

REVISION OF THE SAPOTACEAE OF THE MALAYSIAN AREA
IN A WIDER SENSE

VI¹⁾. *Xantolis Rafinesque*

by

P. VAN ROYEN

(Rijksherbarium, Leiden)

(Issued 15. VI. 1957).

Xantolis Raf., Sylv. Tell., 1838, 36 — *Planchonella* Pierre, p.p., Not. bot. Sapot., 1890, 34; Dubard, Ann. Mus. col. Mars. 20, 1912, 41; Lam, Ann. Jard. bot. Bzg, sér. 3, 7, 1925, 193; Lam, l. c., sér. 3, 8, 1927, 467 — *Sideroxylon* L., p.p., Engler, Nat. Pfl. Fam. 4, 1, 1897, 143 and Nachtrag, 1897, 27 — *Hormogyne* DC, p.p., Prodr. 8, 1844, 176 — *Pouteria* Aublet sensu Baehni, p.p., Candollea 9, 1942.

Trees or shrubs, often spiny. *Leaves* alternate, estipulate, sometimes with the flowers conferted at the tips of brachyblasts, entire, with a marginal nerve, tertiary nervation transverse or reticulate, sparse, slender. *Flowers* ♂, 5-merous, solitary or clustered, axillary or sometimes along an axillary shoot, bracts small. Calyx with a short tube and mostly lanceolate lobes, marcescent. *Corolla* lobes longer than the tube. *Stamens* generally inserted at the base of the lobes, each with two small tufts of ferruginous hairs on either side of the base of the glabrous filaments, rarely only one hair, anthers sagittate, with prolonged connective, dehiscing extrorsely or slightly lateral. *Staminodes* petaloid, often long aristate, fimbriate-ciliate along the margin, except in *X. racemosa* (Dub.) van Royen and *X. siamensis* (Fletcher) van Royen in which the margin is either dentate or entire. *Ovary* 5-, rarely 4-celled, densely hirsute, disk absent; style long exsert, ovules inserted halfway up or at the base of the cells, funiculus often long. *Fruits* drupaceous, 1- or 2-seeded, seeds ellipsoid, laterally compressed, testa crustaceous, scar ovate or linear, as long as seed to $\frac{2}{3}$ its length, or small and circular, basal, embryo with copious albumen and foliaceous cotyledons, radicle exserted.

Type species: *Xantolis tomentosa* (Roxb.) Rafinesque.

Distr.: 14 species in SE Continental Asia and Luzon.

The main part of this genus is included by Pierre and Dubard in the section *Hookeriplanchonella* of the genus *Planchonella* and by Engler in the section *Hookerisideroxylon* of *Sideroxylon*.

¹⁾ I—III in Blumea VI, 3, 1952, 547—595; IV—V in Blumea VII, 2, 1953, 364—412; IVa in Blumea VII, 3, 1954, 481—483; IIa, IVb, Va, VI—IX in the present issue.

They differ from all other species of *Planchonella* in the short tube and long lobes of calyx and corolla, in the sagittate anthers with prolonged connective and in the indumentum of the throat of the corolla, which consists of two small bundles of hairs, sometimes only one hair, at each side of the base of the filaments. The staminodes are fimbriate or lacerate along the margin and thus differ considerably from those in its nearest ally *Planchonella*. The number of cells of the ovary tallies with that of *Planchonella* (4 or 5). From *Pouteria Xantolis* differs in the floral details and the copious albumen of the embryo.

The geographical distribution (*Fig. 1*) provides another feature worth-

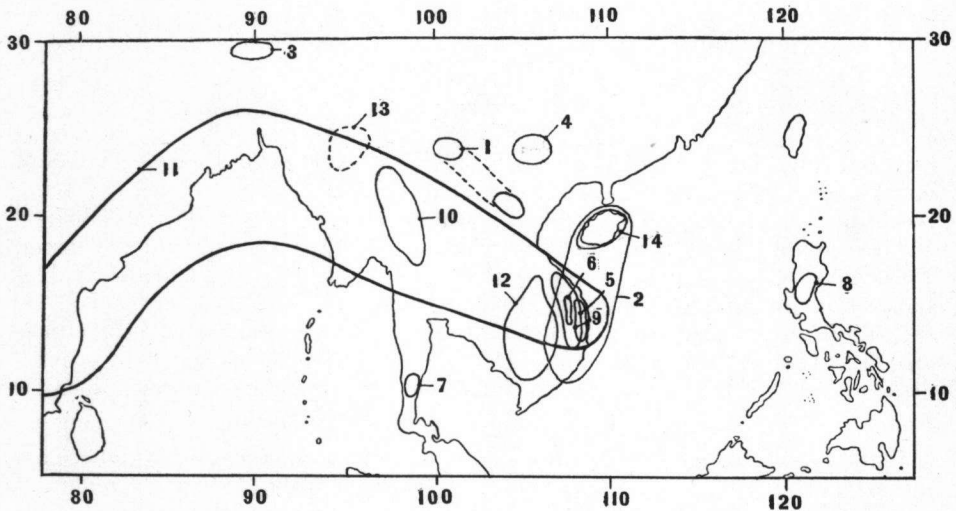


Fig. 1. Distribution of the genus *Xantolis*. 1. *hookeri*, 2. *boniana*, 3. *shweliensis*, 4. *stenosepala*, 5. *racemosa*, 6. *baranense*, 7. *siamensis*, 8. *parvifolia*, 9. *maritima*, 10. *burmanica*, 11. *tomentosa*, 12. *cambodiana*, 13. *assamica*, 14. *embeliifolia*. The areal of 13. *X. assamica* is indicated by a broken line as no definite localities are known except "Assam".

while mentioning. In its present delimitation *Xantolis* is found in the SE part of Continental Asia, but N of the Kra Isthmus. One species is found in Luzon. Thus the area is marginal to that of *Planchonella*.

These details taken together provide ample reason to regard *Xantolis* as a separate genus. It is admitted that the differences are small but this is customary in many groups of the Sapotaceae, notably in the Eumadhuceae (*Burckella*, *Madhuca*, *Payena*, *Ganua*), and those between *Xantolis* and *Planchonella* may be regarded as being of the same order.

One might oppose that in separating *Xantolis* from *Planchonella* a further subdivision of *Planchonella* is also possible on similar grounds. An intensive study of the details of the genus *Planchonella sensu meo*, however, showed that the floral details are rather uniform though the foliar details may differ considerably. In a next issue of this series it will be pointed out that a further subdivision of that genus in different

genera is unfeasible. In case *Xantolis* should not be kept separate from *Planchonella* the latter name will have to be conserved against the former.

Abbreviations of literature

- Baehni 1942 = Ch. Baehni, Mém. Sapot. 2, Le genre Pouteria — Candollea 9, 1942, 147—476.
 Dubard 1912 = M. Dubard, Les Sapotacées du group des Sideroxylées — Ann. Muss. col. Mars. 20, 1912, 1—90.
 Lam 1925 = H. J. Lam, The Sapotaceae etc. of the Dutch East Indies — Bull. Jard. bot. Bzg, sér. 3, 7, 1925, 193—218.
 Lam 1927 = idem, Further Studies etc. — Bull. Jard. bot. Bzg, sér. 3, 8, 1927, 467—476.

The herbarium abbreviations used here are those proposed by Lanjouw and Stafleu in the "Index Herbariorum", ed. 2, part 1, 1954.

Fl. means flowering specimens; fr. fruiting specimens; when nothing is added before the name of the month the specimen is sterile. S.n. means unnumbered specimen.

In all figures dimensions are given in mm.

Key to the taxa

- 1.a. Tertiary nervation transverse 2
 b. Tertiary nervation reticulate to parallel to the secondary nerves 8
 2.a. Flowers solitary or in clusters along 7—30 mm long axillary shoots; leaves obovate or obovate-oblong, 12—22 by 4.5—7 cm, obtusely acuminate, secondary nerves 8—13*, petioles 10—17 mm long, broadly grooved or flat above, glabrous. *Indochina* 5. *X. racemosa* (Dub.) van Royen
 b. Flowers solitary or in clusters, axillary to leaves 3
 3.a. Sepals glabrous within. *China (Yunnan)*
 1. *X. shweliensis* (W. W. Smith) van Royen
 b. Sepals pubescent within 4
 4.a. Secondary nerves 5—13, leaves 6—12 by 2.8—5.5 cm; pedicels glabrous 6
 b. Secondary nerves 10—17 and sometimes 5—8 additional short ones at the apex of leaf close to each other, leaves 12—22 by 4—6 cm; pedicels pubescent 5
 5.a. Mature dry leaves brown-olivaceous above, greyish below; greyish tomentose below when young. *China (Yunnan)* 4. *X. stenosepala* (Hu) van Royen
 b. Mature dry leaves blackish above, brown below, ferruginously tomentose below when young. *India and Indochina* 3. *X. hookeri* (Clarke) van Royen
 6.a. Fruits glabrous; secondary nerves of leaf 5—8, ascending at an angle of 35°—55°, tertiary nerves rather numerous. *Indochina*
 2. *X. boniana* (Dub.) van Royen, var. *boniana*
 b. Fruits pubescent; secondary nerves of leaf 9—13, ascending at an angle of 50°—65° 7
 7.a. Scar of seed as long as the seed, the latter 2—3 cm long. *Hainan*
 2. *X. boniana* (Dub.) van Royen
 var. *rostrata* (Merr.) van Royen
 b. Scar of seed 2/3 the length of the seed, the latter up to 2 cm long. *Laos*
 2. *X. boniana* (Dub.) van Royen
 var. *paviana* (Pierre) van Royen
 8.a. Sepals glabrous within, staminodes pubescent within. *Indochina*
 6. *X. baranense* (Lec.) van Royen
 b. Sepals pubescent within, staminodes glabrous within 9
 9.a. Petioles pubescent 10
 b. Petioles glabrous 13
 10.a. Leaftips rounded or short and broad obtusely acuminate, leaves 2—7.5 by 2.5—4.5 cm, secondary nerves 5—11, petioles 2—5 mm long 11

