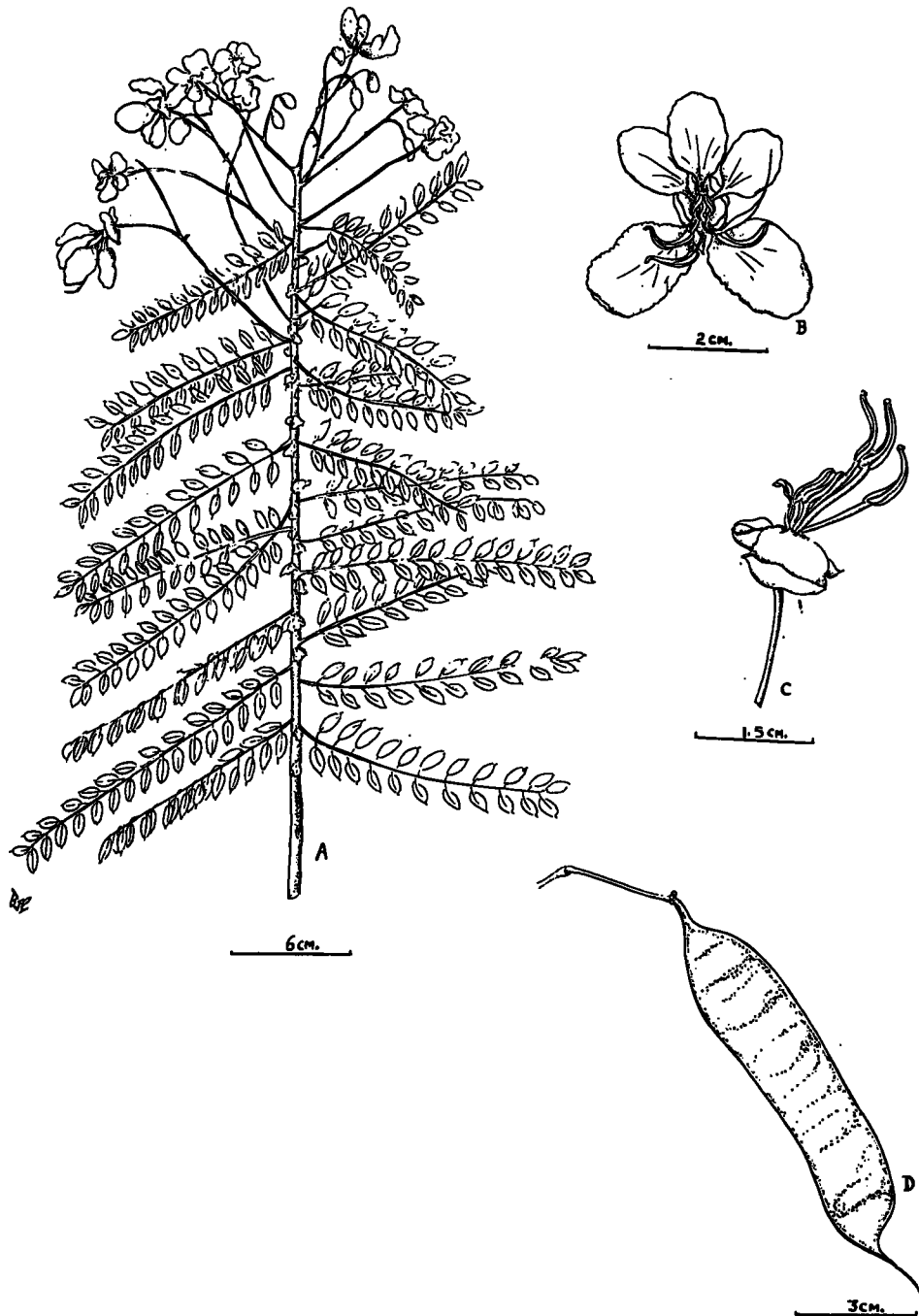


FIG. 299. *Cassia auriculata*. A, branch with leaves and inflorescences. B, flower, front view. C, flower with corolla removed showing the calyx and stamens, lateral view. D, fruit.

21. *Cassia auriculata* Linn. Sp. Pl. 379. 1753. (Fig. 299).*Senna auriculata* Roxb.

*Engl.* Tanner's Cassia; *Sinh.* Ranawara; *Tam.* Avarai, Avaram, Avirai, Sadurguli, Semmalai, Summai; *Sans.* Avartaki, Charmaranga, Mayahari, Pitakilaka, Timirihari.

A large, much branched shrub with smooth cinnamon brown bark and closely pubescent branchlets; leaves alternate, stipulate, paripinnate compound, very numerous, closely placed, rachis 8.8—12.5 cm long, narrowly furrowed, slender, pubescent, with an erect linear gland between the leaflets of each pair, leaflets 16—24, very shortly stalked, 2—2.5 cm long, 1—1.3 cm broad, slightly overlapping, oval-oblong, obtuse at both ends, mucronate, glabrous or minutely downy, dull green, paler beneath, stipules very large, reniform-rotund, produced at base on side of next petiole into a filiform point and persistent; flowers irregular, bisexual, large, bright yellow nearly 5 cm across, pedicels glabrous, 2.5 cm long, racemes few-flowered, short, erect, crowded in axils of upper leaves so as to form a large terminal inflorescence (leaves except stipules suppressed at the upper nodes); sepals 5, distinct, imbricate, glabrous, segments unequal, concave, membranous, the two outer ones much larger than the inner ones; petals 5, free, imbricate, crisped along the margin, bright yellow veined with orange; stamens 10, distinct, the three upper stamens barren; ovary superior, unilocular, with marginal ovules; fruit a short legume, 7.5—11 cm long, 1.5 cm broad, oblong, obtuse, tipped with long style base, flat, thin, papery, undulately crimped, pilose, pale brown, seeds 12—20, distant, each in a separate cavity.

Flowers in February and March.

**Illustrations.** Kirtikar and Basu, *Indian Med. Plants*, pl. 354B. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs in the dry regions of India and Ceylon and naturalized in Tanganyika. It is common along the sea coast and the dry zone in Ceylon.

**India.** Maisor and Carnatic: *G. Thomson*. Ceylon. Northern Prov., Jaffna, *Thwaites C.P.* 1523. Burma. *Mokin* 994, Dec. 1902.

**Composition.** This plant is said to contain a cardiac glucoside sennapicrin and saponin. The leaves and bark yield oxymethylantraquinone while the latter contains tannin in addition.

**Uses.** The root is used in decoction for fevers, diabetes, diseases of the urinary system and constipation. The leaves have laxative properties. The dried flowers and flower buds are used as a substitute for tea in the case of diabetic patients. It is also supposed to improve the complexion in women. The powdered seed is also used in diabetes and applied to the eye, in cases of chronic purulent conjunctivitis. In Africa, the bark and seeds are used for rheumatism eye diseases, gonorrhoea, diabetes and gout.

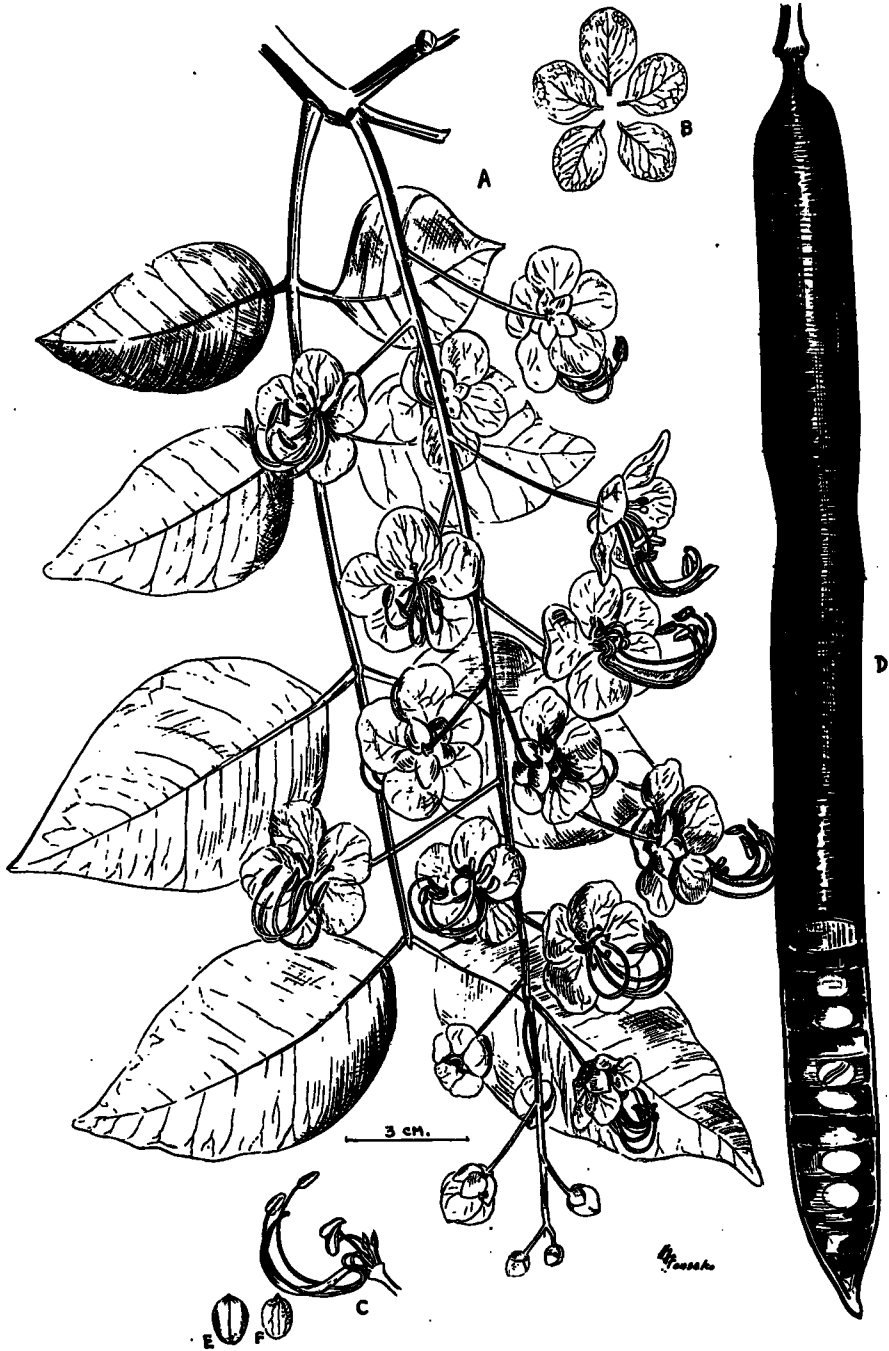


FIG. 300. *Cassia fistula*. A, branch with a leaf and pendulous inflorescence. B, corolla spread out. C, stamens and pistil, lateral view. D, fruit. E, seed. F, cotyledon with embryo.

22. *Cassia fistula* Linn. Sp. Pl. 377. 1753. (Fig. 300).

*Cassia rhombifolia* Roxb.—*Cassia excelsa* H.B. & K.—*Cathartocarpus fistula* Pers.—*Bactrylobium fistula* Willd.

*Engl.* Indian Laburnum, Purging Cassia; *Sinh.* Ehela; *Tam.* Appai, Ar, Aragoram, Arakkuvadam, Isandar, Idali, Iragavinnadagam, Iragaviruttam, Irالي, Iyagam, Iyyusviyam, Kadukai, Konrai, Madalai, Sarakkondai, Tirrukondai; *Hindi.* Gomalah; *Sans.* Amaha, Antadru, Aragvadhā, Arevata, Arogyashimbi, Aruja, Chakraparivyadhā, Chaturangula, Dirghaphala, Drumotpala, Himapushpa, Jatharanut, Jvarantaka, Kandhughna, Karnabharanaka, Kritamala, Kritamalaka, Kundali, Kushtaghna, Kushthasudana, Mahakarnikara, Maharajdruna, Manthana, Nakthamala, Nripadruma, Pramcha, Rajataru, Rajavriksha, Rechana, Rochana, Samyak, Saraphala, Shamyaka, Shephalika, Suvarnaka, Svarnabhushana, Svarnadra, Svarnanga, Svarnasthali, Svarnavriksha, Vyadivata, Vyathantaka.

A small or moderate-sized tree with slender branches and pale grey bark when young, brown and rough when old; leaves alternate, stipulate, abruptly pinnate compound, large, rachis 15—30 cm long, glabrous, stipules minute, setaceous, leaflets 4—12, distinctly stalked, articulated with rachis, 5—15 cm long, acute at base, obtusely acuminate, quite glabrous; flowers irregular, bisexual, large, pale yellow, 3.7—5 cm across, on slender glabrous spreading pedicels about 3.7 cm long, in lax, long stalked, pendulous, axillary racemes longer than leaves, bracts lanceolate, caducous; sepals 5, distinct, imbricate, glabrous, concave, very obtuse; petals 5, distinct, imbricate ascending, concave, veined; stamens 10, three lowest ones with very long doubly curved exerted filaments and oblong anthers dehiscing longitudinally, four lateral ones with very short straight filaments and versatile anthers opening by pores at the base, 3 uppermost ones much smaller, erect with abortive anthers; ovary superior, unilocular, with marginal ovules; fruit a pendulous, cylindrical, purplish black pod, 30—60 cm long, shortly stalked, 1.8—2.5 cm diam., nearly straight, hard, smooth, shining, not torulose, indehiscent with 25—100 horizontal seeds immersed in dark coloured pulp and completely separated by thin transverse partitions; seeds small, albuminous, ovoid, slightly compressed with a raised raphe down the whole of one side, hard, smooth, shining, pale orange brown.

Flowers from July to August.

*Illustrations.* Wight, Ic. Pl. Ind. Orient., pl. 269. 1840; Bentley and Trimen, Med. Plants pl. 87. 1880; Kirtikar and Basu, Indian Med. Plants, pl. 350. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs throughout tropical India, Ceylon, Malaya, China, Java and Philippine Islands. It is very common in Ceylon in the forests of the dry zone.

*India.* Calcutta, Bot. Gard., *Wallich 5302G.* Maisor and Carnatic, *G. Thomson.* Pen. Ind. Or., *Herb. Wight 851,* Kew Distribution 1866—7. Ceylon. North Western Prov., *Thwaites C.P. 1502.* Central Prov., Peradeniya, Bot. Gard.; cultivated *Appuhamy,* June 1950.

*Composition.* The leaves contain anthraquinones but very little tannin while the seed yields a golden coloured fixed oil and  $\beta$ -sitosterol. The fruit and bark contain oxymethyl anthraquinone while the former contains saccharose, viscous sugar, citric acid and pectin in addition. The fruit pulp yields an unsaturated hydrocarbon, wax, aloin, barbaloin and glucoside.

*Uses.* The bark and roots are used for fever, heart diseases, acute bronchitis, pneumonia, malarial affections and chronic rheumatism. The leaves especially the tender ones are used as a purgative while the older ones together with the bark are ground into a paste and applied on ringworm, insect bites, rheumatism, facial paralysis, leprosy, chronic eczema and psoriasis. A decoction of the flowers is given with cow's milk for ratbite poisoning while the ripe fruits are used to get rid of bed bugs. The pulp of the fruit in small doses is a laxative, while it acts as a purgative in large doses.

In South Rhodesia, the plant is used as a remedy for malaria, blackwater fever, blood poisoning, anthrax and dysentery. In Cambodia, the bark is used in dysentery. The ground seed is taken as a purgative in certain parts of India.

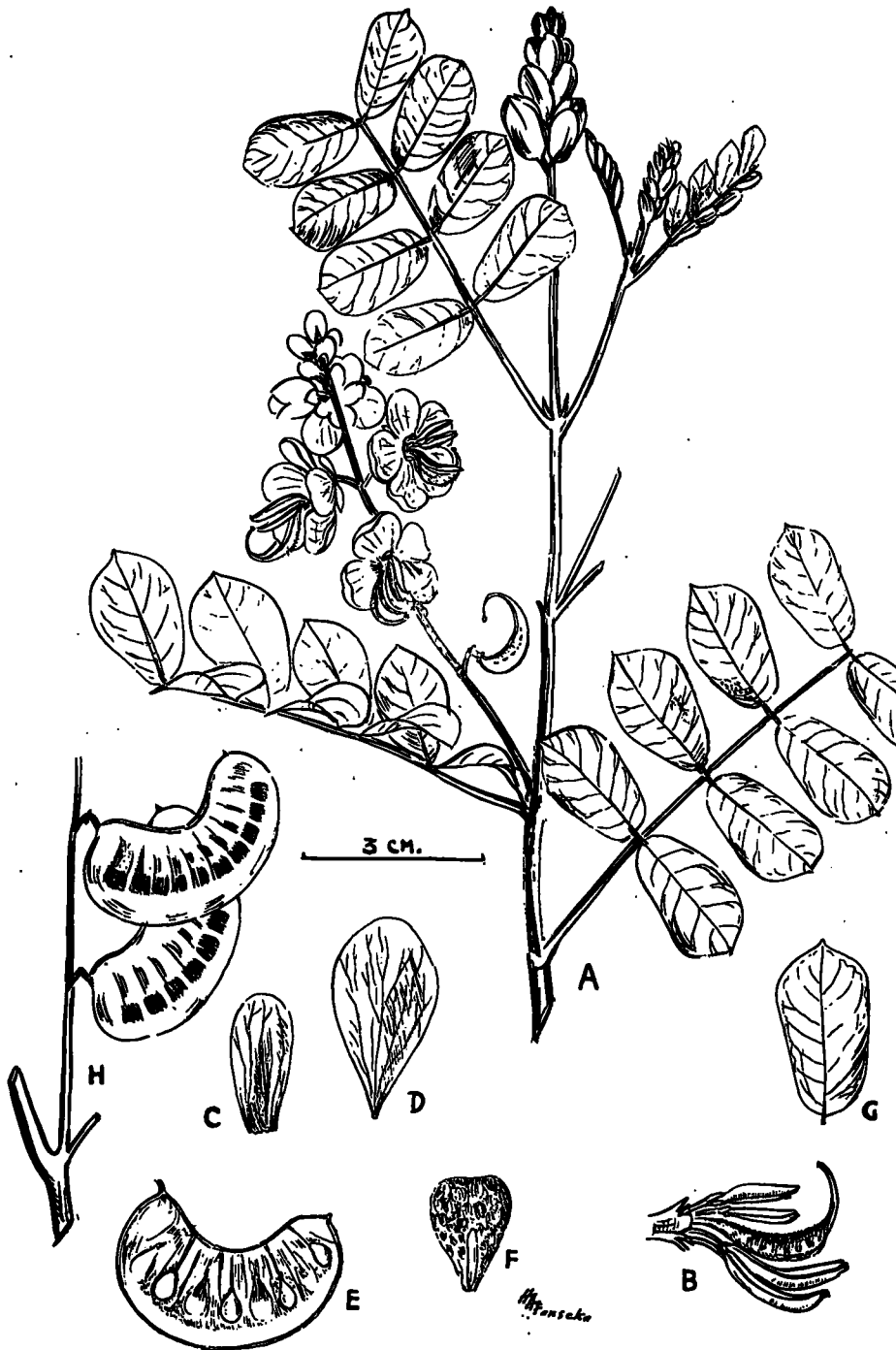


FIG. 301. *Cassia obovata*. A, branch with leaves, racemes and fruit. B, flower with calyx and corolla removed showing the pistil and stamens. C, sepal. D, petal. E, pod with one valve removed. F, seed. G, leaflet. H, two pods.

23. *Cassia obovata* Collad. Hist. Cass. 92. (Fig. 301).

*Cassia senna* Linn.—*Cassia obtusa* Roxb.—*Cassia burmanni* Wight—*Cassia obtusata* Heyne—*Senna obtusa* Roxb.—*Senna obovata* Batka.

*Engl.* Alexandria Senna, Nubian Senna, Senegal Senna; *Sinh.* Sene-Kola; *Tam.* Kuttunilavarai, Nilavarai, Vellaipponnavarai; *Hindi* Chhotataroda; *Sans.* Bhumyahuli, Bhutalapota.

Semi-shrubby perennial, sometimes an annual with erect, smooth, pale green, zigzag stems and spreading, terete or angular branches; leaves alternate, spreading, stalked, abruptly pinnate, petiole without a gland, with small, persistent, linear-lanceolate, acute, rigid, spreading stipules; leaflets opposite in 3—6 pairs, nearly sessile, broadly oblong-ovate, rounded but mucronulate at the apex, unequal at base, entire, pale glaucous green, usually glabrous, 2—2.5 cm long, 1—1.3 cm broad, the upper ones often larger than the lower ones; flowers irregular, bisexual, bright yellow, large, stalked, arranged in few-flowered, rather lax, erect, curved, stalked axillary racemes, at first about the length of the leaves, afterwards much exceeding them, bracts large, thin, ovate, acute, orange-coloured, falling before the flowers expand; calyx very deeply divided into almost distinct, nearly equal sepals, imbricate in bud, oblong, obtuse, membranous, veined; petals 5, imbricate in bud, nearly equal, wide spreading, rounded, with an acute claw, bright yellow, veined; stamens 10, distinct, unequal, the three uppermost abortive, very small with short barren anthers, the seven lower fertile with short filaments and large, linear-oblong anthers varying in size, the two lowest much larger than the rest and curved upwards, all 2-celled, dehiscing by pores at the apex of the cells; ovary superior, oblong, falcately curved upwards, minutely downy, unilocular with several marginal ovules, style shorter than the ovary, curved, slender, stigma terminal; fruit pod 3.7 cm long, 1.5 cm broad, shortly stalked, flat, much compressed, rounded at each end, curved, oblong-reniform, smooth, slightly veined, tipped by the persistent style, 2-valved, the valves parchment like, with a line of narrow, prominent, rounded crests along the centre, one over each seed; seeds about 10, obovate, wedge-shaped in outline, compressed, scantily albuminous.

**Illustrations.** Collad, Hist. Cass. *pl.* 15; Wight, Ic. Pl. Ind. Orient., *pl.* 757. 1843—45; Kirtikar and Basu, Indian Med. Plants, *pl.* 354A. 1933; Bentley and Trimen, Med. Plants, *pl.* 89. 1880.

**Distribution.** Occurs in India, Egypt, tropical Africa, Abyssinia, etc., but not in Ceylon.

**India.** Malabar, Concan, etc. *Stocks, Law, etc.* Pen. Ind. Or. *Herb. Wight* 857, Kew Distribution 1866—7. Ceylon. Northern Prov., Mannar, cultivated, *Crawford* 138, 1890.

**Composition.** The leaflets and pods contain oxymethylantraquinone.

**Uses.** An infusion of the leaves and pods is used as a purgative. In Africa, the Zulus use an infusion of the root in milk as a cure for influenza.

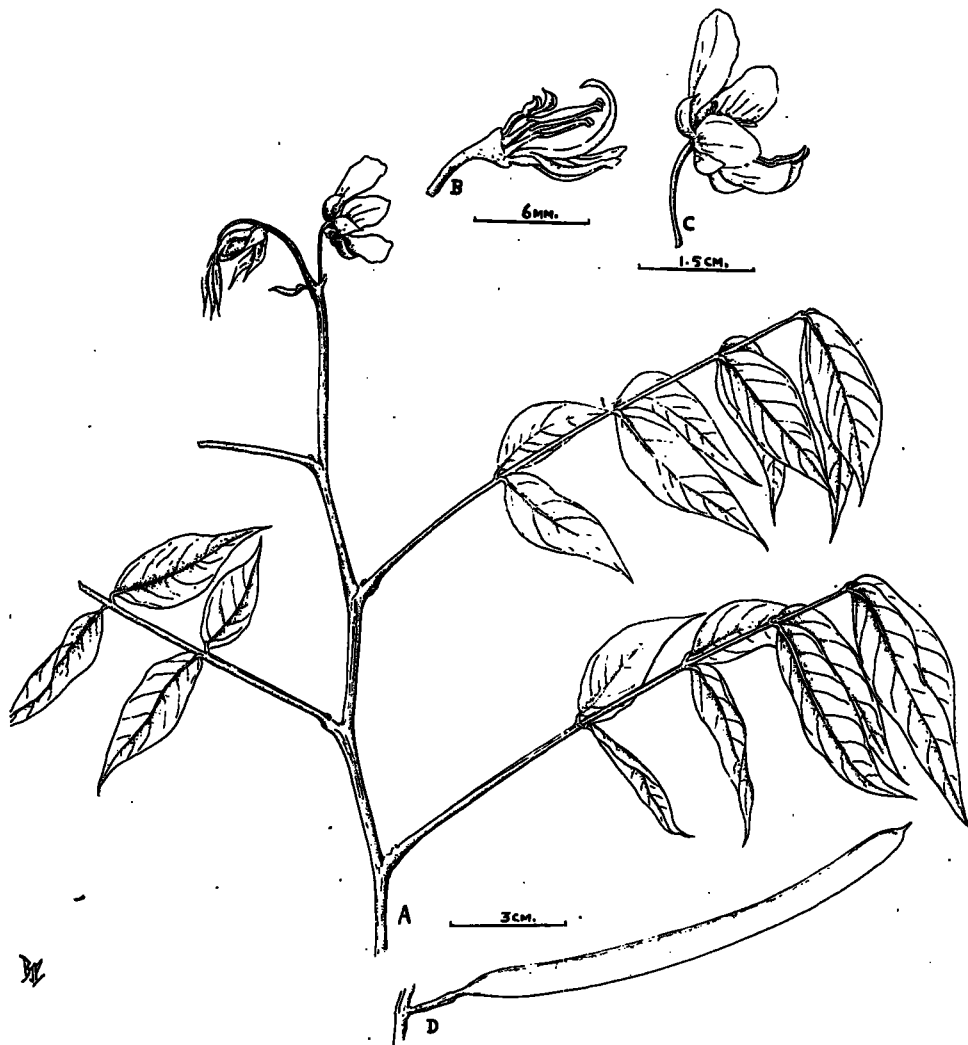


FIG. 302. *Cassia occidentalis*. A, branch with leaves and flower. B, flower with calyx and corolla removed showing the pistil and stamens. C, flower, lateral view. D, fruit.

24. *Cassia occidentalis* Linn. Sp. Pl. 377. 1753. (Fig. 302).

*Senna occidentalis* Roxb.—*Cassia foetida* Pers.—*Cassia sophera* Wall.

*Engl.* Fetid Cassia, Negro Coffee, Stinking Weed; *Sinh.* Penitora; *Tam.* Nattandagarai, Peyavirai, Ponnvirai; *Sans.* Arimarda, Dipana, Kala, Kalankata, Kanaka, Karkasha, Kasamarda, Kasamardaka, Kasari, Kashamarda, Jarana, Vimarda.

A coarse annual, 30—90 cm high, stem slightly branched, nearly glabrous, furrowed, purplish; leaves alternate, stipulate, paripinnate compound, rather large, rachis stout, 11.4—15 cm long, glabrous, swollen at base where on the upper side is a sessile purple gland, leaflets 8 or 10, on very short stalks, 5—10 cm long, narrowly ovate-lanceolate, rounded or unequal at base, gradually attenuate to a very acute apex, glabrous, very thin, dark green above, slightly glaucous beneath, stipules large, semi-sagittate, acuminate, caducous; flowers irregular, bisexual, large, bright orange-yellow, 3 cm or more across, pedicel 1.2 cm long; usually in pairs at the axils of leaves; sepals 5, almost free, imbricate, segments obtuse, nearly glabrous; petals 5, distinct, imbricate, ascending; stamens 10, seven with perfect anthers opening by pores, 2 or 3 lowest ones longer and declinate, other 3 erect with barren anthers; ovary superior, unilocular with marginal ovules; fruit a legume 8.8—11.5 cm long, 6 mm wide, erect, stiff, linear, slightly curved, bluntly apiculate flattened, slightly compressed between the seeds; seeds 20—30, compressed, ovoid, pointed at one end, shining, very hard, olive green.

Flowers in June, March, etc.

*Illustrations.* Edward, Bot. Reg. *pl.* 83. 1815; Kirtikar and Basu, Indian Med. Plants, *pl.* 351. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs in the tropics generally including India, Ceylon, and Philippine Islands. It is a native of tropical America. It is very common in the low-country in Ceylon especially in wet places as a weed.

*India.* Misor and Concan, *G. Thomson*. Ind. Bor. Occ., *T. Thomson*. Ceylon. *Thwaites* C.P. 1262. Central Prov., Peradeniya, cultivated, *Herb. Peradeniya*, Nov. 1895. *Maldives* *Gardiner*; Minikoi, *Gardiner* 2, 1899—1900. *Burma.* Upper Burma: Shan State, *King's Collector* 608, July 1893. *Indo-China.* Hue and vicinity, *Squires* 17. Jan.—May 1927:

*Composition.* Contains a toxalbumin and oxymethylanthraquinone. The seeds contain fatty matter, tannic acid, sugar, gum, cellulose, calcium sulphate and phosphate, crysophanic and malic acids, sodium chloride, magnesium sulphate, iron, silica and achrosine.

*Uses.* The plant is a purgative, tonic and febrifuge. It is employed in dropsy, rheumatism, fevers and venereal diseases. Externally, it is used in the form of ointments on ringworm, eczema and other skin diseases. The root is used in intermittent fevers and as a tonic and diuretic in dropsy and liver complaints. An infusion of the bark is supposed to be a remedy for diabetes. The seeds act readily as an emeto-cathartic and drunk like coffee for heart disease. In tropical and central Africa, the leaves are used as a purgative and a poultice of the leaf is applied for relief from oedema. In Dutch Indies, the bruised leaf is employed internally and externally for pleurisy and similar inflammatory conditions. The plant is a snake-bite remedy.



FIG. 303. *Cassia sophora*. A, branch with leaves, flowers and fruits. B, raceme, front view. C, fruits.

25. *Cassia sophera* Linn. Sp. Pl. 379. 1753. (Fig. 303).

*Senna sophera* Roxb.—*Senna esculenta* Roxb.—*Cassia esculenta* Roxb.—*Cassia chinensis* Jacq.—*Cassia frutescens* Mill.—*Cassia coromandeliana* Jacq.

*Sinh.* Uruthora; *Tam.* Ponnairai, Nalal, Peravirai, Periadagarai, Sularai; *Sans.* Kasamarda, Kasaripu, Suvarnamayahari, Talapota.

A large, woody, slightly branched, glabrous annual 2.4—3 m high; leaves alternate, large, abruptly pinnate compound, rachis 12.5—17.5 cm long, furrowed above, nearly glabrous, swollen at base, provided with a large, solitary gland, leaflets 6—12 pairs, closely placed, shortly stalked, 3.7—5.6 cm long, lanceolate, rounded at base, acute, finely mucronate and thin; flowers irregular, bisexual, large, pale yellow, pedicels 1.2 cm long, usually 4—7 in axillary or terminal racemes; sepals 5, almost distinct, much imbricate, segments obtuse, nearly glabrous; petals 5, nearly equal, imbricate ascending; stamens 10, seven with perfect anthers opening by pores, 2 or 3 lowest longer and declinate, other 3 erect with barren anthers; ovary superior, unilocular with marginal ovules; fruit legume about 8.8 cm long, 1 cm wide, nearly straight, somewhat turgid, glabrous, acute, sutures thickened with very numerous, small seeds separated by partitions.

Flowers in February and March.

**Illustrations.** Jacques,  *Ic. Pl. pl. 73*; Kirtikar and Basu,  *Indian Med. Plants, pl. 352. 1933.*

**Distribution.** Occurs in most tropical countries, including India and Ceylon. It is found in the low-country, especially in the dry regions in Ceylon.

**India.** Lahore, cultivated, *Parker*, Dec. 1921. **Ceylon.** *Thwaites C.P. 1507.* Northern Prov., Jaffna, *Herb. Peradeniya*, Feb. 1890. Sabaragamuwa Prov., Godakawela, *Simpson 9965*, Aug. 1932. **Maldivé Islands.** Horsburgh Atoll, *Gardiner*; Male, *Gardiner*; Hulule, *Gardiner 65*, 1899—1900.

**Composition.** The leaves, stems and fruits of this plant contain an alkaloid, crysophanic acid and emodin.

**Uses.** The juice of the leaves made into a paste with sandalwood or lime is a cure for ringworm, dhoby's itch and other skin diseases. An infusion or decoction of the leaves is given for asthma, bronchitis, gonorrhoea, rheumatic and inflammatory fevers and jaundice. An infusion of the bark or powdered seed is given with honey for diabetes. A decoction of the whole plant is said to be useful in diminishing the quantity of urine and also acts as an expectorant. In Madras, an infusion of the leaves is used treating for gonorrhoea.

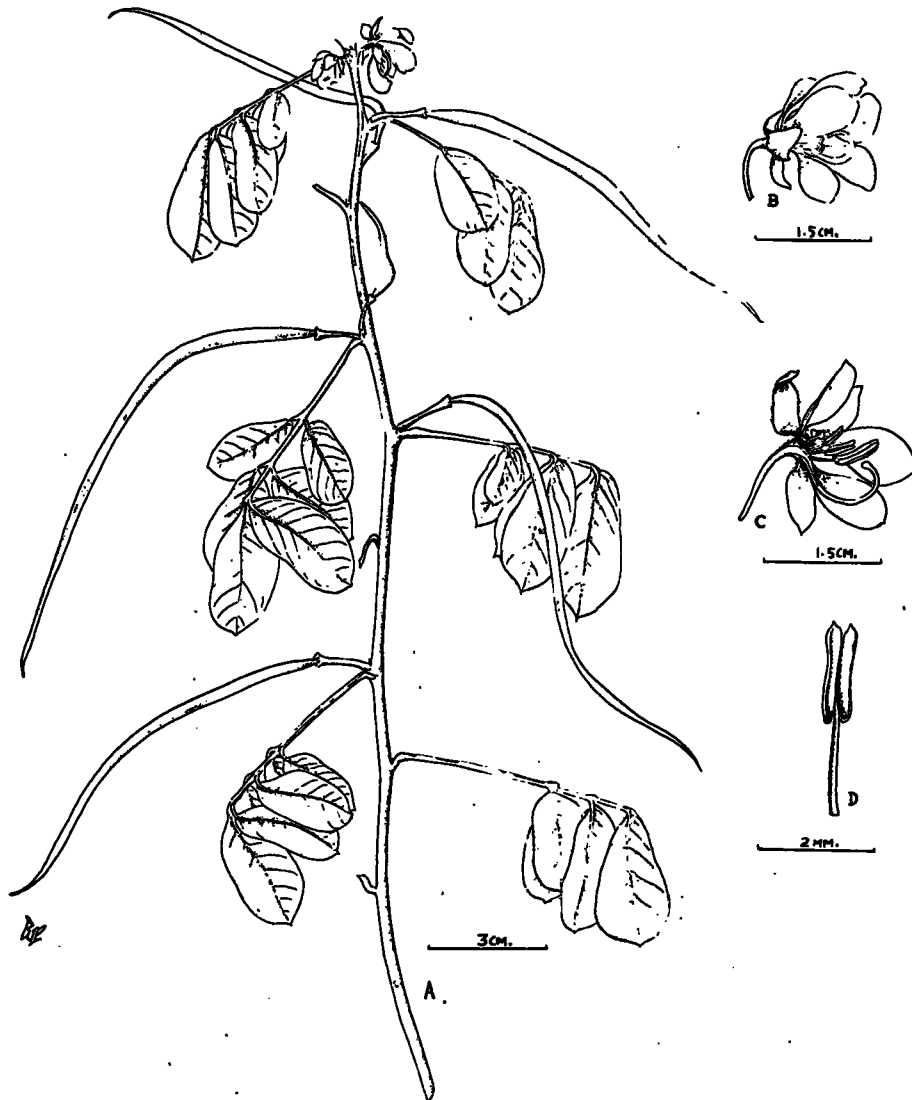


FIG. 304. *Cassia tora*. A, branch with leaves, flowers and fruits. B, flower, lateral view. C, longitudinal section of flower. D, fertile stamen.

26. *Cassia tora* Linn. Sp. Pl. 376. 1753. (Fig. 304).

*Senna tora* Roxb.—*Senna tortoides* Roxb.—*Cassia obtusifolia* Linn.—*Cassia foetida* Salisb.—*Cassia humilis* Collad.—*Cassia gallineria* Collad.—*Cassia tortoides* Roxb.

*Engl.* Fetid Cassia; *Sinh.* Peti-tora; *Tam.* Senavu, Sirutagarai, Tagarai, Usittagarai, Vamamavaram, Vaddutakari, Vindu; *Hindi* Chakavar, Chakunda, Pamad, Panevar; *Sans.* Ayudham, Chakramarda, Chakramardaka, Dadamandam, Dadamari, Dadrugna, Prabhunatha, Praputrata, Prapatratri, Prishnaparni, Taga.

An annual fetid herb, 30—90 cm high with spreading glabrous branches; leaves alternate, stipulate, paripinnate compound, rachis 2.5—5 cm long, stout, furrowed, slightly pubescent with a linear, yellow gland above between the leaflets of the lower one or two pairs of leaflets, leaflets three pairs in all, very shortly stalked, 2.5—3.7 cm long, the terminal pair the largest, obovate, tapering to an unequal base, apiculate, glabrous above, finely silky beneath, thin and flaccid, stipules long, setaceous, caducous; flowers irregular, bisexual, pale orange yellow, about 1.8 cm across solitary or in pairs, axillary, pedicels slender, 1.8 cm long; sepals 5, distinct, imbricate, glabrous, two larger than others; petals 5, distinct, imbricate ascending, upper petal 2-lobed, others entire; stamens 10, the three upper ones barren and minute; ovary superior, unilocular with marginal ovules, legume very long, 15—20 cm and about 6 mm wide, linear, much curved when young, afterwards less quadrangular, glabrous containing about 30 seeds with very slight partitions between them, thin and pale brown; seeds not compressed, pointed at one end, rather truncate at the other, very hard, rough with scurfy hair, pale brown.

Flowers in January and August.

*Illustrations.* Rheede, Hort. Mal. 2: pl. 53. 1678—1703; Kirtikar and Basu, Indian Med. Plants, pl. 353. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs throughout the tropics generally, including India, Ceylon and Philippine Islands. It is found in the low-country in Ceylon by road sides and waste ground and is very common in the dry regions.

*India.* Calcutta, Hort. Bot., Wallich 5316B. Misor and Carnatic, G. Thomson. Ceylon. North Central Prov., Simpson 9163, Feb. 1932; Thwaites C.P. 2785. Maldive Islands. Gardiner, 1899—1900. Indo-China. Hue and vicinity, Squires 15, Jan.—May 1927. Timor. Meyer, June 1884. Formosa. Oldham 189. 1864.

*Composition.* The seeds contain a glucosidal substance somewhat similar to emodin in composition, phytosterine and glucosenine. The leaves contain a principle similar to cathartin.

*Uses.* The leaves are laxative and are useful in habitual constipation and haemorrhoids. The seeds have anti-parasitic properties and are applied on ringworm and scabies. In the Philippine Islands the entire plant in decoction is given as a vermifuge and purgative. In Indo-China the pods are used for dysentery and ophthalmia while in China the seeds are used both externally and internally for all types of eye diseases, liver complaints and boils. In Nigeria and Ghana, leaves are employed as a laxative and purgative. In Madagascar and La Reunion, the root of the plant is used as a bitter tonic, stomachic and the leaves as an antiperiodic aperient and anthelmintic.



FIG. 305. *Cicer arietinum*. A, branch with leaves, flowers and fruit. B, flower, front view. C, flower dissected. D, pistil, longitudinal section. E, stamen. F, fruit. G, fruit with portion of the carpal removed showing the seed.

27. *Cicer arietinum* Linn. Sp. Pl. 738. 1753 (Fig. 305).

*Engl.* Chic Pea, Gram; *Sinh.* Kadala, Konde-kadala; *Tam.* Kadalai; *Hindi* Chana, Chunna; *Sans.* Balabhaishajya, Balabhojya, Chanaka, Harimantha, Jivana, Kanchuki, Krishnachanchuka, Sakalapriya, Sugandha, Vajibhakshya, Vajimantha.

A viscid, much branched annual herb; leaves alternate, pinnate compound, 2.5—5 cm long with usually a terminal leaflet, leaflets about 6 mm long, ovate-oblong to obovate, deeply toothed and strongly veined; stipules small, obliquely ovate, toothed; flowers irregular, bisexual, pink, blue or white, axillary, solitary; calyx 6—8 mm long, hairy, tube oblique, teeth linear subequal; corolla of 5 petals, imbricate descending, standard broad, exceeding the wings and keel; stamens 10, diadelphous, anthers reniform; ovary superior, unilocular with two marginal ovules, style incurved, stigma capitate; fruit pod 2—2.5 cm long, oblong, turgid, pubescent, topped by the persistent base of the style, seeds obovate or subglobose, beaked, reddish brown.

