

STUDIES IN LEGUMINOSAE

1. A TAXONOMIC REVISION OF THE GENUS *DERRIS* LOUR. IN INDIA

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ABSTRACT

The taxonomic revision of the genus *Derris* Lour. in India is a preliminary step towards the revision of the tribe *Dalbergieae* of the order *Leguminosae*. The tribe is represented in India by the following genera—*Dalbergia*, *Pterocarpus*, *Pongamia*, *Derris* and *Euchresta*.

Twenty five species of *Derris* are described in this paper which include 2 species (*Derris pseudo-robusta*, *D. macrocarpa*), 3 varieties (*D. robusta* Benth. var. *assamica*, *D. cuneifolia* Benth. var. *longipedicellata*, *D. elliptica* Benth. var. *chittagongensis*) and 2 forms (*D. elegans* Benth. f. *andamanensis*, *D. cuneifolia* Benth. f. *assamica*) described for the first time.

Derris heyneana Benth. var. *paniculata* Baker is raised to the status of a species with a new name *D. bakeri* while *D. eualata* Bedd. and *D. wallichii* Prain are reduced to varieties of *D. thyrsoflora* Benth. (*D. thyrsoflora* Benth. var. *eualata*, *D. thyrsoflora* Benth. var. *wallichii*). The nomenclature of *Derris laxiflora* Haines is changed, the correct name being *D. hainesiana*. *D. thyrsoflora* Benth. is reported for the first time from the Andaman Islands

INTRODUCTION

The genus *Derris* was established by Joao de Loureiro in 1790 (Fl. Cochinch. 2:432, 1790) and comprises nearly 120-150 species (Ind. Kew. 1895-1955) distributed in tropics, chiefly tropical Asia. The name *Derris* Lour. (1790) has been conserved (Ind. Kew. Suppl. 10:72, 1936-40; Stand. Pl. Names, 159, 1942; Int. Code bot. Nom. sub no. 3838, 1956; Taxon 8:295, 1959) against Aublet's *Deguelia* (Pl. Gui. 2: 750, t. 300, 1775) which has been adopted by Taubert in Engl. and Prantl. Nat. Pfl. fam. 3(2): 345, 1891.

Baker described 24 species from India in Fl. Brit. Ind. 2:240-48, 1878, while David Prain (J. Asiat. Soc. Beng. 66: 99-361, 1897) added 3 more, namely *Derris andamanica*, *D. wallichii* and *D. monticola*. Haines described one new species, *D. laxiflora* (Bot. Bihar and Orissa 3:299, 1922) but the specific epithet being preoccupied, a new name, namely *D. hainesiana* is given, *Derris discolor* Benth. is conspecific with *D. cuneifolia* Benth. *Derris wallichii* Prain is treated only as a variety of *D. thyrsoflora* Benth. and so it is merged with the latter. *Derris eualata* Bedd. and *D. platyptera* Baker were wrongly placed (Baker in Fl. Brit. Ind. 2:244-45, 1878) under the section *Dipteroderris* which is characterised by monadelphous stamens, while the stamens in the above two species are distinctly diadelphous. *Derris platyptera* Baker is again same as *D. eualata* Bedd. while the latter itself is treated as a variety of *D. thyrsoflora* Benth. *Derris heyneana* Benth. var. *paniculata* Baker is raised to the status of a species and a new name, namely *D. bakeri* is given to it.

David Prain (J. Asiat. Soc. Beng. 66:361, 1897) considered *Derris secunda* Baker and *D. monticola* Prain to be conspecific. The flowers of *Derris monticola* Prain are rather larger than those of *D. secunda* Baker (Dunn in J. Linn. Soc 41:237-38, 1922). Further the two species

differ in texture and venation of leaflets and are therefore kept separate under the section *Euderris*. *Derris benthamii* Thw. is removed from the section *Euderris* and is placed under the section *Dipteroderris* next to *D. heyneana* Benth. as the inflorescence and other characters of the former closely conform to *D. heyneana* Benth. and *D. brevipes* Baker. The description of *Derris brevipes* Baker var. *coriacea* Baker (Fl. Brit. Ind. 2:244, 1878) is emended, giving the characters of the pod for the first time. *Derris thyrsoflora* Benth. is a new record for the Andaman Islands, although its occurrence from the Nicobars has been reported earlier.

Baker (in Fl. Brit. Ind. 2:247, 1878) placed 6 species of *Derris* under doubtful category as they lacked either the flowers or pods and this is cleared as far as practicable in the present investigation. In the present paper, 25 species are altogether described which include 2 new species (*Derris pseudo-robusta*, *D. macrocarpa*), 3 new varieties (*Derris robusta* Benth. var. *assamica*, *D. cuneifolia* Benth. var. *longipedicellata*, *D. elliptica* Benth. var. *chittagongensis*) and 2 new forms (*Derris elegans* Benth. f. *andamanensis*, *D. cuneifolia* Benth. f. *assamica*).

The root of *Derris elliptica* Benth. constitutes the 'Derris' or Tuba root of commerce, used as an agricultural and horticultural insecticide and a fish poison; this species is cultivated in Assam, Kerala, Mysore, Madras and Punjab on experimental scale. *D. ferruginea* Benth., which occurs wild in Assam and Eastern Himalayas is the source of 'Indian Tuba root'. *D. malaccensis* Prain is also cultivated in our country on a small scale for the same purpose. The wood of *D. robusta* Benth. is used for making tea-chests, posts and ploughs. The bark of *D. trifoliata* Lour. is used as alterative in rheumatism. *D. scandens* Benth. is used as fish poison.

Derris Lour. Fl. Cochinch. 2:432, 1790, nom. cons.; Willd. Sp. Pl. 3:1133, 1802; Roxb. Pl. Corom. 2:49,

t. 192, 1805 et Hort. Beng. 53, 1814; DC. Prodr. 2:415, 1825; Wall. Pl. Asiat. Rar. 3:20. t. 232, 1832; Roxb. Fl. Ind. 3:230, 242, 329, 1832; Wight in Hook. Bot. Misc. 3:301, 1833; Wight & Arnott, Prodr. Fl. Pen. Ind. Or. 262-64, 1834; Wight, Ic. t. 87, 240, 244, 275, 328, 1838-41; Zoll. & Mor. in Syst. Verzeichn. 3, 1845-46; Dalz. in Hook. Kew J. Bot. 2:37, 1850; Benth. in Miq. Pl. Jungh. 1:251, 1852; Miq. Fl. Ned. Ind. 1:152, 1858; Benth. in J. Linn. Soc. 4 (Suppl.): 101, 1860; Dalz. & Gibs. Bombay Fl. 77, 1861; Thw. Enum. Pl. Zeyl. 92, 413, 1859-1864; Benth. & Hook. f. Gen. Pl. 1:549, 1865; Bedd. Ic. Pl. Ind. Or. 42. t. 186, 1874; Kurz in J. Asiat. Soc. Beng. 45:128, 1876 et 276, 1877; Kurz, For. Fl. Brit. Burma 1:338, 1877; Baker in Fl. Brit. Ind. 2:240, 1878; Prain in Proc. Asiat. Soc. Beng. 163 & 168, 1891 et J. Asiat. Soc. Beng. 62:70, 1893; Trimen, Fl. Ceyl. 91, 1894; Gamble, List Tr. Shr. Climb. Darjeeling Dist., 30, 1896; Prain in J. Asiat. Soc. Beng. 66:97, 457, 1897; King & Prain in J. Asiat. Soc. Beng. 67:288, 1898; Cooke, Fl. Pres. Bombay 1:403, 1902; Prain, Beng. Plants 1:407, 1903; Duthie, Fl. Upper Gang. Pl. 1:267, 1903; Prain in Rec. bot. Surv. India 2:301, 1903; Brandis, Indian trees, ed. 2. 240, 1907; Gage in Rec. bot. Surv. India 3:49, 1908; Prain l.c. 3:200, 1908; Talbot, For. Fl. Bomb. Pres. Sind 1:433, 1909; Merr. in Philipp. J. Sci. (Bot.) 5:102, 1910; Haines, For. Fl. Chota Nagpur 333, 1910; Gagnep. in Not. Syst. 2:341-50, 1913; Gamble, Fl. Madras, 386, 1918; Ridley, Fl. Malay Pen. 1:593, 1922; Haines, Bot. Bihar Or. 297, 1922; Dunn in J. Linn. Soc. 41:237, 1922; Merr. Enum. Philipp. F. Pl. 2:299, 1923; Parkinson, For. Fl. Andaman Isl. 147, 1923; Cowan A. M. & J. M. Trees N. Beng. 52, 1929; Kanjilal, Fl. Assam 2:110, 1938; Santapau in Rec. bot. Surv. India 16(1): 69, 1960.

Salken Adans. Fam. 2:322, 1763.

Solori Adans. Fam. 2:327, 1763.

Deguelia Aubl. Pl. Gui. 2:750, t. 300, 1775; DC. Prodr. 2:422, 1825; Taub. in Engl. & Prantl. Nat. Pfl. fam. 3(2):345, 1891.

Clyizoma Neck. Elem. 3:33, 1790.

Brachypterum Benth. in Ann. Wien. Mus. 2:101, 1838.

Aganope Miq. Fl. Ind. Bat. 1:151, 1855.

The genus is divided into 5 sections [Benth. in J. Linn. Soc. 4 (Suppl.): 101-103, 1860] as follows:

1. **BRACHYPTERUM** Wt. & Arn. Trees or climbers with comparatively small leaflets; flowers medium, fasciculate on tumid or produced nodes in axillary panicles; stamens monadelphous; base of vexillum without callosities; pod thin, strap-shaped, narrow, pointed at both ends, winged only along the upper suture.

2. **EUDERRIS** Benth. Robust climbers with medium to large leaflets; flowers rather large, fasciculate on tumid or produced nodes in axillary panicles; stamens monadelphous; base of vexillum without callosities; pod thin, broadly oblong or suborbicular, obtuse, winged only along the upper suture.

3. **DIPTERODERRIS** Benth. Robust climbers with large

leaflets; flowers medium, on tumid or produced nodes in terminal and axillary panicles; stamens monadelphous; base of vexillum without callosities; pod winged down both the sutures.

4. **PARADERRIS** Miq. Robust climbers with large leaflets; flowers large, on usually produced nodes in axillary panicles; stamens monadelphous; base of vexillum with two callosities extending along the claw; pod winged down the upper suture.

5. **AGANOPE** Miq. Robust climbers with large leaflets; flowers in ample thyrsoid panicles, the nodes not produced into stalks; stamens diadelphous, the upper stamen quite free from the others down to the base; base of vexillum without callosities; pod winged down one or both the sutures.

GENERIC CHARACTERS

Climbing *shrubs*, rarely erect *trees*; a few, like *Derris trifoliata* Lour. and *D. sinuata* Thw., are man-grove plants. *Leaves* alternate, imparipinnate, mostly stipulate; leaflets opposite, stipellate or exstipellate. *Flowers* in fascicles, rarely solitary, on the rachis of axillary or terminal racemes or panicles; bracts small, caducous; bracteoles ovate or orbicular, usually small, often caducous. *Calyx* tube campanulate, nearly truncate, teeth usually very short. *Corolla* much exserted; standard obovate to orbicular, not auricled, rarely callose; wings obliquely oblong, often spurred above the long claw; keel obtuse, its petals cohering slightly. *Stamens* usually monadelphous, the vexillary filament free below, diadelphous in the section *Aganope*, anthers versatile. *Ovary* sessile or shortly stipitate, few-ovuled; style incurved; stigma minute, capitate. *Pod* usually thin, sometimes rigid, flat, indehiscent, oblong, elongate or obliquely orbicular, distinctly winged along the upper or both the sutures; *seeds* solitary or few, compressed, reniform or orbicular; hilum small.

Type species: *Derris trifoliata* Lour. (Herb. PARIS)

Distribution of species in India: The Indian species of *Derris* have certain features of interest in their distribution. Only very few species, such as *Derris scandens*, *D. trifoliata*, and *D. thyrsiflora*, are widely distributed throughout India, while certain others are fairly distributed but only in definite areas. For instance, *Derris cuneifolia*, *D. marginata* and *D. ferruginea* are found in abundance in Eastern India as well as Eastern Himalayas, while *D. andamanica* occurs in plenty in Andaman and Nicobar Islands. The rest of the species are confined only to small areas in definite zones. The distribution of these species is therefore very restricted and some are quite rare and probably endemic. For instance *Derris elegans* and *D. andamanica* are found only in the Andaman and Nicobar Islands and the latter is probably endemic to those islands. *Derris sinuata* has so far been reported only from Bengal. A good number of species, such as *Derris brevipes*, *D. benthamii*, *D. bakeri*, *D. canarensis*, *D. ovalifolia* and *D. heyneana* are restricted to Peninsular India, while

KEY TO THE SPECIES

- A. Inflorescence a raceme or a panicle with nodes either tumid or produced into stalks; stamens monadelphous.
- B. Standard petal without callosities at the base of the limb.
- C. A tree, up to 24 meters high; leaflets about 23 in number, thin and apiculate . . . *D. robusta*.
- C. Scandent shrubs and climbers.
- D. Pod winged along the upper suture.
(Except *D. brevipes* and *D. benthamii* where the lower suture is also obscurely developed).
- E. Pod narrow, thin, strap-shaped, much longer than broad, 2-6 seeded.
- F. A climber; leaflets up to 13, glabrous above; pod minutely puberulous . . . *D. scandens*.
- F. A scandent shrub; leaflets up to 15, minutely puberulous; pod more silky and prominently winged along the upper suture . . . *D. pseudo-robusta*.
- E. Pod much broader, thick, turgid against seeds at times, 1-3 seeded.
- F. Pod glabrous, oval to obliquely orbicular, reticulately veined . . . *D. trifoliata*.
- F. Pod clothed with fine silky hairs, oval to oblong.
- G. Pod more or less turgid against the seeds, smaller, reticulation over the pod either faint or almost absent; leaflets smaller . . . *D. benthamii*.
- G. Pod not turgid against the seeds, larger than above, reticulately veined; leaflets larger than above.
- H. Leaflets larger in size, hairy beneath especially on the nerves, stipels present; pod sparsely brown silky . . . *D. elegans*.
- H. Leaflets smaller than above, glabrous, stipels absent; pod persistently and densely silky . . . *D. brevipes*.
- D. Pod winged along the upper and lower sutures.
- E. Pod glabrous.
- F. Inflorescence covered with fine silky hairs; pod up to 11 cm. long only
- G. Pod narrow and long, up to 11 cm. long; flowers bigger . . . *D. monticola*.
- G. Pod short and broad, up to 5.5 cm. long; flowers smaller.
- H. Inflorescence dense; keel petals silky on the back; pedicels 3-4 mm. long . . . *D. heyneana*.
- H. Inflorescence lax; keel petals glabrous; pedicels 8-9 mm. long . . . *D. bakeri*.
- F. Inflorescence glabrous; pod oblong, very long, up to 21 cm. long . . . *D. marginata*.
- E. Pod brown silky.
- F. Leaflets obovate to obovato-oblong, shortly acuminate, hairy beneath; pod rigid . . . *D. ferruginea*.
- F. Leaflets elliptic to oblong, glabrous; pod thin, sharp-shaped . . . *D. andamanica*.
- B. Standard petal with two callosities at the base of limb.
- C. Leaflets and petals glabrous; flowers smaller; calyx cup sparsely silky.
- D. Leaflets 13-19, smaller and narrower, usually oblong to oblong-lanceolate, rigidly subcoriaceous . . . *D. canarensis*.
- D. Leaflets 5-11, larger and wider, usually obovato-oblong, base cuneiform.
- E. Inflorescence shorter than leaf, nodes of raceme produced into short stalks.
- F. Leaflets thin; pod ovato-orbicular to oblong, 3-5 cm. long, 2-2.3 cm. wide, reticulately veined, wing on the lower suture obscurely developed . . . *D. cuneifolia*.
- F. Leaflets thick; pod oblong, very long, 5-12.4 cm. long, 2.2-2.7 cm. wide, faintly veined, winged on both the sutures . . . *D. macrocarpa*.
- E. Inflorescence longer than leaf, nodes of raceme not produced into stalks; pod firm; leaves distinctly cuspidate . . . *D. microptera*.
- C. Leaflets thinly brown silky beneath; flowers larger; calyx cup densely silky; petals silky . . . *D. elliptica*.
- A. Inflorescence an ample thyrsoid panicle with nodes either tumid or produced into stalks; stamens diadelphous, the tenth stamen free up to the base.
- B. Pod up to 19.5 cm. long, sinuate between the seeds, narrowly winged on the upper suture . . . *D. sinuata*.
- B. Pod up to 13 cm. long, not sinuate between the seeds, distinctly winged on both the sutures.
- C. Leaflets usually large, thick, coriaceous, ovate to ovato-oblong; flowers shortly pedicellate; calyx cup densely silky . . . *D. thyrsoiflora*.
- C. Leaflets not so large as above, subcoriaceous, shortly acuminate; panicle lax; calyx cup not densely silky . . . *D. polystachya*.

D. monticola, *D. microptera*, *D. elliptica*, and *D. secunda* occur only in Eastern India. *Derris pseudo-robusta* and *D. macrocarpa* are reported only from type localities.

Ecology: *Derris trifoliata* grows near the sea coast and on the edge of muddy salt water creeks; *D. sinuata* is found only on the banks of tidal rivers in Sundarbans, Bengal. They are, therefore, mangrove plants in their habitat. *Derris andamanica* is a littoral shrub, found growing in the beach forests of Andaman and Nicobar Islands. *Derris heyneana* and *D. canarensis* occur in the thick rain forests of Western Ghats.

SECTION I. BRACHYPTERUM WT. & ARN.

1. *Derris scandens* (Roxb.) Benth. in J. Linn. Soc. 4 (Suppl.): 103, 1860; Baker in Fl. Brit. Ind. 2:240,

1878; Santapau in Rec. bot. Surv. India 16(1):69, 1960. *Dalbergia scandens* Roxb. Pl. Corom. 2:49, t. 192, 1805; DC. Prodr. 2:417, 1825; Roxb. Fl. Ind. 3:232, 1832; Wt. & Arn. Prodr. 1:264, 1834; Wight, Ic. t. 275, 1840; Wall. Cat. 5857, 1831-32. *Dalbergia timorensis* DC. Prodr. 2:417, 1825. *Brachypterum scandens* Benth. in Ann. Wien. Mus. 2:101, 1838; Miq. Fl. Ind. Bat. 1:138, 1855. *Brachypterum timorense* Benth. in Miq. Pl. Jungh. 1:253, 1852; Miq. Fl. Ind. Bat. 1:138, 1855. *Deguelia timoriensis* (DC.) Taub. in Engl. & Prantl. Nat. Pfl. fam. 3(2):345, 1891. *Derris timorensis* (DC.) Pittier in Contrib. U. S. Nat. Herb. 20:41, 1917.