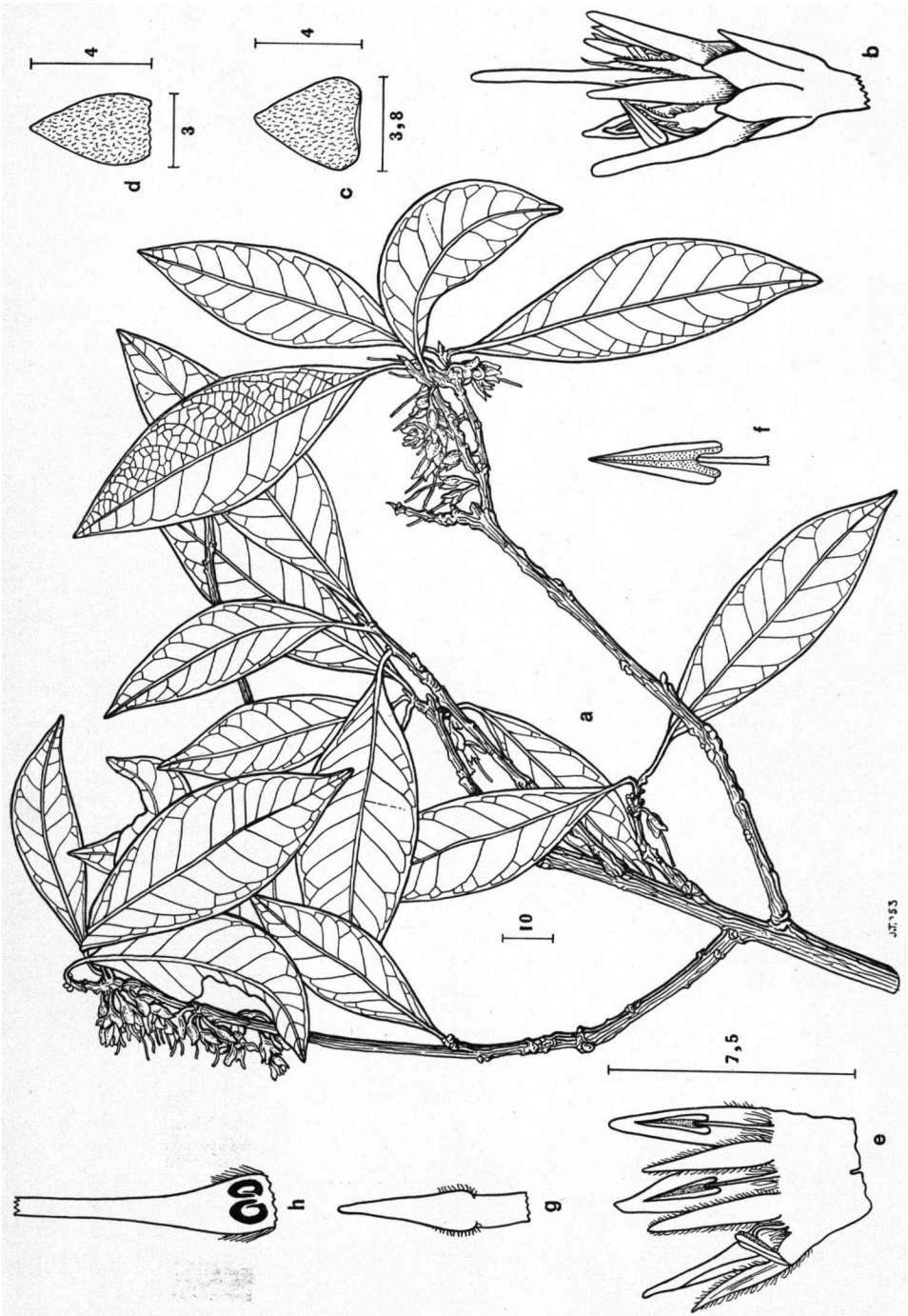
* The number of secondary nerves is that at one side of the midrib.

- b. Leaf tips long acutely acuminate, obtusely acuminate or obtuse, leaves 4—16.5 by 2—7 cm, secondary nerves 8—16, petioles 5—20 mm long 12
- 11.a. Leaves rhomboid-obovate or elliptic, rounded or short obtusely acuminate. *Indochina and Siam* 12. **X. cambodiana** (Pierre) van Royen var. **cambodiana**
- b. Leaves lanceolate, markedly attenuate at the tip. *Indochina* 12. **X. cambodiana** (Pierre) van Royen var. **thorelli** (Lec.) van Royen
- 12.a. Mature seeds black when dry, 10—12 by 3—4 by 2—3 mm, fruits ellipsoid or ovoid, 2—3 by 0.8—1.5 cm, beaked by the persistent style; base of leaf abruptly narrowed and decurrent along petiole. *Assam* 13. **X. assamica** (Clarke) van Royen
- b. Mature seeds brown when dry, 16—20 by 6—11 by c. 5 mm, fruits ovoid or fusiform, 2—3 by 1—1.8 cm, acute or obtuse, rarely beaked by the persistent style; base of leaf gradually narrowing towards petiole, decurrent. *India to* 11. **X. tomentosa** (Roxb.) Rafin.
- 13.a. Leaves suborbicular or broadly obovate, 1.2—3 by 0.8—2.5 cm; secondary nerves 3—6; spiny trees. *Indochina* 9. **X. maritima** (Pierre) van Royen
- b. Leaves elliptic or spatulate, 2—16 by 0.6—6 cm, secondary nerves 5—16; trees mostly without spines but if spiny, secondary nerves 8—16 and leaves 4—14 by 2—6 cm 14
- 14.a. Leaves and flowers at the tips of brachyblasts 15
- b. Leaves scattered, flowers axillary 17
- 15.a. Leaves obovate or cordate, tip rounded, obtuse or emarginate, black or dark-brown above when dry; pedicels ferruginously sericeous, sepals ferruginously on either side. *Luzon* 8. **X. parvifolia** (A. DC) van Royen
- b. Leaves spatulate or elliptic 16
- 16.a. Sepals 2.3—4 by 1—1.5 mm, corolla 4—5 mm, anthers with one acute tip. *Siam* 7. **X. siamensis** (Fletcher) van Royen
- b. Sepals 5—5.5 by 2—2.5 mm, corolla 10—14 mm, anthers with two acute tips. *Hainan* 14. **X. embellifolia** (Merr.) van Royen
- 17.a. Spiny trees. *India to Indochina* 11. **X. tomentosa** (Roxb.) Rafin.
- b. No spines present 18
- 18.a. Petioles 10—30 mm long; pedicels 7—11 mm long. *Burma and Siam* 10. **X. burmanica** (Coll. & Hemsley) van Royen var. **burmanica**
- b. Petioles 2—8 mm long; pedicels 2—5 mm long 19
- 19.a. Stamines ciliate along the margin 20
- b. Stamines not ciliate along the margin. *Siam* 7. **X. siamensis** (Fletcher) van Royen
- 20.a. Fruits ovoid-ellipsoid, 2—4 by 1.2—2.5 cm; stamines 2—2.5 mm long, anthers 2—2.5 mm long; branchlets with roundish lenticels. *Siam* 10. **X. burmanica** (Coll. & Hemsley) van Royen var. **lenticellata** (Fletcher) van Royen
- b. Fruits globoid or obliquely obovoid, 1—1.5 by 1—1.5 cm; stamines 4—7.5 mm long, anthers 3—4 mm long; branchlets striate. *Hainan* 14. **X. embellifolia** (Merr.) van Royen

1. **X. shweliensis** (W. W. Smith) van Royen, nov. comb. — *Sideroxylon shweliense* W. W. Smith, Not. bot. gard. Edinb. 12, 1920, 223 — Fig. 2.

Shrubs, 1—2 m. Branchlets terete, 1.5—3 mm in diam., greyish striate, whitish tomentose, glabrescent. *Leaves* lanceolate or elliptic, 5—10 by 1.3—2.5 cm, obtusely or acutely acuminate at the tip, narrowly cuneate at base, tapering into petiole; chartaceous, glabrous, nitidulous above, dull below;

Fig. 2. **X. shweliensis**, a. habit, b. flower, c. inner sepal, inside, d. outer sepal, outside, e. flower, inside, f. stamen, g. corolla-lobe, outside, h. longitudinal section of gynaecium. (from *Forrest 17886*).



midrib flat and prominulous above, prominent below, secondary nerves 9—12, ascending at an angle of 50°—60°, curved or nearly straight, forked near margin and irregularly joined, prominent on either side, tertiary nervation transverse, sometimes sinuous and branched, thus seemingly reticulate, sparse, prominulous on either side; petioles 5—8 mm long, broadly canaliculate above, whitish sericeous when young, soon glabrous. *Flowers* solitary or in few-flowered clusters, pendulous; pedicels terete, 3—4 mm long, whitish sericeous tomentose. *Sepals* ovate or triangular, 3—4 by 2.5—4 mm, obtuse or subacute, brownish tomentose without, glabrous within. *Corolla* creamy-yellow, 7.5—9 mm long, lobes ovate-lanceolate, 5—6 by 2—2.5 mm, obtuse or acute, margins fimbriate-lacerate at base. *Stamens* 4—5 mm long, filaments filiform, 1.5—3 mm long, anthers c. 3 mm long, apex acute, dehiscing extrorsely. *Staminodes* lanceolate, 3—4 by 1—2 mm, apex acute. *Gynaecium* 10—12 mm long; ovary conoid, 5-lobed, brownish-yellowish tomentose; style subulate. *Fruits* not seen, according to Smith ovoid, c. 3 cm long.

Type specimen: *Forrest 17886* in E.

Distr.: China (Yunnan province).

CHINA. Yunnan, western flank of Shweli-Salween divide, 3000—3300 m, in mixed forest in ravines: *Forrest 17886* (E, K), shrub 1.2—2 m, fl. creamy-yellow, May; *ibidem*: *Forrest 18555* (E), fr. Sept.

Remarks: Unfortunately I have not seen the fruit, but it is on account of the close resemblance of the floral details with those of the other species in *Xantolis* that the above mentioned specimens are considered to belong to that genus.

Regarding leafshape and nervation the present species is related to *X. hookeri* and *X. boniana* but it differs from both in the smaller and narrower leaves and the less distinct tertiary nervation. The number of secondary nerves is intermediate between that of *X. boniana*, var. *boniana* and *X. hookeri*, resp. 5—8, 9—13 and 12—16. *X. boniana*, var. *rostrata* from Hainan has the same number of nerves but from that variety *X. shweliensis* differs by the glabrous inner surface of the sepals. Moreover, *X. shweliensis* is said to be a shrub and *X. boniana* with its varieties are trees.

2. *X. boniana* (Dubard) van Royen, nov. comb. — *Planchonella boniana* Dubard in Lecomte, Not. Syst. 2, 1911, 86 — *Sideroxylon bonianum* (Dubard) Lecomte, Fl. Gén. Indo-Chine 3, 7, 1930, 894 — *Pouteria ? boniana* (Dubard) Baehni, 1942, 368 — *Planchonella laotiana* Dubard, Not. Syst. 2, 1911, 86.

Trees, 5—15 m. Branchlets subterete or compressed in the upper internodes, 1.5—3.5 mm in diam., striate and sometimes lenticellate, ferruginously sericeous, glabrescent. *Leaves* elliptic, ovate or obovate, 6—12 by 2.8—5.5 cm, apex short or long obtusely or acutely acuminate or obtuse at tip, cuneate at base, shortly decurrent, margin waved; subcoriaceous, juvenile ones yellowish-ferruginously woolly on either side, later on glabrous and nitidulous on either side or ferruginously puberulous along the midrib and nerves only; midrib prominulous above, prominent below, secondary nerves 5—13, ascending at an angle of 35°—65°, curved, forked at the tip, arching-

ly joined, sometimes diminishing until inconspicuous, prominulous above, prominent below, tertiary nervation transverse, prominulous above, prominent below; petioles 8—15 mm long, grooved above, ferruginously sericeous but glabrescent. *Flowers* white, solitary or in few-flowered clusters; pedicels terete, 6—10 mm long, ferruginously puberulous, ultimately glabrous. *Sepals* ovate-lanceolate, 4—5.5 by 2—3 mm, apex subacute, margins membranous, whitish appressedly tomentose on either side. *Corolla*, *stamens* and *staminodes* not seen. *Ovary* globose, 2—3 mm diam., whitish sericeous; style terete, 9—11 mm long. *Fruits* ovoid, 2—4 by 1.5—2.2 cm, one-seeded, glabrous or yellowish tomentose, pericarp woody; seeds fusiform, 2—3 by 0.8—1.5 by 1.3—1.5 cm, obtuse at either end, yellowish brown or brown, nitidous, scar ovate, nearly as long as the seed, up to 5 mm wide, albumen copious, cotyledons foliaceous, radicle 1—2 mm, slender, acute.