**Illustrations.** Wight,  *Ic. Pl. Ind. Orient.*,  *pl.* 20. 1838; Curtis,  *Bot. Mag.*,  *pl.* 2274. 1822; Kirtikar and Basu,  *Indian Med. Plants*,  *pl.* 313B. 1933.

**Distribution.** Commonly cultivated in most parts of India and other temperate and tropical countries.

**India.** Assam: Tezpur,  *Chatterjee*, March 1902. Bengal:  *J. D. Hooker*.  *Pen Ind. Or.*,  *Herb. Wight* 688, Kew Distribution 1866—7. Ceylon. Peradeniya, cultivated,  *Herb. Peradeniya*, March 1900. Cuba. Santiago de las Vegas,  *Baker* 16, May 1907.

**Uses.** The seed is boiled or roasted and eaten. It may be ground into flour and various preparations made from it. In Deccan, the fresh plant is put into hot water and steam emanating from it is used for treatment of dysmenorrhoea. The acid exudation from the plant is considered a useful astringent. In Europe, the seed is used as a diuretic and anthelmintic. An infusion of it is given to allay pain due to urinary calculi.

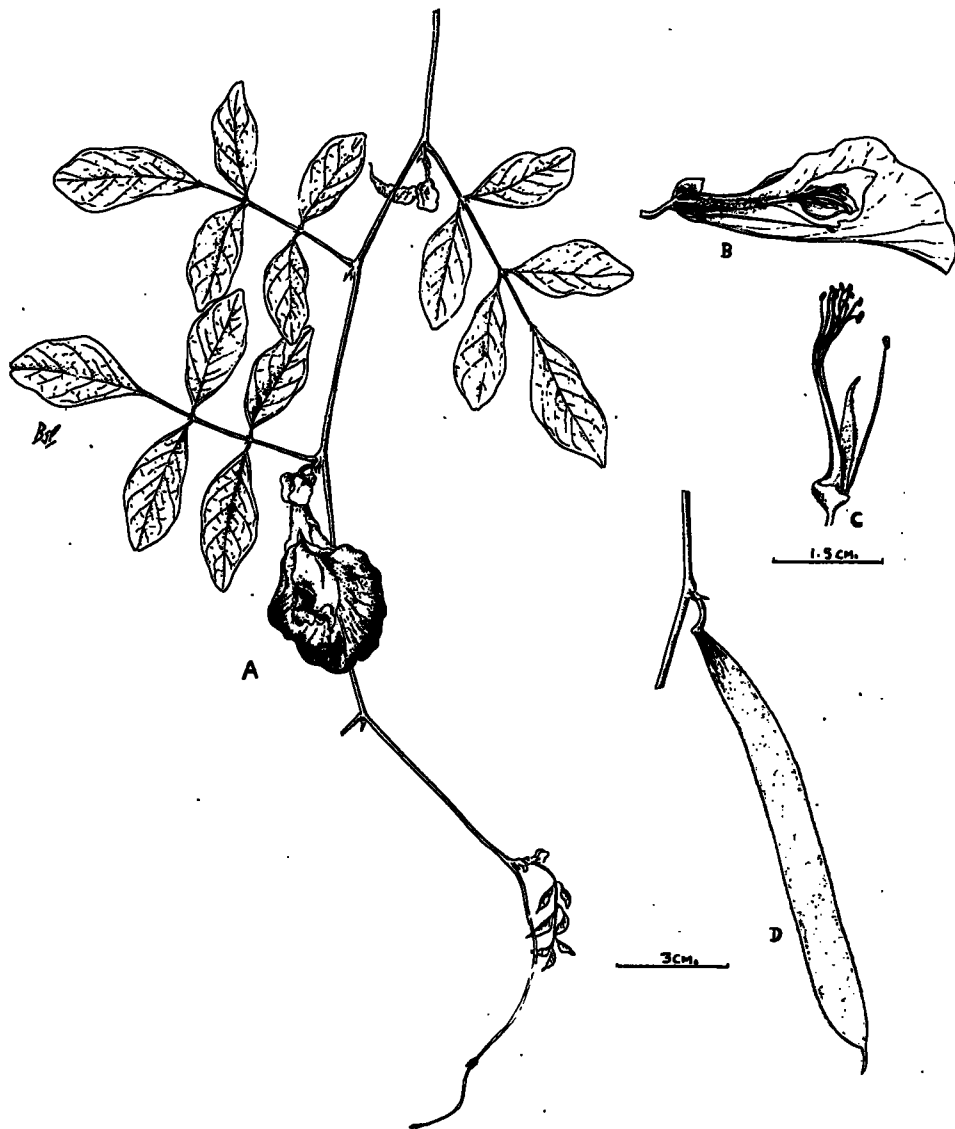


FIG. 306. *Clitoria ternatea*. A, twig with leaves and flower. B, longitudinal section of a flower. C, flower with perianth removed showing the stamens and pistil. D, fruit.

28. *Clitoria ternatea* Linn. Sp. Pl. 753. 1753. (Fig. 306).*Clitoria philippensis* Perr.

*Sinh.* Elakatarolu, Katarolu, Nilkatarolu; *Tam.* Kakkanar, Kakkattan, Kannikkodi, Karisanni, Karkkurattai, Karudakkovai, Karudattondai, Karuvilai, Kaurigeni, Kavalai, Kemachi, Kevari, Kigini, Kiriganni, Kiruttini, Minni, Taruganni, Uyavai, Viranu; *Hindi* Aparagita; *Sans.* Aparajita, Ashvakshurardikarni, Asphota, Bhadra, Bhumilagna, Dadhipushpika, Gardabni, Gavadini, Gavakshi, Girikarnika, Girishalini, Gokarnika, Katabhi, Kinihi, Nagaparyayakarni, Nilagirikarni, Romavalli, Shveta, Shvetaverata, Shvetsyanda, Sinhapushpi, Sitapushpi, Supushpi, Suputri, Vishnukantri, Vishnukranta, Vryshapadi.

A perennial twining herb with long, cylindrical stems covered with scantily adpressed hair; leaves alternate, stipulate, imparipinnate compound, rachis 3.7—5 cm long, leaflets 5—7, 1.8—3.5 cm long, oval or oblong-oval, shortly stalked, obtuse, often emarginate, glabrous above, slightly hairy beneath; flowers irregular, bisexual, blue or white, solitary, large, over 2.5 cm long on a drooping, short, jointed, axillary pedicel, with two large erect rotundate bracts immediately beneath it; sepals 5, fused into a long, tubular calyx 1.8 cm long, thin, nearly glabrous, segments long, triangular, acuminate; petals 5, distinct except the two keel petals, imbricate descending, standard very large, reflexed, bifid; stamens 10, diadelphous; ovary superior, unilocular with marginal ovules, style flattened, bearded along the upper side, stigma terminal; legume 10—12.5 cm long, 1 cm wide, nearly straight sharply beaked with a few adpressed hairs, seeds 8—12, oblong-ovoid, greenish, mottled with brown.

Flowers in December and January.

*Illustrations.* Curtis, Bot. Mag., pl. 1542. 1813; Kirtikar and Basu, Indian Med. Plants, pl. 326. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs in the tropical regions of India, Ceylon, Burma, Malaya and Philippine Islands. It is common in Ceylon, especially in the dry regions but mostly cultivated in the moist regions.

*India.* Canara: *Talbot*, May 1882. Maisor and Carnatic: *G. Thomson*. Pen Ind. Or., *Herb. Wight* 733, Kew Distribution 1866—7. Ceylon. Eastern Prov., Batticaloa, *Thwaites C.P.* 1485. Central Prov., Matale, *Petch*, April 1924; Peradeniya, Bot. Gard., cultivated, *Livera*, June 1927; *J. M. Silva* 828, Oct. 1926; Gannoruwa, *Ramanayake*, March 1953. Southern Prov., Hambantota, *Herb. Peradeniya*, Dec. 1882. *Maldiv Islands.* Horsburgh Atoll, *Gardiner*, 1899—1900. *Philippine Islands.* Luzon, Prov. of Union, Bauang, *Elmer* 5576, Feb. 1904. *Cuba.* Harv. Trop. Gard., cultivated, *Jack* 4562, April 1926.

*Composition.* The leaves and seeds contain an alkaloid, while the seed has a fixed oil, tannic acid and glucose in addition. The root bark contains starch, tannin and resins and the cotyledons, granular starch.

*Uses.* Used in large doses as a hydragogue cathartic and useful in anasarca and ascites and other conditions where it is necessary to remove large quantities of fluid from the system. In small doses, it is a cholagogue purgative and used with advantage in acute and chronic congestion of the liver and biliousness. The juice of the root of the white-flowered variety is blown into the nostrils as a remedy for hemicrania. An infusion of the root is given for irritation of the bladder and urethra. The powdered seed with ginger is recommended as a purgative and diuretic for enlargements of abdominal viscera. In Java and Philippines the leaves are used as a poultice for swollen joints. The seeds are considered anthelmintic, while the root is a diuretic, laxative and aperient.



Plate VIII. *Crotalaria juncea*. A, portion of the plant with leaves and flowers. B, flower, lateral view in longitudinal section. C, flower dissected. D, stamens. E, calyx and pistil. F, pistil. G, fruits. H, longitudinal section of fruit.



Plate VIII. *Crotalaria juncea*. A, portion of the plant with leaves and flowers. B, flower, lateral view in longitudinal section. C, flower dissected. D, stamens. E, calyx and pistil. F, pistil. G, fruits. H, longitudinal section of fruit.

29. *Crotalaria juncea* Linn. Sp. Pl. 714. 1753. (Plate VIII).

*Crotalaria fenestrata* Curtis—*Crotalaria benghalensis* Lamk.—*Crotalaria tenuifolia* Roxb.—*Crotalaria porrecta* Wall.—*Crotalaria viminea* Wall.—*Crotalaria sericea* Willd.

*Engl.* Indian Hemp, Sunn-Hemp; *Sinh.* Hana; *Tam.* Chanai, Kuttiram, Kuttu, Manji, Nanandam, Shanal Imappu, Umadji, Uttirabanni, Vakkunnar; *Hindi* Ghagahi, Patashana, Shanakuli; *Sans.* Dhanahari, Dirghapallava, Dirghashakla, Karnagula, Katutikta, Malyapushpa, Nishadana, Sana, Satinaka, Shana, Tvakasara, Vamaka.

An erect annual, 60—120 cm or more tall, branches numerous, stiff, ascending, slender, striate, finely pubescent; leaves simple, alternate, stipulate, 3.7—10 cm long, 2 cm broad, distant on very short, thickened petioles, lanceolate-oblong or linear, acute at base, subacute, apiculate at apex, pubescent on both sides with adpressed silvery hair, stipules very minute, flowers irregular, bisexual, large, brilliant yellow, 3.7 cm or more long, on stout, curved, pubescent pedicels, 3—8 in erect, lax, terminal racemes, bracts very small, bracteoles 2 on calyx-tube; sepals 5, fused into a campanulate tube, 2.5 cm long, shining with white hair, segments very deep, lanceolate-linear, acuminate; petals 5, distinct, imbricate descending, wing petals shorter than the standard, keel petals equalling wings, completely connate and prolonged into a sharp, curved beak; stamens 10, monadelphous, anthers dimorphous; ovary superior, unilocular with marginal ovules, style long, abruptly curved upwards at base, stigma minute; fruit an oblong, cylindrical legume, 2.5—3.1 cm long, not stalked, tipped with short, nearly straight style base, brown, densely covered with stout, stiff, white hair, seeds about 12.

Flowers from August to October.

*Illustrations.* Curtis, *Bot. Mag.*, pls. 490 and 1933; Roxburgh, *Pl. Corom.* 2: pl. 193. 1798; Kirtikar and Basu, *Indian Med. Plants*, pl. 288B. 1933; *Herb. Peradeniya*, drawing.

*Distribution.* Cultivated in the eastern tropics including India, Ceylon, etc. for its fibre. It is rather common in the low-country in Ceylon principally in the dry regions. Trincomalee, Kurunegala, Kalawana, Badulla, etc.

*India.* Bengal: *J. D. Hooker and T. Thomson*; Calcutta, *Bot. Gard.*, April 1903; Ganget. Plain, *T. Thomson*; Siwalick and Jaunsar Div., Doiwala, *Hassan* 41, Nov. 1920. Pen. Ind. Or., *Herb. Wight* 599, *Kew Distribution* 1866—7. Ceylon. *Thwaites C.P.* 1264. Uva Prov., Badulla, Nilgala, *Herb. Peradeniya*, Jan. 1888. Cuba. Santiago de las Vegas, cultivated, *Baker* 19, Sept. 1906.

*Composition.* The leaves contain mucilage, a solid fat, a resin and an alkaloid while the seeds contain protein, starch and fat.

*Uses.* The leaves are used internally and externally in the form of an infusion in gastric and bilious fevers accompanied by skin diseases such as impetigo and psoriasis. The root is an astringent and useful in colic and epistaxis. The seed is said to purify the blood and promote the growth of hair. In the East Indies, the root is used as a haemoptysis remedy. It is cultivated mainly for its fibre.

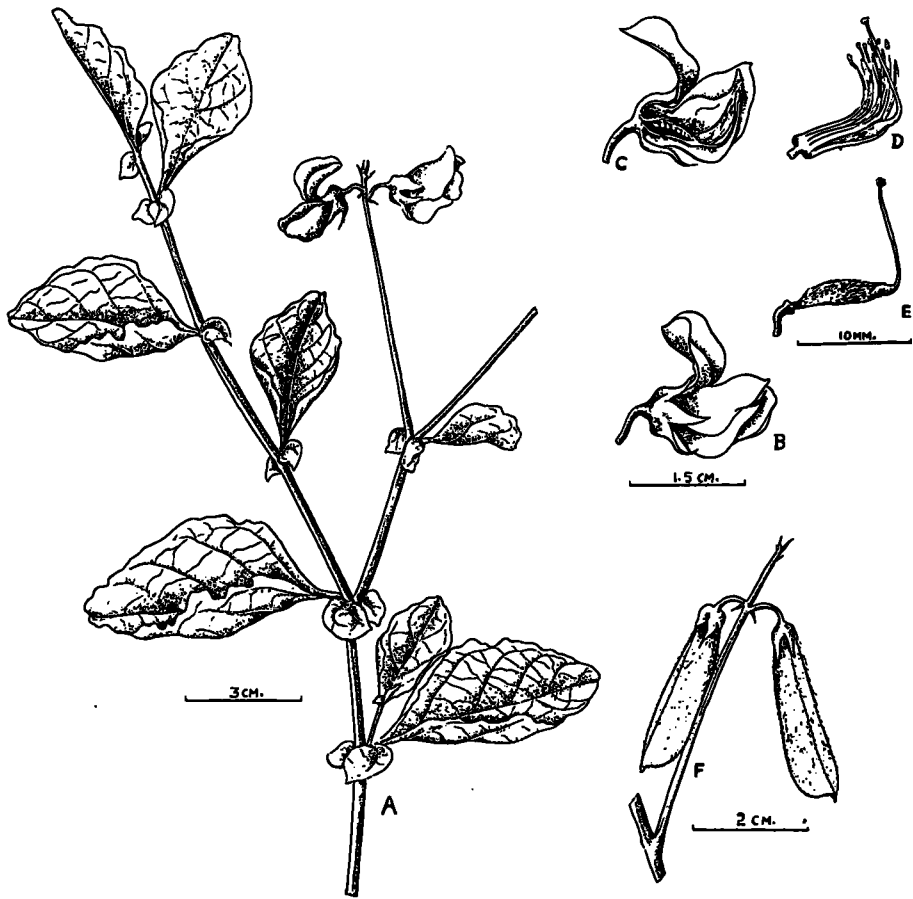


FIG. 307. *Crotalaria verrucosa*. A, branch with leaves and flowers. B, flower, lateral view. C, longitudinal section of flower. D, stamens and pistil. E, pistil. F, fruits.

30. *Crotalaria verrucosa* Linn. Sp. Pl. 715. 1753. (Fig. 307).

*Crotalaria angulosa* Lamk.—*Crotalaria coerulea* Jacq.—*Crotalaria acuminata* G. Don.

*Sinh.* Nil-andanahiriya; *Tam.* Kilukiluppai, Kilvenlappa; *Hindi* Banshana, Jhunjhunia; *Sans.* Brihatapushpi, Dhavani, Shanapushpi.

A large, much branched herb, 60—90 cm tall, branches divaricate, irregularly quadrangular, finely puberulous, buds silky; leaves alternate, stipulate, simple, 3.1—4.3 cm long, shortly petiolate, spreading, ovate-rhomboid or ovate-deltoid, tapering to base, obtuse, undulate with minute scattered pubescens on both surfaces, paler beneath with prominent veins, somewhat bullate above; stipules rather large, foliaceous, half-ovate or half-cordate, acute, persistent; flowers irregular, bisexual, rather large, bluish purple, 1.8—2.5 cm long, on short, curved, downy, pedicelled in erect, leaf-opposed (apparently terminal) slightly curved racemes, bracts linear, acuminate, shorter than pedicels; sepals 5, fused into a campanulate calyx-tube, minutely pubescent, segments narrowly triangular, acuminate, the upper rather shorter; petals 5, imbricate, wing petals shorter than the standard, keel petals equalling wings, completely connate and prolonged into a sharp, curved beak; stamens 10, monadelphous, anthers dimorphous; ovary superior, unilocular with marginal ovules, style long and abruptly curved upwards at base, stigma minute; fruit an inflated cylindrical legume, 3.1—3.7 cm long, oblong, rather dilated at the end, not stalked, hairy, nearly black; seeds about 12, yellow, loose in the pod and noisy when shaken.

Flowers throughout the year.

*Illustrations.* Curtis, Bot. Mag., pl. 3034. 1830; Wight, Ic. Pl. Ind. Orient., pl. 200. 1839; Kirtikar and Basu, Indian Med. Plants, pl. 288A. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs in India, Ceylon, Malaya, Burma, China, North Australia and tropical Africa. It is common in the low-country in Ceylon in open ground.

*India.* Bengal: Hook. f. and T. Thomson. Madras: G. Thomson. Ceylon. Thwaites C.P. 1273. Central Prov., Peradeniya, Herb. Peradeniya, April 1889; Mrs. Fernando, Dec. 1951; J. M. Silva, Nov. 1925. Burma. Tenasserim, Gallatly 43, Jan. 1877; Minbu Dist., Leggaing Village, Mokim 717, Nov. 1902. Laccadive Islands. Herb. Peradeniya, 1891. Philippine Islands. Luzon, Sulu Prov., Jolo, Ramos and Edano 44443, Sept. 1924. Cuba. Santiago de las Vegas, Baker 27, Aug. 1907.

*Composition.* The leaves, stems and fruits contain an alkaloid.

*Uses.* The juice of the leaves is used, internally and externally, for cases of scabies and impetigo.

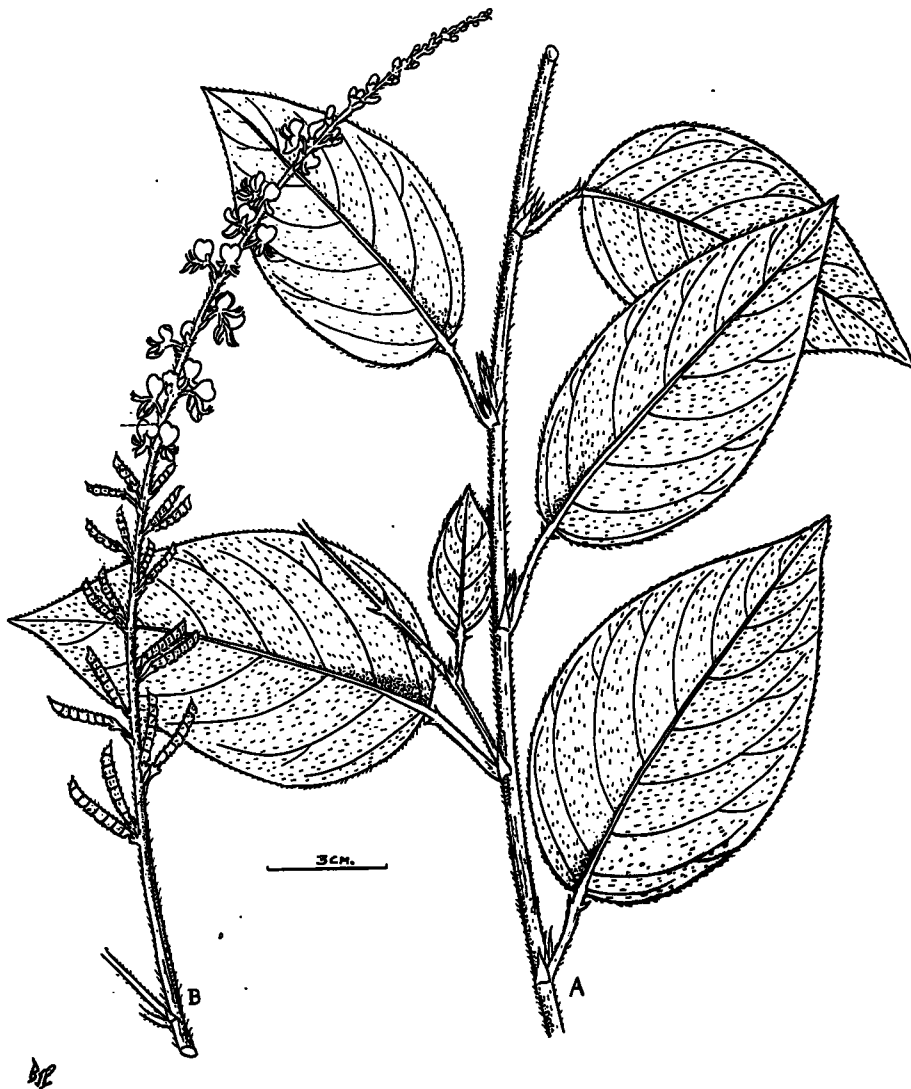


FIG. 308. *Desmodium gangeticum*. A, branch with leaves. B, inflorescence with flowers and fruits.

31. *Desmodium gangeticum* DC. Prodr. 2: 327. 1825. (Fig. 308).

*Desmodium latifolium* Wight—*Desmodium gangeticum* (L.) var.—*neaei* DC.—*Hedysarum gangeticum* Linn.—*Hedysarum collinum* Roxb.—*Hippocrepis multisiliquosa* Blanco—*Meibomia gangetica* O. Kuntze.

*Sinh.* Salaparni; *Tam.* Pulladi; *Hindi* Sarivana; *Sans.* Anshumati, Astamati, Devi, Dhruva, Dirghanghni, Dirghapatra, Dirghapatrika, Ekamula, Guha, Kitavinashini, Kumuda, Nishchala, Patini, Pivari, Sarvanukarini, Saumya, Shalani, Shalidala, Shaliparni, Shalipatri, Shophaghni, Shothaghni, Shubhapatrika, Sthira, Subhagam, Sudala, Sudha, Suparni, Suparnika, Supatri, Surupa, Tanvi, Triparni, Vataghni, Vidari, Vidarigandha, Vrihiparnika.

A slender undershrub, 0.6—1.2 m high with cylindrical, nearly glabrous stems and hairy young parts; leaves alternate, stipulate, 1-foliolate, petioles 1.8—3.1 cm long, hairy, leaflets 9—12 cm long, 3—6 cm broad, broadly oval or rotundate, rounded at base, subacute, glabrous above, silky and whitish beneath, stipules setaceous; flowers irregular, bisexual, small, on short, erect, hairy pedicels in lax, erect terminal, spicate racemes, bracts setaceous; sepals 5, fused into a campanulate calyx, hairy, segments lanceolate; petals 5, distinct, imbricate, keel petals obtuse; stamens 10, diadelphous; ovary superior, unilocular with marginal ovules, style curved upwards; fruit legume small, 1.2—2.5 cm long, usually somewhat curved, nearly straight, 4—8-jointed, rounded on ventral margin, indehiscent, set with minute hooked hairs.

Flowers in May.

**Illustrations.** Wight,  *Ic. Pl. Ind. Orient.*, pls. 271 and 272. 1840; Kirtikar and Basu, *Indian Med. Plants*, pl. 311. 1933.

**Distribution.** This herb occurs in India, Ceylon, Burma, Malay Peninsula, Philippine Islands, China and tropical Africa. It is apparently very rare in Ceylon but found in the montane zone.

**India.** Silhet, *Wallich 5689H.* *Ind. Bor. Occ.*, *T. Thomson: Moulmein, Falconer 588.* Madras: *Cleghorn 124.* Pen Ind. Or., *Herb. Wight 720,* Kew Distribution 1866—7. Ceylon. Central Prov., Matale East, *Thwaites C.P. 3813;* Middeniya, *Alston 717,* March 1927. Maldive Islands. Heddufuri, *Gardiner, 1899—1900.* Philippine Islands. Luzon, Cagayan Prov., Penablanca, *Ramos and Edano 46555,* April 1926. Panay: Capiz Prov., *Edano 46228,* Oct. and Nov. 1925. Anamba Islands: *Henderson 20242,* April 1928.

**Composition.** The root contains lactone, alkaloid bases, wax, resin, phytosterolin, volatile oil and colouring matter, while the seed yields a fixed oil, sugar and an alkaloid.

**Uses.** This plant has anti-pyretic and anti-catarrrhal properties. The roots taken internally in decoction act as a cholagogue, expectorant and diuretic. They are of value for chronic congestion of the liver, jaundice, gall bladder stones, laryngitis, bronchitis, pneumonia, typhoid and other fevers. In Java, a decoction of the leaves is given for stones in the gall bladder, kidneys and in the bladder. In Malaya, the root is used in diarrhoea and fevers and placed direct on the gums for toothache.

The roots of *Alysicarpus vaginalis* are used mistakenly for those of *Desmodium gangeticum* in Ceylon.

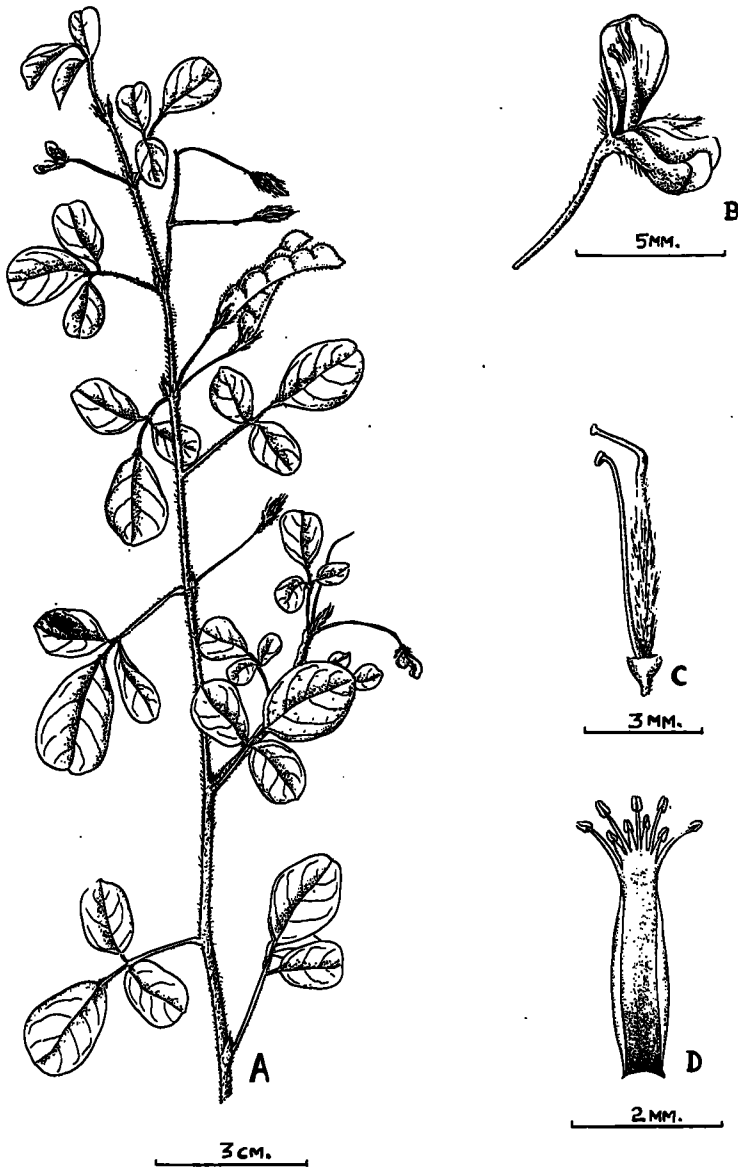


FIG. 309. *Desmodium heterophyllum*. A, branch with leaves, flowers and fruits. B, flower, lateral view. C, pistil and stamen. D, nine stamens fused into a tube.

32. *Desmodium heterophyllum* DC. Prodr. 2: 334. 1825. (Fig. 309).

*Desmodium triflorum* var. *majus* W. & A.—*Desmodium triflorum* Wall.—*Desmodium caespitosum* DC.—*Hedysarum heterophyllum* Willd.—*Hedysarum reptans* Roxb.—*Dicerma repens* Grah.—*Meibomia triphylla* O. Kuntze.

*Sinh.* Maha-undupiyali.

A perennial herb with slender, prostrate stems rooting at lower nodes and densely covered with spreading hairs; leaves alternate, stipulate, trifoliate, rachis 1.2—1.8 cm long, hairy, stipules broadly lanceolate, acute, ciliate, persistent, leaflets 1.2—2.5 cm long (terminal one the largest), oval or ovate-oval, rounded at both ends, glabrous above, sparingly hairy beneath; flowers small, pale purple, on very slender pedicels, 1.2—2.5 cm long, 2—4 together in axillary racemes or umbels, bracts inconspicuous; sepals 5, fused into a campanulate calyx, very hairy, segments narrow, setaceous; petals 5, free, imbricate descending, the keel petals fused along their lower margins; stamens 10, diadelphous; ovary superior, unilocular with marginal ovules; fruit a compressed legume, 1.8—2.5 cm long, straight, not at all dented on dorsal but considerably so on ventral margin, joints 3—6, as broad as long, faintly reticulate, slightly hairy, indehiscent breaking away into one seeded segments.

Flowers from February to May.

*Illustrations.* Wight, Ic. Pl. Ind. Orient., pl. 291. 1840; Herb. Peradeniya, drawing.

*Distribution.* Occurs in India, Ceylon, Malaya, China, Mascarene and Philippine Islands. It is very common in Ceylon in the low-country, upto 2000 feet altitude.

*India.* Misor and Carnatic: *G. Thomson*; Concan: *Stocks*. *Ceylon.* Central Prov., Peradeniya, *Thwaites C. P.* 2778; Fort Macdonald, *A. M. Silva*, May 1906; Galaywatte, *J. M. de Silva*, Feb. 1929; Pamunugama, *Simpson* 7955, April 1931. *Indo-China.* Hue and vicinity, *Squires* 75, Jan.—May 1927.

*Uses.* The leaf is used for dysentery and to increase the flow of milk in mothers after child-birth. A decoction of the plant is given for stomachaches and other abdominal complaints in Malaya. The roots and leaves are pounded together and applied on sores.

MEDICINAL PLANTS

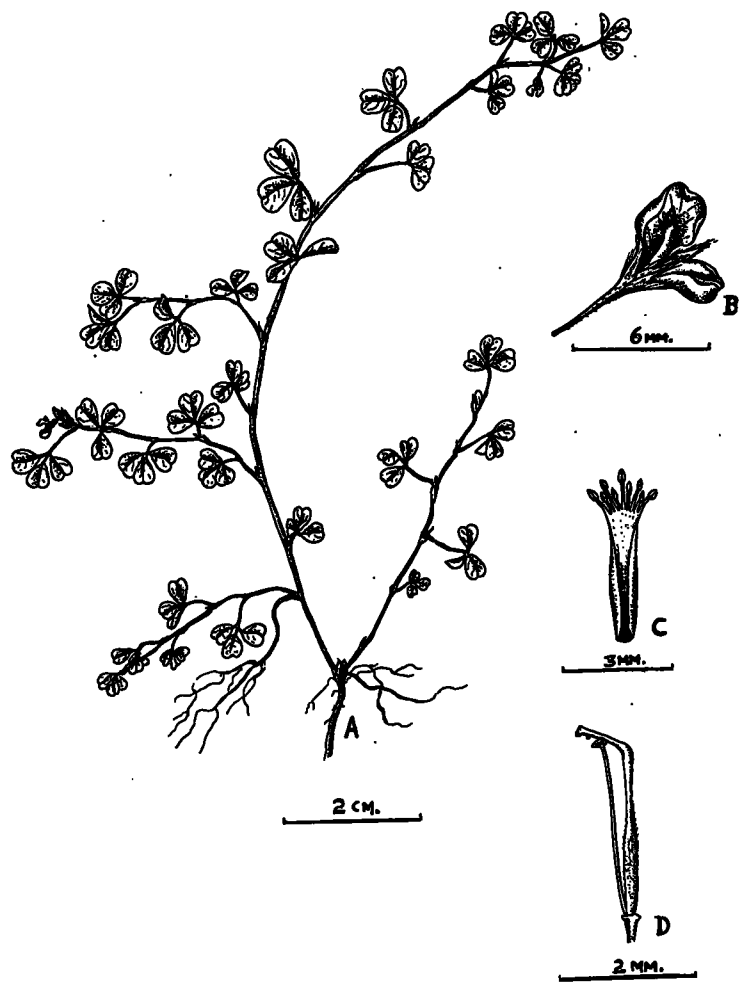


FIG. 310. *Desmodium triflorum*. A, branch with roots, leaves and flowers. B, flower, lateral view. C, nine stamens fused into a tube. D, pistil and a single free stamen.

33. *Desmodium triflorum* (Linn.) DC. Prodr. 2: 334. 1825. (Fig. 310).

*Desmodium triflorum minus* W. & A.—*Desmodium heterophyllum* Wall.—*Desmodium parvifolium* Blanco—*Hedysarum triflorum* Linn.—*Hedysarum stipulaceum* Burm.—*Nicolsonia reptans* Meissn.—*Sagotia triflora* Walp. & Duch.—*Hippocrepis humilis* Blanco—*Meibomia triflora* O. Kuntze.

*Sinh.* Hin-undupiyali; *Tam.* Serupillady; *Hindi* Kudaliya; *Sans.* Amalana.

A very small perennial herb, 15—45 cm long with numerous, long, slender, prostrate branches rooting at nodes, clothed with white spreading hairs; leaves small, alternate, stipulate, trifoliate (lower ones often 1-foliate), rachis less than 1.2 cm, stipules ovate, acuminate, persistent, leaflets 0.6—1 cm long, broadly oval or obovate or obcordate, glabrous above, slightly silky beneath; flowers irregular, bisexual, very small, bright purple, on long, very slender, hairy pedicels, 1—5 (usually 3) together in axils of leaves, bracteoles minute; sepals 5, fused into a campanulate calyx 3—4 mm long with few bristly hairs, segments long and setaceous; petals 5, consisting of one broadly obovate standard, 2 wings and 2 fused keel petals, imbricate; stamens 10, diadelphous; ovary superior, unilocular with marginal ovules; fruit legume 0.8—1.2 cm long, nearly straight, not indented on dorsal, slightly so on ventral margin, joints 2—4, as long as broad, reticulate, glabrous.

Flowers from June to October.

**Illustrations.** Wight, Ic. Pl. Ind. Orient., pl. 292. 1840; Burmann, Fl. Ind. pl. 54, f. 2. 1785; Kirtikar and Basu, Indian Med. Plants, pl. 310B. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs in the tropics generally including India, Ceylon, and Philippine Islands. It is very common in the low-country in Ceylon.

**India.** Nepal: *Wallich* 5734H. 1821. Bengal: *J. D. Hooker*; Calcutta, *Clarke* 3639, April 1866; Chota Nagpore, *Clarke* 25197B & C., Dec. 1874. Ceylon. *Thwaites* C.P. 2779. Central Prov., Peradeniya, *John Singho*, Nov. 1927; Elpitiya, *Herb. Peradeniya*, Nov. 1920. Western Prov., Jaela, *Rajapakse*, Dec. 1913. Maldive Islands. *Gardiner*, 1899—1900; Minikoi, *Gardiner*, 1899.

**Uses.** An aromatic stomachic, cholagogue and laxative, and is useful in anorexia, chronic dyspepsia and congestion of the liver. It is a reputed aphrodisiac. The root is a carminative and diuretic. The leaves ground into a paste with cinnamon bark and roasted in gingelly oil, are applied on chronic ulcers to promote healing. A decoction of the plant is used as a cure for dysentery and diarrhoea in Java and Philippine Islands, while in Malaya a decoction of the root is given for stomachache. The leaves are used both, internally and externally for snake-bite poisoning, particularly that of the Russell's viper.

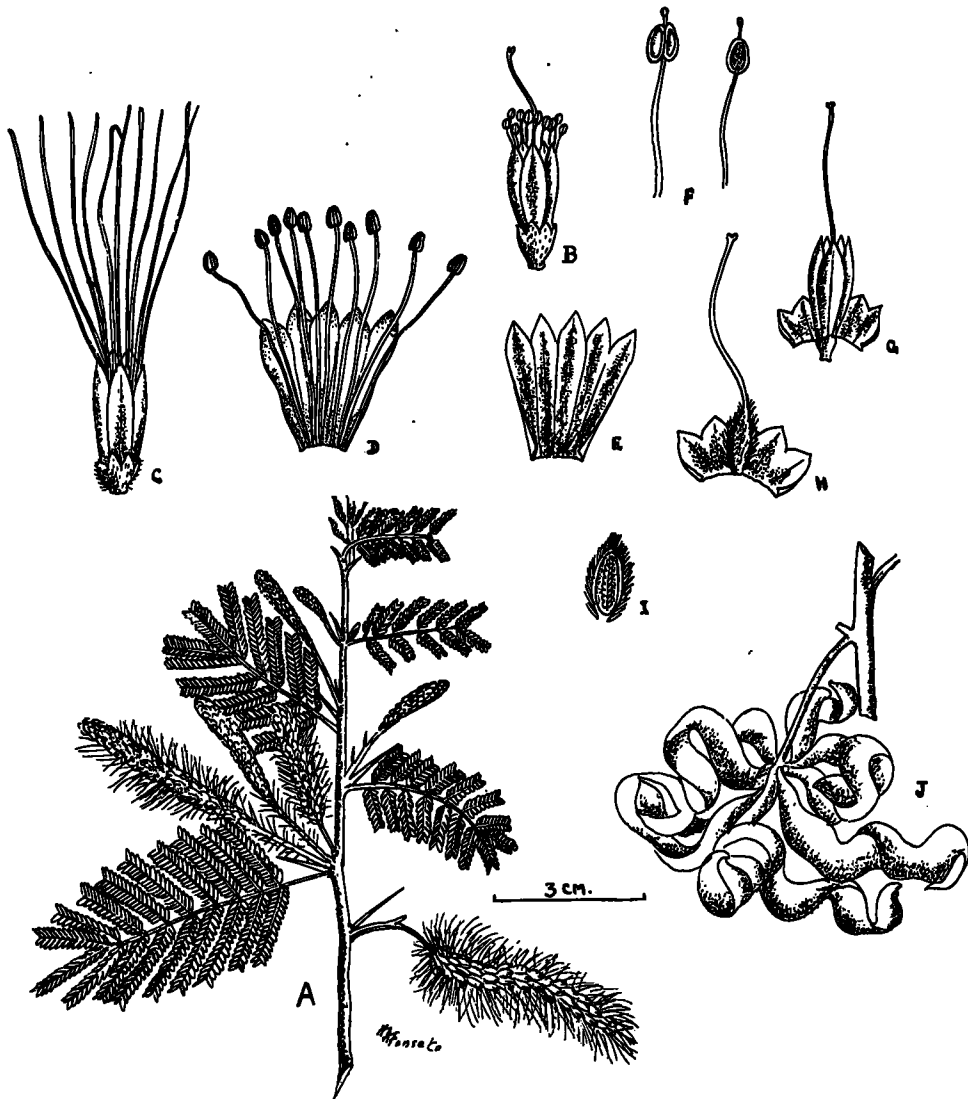


FIG. 311. *Dichrostachys cinerea*. A, branch with leaves and flower spikes. B, fertile flower, lateral view. C, barren flower, lateral view. D, corolla of fertile flower opened out showing the stamens. E, corolla of barren flower opened out. F, stamens. G, calyx opened out showing corolla and style. H, calyx opened out with corolla and stamens removed showing the pistil. I, longitudinal section of ovary. J, fruits. B—I, enlarged.