A woody climber; stem purple, terete, lenticellate, young parts grey downy. Leaves imparipinnate, alternate, glossy dark green above, 8-18.5 cm. long, stipule minute, ovate and hairy; leaflets usually 9-13, rarely 7-15, opposite, oblong to obovato-oblong, mostly

6-8.5 cm. long, rarely up to 10 cm. long, 2.5-3.5 cm. wide, rarely up to 4 cm. wide (Bombay, *Santapau* 18462), glabrous above, minutely puberulous below, rigidly subcoriaceous, entire, retuse, base rounded, at times cuneate, lateral nerves 8-10 pairs; stipels linear and hair-like, very prominent (Andaman and Chittagong); leaf rachis grooved above, petiolule clothed with stiff hairs, 2-4 mm. long. *Inflorescence* a raceme, axillary, rarely terminal, usually simple, at times branched below (Khandala, *Santapau* 11047-49; Sundarbans, *Prain* s.n.), usually 26.5-35 cm. long, up to 41 cm. long (Andamans), nodes of the racemes tumid, at times produced into short stalks bearing a cluster of pedicellate flowers. *Flowers* bracteate and bracteolate; bracteoles 2, situated under the calyx cup, ovate, silky; pedicels and rachis with finely adpressed pubescence, pedicels up to 1 cm. long. *Calyx* cup campanulate, finely silky, teeth obscure, up to 3 mm. long. *Corolla* white to pale rose, 9 mm. long, standard ovato-orbicular. *Stamens* 10, monadelphous, 5 longer alternating with 5 shorter ones, anthers versatile. *Ovary* silky pubescent, style bent upwards, stigma minute, ovules up to 8. *Pod* oblong, narrow, tapering at both ends, 8.7-12 cm. long, 1-1.6 cm. wide, winged on the upper suture, reticulately veined, adpressed with minute silky hairs, 1-4 seeded, rarely 5-seeded (Cuddapah, *Meebold* 1081); *seed* reddish brown, up to 8 mm. long, 5 mm. wide.

Flower: June to August; *Fruit*: October to December.

Distribution: Assam, Chittagong, Bengal, Central India, Bihar, Orissa, Uttar Pradesh, Bombay, Peninsular India, Andaman and Nicobar Islands.

WALL. CAT: Chittagong—5857K (CAL); South India—5857F (CAL); No locality—5905, 5857C (CAL).

ASSAM: No locality—Bal 844 (CAL).

CHITTAGONG: Kodla Hill, 50 kilometres from Chittagong, Sept. 1886—Badul Khan 9, 124 (CAL).

BENGAL: Sundarbans, Bagirhat, Botalota, Nov. 1894—Heinig s.n. (CAL); Jalted Pagoda, Aug. 1902—Prain s.n. (CAL); Berigang, Aug. 1913—Bhattacharyya 1 (DD); without precise locality, Aug. 1902—Lace 2324 (DD); Bancoora, without precise locality—Bal s.n. (CAL); Mymensing, Elunga, Jul. 1867—Collector? 4864 (CAL); Cox's Bazar, Sandupara, Bayhkali river, sept. 1944—Sinclair 3763 (CAL); Cultivated in Botanic garden, Calcutta—Accession number 132135 (CAL); without any locality (Bengal)—Hooker. f. & Thomson s.n. (CAL); No locality (Bengal)—Royle 63/8 (DD); No locality or collector (Bengal)—Accession number 132139 (CAL); Hooghly, Arambagh, Nov. 1961—Hazra 120 (CAL).

CENTRAL INDIA: Chanda, Bulalpur, Dec. 1889—Duthie 9400 (CAL, DD); Piyalkhut, Oct.

1909—Haines 2420 (DD); Wardha, Dec. 1889—Duthie 9400 (DD); without precise locality, Aug. 1889—Lowric 9399 (DD); Berar, Kinwat reserve, Yeotinal—Collector? 720 (DD); Dinajpore, without precise locality—Vicary s.n. (CAL); Without any locality (Central Province)—Donald 2169 (CAL).

BIHAR: Chotanagpur, cultivated, Aug. 1917—Haines 4693 (DD); Mayurbhanj—Deuli, Apr. 1941—Collector? 798, 882 (DD).

ORISSA: Barkulpuri, on rocky hill by the edge of Chilka lake in scrub jungle, May 1948—Mooney 3058 (DD); Barkuda Island, Chilka lake, Aug. 1919—Anandale 1238 (CAL).

UTTAR PRADESH: Saharanpur, without precise locality—Collector? 593 (DD); Dehra Dun, Kaulagarh (cultivated), Aug. 1929—Parker s.n. (DD).

BOMBAY: Borivli, National Park, Sep. 1954, Jul. 1956, Aug. 1956—Herbert 66, 1828, 1873 (BLAT); National Park, Jun. 1951, Aug. 1952—Kalianiwalla 13, 319, 339 (BLAT); without precise locality, Mar. 1955, Jun. 1955—Panthaki 2213, 2216A & B (BLAT); Mumbai, without precise locality, Sept. 1953, Jul. 1954—Shenoy 669, 3788-90 (BLAT); Thana, Dec. 1945—Santapau 4541, 6774 (BLAT); Toolshee tank near Thana, Jun. 1893—V.K. V. s.n. (BLAT); Parsik near Thana, Dec. 1918—Collector? 10480 (BLAT); Paye, Bassein—Ryan 154 (B. S. I., Poona); Khandala, Monkey hill Plateau, May & Aug. 1944, Jul. 1949, Jun. 1960—Santapau 4319-25, 4662-63, 10194, 11041-43, 11047-49 (BLAT); Battery hill Plateau, Aug. 1945, May 1946—Santapau 6989-91, 8981 (BLAT); Battery and Monkey hill Plateau, Jun. 1946, Dec. 1948—Santapau 9190-93, 9811-12 (BLAT); without precise locality, Jun. 1917—Collector? 27939 (BLAT); Salsette, Andheri-Makal caves, Jul. 1944 & 45—Santapau 4541, 6774 (BLAT); Kaneri caves near streams at base of hills, Jul. 1941—Santapau 102.44 & 102.45 (BLAT); Goregaon, Dec. 1924—Bridewell 50219 (BLAT); Aarey Milk colony, Goregaon, Jun. 1958, Jul. 1958 & 59—Tavakari 1250, 1295-96, 2309 (BLAT); Kaneri caves, Nov. 1918—Collector? 11446, 11464 (BLAT); Dangs, Waghai, Dec. 1957—Asrana 5227 (BLAT); Unai, near rest house, Oct. 1953—Santapau 16996 (BLAT); Vihar lake, Jun. 1954—Panthaki 1440 (BLAT); Jul. 1958—Merchant 592-93 (BLAT); Uran, Mar. 1954—Santapau 18462 (BLAT); Jan. 1917—Collector?

CAL—Central National Herbarium, Calcutta.
DD—Herbarium of the Forest Research Institute and Colleges, Dehra Dun.

BLAT—Blatter Herbarium, St. Xavier's College, Bombay.
MH—Regional Herbarium of the Botanical Survey of India, Coimbatore (Formerly Madras Herbarium, Coimbatore).
B.S.I. Shillong—Regional Herbarium of the Botanical Survey of India, Shillong (Formerly Forest Herbarium, Assam).
B.S.I. Poona—Regional Herbarium of the Botanical Survey of India, Poona (Formerly Agricultural College Herbarium, Poona).

10552 (BLAT); Malabar Hill, Dapoli church yard, Jun. 1922—Acland 410-11 (BLAT); Aug. 1917—Collector? 10707 (BLAT); Mahabaleshwar, Feb. 1956—Asrana 2741 (BLAT); Trombay, Oct. 1925—Acland 412 (BLAT); Sept. 1917—Collector? 12651 (BLAT); Victoria Garden, Jan. 1917—Collector? 11785 (BLAT); Jul. & Aug. 1954—Panthaki 1445, 11-12 (BLAT); Chandip, Aug. 1960—Das 1903 (BLAT); Malad, south of Quarry hills, Jul. 1955—Shah 4578-79 (BLAT); Bhandup, Dec. 1919—Nana 50686 (BLAT); Colaba, Feb. 1917—Collector? 11575 (BLAT); Ratnagiri, Vetora, May 1918—Collector? 11520, 11554 (BLAT); Cutch, without precise locality—Gokuldaskhimji 4 (DD); without any locality (Bombay), 1939—Hanovar 10454 (DD); without any locality (Bombay)—Dalzell s.n. (DD); No locality or details (Bombay)—Bhide s.n. (B.S.I. Poona); No locality or details (Bombay)—Ryan s.n. (B.S.I. Poona); Wasind, Aug. 1840—Bhiwa s.n. (B.S.I. Poona).

PENINSULAR INDIA: Rampa, Chiruvupalayam, Sep. 1920—Narayanaswami 134 (CAL); Visakapatnam, Dharakonda, 1923—Collector? 17077 (MH) Palconda R.F., 1923—Jacob 17258 (MH); Ganjam, Rajabarir and Depharia Islands, Aug. 1913—Hooper 39631-32, 39569 (CAL); Rukeekonda, 1931—Narayanaswami 6082 (MH); Godavari, Adattigala range, Feb. 1947—Narayanaswami & party 672 (CAL, MH); Annavaram, 1916—Collector? 12599 (MH); Rampa—Chodavaram, Feb. 1956—Wagh 1844-46 (BLAT); Adattigala, Sept. 1956—Wagh 3889 (BLAT); Adattigala, May 1956—Santapau & Wagh 20891, SKW 2980 (BLAT); Krishna, Kondapalli hill, Jul. 1907—Barbar 8123 (MH); Guntur, Vinukonda, 1924—Collector? 17398, 17400 (MH); Cuddapah, Mudumpad, 667 m., 1889—Gamble 21269 (MH); Camalapuram, Sept. 1910—Meebold 11281, 12603 (CAL) Ballipalle, 1886, 333 m.—Gamble 18238 (MH); Kondur, Mar. 1957—Wagh 5933 (BLAT); without precise locality, Oct. 1938—Krishnan s.n. (DD); Anantapur, Narsapally, Jul. 1884, 833 m.—Gamble 15251 (CAL); Nellore, Veligonda hills, Jul. 1914—Ramaswami 1404 (CAL); Shivadurg, Aug. 1917—Wagh 6785 (BLAT); Madras, without precise locality, Jul. 1897—Bourne 257 (CAL); Vandalur, 1914—Collector? 11072 (MH); Chittur, Chandragiri, 1914—Collector? 10023 (MH); South Arcot, Ponnelly, Gingee, Feb. 1882—Brandis s.n. (CAL); Shanikulam, 1899—Barbar 908 (MH); Salem, Veerabhadraswami bettah, Kollegal, Jul. 1930, 1400 m.—Narayanaswami 3575 (DD); Kollegal, 1930—Narayanaswami 20058 (MH); Hoganakhal, 1927, 2666 m.—Jacob 18024 (MH); Coimbatore, Boluvampatti valley, May 1916, 500 m.—Fischer 1929 (CAL); without precise locality, Jan. 1906—Fischer 853 (CAL); Near Siruvani foot, May 1957—Subramanyam 3082 (MH); North Kanara, Karwar, Aug. 1883—Talbot s.n. (DD); Sirsi Kumta road, May 1956—Mahajan 1656 (B.S.I. Poona); Katgal, Aug. 1883—Talbot s.n. (B.S.I. Poona); Karwar,

June 1883—Talbot 494 (B.S.I. Poona); Nilgiris and Coorg, without precise locality—Hooker & Thomson s.n. (MH); Madurai, Periaithopu near Allampatti, Melur, Sept. 1957, 200 m.—Subramanyam 4319 (MH); Lower and Middle Pulneys, May & Sept. 1918, 533-1333 m.—Rodriguez 1828, 2051 (CAL); Bottom of the ghat leading to Kodaikanal and Pulney hills, 1884—Collector? s.n. (MH); Kodaikanal Ghat, Pulneys, 1897—Bourne 898 (MH); Sirumalai, 1920—Collector? 16692 (MH); Tirunelveli, Courtallam, Jun. 1901—Barber 3248 (CAL, MH); Mundundurai, Feb. 1913—Hooper and Ramaswami 39304 (CAL); Courtallam, 1901—Barber 3375 (MH); Courtallam, 1915—Collector? 12164 (MH); without precise locality, 1880—Beddome s.n. (MH); Travancore, Shencottah to Aryankaou, Sept. 1913—Calder and Ramaswami 674 (CAL); without precise locality—Lawson 189 (CAL); Quilon, Jun. 1894—Bourdillon 241 (CAL); Malayathur, Mar. 1913—Rama Rao 979 (CAL); Puliya, Sept. 1913—Rama Rao 1711 (CAL); Quilon, Nov. 1910—Meebold 12603 (CAL, B.S.I. Poona); Quilon, Jun. 1836—Wight 835 (CAL); Travancore boundary, 1886—Bourdillon s.n. (MH); Malabar, Kannothe, 1913—Collector? 9384, 9467 (MH); Pen. Ind. Or—Wight 922, 833 (CAL, MH), 921, 923 (CAL); Northern Deviaion—Cleghorn s.n. (CAL).

ANDAMANS: South Andaman, Port Blair, Sep. 1904—Rogers s.n. (CAL); without precise locality, Oct. 1897—Heinig s.n. (CAL); Narcondam Island 1891—Prain s.n. (CAL); Bajajagdah hill jungle, Dec. 1894—King's collector s.n. (CAL); Ranguchang hill jungle, Nov. 1893—King's collector s.n. (CAL); Tyfla Ghat near Port Mouat, Jul. 1890—King's collector s.n. (CAL); Cadellgunj creek, Sep. 1893—King's collector s.n. (CAL); Bajejuck near Port Blair, Aug. 1884—King's collector 215 (CAL); Shaiturn Khoru near Port Blair, Jul. 1884—King's collector 353 (CAL); Tusanobad, Sept. 1893—King's collector s.n. (CAL); Wimberlygunj, Dec. 1896—Heinig 108H (CAL); without precise locality, Nov. 1901—Heinig 75 (DD); Dhani leaf creek, Jun. 1890—King's collector s.n. (DD); without precise locality, Aug. 1896—Heinig 63 (DD); without precise locality—Kurz s.n. (CAL); Smith point—Kurz s.n. (CAL); Flag point, 1858—Kurz s.n. (CAL); Mithakhari hill jungle, Aug. 1894—King's collector s.n. (CAL); Manglutan hill jungle, Jul. 1892—King's collector s.n. (CAL); Port mouat hill jungle, Aug. 1892—King's collector s.n. (CAL); Middle Andaman, Long Island, Jul. 1915—Parkinson 671 (CAL); Middle straits—Kurz s.n. (CAL); North Andaman, Great Cocos Island, Dec.-Jan. 1889-1890—Prain s.n. (CAL); Mangrove bay—Kurz s.n. (CAL); without any locality (Andamans)—Helfer 1772 (CAL); without any locality (Andamans), Sept. Oct. 1900—Prain's collector 42, 95, 131 (CAL), 97, 116 (DD), 65 (CAL, B.S.I. Poona); No details regarding collector and locality (Andamans)—Accession number 132215-16 (CAL).

NICOBARS: Great Nicobar, Kondul Island, Apr. 1903—*Rogers s.n.* (CAL); Kamorta, without precise locality, 1875—*Kurz s.n.* (CAL).

The presence of hair-like stipels is very prominent in some of the Andaman as well as Chittagong specimens, a fact not mentioned by earlier workers (*Bentham 1860*; *Baker 1878*; *Prain 1897*).

Pittier in his monograph on the Middle American species of *Lonchocarpus* (Contrib. U. S. Nat. Herb. 20: 41, 1917) made a new combination for *Derris scandens* Benth., namely *D. timorensis* (DC.) Pittier. According to him the Guiana plant, known as *D. guianensis* Benth. [J. Linn. Soc. 4 (Suppl.): 106, 1860] should be known as *D. scandens* (Aubl.) Pittier, as the same has been published under the name *Deguelia scandens* Aubl. (Pl. Gui. 2: 750, t. 300, 1775) and thus has priority over *Dalbergia scandens* Roxb. (Pl. Corom. t. 192, 1805).

Bentham described *Derris scandens* [J. Linn. Soc. 4 (Suppl.): 103, 1860] based on *Dalbergia scandens* Roxb. and it is the oldest validly published name under *Derris* for the East Indian species. *Deguelia scandens* Aubl., though published earlier (Pl. Gui. 2: 750, t. 300, 1775) for an entirely different plant from Guiana, is oldest only under *Deguelia*. So, Pittier's new combination *Derris scandens* (Aubl.) for the Guiana plant becomes a later homonym and hence is not valid. Incidentally *Derris timorensis* (DC.) Pittier, proposed for the East Indian species under discussion, is also not valid.

2. *Derris robusta* (Roxb. ex DC.) Benth. in J. Linn. Soc. 4 (Suppl.): 104, 1860; Baker in Fl. Brit. India. 2: 241, 1878. *Dalbergia robusta* Roxb. Hort. Beng. 53, 1814, nom. nud.; DC. Prodr. 2: 417, 1825; Wight, Ic. t. 244, 1840. *Dalbergia krowee* Roxb. Fl. Ind. 3: 229, 1832. *Brachypterum robustum* Dalz. & Gibs. Bombay Fl. 77, 1861. *Deguelia robusta* (Benth.) Taub. in Engl. & Prantl. Nat. Pfl. fam. 3(2): 345, 1891.

An erect tree reaching 10-24 m. high, trunk 1-2 m. in girth; stem terete with faint ridges and furrows. Leaf imparipinnate, alternate, stipulate, 6.5-21 cm. long; stipule ovate, deciduous; leaflets 7-23, opposite, elliptic-oblong to oblong-lanceolate, 4.3-5.3 cm. long, 1.5-2.3 cm. wide, minutely puberulous on both surfaces when young and only on the lower surface when mature, entire, apiculate, base often unequal, narrow to rounded; lateral nerves 6 pairs, faint; stipels 2, very minute; rachis and petiolule hairy, grooved above, petiolule 1-2 mm. long. Inflorescence a raceme, axillary, nodes produced into short stalks which bear 2-3 flowers, 21.5-25 cm. long. Flowers white, bracteate and bracteolate; bracteoles 2, minute, hairy, situated under the calyx-cup; pedicels 3-5 mm. long. Calyx cup widely campanulate, finely silky, mouth 4 toothed. Corolla standard ovato-orbicular, 6 mm. long, wings and keels distinctly clawed. Stamens 10, monadelphous. Ovary silky pubescent, style curved upwards, stigma minute, ovules 5-7. Pod narrow, strap-shaped, 3-8.5 cm. long, 0.6-1 cm. wide, base narrow, apex pointed, distinctly winged on the upper suture, reticulately veined, clothed with silky

brown hairs, 2-6 seeded; seed black, ovato-orbicular, 2 mm. long.

Flower: April to June; Fruit: August to September.

Distribution: Eastern Himalayas, Assam and Chittagong; also cultivated in other parts.

WALL. CAT: Sylhet—5849B. (CAL).