Type specimen: *Bon 2899* in P.

Distr.: Indochina and Hainan.

Var. *boniana*.

Secondary nerves 5—8, ascending at an angle of 35°—55°, tertiary nervation rather dense. *Fruits* glabrous.

Type specimen: *Bon 2899* in P.

Vern. name: sao-trai (Tonkin).

Distr.: Indochina.

INDOCHINA. Tonkin, Mt China-Hac, near Vo-xa: *Bon 2899* (L, P), tree, fl. May — Laos, without loc.: *Pavie s.n.* (P).

Remarks: According to Dubard the sepals are said to be glabrous but this is apparently not correct as I found them in the type specimen whitish tomentose on either side.

Though flowers of this species are unknown, there is, on account of the fruits of var. *rostrata* and the close resemblance in leaves and flowers to those of *X. hookeri* no doubt that this species has to be inserted in *Xantolis*.

Var. *rostrata* (Merrill) van Royen, nov. stat. — *Sideroxylon rostratum* Merrill, Phil. Journ. Sc. 21, 1922, 351 — *Planchonella rostrata* (Merrill) H. J. Lam, 1925, 218 — *Pouteria eluviicola* Baehni, 1942, 310.

Secondary nerves 9—13, ascending at an angle of 50°—65°, tertiary nerves rather far apart. Fruits yellowish tomentose, scar of the seed as long as seed itself which is 2—3 cm long.

Type specimen: *McClure 8559* in PNH.

Distr.: Hainan.

HAINAN. Five Finger Mt., wooded ravine at edge of stream: *McClure 8488* (BM, K, L, PNH), tree 10 m, Dec.; ibidem, Yik Tsok Mau, 650 m, wooded ravine: *McClure 8559* (BM, K), tree 5—15 m, fl. white, Dec.; Dung Ka to Diu Mun, along trail, c. 600 m: *Chun & Tso 44270* (K, L), tree 15 m, lvs deep green, fr. deep green, tomentose, Nov.

Var. *pavieana* (Pierre) van Royen, nov. stat. — *Planchonella pavieana* Pierre in Lecomte, Not. Syst. 2, 1913, 88 — *Pouteria ? pavieana* (Pierre) Baehni, 1942, 417.

Secondary nerves 9—13, ascending at an angle of 50°—65°, tertiary nerves few. Fruits yellowish tomentose; scar of the seed c. $\frac{2}{3}$ the length of seed itself, which is up to 2 cm long.

Type specimen: *Pavie s.n.* in P.
 Vern. names: hăi, mòi pang (muong).
 Distr.: Indochina.

INDOCHINA. Laos: Luang Prabang: *Pavie s.n.* (P), with seeds only, fr. edible.

Remarks: *Planchonella pavieana* is regarded here as a variety of *X. boniana* as the differences though distinct are very slight. It differs from var. *rostrata* in the slightly narrower leaves but this may be illusory when more material is present and therefore is not regarded as an important detail. Also it is possible that var. *rostrata* and var. *pavieana* should be united when more material is found. An additional reason to keep them apart, is the difference in geographical distribution, var. *rostrata* being known from Hainan only and var. *pavieana* being restricted to Laos.

3. *X. hookeri* (Clarke) van Royen, nov. comb. — *Sideroxylon hookeri* Clarke in Hooker, Fl. Br. India 3, 1882, 537; Lecomte, Fl. Gén. Indo-Chine 3, 7, 1930, 893; Kanjilal & Das, Fl. Assam 3, 1939, 191 — *Planchonella hookeri* (Clarke) Pierre, Not. bot. Sapot., 1890, 36 — ? *Sideroxylon hookeri* Clarke, var. *mekongense* Lecomte, l. c. 893 — *Pouteria hookeri* (Clarke) Baehni, 1942, 366.

Trees, up to 12 m. Branchlets subterete but compressed below the nodes, 2—5 mm in diam., striate, ferruginously tomentose when young, older ones glabrous and yellowish. Leaves elliptic, oblong or subobovate, 12—22 by 4—6 cm, tip long acuminate, narrowing towards base and sometimes oblique, shortly decurrent; margin undulate; membranous to chartaceous, glabrous above, ferruginously tomentose below but glabrescent except for a few scattered hairs along midrib, nitidulous above, dullish below; midrib prominulous above, prominent below, secondary nerves 10—16 and 5—8 towards the tip closer together, ascending at an angle of 50°—60°, in the tip 70°, curved, but the apical ones straight, diminishing until inconspicuous, prominulous or subimpressed above, prominent below, tertiary nerves transverse, prominulous on either side; petioles 1—2 cm, broadly canaliculate above, rounded below, whitish-ferruginously appressedly tomentose, glabrescent. Flowers solitary or in few-flowered clusters; pedicels terete, but angular in the apical part, 5—9 mm long, ferruginously whitish tomentose. Sepals ovate, 2.5—4.5 by 1.5—3.5 mm, apex subobtuse, greyish ferruginously sericeous without, ferruginously sericeous within, inner sepals with sparsely fimbriate and membranous margin. Corolla 8—12 mm, lobes ovate-lanceolate, 7—9 by 2.5—3.5 mm, margins lacerate at base. Stamens 6—7 mm long, filaments subulate, compressed, 3—5 mm, anthers ovoid, 2—3.5 mm long, apex truncate, mucronulate, dehiscing extrorsely or laterally. Staminodes lanceolate or linear, 6—7 by 1—2 mm, apex acute. Gynaecium long conoid, 10—15 mm long, ovary ferruginously hirsute; style filiform, 10—12 mm long, subcapitate. Fruits unknown.

Type specimen: *Hooker 4* in K.
 Vern. names: dieng-soh-pho-shree; monkey's crab-apple.
 Distr.: Northern parts of India and Indochina.

INDIA. Sikkim: without loc., alt. c. 1500 m: *Hooker 4* (BM, K, L), fl.
 INDOCHINA. Laos: Vieu Chang: *Thorel s.n.* (P), fl.

Remarks: Closely related to this species is *X. racemosa* which differs, however, in the type of inflorescence. *X. racemosa* carries flowers in clusters along an axillary shoot, while in *X. hookeri* the flowers are axillary and clustered. Moreover, the latter has longer acuminate leaves and larger flowers.

The details of var. *mekongense* as described by Lecomte fall within the limits of var. *hookeri* so that it seems justified to unite both varieties. However, var. *hookeri* is known only from Sikkim and var. *mekongense* from Laos, no intermediate localities having so far been reported.

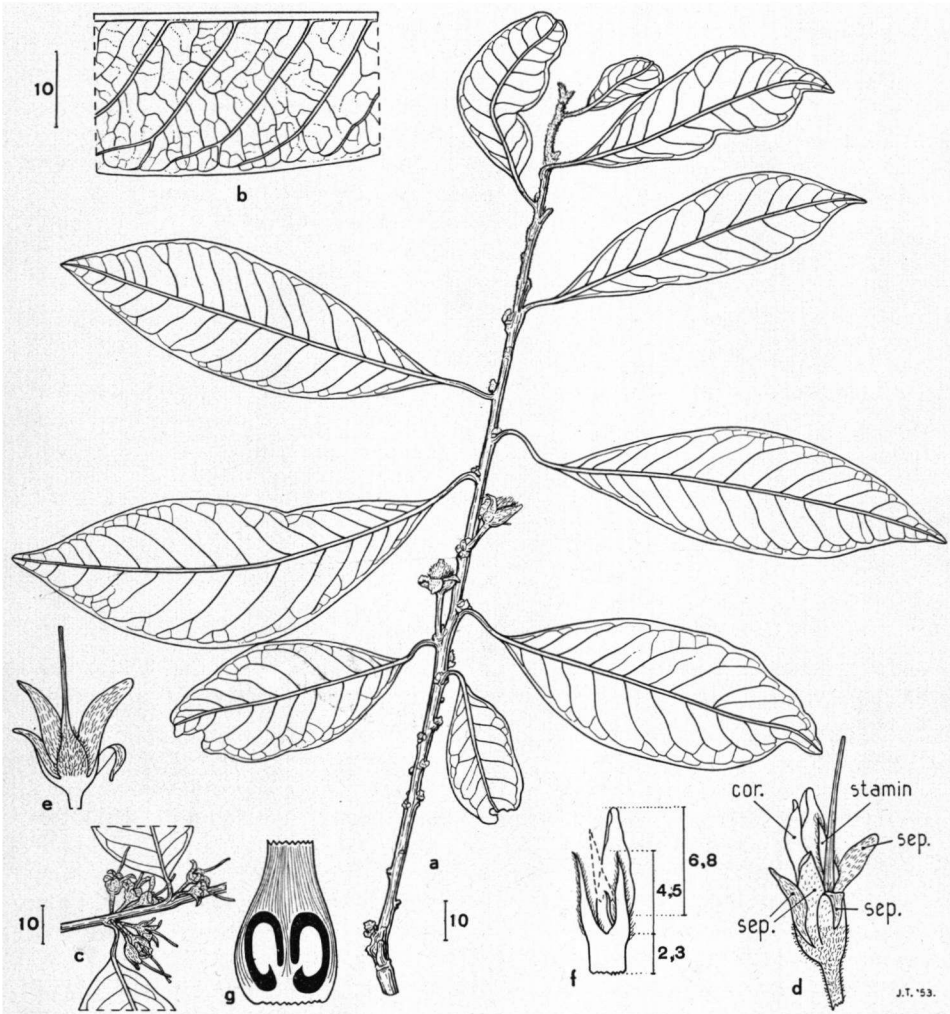


Fig. 3. *X. stenosepala*, a. branch with 2 juvenile fruits, b. part of leaf, c. flowers, d. flower (sep. sepals, cor. corolla, stamin. staminodes), e. juvenile fruit with part of calyx, f. inside of part of corolla, anther drawn in broken line, g. longitudinal section of basal part of gynaecium (from Wang 75088).

4. *X. stenosepala* (Hu) van Royen, nov. comb. — *Adinandra stenosepala* Hu, Bull. Fan. Mem. Inst. Biol., Bot. Ser. 8, 1938, 148 — *Planchonella stenosepala* (Hu), Hu, Bull. Fan. Mem. Inst. Biol., Bot. Ser. 10, 1940, 129 — Fig. 3.