34. *Dichrostachys cinerea* Wight and Arn. Prodr. 271. 1834. (Fig. 311).

*Mimosa cinerea* Linn.—*Desmanthus cinereus* Willd.—*Acacia cinerea* Spreng.—*Acacia dalea* Desv.

*Sinh.* Andara; *Tam.* Anatter, Mavilandam, Vadataram, Varittula, Veduttalam, Vidattalai, Vidatter; *Hindi* Kheri, Vartuli; *Sans.* Bahuvāraka, Dirghamula, Krichhari, Kshudha-kushala-sandnaka, Mahakapitha, Vallataru, Vellataru, Viradru, Viravriksha.

A much branched thorny shrub or small tree with numerous, divaricate, branches, yellowish bark, ultimate twigs sharply spinous at the ends, many reduced to short, woody, axillary spines, young parts pubescent; leaves small, alternate, bipinnate, mostly from the suppressed branchlets, rachis 2.5—3.7 cm long, slender hairy, with a small erect gland between the bases of each pair of pinnae, pinnae 8—16 pairs, 1.2—1.5 cm long, sessile, hairy, leaflets minute, numerous, 12—20 pairs, closely placed, sessile, linear, oblique, subacute; flowers bisexual, somewhat regular, numerous, sessile, crowded in dense spikes about 2.5 cm long on drooping peduncles coming off from the suppressed branchlets below the leaves, barren flowers bright purplish pink, fertile ones yellow, bracts minute, setaceous; sepals 5, fused into a campanulate calyx-tube, pubescent, segments short, triangular; petals 5, connate for 3/4 length from the base; stamens 10, free, represented in barren flowers by long staminodes, filiform, anthers with a stalked gland on summit; ovary superior, unilocular with marginal ovules, hairy; fruit legume 5—7.5 cm long, 1 cm wide, glabrous, dark brown, linear, indehiscent, somewhat jointed, twisted up spirally when ripe, containing 6—10 seeds.

Flowers from December to March and again in August and September.

**Illustrations.** Beddome, *Flor. Sylvat.*, pl. 185. 1868—1873; Roxburgh, *Pl. Corom.*, pl. 174. 1798; Kirtikar and Basu, *Indian Med. Plants*, pl. 372. 1933; *Herb. Peradeniya*, drawing.

**Distribution.** Occurs in India, Ceylon, Malay Islands, North Australia and Africa. It is very common in the dry regions in Ceylon, mostly in barren places. Jaffna, Trincomalee, Batticaloa, Kurunegala, etc.

**India.** Maisor and Carnatic: *G. Thomson*. *Pen. Ind. Or.*, *Herb. Wight* 878, *Kew Distribution* 1866—7. *Ceylon. Thwaites C.P.* 1523. North-Central Prov., Tiripane, *Herb. Peradeniya*, Aug. 1885. Central Prov., Peradeniya, Bot. Gard., cultivated, *Senaratne* 10, 031, Feb. 1953. Southern Prov., Kirinde, *Herb. Peradeniya*, Dec. 1882. *Burma.* Minbu Dist., Salin Road, *Mokim* 688, Nov. 1902.

**Uses.** The bark of this tree in decoction is used for washing itches, sores, etc., and applied on boils. The young leaves are bruised and applied to eyes for ophthalmia. In tropical Africa, the leaf is used for indigestion and diarrhoea. In Tanganyika, the root of the plant is used for chest complaints and the branches for gonorrhoea and syphilis. A decoction of the bark is given internally for elephantiasis and the powdered bark applied on skin diseases. The root is also considered as an aphrodisiac. In Central Africa, a decoction of the root is given for leprosy and syphilis. In Liberia, the plant is employed as a remedy for catarrh, sore throat, colic, diarrhoea and venereal diseases. In Sudan, it is used for urethral complaints and as an anthelmintic. The plant is recommended for abdominal complaints, bronchitis, pneumonia, epilepsy, internal abscesses, anti-dysenteric and diuretic. It is also frequently used as a snake-bite remedy.



FIG. 312. *Dolichos biflorus*. A, plant with leaves and pods. B, flower, lateral view. C, longitudinal section of flower. D, longitudinal section of pod showing seeds.

35. *Dolichos biflorus* Linn. Sp. Pl. 727. 1753. (Fig. 312).

*Dolichos uniflorus* Lam.—*Johnia congesta* Dalz. & Gibs.—*Glycine uniflora* Dalz.

*Engl.* Horse Gram, Madras Gram; *Sinh.* Kollu; *Hindi* Gahat, Kulthri; *Sans.* Kalavrinta, Kulathika, Kulitha, Sitesara, Svetabija, Tamabija, Tamravriksha, Tamavrinta.

An annual hairy herb with nearly erect stems and climbing branches; leaves compound, trifoliolate, leaflets nearly equal, often lobed; 2.5—5 cm long, ovate-lanceolate, entire, acute, lateral leaflets nearly sessile and the terminal one stalked; flowers yellow, 1.2—1.8 cm long, solitary or in small, axillary, nearly sessile clusters, bracts lanceolate; calyx-tube very short, teeth 5, long, nearly equal, very narrow, the two upper partially united; petals longer than calyx, standard ovate, spreading with two small membranous, fringed, dark brown pouches in the centre, keel petals slightly incurved, obtuse; stamens 10, upper stamen free, others united; ovary superior, unilocular, with marginal ovules, style slender, incurved, glabrous except for a ring of minute hairs just below the terminal stigma; pod flat, curved, scimitar-shaped, 3—5 cm long, 0.6 cm broad, hairy, tipped with persistent hook-like style base, seeds 5—7, compressed, reniform, grey or reddish brown.

Flowers in August and September.

*Illustrations.* Kirtikar and Basu, *Indian Med. Plants*, pl. 327. 1933; *Herb. Peradeniya*, drawing.

*Distribution.* Cultivated in all tropical countries, including India and Ceylon.

*Ceylon.* North-Western Prov., Kurunegala Rock, *Herb. Peradeniya*. Dec. 1883. Western Prov., Colombo, *Thwaites C.P.* 1475; Homagama, *Alston* 1237, April 1926.

*Uses.* An infusion of the seed is employed in rheumatic complaints, enlargement of the spleen and pain in the liver. A decoction of the seed is given in menstrual derangements and to promote the discharge of lochia. The flour obtained from the seed is applied on the body to relieve profuse sweating. Internally it acts as a stomachic and carminative.

MEDICINAL PLANTS

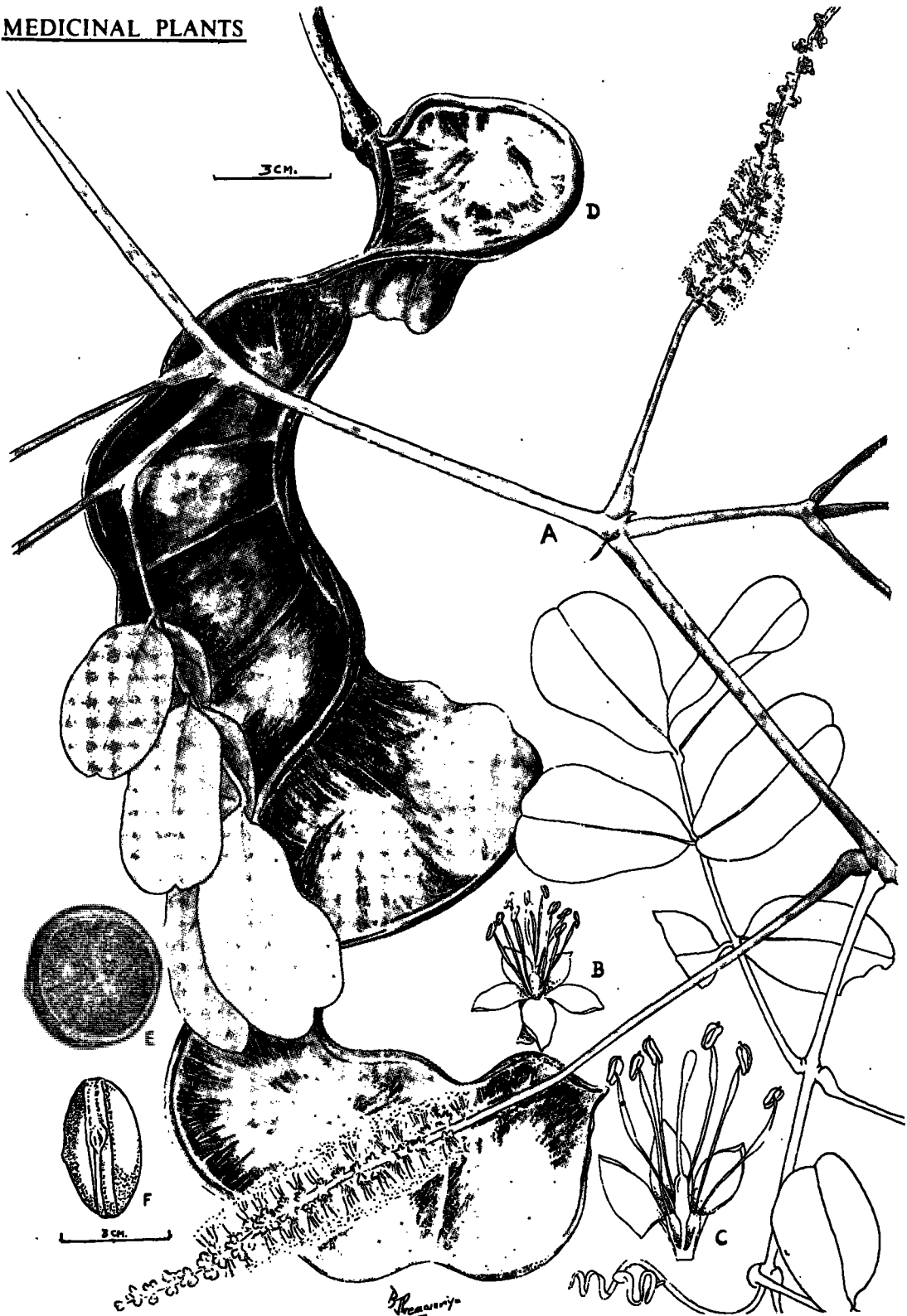


Plate IX. *Entada phaseoloides*. A, twig with leaves and inflorescences. B, flower, front view. C, longitudinal section of flower. D, fruit. E, seed, lateral view. F, seed, from front showing the hilum. B & C, enlarged.



Plate IX. *Entada phaseoloides*. A, twig with leaves and inflorescences. B, flower, front view. C, longitudinal section of flower. D, fruit. E, seed, lateral view. F, seed, from front showing the hilum. B & C, enlarged.

36. *Entada phaseoloides* (Linn.) Merr. in Philip. Journ. Bot. 9: 86. 1914 non *Lens phaseoloides* Linn. (Plate IX).

*Entada pursaetha* DC.—*Entada scandens* Benth.—*Entada gigas* Fawcett and Rendle.—*Entada monostachys* DC.—*Mimosa scandens* Linn.—*Mimosa entada* Linn.—*Gigalobium scandens* Hitch.—*Acacia scandens* Moon.

Engl. Mackay Bean; Sinh. Maha-puswel; Tam. Irikki, Sillu.

An immense woody climber with a thick trunk and long twisted snake-like branches; leaves alternate, stipulate, bipinnate compound, large, main rachis 15—25 cm long, stiff and semi-woody ending in a bifid spiral tendril by which the plant climbs, pinnae 2 or 3 pairs with stiff glabrous rachis 7.5—10 cm long and much thickened at base, leaflets 6—8 (3 or 4 pairs), 3.7—5 cm long, obovate-oblong, acute at base, rounded often emarginate at apex, glabrous, paler beneath with the lateral veins conspicuous; flowers somewhat regular, bisexual, greenish white, sessile, crowded in long, narrow, pedunculate axillary spikes 15—25 cm long; sepals 5, fused into a campanulate calyx, teeth minute; petals 5, equal, valvate, slightly connate at base; stamens 10, free, twice as long as petals, anthers with a globular gland on top; ovary superior, subsessile, unilocular with numerous marginal ovules, style filiform, stigma terminal, concave; fruit an indehiscent, woody legume, 45—60 cm long, 6.2—7.5 cm wide, curved, often twisted, compressed, indented on both sutures between seeds, joints 6—12, turgid, 1-seeded, glabrous, brown; seeds very large, 4.3—5 cm across, circular, compressed, smooth and shining, brown, testa, thick and woody.

Flowers between February and April.

Illustrations. Rheede, Hort. Mal. 8: pl. 32—34; 9: pl. 77. 1678—1703; Kirtikar and Basu, Indian Med. Plants, pl. 369. 1933; Herb. Peradeniya, drawing.

Distribution. Occurs in India, Nepal, Ceylon and Malacca. It is common in Ceylon in the low-country up to 2000 feet altitude.

India. Sikkim: J. D. Hooker. Concan: Stocks. Assam; Prain's Collector, March 1899. Ceylon. Thwaites C.P. 2661; Walker. Uva Prov., Moneragala, Malwatuhele, Wirawan 733, Nov. 1968; Kalugammana, J. M. de Silva, Feb. 1927.

Composition. The bark and seeds contain saponin and an alkaloid. The seeds also contain a fatty oil.

Uses. A paste of the seed is applied externally on glandular swellings and pain in the loins and joints due to general debility. The powdered kernel of the seed mixed with spices is given to women after childbirth for allaying body pains and warding off colds. In South Africa, it is used as a remedy for cerebral haemorrhage. In Java, it is used as an emetic and in the Philippine Islands an infusion of the stem is employed for various ailments of the skin. The plant is also used as a fish poison and as a vermifuge for young calves. The bark forms an excellent cordage.

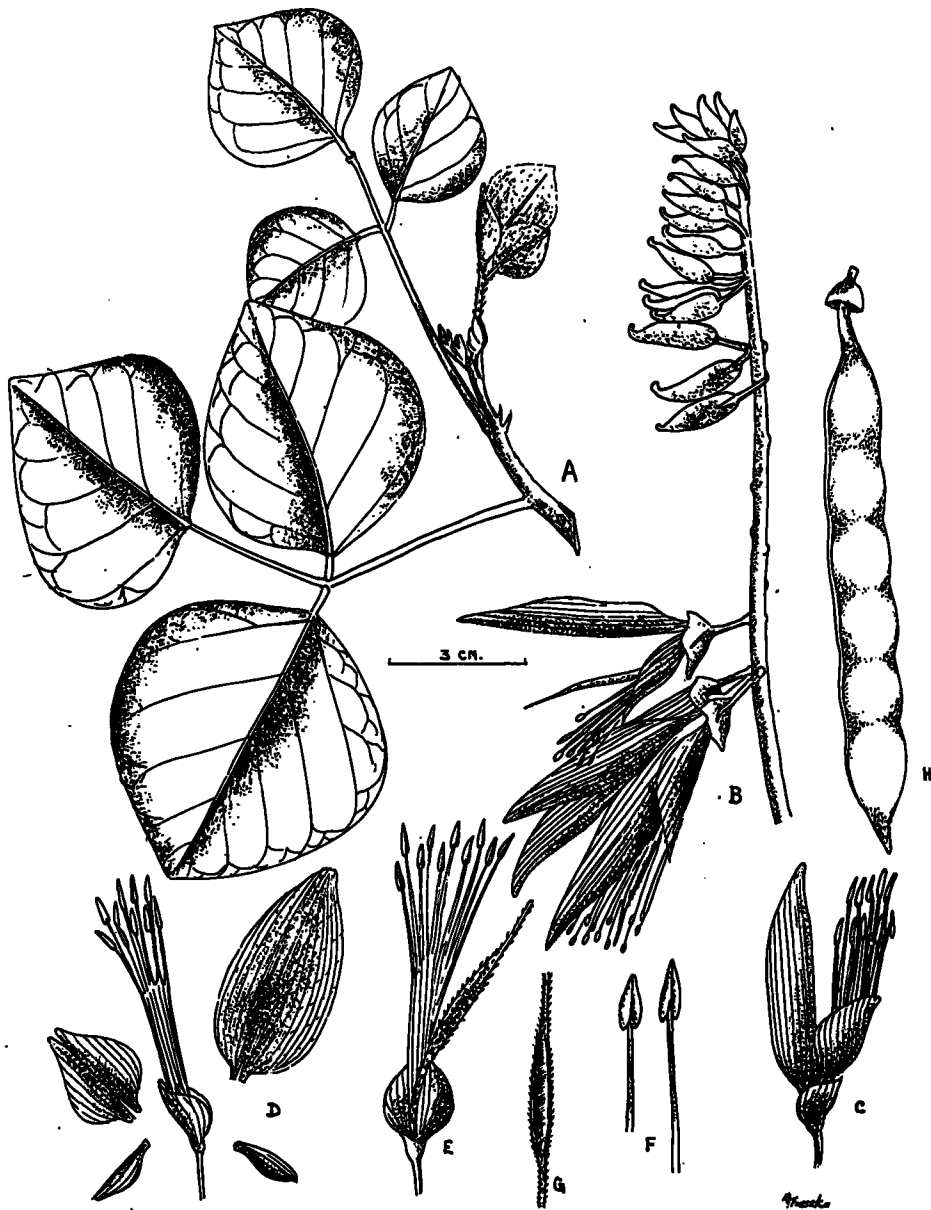


FIG. 313. *Erythrina variegata*. A, twig with leaves. B, inflorescence. C, flower, lateral view. D, flower, dissected E, flower with corolla removed showing the calyx, stamens and pistil. F, stamens. G, longitudinal section of pistil. H, fruit..

37. *Erythrina variegata* Linn. in Stickm. Herb. Amb. 122. 1754 (Fig. 313).

*Erythrina variegata* Linn. var. *orientalis* (Linn.) Merr.—*Erythrina indica* Lam.—*Erythrina spathacea* Wall.—*Erythrina corallodendron* Linn. var. *orientalis* Linn.—*Erythrina cuneata* Blanco.—*Tetradapa javanorum* Osbeck.

*Engl.* Indian Coral Tree; *Sinh.* Erabadu, Eramudu; *Tam.* Kaliyanamurukku, Kavir, Munchi, Mullumurukku, Murukku, Palasam, Palasu, Parisadam, Savusayam, Sinsugam, Vallai, Venittu; *Hindi* Goncha, Kawanch, Konch; *Sans.* Bahupushpa, Kantaki, Kantakinshuka, Krimighna, Krimishatru, Mandara, Nimbataru, Palasha, Palitmandara, Paribhadra, Parijaba, Prabhadraka, Raktakeshar, Raktakusuma, Raktapushpa.

A large tree with a thin, smooth, grey bark and the young twigs set with small, straight, horizontal, broad-based, sharp, black prickles, leaf scars conspicuous; leaves alternate, exstipulate, pinnately 3-foliolate with stipels, very large, deciduous, rachis 15—20 cm long, smooth, dilated at the base, leaflets 10—15 cm long, 9—12 cm broad on short swollen stalks, readily disarticulating, roundish ovate, acute, glabrous, green on both sides, the terminal one the largest, stipels thick, roundish, persistent, stipules absent or early caducous; flowers irregular, bisexual, scarlet, numerous on stout puberulous horizontally spreading pedicels arranged in twos or three, and closely crowded on the upper half of very stout, rigid, puberulous racemes 15—30 cm long, 2—4 of which divert horizontally from the summit of the branches; sepals 5, fused into a tubular calyx, 3.1 cm long, irregularly splitting, covered with deciduous tomentum, upper segment subulate sharp but not rigid, the two laterals similar but smaller, the lowest one longer, doubled over the rest to form a blunt point to the bud, soon splitting along the back (between the upper teeth) to the base and the whole turned down like a spathe; petals 5, very unequal, standard nearly 7.5 cm long, wings less than 2.5 cm, keel petals 1.8 cm distinct; stamens 10, diadelphous but the upper one often connate with the rest half way up, much exserted and projecting in front of the flower, 6.8 cm long; ovary superior, unilocular with marginal ovules, style beardless, stigma capitate; fruit cylindrical, distinctly torulose with a sharp, curved beak, seeds 3—8, bean-like, about 2.5 cm long.

Flowers in February.

*Illustrations.* Wight, Ic. Pl. Ind. Orient., pl. 58. 1838; Kirtikar and Basu, Indian Med. Plants, pl. 318. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs along the coastal forests of India, Ceylon, Burma and Malacca. It is cultivated in the Philippine Islands. It is very common in Ceylon in the low-country.

*India.* Misor and Carnatic: *G. Thomson*. Ceylon. Eastern Prov., Trincomalee, *Thwaites* C.P. 1464. Maldivé Islands. Berebedi, *Didi* 13, 1896.

*Composition.* The fruits contain a fatty acid and a saponaceous glucoside, while the seeds contain the alkaloid hypaphorine. The leaves and bark on the other hand contain erythrinine, a poisonous alkaloid which acts on the nervous system. Hydrocyanic acid has also been found in the leaves, stems, roots and fruits.

*Uses.* The fresh bark and leaves ground into a paste with water are applied on glandular swellings and local inflammations of the skin. Internally, they act as an expectorant and useful in chronic bronchitis and bronchial asthma. The fresh juice of the leaves is used to relieve earache and as an anodyne in toothache. Mixed with castor oil, it is a cure for acute and chronic dysentery. A conjee prepared from the juice of the leaves is given once a week to infants in order to prevent them getting worms. In Malaya, the bark is used for toothache and a decoction of the leaves for coughs and asthma. Leaves are also used for poulticing sores. The seeds are employed externally and internally for cancer.



FIG. 314. *Glycyrrhiza glabra* var. *glandulifera*. A, branch with leaves and racemes. B, lateral view of flower and lower down one showing persistent sepals. C, petals. D, fused stamens. E, pistil. F, fruit. G & H, seeds. I, section of seed. J, portion of the root and base of the stem. B—D; H—I, enlarged.

38. *Glycyrrhiza glabra* Linn. var. *glandulifera* Regel and Herder Pl. Semen 37. (Fig. 314).

*Glycyrrhiza glabra* Linn.—*Glycyrrhiza glandulifera* W. & A.—*Glycyrrhiza violacea* Boiss.—*Liquiritia officinalis* Moenc.

*Engl.* Liquorice; *Sinh.* Welmi; *Tam.* Adimaduram, Atimaduram; *Hindi* Jothimadh, Mulhathi; *Sans.* Jālayasti, Klitaka, Madhuka, Madhusrava, Maduhyashti, Madhuyashtika, Sthalayashti, Yashtika, Yashtimadhu, Yashtirasakrya, Yashtyawa.

A perennial herb with a thick rootstock passing below into long, straight, cylindrical, slightly tapering, smooth, flexible, slightly branched roots about 1.2 cm diam., red or orange-brown on the surface, pale yellow within, sweet, giving off at the top long, horizontal subterranean stolons; stems several from the crown, 60—120 cm or more high, erect, stiff, solid, strongly striate, shortly pubescent and branched; leaves alternate, spreading, large, stalked with very minute deciduous stipules, imparipinnate, leaflets opposite in 4—7 pairs and a terminal one, shortly stalked, oblong-oval or oblong-ovate, obtuse, entire, smooth except when young, dark green on both surfaces, glutinous beneath, rachis stout, not furrowed, thickened below; flowers irregular, bisexual, pale lilac, very shortly stalked in rather lax, erect racemes which are 2.5—7.5 cm long and long stalked but shorter than leaves, bracts linear, acute, scarious, brown; calyx tubular, cut about half way down into 5 unequal teeth; the lowest one longest, upper two connate, pubescent, glandular and green; petals 5, standard oblong-oval, blunt, erect with a claw, wings falcate-oblong, shorter than the standard, keel petals quite distinct, a little shorter than the wings and slightly locked with them; stamens 10, nine united into a sheath, the tenth free; ovary superior, unilocular with marginal ovules, stigma capitate; fruit pod about 2.5 cm long, linear-oblong, compressed, thickened at the edges, pointed, smooth, pale brown, indehiscent, containing 2—5 seeds, seeds roundish, quadrangular, compressed, about 3 mm wide, smooth, dark brown.

**Illustration.** Bentley and Trimen, *Med. Plants*, pl. 74. 1880.

**Distribution.** A native of warmer Mediterranean regions. North Africa, Spain, Italy, Greece, Syria, South Russia, Asia Minor, Persia and Afghanistan. It is cultivated in Italy, France, Russia, Spain, Germany, China, etc. It does not grow in Ceylon but the root is imported from the Mediterranean regions.

**Hungary.** Lang, without locality. East Turkestan. Chuchuk Buya, Scully. Afghanistan. *Herb. Griffith* 1491. Kew Distribution 1862—3.

**Composition.** The root contains glycyrrhizin, a sugar, asparagin, starch, tannic acid and a small quantity of resinous oil. In addition, it contains phytosterol and oestrogen, the female sex hormone.

**Uses.** The root is a pectoral, demulcent and emollient. An infusion of it is used as a gargle for stomatitis and pharyngitis and as a collyrium in conjunctivitis. Internally, it acts as a cholagogue laxative and useful in congestion of the liver. It is valuable in chronic dysentery and is a useful expectorant in laryngitis and bronchitis. It is largely employed as a uterine tonic in menstrual irregularities, sterility and as an aphrodisiac. In Africa, the root is a remedy for appendicitis, pulmonary tuberculosis and eye diseases. In Vietnam, the powdered root is used as a laxative, sudorific and diuretic.



Plate X. *Indigofera aspathaloides*. A, branch with leaves and flowers. B, branch with legumes.



Plate X. *Indigofera aspathaloides*. A, branch with leaves and flowers. B, branch with legumes.

39. *Indigofera aspathaloides* Vahl ex DC. Prodr. 2: 231. 1825 (Plate X).

*Indigofera aspathifolia* Roxb.—*Aspalathus indicus* Linn.—*Lespedeza juncea* Wall.

*Sinh.* Ratkohomba; *Tam.* Iraivanvembu, Shivanarbembu; *Sans.* Ratkohomba, Sivanimbu.

A low, much branched shrub with divaricately spreading and rigid branches and snowy white young twigs, due to a felt of copious short hair which is deciduous and shows the branches glabrous, shining and purple; leaves alternate, imparipinnate, minute, sessile, crowded on the twigs but soon caducous, digitate, leaflets 1—5, usually 3, 2.5 mm long, sessile, linear, often involute with a few large, white adpressed hairs, rather fleshy, stipules short, adnate to petioles; flowers irregular, bisexual, solitary, dark pink or bluish, 0.6 cm long, on slender axillary pedicels longer than leaves; sepals 5, fused into a more or less campanulate tube, segments linear; petals 5, distinct, nearly equal, imbricate, keel petals connate, produced at base into a spur, not beaked; stamens 10, diadelphous, anthers uniform; ovary superior, unilocular with marginal ovules, style short, stigma capitate; fruit a legume 1.2 cm long, dehiscent, nearly linear, apiculate, straight, turgid, nearly glabrous, pale brown, seeds about 8.

Flowers between November and February.

**Illustrations.** Wight,  *Ic. Pl. Ind. Orient.*, pl. 332. 1840—1843; Kirtikar and Basu, *Indian Med. Plants*, pl. 296. 1933; *Herb. Peradeniya*, drawing.

**Distribution.** Occurs in India and Ceylon. It is rare in Ceylon confined to the dry regions especially in the sandy flats of Jaffna, Batticaloa, Talaimannar, etc.

**India.** *Maisor and Carnatic:* *G. Thomson.* *Ceylon.* *Thwaites C.P.1453.* Northern Prov., Jaffna, *A. de Alwis*, Jan. 1914; *Herb. Peradeniya*, Feb. 1890; *Kanekesanthurai*, *A. de Alwis*, March 1923; *Talaimannar*, *J. M. Silva*, July 1916.

**Uses.** A decoction of the leaves and flowers is given for leprosy and cancerous affections. The root is an instant remedy for toothache. A decoction of the whole plant is given as an alterative in secondary syphilis, psoriasis, etc. The leaves are applied on abscesses and an oil obtained from the roots on skin diseases and to anoint the head for erysipelas.

MEDICINAL PLANTS



B.P.

FIG. 315. *Indigofera enneaphylla*. A, branch with leaves and flowers. B, dehiscent fruit.

40. *Indigofera enneaphylla* Linn. Mant. 2: 571. 1771. (Fig. 315).

*Indigofera semitrijuga* Forsk.—*Indigofera caespitosa* Wight—*Hedysarum prostratum* Linn.

*Sinh.* Binawari; *Tam.* Cheppunerunji; *Sans.* Bhin-guli, Vasuka.

A prostrate, much branched annual or perennial with numerous, white, hairy stems; leaves small, alternate, imparipinnate, 1.2—1.8 cm long, leaflets 7—9, nearly sessile, alternate, minute, narrowly obovate, cuneate at base, retuse and apiculate at apex, stiff, stipules rather large, lanceolate, acuminate; flowers irregular, bisexual, very small, bright red, nearly sessile, 10—20 crowded in a short close spicate head, peduncle short, bracts lanceolate, acuminate, scarious; sepals 5, fused into a more or less campanulate calyx-tube set with long, stiff, white hairs, segments very long, setaceous; petals 5, nearly equal, distinct, imbricate, keel petals connate and produced at base into a spur, not beaked; stamens 10, diadelphous, anthers uniform; ovary superior, unilocular with marginal ovules, style short, stigma capitate; fruit a legume about 3 mm long, ovoid-oblong, with a sharp apiculus, more or less clothed with white adpressed hair, 2 seeded with a partition in between the seeds.

Flowers all the year round.

*Illustrations.* Wight,  *Ic. Pl. Ind. Orient.*, pl. 403. 1840—43; Burmann f.,  *Fl. Ind.*, pl. 55, fig. 1, 1765; Kirtikar and Basu,  *Indian Med. Plants*, pl. 295. 1933.

*Distribution.* Occurs in India, Ceylon, Burma, Malay Islands and Australia. It is common in Ceylon in dry districts and on the seashore.

*India.* Punjab: Amritsar,  *Clarke 22230B*, Sept. 1874; Calcutta, Bot. Gard.,  *Wallich 5444F*. Madras:  *Clarke 10600*, March 1870. Ceylon.  *Thwaites C.P. 2775*. Northern Prov.,  *Herb. Peradeniya*, Feb. 1890; Kantalai,  *Herb. Peradeniya*, Aug. 1885. North-Central Prov., Minneriya,  *Herb. Peradeniya*, Aug. 1885. Central Prov., Urugala, Siyambalagastenne,  *Alston 1225*, Dec. 1926. Western Prov., Negombo,  *F. W. de Silva*, July 1930. Southern Prov., Kirinde,  *Herb. Peradeniya*, Dec. 1882. Burma. Minlin Dist.,  *Mokim 302*, Oct. 1902;  *Mokim 500*, Nov. 1902. Upper Burma:  *Huk*, June 1890. Australia. S. E. Queensland: Lower Kholo,  *Shirley*.

*Uses.* The juice of the plant is considered an alterative for chronic venereal affections. It is an anti-scorbutic and diuretic.

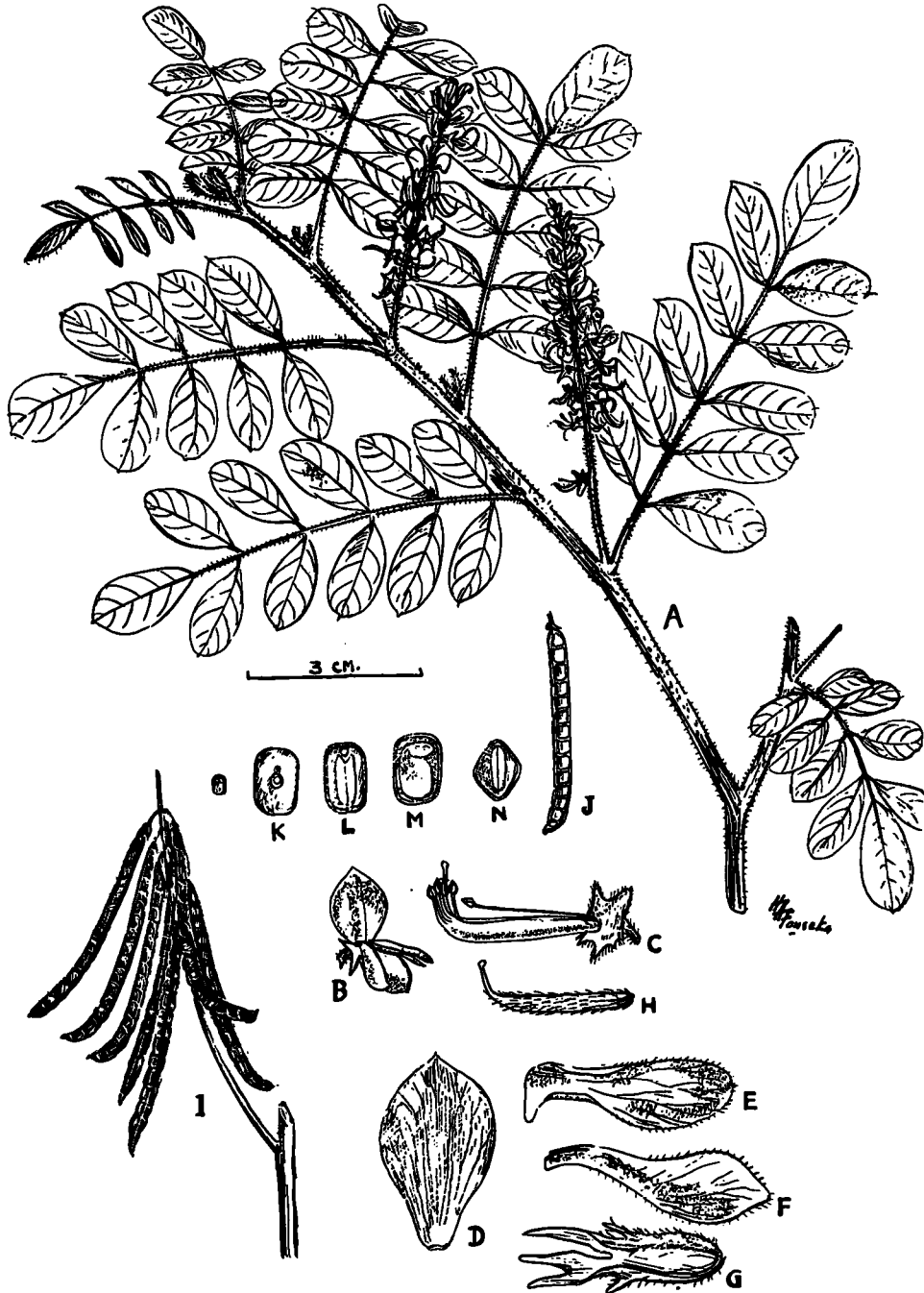


FIG. 316. *Indigofera tinctoria*. A, branch with leaves and racemes. B, flower, lateral view. C, flower with the corolla removed showing the calyx and the stamens. D, standard petal. E, wing petal. F, keel petal. G, keel petals showing the union. H, pistil. I, fruits in a cluster. J, fruit. K, seed. L & M, vertical sections of seed. N, transverse section of seed. C—G, K—N, enlarged.

41. *Indigofera tinctoria* Linn. Sp. Pl. 751. 1753. (Fig. 316).

*Indigofera indica* Lamk.—*Indigofera sumatrana* Gaertn.

*Engl.* Indigo; *Sinh.* Nilawari; *Tam.* Asidai, Attipurashadam, Avuri, Chamundi, Irasani, Karundoli, Madubarunigai, Nili, Nilakkali, Toli; *Hindi* Gouli, Lil, Nil; *Sans.* Aklika, Asita, Bhadra, Bharavahi, Charatika, Dola, Dronika, Duli, Dulika, Gandhapushpa, Gandhapushpi, Gramina, Gramya, Kala, Keshi, Klitakika, Kutsala, Madhuparnika, Mahabala, Mahaphala, Meghavarna, Mochakrishna, Nila, Nilapushpika, Nili, Nilika, Nilini, Rangapatri, Rangapushpi, Ranjani, Ranjini, Shodhini, Shyama, Shyamalika, Sripkali, Sthiraranga, Tuni, Tuttha, Vijaya, Vrintika, Vyanjankeshi.

A low shrub, 60—120 cm tall with numerous, virgate, slightly angular branches, more or less covered with white adpressed hairs; leaves alternate, imparipinnate, rachis 3.7—5 cm long, adpressed pilose, leaflets 7—11, shortly stalked with minute stipels, about 1.2—1.8 cm long, obovate-oblong, acute at base, often retuse, apiculate, glabrous above, silvery silky beneath, bright green but drying a blackish grey, readily disarticulating, stipules small, linear, cuspidate; flowers irregular, bisexual, small, pink, on short, slender pedicels, in erect, rather lax, tapering, spicate racemes, bracts small, cuspidate; sepals 5, fused into a very shallow, silvery hairy calyx, segments lanceolate, acute, the two upper erect; petals 5, imbricate, nearly equal, keel petals fused on the inner margin and produced at base into a spur, not beaked; stamens 10, diadelphous, anthers apiculate, hairs attached by centre; ovary superior, sessile, downy, unilocular with marginal ovules, style short, stigmas capitate; fruit a many-seeded, cylindrical legume, 2.5—3 cm long, linear, straight or slightly curved, strongly apiculate, thickened at both sutures, nearly glabrous, dehiscent, slightly or not constricted between seeds, seeds 8—12, quadrangular with truncate ends, smooth, dark brown, albuminous.

Flowers all the year round.

**Illustrations.** Gaertner, *Fruct.* 2: *pl.* 148. 1791; Wight,  *Ic. Pl. Ind. Orient.*, *pl.* 365. 1840—1843; Kirtikar and Basu, *Indian Med. Plants*, *pl.* 299A. 1933; *Herb. Peradeniya*, drawing.

**Distribution.** Indigenous to Senegal and other parts of west tropical Africa and widely cultivated in India, Ceylon and some of the Philippine islands. It is rather common in Ceylon as a roadside weed, specially in the dry regions of the low-country.

**India.** *Maisor and Carnatic:* *G. Thomson.* *Ceylon. Thwaites C.P.* 3591. Northern Prov., Polonnaruwa, *F. W. de Silva* 15, May 1927. Central Prov., Sigiriya, *Herb. Peradeniya*, Sept. 1885. Western Prov., Kalutara, *Herb. Peradeniya*, Dec. 1882; Bentota, *Herb. Peradeniya*, March 1877. Southern Prov., Bata-ata. *Alston* 1227, March 1927. *Maldive Islands.* Veimandu, *Gardiner*, 1899—1900 Heddufuri, *Gardiner*, 1899—1900. *British North Borneo.* Jambongan Island: *Cabiling* 3805, Nov. 1927.

**Composition.** This plant yields a valuable dye, indigo. Indican (a glucoside) is obtained from the fermentation of the fresh, green plant and this is chiefly indigotin or indigo-blue.

**Uses.** The juice of the leaves is administered both internally and externally, for hydrophobia and the bruised leaves applied on the wounds. It is also believed to cure asthma, whooping cough, palpitation of the heart, some lung diseases, kidney complaints, hepatitis, epilepsy and other nervous affections. An infusion of the root is an antidote for arsenic poisoning. The leaves ground together with leaves of *Calotropis gigantea* in hot water are applied on patches of falling hair on the head (undugowwa). The plant is used for rheumatic complaints and bronchial and eye diseases. It is useful in cardiac, renal and hepatic dropsy. An ointment prepared from it is applied on sores, chronic ulcers and haemorrhoids. In Tanganyika, the root is used as a syphilitic remedy, for lithiasis, gonorrhoea and as an anthelmintic. The plant has antiseptic and anti-tubercular properties. It is also used in India as a snake-bite remedy and applied on scorpion stings.



FIG. 317. *Lens culinaris*. A, plant showing the root, leaves, flowers and pods. B, flower, lateral view. C, corolla dissected. D, part of the calyx with the pistil. E, stamens. F, pod. G, pod with one valve removed. H & I, seeds. J, seed with one cotyledon removed. C—D, G, I & J, enlarged.

42. *Lens culinaris* Medikus in Vorles Kurpf. Phys.—oekon. Ces. 2: 361. 1787. (Fig. 317).