ASSAM: Cachar, Langting, 167 m., May 1915—Upendranath Kanjilal 5577 (CAL); Mahoon, Sept. 1903—Shaik Mokim 314 (CAL); Haflong, 833 m., Aug. 1908—Craib 550 (CAL); without precise locality—Dy. Conservator of Forests s.n. (DD); across the Muku river on the march to Cachar from Manipur, 667 m., May 1882—Watt 6930 (CAL); Khasi and Jaintia, Dawki forest, Aug. 1935—Ram Sarma 12148 (B.S.I. Shillong); without precise locality—Jenkins s.n. (CAL); without precise locality, 1333 m.—Hook. f. & Thomson s.n. (CAL); No details regarding locality—Collector? 6 (CAL); Gauhati, without precise locality—Collector? s.n. Accession number 132252 (CAL); Kamrup, Kulsi river—Mein 388 (CAL); Mikir hills, without precise locality, May 1957—Panigrahi 9373 (B.S.I. Shillong, CAL); Nowgung, Leeloka forest, 1884—Mann s.n. (CAL); Nefa, Mokochang, May 1895—Reporter Econ. Prod. Govt. India 11799 (CAL); Tripura, Rangamati reserve, Mar. 1935—Macalpine R. 11 (DD); Nauna, Beat house to Bhutan, 383 m., Apr. 1958—Nath 13302 (B.S.I. Shillong, CAL); without any details regarding locality (Assam)—Royle 637 (DD).

CHITTAGONG: Kodla hill, Sept. 1885 & May 1887—Badul Khan 133 & 435 (CAL); Agonia hill, Apr. 1886—Badul Khan 493 (CAL); Toongooria, May 1885—Ellis 32 (CAL); Tintilla, Mar. 1940—Dent 70 (DD).

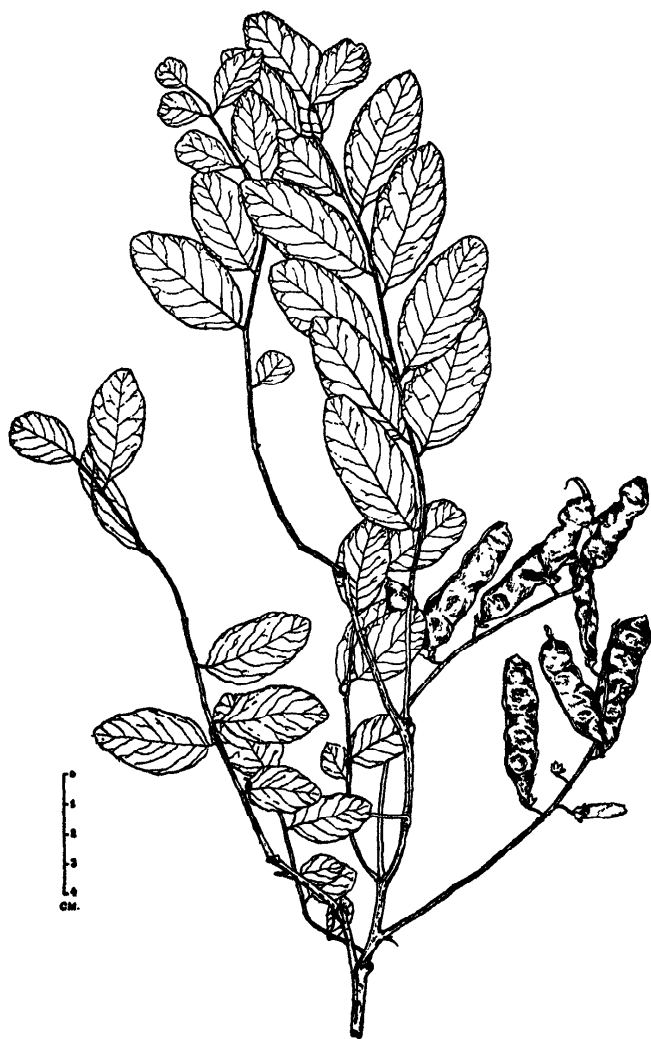
UPPER GANGETIC PLAIN: Dehra Dun, New forest (cultivated), May 1934—Raizada s.n. (DD); Saharanpur Garden collection, May 1845—Collector s.n. (DD).

PUNJAB: Govt. Agr. Hortic. Gardens, Lahore, Apr. 1915 & Aug. 1924—Parker s.n. (DD).

Derris robusta Benth. var. *assamica* Thoth. var. nov. (Fig. 1).

Foliola sat majora, 4-5.5 cm. longa, 2-2.4 cm. lata, alterna, subopposita vel opposita, viridia supra, pallide glauca et minute puberula infra. Legumen brevius et latius quam in varietate typica, 4-5 cm. longum, 1-1.4 cm. latum, glabrum vel minute puberulum, tenuiter reticulatum. Typus, Carter 1696, lectus in superiore parte urbis Shillong mense junio anni 1920 et positus in Herbario Calcuttensi.

Leaflets fairly larger in size, 4-5.5 cm. long, 2-2.4 cm. wide, alternate, subopposite to opposite, green above, light glaucous beneath, minutely puberulous below. Pod

PLATE 1: *D. robusta* Benth. var. *assamica* Thoth. var. nov.

shorter and broader than in the typical plant, 4-5 cm. long, 1-1.4 cm. wide, glabrous to minutely puberulous, faintly reticulated.

Distribution: Assam.

ASSAM: Upper Shillong, planted at the farm, 1933 m., Jun. 1920—*Carter 1696A* (Holotype in Herb. CAL. 1696 B; Isotype in Herb. Cal).

Dalzell mentioned this species (Dalz. & Gibs. Bombay Fl. 77, 1861) as indigenous to Bombay Presidency, basing his conclusion on Stock's herbarium. This was followed by Cooke in Fl. Bombay 1: 403, 1902. In Hooker's Fl. Brit. Ind. 2: 241, 1878 this species has been reported from the Western Peninsula. Talbot (For. Fl. Bomb. Pres. & Sind 1: 76, 1909) says that he had never come across this species. The author has not seen any collections of this species from Western Peninsula. It is doubtful whether *D. robusta* Benth. occurs in Western Peninsula at all.

3. *Derris pseudo-robusta* Thoth. spec. nov. (Fig. 2).

Frutex volubilis usque ad 5m. altus; ramuli juveniles minutissime puberuli; *trunco* lenticellato. *Folia* alterna, imparipinnata, stipulata, ad 21 cm. longa; rachide supra sulcata, minute puberula; foliola 15, opposita, elliptico-oblonga, nonnumquam obovata, 4-6.5 cm. longa, 1.5-3 cm. lata, integra, rotundata ad basin, breviter acuta ad apicem, subcoriacea, minute puberula infra praesertim in nervis; nervi laterales 6-8-jugi; petioluli 2-3 mm. longi, puberuli. *Inflorescentia* racemosa nodis aliquantum productis. *Flores* haud observati. *Legumen* oblongum, planum, ferulaeforme, 6.4-11.8 cm. longum, 1.4-1.8 cm. latum, distincte alatum in sutura superiore tantum, alis 2-3 mm. latis, vestitum capillis brevibus brunneolis, reticulate nervosum, angustum ad basin, apice curvato et acuto, 3-8-sporum; semina distincte notata. Typus, *Panigrahi 14550*, lectus in Kheti-Tincha, Tirap F. D. in NEFA Assamia et positus in herbario Calcuttensi. Accedit da *D. robustam* Benth. a qua tamen differt habitu, foliis, leguminibus.

A scandent *shrub* up to 5 metres high, young branches very minutely puberulous; *stem* lenticellate. *Leaves* alternate, imparipinnate, stipulate, up to 21 cm. long; rachis grooved above, minutely puberulous; leaflets 15, opposite, elliptic-oblong, obovate at times, 4-6.5 cm. long, 1.5-3 cm. wide, entire, base mostly rounded, apex shortly acute, subcoriaceous, minutely puberulous below especially on the nerves; lateral nerves 6-8 pairs; petiole 2-3 mm. long, puberulous. *Inflorescence* a raceme with nodes slightly produced. *Flowers* not known. *Pod* oblong, flat, strap-shaped, 6.4-11.8 cm. long, 1.4-1.8 cm. wide, distinctly winged on the upper suture only, wings 2-3 mm. wide, pod clothed with short brownish hairs, reticulately veined, base narrow, apex curved and pointed, 3-8 seeded; *seed* visibly marked.

Fruit: August.

Distribution: North East Frontier Agency.

NEFA: Kheti-Tincha, Tirap F.D., Aug. 1958—*Panigrahi 14550A* (Holotype in Herb. CAL. 14550B; Isotype in Herb. B.S.I. Shillong).

The above species is distinctly a new one, even though it lacks the flowers. It is close to *D. robusta* Benth. but markedly differs from it in habit, leaf and pod characters. It is placed in the section *Brachypterum* next to *D. robusta* Benth.

SECTION II. EUDERRIS BENTH.

4. *Derris trifoliata* Lour. Fl. Cochinch. 2:433, 1790, ed. Willd. 2:525, 1793. *Robinia uliginosa* Willd. Sp. Pl. 3:1133, 1802. *Galedupa uliginosa* Roxb. Hort. Beng. 53, 1814, nom. nud. et Fl. Ind. 3:243, 1832. *Pongamia uliginosa* DC. Prodr. 2:416, 1825; Wt. & Arn. Prodr. 1:262, 1834. *Pterocarpus uliginosus* Roxb. ex G. Don Gen. Syst. 2:377, 1832, *Pongamia religiosa* Wt. in Hook. Bot. Misc. 3:301, 1833. *Pongamia tri-*

PLATE 2: *D. pseudo-robusta* Thoth. spec. nov.

phylla Wt. Ibid. (Suppl.) t. 41, 1833. *Derris affinis* Benth. in Miq. Pl. Jungh. 1:252, 1852, in adnot. *D. uliginosa* Benth. in Miq. Pl. Jungh. 1:252, 1852 et J. Linn. Soc. 4 (Suppl.): 107, 1860; Dalz. & Gibs. Bombay Fl. 77, 1861; Baker in Fl. Brit. Ind. 2:241, 1878. *D. uliginosa* Benth. var. *loureiri* Benth. in J. Linn. Soc. 4 (Suppl.): 108, 1860. *Deguelia trifoliata* (Lour.) Taub. in Engl. & Prantl. Nat. Pfl. fam. 3(2):345, 1891.

A climber found along the sea coast and on the edge of muddy salt water creeks. Leaf imparipinnate, alternate, 10.4-25 cm. long; stipule minute; leaflets 3-5, opposite, ovate, ovato-oblong and at times oblong-lanceolate, 4.5-13 cm. long, 2.5-6.4 cm. wide, glabrous, rigidly subcoriaceous, entire, shortly acuminate, apex obtuse, base rounded, exstipellate; lateral nerves 8-9 pairs; leaf rachis and petiolule grooved above, glabrous, petiolule 3-4 mm. long, rarely 5 mm. long, much wrinkled. Inflorescence a raceme, axillary, 5-24 cm. long, nodes of rachis produced into short stalks which bear 1 or more pedicellate flowers; pedicels slender, subequal. Flowers 1-1.2 cm. long, pink, bract minute, ovate, bracteoles present; pedicels slender, 2-3 mm. long, not fascicled, pedicels and rachis glabrous. Calyx cup truncate, teeth obscure, margin of the cup fringed with minute hairs. Standard ovato-orbicular, 1 cm. long, 0.9 cm. wide, apex retuse. Stamens 10, monadelphous, anthers versatile. Ovary clothed with silky hairs, style long, stigma minutely peltate, ovules 7-8. Pod obliquely rounded, rarely oblong, 2.5-2 cm. long, 2.5-3.8 cm. wide, glabrous, winged on the upper suture, reticulately veined, 1-2 seeded; seed ovato-orbicular, reddish brown to black with radiating lines, 1.2 cm. long, 1.5 cm. wide.

Flower: April to July; Fruit: September to October.

Distribution: Assam, Bengal, Orissa, Bombay, Peninsular India, Andaman and Nicobar Islands.

WALL. CAT: Madras—5879 H & I (CAL); Singapore 1822—5880 (CAL); cultivated in Botanic garden, Calcutta—5879 D (CAL); without any locality—5879 (CAL).

ASSAM: Dawki forest, Khasi and Jaintia Hills, Mar. 1938—Deka 16366 (B.S.I. Shillong).

BENGAL: 24 Parganas, on an island off Kakdwip, Aug. 1961—Sen Gupta 106 (CAL); Sundarbans. Isodhara, Jul. 1902—Prain s.n. (CAL); Satkhira, Aug. 1902—Prain s.n. (CAL); Pathuria, Apr. 1894—Heinig 49 (CAL); Tiger point, Bajirghat reserve, Feb. 1894—Heinig 28 (CAL); Khurma Khal, 1893—Heinig s.n. (CAL); Satkhira, Khulna, May 1883—Clarke 33401 B (CAL); Thakuran, Oct. 1957—Mukerjee 4506 (CAL); Berigang, Sep. 1913—Bhattacharya 2 (DD); Chandpai range, Jun. 1932—Basu s.n. (DD); Rampoor, Mar. 1895—Heinig and Gammie 8 (DD); Bajbaj, Nov. 1856—T.T. s.n. (CAL); without any precise locality, Dec. 1887—Gamble s.n. (CAL); without any precise locality, Apr. 1894—Heinig 53 (CAL); without any

precise locality, Apr. 1883—Clarke 33369 A (CAL); without any precise locality, Jul. 1902—Lace 2318 (DD); reserve forests, May 1917—Banerjee 6 (DD); without any precise locality, Jul. 1891—Collector? s.n. (DD); Malta, without any precise locality, Jun. 1889—Janardhan s.n. (CAL, DD); without any precise locality, Dec. 1856—Kurz 5/64 (DD); Cox's Bazar, without any precise locality, Sept. 1932—D. F. O. s.n. (DD); Magoor, Barisal, Mar. 1872—Clarke 16940 (CAL); Calcutta, Salt lakes, Apr. 1867—Kurz s.n. (CAL); No locality or collector (Bengal)—Accession number 132301 (CAL).

ORISSA: Cuttak, in the mud on the bank of tidal creek, Jambu, Mahanadi delta, Jun. 1949—Mooney 3370 (DD); Barkul Puri, without any precise locality, Apr. 1917—Haines 4123 (DD).

BOMBAY: Mumbai, Jul. 1953, Jan.-Feb., Jun.-Jul. 1954—Shenoy 43, 1921, 2211, 3561-62, 3566, 3936 (BLAT); May 1949, Feb. 1950, Jun. 1950, Mar. 1952, Feb. 1954—Santapau 10019(2), 10717, 11021, 14068, 18051 (BLAT); Aug. 1893—Raojee s.n. (CAL, B.S.I. Poona); Feb. 1893—College of Science, Poona 7 (CAL, DD); Ghodbunder, Sep. 1959—Balamani 415 (BLAT); Feb.-Mar. & Aug. 1944—McCann 3697, 3694, 4780 (BLAT); in creeks, Aug. 1958—Shah 9921 (BLAT); Malvan, Kharup Kaura Is., Mar. 1941—Santapau 102.3H (BLAT); Bombay, Victoria Gardens, Jan. 1917—Collector? 12082 (BLAT); Sept. 1902—Superintendent s.n. (B.S.I. POONA); without any locality—Dalzell s.n. (DD).

PENINSULAR INDIA: Godavari, Coring, Feb. 1956—Wagh 1479 (BLAT); Krishna, Kondapalli, Jul. 1907—Barber 8123 (CAL); Nellore, Tummalapenta, Sept. 1922—Fischer 4771 (CAL); Madras, Adayar, Aug. 1901—Bourne 2429 (CAL); North Kanara Karwar, Jun. 1918—Sedgwick & Bell 4078 (CAL); Karwar, Jun. 1885—Talbot 1240 (CAL); Karwar, Mar. 1957—Jain 16456 (B.S.I. Poona); Karwar, 1881—Talbot s.n. (B.S.I. Poona); South Kanara, Neeleswar, Jun. 1947—Rajasekhara mudhaliar 93052 (MH); Wondse backwaters, 1916—Collector? 12845-46 (MH); Madurai, Shembaganur, Oct. 1918—Sauliere 664 (CAL); Malabar, Kurumathur near Taliparamba, 1915—Collector? 11924 (MH); in backwaters, Calicut, 1887—Collector s.n. (MH); Kuppam river, Taliparamba, 1913—Barber 8784 (MH); Travancore, Quilon, Nov. 1910—Meebold 158 (CAL); Idammatti sudabvalli, Mar. 1873—Rama Rao 969 (DD); Quilon, 1894—Collector s.n. (MH); Kuriapizhai, Nov. 1904—Barber 6784 (MH); without any locality (Fl. Madras), Mar. 1894—Bourdillon 133 (CAL); Pen. Ind. Or—Wight 812 & 935 (CAL).

ANDAMANS: South Andaman, North Cinque Is. Apr. 1915—Parkinson 481 (CAL); Anikhet hill jungle, Jun. 1891—King s.n. (CAL); Hobdaypur, Feb.

& Jun. 1891, Jul. 1894—*King and his collectors s.n.* (CAL); Gopalakabang hill jungle, Sept. 1895—*King's collector s.n.* (CAL); Hobdaypur and Tusanobad, Jul. 1890—*King s.n.* (CAL); Hope town—*Kurz s.n.* (CAL); Alimusjid hill jungle, Oct. 1895—*King's collector s.n.* (CAL); Manpur hill jungle, Apr. & Aug. 1892—*King's collector s.n.* (CAL); Port Mouat hill jungle, Nov. 1891—*King's collector s.n.* (CAL); Havelock Is., Jun. 1884—*King's collector s.n.* (CAL); Shoal bay, Jul. 1914—*Parkinson s.n.* (DD); without any precise locality, 1900—*Prain's collector s.n.* (CAL); Apr. 1890—*King s.n.* (CAL); without any locality (Andamans)—Sept. 1900—*Prain's collector* 68 (CAL). Dec. 1914—*Parkinson s.n.* (DD).

NICOBARS: Car Nicobar, Mangrove creek between Kakana and Kimios, Mar. 1959—*Thothathri* 9337 (MH, CAL); Batimalv Is., Mar. 1891—*Prain s.n.* (CAL); Sawai and Arong, May 1895—*King's collector s.n.* (CAL); Middle Nicobar, Kamorta Is., Feb. 1875—*Kurz s.n.* (CAL); Great Nicobar, Kondal Is., Apr. 1903—*Rogers s.n.* (CAL); without precise locality, Apr. 1952—*Sahni* 23031 (DD); without any locality or collector? (Nicobars)—Accession number 132355 (CAL).

5. *Derris elegans* Benth. in Miq. Pl. Jungh. 1:252, 1852, in adnot; Benth. in J. Linn. Soc. 4 (Suppl.): 109, 1860; Baker in Fl. Brit. Ind. 2:242, 1878; Prain in J. Asiat. Soc. Beng. 66:459, 1897. *Pongamia elegans* Grah. in Wall. Cat. 5883, 1831-32, nom. nud.