Trees, 6—15 m. Branchlets angular, 2—4 mm in diam., greyish or yellowish brownish tomentulose, glabrescent. *Leaves* lanceolate, oblanceolate or oblong-lanceolate, 5—18 by 2—5 cm, acuminate, acumen 3—8 mm long, base cuneate, tapering into petiole; coriaceous, greyish puberulous, glabrescent, nitidous above, dull below; midrib prominulous above, prominent below, secondary nerves 15—17, ascending at an angle of 40°—55°, slightly curved, archingly joined by thickened nerves, prominulous above, prominent below, tertiary nervation sparse, transverse, recurved near the midrib, prominulous above, prominent below, petioles 8—18 mm long, broadly canaliculate above, greyish tomentose, glabrescent. *Flowers* solitary or in few-flowered axillary clusters; pedicels terete, 6—10 mm long, greyish sericeous. *Sepals* lanceolate, 5—7 by 2—3 mm, acute at apex, greyish sericeous without, ferruginously sericeous within. *Corolla*-lobes lanceolate, up to 6.5 by c. 2 mm, greenish black, apex acute. *Stamens* up to 6.5 mm long, filaments subulate, thickened at base, slightly shorter than the anthers, the latter lanceolate, sagittate at base, acute and with a slightly produced connective at apex, dehiscing introrsely, c. 2.5 mm long. *Staminodes* ovate-lanceolate, up to 4 mm long, caudate-subulate at apex, densely tomentose along margin, glabrous within. *Ovary* without disk, ovoid, c. 3 by 3 mm, densely ferruginously tomentose, 5-celled, with one basal ovule in each cell; style simple, up to 12 mm long, villous at base, glabrous in the upper part, stigma obscurely lobed. *Fruits* yellow, oblong-ovoid, up to 1.5 by 1 cm, crowned by the up to 15 mm long style, ferruginously sericeous to pilose, pericarp ligneous.

Type specimen: Wang 75088 in FM.

Distr.: China (Southwestern Yunnan).

CHINA. Yunnan, Nanchiao Hsien, in forest, 1420 m: Wang 75088 (FM, K), tree c. 13 m, fr. June, yellow; Fo-Hai Hsien, in mixed forests, 1530 m: Wang 73529 (A, FM), tree c. 15 m, fl. May; ibidem, 1400 m: Wang 77205 (A, FM), July; ibidem, 1300 m: Wang 77042 (A, FM), tree 8 m, July; ibidem, in thickets, 1540 m: Wang 74441 (FM), tree c. 6 m, June; ibidem, in mixed forests, 1400 m: Wang 77109 (A, FM), tree 6 m, June; ibidem, in thickets, 1540 m: Wang 73977 (A, FM), tree c. 6 m, May; Nan-Chiao Hsien, in forests in ravine, 1450 m: Wang 75394 (FM), tree 10 m, June.

5. *X. racemosa* (Dubard) van Royen, nov. comb. — *Planchonella racemosa* Dubard, 1912, 55, *nomen*; Dubard in Lecomte, Not. Syst. 2, 1913, 88, *descr.* — *Sideroxylon racemosum* Lecomte, Fl. Gén. Indo-Chine 3, 7, 1930, 888; Baehni, 1942, 428 — *Sideroxylon racemosum* Lecomte, var. *subracemosum* Lecomte, l. c. 889 — *Mastichodendron racemosum* (Lec.) H. J. Lam, Rec. trav. bot. néerl. 36, 1939, 521 — *Sideroxylon eburneum* Chevalier in Lecomte, l. c. 1930, 895 — Fig. 4.

Trees. Branchlets stout, terete or angular, 2—5 mm in diam., with numerous lenticels, ferruginously pubescent, glabrescent. *Leaves* obovate or obovate-oblong, 12—22 by 4.5—7 cm, apex obtusely acuminate (acumen up to 10 mm long), cuneate at base, tapering into petiole; margin undulate; subcoriaceous, glabrous on either side, nitidulous above, dullish

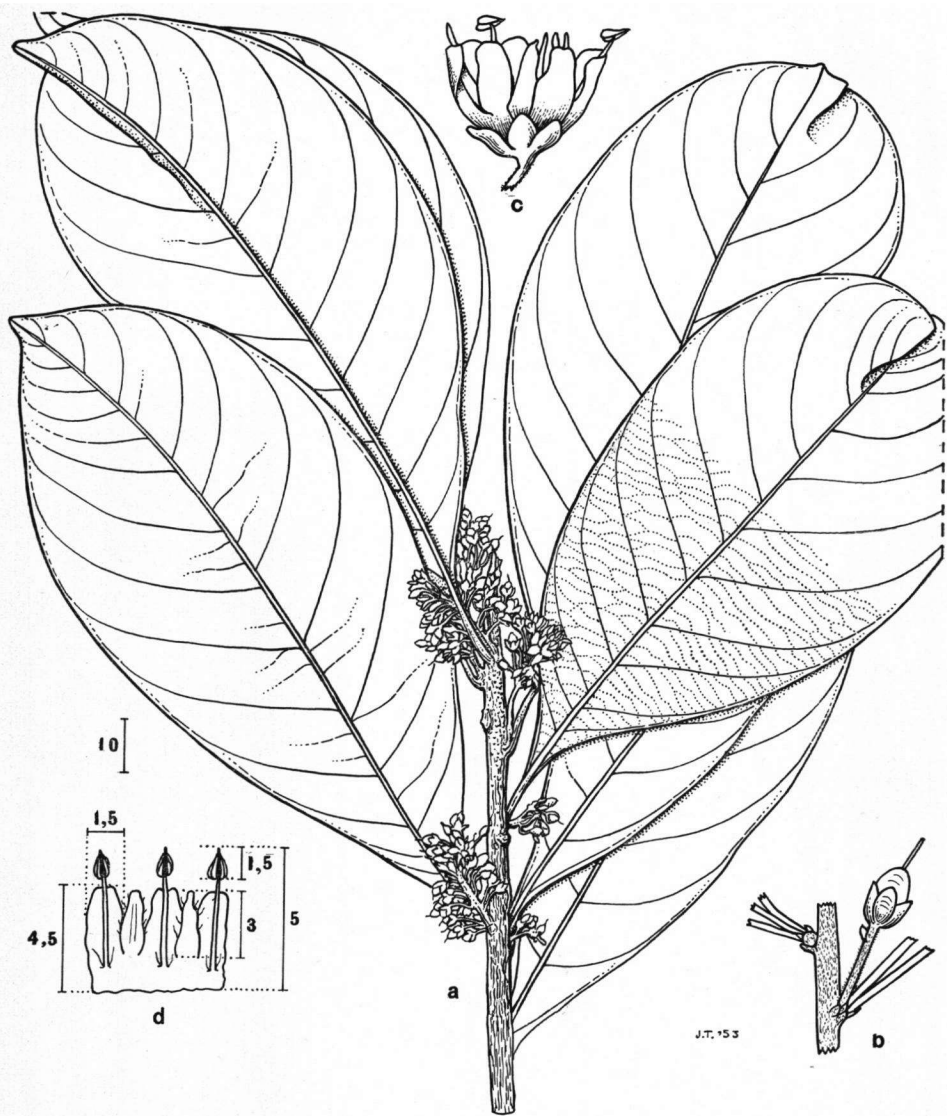


Fig. 4. *X. racemosa*, a. habit, b. juvenile fruit, c. flower, d. corolla, inside. (from *Bon* 4266).

below; midrib impressed above, prominent below, secondary nerves 8—13, ascending at an angle of 45° — 65° , curved, diminishing until inconspicuous, prominulous above, prominent below, tertiary nerves transverse, prominulous above, prominent below; petioles 10—17 mm long, flat or broadly grooved above and sometimes minutely crested, glabrous. *Flowers* solitary or in clusters along 7—30 mm long axillary shoots, in the axils of triangular,

c. 1 mm long, obtuse, ferruginously tomentose bracts, peduncle compressed, 2—5 mm long, appressedly whitish tomentose, rachis appressedly tomentose, with numerous white lenticels; pedicels terete or subangular, 4—6 mm long, sparsely ferruginously or whitish tomentose, at base with 2 lanceolate, acute, c. 0.5 mm long bracteoles, and sometimes also an additional lanceolate or linear, scale-like, 1—1.5 mm long one closely below the sepals. *Sepals* ovate, 1.5—2.8 by 1.5—2 mm, apex obtuse, glabrous without, glabrous or subglabrous within. *Corolla* whitish or yellowish, 4—5 mm long, lobes elliptic or oblong, 2.5—3.5 by 1—1.5 mm, apex truncate, tips often crenulate, auriculate at base. *Stamens* 4.5—5.5 mm long, filaments subulate, 3—3.5 mm, anthers ovoid, 1.2—1.5 mm long, apex acute, dehiscing extrorsely. *Staminodes* ovate, 2—3.5 by 1—2 mm, apex obtuse or acute, attenuate and auriculate at base, margins sparsely and irregularly fimbriate. *Ovary* ovoid, 5—7-lobed, stout, 1 mm high and diam., glabrous except for a few long hairs at base; style subulate, 3—3.5 mm long. *Fruits* ovoid, 16—18 mm long, 1-seeded; seeds ellipsoid oblong, albumen present, scar unknown, cotyledons thin, radicle 2.5 mm long.

Lectotype specimen: *Bon 5220* in P.

Vern. name: mai-lai-duoi (= ivory wood) (Annam).

Use: Provides one of the best timbers of northern Annam.

Distr.: Indochina.

INDOCHINA. Tonkin, Mt Cà: *Bon 4266* (P), fl.; Phú Dien: *Bon 5220* (P), fl. March; Cho-ganh: *Pételot s.n.* (P), fl. & fr.; Ké-só, on limestone rocks: *Balansa 4337* (K, P), fl. May — Annam, Thanh-hoa prov., Nhu-Xuân: *Caday 38268* (P), fl. April.

Remarks: Dubard in his original description mentioned 3 specimens; it is here proposed to select *Bon 5220* as the lectotype specimen.