*Lens esculenta* Moench—*Lens vulgaris* Delabre—*Lens sativa* Heller—*Lens lens* Huth—*Ervum lens* Linn.—*Ervum himalayense* A. Br.—*Cicer lens* Willd.—*Lathyrus lens* Bernh.—*Vicia lens* Cosson and Germain.

*Engl.* Lentils; *Sinh.* Masura Parippu; *Tam.* Misurpurpur; *Hindi* Maṣur; *Sans.* Gabholika, Garubija, Halasaka, Kalyanabija, Mangaliya, Masur, Masuraka, Masurika, Prithubijaka, Rajadali, Sura, Tambularaga, Vrihikanchana.

An annual herb with a stem 15—45 cm high, erect, slender, weak, angular or striate, glabrous or hairy with many long ascending branches from the base; leaves numerous, alternate, spreading, pinnate, usually terminating in a long simple or slightly branched filiform tendril, leaflets 4—6 pairs, alternate, or subopposite, narrowly lanceolate-oblong, tapering at base, obtuse, often mucronate at apex, entire, finely silky or glabrous, stipules lanceolate-linear, very acute, spreading at the base; flowers irregular, bisexual, small, blue, shortly stalked, arranged in little racemose clusters of 2—4 on long peduncles from the axils of leaves and nearly equalling them in length, prolonged beyond the flowers into a sharp point; calyx with a short tube and 5 long, linear-acuminate, nearly equal teeth, hairy on the outside, persistent; corolla a little shorter than calyx teeth, standard quadrate-orbicular with a short, broad claw, wings obliquely spatulate, clawed, each with a hooked process on the upper edge which locks with the keel, keel petals united to form a blunt carina, slightly shorter than the wings; stamens 10, diadelphous, 9 fused into a sheath and one free; ovary superior, shortly stalked, with usually two marginal ovules, style curved upwards, minutely bearded along the inner side, otherwise glabrous, stigma simple, fruit pod about 1.2 cm long, broadly oblong or squarish, laterally compressed, apiculate or shortly beaked, 2-valved, smooth, with one or two seeds, seeds 4 mm diam., lenticular, smooth exalbuminous.

**Illustration.** Bentley and Trimen, *Med. Plants*, pl. 76. 1880.

**Distribution.** A native of India and frequently cultivated in Europe, temperate Asia, Greece, Italy and North Africa. It is not cultivated in Ceylon.

**India.** Kashmir: Srinagar, *Clarke* 30061, Aug. 1876; Chumbi, *Searight* 29, April 1905. Bengal: Shipur Exp. Farm, cultivated, 1898. *Ind. Bor. Occ.*, *T. Thomson*.

**Composition.** Lentils contain a large proportion of legumin or vegetable casein, besides gum, sugar, cellulose, pectin and mineral matter. They are deficient in starch and fat.

**Uses.** Lentils are used for constipation and other intestinal affections. It is a valuable food substance for patients. In many parts of Germany, the pulse made into a paste is applied on ulcers occurring after small-pox and for cleaning foul and chronic ulcers.

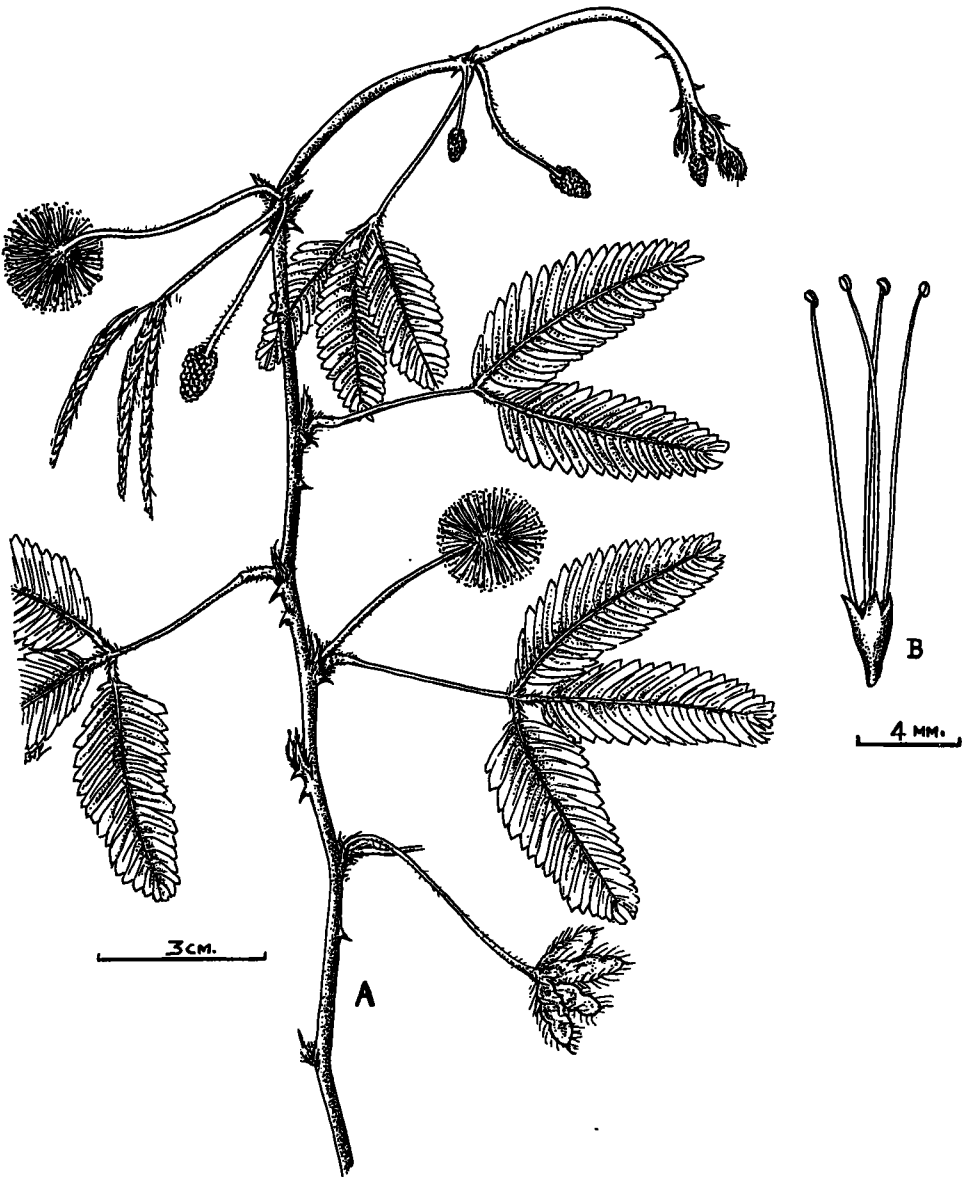


FIG. 318. *Mimosa pudica*. A, stem with leaves, flower heads and pods. B, flower, lateral view.

43. *Mimosa pudica* Linn. Sp. Pl. 518. 1753. (Fig. 318).

*Mimosa asperata* Blanco.

*Engl.* Sensitive Plant; *Sinh.* Hin-nidikumba, Nidikumba; *Tam.* Kasirorttam, Samangai, Tottachurungi, Tottalvadi; *Hindi* Lajalu, Shampate; *Sans.* Anjalikaraka, Anjalikarika, Asrarodhani, Gandamalika, Kandiri, Khandirika, Khandirpatrika, Lajja, Lajjalu, Lajjika, Mahabhita, Mahaushadhi, Mamaskari, Prasarini, Raktamula, Raktapadi, Samanga, Sankochini, Saptaparni, Shamipatra, Sparshalajja, Sprikha, Svagupta, Tamra, Tamramula, Vashini.

A diffuse herb, 45—90 cm high with sparingly prickly stems and branches; leaves bipinnate, sensitive, digitate, petioles 2.5—5 cm long, bristly, stipules 0.8 cm long, linear-lanceolate, acute, bristly, pinnae one or two pairs, 5—7.5 cm long, sessile or nearly so, their rachises clothed with ascending bristles, leaflets 12—20 pairs, 6—8 mm long, sessile, coriaceous, linear-oblong, acute, glabrous above, clothed with adpressed bristles beneath, base obliquely rounded; flowers regular, bisexual, 4-merous, pink, in globose heads 6—8 mm diam., peduncles 1.8—2.5 cm long, prickly, usually in axillary pairs all along the branches, bracteoles solitary, linear, acute, ciliolate; calyx very minute, almost inconspicuous; corolla 2—2.5 mm long, divided about 1/3 way down, valvate, lobes 4, ovate-oblong, obtuse; stamens 4, much exserted, anthers small, not gland-crested; ovary superior, unilocular with marginal ovules, pod 1.2—1.8 cm long, 3—4 mm broad, flat, slightly curved consisting of 3—5 one-seeded joints which fall away from the persistent sutures which are clothed with spreading, yellowish, weak bristles 3 mm long, the faces of the pods glabrous.

Usually flowers in September and October.

**Illustrations.** Kirtikar and Basu, *Indian Med. Plants*, pl. 373B. 1933; *Herb. Peradeniya*, drawing.

**Distribution.** Probably a native of tropical America and now acclimatized as a weed in all tropical countries.

**India.** Bengal: *J. D. Hooker and T. Thomson*; Siwalick and Jaunsar Div., Thanu, *Choudri* 54, Nov. 1920. Ceylon. Central Prov., Peradeniya, Bot. Gard., *Herb. Peradeniya*, July 1920; Alauwa, *Simpson* 9831, June 1932. Maldiv Islands. Ladu, *Didi* 21, 1896 Malaya. Penang, *Curtis* 1237, Sept. 1887; Singapore, *Anderson* 32, 1861. Philippine Islands. Luzon: Rizal Prov., *Ahern's Collector* 3195, July 1905.

**Composition.** This plant contains mimosine as one of the alkaloids and the roots contain tannin, too.

**Uses.** Much used for bronchitis and convulsions in children. The expressed juice of the fresh leaves is applied to arrest bleeding from wounds and ulcers. In India, the root in the form of a decoction is given for stones in the bladder and other urinary complaints, in addition to diarrhoea and dysentery. A paste of the leaves is applied on hydrocele and other glandular swellings. The leaves and roots are also used in piles and fistula. In Madagascar and La Reunion, the plant is considered diuretic, astringent and anti-spasmodic, while in Guiana, the leaves are used as a powerful sudorific, and the seeds and roots as an emetic.

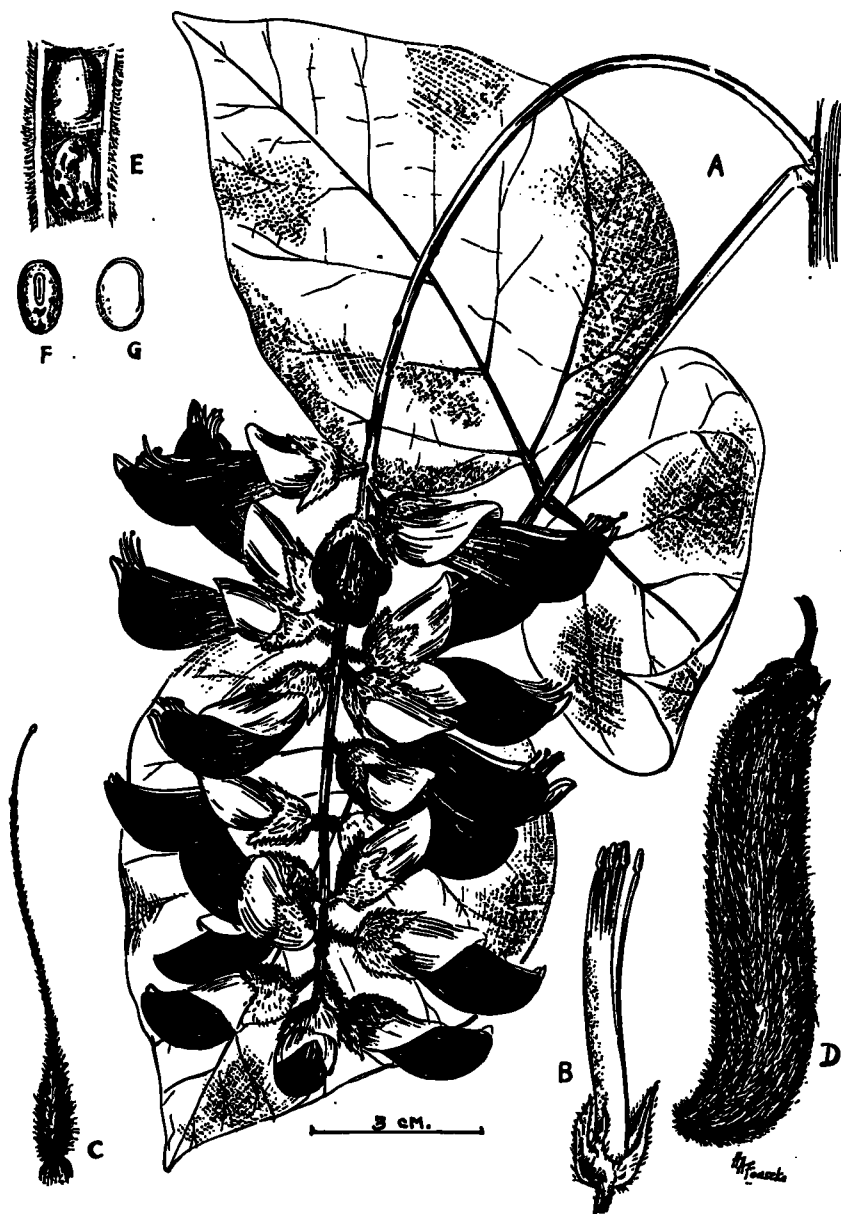


FIG. 319. *Mucuna prurita*. A, leaf with a raceme. B, flower with the corolla removed showing the calyx and stamens, lateral view. C, pistil. D, fruit pod. E, section of a part of the pod showing the seeds. F, seed showing the hilum. G, longitudinal section of seed.

44. *Mucuna prurita* Hook. Bot. Misc. 2: 348. 1831: (Fig. 319).*Mucuna pruriens* Trim.

*Engl.* Cowhage; *Sinh.* Achariapalu, Wanduru-me; *Tam.* Amudari, Arugattam, Attumabuttar, Irishiya, Kadigandu, Kavi, Maguttam, Punakkali, Punaippidukhan, Punaiyavarai, Sugasimbi; *Hindi* Kiwachh; *Sans.* Adhyanda, Ajada, Ajavha, Arshabhi, Atmagupta, Badari, Chanda, Durabhigraha, Dusparsha, Gatrabhanga, Guru, Jada, Kachhumati, Kachhura, Kandura, Kapikachhu, Kapiprabha, Kapiromaphala, Kashiroja, Kundali, Maharshabhilangoli, Markati, Pravrisa, Pravrishayani, Rishabhajata, Rishabhi, Rishyaprokta, Romalu, Romavalli, Sadyashotha, Shimbhi, Shukapindi, Shukashimba, Shukashimbika, Shukavati, Sugupta, Svagupta, Svayamgupta, Tikshna, Vanari, Vanshukari, Varahika, Vrishya, Vyaghra, Vyanga.

A semi-woody twining climber with slender branches clothed with short white deflexed hairs; leaves alternate, stipulate, 3-foliate with stipels, large, rachis 7.5—12.5 cm long, sparingly deflexed hairy, leaflets 7.5—10 cm long, 5—7.5 cm broad, on short, thick, hairy stalks, terminal one smallest and rhomboid-oval, lateral ones very unequal with the lower half greatly dilated, all acute, mucronate, pubescent above, densely covered with shining silvery adpressed hairs beneath, stipules linear, setaceous, hairy; flowers irregular, bisexual, dull dark purple with a yellowish green keel, numerous, 3.7—4.3 cm long, on short pubescent pedicels, usually 2 or 3 together at intervals on a slender, pubescent raceme, 15—30 cm long, bracts 1.2 cm long, lanceolate, hairy, deciduous; sepals 5, fused into a campanulate calyx, densely silky, two upper segments completely connate, lowest much the longest; petals 5, exerted, very unequal, wings twice as long as the standard, keel rather longer than wings, curved into a stiff beak at apex; stamens 10, diadelphous; ovary superior, surrounded at base by a small crenulate disc, unilocular with marginal ovules, style beardless, stigma capitate; fruit legume 6.2—7.5 cm long, 1.2 cm broad, linear, blunt, falcately curved at both ends with a longitudinal rib along the whole length of each valve but without wings, densely covered with close rather weak orange-brown irritant bristles pointing backwards and readily detached, 4—6 seeded with partitions between them; seed ovoid, 0.6 cm long, compressed, brownish, mottled with black, hilum oblong.

Flowers in January and February.

**Illustration.** Kirtikar and Basu, *Indian Med. Plants*, pl. 317B. 1933.

**Distribution.** Occurs in India, Burma, Ceylon and East Indies. It is rather common in Ceylon, in the dry and intermediate regions.

**India.** Khasia: Clarke 14467, Dec. 1871. Bengal: Calcutta, Wallich 5616G; Wallich 5616, 1820. Malabar and Concan: Stocks Law, etc. Ceylon. Thwaites C.P 3150. North-Central Prov., Polonnaruwa, Ahmed, Jan. 1946.

**Composition.** The wood of this plant contains the alkaloids 5-hydroxytryptamine, mucuadine, mucuadinine, mucuadininine and the seed contains mucunadine, mucunine, nicotine, prurienidine, prurienine, prurieninine, a fatty free acid and its glyceride, an acid resin and an albumen.

**Uses.** A decoction of the root is a powerful diuretic. The root is useful in paralysis and ailments of the nervous system. The powdered root made into a paste is applied on the body for dropsy and also a vinous infusion of the pods is given internally. The seed is a powerful aphrodisiac. It is boiled in cows' milk, decorticated, fried in cow ghee and made into a confection. This taken with bees' honey increases sexual power. The hair of the fruit is a mechanical anthelmintic for expulsion of roundworms but not the tapeworm. The usage of this is dangerous as an overdose kills the patient. The seed applied as a paste on scorpion stings is supposed to absorb the poison. In West Indies, a decoction of the root is reckoned as a powerful diuretic and cleanser of the kidneys and an ointment of it is applied on elephantiasis.

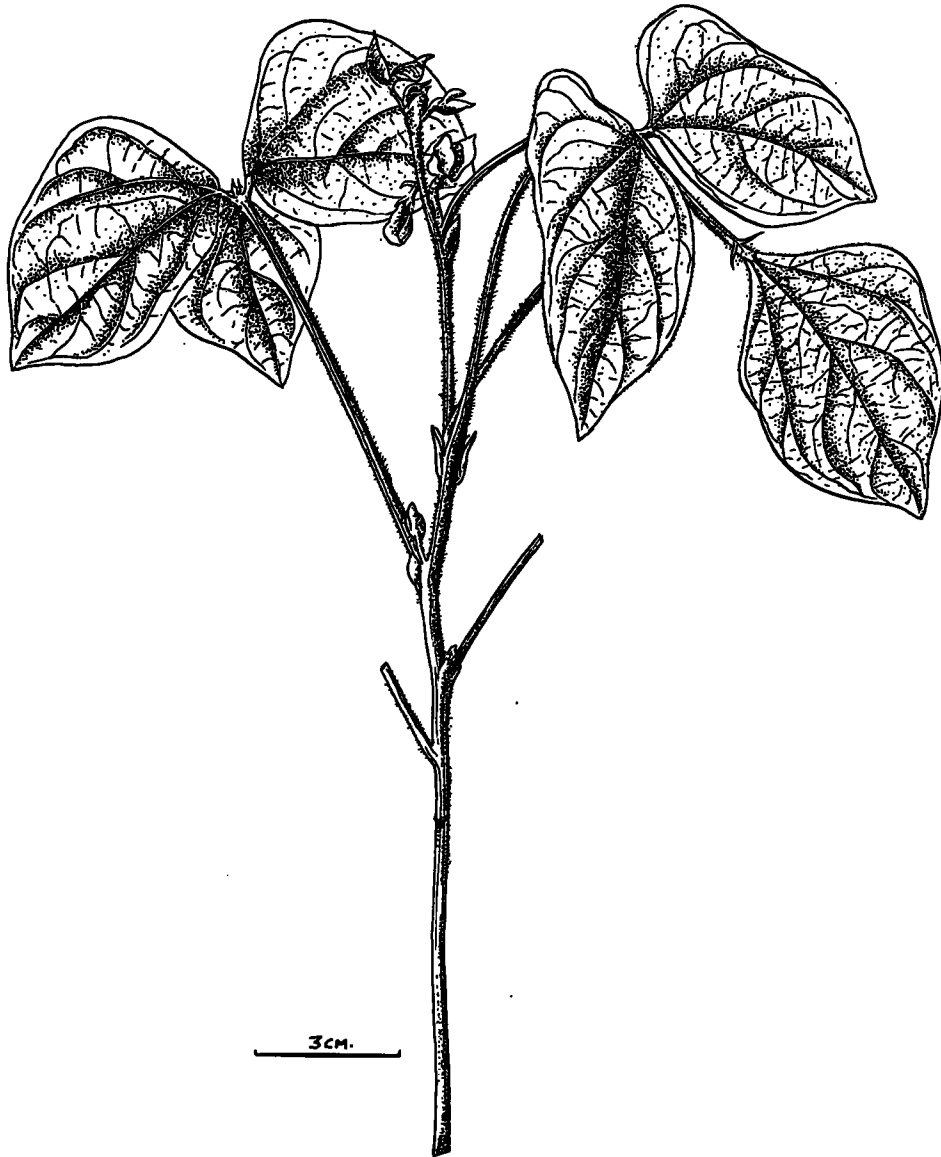


FIG. 320. *Phaseolus mungo*. Branch with leaves and flowers.

45. *Phaseolus mungo* Linn. Mant. 101. 1767. (Fig. 320).

*Phaseolus max* Roxb.—*Phaseolus aureus* Ham.—*Phaseolus hirtus* Retz.—*Phaseolus mungo* var. *roxburghii* Prain.—*Phaseolus max* var. *radiatus* Trim.—*Phaseolus radiatus* Roxb.

*Engl.* Green Gram; *Sinh.* Mun, Mun-eta; *Tam.* Patchaipayara; *Hindi* Mung, Pessara, Urid; *Sans.* Bhuktiprada, Hayananda, Mudga, Rasottama, Supashreshtha, Suphala, Vajibhojana, Varnarha.

An annual herb with an erect branching stem of about 60 cm covered with spreading deflexed hairs; leaves alternate, stipulate, 3-foliate with stipels, rachis long, hairy, leaflets 5—7.5 cm long, ovate, acute, more or less hairy on both sides, thin, the lateral ones dilated on lower side, stipules peltately attached near the base; ovate, acuminate; flowers irregular, bisexual, pale yellow, about 1.2 cm long, shortly stalked, 4—6 crowded at the ends of stout hairy peduncles shorter than leaves; sepals 5, fused into a campanulate calyx, silky, lowest segments lanceolate; petals 5, free except the keel petals, unequal, imbricate, standard much broader than long, keel curved into more than a circle; stamens 10, diadelphous, anthers uniform; ovary superior, unicarpellary, unilocular with marginal ovules, style bearded, stigma oblique; fruit a legume, 5—6.2 cm long, linear, nearly cylindrical, shortly stalked, more or less hairy with spreading hairs; seeds 8—12, small, 3—4 mm long, oblong-ovoid, truncate or blunt at the ends, green or blackish.

Flowers from November to February.

*Illustrations.* Kirtikar and Basu, *Indian Med. Plants*, pl. 323. 1933; Herb. Peradeniya, drawing.

*Distribution.* This herb is extensively cultivated in India, Ceylon, Malaya, China and Philippine Islands. It thrives in the dry regions of Ceylon.

*India.* Bengal: *J. D. Hooker*; Calcutta, *Wallich 5589E*; Chota Nagpore, *Clarke 25262A*, Dec. 1874. Pen. Ind. Or., *Herb. Wight 756 and 758*, *Kew Distribution 1866—7*. Ceylon. Eastern Prov., Trincomalee, *Thwaites C.P. 3622*.

*Composition.* The seed contains a high percentage of carbohydrates and protein. It is a fair source of vitamins A and B. When the seed is sprouting, it is an excellent source of vitamin C, which is absent in the unsprouted condition.

*Uses.* The seed is extensively used as a source of food. Medicinally, it is used externally and internally for paralysis, rheumatism, affections of the nervous system, piles and liver complaints. In Indo-China, the seeds are considered diuretic and anti-scorbutic. The root is said to be a narcotic. In Africa, the powdered bean is applied on tumours and abscesses to promote suppuration. It is also a remedy for scorpion sting.

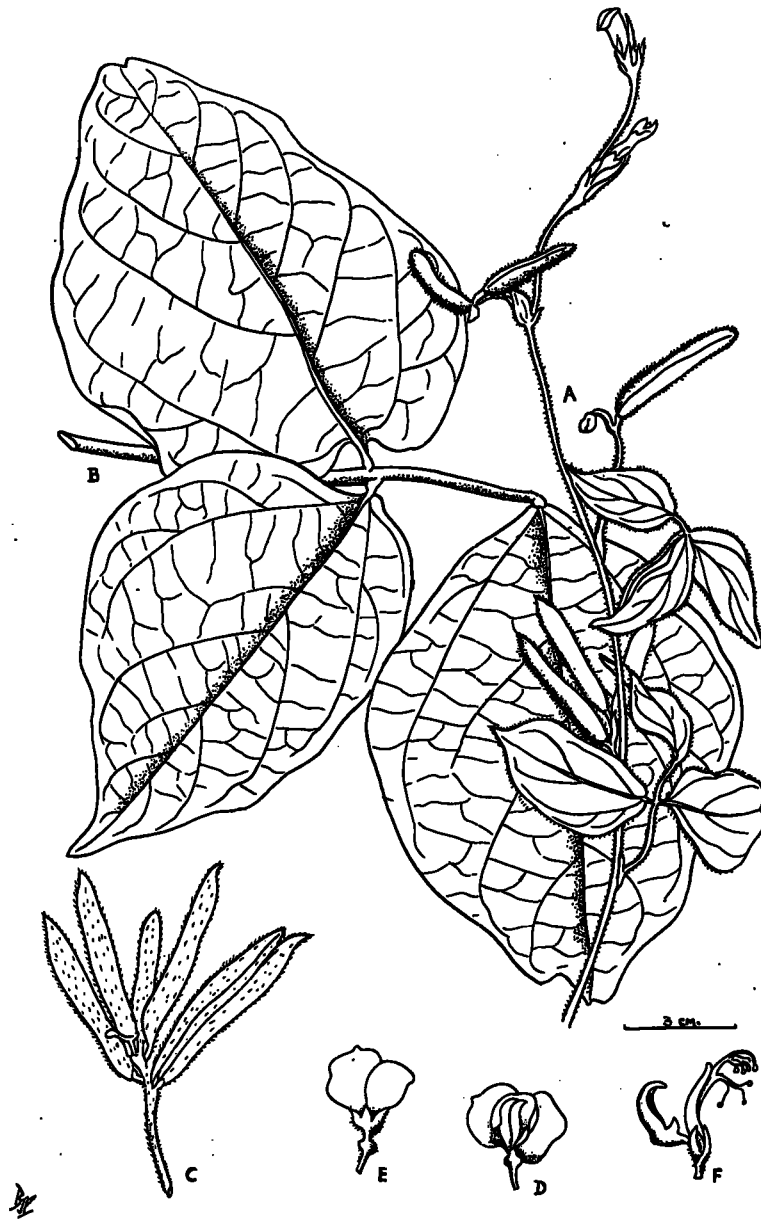


FIG. 321. *Phaseolus radiatus*. A, twig with leaves, flowers and pods. B, leaf. C, group of pods. D, flower, front view. E, flower, ventral view. F, flower showing the wing and keel petals, lateral view and the stamens. B & C, enlarged.

46. *Phaseolus radiatus* Linn. Sp. Pl. 725. 1753. (Fig. 321).

*Phaseolus sublobatus* Roxb.—*Phaseolus trinervius* Heyne.

*Sinh.* Undu; *Tam.* Pani-payir; *Hindi* Dord, Thikiri, Urid, Urud; *Sans.* Baladhya, Bali, Bijaratne. Dhanyamasha, Dahnyavira, Hurida, Kuruvinda, Mansal, Masha, Pitribhobhona, Pitrya, Vrishankur.

An annual herb with stems 30—60 cm high, clothed with brownish silky hairs; leaves alternate, pinnately trifoliate, leaflets dark green, membranous, 5—10 cm long, stipules persistent and striate; flowers irregular, bisexual, yellow; sepals 5, fused into a campanulate calyx, hairy; petals 5, imbricate, corolla much exerted, standard suborbicular, wings obovate, keel produced into a very long beak which forms a complete or nearly complete spiral; stamens 10, diadelphous, anthers uniform; ovary superior, sessile, unilocular with many marginal ovules, style within the beak of the keel and twisted with it, usually bearded down the side below the very oblique stigma; pods subcylindric, 3.8—6.3 cm long, hairy with 10—15 green seeds.

**Illustration.** Kirtikar and Basu, Indian Med. Plants, pl. 324. 1933.

**Distribution.** Cultivated throughout India for its grain.

*Ceylon.* Thwaites C.P. 1476. Central Prov., Peradeniya, Exp. Station, Simpson 9204, Feb. 1932; Simpson 8754, Oct. 1931; Ambawela, A. de Alwis, March 1921; Hakgala, patana, Willis, Feb. 1906.

**Uses.** The seeds are frequently used medicinally, both externally and internally, for paralysis, rheumatism, and ailments of the nervous system. They are employed in the treatment of fever, piles, cough and liver diseases. The root is said to be a narcotic. In Indo-China, the seeds are considered diuretic and are prescribed for dropsy and cephalalgia. The grain is a nourishing food and promotes bowel movement.

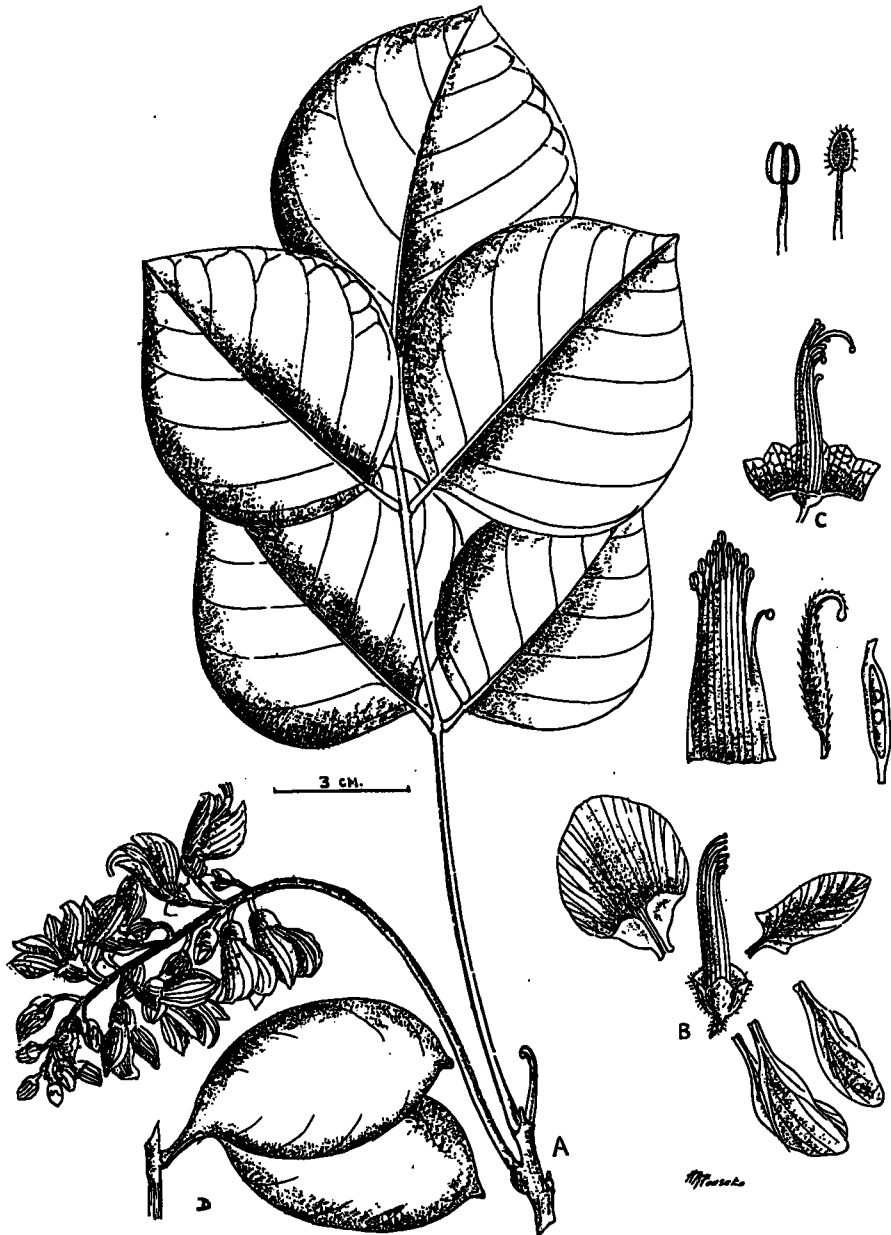


FIG. 322. *Pongamia pinnata*. A, leaf and flower raceme. B, flower dissected. C, flower with corolla removed and calyx spread out, stamens, pistil and longitudinal section of ovary. D, fruits. B—D, enlarged.

47. *Pongamia pinnata* Merr. Interp. Rumph., 271 and 254. 1917. (Fig. 322).

*Cytisus pinnatus* Linn.—*Robinia mitis* Linn.—*Pongamia glabra* Vent.—*Pongamia mitis* Merr.—*Galedupa indica* Lam.—*Galedupa arborea* Roxb.—*Galedupa maculata* Blanco—*Galedupa pinnata* Taub.—*Dalbergia arborea* Willd.—*Caju pinnatum* O. Kuntze—*Pterocarpus flavus* Lour.

*Engl.* Indian Beech; *Sinh.* Karanda, Magulkaranda; *Tam.* Agirunanandam, Ilangi, Kanjanam, Kolliyam, Naguttam, Nanandam, Nattam, Nattamalam, Nirppungu, Ponga, Pungu, Tattaippungu, Udagu; *Hindi* Korang; *Sans.* Angaravalli, Badhaphala, Chirabilva, Dhana, Gaura, Ghritaparnaka, Guchhapushpaka, Hastija, Hastivaruni, Kaidarya, Kakaghni, Kalimara, Karabhandika, Karanja, Matry, Naktamala, Prakirya, Putika, Putikaranja, Putiparna, Putipatraka, Rochana, Shadagrantha, Shamgashta, Snigdhapatra, Tapasvi, Udakirya, Vishari, Vrittaparna.

A large tree with a soft, grey bark and slightly puberulous buds; leaves alternate, stipulate, imparipinnate compound, large, rachis about 12.5 cm long, glabrous, leaflets 5—9, each 7.5—12.5 cm long on thick stalks, oval or lanceolate, acute at base, acuminate, glabrous and shining on both sides, thin, bright green, stipules small, oblong, obtuse, soon falling; flowers irregular, bisexual, greenish pink or white with calyx purplish brown, 1.5 cm long, pedicel rather long, slender, swollen at base, articulated, often in pairs, racemes often two together, elongated, about equalling the leaves; sepals 5, fused into a campanulate and almost truncate, minutely puberulous calyx-tube; petals 5, much exerted, imbricate, standard very broad, keel petals coherent near the tip; stamens 10, monadelphous but the uppermost one free for about half way down; ovary superior, unicarpellary, unilocular with marginal ovules, stigma capitate; fruit an indehiscent legume, 5 cm long, 3.7 cm wide, scarcely stalked, pointed, oval-oblong, glabrous.

Flowers in April.

*Illustrations.* Wight,  *Ic. Pl. Ind. Orient.*, pl. 59. 1838; Beddome,  *Flor. Sylvat.*, pl. 177. 1868-1873; Kirtikar and Basu,  *Indian Med. Plants*, pl. 341. 1933;  *Herb. Peradeniya*, drawing.

*Distribution.* Occurs in India, Ceylon, Malaya, Australia, Polynesia and Philippine Islands. It is common in the low-country in Ceylon on banks of streams and rivers, especially near the coast.

*India.* Decca,  *Clarke* 6801, April 1868; Lodhma,  *Clarke* 34196B, Oct. 1883;  *Sampson* 6064, May 1870. Chittagong:  *J. D. Hooker and T. Thomson*.  *Pen. Ind. Or.*,  *Herb. Wight* 811, Kew Distribution 1866—7.  *Ceylon.* North-Western Prov.,  *Div. For. Officer*, Oct. 1928. Central Prov., Peradeniya, Koshinna,  *Alston*; Hakinda,  *J. M. Silva*, May 1922; Haragama, Pallekelle Estate,  *Alston* 859, April 1926. Southern Prov., Kalutara,  *Thwaites C.P.* 1489; Matugama, Nagoda,  *Herb. Peradeniya*, March 1887.  *Malay Peninsula.*  *King's Collector* 1740, May 1881; Penang,  *Wallich* 5878F, 1822;  *Curtis* 382, 1885.  *China.* Kwangtung,  *Lau* 11681, May 1924.  *Sumatra.* (E. Coast).  *Batoe Bahra*,  *Yates* 2366.

*Composition.* The bark, fruit and root contain an alkaloid. The seeds yield an essential oil and fatty acids. The bark also contains a greenish brown acid resin.

*Uses.* The bruised fresh bark and leaves heated in gingelly oil are applied on acute rheumatism, rheumatoid and gonorrhoeal arthritis, lymphangitis, phlebitis, elephantiasis, boils and abscesses with beneficial results. The oil obtained from the seeds is antiseptic and a parasiticide and is useful in chronic eczema, psoriasis, scabies, ringworm, pityriasis, etc. The bark is used internally for diarrhoea, dyspepsia and flatulency. It is a diuretic and valuable for bronchitis, pneumonia and strangury. It is also used as an anti-lithic for urinary gravel and calculi. It has anti-periodic properties and along with other drugs gives good results in chronic malarial fevers. The root bark is used internally for treating bleeding piles and the flowers for diabetes.



Plate XI. *Psoralea corylifolia*. A, stem with leaves and axillary racemes. B, flower, front view. C, dissection of the flower showing the standard, wings, keel, stamens and pistil. D, fruit.



Plate XI. *Psoralea corylifolia*. A, stem with leaves and axillary racemes. B, flower, front view. C, dissection of the flower showing the standard, wings, keel, stamens and pistil. D, fruit.

48. *Psoralea corylifolia* Linn. Sp. Pl. 764. 1753. (Plate XI.)

*Trifolium uniflorum* Forsk.

*Sinh.* Bodi; *Tam.* Karpokarishi, Karpubarishi; *Hindi* Babachi, Buckchi; *Sans.* Aindavi, Asitatvacha, Avalguja, Bakuchi, Chandraprabha, Chandraraji, Chandri, Kalameshi, Kalameshika. Kamboji, Kandughni, Kantaka, Kantida, Krimighni, Krishna, Krishnaphala, Kushtaghni, Kushthahantri, Kushthanashini, Putigandha, Putiphala, Putiphali, Shashilekha, Shulotkha, Sita, Sitavari, Soma, Somaraji, Somavalli, Somavallika, Suparnika, Suprabha, Suvalli, Suvallika, Tvagadoshapaha, Valguja, Valguji, Vejani.

An erect annual herb, 30—90 cm tall, stem erect with scattered hairs or nearly glabrous, dotted with glands and slightly branched; leaves simple, alternate on erect petioles, 3.7—6.2 cm long, roundish or broadly ovate, rounded at base, acute or subacute, irregularly repand-dentate, sparingly hairy on both sides, copiously sprinkled with black glandular dots, veins prominent beneath, stipules triangular acuminate; flowers irregular, bisexual, purple, small on short pedicels, crowded in dense spicate racemes terminating a stiff, erect, axillary peduncle about 5 cm long, bracts membranous, acute, gland-dotted; sepals 5, fused into a calyx-tube, hairy, gland-dotted, segments obtuse; petals 5, distinct, imbricate, keel petals obtuse, not beaked; stamens 10, diadelphous but the upper one partially connate, anthers nearly uniform, blunt; ovary superior, unicarpellary, unilocular with marginal ovules, style long; fruit legume indehiscent, 1-seeded, 2.5 mm long, enclosed in the calyx and scarcely exceeding it, broadly ovoid, glabrous, black.