A climber; young parts covered with brown pubescence. Leaf imparipinnate, alternate, stipulate, up to 20.5 cm. long; stipule ovate, acute; leaflets 3-5, elliptic to oblong, up to 11.5 cm. long, 6 cm. wide, shining above and hairy on the veins below, entire, base narrow to rounded, apex obtuse; stipels prominent, hair-like, 3 mm. long; lateral nerves 6-8 pairs, raised on the lower surface, petiolule hairy, 4 mm. long, slightly grooved above. Inflorescence a raceme, axillary, 6.2 cm. long, nodes 2 flowered, not produced, rachis and pedicels hairy. Flowers pedicellate pedicels 4-5 mm. long; bracts and bracteoles present, hairy, linear, bracteoles situated a little below the calyx cup. Calyx cup broadly campanulate, toothed, finely silky. Standard orbicular, apex cleft. Stamens 10, monadelphous. Ovary hairy, style curved, stigma minute, ovules 2, oblong, slightly curved on the micropylar side. Pod flat, rounded to oblong, oblique, 3.8 cm. long, 2.5 cm. wide, winged on the upper suture, distinctly reticulated, covered throughout with a fine sparse pubescence, 1-seeded, rarely 2-seeded; seed much compressed, 1.9 cm. wide. (From *Parkinson*, 1923; *David Prain*, 1897, as no pod is present in the herbarium specimens).

Distribution: Andaman Islands.

ANDAMANS: Manglutan, South Andaman, Mar. 1915—*Parkinson* 443 (CAL).

Derris elegans Benth. f. *andamanensis* Thoth. f. nov. (Fig. 3).

Inflorescentia folio longior, 16.5-20 cm. longa, laxa; pedicelli usque ad 6 mm. longi; stipellae eminentes, usque ad 4 mm. longae. Typus lectus in silva ad Manpur in Andaman australiori a Kingii collectore et positus in Herbario Calcuttensi sub accessionis numero 132395.

Inflorescence longer than leaf, 16.5-20 cm. long, lax; pedicels up to 6 mm. long; stipels prominent, up to 4 mm. long.

Distribution: Andaman Islands.

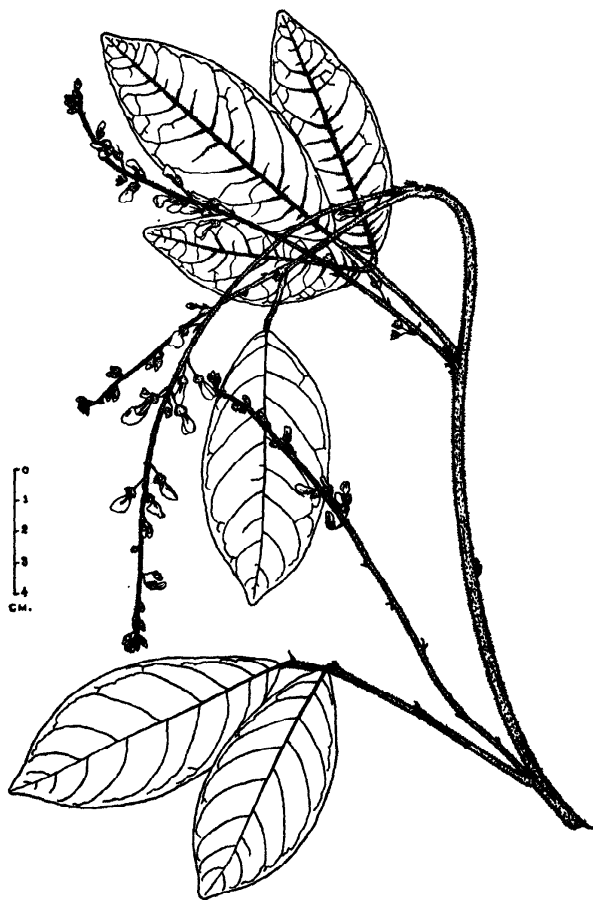


PLATE 3: *D. elegans* Benth. f. *andamanensis* Thoth. f. nov.

Manpur-hill jungle, South Andaman, Feb. 1894—*King's collector s.n.*; Accession number 132395 (Holotype CAL; 132396 Isotype CAL).

SECTION III. DIPTERODERRIS BENTH.

6. *Derris brevipes* (Benth.) Baker in Fl. Brit. Ind. 2:244, 1878. *Derris heyneana* Benth. var. *brevipes* Benth. in J. Linn. Soc. 4 (Suppl.): 110, 1860.

A large climbing shrub. Leaf imparipinnate, alternate,

stipulate, 16.5-19.3 cm. long; stipule ovate, acute; leaflets 7, elliptic to oblong, usually 6-7.5 cm. long, 2.5-3.2 cm. wide, rarely up to 10.7 cm. long, 4.5 cm. wide, glabrous, shortly cuspidate, entire, base rounded to narrow, apex obtuse to subacute, exstipellate; lateral nerves 6-8 pairs, rachis and petiolule mostly glabrous, rarely silky hairy, petiolule 4-8 mm. long. *Inflorescence* a panicle with densely pubescent branchlets, axillary and terminal, 12.7-27.5 cm. long. *Flowers* fairly large, 1-1.3 cm. long, red, crowded on short branchlets of the panicle, pedicellate; pedicels equal and rarely longer than calyx, silky, 2-4 mm. long; bracts and bracteoles present, bracteoles 2, prominent, ovate, densely silky, situated at the base of calyx cup. *Calyx* cup narrowly campanulate in the bud stage, and becomes broadly campanulate later, densely silky, calyx teeth 4, broadly triangular. *Standard* ovato-orbicular to obovate, not callose, shortly clawed, standard and wing with a few deciduous, silky hairs on the back at the top, keels jointed, pubescent on the back with silky hairs. *Stamens* 10, monadelphous. *Ovary* densely pubescent with silky hairs, stigma capitate, ovules 4, small. *Pod* broadly oblong, flat, 3.8-5.5 cm. long, 2-2.9 cm. wide, persistently and densely clothed with brown silky hairs, narrowly winged on the upper suture with an obscure one on the lower, rounded at both ends, apex curved and pointed, faintly reticulated, 1-seeded (Fig. 4); seed reddish brown, oblong.

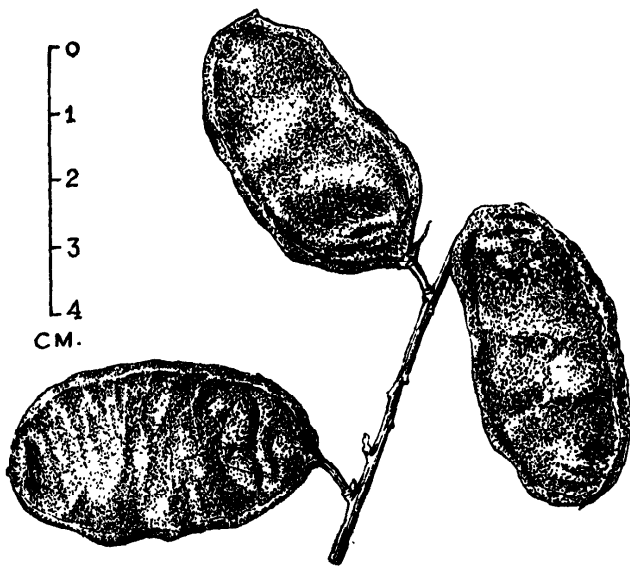


PLATE 4: *D. brevipes* Baker (Pod)

Flower: May to August; *Fruit*: September.

Distribution: Konkan, North Kanara, Mysore, Nilgiris, Tirunelveli and Madurai in Peninsular India.

WALL. CAT: Nilgiris, South India—5977 (CAL).

PENINSULAR INDIA: North Kanara, Jog falls, May 1956—Puri 2129 (B.S.I. Poona); Dursing,

Feb. 1888—Talbot 1618 (B.S.I. Poona); Jog falls, May 1954—Santapau 18559 (BLAT); Nilgiris, Naduvattam, 2000 m., May 1889—Gamble 20542 (CAL); Malabar, near Manantoddy, Wynaad, 1400 m., 1889—Morgan s.n. (MH); Wynaad, 1869—Beddome s.n. (MH); Coimbatore Hills—Collector s.n. (MH); Anamalai Hills, 1871—Beddome s.n. (MH); Madurai, High way mountains, 1533 m., Jacob 17623 (MH); Tirunelveli, Hills—Collector? s.n., Accession number 132534 (CAL); without any details regarding locality—Collector? 3226 (MH).

Derris brevipes Baker var. *coriacea* Baker in Fl. Birt. 2: 244, 1878 emed. Thoth.

Omnia ut apud Baker l.c. quibus adde: *Legumen* late oblongum, tumidum contra semina, 2.5-4.5 cm. longum, 2-2.5 cm. latum, pubescentia brunnea vestitum, ala angusta ad superiorem suturam, angustissima vero ad inferiorem ornatum.

Leaflets larger in size, 8-13 cm. long, 4.5-5.8 cm. wide, thick, coriaceous; lateral nerves comparatively more than in var. *brevipes*, 8-10 pairs. *Pod* broadly oblong, much turgid against the seeds, 2.5-4.5 cm. long, 2-2.5 cm. wide, clothed with brown pubescence, narrowly winged on the upper suture with a minute one on the lower. (Description of the pod given for the first time; not reported by earlier workers.)

Distribution: Nilgiris, Pulneys, Malabar and North Kanara in Peninsular India.

PENINSULAR INDIA: Nilgiris, Coonoor ghat, 1884—Collector? s.n. (MH); Naduvattam, 1884—Collector? s.n. (MH); without precise locality—Collector? s.n. (MH); Naduvattam, May 1881—Beddome s.n. (CAL); Naduvattam, 1890—Collector? s.n. (MH); Malabar, Attapadi Hills, Muthukulam, 1000 m., May 1911—Fischer 2815 (CAL); Pulneys, without exact locality, Apr. 1898—Bourdillon 1085 (CAL); Travancore, without any exact locality, 67 m., Jul. 1894—Bourdillon 444 (MH); North Kanara, Devimani, Feb. 1805—Talbot 4400 (B.S.I. Poona).

7. *Derris monticola* (Kurz) Prain in J. Asiat. Soc. Beng. 66: 361, 1897; Dunn in J. Linn. Soc. 41: 237, 1912. *Milletia monticola* Kurz in J. Asiat. Soc. Beng. 42: 67, 1873; Baker in Fl. Brit. Ind. 2: 106, 1876.

A climber; stem lenticellate, young parts grey pubescent. *Leaf* imparipinnate, alternate, stipulate, 21-28.5 cm. long; leaflets 9-11, mostly 11, oblong, 6.5-9.3 cm. long, 2-3 cm. wide, thin, glabrous, entire, shortly cuspidate, base narrow; rachis and petiolule minutely hairy, petiolule 3-4 mm. long. *Inflorescence* a raceme, axillary, up to 14 cm. long (Indian specimens), rachis and pedicels pubescent, flowers crowded at nodes which are not produced. *Flowers* large, 1-1.4 cm. long, pedicellate; pedicels 3-4 mm. long; bract ovate, bracteoles 2, situated at the base of the calyx cup. *Calyx* cup narrow, brown silky, mouth distinctly toothed, teeth deltoid. *Standard* ovato-orbicular, shortly clawed, glab-

rous. *Stamens* 10, monadelphous. *Ovary* hairy, ovules 4-5. *Pod* oblong, thin, strap-shaped, 7-10 cm. long, 1.6-2.3 cm. wide, distinctly winged on the upper suture, very narrowly winged on the lower suture, glabrous, reticulately veined (Fig. 5).

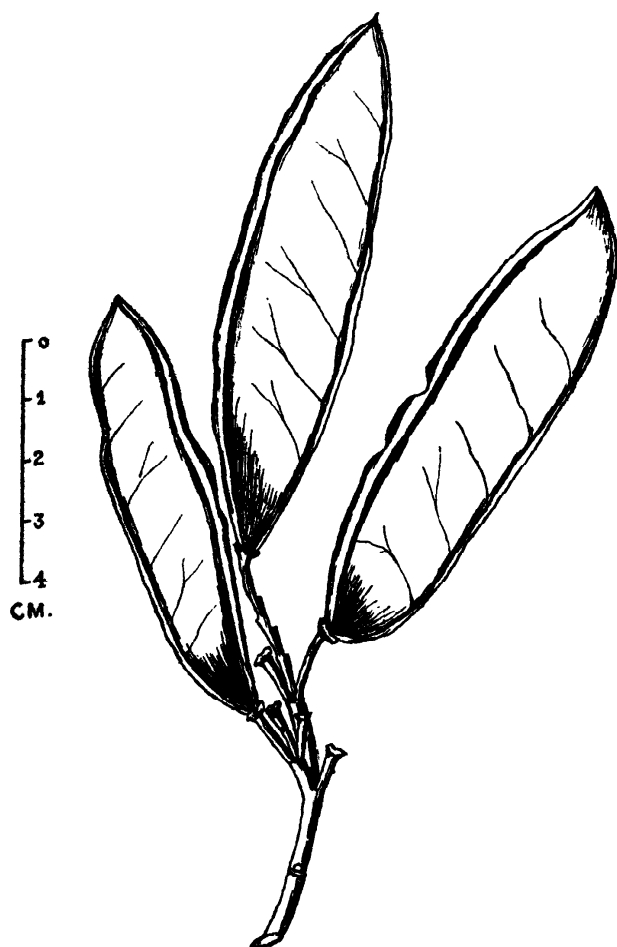


PLATE 5: *D. monticola* Prain (Pod)

Distribution: Assam and Bengal.

ASSAM: Khasi Hills, 1666-2000 m.—*Kurz* 199 (CAL); Hills—*Kurz* s.n. (CAL); Hills—*Badgeley* s.n. (CAL); Khasi and Jaintia, Hills, 1897—*Mann* s.n. (CAL).

BENGAL: Duttabong, Darjeeling, Aug. 1876, 2000 m.—*Collector?* 692B.

Martaban, Burma—*Kurz* 1776 (Type in Herb. CAL)

8. *Derris heyneana* Benth. in Miq. Pl. Jungh. 1:252, 1852, in adnot; Benth. in J. Linn. Soc. 4 (Suppl.): 110, 1860; Dalz & Gibs. Bombay Fl. 77, 1861; Baker in Fl. Brit. Ind. 2:244, 1878; Prain in J. Asiat. Soc. Beng. 66:461, 1897. *Pongamia heyneana* Grah. in Wall. Cat.

5916, 1831-32, nom. nud. (non Wt. & Arn.) *Deguelia heyneana* (Benth.) Taub. in Engl. & Prantl. Nat. Pfl. fam. 3(2): 345, 1891.

A climber; stem lenticellate. *Leaf* imparipinnate, alternate, stipulate 15.5-26.2 cm. long; leaflets 5-7, obovato-oblong to oblong, 8-15.5 cm. long, 3.5-6.9 cm. wide, shortly acuminate, entire, base narrow, apex obtuse, glabrous, subcoriaceous; lateral nerves 8-9 pairs; rachis and petiolule glabrous, petiolule grooved above, 5-6 mm. long. *Inflorescence* a copiously branched panicle, axillary, branches of the inflorescence grey downy, 19.5-24 cm. long. *Flowers* crowded on branchlets arising from nodes of the panicle, smaller than *D. brevipes*, pedicellate; pedicels 3-4 mm. long; bracts and bracteoles present. *Calyx* cup campanulate, silky, faintly toothed, pubescence of the calyx not so dense as in *D. brevipes*. *Standard* obovate to ovato-orbicular, long clawed, apex obtuse to retuse, keels slightly silky on the back at the top. *Stamens* 10, monadelphous. *Ovary* clothed with silky pubescence, ovules 4, oblong to suborbicular. *Pod* falcately oblong, strap-shaped, 5.5 cm. long, 2.3 cm. wide, glabrous, upper margin distinctly winged, lower one minutely winged, reticulately veined, 1-seeded.

Flower: December to March.

Distribution: North Kanara, Mysore and Konkan in Peninsular India; a rare plant.

PENINSULAR INDIA: Konkan, without any definite locality—*Stocks*, *Law* s.n. (CAL); North Kanara, without any definite locality, Feb. 1888—*Talbot* 1618 (CAL); Castle rock, Mar. 1908—*Chibber* s.n. (B.S.I. Poona); Coimbatore, Anamalai, 1000-1167 m.—*Collector?* s.n. (MH); without any details regarding locality—*Beddome* s.n. (MH), *Dalzell* s.n. (CAL), *Gibson* s.n. (CAL), *Collector?* 1721 (CAL); Coorg, Mercara, Mar. 1958—*Puri* 31991 (B.S.I. Poona).

9. *Derris benthamii* (Thw.) Enum. Pl. Zeyl. 413. 1864. *Brachypterum benthamii* Thw. Ilid 93, 1859. *Derris paniculata* Benth. in J. Linn. Soc. 4 (Suppl.): 105, 1860; Baker in Fl. Brit. Ind. 2:242, 1878. *D. wightii* Baker in Fl. Brit. Ind. 2:247, 1878.

A slender, glabrous climber. Young branches terete, lenticellate, glabrous. *Leaf* imparipinnate, alternate, stipulate, 9.5-14.3 cm. long; stipule ovate; leaflets usually 5-7, rarely up to 9, oblong, up to 4.4 cm. long, 2.3 cm. wide, glabrous, subcoriaceous, entire, base rounded, tip obtuse; lateral nerves up to 8 pairs; leaf rachis and petiolule glabrous, petiolule 3 mm. long. *Inflorescence* copiously paniced, rachis rusty pubescent, 20.6 cm. long. *Flowers* small; bracts and bracteoles ovate, pubescent; pedicels 3-4 mm. long. *Calyx* cup broadly campanulate, 4 mm. long, mouth 4 toothed, finely grey silky. *Standard* obovato-orbicular, distinctly clawed without callosities. *Stamens* 10, monadelphous, 5 longer, alternating with 5 shorter ones, anthers

versatile. *Ovary* silky, style linear, stigma minute, ovules 3-4. *Pod* oblong, 3-3.4 cm. long, 1-1.6 cm. wide, persistently brown silky, narrowly winged on the upper suture with an obscure one on the lower, faintly veined, turgid against the seeds, 1-2 seeded; *seed* oblong, bluish black, 1.8 cm. long and 0.8 cm. wide.

Fruit: September to November.

Distribution: South India.

SOUTH INDIA: Tirunelveli, Sivagiri Hills—*Wight* 834 (Isotype of *D. wightii* Baker, CAL); way to Naterikal, 1916—*Collector?* 13352 (MH); Travancore, Kulkundal, 1667 m., Dec. 1909 (Pod only)—*Meebold* 13096 (CAL); Courtallam, Nov. 1913—*Rama Rao* 1984 (CAL, MH); Madurai, High way mountains, May 1917—*Collector?* 194 (BLAT).

Ceylon Province—*Thwaites* 2925 (Isotype in Herb. CAL).