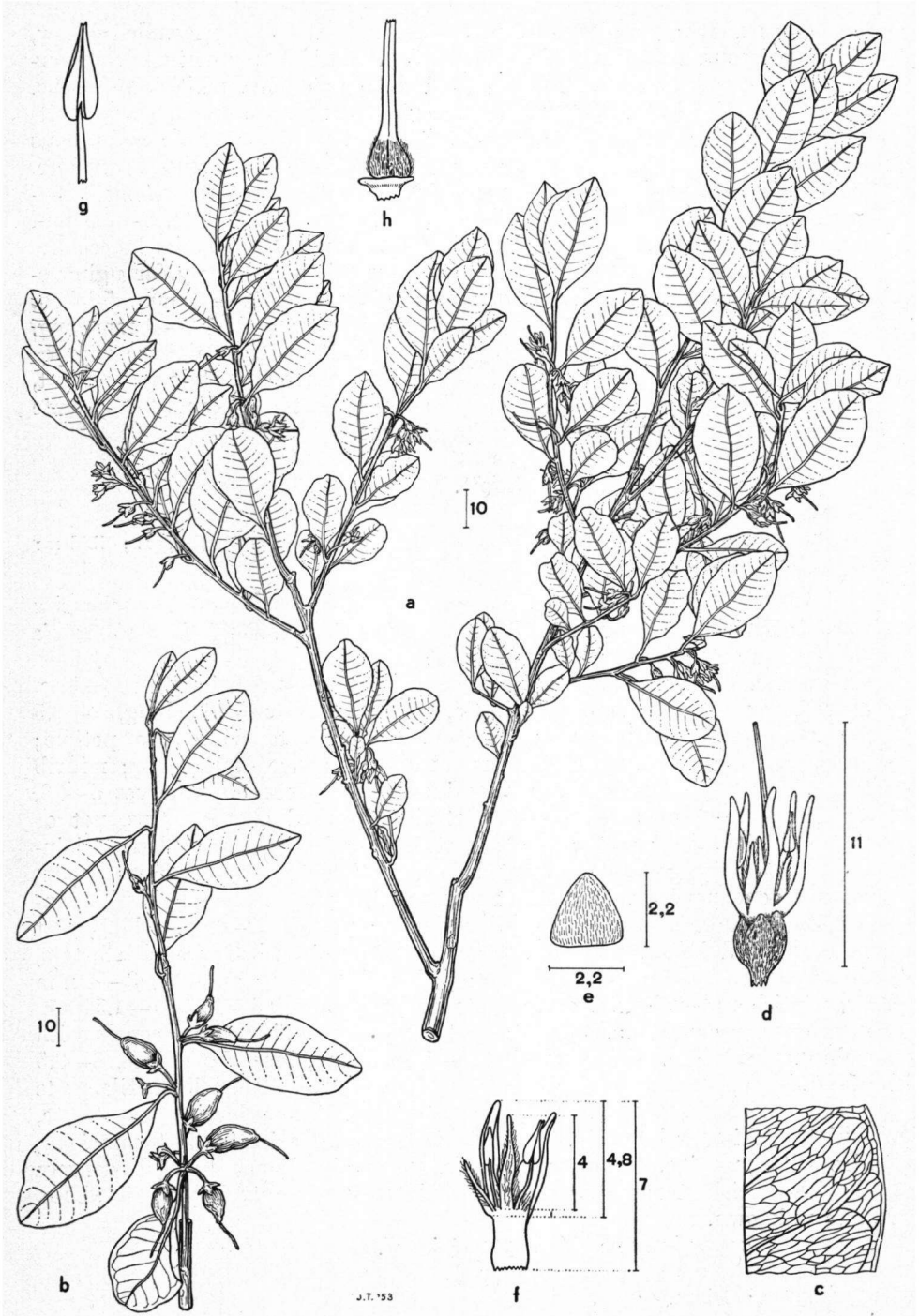
The details of the fruit are extracted from Lecomte's description as I have not seen the material.

Lecomte distinguished a variety *subracemosum* on account of the very short racemes but this seems hardly justified as in *Bon 4266* an even shorter raceme was found beside the 2—3 cm long inflorescences. In the type specimen of var. *subracemosum* (*Balansa 4337*) the inflorescence is 2—5 mm long.

6. *X. baranense* (Lec.) van Royen, nov. comb. — *Sideroxylon baranense* Lec., Fl. Gén. Indo-Chine 3, 7, 1930, 889—890 — Fig. 5.

Trees, 9—10 m. Branchlets terete, 1—4 mm in diam., with numerous round lenticels, glabrous. *Leaves* scattered, obovate or elliptic, (1.3—)2.5—4.5 by (0.8—)1.2—3 cm, apex rounded, entire, retuse or acutely or obtusely acuminate (acumen 1—2.5 mm), base attenuate and decurrent; subcoriaceous, glabrous on either side, greyish nitidous above, greenish dull below; midrib flat or prominulous above, prominent below, secondary nerves 7—10, ascending at an angle of 55°—65°, straight, irregularly archingly joined, prominulous on either side, but more conspicuous above, tertiary nerves reticulate-parallel to secondary ones, prominulous on either side, but more

Fig. 5. *X. baranense*, a. flowering specimen, b. fruiting specimen, c. part of leaf, d. flower, e. sepal, outside, f. corolla, inside, g. stamen, h. gynaeceum. (b. from *Poilane 9721*, the rest from *Poilane 9718*).



conspicuous above; petioles 1—4 mm long, grooved above, rounded below, whitish sericeous. *Flowers* golden-yellow, fragrant, solitary or in few-flowered clusters, pendulous; pedicels angular, 4—6 mm long, whitish sericeous. *Sepals* ovate-triangular, 2—3 by 2—2.5 mm, apex obtuse or subacute, whitish sericeous without, glabrous within, inner sepals with membranous margin which is narrowed at base. *Corolla* 6—8 mm long, lobes lanceolate, 4—5.5 by 1.5—2 mm, apex obtuse, whitish tomentose at base. *Stamens* 4—5 mm, filaments subulate, 2.5—3.5 mm long, anthers sagittate, 2—2.5 mm long, with two short acute tips, dehiscing extrorsely. *Staminodes* lanceolate, 3.5—4.5 mm, apex aristate with a membranous aristem, densely ferruginously tomentose on either side. *Ovary* ovoid-globose, c. 1.5—2 mm, 5-lobed, ferruginously tomentose; style long exsert, terete to angular, 7—9 mm long. *Fruits* known in a young state only, ovoid or ellipsoid, sometimes slightly oblique, 8—15 by 4—6 mm, 2—3-seeded, whitish sericeous, style marcescent, up to 10 mm, pericarp fleshy; seeds not seen, but according to Lecomte 7 mm long, 3.5 mm wide, with a linear scar.

Type specimen: *Poilane 9721* in P.

Vern. name: dau libô (Moi).

Distr.: Indochina.

INDOCHINA. Annam, prov. Phanrang, Baran: *Poilane 9718* (P), fl.; ibidem: *Poilane 9721* (P), fr.

7. *X. siamensis* (Fletcher) van Royen, nov. comb. — *Planchonella siamensis* Fletcher, Kew Bull. 1937, 1938, 373—374 — *Pouteria ? siamensis* (Fletcher) Baehni, 1942, 372 — Fig. 6.

Trees, c. 12 m. Branchlets terete or angular, 1—3 mm in diam., striate, glabrous. *Leaves* spatulate or elliptic, sometimes rhomboid-oblong, 2—3.5 by (0.6—)1—2 cm, tip obtuse, mucronulate, base tapering into petiole; margins slightly involute; coriaceous, nitidulous above, dull below; midrib not or slightly prominent above, prominent below, secondary nerves 5—10, ascending at an angle of 40°—45°, straight, forked at their tips, not or indistinctly joined by tertiary nerves, sometimes irregularly archingly joined, prominulous above, prominent below, tertiary nerves laxly reticulate, sometimes one nerve more distinct and parallel to the secondary ones, inconspicuous, more distinct above than below; petioles 2—4 mm long, flat above, rounded below, glabrous. *Flowers* white, in few-flowered clusters, sometimes along foliate brachyblasts; pedicels terete or angular, 3—4 mm long, whitish puberulous. *Sepals* ovate or lanceolate, 2.3—4 by 1—1.5 mm, apex obtuse, greyish puberulous tomentose on either side, inner sepals with membranous margin. *Corolla* white, 4—5 mm long, lobes lanceolate, 3—3.5 by 1—1.5 mm, apex obtuse or subacute. *Stamens* 2.5—4 mm long, filaments subulate, 1.5—2 mm long, anthers sagittate, c. 2 mm long, apex obtuse, apiculate, dehiscing laterally. *Staminodes* lanceolate-aristate, 2—3 mm long, entire with margins. *Ovary* globose, c. 2 mm in diam., 4-celled, densely yellowish-whitish tomentose; style subulate, 3—4 mm, hirsute at base. *Fruits* unknown.

Type specimen: *Kerr 10124* in K.

Vern. name: tan sian (Siam).

Distr.: Siam.

SIAM. Kanburi, c. 50 m, open scrub: *Kerr 10124* (K, L), tree c. 12 m, fl. white, Jan.

Remarks: In *X. siamensis* and *X. parvifolia* the flowers are sometimes borne along brachyblasts though in *X. siamensis* this phenomenon is less distinct than in *X. parvifolia*. Not only do the two species resemble each other in these dwarf shoots with numerous leaf scars, with a few leaves and with clusters of flowers, but also in the shape of their leaves which is obovate or spatulate. However, they are also to distinguish from each

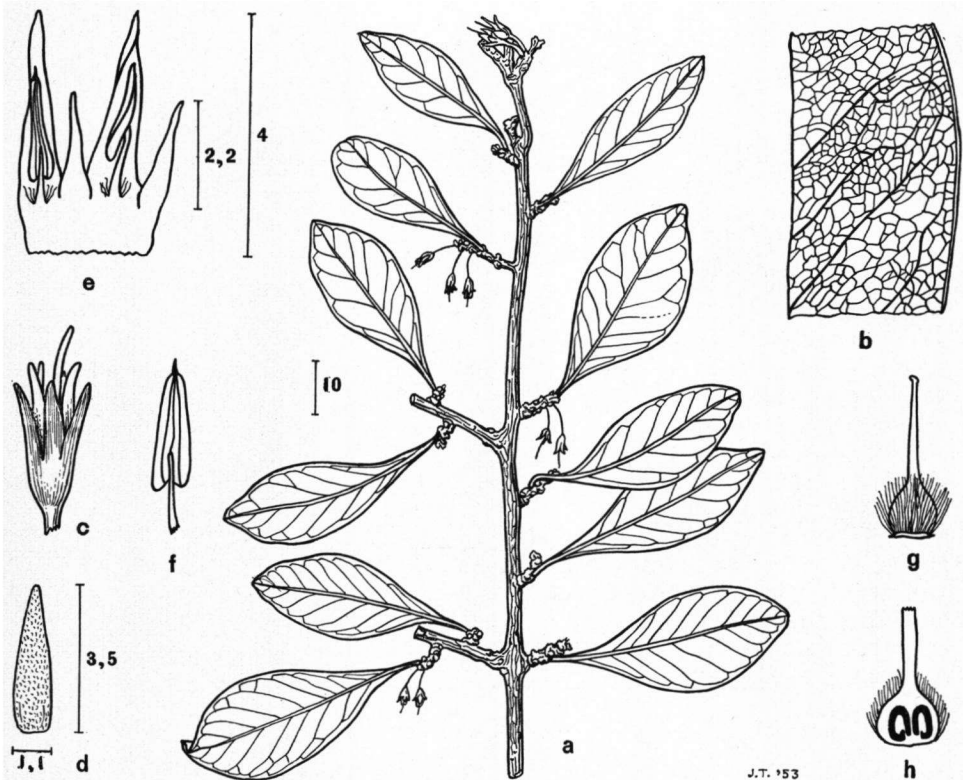


Fig. 6. *X. siamensis*, a. habit, b. part of leaf, c. flower, d. sepal, outside, e. corolla, inside, f. stamen, g. gynaecium, h. longitudinal section of gynaecium. (from *Kerr 10124*).

other in the shape of the leaves, those of *X. parvifolia* being obovate or cordate, those of *X. siamensis* being spatulate to elliptic. The pedicels in *X. parvifolia* are ferruginously sericeous and in *X. siamensis* whitish puberulous. It is on account of the resemblance stated that *X. siamensis* is included in this genus.