Flowers in February, August and November.

**Illustrations.** Burmann f., *Fl. Ind.*, pl. 49. 1765; Curtis, *Bot. Mag.* pl. 665. 1803; Kirtikar and Basu, *Indian Med. Plants*, pl. 300A. 1933; *Herb. Peradeniya*, drawing.

**Distribution.** Occurs in India, Burma, Malaya, China and in the dry regions of Ceylon. It is rather rare.

**India.** Bengal: Beaulah, *Clarke* 31876C, Feb. 1877; *Clarke* 31876A, Feb. 1877. Mæisor and Carnatic: *G. Thomson*. *Pen. Ind. Or.*, *Herb. Wight* 579, Kew Distribution 1866—7. Ceylon. Delft, *Thwaites C.P.* 1443. North-Western Prov., Mannar Dist., near Giant's Tank, *Sayaneris*, Feb. 1890. North-Central Prov., Anuradhapura, *Herb. Peradeniya*, Aug. 1885; Nalanda, *Herb. Peradeniya*, Nov. 1882. Central Prov., Peradeniya, *J. M. Silva*, April 1916; Nuwara Eliya, *Drieberg*. Southern Prov. Tissamaharama, *Simpson* 9914, Aug. 1932. **Burma.** Upper Burma: *King's Collector* 378, March 1893.

**Composition.** The seed contains an essential oil, a fixed oil, a resin and traces of a substance of an alkaloid nature.

**Uses.** An extract of the seed is applied as an ointment on leucoderma patches with beneficial results. The powdered seed is a snake-bite remedy, internally and externally. An oil prepared by boiling the seeds with other ingredients and gingelly oil is used with good effect for leprosy, chronic eczema, psoriasis, sycosis and chronic dermatitis. Internally, the seeds act in constipation and haemorrhoids externally, supposed to promote the growth of hair and check pre-mature greyness. In Malaya and China the seed is regarded as a tonic and aphrodisiac while in Indo-China, the fruit is prescribed for stomachache and spermatorrhoea.



FIG. 323. *Pterocarpus marsupium*. A, branch with leaves and panicle of flowers. B, flower, lateral view. C, stamens. D, pistil.

49. *Pterocarpus marsupium* Roxb. Pl. Corom. 2: 9. 1798. (Fig. 323).*Pterocarpus bilobus* Roxb.

*Engl.* Indian Kino Tree, Bastard Teak; *Sinh.* Gammalu, Ganmalu; *Tam.* Asanam, Kani, Kurinji, Pidasalam, Pirasalam, Pidagaragam, Sarvasadagam, Sarudagam, Tamisu, Tannini, Timisam, Timil, Timisu, Udiravengai, Vandunarmalar, Vengai, Visaga; *Hindi* Banola, Bija, Peisar; *Sans.* Asana, Bandukapushpa, Bijaka, Bijavriksha, Mahakutaja, Mahasarja, Nilaka, Paramayudha, Pitalalaka, Pitasara, Pitashala, Priyaka, Priyasalaka, Sauri.

A large, stout, deciduous tree with a thick, yellowish-grey bark, wide spreading branches and glabrous young parts; leaves alternate, exstipulate, pinnate, large, rachis 7.5—10 cm long, cylindrical, thickened at base, glabrous, leaflets 5—7, alternate on stalks 0.6—1.2 cm long, lamina 6.2—8.8 cm long, acute at base, more or less bilobed at apex, glabrous on both sides, shining above, thick, lateral veins very numerous, parallel and prominent; flowers irregular, bisexual, bright yellow, 1.5 cm long, articulate on short pedicels, panicles racemose, 7.5—15 cm long, rather lax, bracts beneath calyx small, deciduous; sepals 5, fused into a urceolate curved calyx, finely velvety pilose, segments very short, equal, broadly triangular; petals 5, imbricate, with long claws, margins crisped, standard narrow, recurved, wings free, turned down, keel petals very slightly coherent, curved upwards; stamens 10, monadelphous, filaments unequal; ovary superior, stipitate, hairy, unilocular with 2 marginal ovules, stigma terminal; fruit a stalked samara, indehiscent, nearly circular, 2.5 cm diam., very much curved upwards, the small beaked apex being almost in contact with the base surrounded by a very broad, rigid, undulate veined wing, glabrous; seed small, kidney shaped.

Flowers from July to September.

*Illustrations.* Roxburgh, Pl. Corom. 2: pl. 116. 1798; Beddome, Flor. Sylvat., pl. 21. 1868—1873; Bentley and Trimen, Med. Plants, pl. 81. 1880; Kirtikar and Basu, Indian Med. Plants, pl. 340. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs in India and Ceylon. It is rather common in the low-country in Ceylon, chiefly in the dry and intermediate regions up to 3,000 feet altitude.

*India.* Maisor and Carnatic: *G. Thomson*; Dumka Dumri Dist., Southal Pargannas, Deputy Cons. For., Nov. 1902. Pen. Ind. Or., *Herb. Wight* 808, Kew Distribution 1866—7. *Ceylon.* Central Prov., Kundasale, *Thwaites C.P.* 1495; Laggala, Kalupahana, *Herb. Peradeniya*, Sept. 1887. Uva Prov., Passara, *Herb. Peradeniya*, Jan. 1888.

*Composition.* The wood contains catechin, kinotannic acid, kino-red and an alkaloid.

*Uses.* Kino is used internally for diarrhoea and for pyrosis as a gargle; as an injection in leucorrhoea and topical application on chronic and flabby ulcers. The red latex tapped from the tree is used for diabetes. The gum is useful for toothache and the bark as an astringent. The wood is used for flavouring wines and is excellent for wood-carving.

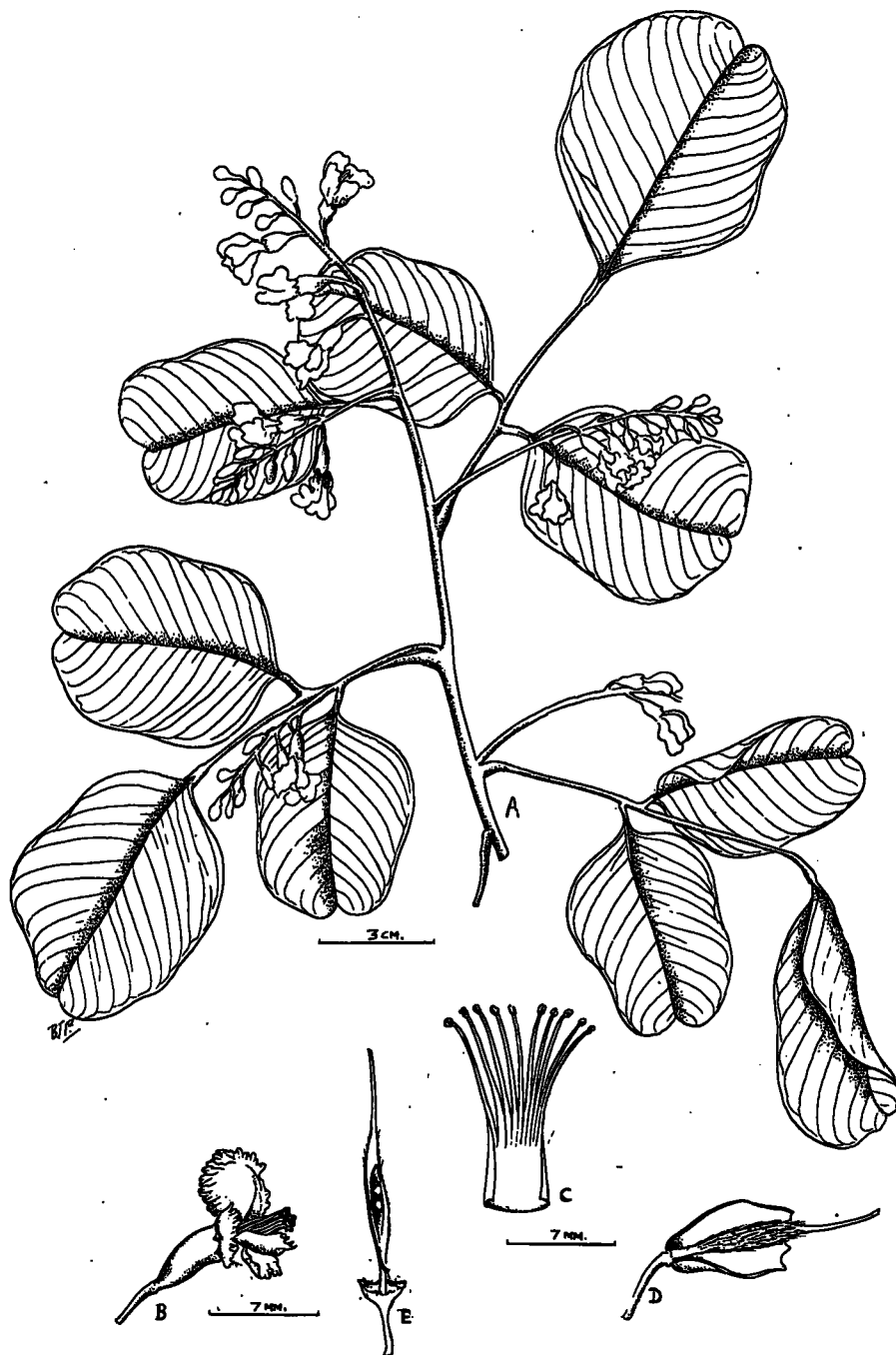


FIG. 324. *Pterocarpus santalinus*. A, twig with leaves and racemes of flowers. B, flower, lateral view. C, stamens. D, pistil with a portion of the calyx. E, longitudinal section of ovary showing the ovules.

50. *Pterocarpus santalinus* Linn. f. Suppl. 318. 1781. (Fig. 324).

*Engl.* Red Sandal Wood; *Sinh.* Rat-handun; *Tam.* Atti, Kusandanam, Picanam, Pidagattam, Salliyam, Sandanam, Sandanavengai, Sensandanakkattai, Sensandanam, Sivapuchandanam; *Hindi* Lalchandan, Rikhtoundam; *Sans.* Agarugandha, Arka, Bhaskarpriya, Chandana, Harichandana, Kshudrachandana, Kuchandana, Kumoda, Kushikam, Lohita, Lohitachandana. Malayaja, Patranga, Pattanga, Pravalphala, Raktabija, Raktachandana, Raktakta, Raktanga, Raktasara, Ranjana, Tamrabhra, Tamrasara, Tamravriksha, Tilaparni.

A small tree about 7—8 m high; leaves alternate, exstipulate, on downy petioles, always trifoliate, leaflets articulated, the lower pair alternate or sub-opposite, all on short stalks, broadly oval or suborbicular, rounded at both ends and deeply emarginate, 5—15 cm long, coriaceous, slightly silky below, veins numerous, not prominent; flowers irregular, bisexual, yellow, in lax terminal or axillary paniculate racemes, shortly stalked, peduncles and pedicels more or less silky with adpressed hairs, bracts minute, deciduous; calyx tubular-campanulate with 5 short nearly equal blunt teeth, very shortly silky; petals 5, nearly equal with long claws, imbricate, wavy at the margins, standard narrow recurved, wings free, keel petals connected in front and curved upwards; stamens 10, diadelphous in two bundles of five each, anthers small; ovary small, superior, stipitate, hairy, unicarpellary, unilocular, with two marginal ovules; pod indehiscent, stalked, greatly compressed, orbicular, the style becoming lateral, hard leathery, downy with a broad, crisped, veined, parchment-like wing; seeds 2 or solitary.

**Illustrations.** Beddome, *Flor. Sylvat.*, pl. 22. 1868—1873; Bentley and Trimen, *Med. Plants*, pl. 82. 1880; Kirtikar and Basu, *Indian Med. Plants*, pl. 339. 1933.

**Distribution.** Occurs in India up to 1,500 feet elevation. It can be cultivated in Ceylon.

**India.** Madras Presidency, *Beddome*. Pen Ind. Or., *Herb. Wight* 810, Kew Distribution 1866—7.

**Composition.** The wood of this tree contains a colouring principle called santalic acid or santalin, minute quantities of santal and some kind of tannin, probably kino-tannic acid.

**Uses.** The wood is used as an application on boils, inflammations, skin diseases and headache. A decoction of the fruit is an astringent tonic for chronic dysentery.

The colouring matter of the wood is used as a dye for dyeing silk, cotton and wool in various shades of red.



FIG. 325. *Saraca indica*. A, twig with leaf and inflorescence. B, flower with the calyx-tube split open to show the pistil. C, stamen. D, fruit. B & C, enlarged.

51. *Saraca indica* Linn. Mant. 1: 98. 1767. (Fig. 325).

*Saraca arborescens* Burm. f.—*Saraca minor* Miq.—*Saraca zollingeriana* Miq.—*Jonesia asoka* Roxb.—*Jonesia pinnata* Willd.

*Engl.* Asoka Tree; *Sinh.* Asoka, Diyaratambala; Diyaratmal; *Tam.* Anagam, Asogam, Asogu, Malaikkarunai, Sasubam; *Hindi* Asok; *Sans.* Anganapriya, Apashoka, Ashoka, Chakraguchha, Chira, Dohali, Doshahari, Gandhapushpa, Hemapushpa, Kankali, Kankelli, Kantacharandohada, Kantanghridohada, Karnapura, Karnapuraka, Kelika, Krimikaraka, Madhupushpa, Nata, Palladru, Pindapushpa, Prapallava, Raktapallava, Rama, Rogitaru, Shhaya, Shokaharta, Shokanasha, Smaradhivasa, Strinirikshanadohada, Subhaga, Tamrapallava, Vamanghrighataka, Vamankayatana, Vanjula, Vanjuldruma, Vichitra, Vishoka, Vitashoka.

A small, much branched, spreading tree with reddish grey cracked bark; leaves alternate, stipulate, paripinnate compound, large, spreading horizontally, rachis 15—22.5 cm long, stout, much thickened, corky and flexible at base, leaflets 8—12, distant, the lowest pair close to the base on short, very stout, flexible stalks, 10—22.5 cm long, 3.1—3.7 cm broad, the middle ones the longest, linear, tapering to a very acute apex, glabrous, rather stiff, venation conspicuous beneath; stipules large, 1.2 cm long, intrapetiolar, ovate, stiff, brown and deciduous; flowers somewhat regular, bisexual numerous, 2.5 cm diam., pedicels 1.2 cm long, bracts 2 at summit of pedicel, small, ovate, looking like a calyx, panicles large, sessile, much branched, corymbose, dense, axillary and terminal; sepals 4, petaloid, fused into a long calyx-tube, segments spreading, passing from yellow to orange and finally red in colour, 1.2 cm long, oval, obtuse, calyx-tube 1.8—2.5 cm long, solid at the lower part; petals absent; stamens 7 with very long purple filaments, much exerted, spreading, inserted on a fleshy lobed ring at the mouth of calyx-tube, anthers purple to black in colour; ovary superior, stalked, unicarpellary, unilocular with marginal ovules, occupying the position of the uppermost eighth stamen, pubescent, style strongly curved into a ring; fruit a large legume, 12.5—22.5 cm long, 5 cm wide, tapering to both ends, much compressed, rigidly leathery, glabrous, veiny; seed 3.7—4.3 cm, ovoid, slightly compressed.

Flowers from January to March.

*Illustrations.* Burmann f., *Fl. Ind. pl.* 25, *fig.* 2. 1765; Beddome, *Flor. Sylvat. pl.* 57. 1868—1873; Wight,  *Ic. Pl. Ind. Orient.*, *pl.* 206. 1839; Curtis, *Bot. Mag.*, *pl.* 3018. 1830; Kirtikar and Basu, *Indian Med. Plants*, *pl.* 360. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs in India, Ceylon, Malacca and Malay Islands. It is rather common in Ceylon, found growing by streams in forests of the low-country, especially in the drier districts.

*India.* Khasia: *J. D. Hooker and T. Thomson.* Canara: *Talbot*, May 1882. Ceylon. *Thwaites C.P.* 653; *Walker in Herb. Wight.* Cuba. *Harv. Trop. Gard.*, *Jack* 4427, March 1926.

*Uses.* The bark of this tree is much used for uterine affections especially menorrhagia, bleeding piles and dropsical swellings. The flowers are used for haemorrhagic dysentery. Externally, the bark is employed in the treatment of fractures of bones.

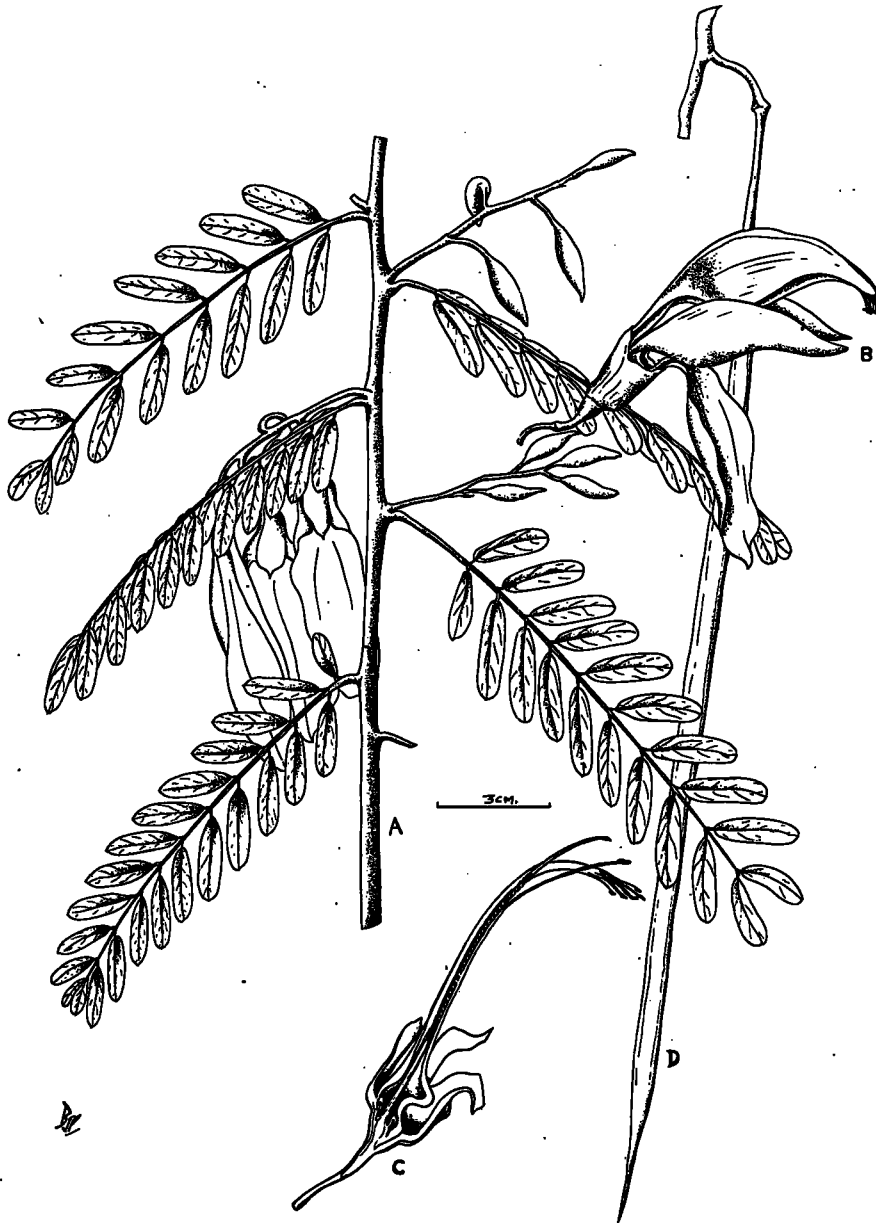


FIG. 326. *Sesbania grandiflora*. A, branch with leaves and flowers. B, flower, lateral view. C, longitudinal sections of calyx, stamen tube and pistil. D, fruit.

52. *Sesbania grandiflora* Pers. Syn. 2: 316. 1807. (Fig. 326).

*Aeschynomene grandiflora* Linn.—*Agati grandiflora* Desv.—*Coronilla grandiflora* Willd.—*Robinia grandiflora* Linn.—*Sesban grandiflorus* Poir.

*Sinh.* Katuru-murunga; *Tam.* Acham, Agatti, Akatti-keerai, Kariram, Muni, Peragatti, Sevvagatti; *Hindi* Basna; *Sans.* Agasti, Agastiya, Dirghaphalaka, Dirghashimbi, Kanali, Kharadhvansi, Munidruma, Muni priya, Muni pushpa, Munitaru, Pavitra, Raktapushpa, Shighrapushpa, Shuklapushpa, Sthulapushpa, Surapriya, Vaka, Vakrapushpa, Vangasena, Vranapaha, Vranari.

A slender tree, 6—9 m tall; leaves alternate, paripinnate compound, 15—30 cm long, leaflets 16—30 pairs, linear-oblong, sessile, 3 cm long, 1 cm wide, dark green above, lighter below, scantily pubescent on the lower surface; flowers irregular, bisexual, white, 2—4 in pendulous axillary racemes, 9 cm long; sepals 5, fused into a campanulate calyx-tube, 2 cm long and light green; petals 5, free, imbricate, standard 8.5 cm long, 6 cm broad, orbicular, emarginate, wings falcate-lanceolate, 8 cm by 2.6 cm, keel petals fused at the inner edge towards the middle, free at the base and apex; stamens 10, diadelphous, filaments white, curved upwards lying inside the keel, anthers versatile and dark brown; ovary superior, unicarpellary, swollen at base, 10 cm long, unilocular with marginal ovules; pod about 50 cm long with numerous seeds.

Flowers almost throughout the year.

**Illustration.** Kirtikar and Basu, *Indian Med. Plants*. pl. 305. 1933.

**Distribution.** Occurs in Malaya and North Australia and cultivated elsewhere. In Ceylon, it is a common garden plant grown in the mid and low-country.

**Ceylon.** Eastern Prov., Trincomalee, *Glennie*. Central Prov., Peradeniya, *Herb. Peradeniya*, Feb. 1892.

**Composition.** The flowers of this tree are rich in calcium, iron and vitamin B. The bark contains tannin and gum.

**Uses.** The root bark of the red-flowered variety is made into a paste with water and applied on rheumatic swellings. The juice of the flowers is dropped into the eye to clear dimness of vision. The expressed juice of the tender leaves and flowers is a popular remedy for nasal catarrh and headache and is blown up the nostrils to bring out mucous to relieve pain in the frontal sinuses. In the Philippines, a decoction of the bark is given for haemoptysis, while in Cambodia it is used for diarrhoea and dysentery. The leaves and flowers are a popular pot herb.



FIG. 327. *Sesbania sesban*. A, twig with leaves, flowers and fruits. B, dissection of flower. C, longitudinal section of a part of the fruit showing the attachment of the seeds. D, seed. E, longitudinal section of a seed.

53. *Sesbania sesban* (Linn.) Merr. in Philip. Journ. Sc. Bot. 7: 235. 1912. (Fig. 327).

*Aeschynomene sesban* Linn.—*Aeschynomene indica* Burm. f.—*Coronilla sesban* Willd.—*Sesbania aegyptiaca* Poir.—*Emerus sesban* O. Kuntze.

*Sinh.* Wel-murunga; *Tam.* Asnapanni, Chittakatti, Karunjemi, Segudai, Sembai, Sittagatti; *Sans.* Jaya, Jayanti, Jayaya, Nadeyi, Raja, Vaijayanti.

A weedy, tree-like herb, 2—3 m high with numerous, nearly glabrous, spreading branches without prickles and with silky young parts; leaves alternate, stipulate, paripinnate, rachis 6.2—10 cm long, slightly pilose, furrowed above, swollen at base, leaflets 10—15 pairs, opposite, very shortly stalked, 1.2—1.8 cm long, oblong-linear, obtuse, apiculate, glabrous or nearly so, rather glaucous, stipules filiform, membranous, deciduous; flowers irregular, bisexual, pale yellow with the standard dotted at the back with purple, few; rather large on very slender pedicels, in very lax, slender, pendulous, axillary, stalked racemes; sepals 5, fused into a campanulate calyx, glabrous, segments very shallow, acute; petals 5, distinct, equal, imbricate, keel obtuse not beaked; stamens 10, diadelphous, anthers uniform; ovary superior, unicarpellary, unilocular with marginal ovules, style curved upwards, glabrous; fruit legume 20—22.5 cm long, pendulous, very narrowly linear, sharply beaked, usually somewhat twisted, weak, slightly torulose, seeds 30 or more, greenish grey.

Flowers in November, December and June.

*Illustrations.* Wight, Ic. Pl. Ind. Orient., pl. 32. 1838; Kirtikar and Basu, Indian Med. Plants, pl. 303. 1933.

*Distribution.* Occurs throughout the tropics of the Old World including India, Ceylon, Thailand and Africa. It is rare in Ceylon, confined to the dry country, Habarana, Trincomalee, etc.

*India.* Bengal: *Clarke* 14145, Aug. 1871. Siwalick and Jaunsar Div., Lachhiwala, *Khosla* 42, Aug. 1921. Misor and Carnatic: *G. Thomson*. Pen. Ind. Or., *Herb. Wight* 580, Kew Distribution 1866—7. Ceylon. *Thwaites C.P.* 1512. Central Prov., Peradeniya Bot. Gard., cultivated, *Herb. Peradeniya*, May 1887; *Alston*, Jan. 1926.

*Composition.* The seeds of this herb contain catechol-tannin, an acid resin, a fixed oil, mucilage, a non-reducing oligosaccharide, alkaloid, glucoside, saponin and a large amount of protein.

*Uses.* A poultice of the leaves promotes suppuration of boils and abscesses, absorption of hydrocele and inflammatory rheumatic swellings. In Decca, the juice of the fresh leaves is used as an anthelmintic. The seeds are astringent and are used for checking diarrhoea, excessive menstrual flow and reducing enlarged spleen. As an ointment, it is applied on itch and other skin eruptions. The bruised root made into a paste absorbs poison from scorpion stings. In Africa, the plant is employed for sore throat, gonorrhoea, syphilis, yaws and as a galactagogue. The seed is a specific for bronchial catarrh and excessive menstrual haemorrhage.





*Smithia conferta*

Plate XII. *Smithia conferta* showing branches, leaves and flowers.

54. *Smithia conferta* Sm. in Rees' Cyclop. 33: 2. 1816. (Plate XII).

*Smithia geminiflora* Roth.—*Smithia capitata* Desv.—*Smithia hispidissima* Zolling.

*Sinh.* Wilnanu.

An annual herb, 60—120 cm long, branches long, virgate straggling, smooth with very long internodes below; leaves alternate, stipulate; small, paripinnate compound, rachis bristly, leaflets 8—16, 0.6—1.2 cm long, oblong, obtuse, mucronate, glabrous above, strongly ciliate on margin and midrib beneath, stipules very large, scarious, brownish red, lanceolate, acute with a long deflexed acuminate or lacerate auricle at base; flowers irregular, bisexual, pale yellow, rather large, conspicuous with two scarious bracteoles close to and beneath the calyx, solitary or two together on slender pedicels from axils of upper leaves which are crowded at the ends of branches so as to form a congested head; sepals 5, fused into a 2-lipped calyx, 5.3 mm long, scarious, rigid, lips entire, acute; petals 5, distinct, imbricate, keel petals fused on the inner side; stamens 10 in two bundles of five each; ovary superior, unicarpellary, unilocular with marginal ovules; fruit a very small 3 or 4-jointed, minute, wrinkled legume enclosed in the calyx.

Flowers in January, July and September.

**Illustration.** Herb. Peradeniya, drawing.

**Distribution.** Occurs in India, Ceylon, Java and North Australia. It is common in wet places in Ceylon in the moist low-country.

**India.** Concan, etc. *Stocks*; Chota Nagpore, *Clarke 20861B*; *Clarke 20861D*, Nov. 1873. **Ceylon.** *Thwaites C.P. 2777*; Delgoda *Lewis and J. M. Silva*, March 1919. Uva Prov., Dickwella, *Herb. Peradeniya*, Sept. 1890; between Welimada and Atampitiya, *Herb. Peradeniya*, Jan. 1888.

**Uses.** This herb has laxative properties. It is used for biliousness, rheumatism and sterility in women. Externally, it is used on ulcers.

MEDICINAL PLANTS



FIG. 328. *Tamarindus indica*. A, twig with leaves and raceme of flowers. B, longitudinal section of a flower. C, stamens with staminodes. D, fruit pod. E, longitudinal section of a part of the fruit pod. F, seed. G & H sections of the seed.

55. *Tamarindus indica* Linn. Sp. Pl. 34. 1753. (Fig. 328).

*Tamarindus occidentalis* Gaertn.—*Tamarindus officinalis* Hook.

*Engl.* Tamarind Tree; *Sinh.* Siyambala; *Tam.* Ambilam, Amilam, Egin, Eginam, Indam, Kinjam, Mugini, Odimam, Puli, Sanjivagarani, Sarittarai, Sevvarai, Sindagam, Sindam, Singuram, Sinjam, Siri, Tindiram, Tindurini; *Hindi* Amlī; *Sans.* Abdika, Amla, Amlī, Amlīka, Atyamba, Bhukta, Charitra, Chinha, Chinchika, Chukra, Chukrika, Chukru, Danthashatha, Gurupatra, Panktipatra, Pichhila, Sarvamla, Shakachukrika, Suchakrika, Sukta, Sutintidi Tindidi, Tintidika, Tintili, Tintrini, Tittidi, Yamadutika.

A large tree, 20—25 cm tall with wide-spreading branches, bark very rough and dark brown; leaves alternate with small, linear, very caducous stipules, abruptly pinnate, 7.5—10 cm long, leaflets 10—20 pairs, opposite, 1.2—2.5 cm long, sessile, articulated, set on obliquely and overlapping, oblong, usually very blunt, unequal bases, entire, rather thick, veined beneath; flowers irregular, bisexual, white or pale yellow, stalked, readily articulating, arranged in lax, few-flowered racemes which are axillary or terminal on short lateral branches shorter than leaves; calyx narrowly funnel-shaped below, divided into 4, ovate-lanceolate, acute, entire, spreading segments, imbricate in bud and then reddish purple, upper one the largest (made up of two combined segments); petals 3, one posterior and two lateral, oblong or oval, the posterior one the narrowest, about as long as calyx segments, perigynous, somewhat crisped at the margin, white or pale yellow with red veins, two minute subulate bodies in front of the stamens may represent abortive anterior petals; stamens 3, the filaments connate with other staminal nodes below to form a sheath, open above and inserted perigynously on the anterior part of the mouth of the calyx-tube; anthers oblong, dehiscing longitudinally; ovary superior, unilocular, on a sheath coming from the posterior part of the calyx-tube, curved upwards, unilocular with numerous marginal ovules, style long, hooked; fruit a pendulous pod, slightly compressed, 7.5—15 cm long, somewhat curved, nearly smooth, pale chocolate brown, pericarp thin, indehiscent, easily broken, filled with firm soft pulp surrounding the seed cavities, on the outer surface of the pulp run three tough, woody, branching, fibrous cords from base towards the apex, seeds 2—8, each lodged in a cavity in the pulp lined with a tough membrane, somewhat quadrangular, flattened, with the centre of each flat side marked with a large, central depression, smooth, purplish brown, somewhat polished and exalbuminous.

Flowers during May.

*Illustrations.* Beddome, *Flor. Sylvat. pl.* 184. 1868—1873; Curtis, *Bot. Mag. pl.* 4563. 1851; Kirtikar and Basu, *Indian Med. Plants, pl.* 361. 1933; Bentley and Trimen, *Med. Plants, pl.* 92. 1880; Herb. Peradeniya, drawing.

*Distribution.* A native of tropical Africa but grown extensively in the hotter parts of India, Ceylon, Malaya, Thailand, Philippine Islands, Java and the Pacific Islands.

*India.* *J. D. Hooker and T. Thomson.* Siwalick and Jaunsar Divs. Dehra Dun, *Gandhe* 43, May 1921. *Ceylon. Thwaites C.P.* 1501. Central Prov., Peradeniya, *Bot. Gard.*, cultivated, *Baker* 131, May 1907. *Maldivé Islands. Didi* 44, 1896; *Horsburgh Atoll, Gardiner*, 1899—1900.

*Composition.* The pulp of the fruit contains citric, tartaric, oxalic, malic and succinic acids, bitartrate of potash, sugar and pectin while the seeds contain albuminoids, fats, carbohydrates, tannin and much mucilaginous material.

*Uses.* The leaves ground into a paste with lime juice and heartwood of *Acacia chundra* Willd. are applied on boils to prevent suppuration and inflammatory swellings. A decoction of the leaves is used as a fomentation on boils and abscesses. The testa of the seed macerated with vinegar or lime juice is applied on the face to prevent formation of pimples. Internally, the leaves and pulp act as cholagogue laxatives and are often used in congestion of the liver, habitual constipation and haemorrhoids. The ripe fruit is regarded as a refrigerant digestive, carminative and laxative. The powdered seed is used as a dressing on boils and the flower is given internally as a remedy for jaundice. It is externally applied on eye diseases and ulcers

In Cambodia the bark is used as an astringent for diarrhoea, the powdered seed for dysentery and as a poultice on boils. In Indonesia, an oil extracted from the seed is used for the hair. In Mauritius the pulp of the fruit is used as a liniment for rheumatism. In Brazil, both fruit, pulp and the leaf are regarded as purgative, diaphoretic and emollient. In Madagascar, an infusion of the leaf is given as an anthelmintic and for stomach disorders. In West Africa, the powdered dry leaf is used on wounds, a decoction of the bark as a lotion to wash wounds and ulcers, while in Nigeria the root is a component in a remedy for leprosy.

The pulp of the ripe fruit is largely used as an ingredient in curries and chutneys. The heartwood is very durable and used in furniture-making as it takes on a good polish.

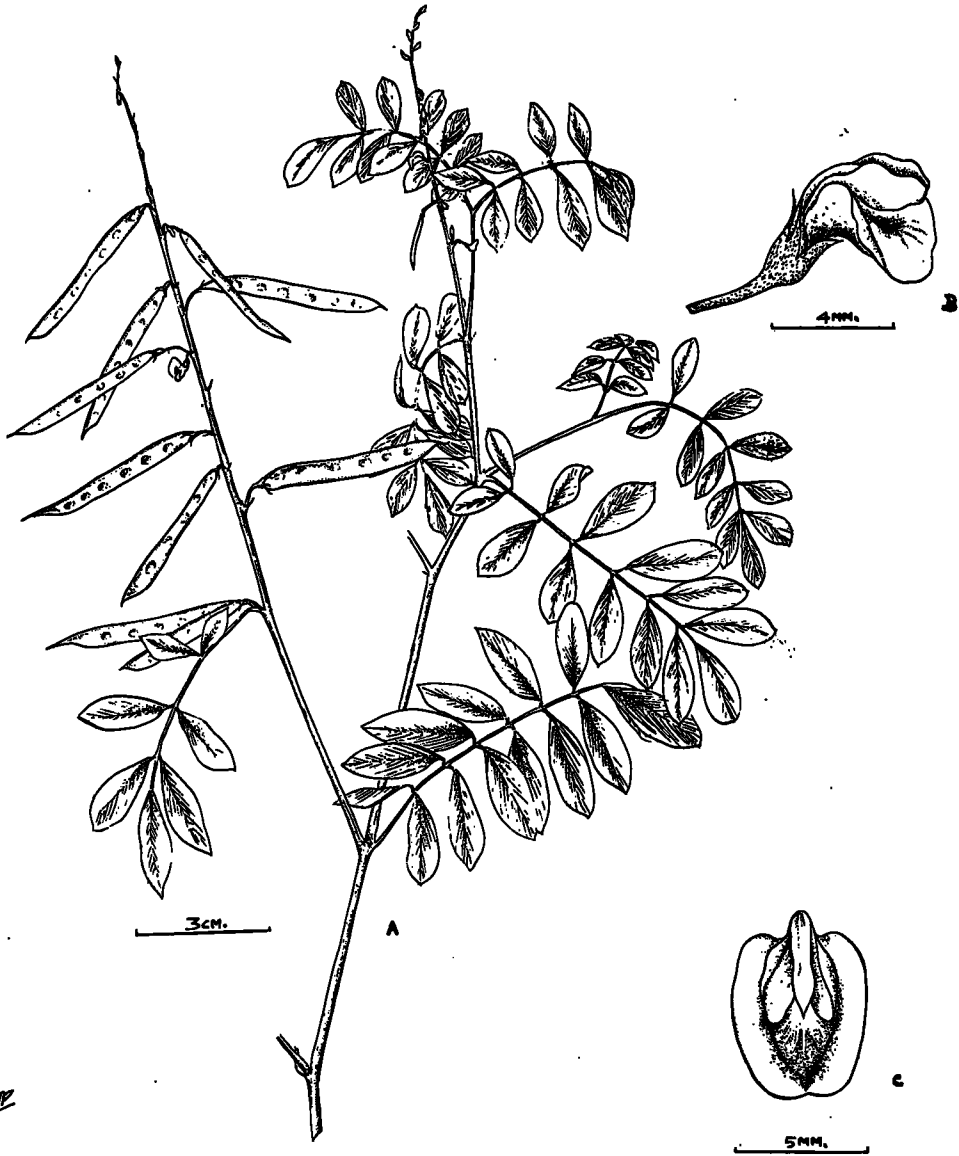


FIG. 329. *Tephrosia purpurea*. A, branch with leaves and pods. B, flower, lateral view. C, flower, front view.

56. *Tephrosia purpurea* Pers. Syn. Pl. 2: 329. 1807. (Fig. 329).

*Tephrosia leptostachys* DC.—*Tephrosia stricta* Grah.—*Tephrosia taylorii* Grah.—*Tephrosia wallichii* Grah.—*Tephrosia lobata* Grah.—*Tephrosia tinctoria* Grah.—*Tephrosia galeoides* Grah.—*Tephrosia lanceaeifolia* Link.—*Tephrosia indigofera* Bert.—*Tephrosia lanceolata* Grah.—*Galea purpurea* Linn.—*Galea lanceaeifolia* Roxb.—*Galea colonila* Ham.—*Galea sericea* Ham.—*Galea tinctoria* Lamk.—*Indigofera flexuosa* Grah.

*Sinh.* Katu-pila, Pila; *Tam.* Kollu-kayvillai, Kelinchi; *Sans.* Banapunkha, Ishupunkhika, Kalashaka, Kalika, Kandapunkha, Kriti, Nilavriksha, Plihari, Plihashatru, Punkhi, Sayakapunkha, Sharapuchha, Sharapunkha.

A perennial herb 30—60 cm high with numerous, wide spreading, glabrous or sparingly pilose branches; leaves alternate, stipulate, imparipinnate compound, rachis 3.7—7.5 cm long, slender, flexuose, channelled above, pilose, stipules setaceous, leaflets 11—21 on pilose stalks, equal, narrowly cuneate-oblong, tapering to the base, obtuse or retuse, mucronate, glabrous above, finely adpressed silky beneath; flowers irregular, bisexual, purplish pink, numerous, small on slender pedicels, 2 or 3 together, in small, lax, narrow, erect, terminal racemes; sepals 5, fused into a campanulate calyx, thinly silky, segments long, acuminate; petals 5, imbricate, standard, wing and two keel petals fused at the lower margin; stamens 10, diadelphous, anthers uniform; ovary superior, monocarpellary, unilocular with marginal ovules; fruit a linear pod, 3.7—4.3 cm long, slightly curved, mucronate, very thinly hairy, 5- or 6-seeded.

Flowers in July, November and December.

**Illustrations.** Kirtikar and Basu, *Indian Med. Plants*, pl. 302B. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs in the tropical and warm regions of India, Ceylon, Burma, Malaya, China, Australia, Philippine Islands and Africa. It is a very common weed in Ceylon found growing in the low-country both in the moist and dry regions.

**India.** Banda N. W. P., *Mrs. Bell* 162, March 1901; Decca, *Clarke* 17361A, Sept. 1872. Assam: Rani, *Chatterjee*, May 1902. Punjab: *Parker*, Dec. 1921. Misor and Carnatic: *G. Thomson*. Madras: *Cleghorn* 119; Nilgiris, *Schmid*. Pen. Ind. Or., *Herb. Wight* 673, Kew Distribution 1866—7. Ceylon. *Thwaites C.P.* 1445. Northern Prov., Talaimannar, *J. M. Silva*, July 1916. Central Prov., Peradeniya, Bot. Gard., *Alston* 2210, Dec. 1928; Exp. Station. *J. M. Silva*, Jan. 1925. Western Prov., Jaela, *Rajakakse*, Dec. 1913. Maldive Islands. *Gardiner*, 1899—1900. Burma. Upper Burma: *Chauncha*, *Huk* 38, Nov. 1892.