10. *Derris bakeri* Thoth. nom. nov. *Pongamia heyneana* Wt. & Arn. Prodr. 1: 263, 1834, (non Grah.). *Derris heyneana* Benth. var. *paniculata* Baker in Fl. Brit. Ind. 2: 244, 1878, (Fig. 6).

A climber; *stem* lenticellate. *Leaf* imparipinnate, alternate, stipulate, 13.2-21 cm. long, young parts minutely silky; leaflets 5-9, oblong to ovato-elliptic, rarely obovate, 7.5-12.5 cm. long, 3-6 cm. wide, glabrous, subcoriaceous to coriaceous, entire, base rounded to cuneate, apex obtuse, exstipellate; lateral nerves 6-8 pairs, ascending and then marginally united; petiolule 4-5 mm. long, grooved above, hairy. *Inflorescence* lax, axillary, a much branched panicle with long, slender, branchlets, all covered with minute, brown, silky hairs, up to 29.5 cm. long. *Flowers* 9-11 mm. long, 4-5, on short, bracteate, partial peduncles, peduncles 8-9 mm. long; pedicels long, slender, hairy, up to 7 mm. long, stouter above the bracteoles than below and appear as jointed; bract minute, bracteoles 2, minute, ovate, hairy, situated opposite on the pedicel just below the calyx cup. *Calyx* cup truncate, toothed, finely silky, 1.5-2.5 mm. long. *Standard* ovato-orbicular, apex cleft, wings and keels distinctly clawed, standard, wing and keel petals all glabrous. *Stamens* 10, monadelphous, anthers versatile. *Ovary* silky, style curved, stigma minute, ovules 2-4, oblong. *Pod* broadly ovate, flat, 5.2 cm. long, 3.5 cm. wide, glabrous, distinctly winged on both the sutures, base cuneate, reticulately veined, 1-seeded.

Flower: February to May; *Fruit*: June.

Distribution: Western Peninsula.

WESTERN PENINSULA: North Kanara, Ainshi ghat, Jun. 1885—*Talbot* 1223 (CAL); Ainshi, Feb. 1894—*Talbot* 3144 (CAL, B.S.I. Poona); Dodmune, Mar. 1896—*Talbot* 3587 (CAL, B.S.I.

Poona); Ainshi ghat, May 1885—*Talbot* 1195 (CAL); without any locality (Western Peninsula)—*Wight* 920 (Isotype in Herb. CAL, MH); without any locality (Bombay)—*Woodrow* s.n. (CAL); Amboli Ghat, Apr. 1902—*Gammie* 15055 (BLAT, B.S.I. Poona).

Bentham [J. Linn. Soc. (Suppl.) 4: 110, 1860] treated Wall. 5916 and Wt. 920 as synonymous and placed both under *Derris heyneana* Benth.

Baker (Fl. Brit. Ind. 2: 244, 1878) placed Wall. 5916 under *D. heyneana* Benth. var. *heyneana* and Wt. 920 under *D. heyneana* Benth. var. *paniculata* Baker.

Prain (J. Asiat. Soc. Beng. 66: 461, 1897) considered the two varieties as deserving of specific rank. This opinion, the author has confirmed by examination of the types. The new species cannot be called *D. paniculata* on account of the name being pre-occupied by *D. paniculata* Benth. based on a different type. Therefore, a new name, *Derris bakeri* is given in honour of J. G. Baker, who wrote the Leguminosae in Hook. f. Fl. Brit. Ind. 2: 56-306, 1876-78.

D. bakeri Thoth. differs from *D. heyneana* Benth. in having lax and longer inflorescence, longer pedicels and glabrous petals.

11. *Derris marginata* (Roxb.) Benth. in Miq. Pl. Jungh. 1: 252, 1852, in adnot; Benth. in J. Linn. Soc. 4 (Suppl.): 111, 1860; Baker in Fl. Brit. Ind. 2: 245, 1878. *Dalbergia marginata* Roxb. Hort. Beng. 53, 1814, nom. nud. et Fl. Ind. 3: 230, 1832; Wight, Ic. t. 87, 1838. *Aganope marginata* Miq. Fl. Ned. Ind. 1: 152, 1858. *Deguelia marginata* (Benth.) Taub. in Engl. & Prantl. Nat. Pfl. fam. 3(2): 345, 1891.

A climber; *stem* lenticellate, branches glabrous. *Leaf* imparipinnate, alternate, 15-31.6 cm. long; stipule present; leaflets mostly 5, occasionally 7, odd terminal one always larger than others, elliptic to oblong, usually 6-14.7 cm. long and 3-5.5 cm. wide, rarely up to 16.5 cm. long and 7.7 cm. wide, subcoriaceous, entire, shortly cuspidate, base rounded to cuneate; lateral nerves 8-10 pairs; rachis and petiolule glabrous, petiolule 9 mm. long. *Inflorescence* a panicle, copiously branched with slender branchlets, axillary or terminal, nodes of the inflorescence absent. *Flowers* large, long pedicelled; pedicels 1-1.5 cm. long, filiform; bracts and bracteoles present, bracteoles 2, arranged one above the other on the pedicel just below the calyx cup. *Calyx* cup broader than deep, mouth toothed and fringed with silky hairs. *Standard* ovato-orbicular, apex notched. *Stamens* 10, monadelphous. *Ovary* clothed with silky hairs, ovules 2. *Pod* strap-shaped, oblong, rarely elliptic, normally 6-14 cm. long, rarely up to 21 cm. long, 2.5-4 cm. wide, glabrous, distinctly winged on both the sutures, wing on the upper suture well developed, base narrow, tip acute, reticulately veined, 1-2 seeded; *seed* large, brownish black, kidney shaped.

Flower: October to May; *Fruit*: March.

Distribution: Assam, Bengal, Chittagong, Eastern Himalayas and Sylhet,

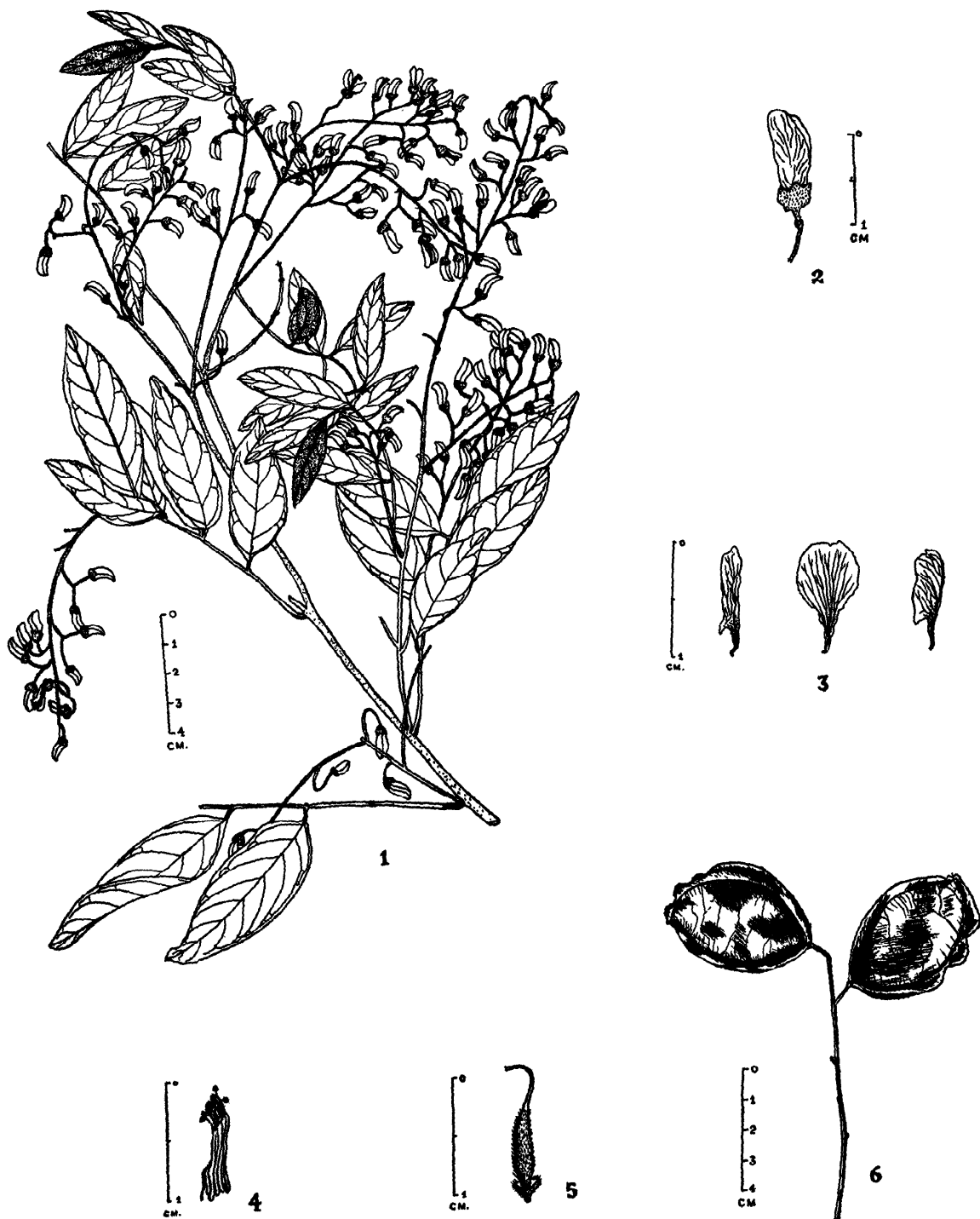


PLATE 6: *D. bakeri* Thoth. nom. nov. (From Wight 920—*Pongamia paniculata* Wt. & Arn.)
 Fig. 1. A portion of branch; Fig. 2. Flower; Fig. 3. Corolla showing wing, standard and keel petals; Fig. 4. Monadelphous stamens; Fig. 5. Pistil; Fig. 6. Pod.

WALL. CAT: Sylhet 5909A & B (CAL).

ASSAM: Khasi, without any definite locality, 334-1000 m.—*Hooker & Thomson s.n.* (CAL); Khasi and Jaintia, Cherrapunji, 1000 m., Oct. 1878—*Gallatly 692* (CAL); Nongkila, Dec. 1915—*Upendranath Kanjilal 6364* (DD); Cachar, Monier Khal on the Sonai river, Aug. 1903—*Gage s.n.* (CAL); Kamrup, Near Doimari, Jan. 1915—*Upendranath Kanjilal 5046* (B.S.I. Shillong); Gauhati, without any definite locality, Aug. 1850—*Collector? s.n.*, Accession number 132594 (CAL); without any locality (Assam)—*Jenkins s.n.* (CAL); Assam deputation collection, 1825—*Jenkins s.n.* (CAL).

BENGAL: Cox's Bazar, Kelatuli sorra, May 1945—*Sinclair 4297* (CAL); Cultivated in Botanic garden, Calcutta—Accession number 132588 (CAL).

CHITTAGONG: Demagiri, Mar. 1876—*Lister 195* (CAL); Hazarikhil, Aug. 1935—*Rao 5636* (DD); Hazarikhil, Feb. 1934—*Parkinson 4347* (DD); without any definite locality, Sept. 1933—*D. F. O. 1* (DD).

EASTERN HIMALAYAS: Helingoniara, 1875-76—*King s.n.* (CAL).

12. *Derris ferruginea* (Roxb.) Benth. in Miq. Pl. Jungh. 1:252, 1852, in adnot et. J. Linn. Soc. 4 (Suppl.): 109, 1860; Baker in Fl. Brit. Ind. 2:245, 1878. *Pongamia ferruginea* Wall. Cat. 5885, 1831-32, nom. nud. *Robinia ferruginea* Roxb. Fl. Ind. 3:329, 1832. *Deguelia ferruginea* (Benth.) Taub. in Engl. & Prantl. Nat. Pfl. fam. 3(2): 345, 1891.

A woody climber; branchlets and younger parts rusty pubescent. Leaf imparipinnate, alternate, usually 18-29 cm. long, rarely up to 34.5 cm. long, stipulate; stipule ovate, acute, tomentose; leaflets 7-9, obovato-oblong to cuneate, 6-15.5 cm. long, 2.5-7.5 cm. wide, coriaceous, finely pubescent beneath especially along the nerves, entire, shortly cuspidate, base cuneate; lateral nerves 6-8 pairs, more prominent beneath; rachis and petiolules covered with brown pubescence, petiolule 2-4 mm. long. Inflorescence a branched panicle, densely ferruginous, axillary or terminal; bract small, oval, bracteoles 2, linear, one above the other just below the calyx; pedicels hairy, 5-7 mm. long. Calyx cup campanulate, mouth toothed. Standard broadly ovate, wing and standard clothed with glabrescent, brownish yellow hairs while keel is more hairy. Stamens 10, monadelphous. Ovary densely silky, style bent, stigma minute, ovules 4-5. Pod oblong, rigid, usually 4.5-7.8 cm. long, rarely up to 9 cm. long, 2-3.6 cm. wide, distinctly winged on the upper suture, the wing on the lower minute, younger pods densely ferrugineo-tomentose, mature ones with glabrescent hairs, reticulately veined which varies in degree, apex pointed, base rounded, 1-2 seeded, rarely 3-seeded; seed brownish black, elliptic and wrinkled.

Flower: March to May; *Fruit*: June to August.

Distribution: Eastern Himalayas, Assam and Sylhet.

WALL. CAT: Sylhet—5885 (Isotype in Herb. CAL).

BENGAL: Cultivated in Botanic garden, Calcutta—Accession number 132635 (CAL); Alipore Duars, without precise locality, Oct. 1891—*Heawood s.n.* (CAL).

EASTERN HIMALAYAS: Sikkim, Mungpoo, May 1900—*Prain's collector s.n.* (CAL); Bhutan, Duars—*Haines 534* (CAL).

ASSAM: Cachar, Barak, May 1889—*Prazer 147* (CAL); Monier Khal on the Sonai river, Aug. 1903—*Gage s.n.* (CAL); Lakhimpur, without precise locality, Jun. 1931—*Purkayastha 5* (DD); without precise locality, Jun. 1936—*Range Officer 582* (DD); without precise locality, Nov. 1957—*Panigrahi 11561* (B.S.I. Shillong, CAL); Makum Dihing river, Mar. 1894—*Gammie 111* (CAL) without precise locality—*R. P. 437* (CAL); Mikir Hill, without any definite locality, Nov. 1827—*Collector? s.n.*; Accession number 132641 (CAL); Naga Hill, Tingale Bam jungle, May 1899—*Hock 1005* (CAL); Gauhati Hills, without precise locality—*Collector? s.n.* Accession number 132644 (CAL); Khasi Hill, without exact locality—*Kurz s.n.* (CAL); Dibrugarh, without exact locality, Jan. 1891—*Mann s.n.* (CAL); without exact locality—*Collector? 1091* (CAL); Nowgong, without precise locality, 1937—*Purkayastha 15878* (B.S.I. Shillong); Sibsagar, Tengapukhra, Pul. 1909—*Upendranath Kanjilal 1535* (B.S.I. Shillong); without any locality (Assam)—*Jenkins s.n.* (CAL); Lubrajur (Assam), 1844—*Collector? 73* (CAL); Bordeoban (Assam), Jul. 1895—*Watt 11950* (CAL); without any locality or collector—Accession number 132640 (CAL).

SYLHET: Chatluck, Mar. 1869—*Clarke 8387* (CAL); without precise locality—*Hooker & Thomson s.n.* (CAL).

13. *Derris andamanica* Prain in J. Asiat. Soc. Beng. 66:104, 1897. *Derris sinuata* Prain in J. Asiat. Soc. Beng. 60:311, 1892, not of Benth.

A littoral climbing shrub with young parts brownish pubescent; stem distinctly lenticellate. Leaf imparipinnate, alternate, 20.2-35 cm. long; stipule present, hairy; leaflets 7-9, rarely 5, pale green, elliptic to oblong, 8-12.5 cm. long, 5-7 cm. wide, coriaceous, glabrous, entire, tip obtuse to retuse, base rounded, stipels absent; lateral nerves 5-8 pairs; rachis grooved above, petiolule 5-7 mm. long. Flowers in ample terminal and axillary panicles, large, yellowish white, up to 1.5 cm. long, arranged on filiform pedicels, mostly crowded at the end of short stalks; pedicels puberulous, 5-7 mm. long; bracts and bracteoles present, bracteoles 2, just beneath

the calyx cup. *Calyx* cup wide, campanulate, densely silky, margin subentire. *Standard* ovato-orbicular, long clawed, clothed with caducous, brown, silky hairs on its top at the back, more prominent in buds; pubescence of the petals varies, in young buds, standard has pubescence which fall away in mature stage, while keels retain the same and wings have less pubescence (not mentioned by Prain 1897). *Stamens* 10, monadelphous. *Ovary* distinctly stalked, brown silky, style bent, stigma minute, ovules 4. *Pod* strap-shaped, oblong, 3.5-11 cm. long, 1.8-2.5 cm. wide, unequally winged on both the sutures, the wing on the upper suture more prominent, clothed with brown, silky hairs, reticulately veined, apex pointed, base narrow, 2-3 seeded.

The plant grows on rocky soils in mangrove creeks near sea shore.

Flower: December to March; *Fruit*: February.

Distribution: Andaman and Nicobar Islands.

ANDAMANS: South Andaman, Wimberlygunj, Feb. 1916—*Parkinson s.n.* (DD); Rutland Island, Jan. 1916—*Parkinson* 879 (CAL); without precise locality, Nov. 1901—*Heinig* 353 (CAL); Putatang creek, Feb. 1904—*Rogers* 67 (CAL); Bajajagdah jungle, Feb. 1895—*King's collector s.n.* (CAL); Port mouat hill jungle, Mar. 1893 & 94—*King's collector s.n.* (CAL); Hobdaypur, Jan. 1891—*King's collector s.n.* (CAL); Cadellgunj jungle, Aug. 1894—*King's collector s.n.* (CAL); North Corbyn's cove hill jungle, Jan. 1895—*King's collector s.n.* (CAL); Chiriatopu, Jan. 1916—*Parkinson* 889 (CAL); Jungli's house hill jungle, Jul. 1895—*King's collector s.n.* (CAL); Middle Andaman, Bomlungta, Feb. 1916—*Parkinson* 911 (CAL); Rangat, Mar. 1934—*Kirat Ram* 3687 (DD); Homfray strait, Baratang Island, Feb. 1915—*Parkinson* 313 (DD); without any locality (Andamans)—*Alfred* 9586 (DD), Feb. 1899—*Prain's collector s.n.* (CAL); North Andaman, Great Cocos Island, Dec. 1889—*Prain s.n.* (CAL).

North Corbyn's cove hill jungle, South Andaman, Jan. 1895—*King's collector s.n.*, Accession number 132565 (Lectotype designated—Herb. CAL).

NICOBARS: Car Nicobar, Sea-shore hill jungle, Feb. 1894—*King's collector s.n.* (CAL); without precise locality, Jan. 1893—*King's collector s.n.* (CAL).