8. *X. parvifolia* (A. DC) van Royen, nov. comb. — *Sapota parvifolia* A. DC, Prodr. 8, 1844, 175 — *Planchonella parvifolia* (A. DC) Pierre, Not. bot. Sapot., 1890, 36; Dubard, 1912, 55; Lam, 1925, 199—200; Lam, 1927,

467 — *Sideroxylon parvifolium* (A. DC) F.-Vill. in Blanco, Fl. Filip., Novis App. 1880, 124; Vidal, Phan. Cum. Phil., 1885, 124; idem, Rev. Pl. Vasc. Filip., 1886, 176; Merrill, Enum. Ph. Fl. Pl. 3, 1923, 286 — *Pouteria parvifolia* (A. DC) Baehni, 1942, 373.

Small trees, sometimes with up to 3.5 cm long spines. Branchlets terete, 1—4 mm in diam., striate, ferruginously appressedly puberulous, glabrescent. *Leaves* conferted at tips of 1—10 mm long brachyblasts, obovate or obovate, 2—5.5 by 0.8—2.5 cm, rounded, obtuse or emarginate at apex, tapering towards base and decurrent; membranous or coriaceous, glabrous on either side, nitidulous above, dull below; midrib prominulous above, prominent below, secondary nerves 7—10, ascending at an angle of (40°—)50°—65°, straight, sometimes sinuous, forked at their tips, irregularly archingly joined, prominulous and inconspicuous on either side, tertiary nerves laxly reticulate, prominulous on either side; petioles 2—6 mm long, canaliculate above, rounded below, glabrous. *Flowers* solitary or in clusters at tips of brachyblasts; pedicels subterete or angular, 3—6 mm long, ferruginously sericeous. *Sepals* ovate, 3.5—4 by c. 2 mm, apex obtuse or acute, ferruginously sericeous on either side, often curved outwards. *Corolla* 6—9 mm long, lobes lanceolate, 5—6 by c. 1.5 mm, apex obtuse or acute. *Stamens* 4—5 mm long, filaments subulate, 1.5—2 mm, anthers sagittate, 2.5—3.5 mm long, apex cuspidate, dehiscing laterally. *Staminodes* lanceolate, c. 3 mm long, apex acuminate, margins coarsely lacerate or fimbriate. *Ovary* ovoid, 1—1.5 by 1—1.5 mm, 5-lobed, ferruginously tomentose; style filiform, 9—12 mm long. *Fruits* globose, 1.5—2.2 cm diam., 1- or 2-seeded, black, glabrous, pericarp thick, fleshy; seeds ovoid, 8—9 by c. 7 mm, apiculate at the top, brown, nitidous, scar linear, nearly as long as the seed, 1—2 mm wide, brownish, dull, albumen copious, cotyledons foliaceous, radicle cylindrical, c. 1 mm.

Type specimen: *Cuming 1147* in G.-Boiss.

Vern. names: auanagin (Ilocos); kalunañgin (Ilocos); manzánas-gúbat (Tagban), bu úl (Mindoro).

Distr.: Luzon and Mindoro.

LUZON. Prov. Ilocos Norte (f. Merrill, 1923); prov. Ilocos Sur, without loc.: *Cuming 1147* (FI, G.-Boiss., L, P, SING), fl.; prov. Pangasinan, Santiago Isl.: *Clemens 18198* (SING), March; prov. Batangas, without loc.: *Ramos 1925* (NSW, PNH, SING), fr. Aug.

MINDORO. Mt Yagaw: *Conklin PNH 19335* (L, PNH), Dec.

Remarks: Seeds have become known for the first time by the NSW specimen of *Ramos 1925*.

9. *X. maritima* (Pierre) van Royen, nov. comb. — *Planchonella maritima* Pierre, Not. bot. Sapot., 1890, 36, *nomen*; Pierre in Dubard in Lecomte, Not. Syst. 2, 1911, 87, *descr.*; Dubard, 1912, 54 — *Sideroxylon maritimum* Pierre, l. c. 1890, 36, *nomen*; Pierre in Dubard in Lecomte, Fl. Gén. Indo-Chine, 3, 7, 1930, 889, f. 97, *descr.* — *Pouteria maritima* (Pierre) Baehni, 1942, 371.

Trees or shrubs, sometimes creeping, 7—8 m, spiny. Branchlets terete, 1—3 mm in diam., striate, appressedly whitish or greyish tomentose, glabrescent, with numerous, 3—30 mm long, greyish or blackish, terete and acute spines. *Leaves* suborbicular or broadly obovate, 1.2—3 by 0.8—2.5 cm, tip

rounded or short obtusely to subacutely acuminate, sometimes shortly mucronate, base attenuate; subcoriaceous, sometimes ferruginously tomentose when young, glabrescent, nitidous above, dull below; midrib prominulous or impressed above, prominent below, secondary nerves 3—6, ascending at an angle of 60°—70°, straight or slightly curved, irregularly archingly joined, prominulous or subcanaliculate above, prominulous below, tertiary nerves reticulate, nearly invisible and prominulous or impressed above, invisible below; petioles 2—6 mm long, concave or canaliculate above, rounded below, glabrous. *Flowers* in few-flowered clusters; pedicels terete or subangular, 4—8 mm long, greyish or ferruginously sericeous. Outer *sepals* orbicular-ovate, 2.5—3 by 2—2.5 mm, apex subacute, subcarinate without in the apical part, ferruginously sericeous on either side, inner sepals ovate-lanceolate, shorter and narrower than outer ones, ferruginously sericeous on either side. *Corolla* 3.5—5 mm long, lobes spatulate, ovate or ovate-oblong, 2.5—3.5 by c. 1.5 mm, apex obtuse or subacute. *Stamens* 2.5—3 mm, filaments subulate, 1—1.5 mm long, anthers ovoid or oblong-triangular, 2—2.5 mm long, apex acuminate and subacute, truncate or mucronate, dehiscing extrorsely or laterally. *Staminodes* triangular-linear, 2.5—3 mm long, apex acute or aristate, sometimes with one lateral tooth. *Ovary* globose-ovoid, c. 1 mm in diam., 5-lobed, ferruginously tomentose; style 5-ribbed, 4—5 mm long, stigma slightly capitate. *Fruits* ovoid, sometimes oblique, up to 12 mm long and diam., crowned by a 9—10 mm long remnant of the style in the juvenile fruit, mature fruit mucronate only, 1- or 2-seeded, greyish puberulous, black, pericarp chartaceous; seeds irregularly ovoid, compressed, up to 10 mm long, brown, nitidous, scar linear, nearly as long as the seed, c. 1.5 mm wide.

Type specimen: *Pierre 3276* in P.

Vern. names: gang-gay (Annam); cây ma đuong (Annam).

Use: On account of its spines this plant is used for hedges. The fruit is edible and the fragrant flowers are sometimes used for ornamental purposes.

Distr.: Indochina.

INDOCHINA. Annam, Nha-trang: *Chevalier, Robinson, Poilane* (f. Lecomte, 1930); Tourane, in dunes: *J. & M. S. Clemens 3317* (K), low shrub, fl. & fr. May—July; prov. Barria, along the sea: *Pierre 3276* (P), fl.

Remarks: The description of the fruit is partly extracted from Lecomte, 1930, as I did not see complete material.

10. *X. burmanica* (Coll. & Hemsl.) van Royen, nov. comb. — *Sideroxylon burmanicum* Collett & Hemsley, J. Linn. Soc. 28, 1891, 82 — *Planchonella burmanica* (Coll. & Hemsl.) H. J. Lam, 1925, 267 — *Pouteria ? burmanica* (Coll. & Hemsl.) Baehni, 1942, 367 — *Planchonella punctata* Fletcher, Kew Bull. 1937, 1938, 372 — *Pouteria ? punctata* (Fletcher) Baehni, 1942, 369—370.

Trees, 5—20 m. Branchlets terete to compressed, slightly thickened below the nodes, 1.5—4 mm in diam., sparsely hairy, glabrescent. *Leaves* elliptic to obovate, 4.5—16 by 2—6.5 cm, rounded to shortly obtusely acuminate at apex, cuneate at base, short or long decurrent; margin subinvolute; chartaceous or coriaceous, juvenile leaves whitish sericeous, mature ones

glabrous on either side, nitidulous above, lighter and dull to nitidulous below; midrib prominulous above, sometimes shallowly sulcate, prominent below, secondary nerves 9—16, ascending at an angle of 50°—70° (45° in basal part), straight, slightly curved near margin, archingly joined, prominent on either side, tertiary nerves laxly reticulate, often one nerve more distinct and subparallel to the secondary nerves, inconspicuous or prominent above, prominulous or prominent below; petioles (0.4—0.8—)1—3 cm long, flat above and sometimes canaliculate, glabrous, rarely with a few scattered hairs. *Flowers* solitary or in few-flowered clusters; pedicels terete, (2—4—)7—11 mm long, whitish or greyish appressedly tomentose. *Sepals* ovate or lanceolate, 3—7 by 2.5—4 mm, apex obtuse, subacute or acute, sometimes subcarinate, greyish tomentose without, ferruginously sericeous within. *Corolla* white, 6—10 mm long, lobes lanceolate or oblong, 4—5.5 by 2—2.5 mm, apex obtuse. *Stamens* 4.5—5.5 mm long, filaments subulate, 1.5—2.5 mm long, anthers sagittate, (2—2.5—)3—4 mm long, apex with a long narrow, acute acumen, dehiscing extrorsely. *Staminodes* ovate or lanceolate or subrotundate, (2—2.5—)4.5—7 mm long, apex aristate, often sinuously bent. *Ovary* conoid-ovoid, 5-lobed, (1.5—2—)5 by 1—2 mm, brownish tomentose; style linear, 7—10 mm long, 5-ribbed, capitate. *Fruits* known in var. *burmanica* only.

Type specimen: *Collett 740* in K.

Distr.: Burma and Siam.

Var. *burmanica*.

Branchlets with few linear lenticels. *Leaves* decurrent over a long distance along petiole, petioles 10—30 mm long. *Flowers* 5—7 in each cluster; pedicels 7—11 mm long. *Staminodes* 4.5—7 mm long. *Anthers* 3—4 mm long. *Fruits* ovoid-ellipsoid, 2—4 by 1.2—2.5 cm, apex obtuse or acute, 1- or 2-seeded, sometimes crowned by a small remnant of the style, black, ferruginously or yellowish puberulous or sericeous, glabrescent, pericarp thick, fleshy; seeds compressed ellipsoid, sometimes oblique, 1.5—2.2 by 0.8—1 by 0.5—0.7 cm, obtuse at either end, brown or yellow, nitidous, with a small wart over the scar, scar as long as seed, 4—8 mm wide, white or light brown, albumen copious, cotyledons foliaceous, radicle curved, 1—2 mm, obtuse.

Type specimen: *Collett 740* in K.