**Composition.** The leaves, stems and branches of this herb contain an alkaloid and a glucoside, rutin. The root contains tephrosin, deguelin, isotephrosin and rotenone.

**Uses.** A deobstruent and diuretic and is useful for coughs, biliousness and obstructions of the liver, spleen and kidneys. The roots are used as a stomachic and carminative and employed for anorexia, atonic dyspepsia, flatulence and colic. It is also said to be blood purifier and is employed as an anthelmintic in children. In Vietnam, it is used as a purgative. In Nigeria and West Africa, the root of the plant is used for flavouring milk.

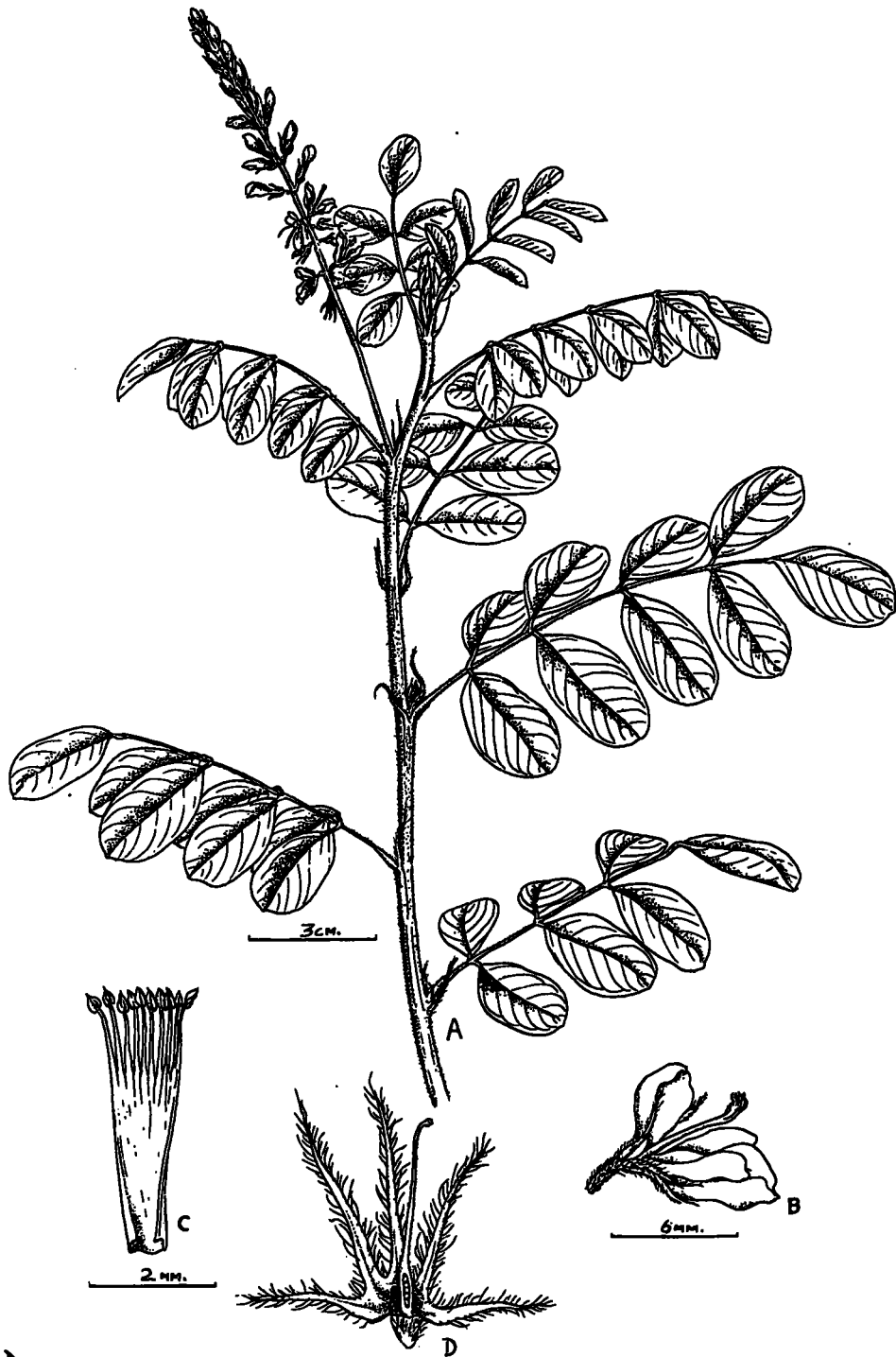


FIG. 330. *Tephrosia villosa*. A, branch with leaves, stipules and inflorescence. B, flower, lateral view. C, stamens. D, calyx spread out and longitudinal section of pistil.

57. *Tephrosia villosa* Pers. Syn. Pl. 2: 329. 1807 (Fig. 330).

*Galega villosa* (Linn.) Moon—*Galega argentina* Lamk.—*Galega barba-jovis* Burm. f.—*Tephrosia argentea* Pers.—*Cracca villosa* Linn.

*Sinh.* Bupila; *Tam.* Punaikkaivetlai.

A perennial, semi-shrubby herb with numerous, spreading branches covered with white adpressed hair; leaves alternate, stipulate, numerous, imparipinnate compound, rachis 2.5—5 cm long, silky, leaflets 11—19, stalked, 1.2—2.2 cm long, 4.5—8 mm broad, narrowly obovate-oblong, mucronate, nearly glabrous above, finely silky beneath, stipules rigid, sometimes almost spinous, spreading; flowers irregular, bisexual, pink, rarely white, small, on hairy pedicels in clusters of 2 or 3 in lax, terminal, short peduncled racemes, bracts linear; sepals 5, fused into a 5-toothed, campanulate calyx, densely covered with long, soft hair, teeth setaceous, plumose; petals 5, distinct except the keel petals, imbricate, standard hairy on the back; stamens 10, diadelphous, anthers uniform; ovary superior, unicarpellary with marginal ovules; fruit legume 2.5—3.5 cm long, broadly linear, distinctly falcate, dehiscent without septa in between seeds, bluntly apiculate, very thickly covered with dense spreading brownish hair, seeds 6—8.

Flowers all the year round.

**Illustrations.** Kirtikar and Basu, *Indian Med. Plants*, pl. 302A. 1933; *Herb. Peradeniya*, drawing.

**Distribution.** Occurs throughout India, Ceylon, Burma, Mauritius and tropical Africa. It is very common in the dry regions of Ceylon. Jaffna, Anuradhapura, Polonnaruwa, Negombo, etc.

**India.** N. W. P., Etawali, *Clarke* 21955G and K, Sept. 1874. Pen. Ind. Or., *Herb. Wight* 675; *Herb. Wight* 676, Kew Distribution 1866—7. Ceylon. *Thwaites C.P.* 1446; *Thwaites C.P.* 1447. North-Central Prov., Polonnaruwa, Govt. Farm., *Senaratne* 3519, June 1943. Central Prov., Peradeniya, Exp. Station, *Wright*, 1912. Southern Prov., Wetakeyapotha, *Alston*, Jan. 1923; Bata-ata, *Alston* 1230, March 1927; Kirinda, *Herb. Peradeniya*, Dec. 1882. Burma, *Mokim* 696, Nov. 1902.

**Uses.** The juice of the leaves is given for dropsy. The roots are used for the preparation of toothpaste.

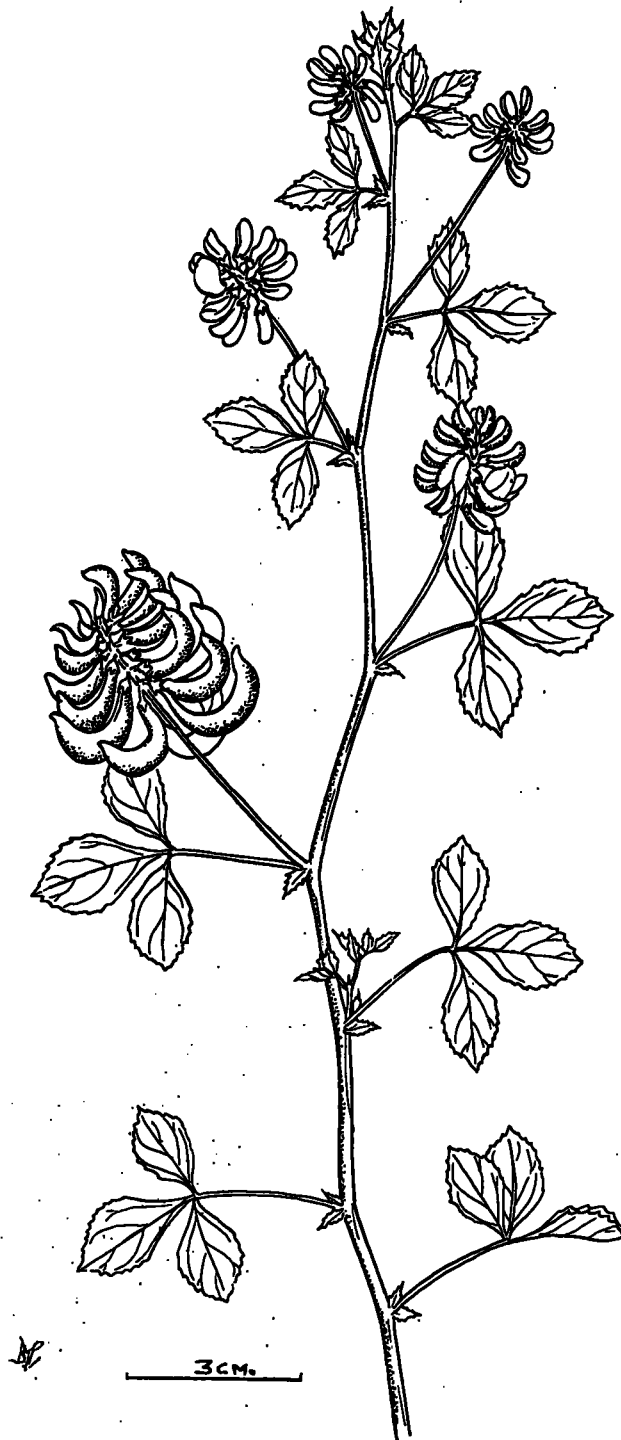


FIG. 331. *Trigonella corniculata*. Branch with leaves, stipules, fruits and flowers.

58. *Trigonella corniculata* Linn. Syst. ed., 10: 1880. (Fig. 331).

*Trigonella elatior* Sibth. and Sm.—*Trigonella fimbriata* Royle.—*Trigonella esculenta* Willd.

*Sinh.* Pikmal; *Tam.* Sheekai; *Sans.* Madya, Malya.

A glabrous, fragrant, annual herb with stems erect or nearly so, 30-60 cm tall, often robust; leaves trifoliate, leaflets 0.6—1.8 cm long, obovate, upper half toothed, lower entire, wedge shaped, lateral leaflets nearly sessile, terminal one stalked, veins prominent, parallel, running out into small, sharp teeth, stipules united to the leaf stalk, lanceolate, long-pointed; flowers irregular, bisexual, pale yellow, small, 6—12 in racemose inflorescences, stalk produced beyond the flowers in an awn-like point; calyx bell-shaped, nearly glabrous, teeth 5, nearly equal, very narrow, acute, as long as the tube; petals 5, narrow, 2—3 times as long as the calyx, standard and wings nearly equal, keel shorter and obtuse; stamens 10, diadelphous, style glabrous, slightly incurved, stigma minute; pod glabrous, deflexed, about 1.8 cm long, 2.5 mm broad, flat, transversely veined.

Flowers from June to September.

*Illustrations.* Wight, Ic. Pl. Ind. Orient., pl. 384. 1840—43; Sibthorp and Smith, Fl. Graeca, pl. 761.

*Distribution.* Occurs in India, Afghanistan and Southern Europe. It is cultivated in Ceylon in the up-country.

*India.* Himal. Bor. Occ., *T. Thomson*; Calcutta, Bot. Gard., cultivated.

*Uses.* The fruit of this herb is astringent and styptic and is applied on bruises and swellings.

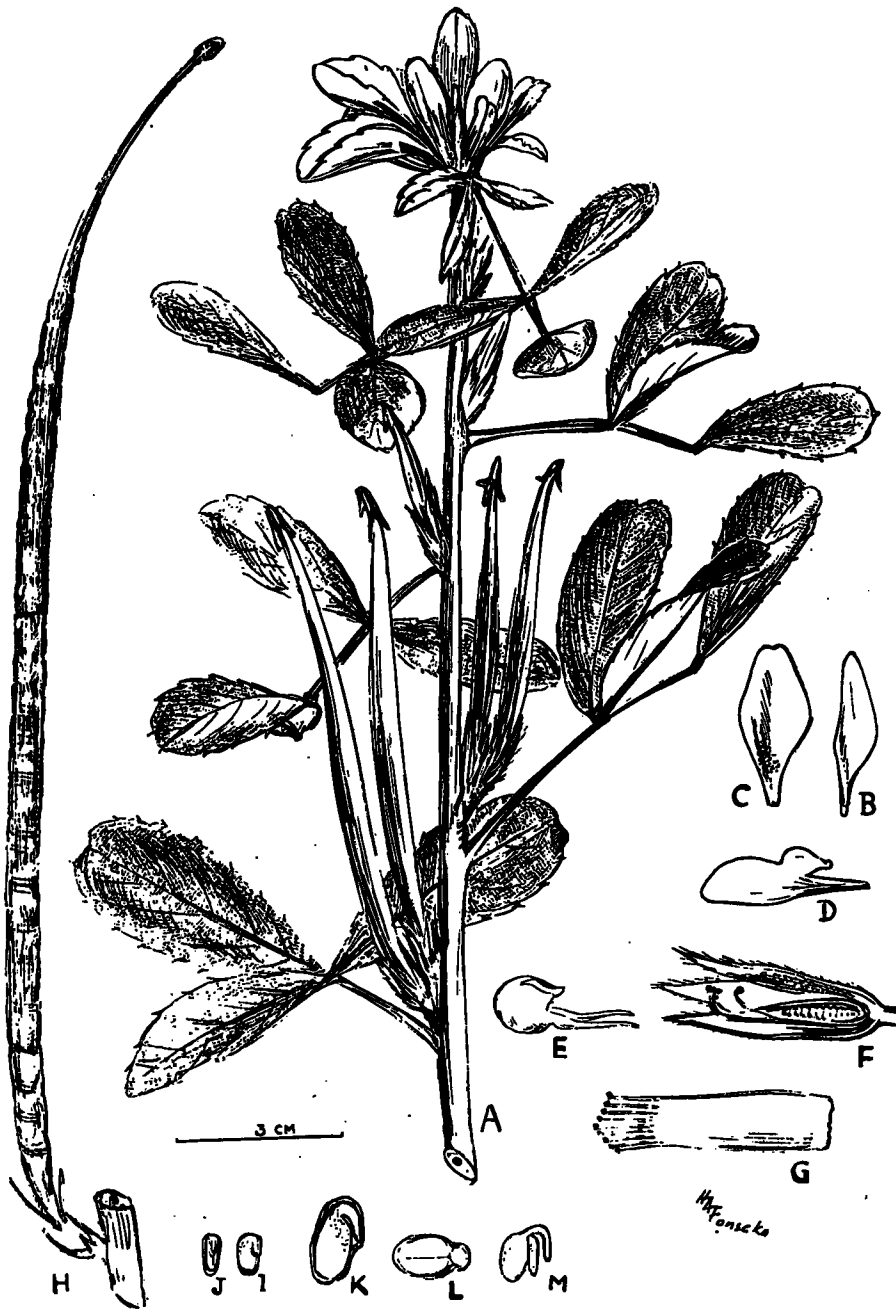


FIG. 332. *Trigonella foenum-graecum*. A, twig with leaves, pods and unopened flowers. B & C, standard petal, lateral view and front view. D, wing petal. E, keel petals. F, longitudinal section of flower with the petals removed showing a part of the calyx, stamens and pistil. G, stamen-tube spread out. H, pod. I & J seed. K, vertical section of seed. L, transverse section of seed. M embryo.

59. *Trigonella foenum-graecum* Linn. Sp. Pl. 777. 1753. (Fig. 332).

*Engl.* Fenugreek; *Sinh.* Uluhal; *Tam.* Vendayam, Ventayam; *Sans.* Bahuparni, Bahupatrika, Dipani, Gandhabija, Gandhaphala, Chandrika, Jyoti, Kairavi, Kunchika, Mantha, Methi, Methika, Methini, Misrapushpa, Munindrika, Pitabija, Vallari, Vedhani.

An annual herb 30—60 cm high with an erect, slightly branched, cylindrical, hollow, smooth or slightly pubescent stem; leaves alternate on rather long stalks, trifoliate, stipule, 0.6 cm long, triangular-acuminate, entire, ciliate, leaflets shortly stalked, articulated to the rachis oblong-ovate, blunt or emarginate at apex, denticulate in the upper half, glabrous; flowers irregular, bisexual, pale yellow, solitary (rarely 2) in axils of leaves; calyx long and narrow, divided about half-way down into 5 narrowly lanceolate or linear acuminate teeth, pale green and hairy outside; petals 5, about twice as long as the calyx, standard about 1.8 cm long with a narrow claw and an ovate emarginate blade, wings much shorter, blunt, lower petals united in front to form a very blunt, rounded keel shorter than the wings; stamens 10, hypogynous, the uppermost filament distinct, the other 9 fused except at their tips to form a sheath round the pistil, open above, anthers very small; ovary superior, unicarpellary, smooth or downy, unilocular, with numerous marginal ovules, style rather long, somewhat falcate, stigma capitate; fruit pod 12.5—17.5 cm long, 4—6 mm broad, erect when young, afterwards curved downwards falcately, laterally compressed, smooth veined with a few longitudinal anastomosing nerves and a persistent calyx at the base, gradually tapering at apex to a long slender beak, frequently capped with the withered corolla which has been carried on by the growth of the pod; seeds 10—20, compressed, obliquely rhomboid, about 6 mm long, pale orange, slightly rough with a deep oblique furrow across the upper part, exalbuminous.

**Illustrations.** Sibthorp and Smith, *Fl. Graeca*, pl. 766; Bentley and Trimen, *Med. Plants*, pl. 71. 1880; Kirtikar and Basu, *Indian Med. Plants*, pl. 290A. 1933.

**Distribution.** Occurs in India extending through Persia and Abyssinia to the Mediterranean regions. It is much cultivated in central Europe, India and Egypt. It can be cultivated in Ceylon.

**India.** Himal. Bor. Occ., *T. Thomson*; Calcutta, Bot. Gard., cultivated. Ceylon. *Walker*, cultivated.

**Composition.** The seed of this plant contains alkaloid trigonelline with mucilage, tannic acid, yellow colouring matter, fixed and volatile oil and a bitter extractive, diosgenin, gitogenin, a trace of trigogenin and vitamin A. The leaves and rapidly growing tissue are rich in vitamin C.

**Uses.** Fenugreek seeds are considered carminative and aphrodisiac. They are used for dyspepsia, diarrhoea, dysentery and rheumatism. The powdered seeds are employed in veterinary practice. In East Africa, a decoction of the seed is given for gonorrhoea. The seed is also used for culinary purposes and the fresh young plant is consumed as a vegetable.



FIG. 333. *Uraria picta*. A, portion of the stem with leaves, stipules and inflorescence. B, fruit with persistent calyx.

**60. *Uraria picta* Desv. Journ. Bot. 3: 123. 1813. (Fig. 333).**

*Doodia picta* Roxb.—*Hedysarum pictum* Jacq.—*Uraria linearis* Haask.

*Sinh.* Puswenna; *Tam.* Sittirappaladai, Surupilai; *Sans.* Chitraparni, Prishthiparni.

A small, erect, semi-shrubby perennial, 0.9—1.8 m high, with a slightly branched and harshly pubescent stem; leaves alternate, stipulate, imparipinnate compound, rather large, rachis 7.5—12.5 cm long, pubescent, leaflets 5—7, shortly stalked with filiform stipels, 6.2—10 cm long, linear, rounded at base, slightly tapering to acute apex, glabrous above and usually mottled with white along both sides of the midrib, scabrous-pubescent, paler and with prominent veins beneath, stipules 1.2—1.8 cm long, triangular, acuminate, striate; flowers irregular, bisexual, purple, small on hispid pedicels, arranged in fascicles in a dense, erect, spicate raceme 15—22.5 cm long, bracts large, lanceolate, acuminate, striate, strongly ciliate, completely concealing the buds but soon falling; sepals 5, fused into a deeply cleft calyx, segments plumose with long hair; petals 5, imbricate, keel petals fused at the inner edge, obtuse; stamens 10, diadelphous, anthers uniform; ovary superior, unicarpellary, unilocular with marginal ovules; legume of 2—4, ovoid, turgid, white, polished, seed-like joints, indehiscent, 1-seeded segments, joints folded face to face on one another.

Flowers in December and March.

**Illustrations.** Desvaux, Journ. Bot. 3: *pl.* 5, *fig.* 19. 1813; Kirtikar and Basu, Indian Med. Plants, *pl.* 308A. 1933.

**Distribution.** Occurs throughout India, Ceylon, Malay Islands, Philippines and tropical Africa. It is rather rare in Ceylon, confined to grassy places in the dry regions. Minneriya, Kalawewa, Bibile, Batticaloa, etc.

**Ceylon.** Eastern Prov., Batticaloa, *Thwaites C.P.* 1437. Uva Prov., Bibile, *Herb. Peradeniya*, Jan. 1888.

**Uses.** The fruit of this shrub is applied to sore mouths in children.

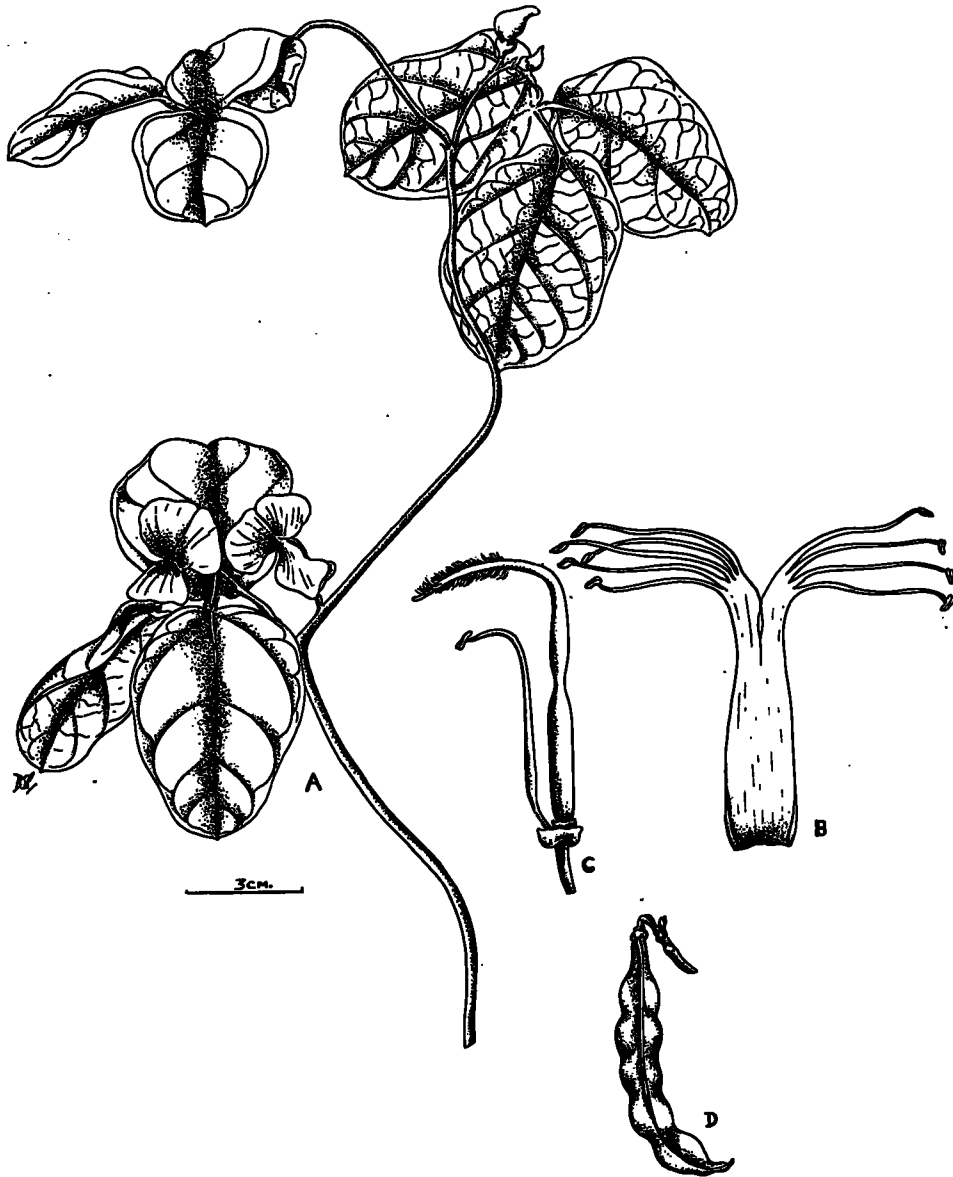


FIG. 334: *Vigna marina*. A, portion of a branch with leaves and flowering racemes. B, stamens spread out. C, solitary stamen and pistil. D, fruit. B & C, enlarged.

61. *Vigna marina* Merr. Interp. Rumph., 285. 1917. (Fig. 334).

*Dolichos gangeticus* Roxb.—*Dolichos luteus* Sw.—*Phaseolus marinus* Burm.—*Vigna lutea* A. Grey.—*Vigna retusa* Walp.—*Vigna luteola* Benth. ex Thw.

*Sinh.* Lima-karal; *Tam.* Kodeppayam; *Sans.* Masura.

A perennial herb with trailing, prostrate branches which are quite glabrous; leaves alternate, 3-foliolate with stipels, rachis 5—7.5 cm long, swollen at base, leaflets stalked, equal, 3.7—6.2 cm long, broadly oval or somewhat obovate, narrowed at base, rounded at apex, quite glabrous, stipules small, lanceolate; flowers irregular, bisexual, yellow, about 1.2 cm long on slender pedicels, in short racemes at the end of stiff, axillary peduncles usually exceeding leaves; sepals 5, fused into a 5-lobed calyx-tube, segments short and broad; petals 5, distinct, imbricate, keel not beaked; stamens 10, diadelphous; ovary superior, unicarpellary with marginal ovules, style bearded, stigma oblique; fruit legume 5—6.2 cm long, rather broadly linear, subcylindrical, turgid with thickened sutures, slightly curved, apiculate, glabrous or nearly so, seeds 5—8, black, nearly globose, 0.3 cm long.

Flowers in July.

**Illustrations.** Bentham in Mart. Fl. Bras. 15: pl. 50, fig. 2; Jacques, Hort. Vind. 1: pl. 90; Herb. Peradeniya, drawing.

**Distribution.** Occurs in India, Ceylon and Burma. It is rare in Ceylon, confined to the moist regions on or near the coast. Colombo, Galle, Matara, etc.

**Ceylon.** Thwaites C.P. 1482. Central Prov., Peradeniya, Bot. Gard., cultivated, Alston 822, April 1925; Alston 779, Sept. 1926. **French Guiana.** Sagot 39, 1894.

**Uses.** The seed is considered a diuretic. It is antibilious and used for liver complaints and jaundice. The seeds are boiled and eaten.

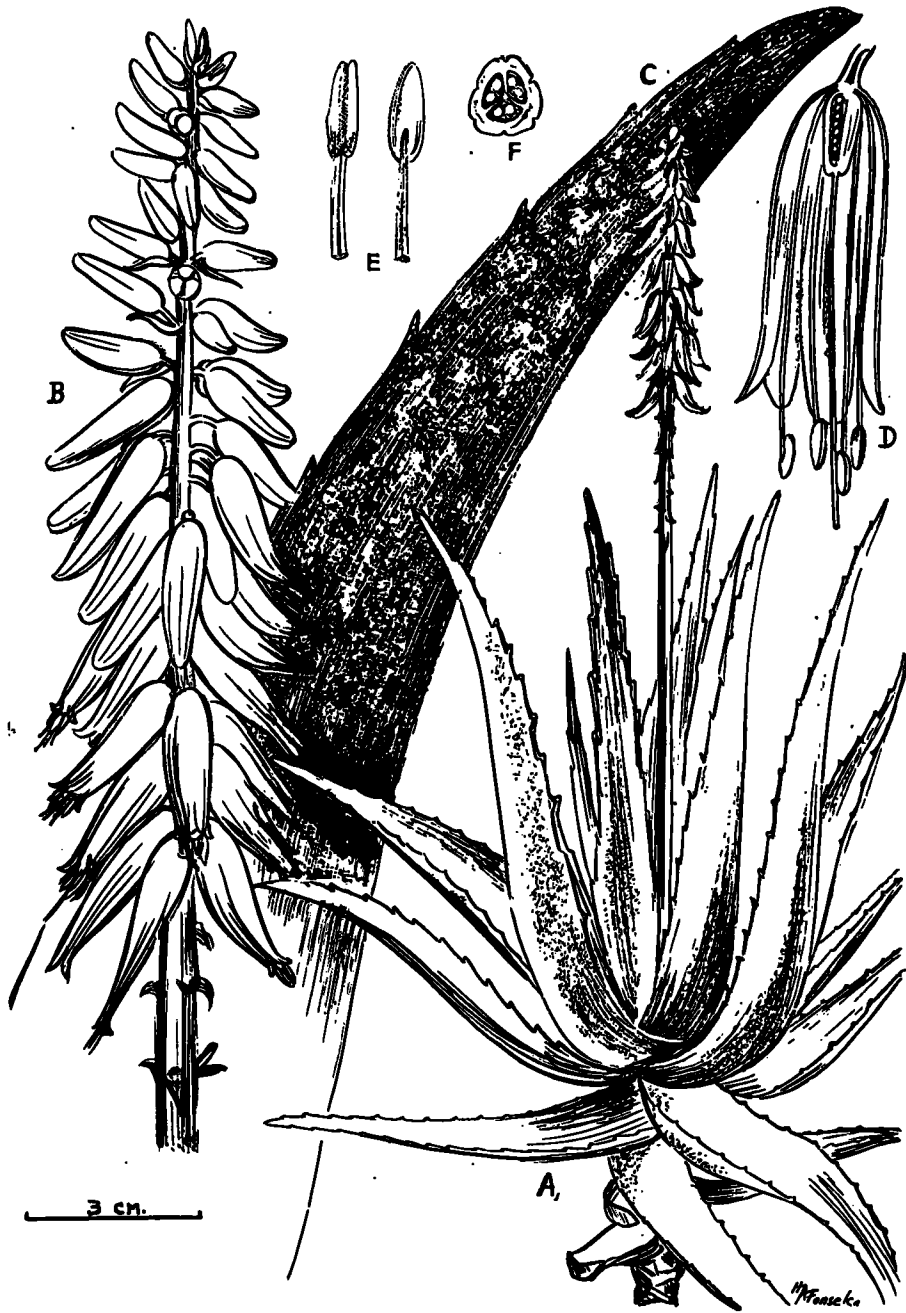


FIG. 335. *Aloe vera* var. *littoralis*. A, plant with leaves and a flowering raceme. B, top portion of the raceme. C, terminal portion of the leaf. D, longitudinal section of flower. E, stamens. F, transverse section of ovary. G, reduced.

## 57. LILIACEAE

1. *Aloe vera* var. *littoralis* (Koen.) Trim. Syst. Cat. Ceyl. Fl. 94. 1885. (Fig. 335).

*Aloe indica* Royle.—*Aloe littoralis* Koenig.

*Engl.* Aloe; *Sinh.* Komarika; *Tam.* Angai, Angini, Kattalai, Kodiyan, Sirukattalai, Sivappusottukkattalai, Sottukkattalai, Veligam; *Hindi* Ghiguvara, Ghikumari, Gvarapatha, Kumari, Kuvarapatha; *Sans.* Adala, Ajara, Amara, Ambudhisvara, Aphala, Atpichhila, Bahupatri, Bhringeshta, Brahmaghni, Dirghapatrika, Grihākanya, Ghritakumari, Kantakani, Kantakapravrita, Kanya, Kapila, Kumari, Mandala, Mata, Mridughrita-kumarika, Rama, Rasayani, Saha, Sthaleruha, Sthuladala, Sukantaka, Surasa, Suvaha, Tarani, Vipulasrava, Vira.

A perennial herb with a very short, thick, cylindrical, simple, woody stem sending out at the base numerous stolons; roots fibrous and fleshy; leaves not very numerous, sessile, densely crowded on the short stem with wide, dilated bases, spreading below and then ascending, 30—45 cm long, tapering to a blunt point, very thick and fleshy, flat or rather concave above, convex beneath, the margins set with hard, distant, somewhat hooked prickles, surface quite smooth and shining, dark glaucous green, sometimes mottled; flowering stem (scape) 90 cm high, oblique at the base, erect, stout, smooth, cylindrical from the centre of the leaf-tuft, flowers red, stalked, numerous, erect in bud, afterwards pendulous, arranged in a rather close, narrow, erect, spicate raceme terminating the scape, bracts membranous, triangular, acute, reddish, veined and persistent; perianth gamophyllous, tubular, about 3.7 cm long, rather fleshy, deeply cut into 6, oblong, bluntish segments, the three outer a little shorter than the inner which they closely cover, never spreading and persistent; stamens 6, hypogynous, a little longer than the perianth, anthers small, oblong, dorsifixed near the base, bright orange turning brown; ovary superior, oblong-ovoid, bluntly triangular, 3-locular with a double row of axile ovules in each chamber, style about equalling the stamens, simple, stigma terminal; fruit not seen.

Flowers during the dry season.

**Illustration.** Bentley and Trimen, *Med. Plants*, pl. 282. 1880.

**Distribution.** Probably a native of North Africa and the desert regions of Arabia. It is extremely abundant on the seashore of the north coast of Ceylon and naturalized. Mannar, Kalpitiya, Jaffna, Kanakesanturai, etc.

*Ceylon.* *Herb. Peradeniya*, Feb. 1890.

**Composition.** The leaves contain barbaloin, isobarbaloin, emodin, resin, cinnamic acid, d-arakinose, oxydase and traces of a volatile oil.

**Uses.** Aloe is used for constipation, dyspepsia, coughs, asthma, nervous diseases, glandular enlargements of the spleen and various types of dropsies, piles and colics. The fresh juice of the leaves is cathartic and cooling. It is used for various eye diseases. The dried juice is often applied with lime juice for reducing swellings and promoting granulation in ulcers. In the Philippines, the juice is applied to prevent the falling of hair and to cure baldness. It is mixed with milk and given for dysentery and pains in the kidney. A vaseline ointment prepared with it is useful for treating burns and scalds.

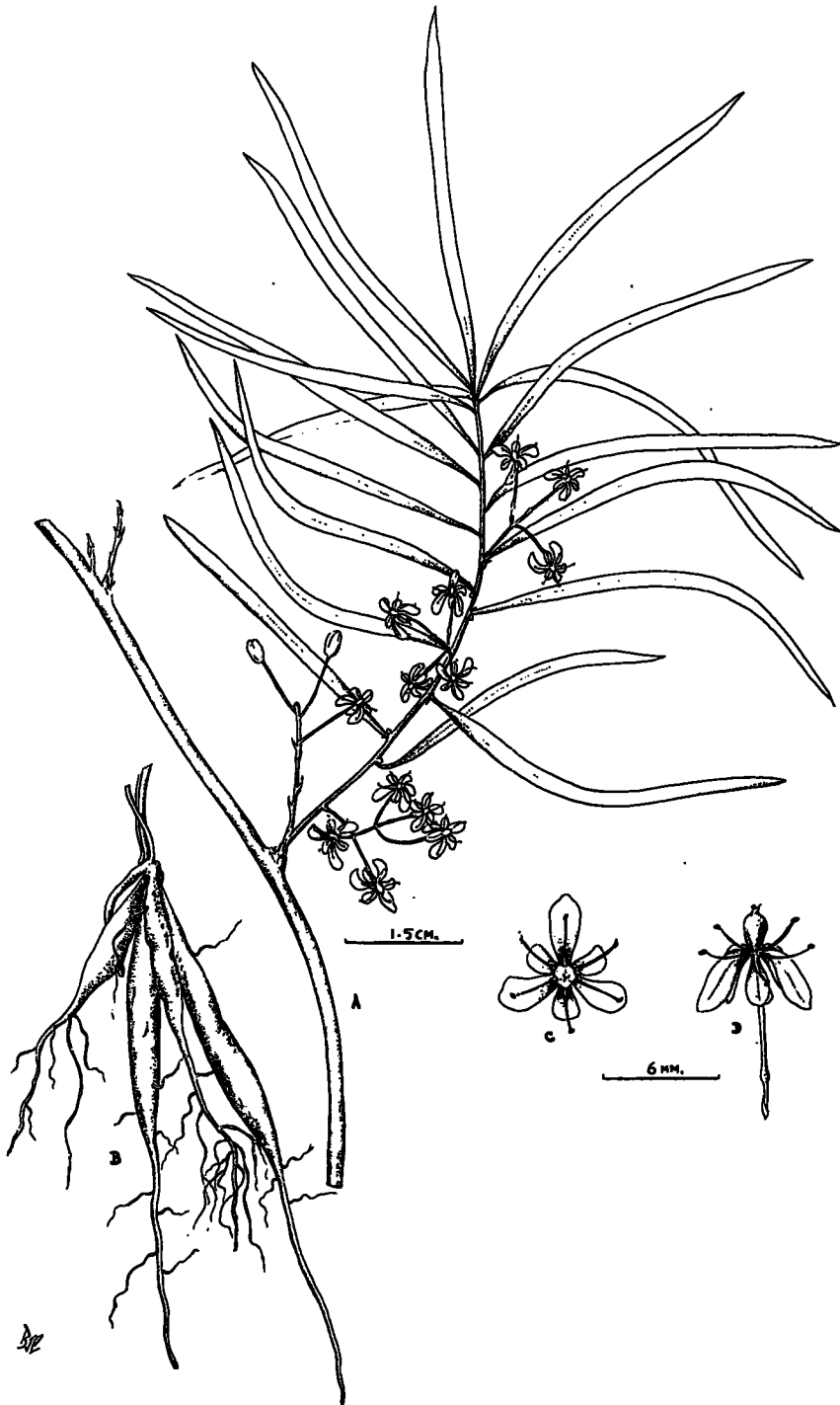


FIG. 336. *Asparagus falcatus*. A, branch with cladodes and racemes. B, tuberous roots. C flower, front view. D, flower, lateral view.

2. *Asparagus falcatus* Linn, Sp. Pl. 314. 1753. (Fig. 336).

*Sinh.* Hathawariya.

A tall subscandent undershrub with terete, smooth, armed branches, branchlets very slender, flexuous, spines 4—6 mm long; leaves reduced to minute scales, cladodes solitary and 2—6-nate, 10—15 cm long, 2—4 mm broad, narrowly ensiform, falcate, flat, costate, narrowed into an acicular tip; flowers regular, bisexual, white, fragrant, laxly few-flowered in subcorymbiform racemes 1.2—1.8 cm in length, bracts minute, pedicels capillary, jointed below the middle; perianth about 2 mm diam., rotate, segments oblong, obtuse; stamens 6, anthers minute, subglobose; berry about 6 mm diam. and 1—3-seeded.

Flowers in September and October.

*Illustration.* Burmann, Thes. Zeyl., pl. 13, fig. 2. 1737.

*Distribution.* Common in Ceylon, confined to the moist and intermediate regions upto an altitude of about 4,000 feet. It also occurs in other parts of tropical Asia and Africa.

*Ceylon.* Thwaites C.P. 2298. Eastern Prov., *Livera*, March 1923. North-Central Prov., Ritigala, *Herb. Peradeniya*, July 1887. North-Western Prov., Doluwakande *Livera*, Nov. 1923. Central Prov., Hakgala, *A. M. Silva*, March 1906; Maturata, *Willis*, May 1906; Haputale, *Herb. Peradeniya*, Sept. 1890; between Haputale and Ohiya, *Willis*, May 1906. Uva Prov., Ella, *Herb. Peradeniya*, Sept. 1890. *Cuba.* Harv. Trop. Gard., cultivated, *Jack* 4529, April 1926.