SECTION IV. PARADERIS MIO.

14. *Derris canarensis* (Dalz.) Baker in Fl. Brit. Ind. 2:246, 1878; Prain in J. Asiat. Soc. Beng. 66:462, 1897. *Pongamia canarensis* Dalz. in Hook. Kew J. Bot. 2:37, 1850. *Derris oblonga* Benth. in J. Linn. Soc. 4 (Suppl): 112, 1860; Baker in Fl. Brit. Ind. 2:242, 1878. *Brachypterum canarense* Dalz. & Gibs. Bombay Fl. 76, 1861. *Deguelia oblonga* (Benth.) Taub. in Engl. & Prantl. Nat. Pfl. fam. 3(2):345, 1891.

A climbing *shrub*; branches terete, glabrous. *Leaf* imparipinnate, alternate, up to 35.5 cm. long, stipulate, base of the peduncle slightly swollen and wrinkled; stipule prominent, ovate, broad based and minutely hairy; leaf rachis striate, markedly grooved above; leaflets 13-19, oblong to oblong-lanceolate, rarely cuneate, up to 11.8 cm. long, 3-4 cm. wide, entire, base rounded, apex obtuse, subcoriaceous, glaucous beneath, young leaflets minutely hairy below, but older ones glabrous; petiolule 3-4 mm. long, glabrescent, wrinkled; lateral nerves 6-8 pairs. *Inflorescence* a raceme, axillary, 15-17.2 cm. long, nodes of the inflorescence produced into short stalks which bear mostly 3 and rarely 5-6 flowers; rachis, node and pedicels hairy. *Flowers* large, up to 1.3 cm. long; pedicels filiform, 3-4 mm. long; bract ovate, bracteoles 2, minute, just below the calyx cup. *Calyx* cup broadly truncate, toothed, minutely hairy, mouth as well as inner side of the calyx cup fringed with silky hairs. *Standard* ovato-orbicular, with 2 minute callosities at the base, long clawed, 1.1 cm. long. *Stamens* 10, monadelphous. *Ovary* hairy, upper portion of the ovary thin, style short, stigma minute, ovules 2, oblong. *Pod* flat, oblong, 3.6-8.3 cm. long, 2-2.6 cm. wide, winged on both the sutures, the wing on the lower suture less developed, clothed with glabrescent, soft, grey hairs in young pods, absent in mature ones, faintly and reticulately veined, apex curved into a mucronate tip, 1-3 seeded; seed bluish-black, oblong, 1 cm. long, 0.8 cm. wide, micropylar side curved inwards with a ridge and furrow on either side.

Flower: February to April; *Fruit*: September.

Distribution: Peninsular India; rare plant.

PENINSULAR INDIA: North Kanara, Kasarleh, May 1853—*Ritchie* 1720 (CAL); Ainshi ghat, 1885—*Talbot* 1184 (CAL, B.S.I. Poona); Supa, May 1881—*Talbot* 1846 (B.S.I. Poona); Devimani ghat, Nov. 1908—*Kulkarni s.n.* (B.S.I. Poona); Yesle forest, May 1956—*Mahajan* 1675 (B.S.I. Poona); Devimani ghat, May 1911—*Garade s.n.* (B.S.I. Poona); Castle-rock, Oct. 1902—*Gammie* 15778 (B.S.I. Poona); Hill below the falls on the Kola Naddi, Dec. 1852—*Ritchie s.n.* (CAL); Castlerock, 534 m., Aug. 1917—*Sedgwick* 2821 (BLAT); without precise locality, 600 m., May 1919—*Bell* 5969 (BLAT); Sampkhand, Apr. 1939—*Bor* 11319 (DD); Kumta, Apr. 1939—*Bor* 11319 (DD); Konkarn, without precise locality—*Stocks s.n.* (CAL); Coorg, without precise locality, 1925—*Forest Officer* 16907 (MH); Travancore, Quilon, Nov. 1909—*Meebold* 12621 (CAL); Aryanad, Feb. 1913—*Roma Rao* 902 (CAL); Rajapur, Kodawli, May 1904—*Bhide s.n.* (B.S.I. Poona); Jugglept (Peninsular India), Apr. 188—*Talbot s.n.* (DD).

BENGAL: Cultivated in Botanic garden, Calcutta, Apr. 1899 & Sept. 1900—*Lane s.n.* (CAL, B.S.I. Poona), Apr. 1902—Accession number 132408 (CAL).

15. *Derris cuneifolia* Benth. in Miq. Pl. Jungh. 1:253, 1852; in adnot et J. Linn. Soc. 4 (Suppl.): 112, 1860; Baker in Fl. Brit. Ind. 2:243, 1878. *Galedupa marginata* Roxb. Hort. Beng. 53, 1814, nom. nud. et Fl. Ind. 3:241, 1832. *Pongamia cuneifolia* Grah. in Wall. Cat. 5887, 1831-32, nom. nud. *Derris discolor* Benth. in J. Linn. Soc. 4 (Suppl.): 111, 1860; Baker in Fl. Brit. Ind. 2:247, 1878. *Deguelia cuneifolia* (Benth.) Taub. in Engl. & Prantl. Nat. Pfl. fam. 3 (2): 345, 1891.

A climber; young branches sparsely puberulous. Leaf imparipinnate, alternate, 20-30 cm. long, stipulate; stipules prominent, ovate, tip acute, base broad and clasping, margin hairy; leaflets mostly 5-9, rarely up to 11, obovate to obovato-oblong, at times cuneate-oblong, mostly 8-10 cm. long, 3-5 cm. wide, rarely up to 13.5 cm. long and 9 cm. wide, glabrous, thin to subcoriaceous, entire, distinctly cuneate at base, apex obtuse; lateral nerves 8-11 pairs, not prominent; rachis grooved above, petiolule 4-5 mm. long. Inflorescence a raceme, 7-16 cm. long, shorter than leaf, nodes of racemes produced into branchlets which bear 2-3 flowers; bract ovate, bracteoles 2, minute; pedicels 3-4 mm. long, inflorescence rachis and pedicels slightly puberulous. Flowers large, rosy red, 1-1.3 cm. long. Calyx cup broadly campanulate, mostly glabrous, mouth fringed with hairs, toothed. Standard ovate to ovato-orbicular with 2 callosities at its base, 1-1.2 cm. long, clawed. Stamens 10, monadelphous, 5 longer alternating with 5 shorter ones. Ovary hairy, style linear, stigma minute, bushy, ovules 1-2. Pod thin, flat, ovato-orbicular to oblong, 3-5 cm. long, 2-2.3 cm. wide, upper suture distinctly winged while the lower one obscurely winged, reticulately veined, young pods clothed with minute, glabrescent hairs which are absent in mature ones, apex curved, 1-2 seeded; seed oblong, slightly curved towards the micropylar side.

Flower: April to May; Fruit: June to July.

Distribution: Sikkim Himalayas, Nepal, Assam, Sylhet, Bengal and Chittagong.

WALL. CAT: Nepal, Noakote, 1820-5887 (Isotype in Herb. CAL); Noakote, 1820-5886 (CAL); Sylhet, without precise locality-5896, 5896B (CAL).

SIKKIM HIMALAYAS: Sikkim, Silake, 667 m., May 1900—Prain s.n. (CAL); Sivoke, Tista Valley, Apr. 1914—Modder 150 (CAL); without precise locality, 1-1334 m.—Hooker s.n. (CAL); Sivoke, Tista Valley, Apr. 1914—Safdar Hussain 150 K (DD); Tista Valley, May 1895—Talbot 3328 (B.S.I. Poona).

NEPAL: Without any locality—Brown s.n. (CAL).

ASSAM: Lakhimpur, Kheto plantation, May 1938—De 16631 (B.S.I. Shillong); Jokai, 1947—Deka 22352 (B.S.I. Shillong); Kamrup, Jhalukbari, Apr. 1915—Upendranath Kanjilal 5468 (DD); Sibsagar, Nasira, Apr. 1885—Clarke 38004 A (CAL), Cachar,

across the Muklu river on the march to Cachar from Manipur, 667 m., May 1882—Watt 6929 (CAL); Khasi, without any details regarding locality and collector—Accession number 132434 (CAL); Goalpara, Halthogaon, Jun. 1902—Chatterjee 570 (CAL); Padumari (Assam), 1946—Deka s.n. (B.S.I. Shillong); without any locality (Assam)—Masters 195 (CAL), Jenkins s.n. (CAL).

BENGAL: Mymensingh, Halooaghat, Jul. 1872—Clarke 17266 (CAL); Kurseong, without precise locality—D. F. School 181 D (DD); Duars, Tondur forest, May 1896—Haines 622 (CAL); without any details regarding locality or collector—Accession number 132422 (CAL); cultivated in Botanic garden, Calcutta, 1856—Accession number 132421 (CAL).

CHITTAGONG: Kodla hill, May 1886 & Apr. 1887—Badul Khan 515, 593 (CAL).

Derris cuneifolia Benth. var. *longipedicellata* Thoth. var. nov. (Fig. 7).

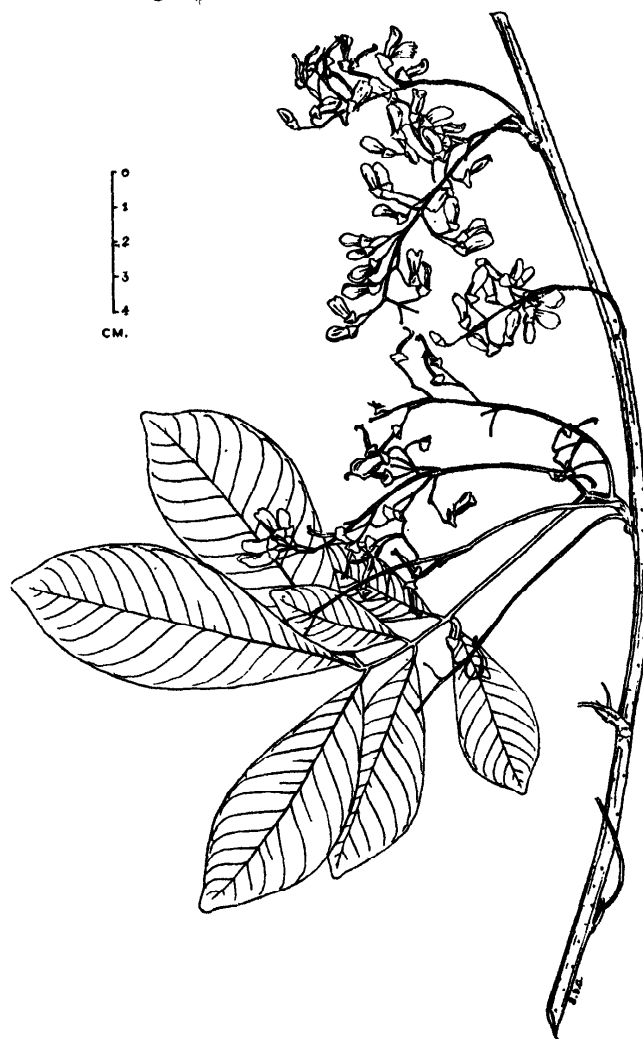


PLATE 7: *D. cuneifolia* Benth. var. *longipedicellata* Thoth. var. nov.

Foliola majora, 13 cm. longa, 9 cm. lata; *racemi* breviores quam in varietate typica; *pedicelli* florum tenues et longiores quam in var. typica, 1-1.2 cm. longi. Typus, *Ribu* 760, lectus ad Sivoke, in Sikkim et positus in Herbario Calcuttensi.

Leaflets larger in size, 13 cm. long, 9 cm. wide; *raceme* shorter than in the typical plant; *pedicels* of the flowers slender and longer than in the typical plant, 1-1.2 cm. long.

Distribution: Sikkim Himalayas, Nepal and West Duars in Bengal.

WALL. CAT: Morang hills, Apr. 1810—5897 (CAL).

SIKKIM HIMALAYAS: Sikkim, Sivoke, Apr. 1908—*Ribu* 760 (Holotype in Herb. CAL); Punkabari, 1878—*Lister s.n.* (CAL); Dumsong, Apr. 1878—*Lister s.n.* (CAL).

NEPAL: Pebirgswald, Apr. 1894—*Hierozinu* 423 (CAL).

BENGAL: West Duars, Apr. 1896—*Haines* 613 (CAL).

Derris cuneifolia Benth. f. *assamica* Thoth. f. nov. (Fig. 8).

Foliola coriacea; *legumina* ovato-orbicularia vel oblonga, turgida, 4.3-5.5 cm. longa, 2.4-2.8 cm. lata, glabra, seminibus singulis. *Semina* magna, oblonga, tenuiter curvata introrsum in latere micropylari, 2.4 cm. longa, 1 cm. lata. Typus, *U. Kanjilal* 4835, lectus ad Bishnupur, Cachar in Assamia anno 1914, et positus in Herbario Calcuttensi.

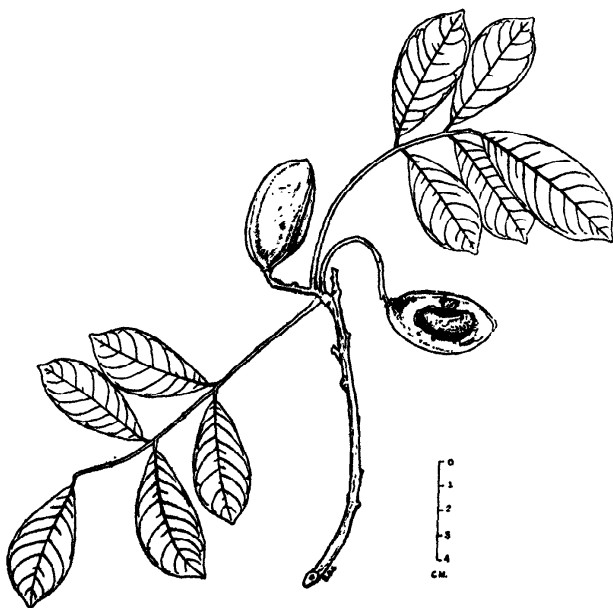


PLATE 8: *D. cuneifolia* Benth. f. *assamica* Thoth. f. nov.

Leaflets coriaceous; *pod* ovato-orbicular to oblong, turgid, 4.3-5.5 cm. long, 2.4-2.8 cm. wide, glabrous, one seeded. *Seed* large, oblong, slightly curved inwards on the micropylar side, 2.4 cm. long, 1 cm. wide.

Distribution: Assam.

ASSAM: Cachar, Bishnupur, Dec. 1914—*Upendranath Kanjilal* 4835 (Holotype in Herb. CAL); Barak, Nov. 1914—*Upendranath Kanjilal* 6288 (CAL).

16. *Derris macrocarpa* Thoth. spec. nov. (Fig. 9).

Frutex volubilis. *Folia* alterna, imparipinnata, stipulata, 19.5-21.4 cm. longa; rachide glabra, sulcata supra; stipulae parvae, ovatae; *foliola* 7-9, opposita, obovata, 6-11.3 cm. longa, 3-5.5 cm. lata, integra, cuneata ad basin, obtusa ad apicem, apice ipso nonnumquam breviter cuspidato, subcoriacea vel coriacea, glabra supra, pallide glauca infra, exstipellata; nervi laterales 8-10-jugi, distinctiores infra quam supra; petioluli 5-6 mm. longi, rugosi. *Inflorescentia* facemosa, nodis productis in stipites breves qui supportant 2-3 legumina pedicellata, rachide inflorescentiae glabra. *Flores* ignoti. *Legumen* planum, oblongum, longissimum, 5-12.4 cm. longum, 2.2-2.7 cm. latum, alatum in utraque sutura, ala in sutura inferiore minus evoluta quam in superiore, glabrum, tenuiter nervosum, nonnumquam angustum ad apicem, 1-3 sporum. Typus, *Sri Ram* 2667, lectus ad Nishangara, in Bahraich Dist. U. P. die 27 aprilis 1920 et servatus in herbario Dehra Dun. Nova species accedit ad *D. cuneifolium* Benth. foliorum caractere, inflorescentiae natura et calycis tubo glabro, differt vero caractere leguminis, quod in nova specie est oblongum, longissimum, tenuiter nervosum et distincte alatum in utraque sutura. Propter affinitatem cum *D. cuneifolia* Benth. nova species posita est in sect. *Paraderris*.

A climbing shrub. *Leaves* alternate, imparipinnate, stipulate, 19.5-21.4 cm. long; rachis glabrous, grooved above; stipule small, ovate; leaflets 7-9, opposite, obovate, 6-11.3 cm. long, 3-5.5 cm. wide, entire, cuneate at base, obtuse at apex, tip occasionally shortly cuspidate, subcoriaceous to coriaceous, glabrous above, light glaucous beneath, exstipellate; lateral nerves 8-10 pairs, more clearly visible on the back than above; petiolule 5-6 mm. long, wrinkled. *Inflorescence* racemose, nodes produced into short stalks which bear 2-3 pedicellated pods, inflorescence rachis glabrous. *Flowers* not known. *Pod* flat, oblong, very long, 5-12.4 cm. long, 2.2-2.7 cm. wide, winged on both the sutures, the wing on the lower suture less developed than the upper, glabrous, faintly veined, apex narrow at times, 1-3 seeded.

Fruit: April.

Distribution: Uttar Pradesh.

UTTAR PRADESH: Nishangara, Bahraich district, Apr. 1920—*Sri Ram* 2667 A (Holotype in Herb. DD); 2667 B Isotype in Herb. DD).