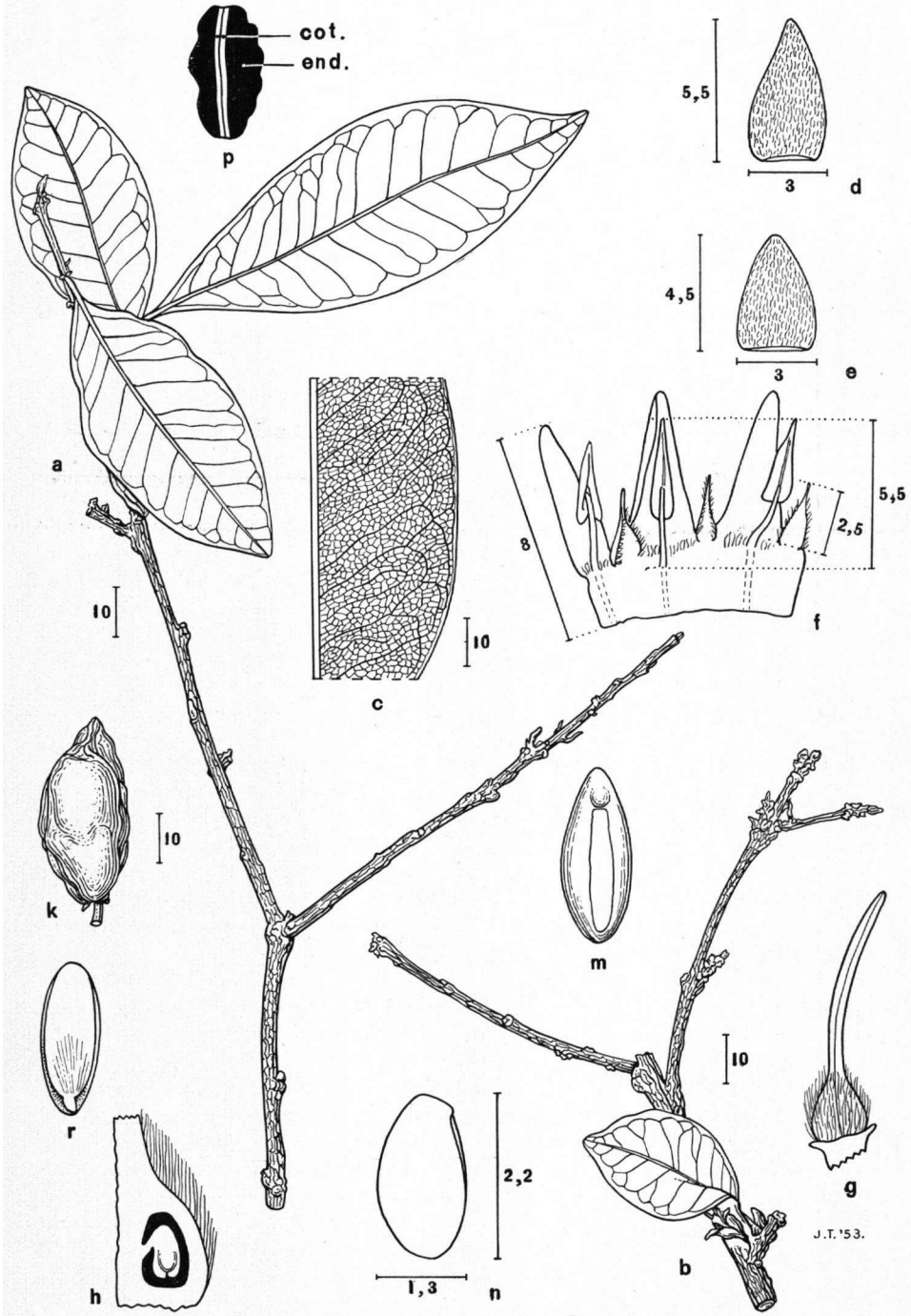
Vern. names: t̄an sion (Siam); nom pr̄asi (Siam)

Distr.: Burma and Siam.

BURMA. Shan hills, Jiwangan, alt. c. 1300 m: *Collett 740* (K), fl. May; Ruby mines district, Kyaukelebeni to Shwenyaungbiu: *Lace 5987* (K), fr. Oct.; Maymyo plateau, alt. c. 1100 m: *Lace 6241* (K), fr. June.

SIAM. Hue Nam Mar, Dar Sui, alt. c. 600 m, savannah forest: *Kerr 5809* (K), tree 15 m, fl. white, April; Jap Sai, Chantabun, alt. c. 100 m: *Kerr 9602* (K), spreading tree c. 10 m, fr. Dec.; Samōng, Chieng mai, alt. c. 600 m, mixed deciduous forest: *Kerr 6392* (K), tree c. 20 m, fl. Oct.

Fig. 7. *X. burmanica*, var. *lenticellata*, a. habit, b. habit, c. part of leaf, d. outer sepal, outside, e. inner sepal, outside, f. part of corolla, inside, g. gynaeceium, h. longitudinal section of ovary, k. fruit, m. seed showing the scar, n. seed, p. transverse section of embryo, r. longitudinal section of embryo. (from *Kerr 5555*).



Remarks: The fruit of var. *burmanica* has been described from *Lace* 6241 for the juvenile and from *Lace* 5987 for the mature state.

Planchonella punctata is regarded as conspecific with *X. burmanica* var. *burmanica* since the sole difference, the minutely punctate lower surface of the leaves, can not be considered sufficient to maintain it as a distinct species.

Var. *lenticellata* (Fletcher) van Royen, nov. stat. — *Planchonella lenticellata* Fletcher, Kew Bull. 1937, 1938, 371—372 — *Pouteria* ? *lenticellata* (Fletcher) Baehni, 1942, 367 — Fig. 7.

Branchlets with numerous roundish lenticels. Leaves shortly decurrent along petiole, the latter 4—8 mm long. Flowers solitary or 2—4 in a cluster; pedicel 2—4 mm long; staminodes 2—2.5 mm long, anthers 2—2.5 mm long.

Type specimen: *Kerr* 5555 in K.

Vern. name: ma nom nāng.

Distr.: Siam.

SIAM. Dio Chieng dao, alt. c. 1300 m, open evergreen forest: *Kerr* 5555 (K), tree c. 5 m, fr. June; Phre, alt. 180 m: *Phra Vanpruk* 469 (K), fl.

Remarks: In *Kerr*'s publication the type specimen is indicated as being *Kerr* 5335 but the label bears the number 5555 and therefore this number is regarded as the correct collector's number.

Provisionally *Planchonella lenticellata* is kept apart from *X. burmanica*, on account of the distinct differences though it has been reduced to varietal rank. Yet it is to be doubted whether these details will hold good when more material is available.

11. *X. tomentosa* (Roxb.) Rafinesque, Sylv. Tell., 1838, 36 — *Sideroxylon tomentosum* Roxburgh, Pl. Coast of Coromandel 1, 1795, 28, t. 28; Wallich, Cat., 1828, 4153, p.p.; Roxburgh, Fl. Ind., ed. Carey 1, 1832, 602; Graham, Bombay Fl., 1839, 1057; Kurz, For. Fl. Br. Burma 2, 1877, 116; Hooker, Fl. Br. Ind. 3, 1882, 538; Gamble, Fl. Madras 4, 1921, 759 — *Pouteria tomentosa* (Roxb.) Baehni, 1942, 368 — *Planchonella dongnaiensis* Pierre, Not. bot. Sapot., 1890, 36, *nomen*; Dubard, 1912, 54, *nomen*; Pierre in Dubard in Lecomte, Not. Syst. 2, 1911, 87, *descr.* — *Sideroxylon dongnaiense* Pierre, l. c. 1890, 36, *nomen*; Pierre in Lecomte, Fl. Gén. Indo-Chine 3, 7, 1930, *descr.* — *Pouteria* ? *dongnaiensis* (Pierre) Baehni, 1942, 415.

Trees, 10—15 m, often spiny. Branchlets sometimes subflexuose, terete, 1—4 mm in diam., striate, sometimes markedly lenticellate, ferruginously, yellowish or greyish tomentose, ultimately glabrous; spines 0.6—5 cm long. Leaves elliptic, elliptic-oblong, ovate or obovate, 4—14 by 2—6 cm, apex obtuse or short obtusely or acutely acuminate, cuneate at base, decurrent; margins undulate; chartaceous or coriaceous, juvenile leaves ferruginously or yellowish tomentose on either side, glabrescent, sometimes tomentose in the smallest leaves only, nitidulous above, dull below; midrib prominulous, flattened or impressed above and sometimes minutely crested, prominent below, secondary nerves 8—16, ascending at an angle of 50°—80°, straight, forked at their tips and irregularly, sometimes indistinctly, archingly joined, impressed or prominulous above, prominent below, tertiary nerves reticulate, sometimes subparallel to the secondary ones, often one nerve more distinctly

so, flat or impressed above, prominulous below, sometimes inconspicuous at either side; petioles 3—20 mm long, grooved above, sometimes flat or with 2 narrow linear ribs in the groove, rounded below, ferruginously, yellowish or greyish tomentose, glabrescent. *Flowers* fragrant, in clusters; pedicels 4—7 mm, ferruginously, yellowish or greyish tomentose. *Sepals* triangular or ovate, 4—6 by 2—3.5 mm long, apex acute or subacute, ferruginously yellowish or greyish tomentose without, sericeous within, inner sepals smaller than outer ones and with a membranous margin. *Corolla* white or dull white, 4—8 mm long, lobes lanceolate-oblong or ovate, 3.5—4.5 by 1.5—2.5 mm. *Stamens* 3—5 mm long, filaments subulate, 1—1.5 mm long, anthers sagittate, 3—4 mm long, apiculate, dehiscing laterally. *Staminodes* lanceolate, long aristate, 3—3.5 mm long. *Ovary* barrel-shaped to conoid, 1—2 by 1.5—2 mm, 5-lobed, densely yellowish tomentose; style filiform, 6—15 mm long, angular. *Fruits* ovoid to fusiform, 2—3 by 1—1.8 cm, 1—5-seeded, acute or obtuse, sometimes crowned by the 1—10 mm long, persistent style, whitish, black or brownish, yellowish or ferruginously tomentose, glabrescent, pericarp hard, woody; seeds fusiform, 1.6—2 by 0.6—1.1 by c. 0.5 cm, obtuse at apex, acute at base, yellow or brown, nitidous, scar nearly as long to half as long as the seed, linear or small, circular and basal, 3—4 mm wide, whitish, albumen copious, cotyledons foliaceous, radicle stout, 2—3 mm, obtuse.

Lectotype specimen: *Haines 4849a* in K.

Vern. names: kanta bohul (Uriya); palei (or pala) (Tamil); hoodigalla (Bagada); holay (Bagada); holly (Bagada); mul makil (Tamil); thit-cho (Burma); cay-gang, cây chèo (Annam); phle-gang (Moi). Except for the three last-named the names are extracted from literature.

Use: The wood is said to be useful as it is hard, heavy and fibrous. The fruit is edible and is often conserved.

Distr.: Ceylon, India and Burma to Indochina.

CEYLON. without loc.: *Thwaites s.n.* (BM) fl. & fr.

INDIA. Gundattu Shola, Pulneys: *Bourne 962* (K), fr. June; Briar Shola: *Bourne 6134* (K), fr. May; Krurda, Puri Dut, Barum hillforest: *Haines 4849a* (K), fr. Dec.; Cheetoo, on the oogalee Nuddi: *Ritchie 1104* (K), tree 6 m, fl. white, fragrant, Nov.; Vizagapatam: *Lushington s.n.* (K), fr.; ibidem, Aralagadam Ghats: *Lushington s.n.* (K), fl. May; Nilgiris: *Beddome 4854* (SING), fl.; ibidem: *Beddome 4855* (SING), fl.; ibidem: *Thompson s.n.* (L), fl.; *Perrottet 29* (G), fl.; Kondon Rai, Bombay: *Young s.n.* (L), fl.; Mangalore: *Wight 1747* (L), fl.; Santaveri Bababood, c. 1200 m: *Meebold 6994* (SING), fr. Oct.; Malabar: *Storks s.n.* (S), fl.