*Uses.* The tuberous roots taken internally act as a cholagogue and are valuable in chronic congestion of the liver, jaundice and gallstones. They are diuretic and diluent and are of much value in chronic nephritis, pyelitis, cystitis, gonorrhoea and strangury. They are largely employed as an antilithic for urinary gravel and calculi. They have anti-rheumatic properties and give excellent results in chronic rheumatism. They are restorative in wasting diseases and act as a muscular and nervine tonic. They are a useful aphrodisiac for sexual debility and sterility.

3. *Asparagus racemosus* Willd. Sp. Pl. 2: 152. 1799.

*Asparagus volubilis* Ham.—*Asparagus acerosus* Wall.—*Asparagus sarmentosus* Heyne.—*Asparagus fasciculatus* Br.—*Asparagus dubius* Decne.—*Asparagopsis hohenackeri* Kunth—*Asparagopsis abyssinica* Kunth—*Asparagopsis brownei* Kunth—*Asparagopsis floribunda* Kunth.

*Sinh.* Hathawariya; *Tam.* Kilavari, Migundavanam, Nirmittan, Nirvittam, Paniyi, naku, Puniyanahu, Sadamulam, Sadaveli, Sadaveri, Sandavari, Sattavari, Sirumal, Tannirvittan Tusuppu, Varivari; *Hindi* Bojhidan, Sadabori, Satawar, Satmuli, Shakakul; *Sans.* Abhiru, Aheru, Ardhakantaka, Atmagupta, Bahumula, Bahusuta, Bhiru, Bhirupatri, Darakantika, Divya, Durmana, Dvipashatru, Dvipika, Dvipishatru, Indivari, Jata, Kanchanakarini, Karshni, Keshika, Laghuparnika, Madabhajini, Madhura, Mahapurushadanta, Mahashita, Mula, Narayani, Pivari, Rangini, Rishagata, Rishyaprokta, Shatamuli, Shatapadi, Shatavari, Shatavhaya, Shatavirya, Shvetamuli, Sukshamapatra, Supatra, Supatrika, Svadurasa, Tailavalli, Vaishanavi, Vari, Vasudevapriyankari, Vishvasya, Vrishya.

A tall, rambling and scandent, spinous, excessively branched undershrub with a tuberous rootstock, branches triquetrous, spines 0.6—1.2 cm long, straight or sub-recurved; leaves reduced to minute scales bearing at their axils tufts of slender, trigonous cladodes which are 2—6-nate, 1.2—1.8 cm long, 6 mm broad in the middle, acicular, falcate, finely acuminate at both ends; flowers regular, bisexual, white, fragrant, very minute in solitary or fascicled many-flowered racemes 2.5—5 cm long, rarely branched, pedicels very slender, 4 mm long, jointed at or about the middle; perianth 6, 2—3 mm across, segments oblong, obtuse; stamens 6, inserted on perianth segments, anthers small, dorsifixed, shortly oblong, purplish; ovary superior, trigonous, 3-locular, style short, stigmas 3, minute; fruit a berry, globose or didynamous, 1—2-seeded, 4—6 mm diameter.

Flowers in February.

**Illustrations.** Wight, Ic. Pl. Ind. Orient., pl. 2056. 1853; Kirtikar and Basu, Indian Med. Plants, pl. 968. 1933.

**Distribution.** Occurs throughout the tropical and subtropical regions of India, Ceylon, tropical Africa, Java and Australia. It is common in Ceylon in the low-country, mostly in the dry regions. Trincomalee, Puttalam, Jaffna, Mihintale, Bintenne, etc.

**India.** Bengal: *J. D. Hooker and T. Thomson*. Assam: *Masters* 976; *Simons*; *Herb. Falconer* 1110, Kew Distribution 1869. Pen. Ind. Or., *Herb. Wight* 2816, Kew Distribution 1866—7. Ceylon. Northern Prov., Jaffna, Small Pox Island, *Herb. Peradeniya*, Feb. 1890. Eastern Prov., Trincomalee, *Livera*, March 1923; *Glennie*, 1860. North-Central Prov., Mihintale, *Herb. Peradeniya*, Aug. 1885. Central Prov., Nuwara Eliya, *Herb. Peradeniya*, Nov. 1859; Horton Plains, *Willis* May 1906; *J. M. Silva*, May 1911; Pidurutalagala, *Herb. Peradeniya*, April 1881. Uva Prov., Bintenne, *Thwaites C.P.* 2300. Maldive Islands. *Didi*, 1896. Burma. Upper Burma, *Huk*, Dec. 1890.

**Uses.** The tuberous roots of this plant are used as a refrigerant, demulcent, diuretic aphrodisiac, alterative, anti-diarrhoeic and anti-dysenteric. They are employed in chronic rheumatism and relieve bilious dyspepsia and diarrhoea. In India, the tubers are used as an aphrodisiac and as a cure for barrenness in women and to increase sexual vigour. They are also used for urinary and kidney diseases, strangury and retension of urine. The leaves are boiled and applied on boils and swellings.

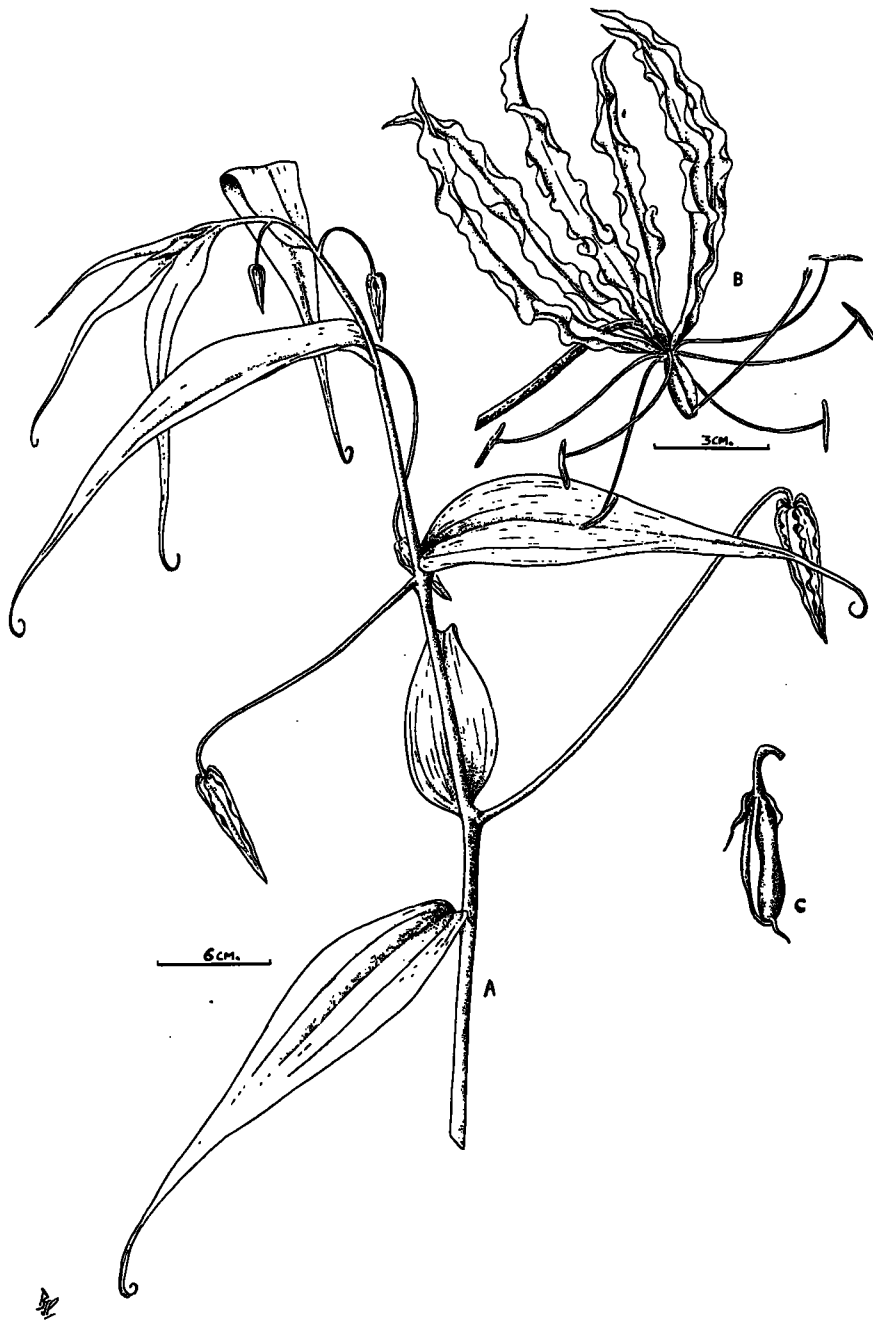


FIG. 337. *Gloriosa superba*. A, branch with leaves and flower buds. B, flower, lateral view. C, fruit.

4. *Gloriosa superba* Linn. Sp. Pl. 305. 1753. (Fig. 337).

*Gloriosa simplex* Don—*Gloriosa doniana* Schult. f.—*Methonica superba* Lamk.—*Methonica doniana* Kunth—*Eugonia superba* Salisb.

*Sinh.* Liyanagala, Niyangala; *Tam.* Akkinichilam, Anaravam, Ilangali, Iradi, Irumbu, Kandal, Kalappaikkilangu, Karltigaikkilangu, Kannovuppundu, Kirttigaikkilangu, Kodai, Milangili, Nabikkodi, Patrai, Sengandal, Sivappukkandal, Talaichuruli, Tondri, Vendondri, Ventonti; *Hindi* Kalihari, Kariari, Karihari, Kathari, Kulhari, Langali, Languli; *Sans.* Agnimukhi, Agnisikkha, Ahijioha, Amrita, Ananta, Dipta, Garbhanuta, Garbhapatani, Garbhahaghatini, Hali, Halini, Haripriya, Indrapushpika, Kalikari, Kandali, Langaliki, Languli, Nakta, Pushpasaurabha, Shakrapushpi, Sikkhajihoa, Svarnapushpa, Vanhivaktra, Vidyutajvala, Vishalya, Vranahrita.

A tall, herbaceous, leaf-tendrill climber with a root-stock of tuberous, naked corms which are arched, solid, fleshy, white, cylindrical, 15–30 cm long, 2.5–3.7 cm diam., pointed at each end, bifurcately branched producing a new joint at the end of each branch, roots fibrous, stems 3–6 m long arising from the angles of young corms; leaves simple, alternate, opposite or sometimes whorled, sessile, 15–20 cm long, broad or narrow, ovate-lanceolate, base rounded, cordate or amplexicaul, nerves parallel, apex ending in a spiral tendril; flowers regular, bisexual, large, solitary, axillary, 7.5–10 cm across, pedicels 10–15 cm long, tip deflexed; perianth 6, segments linear-lanceolate, crisply wavy, subequal, reflexed and persistent, green at first, then yellow passing through orange and finally scarlet to crimson; stamens 6, hypogynous, filaments filiform, 5 cm long, spreading, dorsifixed, anthers extrorse; ovary superior, 3-locular with many axile ovules, style 5 cm long, filiform, deflexed, 3-fid, arms subulate; capsule large, 5 cm long, linear-oblong, dehiscing septically, seeds subglobose.

Flowers between September and January.

**Illustrations.** Wight, Ic. Pl. Ind. Orient., pl. 2047. 1853; Edward, Bot. Reg. pl. 77. 1815; Kirtikar and Basu, Indian Med. Plants, pl. 978B, 1933; Herb. Peradeniya, drawing.

**Distribution.** A native of tropical Africa and is now found growing throughout tropical India, Ceylon, Malaya, Burma, Cochin-China, etc. It is common in the low-country in Ceylon.

**India.** Himal. Bor. Occ., *T. Thomson*; *Herb. Falconer* 1090, Kew Distribution 1865. Mt. Nilghiri and Kurg, *G. Thomson*. Pen. Ind. Or., *Herb. Wight* 2815, Kew Distribution 1866–68. Ceylon. Central Prov., Peradeniya, *Thwaites C.P.* 229. Maldiv Islands. Horsburgh Atoll, *Gardiner*, 1899–1900; Hulule, *Gardiner* 9, 1899–1900; *Didi* 156, 1896; Heddufuri, *Gardiner*. Burma. *Prazer* 360, Sept. 1890.

**Composition.** An alcoholic extract of the tuber of this plant yields various organic acids, choline, dextrose, a hydrocarbon, a fatty alcohol, a mixture of phytosterolins and alkaloids colchicine, demethylcolchicine, N-formyl-desacetylcolchicine, gloriosine, lumicolchicine and another unnamed alkaloid. The flowers contain the alkaloids N-formyl-desacetylcolchicine and lumicolchicine, while the leaves contain chelidonic acid.

**Uses.** The tuber is poisonous and tannic acid is an antidote which precipitates the colchicine already present in the gastro-intestinal tract and prevents further absorption. In Ceylon, the tuber is used for the treatment of bruises and sprains, while in India it is used in blood diseases, swellings, wounds, abscesses, leprosy, piles and gonorrhoea. The tuber is ground into a paste and applied on the navel and suprapubic region to promote easy labour. In Persia, it is used for treatment of impotency, while in South Africa it is a remedy for ascites.

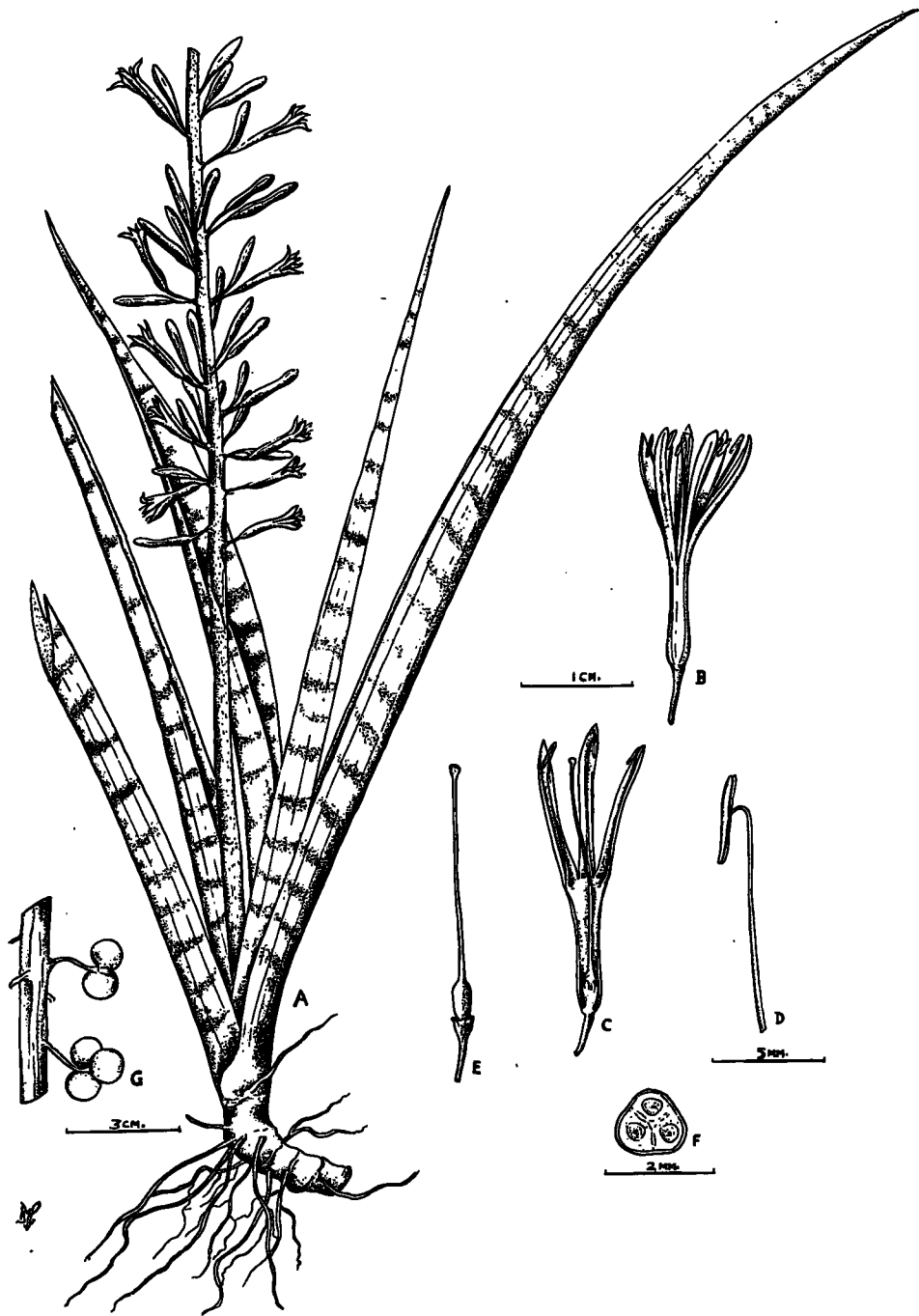


FIG. 338. *Sansevieria zeylanica*. A, plant with leaves and inflorescence. B, flower, lateral view. C, longitudinal section of flower. D, stamen. E, pistil. F, transverse section of ovary. G, fruits.

5. *Sansevieria zeylanica* (Linn.) Willd. Sp. Pl. 2: 159. 1799. (Fig. 338).

*Aletris zeylanica* Mill.—*Aletris hyacinthoides* var. *zeylanica* Linn. *Aloe zeylanica* Jacq.

*Engl.* Bow-string Hemp; *Sinh.* Muruwa, Niyanda; *Tam.* Maral, Marul-kalang; *Hindi.* Marul, Murva; *Sans.* Marura, Muruwa.

A stoloniferous, perennial herb with a very stout rootstock and very short stems; leaves radical, distichous, terete, about 8 or 9 in a tuft, 0.8—1 m long, 2.5 cm broad towards the middle, suberect, dagger-shaped, rigid, pale green with transverse bands of darker green, concave above and striate, dorsally rounded, 0.6 cm thick from back to front, margins thin reddish, terminated by a terete, acute, rigid, spiniform, green tip 2.5—5 cm long; flowering scape about 30 cm tall, cylindrical, green or pale purple with a few linear-acuminate bracts 2.5—5 cm long; flowers regular, bisexual, greenish-white tinged with violet, in fascicles of 3—6, suberect, very shortly pedicelled, sweet-scented on erect cylindrical racemes 30—60 cm long, 3.7—5 cm diam., bracts very minute, ovate, acute, pale green; perianth 6, fused, tube elongate 1.2 cm long, pale greenish-white, lobes as long as the tube, linear-oblong, obtuse, revolute, tips purplish; stamens 6 inserted on the bases of the lobes, erect, filaments as long as the perianth lobes, anthers oblong, versatile, ovary superior, attached by broad base, trigonous, 3-locular with a single ovule in each loculus, style filiform, exserted; stigma minute; fruit globose, dark orange, 0.8 cm diam., containing a single, broadly ovoid, white seed.

Flowers in January, June, etc.

**Illustrations.** Edward, Bot. Reg. *pl.* 160. 1816; Macmillan, Trop. Plant. and Gard., *p.* 410. 1956; Herb. Peradeniya, drawing.

**Distribution.** A native of Ceylon and probably occurring elsewhere as well. It is common on dry rocks and sandy places in the dry zone. Dambulla, Kurunegala, etc.

**Ceylon.** North-Western Prov., Kurunegala, *Thwaites C.P.* 2297; Doluwa Kande, *Livera*, Nov. 1922; Kahatagasdigiliya, *Herb. Peradeniya*, Jan. 1888. **Philippine Islands.** Luzon: Union Prov., Bauang, *Elmer* 5714. Feb. 1904.

**Composition.** This plant contains an alkaloid, sansevierine, besides other components.

**Uses.** The root is used for treatment of bile and gonorrhoea. The fibres of the leaves are used for making ropes and for weaving mats.

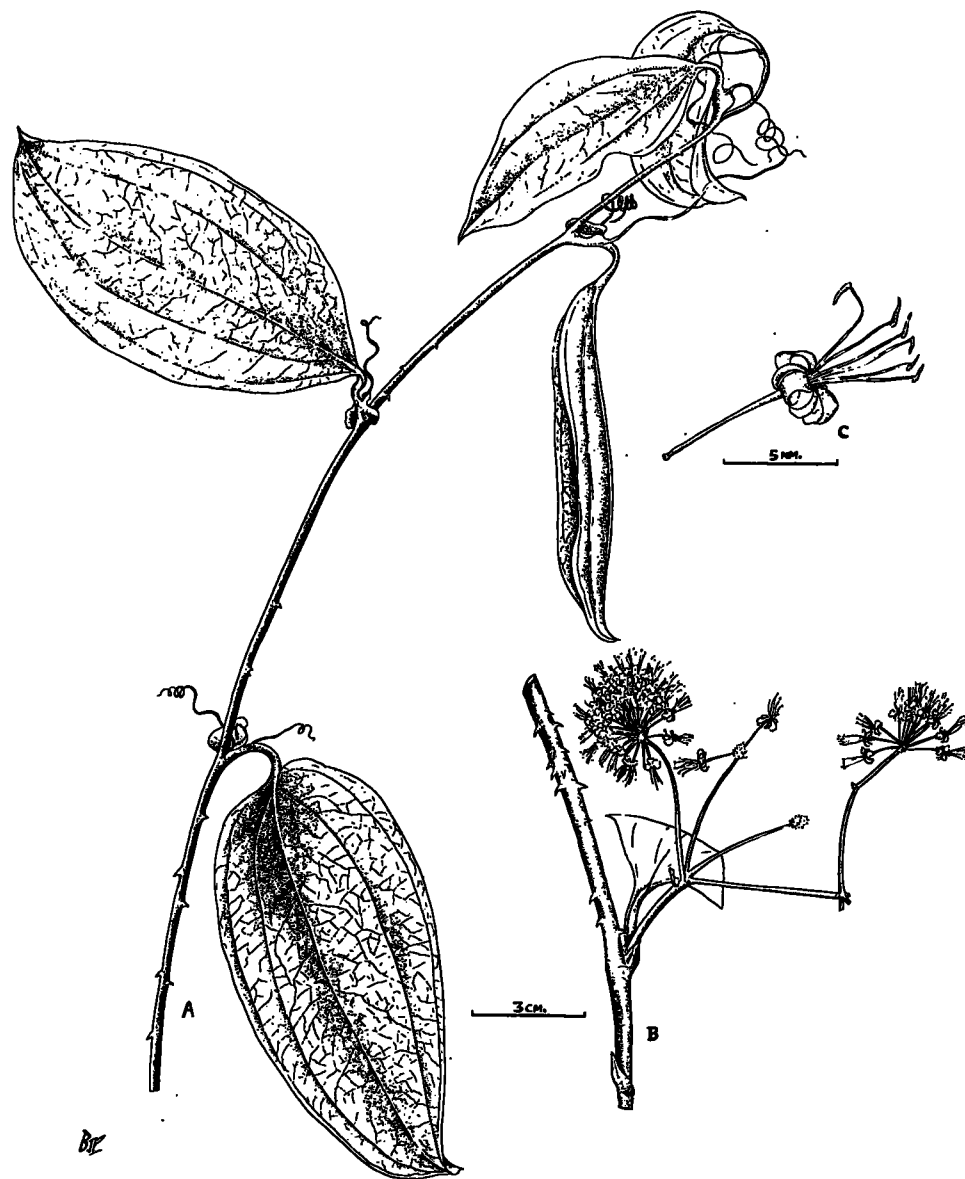


FIG. 339. *Smilax zeylanica*. A, twig with leaves and cirriferous tendrils. B, portion of the stem with umbels of flowers. C, male flower.

6. *Smilax zeylanica* Linn. Sp. Pl. 1029. 1753. (Fig. 339).

*Smilax indica* Vitm.—*Smilax laurifolia* Hohen.—*Smilax hohenackeri* Kunth—*Smilax umbellata* Herb. Madr.—*Smilax pseudo-china* Herb. Madr.

*Sinh.* Hin-kabarossa, Kabarossa; *Tam.* Ayadi, Malaittamarai, Tirunamappalai: *Hindi* Chobchini, Jangliaushbah, Ramdatun.

A scandent, climbing or rambling, glabrous, unarmed or sparingly prickly shrub, branches slender, flexuous, angular; leaves simple, alternate, persistent, 7.5—10 cm long, 3.7—6.2 cm broad, oval, broadly oblong or orbicular, tip rounded, obtuse or obtusely cuspidate, upper ones sometimes acute, base rounded or cordate, 3—5-veined, coriaceous, margin cartilaginous, petioles 1.2—2.5 cm long, jointed at the middle, base narrowly sheathing, cirriferous; plants dioecious; flowers regular unisexual, pale green, umbels about 2.5 cm diam., globose, solitary or 2—3 on a terminal rachis, 10—30 flowered, peduncle short, pedicels 6—8 mm long, bracts and bracteoles minute, buds obovoid or oblong; male flowers: perianth 6, free, inferior, segments linear, stamens 6, inserted at the base of the perianth, as long as the segments, anthers oblong, filaments free, short, pistillodes small or absent; female flowers: perianth segments ovate-oblong, obtuse, staminodes 6; ovary superior, 3-locular, style short or absent, stigma linear, obtuse, at length revolute, fruit a subglobose berry, usually 2-seeded.

Flowers during September.

**Illustration.** Herb. Peradeniya, drawing.

**Distribution.** Occurs in India, Ceylon; Burma, Malay Peninsula and Java. It is common in Ceylon up to 5,000 feet altitude.

**India.** North Canara: *Talbot*, July 1882. Mt. Nilghiri and Kurg, *G. Thomson*. Ceylon. Central Prov., *Thwaites C.P.* 3670; Hakgala, *Alston* 1378, May 1926; *A. M. Silva*, March 1906; *Willis* May 1906; Fort Macdonald, *J. M. Silva*, May 1911. Uva Prov., Namunukula, *J. M. Silva*, April 1924; *Willis*, April 1907. Sabaragamuwa Prov., Balangoda, *Herb. Peradeniya*, Sept. 1895.

**Uses.** The roots are used for treating venereal diseases, bloodless dysentery, rheumatism and pains in the lower part of the body.

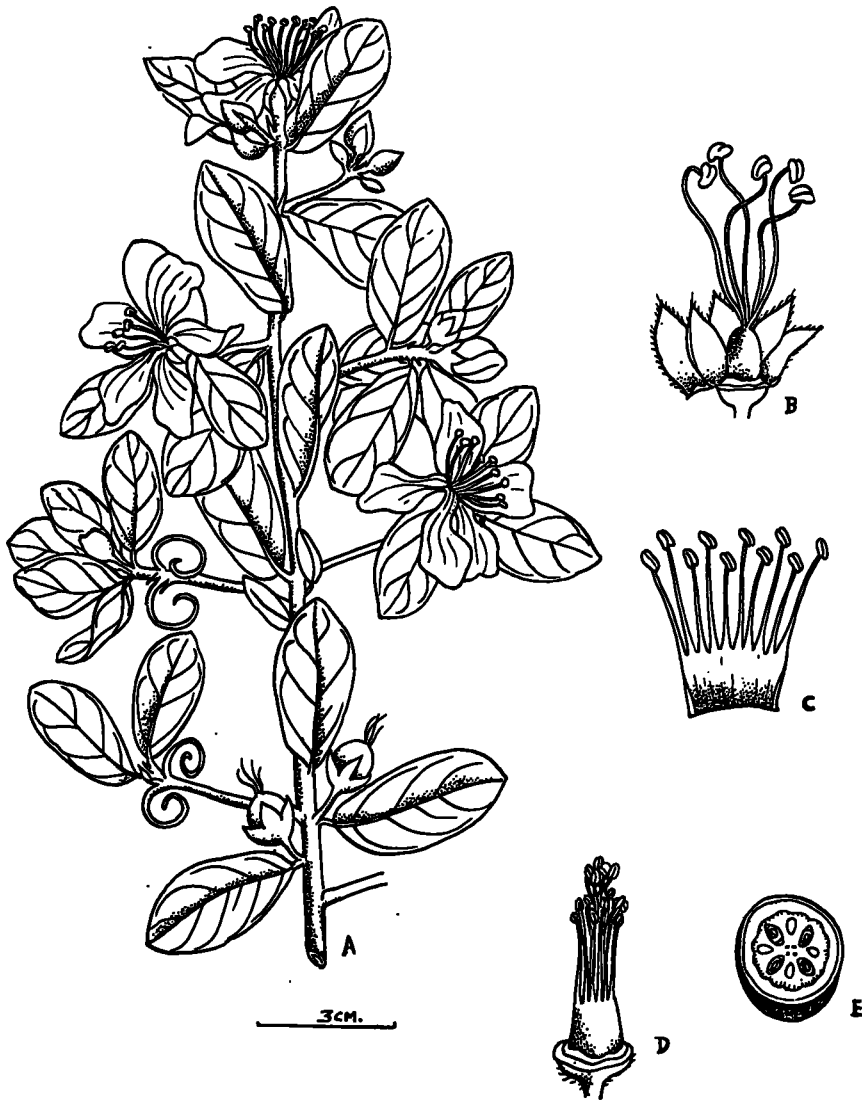


FIG. 340. *Hugonia mystax*. A, branch with leaves, flowers and fruits. B, flower, with petals and stamens removed showing the spread out calyx and pistil. C, stamens spread out. D, flower with perianth removed showing stamens and stigmas. E, transverse section of an ovary.

## 58. LINACEAE

### 1. *Hugonia mystax* Linn. Sp. Pl. 675. 1753. (Fig. 340).

*Engl.* Climbing Flax; *Sinh.* Bugettiya, Mahagetiya; *Tam.* Agari, Kodivirai, Modirakkanni.

A rambling, scandant shrub with yellow, tomentose branches and short, horizontal branchlets which are leafless below and provided near the ends with a pair of circinate hooks; leaves simple, alternate, stipulate, 3.8—6.3 cm long, 2.5—3.8 cm broad, elliptic-obovate, obtuse or subacute, entire, reticulately veined, veins conspicuous on both sides, glabrous, base tapering; petioles 1.5 cm long, hairy, stipules lanceolate-subulate; flowers regular, bisexual, yellow, at the extremities of short branchlets, 2.5—3.3 cm across, terminal and in the upper axils, pedicels short; sepals 5, free and imbricate, 7.5 mm long, ovate-lanceolate, acute, fulvous pubescent; petals 5, much larger than sepals, ovate-oblong, acute or truncate; stamens 10, connate at base into a short tube with glandular swellings between the petals; ovary superior, 5-locular with 2 ovules in each loculus, styles 5, filiform, stigmas capitate; fruit a globose drupe, about 1 cm diam. surrounded by persistent sepals.

**Illustration.** Kirtikar and Basu, *Indian Med. Plants*, pl. 165. 1933.

**Distribution.** This shrub occurs in India and Ceylon.

**Ceylon.** *Thwaites C.P.* 1185. Northern Prov., Kokkuvil—Elephant Pass, *Herb. Peradeniya*, Sept. 1897. North-Western Prov., Wilpattu National Park, *Mueller-Dombois, Wirawan, Cooray and Balakrishnan* 68122810, Dec. 1968. Southern Prov., Ruhuna National Park, Katagamuwa Road, *Comanor* 855, Jan. 1968; *Mueller-Dombois and Comanor* 67062512, June 1967; Keraugaswala, *Cooray* 68053002R, May 1968; Rakinawala, *Mueller-Dombois* 68101819, Oct. 1968; Patanagala, *Mueller-Dombois* 68043001, April 1968; *Cooray* 68053002R, May 1968.

**Uses.** The bruised roots are used externally to reduce inflammatory swellings and as an antidote to snake-bite poisoning. Internally, they act as an anthelmintic and febrifuge.

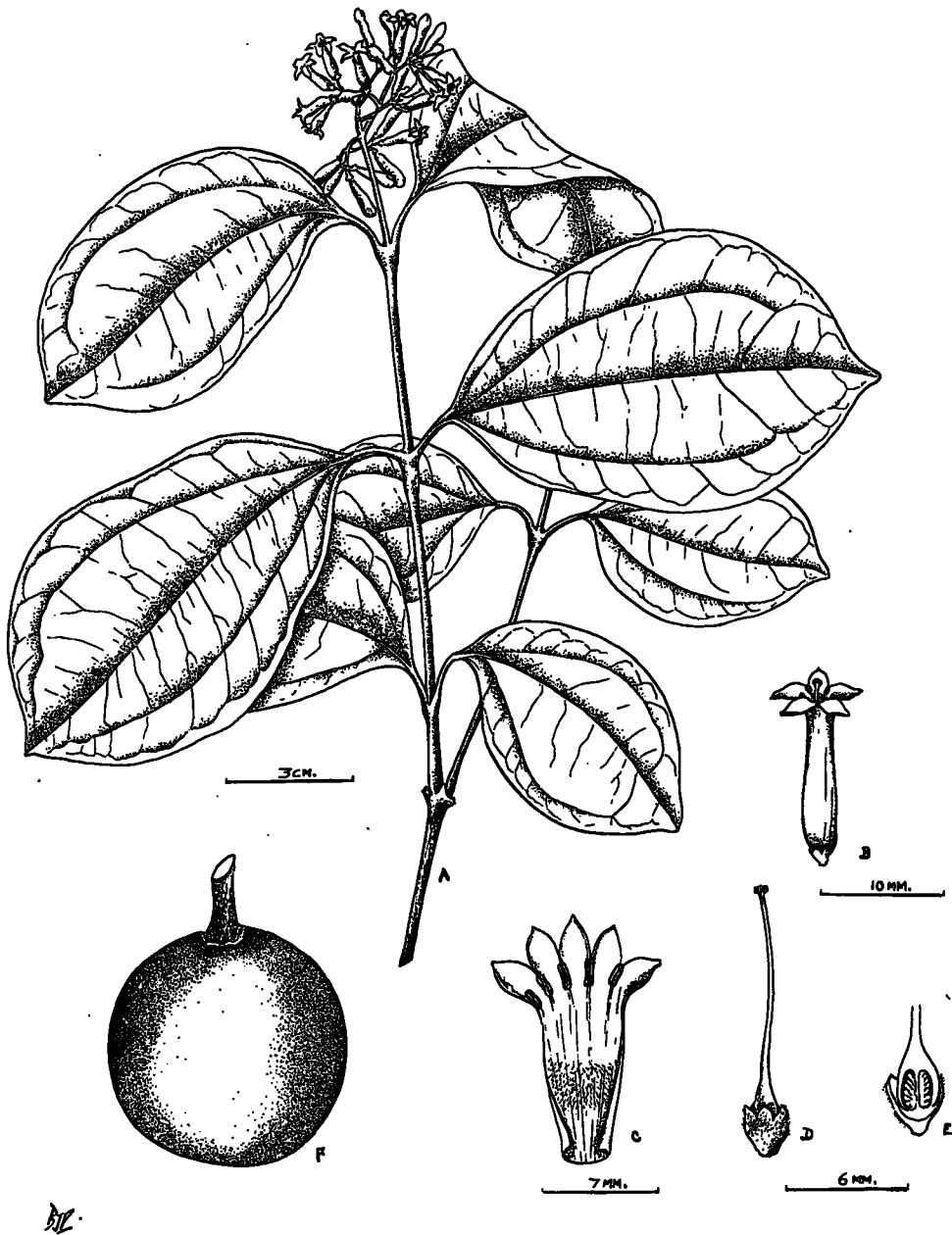


FIG. 341. *Strychnos nux-vomica*. A, branch with leaves and inflorescence. B, flower, lateral view. C, corolla opened out showing the stamens. D, flower with corolla removed showing the calyx and pistil. E, longitudinal section of ovary. F, fruit.

## 59. LOGANIACEAE

### 1. *Strychnos nux-vomica* Linn. Sp. Pl. 189. 1753. (Fig. 341).

*Strychnos tucida* Wall.—*Strychnos colubrina* Wight.—*Strychnos ligustrina* Blume.

*Engl.* Nux-vomica Tree, Poison Nut; *Sinh.* Godakaduru, Kanchura, Vishakaduru; *Tam.* Eddi, Etti, Kagodi, Kalam, Kauchurai, Kanjiga, Kanjirai, Kanjiram, Karalam, Keshamamutti, Kiruttinabanam, Kobagundam, Kodaram, Kondagulam, Kubashuba, Maduragam, Mavagam, Mutti, Nachu, Sitti, Suvasagam, Vishamutti, Yettikottai; *Hindi* Bailewa, Chibbinge, Kajra, Kuchla, Nirmal; *Sans.* Chipita, Dirghapatra, Garadruma, Kachchira, Kakanda, Kakapilu, Kakasphurja, Kakatinduka, Kalakutaka, Karaskara, Kimpaka, Krishnabana, Kulaka, Kupaka, Kupilu, Markatatindu, Markatatinduka, Payahprasadi, Ramyaphala, Vartula, Vishadruma, Vishamushti, Vishatinduka.

A moderate-sized or large tree with an erect trunk, smooth yellowish-grey bark and opposite, numerous, glabrous twigs which are cylindrical but dilated at the nodes; leaves simple, opposite, exstipulate, 6.2—10 cm long, broadly oval, often rather unequal-sided, acute or rounded at base, very shortly acuminate, obtuse, 3 or 5-nerved (lateral pair often faint), glabrous and shining, thin, venation copious, finely reticulate, petioles 0.6—1.2 cm long; flowers regular, bisexual, greenish-white, on slender pedicels, numerous, cymes terminal, peduncled, paniculate, pubescent; calyx with 5 shallow teeth, segments lanceolate, acute, pubescent, persistent; petals 5, fused into a corolla-tube longer than the lobes, tube 0.8 cm or more long, hairy within, glabrous outside, lobes ovate, acute, valvate; stamens 5, inserted in the throat of the corolla-tube, filaments very short, anthers dorsifixed, 2-celled; ovary superior, 2-locular with many ovules in each loculus, glabrous, style glabrous and placentation axile; fruit a berry variable in size, 2.5—4.3 cm diam., slightly rough but shining, deep orange—red when ripe, pericarp thin, brittle, seeds 1—6, immersed in pinkish-grey pulp, button-shaped, circular, about 1.8 cm diam., much compressed, flat, slightly concave above and convex beneath, silvery-grey and shining with a dense covering of very fine adpressed hair radiating from the centre, albuminous with horny endosperm.

Flowers in August.

**Illustrations.** Roxburgh, Pl. Corom. 1: pl. 4. 1795; Gaertner, Fruct. 2: pl. 179, fig. 7. 1791; Bentley and Trimen, Med. Plants, pl. 178. 1880; Wight, Ic. Pl. Ind. Orient., pl. 434. 1840—1843; Kirtikar and Basu, Indian Med. Plants, pl. 633A. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs throughout tropical India, Ceylon, Burma, Cochin-China, Timor and Java. It is common in the dry forests of Ceylon.

**India.** Calcutta, Wallich 1586B. Malabar, Concan, etc. *Stocks, Law*, etc. Pen. Ind. Or., *Herb. Wight* 1815, Kew Distribution 1866—7. **Ceylon.** *Thwaites C.P.* 2839.

**Composition.** The leaves, bark, wood and roots of this tree contain strychnine and brucine while the leaves contain strychnicine in addition. The seeds on the other hand contain in addition to strychnicine and brucine,  $\alpha$  and  $\beta$  colubrine, novacine, struxine,  $x$ —strychnine, vomicine and a fixed oil.

**Uses.** A poultice of the leaves of this tree is applied on ulcers. The bark is used as a tonic for dyspepsia for pain after meals accompanied by diarrhoea. The root bark ground into a paste with lime juice is given in the form of pills for cholera. In India, the bark is used for preparations of medicinal oils for local applications on leprous, chronic syphilitic and other eruptions. A decoction of the bark is given for intermittent fevers and a paste of the seed applied on ratbites. In Cambodia, an infusion of the bark is given for epilepsy. The seed is extremely poisonous affecting the nervous and muscular systems causing tetanic convulsions and death. In small doses, it is given for paralytic and neuralgic affections, diarrhoea, dysentery and debility of the spinal system.