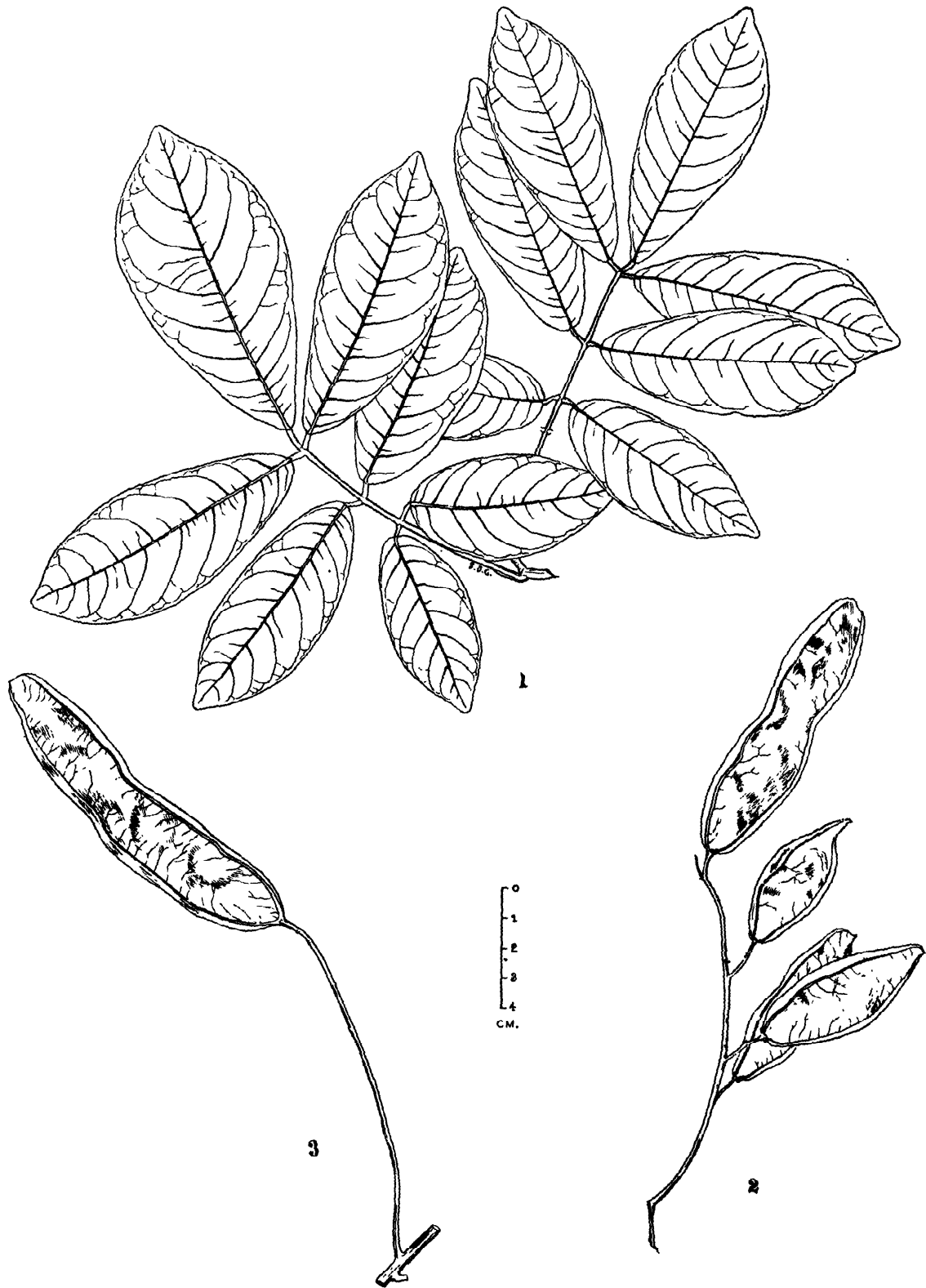


PLATE 9: *D. macrocarpa* Thoth. spec. nov.
 Fig. 1. A portion of branch; Fig. 2. Inflorescence rachis showing arrangement of pods;
 Fig. 3. Pod.

This species is closely related to *Derris cuneifolia* Benth. in leaf characters, nature of the inflorescence and the calyx cup being glabrous etc.; but markedly differs from it in pod characters. The pod here is oblong, very long, faintly veined and distinctly winged on both the sutures. Because of its close affinities to *D. cuneifolia* Benth. this species is placed in the section *Paraderris*.

17. *Derris microptera* Benth. in J. Linn. Soc. 4 (Suppl.): 113, 1860; Baker in Fl. Brit. Ind. 2:243, 1878; Prain in J. Asiat. Soc. Beng. 66:460, 1897.

A climbing *shrub*. *Leaves* imparipinnate, alternate, 18-30 cm. long, stipulate; stipule ovate to ovato-orbicular, apex acute to acuminate; leaflets 9, mostly oblong, at times ovate to cuneate, 8-10.2 cm. long, 3-3.8 cm. wide, glabrous, thin, entire, base cuneate, apex distinctly and shortly cuspidate; rachis grooved above, petiolule 3-5 mm. long, glabrous. *Inflorescence* a raceme, axillary, lax, nodes slightly produced, carrying 3-5 flowers, 20-33 cm. long. *Flowers* purple, 1-1.3 cm. long; pedicels glabrous to minutely hairy, 4-6 mm. long; bract ovate, bracteoles 2, minute, at the base of calyx cup. *Calyx* cup 3-4 mm. high, faintly toothed, mouth of the cup fringed with minute hairs. *Standard* ovato-orbicular, distinctly clawed, base truncate with 2 callosities close to each other. *Stamens* 10, monadelphous. *Ovary* hairy, ovules 2-4, oblong to reniform. *Pod* broadly oblong, flat, 5-7.8 cm. long, 3-3.5 cm. wide, glabrous, minutely winged on the upper suture with the wing on the lower one being obscure, reticulately veined, base rounded, apex obtusely pointed, 1-2 seeded; *seed* large, reniform, bluish black, 1.8-2.4 cm. long, 1.5-1.8 cm. wide.

Flower: May to June; *Fruit*: September to October.

Distribution: Sikkim, Bengal and Assam.

SIKKIM: Tonghoo, 1000 m., Jun. 1862—Anderson 458 (CAL); Mungpoo, 1334 m., Jun. 1914—Cousins 58 (CAL); Labdah, May 1907—Ribu *s.n.* (CAL); Gouk, 1334 m., Jun. 1862—Anderson 457 (CAL); Dungboo, 1000 m., Nov. 1875—King *s.n.* (CAL); Rungbo, 334 m., Oct. 1878—King *s.n.* (CAL); Tisti, May 1908—Ribu 830 (CAL); without precise locality, 1666 m., Sept. 1881—Gamble 9815 (CAL), Gammie *s.n.* (CAL), Kurz *s.n.* (CAL), King *s.n.* (CAL); Khuswal—Collector? Accession number 132496 (CAL).

BENGAL: Jalpaiguri, on the way to Tobgaon, 1000 m., May 1949—Narayanswami & party 2690 (CAL); Darjeeling Rishap, 1000 m., May 1870—Clarke 11785 D (CAL); Siliguri, without precise locality, May 1870—Clarke 11685 B (CAL).

ASSAM: Khasi, Nungklao, 1000 m. May 1886—Clarke 44043 A (CAL); without precise locality—Collector? 8 (CAL); Khasi and Jaintia, Pynursula gorge, 1334 m., Oct. 1938—Sarma 17129 (B.S.I. Shillong); without any locality (Assam)—Gamble 2239 A (DD).

18. *Derris elliptica* (Wall.) Benth. in J. Linn. Soc. 4 (Suppl.): 111, 1860; Baker in Fl. Brit. Ind. 2:243, 1878; Prain in J. Asiat. Soc. Beng. 66:107, 1897. *Galedupa elliptica* Roxb. Hort. Beng. 53, 1814, nom. nud. et Fl. Ind. 3:242, 1832. *Pongamia elliptica* Wall. Pl. Asiat. Rar. 3:20. t. 237, 1832; Wall. Cat. 5881, 1831-32; Wight, Ic. t. 420, 1841; Miq. Fl. Ind. Bat. 1:148, 1855. *Pongamia volubilis* Zoll. & Mor. in Syst. Verzeichn. 3, 1845-46; Miq. Fl. Ind. Bat. 1:148, 1855.

A large climbing *shrub*; young parts rusty tomentose. *Leaf* imparipinnate, alternate, 23.8-38.7 cm. long; rachis grooved above, its base swollen; stipule triangular, brown hairy; leaflets mostly 9-13, rarely up to 15, obovate to obovato-oblong, lower leaflets smaller than the upper, 8-13.5 cm. long, 3-5 cm. wide, entire, base cuneate, apex acute to shortly acuminate, submembranous to coriaceous, sparsely puberulous above, brown silky below especially on the nerves; lateral nerves 8-10 pairs, more prominent on the lower side; petiolule 3-6 mm. long, rachis and petiolule brown hairy. *Inflorescence* a raceme, axillary and terminal, 19-26 cm. long, densely ferruginous, nodes produced into short stalks which bear mostly 3, pedicellated flowers. *Flowers* large, whitish pink to red in colour, 1.5-1.8 cm. long; pedicels usually shorter than the stalk, up to 1.2 cm. long; bracts and bracteoles present, bracteoles 2, prominent, situated at the base of the calyx cup. *Calyx* cup broadly campanulate, densely ferruginous, faintly toothed, 4-7 mm. long. *Standard* ovato-orbicular, silky on the back with 2 prominent callosities at its base, wings and keels distinctly clawed. *Stamens* 10, monadelphous, anthers versatile. *Ovary* densely silky, style bent, stigma minute, ovules 4-5. *Pod* flat, mostly oblong, rarely elliptic, up to 13 cm. long, 3.3 cm. wide, winged on both the sutures, wing on the upper suture being well developed, minutely puberulous with deciduous hairs, faintly veined, apex curved and pointed.

Flower: April; *Fruit*: April to May.

Distribution: Assam and Chittagong hill tracts.

WALL. CAT: Cultivated in Botanic garden, Calcutta—5881 A (Isotype in Herb. CAL); Attran, Burma, 1827—5881 B (Paratype in Herb. CAL); cultivated in Botanic garden, Calcutta—5889 (CAL).

ASSAM: Umsaw, Khasi and Jaintia hills, Apr. 1945—Deka 22037 (B.S.I. Shillong).

CHITTAGONG: Without precise locality—Brandis *s.n.* (DD).

This species has been reported from Chittagong (Prain 1903, Brandis 1906, Heinig 1907) and Assam (Kanjilal & Das 1938). The specimens in the Calcutta Herbarium, collected by King's collector from the Chittagong hill tract in turn prove to be a variety.

Derris elliptica Benth. var. *chittagongensis* Thoth. var. Nov. (Fig. 10).

Foliola 11-15; pedunculus primarius brevior, 5-8 mm. longus; pedicelli longiores, usque ad 1 cm. longi. *Calyx* haud dentatus. *Legumen* planum, magum, 4.5-13 cm. longum, 2-3.3 cm. latum, minute puberulum. Typus, *Badul Khan 450*, lectus ad Kodla, 30 mill. pas. a Chittagong, anno 1887 et positus in Herbario Calcuttensi.

Leaflets 11-15; primary peduncle of the inflorescence shorter, 5.8 mm. long while pedicels of the flowers longer, up to 1 cm. long. *Calyx* cup not toothed. *Pod* flat, large, 4.5-13 cm. long, 2-3.3 cm. wide, minutely puberulous.

Fruit: May.

Distribution: Assam and Chittagong hill tracts.

CHITTAGONG: Kodla, in hills, 30 miles from Chittagong, May 1887—*Badul Khan 450 A* (Holotype in Herb. CAL; *450 B-E* Isotypes in Herb. CAL); without precise locality, Sep. 1933—*D.F.O. Macalpine 2* (Paratype in Herb. DD).

Assam: Shilla forest, Khasi and Jaintia hills district, May 1937—*Deka 14064* (Paratype in Herb. B.S.I. Shillong).

SECTION V. AGANOPE MIQ.

19. *Derris sinuata* Benth. ex Thw. Enum. Pl. Zeyl. 93, 1859; Benth. in J. Linn. Soc. 4 (Suppl.): 113, 1860; Baker in Fl. Brit. Ind. 2: 246, 1878; Prain in J. Asiat. Soc. Beng. 66:98, 1897. *Pongamia sinuata* Wall. Cat. 5911, 1831-32, nom. nud. *Deguelia sinuata* (Thw.) Taub. in Engl. & Prantl. Nat. Pfl. fam. 3(2):345, 1891.

A strong climber on the banks of tidal rivers. *Leaf* imparipinnate, alternate, very long, upto 34 cm. long; rachis faintly striated; leaflets 5-7 (Indian specimens), ovate to ovato-oblong, 6.8-11.6 long, 5-7 cm. wide, glabrous, coriaceous, entire, base rounded, obtuse at apex; lateral nerves mostly 6 pairs; petiolule 5-7 mm. long. *Inflorescence* a thyrsoid panicle, axillary and terminal, up to 39.5 cm. long, rachis clothed with minute hairs. *Flowers* white, pedicellate; pedicels 2-3 mm. long. *Calyx* cup urn-shaped, softly pubescent, 4-5 mm. long, faintly toothed. *Standard* erect, orbicular without callosities. *Stamens* diadelphous, the vexillary filament free from the rest up to the base, stamens in two heights, longer ones alternating with shorter ones. *Ovary* pubescent, ovules 5-7. *Pod* narrowly oblong, very long, up to 19.5 cm. long, 2.8 cm. wide (Indian specimens), distinctly sinuate between the seeds, faintly winged on the upper suture, reticulately veined, young pods with glabrescent hairs here and there, absent in mature ones, apex slightly curved and pointed, 4-5 seeded (Indian specimens).

Distribution: Bengal, a rare plant.

WALL. CAT; Amherst, Tavoy, Burma, Feb, 1827—5911 (CAL).

BENGAL: Sundarbans, Tiger point, Nov. 1892—*Heinig s.n.* (CAL); without precise locality—*S. C. Chatterjee s.n.* (CAL); without any details regarding locality—*Collector? s.n.* (CAL).

Ceylon Province—*Thwaites 1491* (Isotype in Herb. CAL).

20. *Derris thyrsiflora* Benth. in J. Linn. Soc. 4 (Suppl.): 114, 1860; Baker in Fl. Brit. Ind. 2:246, 1878; Prain in J. Asiat. Soc. Beng. 66:99, 1897. *Milletia thyrsiflora* Benth. in Miq. Pl. Jungh: 249, 1852 in adnot. *Aganope floribunda* Miq. in Fl. Ind. Bat. 1:151. 1855. *Derris pyrrothyrsa* Miq. in Fl. Ind. Bat. (Suppl.): 297, 1861. *Deguelia thyrsiflora* (Benth.) Taub. in Engl. & Prantl. Nat. Pfl. fam. 3(2):345, 1891.

A robust climber. *Leaf* imparipinnate, alternate, 30-45.5 cm. long; leaflets 7-9, ovato-oblong, 8-15 cm. long, 4.5-8 cm. wide, thick, coriaceous, glabrous and shining above, entire, base rounded, apex obtuse to acute; lateral nerves 5-7 pairs; rachis and petiolule glabrous, petiolule 5-8 mm. long. *Inflorescence* an ample thyrsoid panicle, axillary and terminal, up to 45 cm. long, finely silky as are the pedicels and bracts, lower branchlets longer. *Flowers* medium sized, shortly pedicellate; pedicels 1-1.5 mm. long; bract minute, linear, bracteoles 2, lateral, just at the base of the calyx cup. *Calyx* cup narrowly campanulate, finely silky, faintly toothed. *Corolla* 8-10 mm. long, standard ovato-orbicular, shortly clawed, thickened above the claw in the middle, petals not jointed below, standard, wing and keels clothed with minute deciduous hairs. *Stamens* 10, diadelphous, tenth stamen free down to the base. *Ovary* pubescent, ovules 4-5, minute. *Pod* thin, flat, strap-shaped, oblong, 3.8-9 cm. long, 2.5-3 cm. wide, distinctly winged on both the sutures, wings being subequal, pod glabrous, reticulately veined, 1-4 seeded (Description of pod after Prain, 1897, as no pod is present in the Herbarium specimens).

Flower: February to June; *Fruit*: July to August.

Distribution: Assam, Andaman and Nicobar Islands.

ASSAM: Valley near Fort Lungleh, South Lushai hills, 1000 m., Mar. 1899—*Gage 32* (CAL).

ANDAMANS: South Andaman (without precise locality), Sept.-Oct. 1900—*Prain's collector 15, 62, 96* (CAL) (a new record for Andaman Islands only).

NICOBARS: Kamorta Island, Feb. 1875—*Kurz s.n.* (CAL).

Malacca, Malayan Peninsula—*Griffith 1776* (Syntype in Herb. CAL).

Derris thyrsiflora Benth. var. *eualata* (Bedd.) Thoth. stat & comb. nov. *Derris eualata* Bedd. Ic. Pl. Ind. Or: 42 t. 186, 1874. *Derris platyptera* Baker in Fl. Brit. Ind. 2:245, 1878.

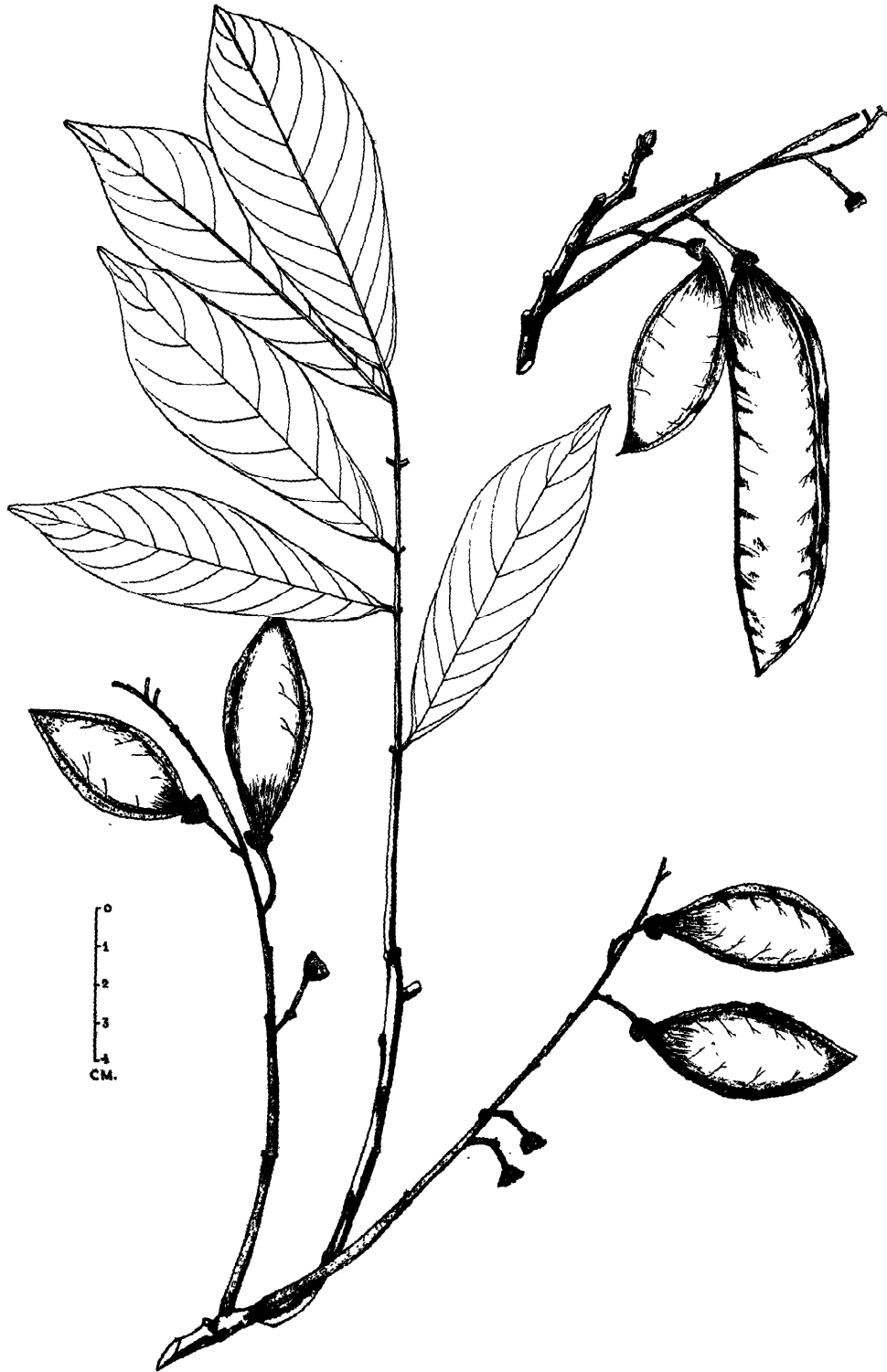


PLATE 10: *D. elliptica* Benth. var. *chittagongensis* Thoth. var. nov.

Leaflets 9, oblong, basal ones always smaller and the terminal ones largest. *Inflorescence* lax; pedicels equal or slightly longer than the calyx cup. *Calyx* cup more silky pubescent than in the typical plant.

A large climber. *Leaf* 18-36.5 cm. long; leaflets 9, oblong, up to 14.5 cm. long, 7.8 cm. wide, entire, base rounded, apex shortly cuspidate, glabrous, subcoriaceous; lateral nerves 5-8 pairs; rachis and petiolule glabrous, petiolule 5-7 mm. long, grooved above. *Inflorescence* a thyrsoid, lax, panicle, axillary and terminal, 25-40 cm. long, branchlets comparatively less than in the typical plant, finely silky. *Flowers* distinctly pedicellate; pedicels at times equalling the calyx cup. *Calyx* cup campanulate to truncate, 3-4 mm. long, densely fine brown silky, mouth more or less entire. *Corolla* standard, wing and keels glabrous. *Stamens* 10, diadelphous, 5 longer with 5 shorter ones, filaments hairy below the anther lobes in some. *Ovary* densely hairy, style short, stigma minute. *Pod* thin, flat, oblong, up to 11.3 cm. long, 5.2 cm. wide, winged on both the sutures, reticulately veined, glabrous, base narrow, apex acute, 1-3 seeded.

Distribution: Western Peninsula.

WESTERN PENINSULA: North Kanara, Gersoppa falls, Dec. 1881—*Talbot* 67 (CAL); Gersoppa, Dec. 1884—*Talbot* s.n. (B.S.I. Poona); Karwar, 1921—*Bell* 102.52 (BLAT); Gersoppa, Nov. 1881—*Talbot* 268 (B.S.I. Poona); Gersoppa falls, 667 m., Jan. 1892—*Talbot* 2654 (B.S.I. Poona); without any precise locality, Nov. 1882—*Talbot* 285 (CAL); Karwar hills, Dec. 1920—*Bell* 7721 (BLAT); South Kanara, without any precise locality, 1873—*Beddome* s.n. (MH); in plains—*Collector* ? s.n. (MH); Mangalore—*Collector* ? s.n. (MH); without any precise locality—*Collector* ? s.n. (MH); South Kanara, Coorg ghats and plains—*Collector* ? s.n. (MH); Malabar, Taliparamba farm, 1913—*Barber* 8735, 8760, 7644 (MH); Kurumathur near Taliparamba, 1915—*Collector* ? 11920 (MH); Calicut, 1846—*Wight* s.n. (MH); Travancore, Colatoorpolay, Feb. 1894—*Bourdillon* 112, 121 (CAL); Shendurni valley, May 1913—*Rama Rao* 1122 (CAL); without exact locality, 667 m., Apr. 1895—*Bourdillon* 616 (CAL); Pen. Ind. Or.—*Wight* 836 (CAL); Coompta (Peninsular India), Dec. 1882—*Talbot* s.n. (CAL, DD).

Derris thyrsiflora Benth. var. *wallichii* (Prain) Thoth. stat. & comb. nov. *Derris wallichii* Prain in J. Asiat. Soc. Beng. 66:99, 1897.

Leaflets smaller, ovate to ovato-oblong; lateral nerves distinct especially on the lower surface, thin to subcoriaceous. *Flowers* pedicelled. *Pod* broad, narrow at base, cuspidate at apex.

A climber. *Leaf* up to 27.5 cm. long; leaflets 7-9, mostly opposite, rarely sub opposite to alternate (Assam—*Mann*), ovate to ovato-oblong, 8-12.5 cm. long 3.5-5.5 cm. wide, smaller than in the typical plant, entire, base narrow, at times rounded, apex

acute to acuminate, glabrous, thin compared to the thick texture in the typical plant; lateral nerves 8 pairs, distinct on the lower surface, ascending and uniting marginally; rachis and petiolule glabrous, petiolule grooved above. *Inflorescence* a thyrsoid panicle, axillary and terminal, 30-45 cm. long, lower branchlets longer; rachis and pedicels finely silky. *Flowers* 1.1 cm. long, not fascicled, pedicellate; pedicels 4 mm. long; bract and bracteoles small, finely silky, bracteoles situated at the base of the calyx cup. *Calyx* cup campanulate, mouth entire, finely silky. *Standard* ovato-orbicular, wing, keel and standard glabrous. *Stamens* 10, diadelphous. *Ovary* pubescent, style short, stigma minute, ovules up to 6. *Pod* flat, oblong, wider and longer than in the typical plant, up to 13 cm. long, 3.8 cm. wide, winged on both the sutures, faintly veined as compared to distinctly and reticulately veined in the typical plant, glabrous, narrow at base, acute at apex, 1-2 seeded.

Distribution: Andaman Islands, Assam and Sylhet.

WALL. CAT: Sylhet—5846 (CAL).

ANDAMANS: South Andaman, Cadellgunj hill jungle, Sept. 1892—*King's collector* s.n. (CAL); Dhani Khari hill jungle, Jul. 1892—*King's collector* s.n. (CAL); Balughat hill jungle, Jul. 1892—*King's collector* s.n. (CAL); without any locality (Andaman), 1900—*Prain's collector* 33 (CAL).

ASSAM: Cachar, Haflong Nullah, 833 m. Aug. 1908—*Craib* 131, 160 (CAL); Haflong, Mar. 1901—*Gill* 193 (CAL); Haflong hills, 667 m. May 1925—*Beeson* 9 (DD); Haflong, 550 m., May 1915—*Upen-dranath Kanjilal* 5645 (DD); without precise locality, 1890—*Prager* s.n. (CAL); Khasi, Mamloo, 100 m., May 1886—*Clarke* 43825E (CAL); without precise locality, Apr. 1894—*Gammie* 494 (CAL), *Griffith* 1770 (CAL), *Kurz* s.n. (CAL); without any details regarding locality or collector—Accession number 132746, 132749 (CAL); Khasi and Jaintia, 41 miles from Dawki, Shillong road, Apr. 1935—*Deka* 12118 (B.S.I. Shillong); Dwaki forest, Apr. 1953—*Deka* 7 (B.S.I. Shillong); without any locality (Assam), 1893—*Mann* s.n. (CAL), Apr. 1893—*King's collector* s.n. (CAL).

Cadellgunj hill jungle, South Andaman, Sept. 1892—*King's Collector* s.n., Accession number 132761 (Lectotype designated—Herb. (CAL).

21. *Derris polystachya* Benth. in J. Linn. Soc. 4 (Suppl.): 114, 1860; Baker in Fl. Brit. Ind. 2:247, 1878; Prain in J. Asiat. Soc. Beng. 66:463, 1897.

A climber. *Leaf* imparipinnate, alternate, 20-30 cm. long, stipulate; leaflets 7-9, ovate to ovato-cordate, at times ovato-oblong, lower ones smaller, up to 12 cm. long, 5.5 cm. wide, glabrous, thin to subcoriaceous, entire, base narrow, rarely rounded, apex distinctly acuminate; lateral nerves 5-8 pairs, raised and more prominent on the back; rachis and petiolule

glabrous, petiolule 3-6 mm. long. *Inflorescence* a much branched panicle, terminal and axillary, lax, secondary branchlets long and slender, bearing tertiary branchlets which in turn bear 6-8 flowers, inflorescence up to 31 cm. long, rachis finely silky. *Flowers* distinctly pedicellate, up to 1.1 cm. long; pedicels 3-4 mm. long; bract ovate, situated at the base of the pedicel, bracteoles minute, situated at the base of the calyx cup. *Calyx* cup minutely silky, mouth entire to faintly toothed. *Standard* ovate, glabrous, wings and keels also glabrous. *Stamens* 10 diadelphous, the tenth stamen free up to the base. *Ovary* minutely silky, style curved, stigma minute, ovules 3-4. *Pod* thin, flat, ligulate, oblong, up to 11 cm. long, 3.3 cm. wide, winged on both the sutures, reticulately veined, glabrous, base rounded to narrow, apex acute, 1-2 seeded.

Flower: July to September; *Fruit*: December to March.

Distribution: Assam, Bhutan and Sikkim.

ASSAM: Khasi, Mahadeo, 1-1667 m., Mar. 1901—Gill 131 (CAL); without precise locality, 667-1334 m.—Hooker & Thomson 21 (Isotype in Herb. CAL.)

BHUTAN: Serooh, 1000 m., 1895—King s.n. (CAL).

SIKKIM: Jaldaka, Mar. 1910—Ribu & Rhomoo 3933 (CAL); Punkabari, 1000 m., Jul. 1879—Gamble 6985 (CAL); Kodabang, 1000 m., Sep. 1873—Gamble 2109B (CAL); Pashok, 667-1000 m., Aug. 1862—Anderson 462 (CAL); Regang, Dec. 1877—King s.n. (CAL); Gurubatham, Jan. 1900—Prain's collector s.n. (CAL); Tista, Feb. 1867—Anderson s.n. (CAL); Mungkongnik, Kodabang, 1000 m., 1874—Gamble 2106A (CAL); without precise locality, 667 m., Sept. 1875—King 2412 (CAL); without precise locality (Sikkim Himalayas), 667 m., 1876 & 1877—DB s.n. (CAL).

22. *Derris hainesiana* Thoth. nom. nov. *Derris laxiflora* Haines in Bot. Bihar & Orissa 3: 299, 1922, (non Benth. 1860).

There are no specimens of the above species, present either in the Calcutta Herbarium or any other Herbaria in India. From the description, the species appears to be distinct. It is related to *D. ferruginea* Benth. but differs from the same in the nature of the inflorescence and pod characters. Regarding its nomenclature, the name *D. laxiflora* cannot be valid, as Benth had earlier proposed the same name [J. Linn. Soc. 4 (Suppl.): 105, 1860] for an entirely different species from Formosa. According to the International code of Botanical nomenclature, *D. laxiflora* Haines (1922) becomes a later homonym, having been preoccupied by *D. laxiflora* Benth. (1860). A new name, *Derris hainesiana* is therefore proposed for the Indian plant.

Distribution: Ramnagar hills, N. Champaran, Bihar.

23. *Derris ovalifolia* (Wt. & Arn.) Benth. in Miq. Pl. Jungh. 1: 252, 1852, ex parte; Baker in Fl. Brit. Ind. 2: 247, 1878. *Pongamia ovalifolia* Wt. & Arn. Prodr. Fl. Pen. Ind. Or. 1: 262, 1834; Wight, Ic. t. 328, 1840, (Fig. 11).

Baker (in Fl. Brit. Ind. 2: 247, 1878) placed this in the category of doubtful species under section *Euderris*, in the absence of pod. Prain (in J. Asiat. Soc. Beng. 66: 464, 1897) pointed out that *D. ovalifolia* Benth. might be the same as *D. wightii* Baker, basing his conclusion on Wight, Ic. t. 328 as there was no specimen, present in the Calcutta Herbarium. The author was able to examine the original specimen of *Pongamia ovalifolia* Wt. & Arn. (Wight 920, Isotype in Herb. MH) and it is clear that so far as the other characters except the pod, which could not be examined for lack of material are concerned, the above mentioned species seems to be a distinct one. But in the absence of pod, which is an important character of the genus, the author is of the opinion that *D. ovalifolia* Benth. ex parte should still remain doubtful till fruiting material of the same becomes available.

The inflorescence is just like the ones in the species belonging to the section *Brachypterum* or *Euderris*. The leaflets are reported to be like those species in the section *Paraderris* [Benth. in J. Linn. Soc. 4 (Suppl.): 115, 1860]. But in the section *Paraderris* except *D. canarensis* Baker, the leaflets are in general larger in size. The leaflets in Wight's specimens are smaller as well as distinct from *D. canarensis* Baker. They agree with those of the species coming under the section *Euderris* wherein the leaflets are smaller and fewer in number. In all probability *Derris ovalifolia* Benth. is a distinct species to be placed under the section *Euderris* provisionally, till fruiting material of the same becomes available.

Distribution: Western Peninsula.

WESTERN PENINSULA: Without precise locality—Wight 917 (Isotype in Herb. MH).

24. *Derris secunda* Baker in Fl. Brit. Ind. 2: 247, 1878; Prain in J. Asiat. Soc. Beng. 66: 463, 1897.

This species is based on *Pongamia secunda* Grah. (Wall. Cat. 5890) which is not present in Calcutta Herbarium. In the absence of pod, Baker (Fl. Brit. Ind. 2: 247, 1878) has grouped this species in the doubtful category under the section *Euderris*. In Calcutta Herbarium, specimens collected from Assam (Lister) and named *D. secunda* Baker have only immature flowers without any pod. These agree with Baker's original description. Since the pod is not available, the author feels that this species also should remain doubtful till fruiting material becomes available.

It may also be pointed out here that Prain was of the opinion (in J. Asiat. Soc. Beng. 66: 361 & 463, 1897) that this species and *Derris monticola* Prain may be the same. Dunn, however, after a careful examination of

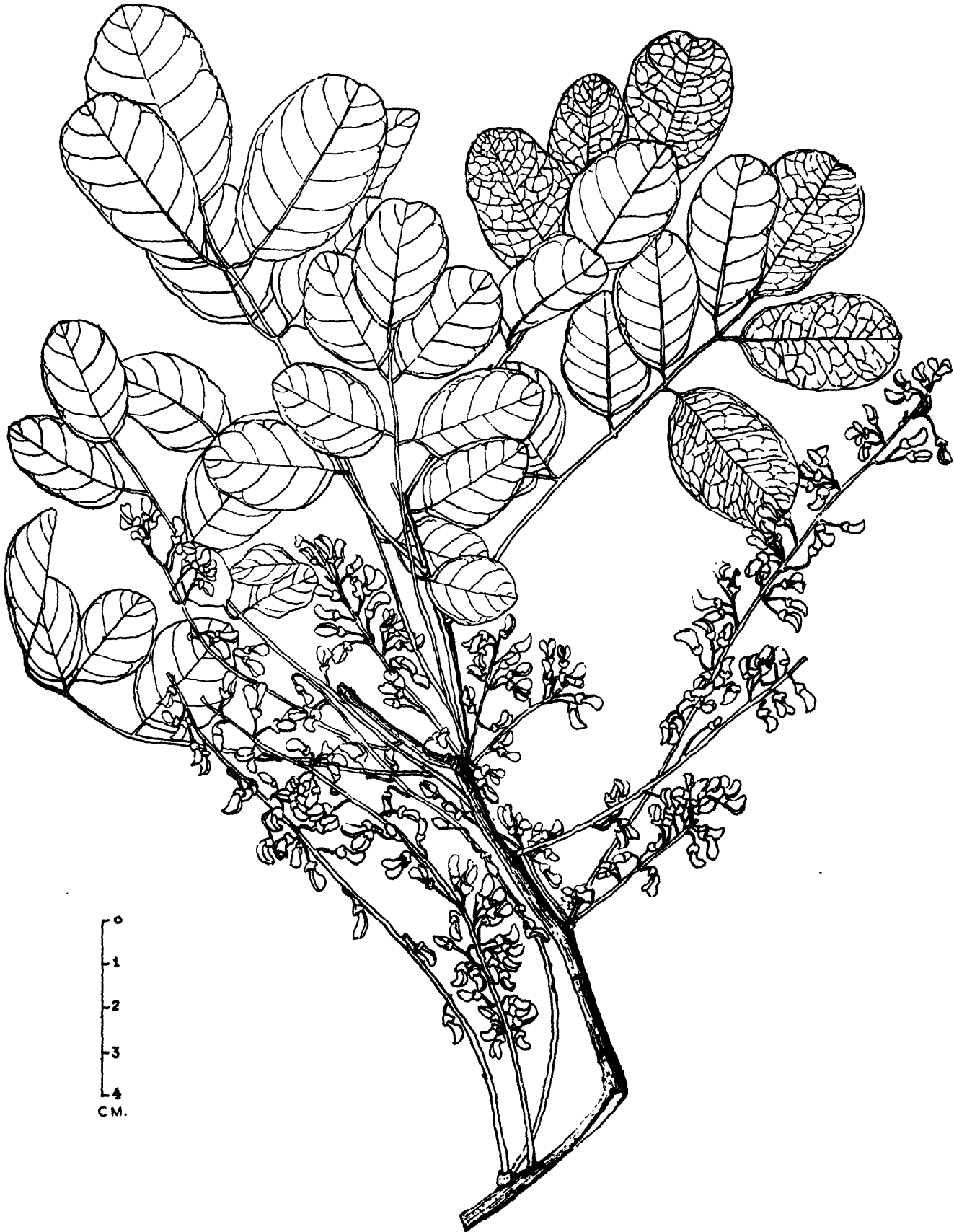


PLATE 11: *D. ovalifolia* Benth.

the type material of both these species (in J. Linn. Soc. 41:237, 1912) clearly pointed out that *D. secunda* Baker and *D. monticola* Prain are quite distinct species. Specimens of *D. secunda* Baker in Calcutta Herbarium (*Lister*) are found to differ from *D. monticola* Prain in the texture of leaflets as well as the size of flowers. Hence the two species are quite distinct from one another as concluded by Dunn.

Distribution: Assam.

ASSAM: Toruputu, Daphla Hills, 2500 m., Jan. 1875—*Lister* 203 (CAL).

25. *Derris acuminata* Benth. in Miq. Pl. Jungh. 1:252, 1852. Baker in Fl. Brit. Ind. 2:247, 1878. *Pongamia acuminata* Grah. in Wall. Cat. 5901, 1831-32, nom. nud. *Pongamia elongata* Grah. in Wall. Cat. 5886, not 5915, 1831-32, nom. nud. *Deguelia acuminata* (Benth.) Taub. in Engl. & Prantl. Nat. Pfl. fam. 3(2):345, 1891.

There are no specimens of the above species, present in the Calcutta Herbarium. From the description, it appears to be *Derris microptera* Benth. According to Prain (in J. Asiat. Soc. Beng. 66:463, 1897) Wall. Cat. 5886 is the same as *D. cuneifolia* Benth. and that the plant (*D. acuminata* Benth.) collected from Sikkim by

Hooker is the same as *D. microptera* Benth. It appears therefore that *D. acuminata* Benth. is a mixture of two distinct species. For lack of material, the author prefers to place this species also under doubtful category.

Distribution: Nepal and Sikkim.

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