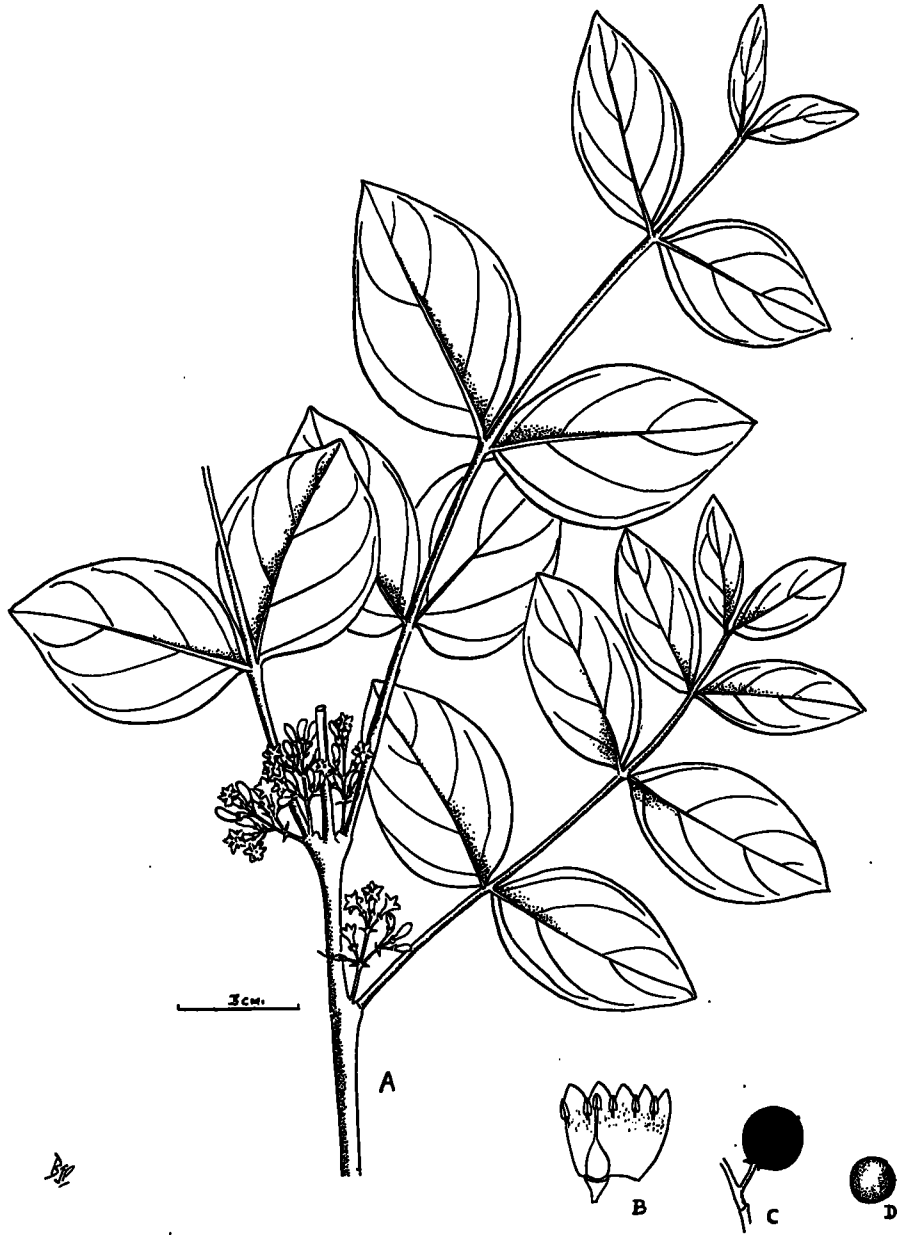


FIG. 342. *Strychnos potatorum*. A, branch with leaves and flowers in axillary cymes. B, corolla opened out showing the insertion of the stamens and pistil. C, fruit. D, seed. B, enlarged.

2. *Strychnos potatorum* Linn. f. *Suppl.* 148. 1781. (Fig. 342).

*Strychnos tettankotta* Retz.

*Engl.* Clearing Nut Tree; *Sinh.* Ingini; *Tam.* Akkolam, Ilalam, Kadali, Sillam, Tetta, Tettankottai, Teru; *Hindi* Neimal, Nelmal, Nirmali; *Sans.* Ambuprasadanaphala, Ambuprasadani, Chakshushva, Chhedaniya, Guchhaphala, Kata, Kataka, Katakarenu, Kattha, Khataka, Lekhanatmaka, Payaprasadi, Ruchishya, Ruchya, Rushya, Shlakshna, Shodanatmaka, Tiktamaricha, Tiktaphala, Toyaprasadana.

A small or moderate-sized tree with a blackish-grey corky, deeply furrowed bark, smooth twigs much thickened at the nodes and glabrous young parts; leaves simple, opposite, 7.5—12.5 cm long, very nearly sessile, ovate or ovate-lanceolate, acute or rounded at base, tapering to subacute apex, glabrous and shining, spuriously 3 or 5-nerved (the lateral veins coming from the lower part of the midrib, not from base); flowers regular, bisexual, white, rather large on slender, glabrous pedicels, cymes small, shortly stalked, axillary, glabrous; calyx 2 mm long, segments 5, glabrous, ovate and acute; petals 5, fused into a corolla-tube which is nearly as long as the lobes, lobes oblong-lanceolate, valvate, acute with a villous tuft within; stamens 5, inserted on the corolla-tube, filaments very short; ovary superior, ovoid, glabrous, 2-locular with several ovules in each loculus; fruit a berry, 1.2—1.8 cm diam., nearly black, seeds 1 or 2 immersed in pulp, 1.2 cm diam., circular, bluntly lenticular, pale yellow, shining with short adpressed hair.

Flowers in November.

*Illustrations.* Roxburgh, *Pl. Corom.* 1: *pl.* 5. 1795; Kirtikar and Basu, *Indian Med. Plants*, *pl.* 633 B. 1933; Gaertner, *Fruct.* 1: *pl.* 179. 1788; *Herb. Peradeniya*, drawing.

*Distribution.* Occurs in India; Ceylon and Burma. It is rather rare in Ceylon being confined to the dry regions. Trincomalee, Dambulla, Kurunegala, etc.

*India.* Maisor and Carnatic: *G. Thomson*. Ceylon. *Thwaites C.P.* 3719. North Central Prov., Anuradhapura, Kuttan Pokuna, *E. J. Jayawardena* 1, Sept. 1927; between Anuradhapura and Mihintale, *J. M. Silva*, April 1921; Uma Oya, *Herb. Peradeniya*, June 1881. Central Prov., Dambulla, *Simpson* 9874, June 1932. Uva Prov., Bibile, *J. M. Silva*, Oct. 1925.

*Composition.* The seeds of this tree contain brucine.

*Uses.* The seeds are used as local applications for eye diseases and internally, for chronic diarrhoea. They act as a diuretic, demulcent and diluent to the urinary tract and are useful for pyelitis, cystitis, gonorrhoea, strangury and Bright's disease. In Madras, the seeds are used in diabetes and gonorrhoea. The ripe fruit and seeds are antidotes for snake-bite poisoning. The seeds are also applied inside water-storing vessels as they precipitate mud and other impurities in water.



FIG. 343. *Lycopodium cernuum*. A, plant showing roots and twigs. B, apical portion of a twig showing the arrangement of bracts, enlarged.

## 60. LYCOPODIACEAE

### 1. *Lycopodium cernum* Linn. Sp. Pl. ed. 2, 1566. 1763. (Fig. 343).

*Lycopodium boryanum* A. Rich.—*Lycopodium capillaceum* Willd.

*Sinh.* Badal-wanassa, Wanassa.

Terrestrial herb with stiffly erect or creeping stems 30—120 cm long, simple towards the base, much branched upwards lower branchlets compound, short, divaricate, ascending or pendulous; leaves crowded all round the stem linear-subulate with revolute edges 2—3 mm long, pale green with a midrib prominently raised beneath; spikes sessile at the ends of branchlets, numerous, solitary, cylindrical, 5—15 mm long; bracts broad, ovate with a large cusp, ascending and densely ciliated.

**Illustrations.** Dillenius, *Musc.*, pl. 63, fig. 10.

**Distribution.** Common in both hemispheres including India, Ceylon and Philippine Islands. In Ceylon, it is found both in the hill country and moist low-country. It grows on the wet banks of hill cuttings.

**Ceylon.** *Thwaites C.P.* 984. Central Prov., Peradeniya, *Petch*, Feb. 1925. Western Prov., Labugama, *Herb. Peradeniya*, Sept. 1888.

**Composition.** The fronds of this herb contain the alkaloids, ceruine and nicotine.

**Uses.** A decoction of the plant is given for coughs and as a diuretic. It is effective for dysentery, gout and rheumatism. An embrocation of the ashes of the plant with vinegar is recommended for eruptions of the skin. In Africa, the powdered spore is used as a dusting powder for skin irritation. The plant is used externally in Malaysia.

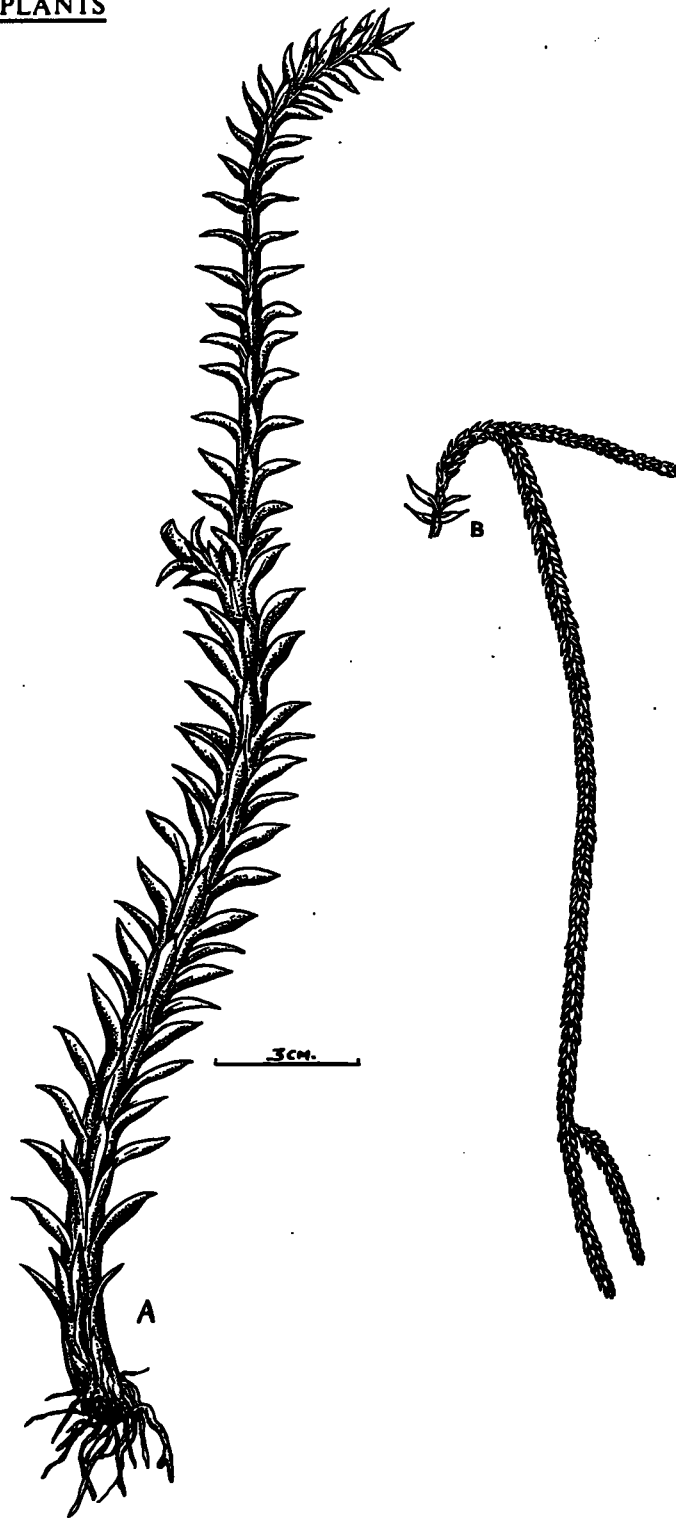


FIG. 344. *Lycopodium phlegmaria*. A, plant with roots, stem and leaves. B, spike or strobilus.

2. *Lycopodium phlegmaria* Linn. Sp. Pl. ed. 2, 1564. 1763. (Fig. 344).

*Lycopodium mirabile* Willd.—*Lycopodium australe* Willd.—*Lycopodium ericaefolium* Presl.

*Sinh.* Maha-hedaya.

A pendulous epiphyte 15—60 cm long, 2—4 dichotomously branched, always stramineous; leaves close, spreading or ascending, ovate or ovate-lanceolate, 1.3—2 cm long, firm in texture, green, rounded or cordate at base, entire, midrib distinct; spikes many, flaccid, 7.5—15 cm long usually forked at and above the base and about 2 mm. diam.; bracts ovate, green, wrinkled at the back, not cuspidate, as long as or a little longer than the sporangia.

*Illustrations.* Dillenius, *Musc. pl.* 61; Herb. Peradeniya, drawing.

*Distribution.* This epiphyte occurs in the tropics of the Old World, extending to Eastern Himalaya, Queensland and New Zealand. It is common in Ceylon in the mid and up-country rain forests.

*Ceylon.* *Thwaites* C.P. 987. Central Prov., Nuwara Eliya, *Livera*, Oct. 1925. Uva Prov., Namunukula, *Willis*, April 1907; *J. M. Silva*, March 1907.

*Uses.* Used in the preparation of medicinal oils for the treatment of snake-bites.

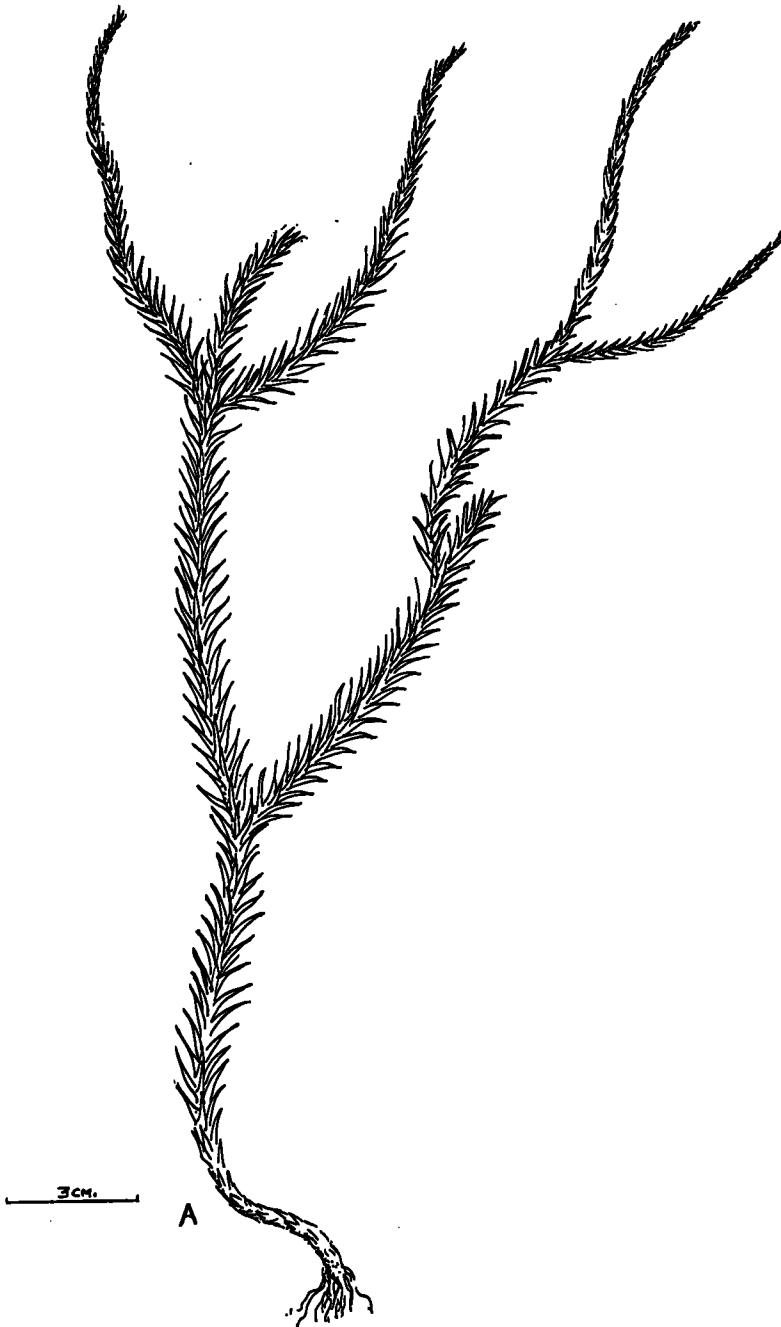


FIG. 345. *Lycopodium pulcherrimum*. A, plant with roots, stems and leaves.

3. *Lycopodium pulcherrimum* Wall. ex Hook. et Grev. Ic. Pl. 183. (Fig. 345).

*Lycopodium squarrosum* Forst.—*Lycopodium ulicifolium* Vent.—*Lycopodium epiceaefolium* Desv.—*Lycopodium hippuris* Desv.—*Lycopodium fosteri* Poir.—*Lycopodium blumeianum* De Vriese—*Lycopodium proliferum* Bl.—*Lycopodium hookeri* Wall.—*Lycopodium protensum* Hook. et Grev.—*Lycopodium acutifolium* Desv.

*Sinh.* Kuda-hedaya.

A pendulous epiphyte, 30—60 cm long, 2—3 times dichotomously branched, branches and branchlets long, 2—2.5 cm diam., including the leaves; leaves lanceolate, crowded, dark green, entire, spreading or ascending, 1—2 cm long, midrib distinct; sporangia in long, simple spikes in the axils of much reduced lanceolate green leaves 3—6 mm long.

**Illustrations.** Hooker f., *Exot. pl.* 23; Hook. et Grev., *Ic. Pl.* *pl.* 183. *Herb. Peradeniya*, drawing.

**Distribution.** Occurs in East Himalaya, Khasia, Malay Islands, Philippines, Polynesia, Seychelles and Mascaren Islands. It is common in Ceylon in the mid and up-country rain forests.

**Uses.** Used for the same ailments as *Lycopodium phlegmaria* is employed.

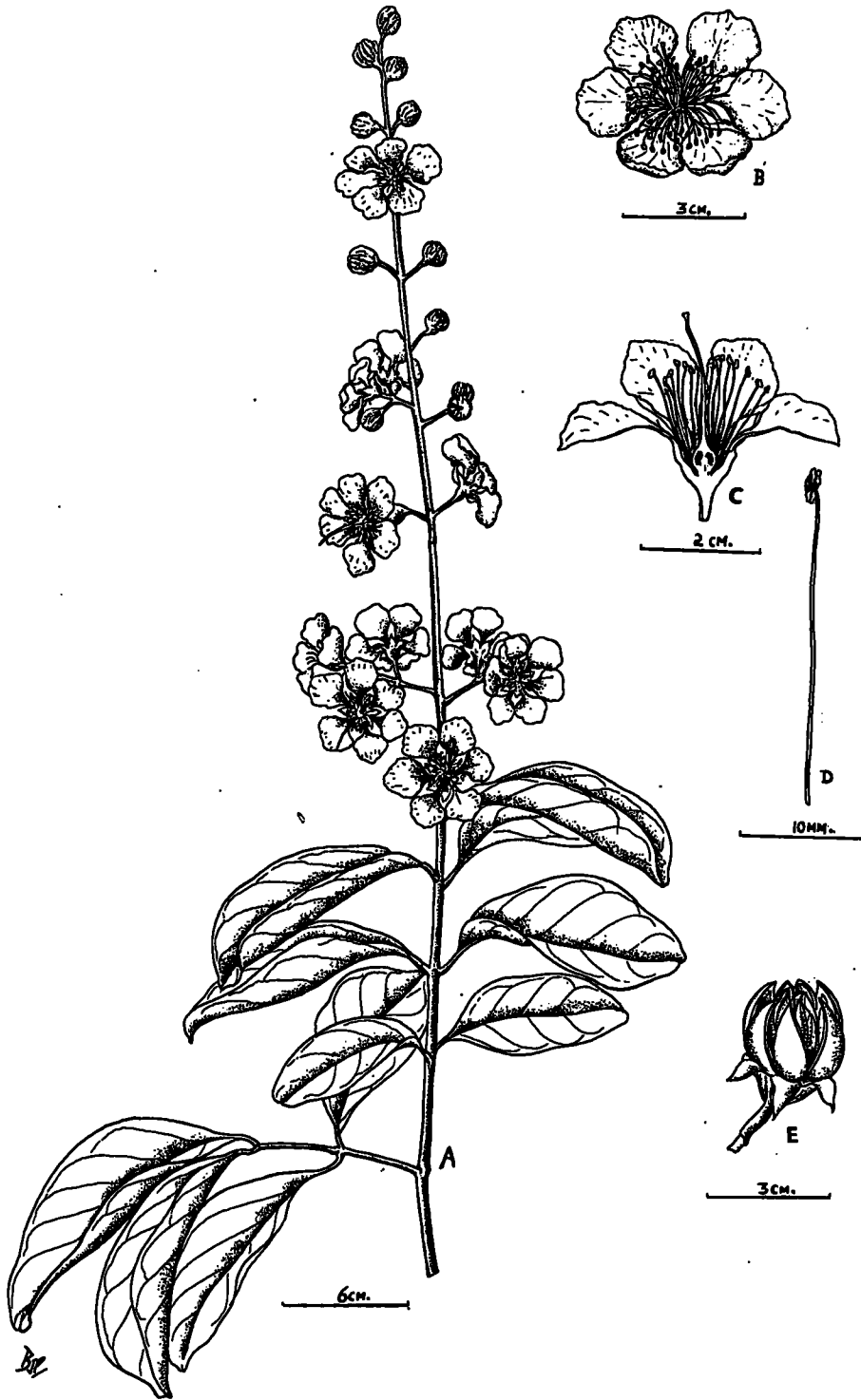


FIG. 346. *Lagerstroemia speciosa*. A, branch with leaves and inflorescence. B, flower, front view. C, longitudinal section of flower. D, stamen. E, dehiscent fruit.

## 61. LYTHRACEAE

### 1. *Lagerstroemia speciosa* Pers. Syn. 2: 72. 1807. (Fig. 346).

*Munchausia speciosa* Linn.—*Lagerstroemia major* Retz.—*Lagerstroemia javanensis* Retz.—*Lagerstroemia flos-reginae* Retz.—*Lagerstroemia reginae* Roxb.—*Lagerstroemia macrocarpa* Wall.—*Adambea glabra* Lamk.

*Sinh.* Murutha; *Tam.* Kadali, Kadalimugai, Kadalippuva, Pumaruda; *Sans.* Arjuna.

A large deciduous tree, 9—18 m high, with spreading branches, pale, smooth bark flaking off in irregular pieces; leaves simple, opposite, exstipulate, large, 15—25 cm long, 3.8—7.5 cm broad, oval or oblong-lanceolate, rounded at base, subacute, entire but somewhat repand at margin, glabrous on both sides, paler beneath with lateral veins prominent, petioles 0.6—1.2 cm long and stout; flowers regular, bisexual, very large, deep or light mauve or bright rose coloured, 5—10 cm diam., on very stout, pubescent, spreading pedicels thickened upwards and articulated below the middle where there are two small, opposite branchlets, panicle large, 45—60 cm long, stout, erect with spreading branches, bracts small; sepals 6, fused into a campanulate, fleshy calyx-tube with 12 vertical grooves, barely pubescent, segments long-triangular, acute, spreading, rather shorter than the tube; petals 6, distinct, clawed, inserted at the brim of the calyx-tube, 2.5—4.3 cm long, rotundate, leaf-like with a stout petiole-like claw, veiny, much undulate and crumpled, spreading, margin slightly erose; stamens very numerous, in several rows inserted near the base of the calyx-tube, filaments less than 2.5 cm in length; ovary superior, 6-locular with numerous ovules in each loculus, glabrous, style simple; fruit a loculicidally dehiscent, 6-valved woody capsule 1.8 cm long, broadly ovoid, about 1/3 concealed by persistent cup-like calyx, apiculate, smooth, valves remaining connected by their bases; seed with wing 1.2—1.4 cm long, glabrous, pale brown.

Flowers between April and July.

**Illustrations.** Roxburgh, *Pl. Corom.*, pl. 65. 1795; Wight, *lc. Pl. Ind. Orient.*, pl. 413. 1840—1843; Blume, *Mus. Bot.* 2: pl. 41. 1852; Beddome, *Flor. Sylvat.*, pl. 29. 1868—1873; Kirtikar and Basu, *Indian Med. Plants*, pl. 433. 1933; Herb. Peradeniya, drawing.

**Distribution.** Occurs in the Western Ghats of India, Ceylon, Assam, Chittagong, Lower Burma, Malay Peninsula and Philippine Islands. It is rather common in Ceylon, on banks of rivers and streams in the low-country up to 2,000 feet altitude.

**India.** Calcutta: *Wallich* 2114K. Madras: *Cleghorn* 184. *Pen. Ind. Or.*, *Herb. Wight* 970, Kew Distribution 1866—7. Ceylon. Central Prov., Peradeniya, Bot. Gard., *J. M. Silva*, April 1922; Ambagamuwa, *Thwaites C.P.* 1554. Java. *Kooders* 4418; *Kooders* 4405; *Kooders* 4396. Sumatra. Batoe Bahra, *Yates* 2128. **Philippine Islands.** Palawan, *Cenabre* 29974, July—Aug. 1925.

**Composition.** The bark, fruits and leaves contain tannin, while the stems contain an alkaloid. The older leaves and mature fruits contain an insulin-like principle in addition to the tannin and the alkaloid.

**Uses.** The mature leaves and ripe fruits are given in decoction to lower the blood sugar in diabetes mellitus. The bark and leaves are purgative and the seeds used for treating apthae.

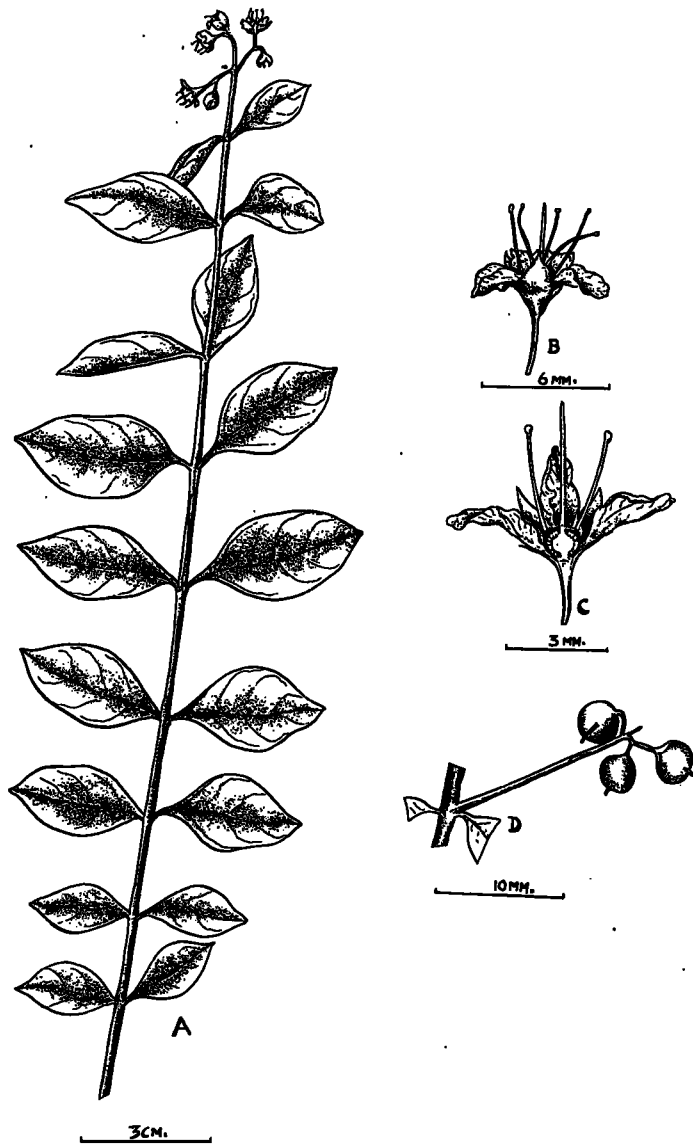


FIG. 347. *Lawsonia inermis*. A, branch with leaves and inflorescence. B, flower, lateral view. C, longitudinal section of flower. D, fruits.

2. *Lawsonia inermis* Linn. Sp. Pl. 349. 1753. (Fig. 347).

*Lawsonia spinosa* Linn.—*Lawsonia alba* Lamk.—*Lawsonia purpurea* Lamk.

*Engl.* Henna Plant, Jamaica Mignonette, Tree Mignonette; *Sinh.* Maritondi; *Tam.* Aivanam, Aivani, Korandam, Kurandagam, Kurinji, Marudondri, Mayilainandi, Pidai, Ponninpuvalamarudondri; *Sans.* Dvivratna, Kokadanta, Medika, Mendhika, Nakharanjaka, Nakharanjani, Rajagarbha, Ragangi, Ranjaka, Sahashara, Sugandhapushpa, Timira, Yavaneshta.

A much branched shrub, the lateral branches 4-gonous often ending in a sharp point; leaves simple, opposite, exstipulate, small, 1.2—3.7 cm long, 0.6—1.6 cm broad, very nearly sessile, oval or lanceolate, tapering to base, acute or obtuse at apex, often apiculate, entire, glabrous; flowers regular, bisexual, cream yellow with pinkish sepals, very sweet scented, small, numerous, under 1.2 cm long, pedicels slender, glabrous, arranged in rather long axillary and terminal panicles, the whole forming a large pyramidal inflorescence; sepals 4, fused into a very short glabrous calyx-tube, segments 2.5—3 mm long, oval, acute; petals 4, distinct, 3 mm long and as broad inserted at the summit of the calyx-tube, oblong, undulate, spreading or reflexed; stamens 8, inserted on the calyx-tube in spreading pairs; ovary superior, 4-locular with numerous ovules, style simple; fruit capsule about 0.6 cm long, globose, dehiscent irregularly supported on a persistent calyx tipped with style.

Flowers in February and March.

*Illustrations.* Wight, *Ill. Ind. Bot.*, pl. 87. 1838; Beddome, *Flor. Ann. Gen.*, pl. 14, fig. 6. 1874; Griffith, *lc. Pl. Asiat.*, pl. 580; Kirtikar and Basu, *Indian Med. Plants*, pl. 432A. 1933; *Herb. Peradeniya*, drawing.

*Distribution.* Occurs in Africa, Arabia, Persia and in the drier parts of India and Ceylon. It is cultivated and now naturalized. It is rather rare in Ceylon being confined to the dry and desert regions especially near the sea coast. Batticaloa, Chilaw, Mannar, Jaffna, etc.

*India.* Bengal: *R. Thomson. Pen. Ind. Or.*, *Herb. Wight* 986, *Kew Distribution* 1866—7. *Ceylon.* Northern Prov., Jaffna, *Koshy*, July 1951; Mannar, *Thwaites C.P.* 1551; *Herb. Peradeniya*, Feb. 1890. *Maldive Islands.* Horsburgh Atoll, *Gardiner*, 1899. *Cuba.* *Harv. Trop. Gard.*, *Jack* 4557, April 1926.

*Composition.* The leaves of this plant contain a glucoside and tannin, resin lawsone and probably an alkaloid. The flowers contain an essential oil, which suggests the smell of mignonette and the seeds a fixed oil consisting of  $\alpha$ -ionone and  $\beta$ -ionone.

*Uses.* The roots and leaves are said to be anthelmintic. The roots are used in the treatment of hysteria and nervous disorders. The bark is given in the form of a decoction for jaundice, enlargement of the spleen and obstinate skin diseases. The root is regarded as a specific for leprosy. The leaves stimulate the growth of hair and the flowers are sudorific. The flowers and fruits are reputed to have emmenagogue properties.

In West Africa, the leaves are used as a remedy for leprosy and the seed a narcotic stimulant. In Cambodia, the roots are considered diuretic and pectoral and given for gonorrhoea and bronchitis.

Henna is best known on account of the orange-red dye obtained from the leaves and used as a cosmetic. A perfume is extracted from the flowers.

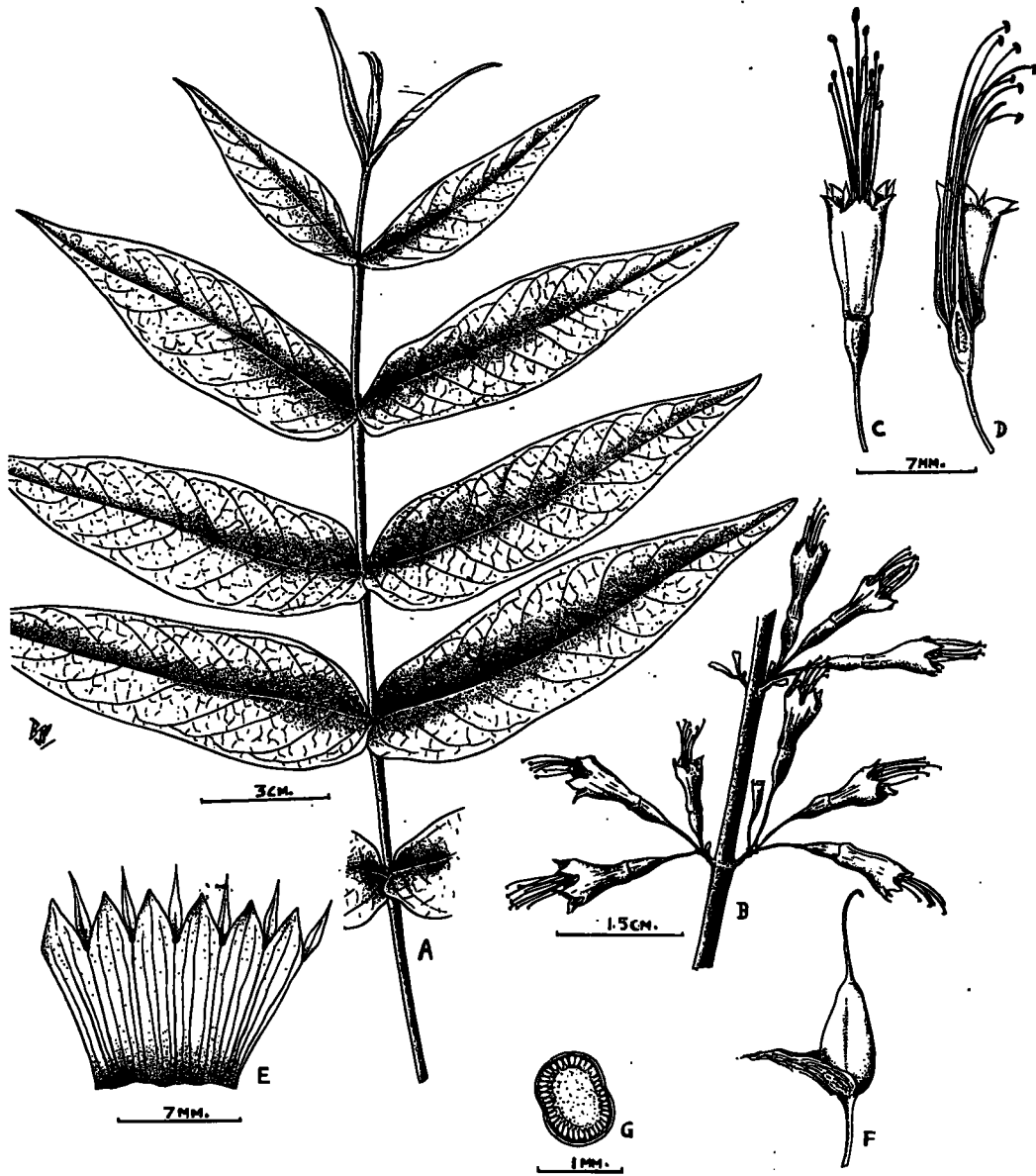


FIG. 348. *Woodfordia fruticosa*. A, branch with leaves. B, portion of the older stem with inflorescences. C, flower, lateral view. D, longitudinal section of flower. E, calyx-tube spread out with petals in between segments. F, fruit. G, transverse section of ovary.

3. *Woodfordia fruticosa* (Linn.) Kurz in Journ. As. Soc. Beng. 11: 56. 1871. (Fig. 348).

*Lythrum fruticosum* Linn.—*Woodfordia floribunda* Salisb.—*Woodfordia tomentosa* Bedd.—*Woodfordia fruticosa* forma *punctata* Bl.—*Woodfordia floribunda* var. *tomentosa* Hiern.—*Grislea tomentosa* Roxb.—*Grislea punctata* Ham ex Sm.—*Lonicera androsaemifolia* Leveille.

*Sinh.* Mala ita, Malitha, Malitta; *Tam.* Velakkai; *Hindi* Dhai; *Sans.* Agnijvala, Agnivala, Bahupushpika, Dhataki, Dhatri, Dhatripushpika, Dhatupushpi, Dhavani, Guchhapushpi, Kumuda, Kunjara, Madhavasini, Madyapushpa, Parvati, Rodhrapushpini, Sanghapushpi, Sidhupushpi, Subhiksha, Tamrapushpi, Tivrajvala, Vanhipushpi, Vanhishikha.

A straggling shrub, about 3.6 m high with long, arching branches, a cinnamon brown bark shredding off in fibres, shoots cylindrical covered with a fine, white pubescence; leaves simple, opposite, exstipulate, sessile, 7.5–10 cm long, narrowly ovate-lanceolate, cordate at base, tapering to acute apex, entire, finely velvety on both sides, veins pellucid, prominent beneath, the lateral ones uniting within the margin, paler or whitish beneath, dotted with very minute orange glands; flowers regular, bisexual, bright brick red on pubescent pedicels arranged in numerous short, divaricate cymose panicles from axils of fallen leaves on the mature wood and rarely from those of the present leaves; sepals 6, fused into a widely tubular calyx-tube, oblique at the mouth, over 1.2 cm long, with a small campanulate base and a long slightly curved, somewhat inflated funnel-shaped tube, pubescent, red, segments very short, triangular, acute; petals 6, distinct, very small, about as long as calyx segments and inserted in between; stamens 12, inserted at the base of the calyx-tube, declinate much exerted, persistent; ovary superior, enclosed in but free from the campanulate base of the calyx-tube, 2-locular with very numerous ovules; fruit a membranous capsule, 1 cm long, included in the calyx-tube which splits vertically, irregularly dehiscent, seeds very numerous; oblong, wedge-shaped, brown and smooth.

Flowers in March and April.

*Illustrations.* Curtis, Bot. Mag., pl. 1906. 1817; Blume, Mus. Bot. 2: pl. 45. 1850; Beddome, Flor. Sylvat. Annal. Gen. pl. 14, fig. 4. 1874; Roxburgh, Pl. Corom., pl. 31. 1795; Kirtikar and Basu, Indian Med. Plants, pl. 432B. 1933; Herb. Peradeniya, drawing.

*Distribution.* Occurs in India, Ceylon and Burma extending westwards to East Africa. It is rare in Ceylon, confined to open, sunny places in the lower montane zone. Maturata, Uva patanas, Bandarawela, etc.

*India.* Nepal: *Wallich* 2110A. 1820. Sikkim: *Clarke* 13950C March 1871. East Bengal: *Herb. Griffith* 2305, Kew Distribution 1862-3 Bengal: *J. D. Hooker & T. Thomson.* Uttar Pradesh, Dehra Dun, *Carroll*, March-April 1921. Chittagong: *J. D. Hooker and T. Thomson; Clarke* 19988B, Feb. 1873. Pen. Ind. Or., *Herb. Wight* 983, Kew Distribution 1866-7. Ceylon. Walapone, *Simpson* 8766, Oct. 1931; Gonagama, *Thwaites C.P.* 1552; *Walker; Palugama, Willis*, March 1906; Bandarawela, *Herb. Peradeniya*, Sept. 1890. Burma. *Kurz* 1971.

*Composition.* The leaves, flowers and fruits are rich in tannin and the bark contains a gum.

*Uses.* The dried flowers are a tonic for haemorrhoids and diseases of the liver. The powdered flowers are given with honey for dysentery. The fresh leaves are used in the treatment of snakebites. The plant and particularly the flowers are one of the ingredients in the preparation of many decoctions for treatment of dysentery, colic, dropsy, liver and spleen diseases, fever, asthma, fistula, syphilis, piles, diseases of the heart and lungs, insanity, apoplexy and nervous diseases.