BURMA. Prome and Pegu districts, (f. Kurz., 1877).

INDOCHINA. Annam, Bien-Hoa, near Bao Chiang: *Pierre 3274* (F, L, P), fl. & fr. Oct.; Gia-Lau-Me and Tin-Man (f. Baehni, 1942).

Remarks: As Roxburgh did not indicate a type specimen, *Haines 4849a* was chosen as the one most closely resembling the description and picture given by him. It must be pointed out that, although Roxburgh describes the throat of the corolla as being "downy" this is not shown in his picture. Moreover, the margins of the staminodes are drawn with an irregular outline, in fact the latter is fimbriate, as far as is observed in the flowers examined.

This variable species might be subdivided into two varieties, one with a flattened or impressed upper side of the midrib, secondary nerves and

veins and with a fusiform fruit with wrinkled, fleshy pericarp when dry, while the second variety has prominulous midribs above, secondary nerves and veins and an ovoid fruit with small, fibrous pericarp, the latter variety being conspecific with the type variety. As there are only a few specimens of each available these varieties are not described here as it is doubted whether the above-mentioned details are constant and of taxonomic value since e. g. *Meebold 6993* and *Bourne 6134* have fruits of the first-named form but leaves of the second. Characteristic examples of the second variety are *Bourne 962*, *Ritchie 1104* (however, with fruits with slightly wrinkled pericarp) and *Haines 4849a*. A thoroughly good specimen of the first-named variety is only *Lushington s.n.*

12. X. cambodiana (Pierre) van Royen, nov. comb. — *Planchonella cambodiana* Pierre, Not. bot. Sapot., 1890, 36, *nomen*; Dubard, 1912, 54, *nomen*; Pierre in Dubard in Lecomte, Not. Syst. 2, 1911, 85, *descr.* — *Sideroxylon cambodianum* Pierre, l. c. 1890, 36, *nomen*; Lecomte, Fl. Gén. Indo-Chine 3, 7, 1930, 894, *descr.* — *Pouteria cambodiana* (Pierre) Baehni, 1942, 370.

Shrubs or trees, (3—)8—10 m, sometimes spiny. Branchlets terete, 2—4 mm in diam., lenticellate, densely whitish and ferruginously tomentose, glabrescent; spines 1—2 cm, acute. *Leaves* rhomboid-obovate or elliptic, sometimes lanceolate, (2—)3.5—7.5 by 2.5—4.5 cm, apex obtuse, entire or retuse, sometimes short obtusely acuminate, tapering towards the base; subcoriaceous or chartaceous, sparsely tomentose above, densely tomentose below, glabrescent on either side; midrib prominulous above, prominent below, secondary nerves 5—11, ascending at an angle of 55°—70°, but c. 45° in the basal part, slightly curved, forked at their tips, sometimes indistinct archingly joined, but mostly diminishing until inconspicuous, prominulous or impressed above, prominent below, tertiary nervation laxly reticulate, inconspicuous or invisible at either side; petioles 2—5 mm long, slightly flat above, densely whitish or yellowish tomentose. *Flowers* in few-flowered clusters; pedicels terete or angular, 3—7 mm long, whitish or ferruginous appressedly tomentose. *Sepals* 4 or 5, ovate or oblong, 2.5—4 by 1—2 mm, apex obtuse or obtusely acuminate, whitish appressedly pubescent without, ferruginously sericeous within, sometimes carinate. *Corolla* 4—6 mm long, lobes oblong-lanceolate or ovate, 3—4 by c. 1.5 mm, apex obtuse or acute. *Stamens* 3.5—4.5 mm long, filaments subulate, 2—2.5 mm long, anthers sagittate or ovate, 2—2.5 mm long, apex acute, dehiscing extrorsely. *Staminodes* lanceolate or linear, 2—3 by c. 0.5 mm, with a filiform acumen. *Ovary* globose-ovoid, 2.5—3 mm in diam., 4- or 5-celled, densely whitish tomentose; style subulate, 5-ribbed, 4—5 mm long. *Fruits* ovoid, 2—2.5 by 1—1.5 cm, apex obtuse or acute, 1—(3)-seeded, densely yellowish tomentose, pericarp woody; seeds ovoid-ellipsoid, c. 1.5 by 0.8 by 1.1 cm, laterally compressed, acute or obtuse at either end, brown, nitidous, scar as long as seed, 4—5 mm wide, whitish, albumen copious, cotyledons foliaceous, radicle conoid, 1—2 mm, acute.

Type specimen: *Pierre 921* in P.

Distr.: Indochina.

Var. *cambodiana* — Fig. 8.

Leaves rhomboid-obovate or elliptic, apex rounded to short obtusely acuminate.

Type specimen: *Pierre 921* in P.

Vern. names: sra ngam, cây gang tu hu (Khmer); dan ca diêu, ca diêu (Moi); tan nom (Siam).

Use: A decoction of roots, leaves and wood is given to women and

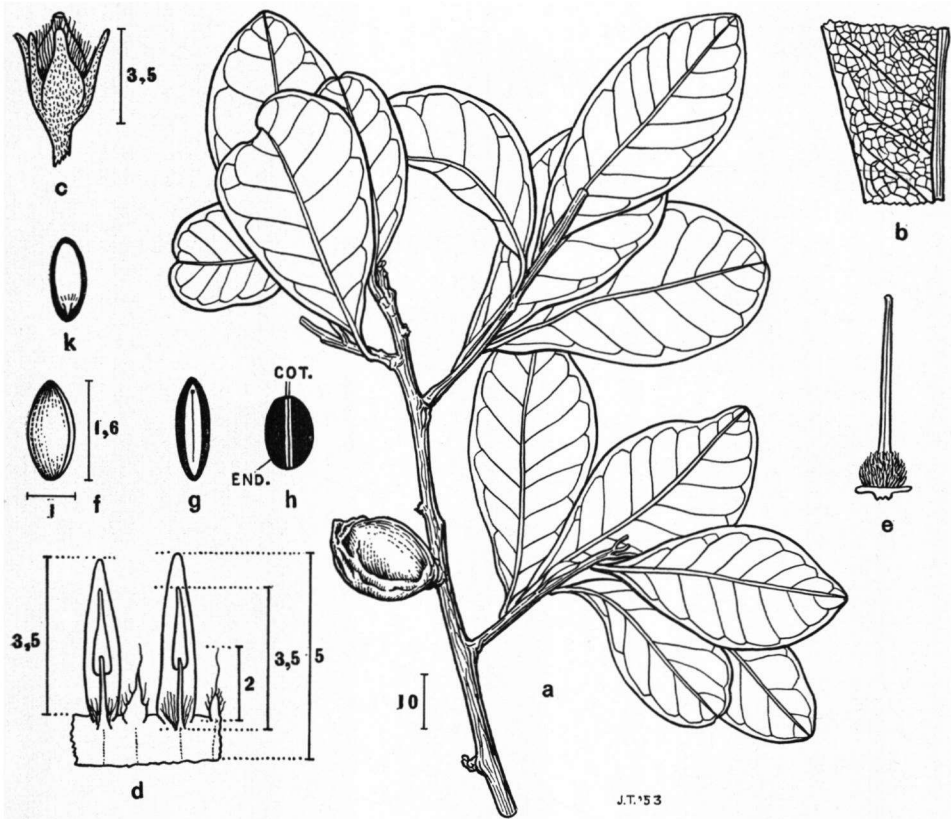


Fig. 8. *X. cambodiana*, var. *cambodiana*, a. habit, b. part of leaf, c. juvenile fruit, d. corolla, inside, e. gynaecium, f. seed, lateral view, g. seed, h. transverse section of embryo, k. transverse section of embryo. (from *Pierre 921*).

cattle to stimulate the flow of milk. The hard wood is used for timber, the fruit is edible.

Distr.: Indochina, Siam.

INDOCHINA. Cambodia, prov. Pên Lov: *Pierre 921* (L, P) — Annam, near Nhatrang and prov. Phanrang (f. Lecomte, 1930).

SIAM. Lampang, 240 m, in open deciduous jungle: *Winit 848* (K), evergreen, milky, sometimes spiny shrub, c. 3 m, fl. April.

Var. *thorelii* (Lec.) van Royen, nov. stat. — *Sideroxylon cambodianum* Pierre, var. *thorelii* Lecomte, Fl. Gén. Indo-Chine 3, 7, 1930, 894.

Leaves lanceolate, markedly attenuate at apex.

Type specimen: *Thorel s.n.* in P.

Distr.: Indochina.

INDOCHINA. Laos, between Ubon and Kemmaret: *Thorel s.n.* (P), fl. Oct.

Remarks: This variety hardly seems to be a good one, since the lanceolate, acuminate leaves, according to Lecomte, form the single difference between the two varieties. The rather poor material does not allow a decision and more new collections have to be studied to solve this minor problem.

13. *X. assamica* (Clarke) van Royen, nov. comb. — *Sideroxylon assamicum* Clarke in Hooker, Fl. Br. India 3, 1882, 537; Kanjilal & Das, Fl. Assam 3, 1939, 192 — *Planchonella assamica* (Clarke) Pierre, Not. bot. Sapot., 1890, 36 — *Sideroxylon tomentosum* Wallich, Cat., 1828, 4153, p.p. — *Pouteria assamica* (Clarke) Baehni, 1942, 364 — *Planchonella assamica* (Clarke) Fletcher, Kew Bull. 1937, 1938, 327, note.

Trees. Branchlets terete or angular, 2–5 mm in diam., yellowish or ferruginously villous, glabrescent. *Leaves* ovate, elliptic or broadly lanceolate, 6–16.5 by 2–7 cm, apex acute or acutely acuminate, rarely obtusely acuminate (acumen 3–15 mm), base broadly cuneate or rhomboid, abruptly narrowed into and shortly decurrent; membranous or chartaceous, nitidous and glabrous above, except sometimes for the villous midrib and nerves, brownish villous below, glabrescent except sometimes along midrib and secondary nerves; midrib prominulous and minutely crested above, prominent below, secondary nerves 9–15, ascending at an angle of 60°–85°, curved, sometimes at tip only, forked at their tips and irregular archingly joined, prominulous above, prominent below, tertiary nerves laxly reticulate, prominulous above, prominent or prominulous below; petioles 5–15 mm long, canaliculate to flat above, yellowish or ferruginously tomentose. *Flowers* dull white, in few-flowered clusters, pendulous; pedicels angular, 4–7 mm long, yellowish or ferruginously tomentose. *Sepals* oblong-lanceolate, 4–5 by c. 2 mm, apex acute, densely yellowish or brownish tomentose or villous without, sericeous within, inner sepals with membranous margins, subcarinate (according to Clarke acute). *Corolla* 4–8 mm long, lobes lanceolate, 3–4 by c. 1.5 mm, obtuse or truncate at apex. *Stamens* 2.5–4.5 mm long, filaments subulate, 1–1.5 mm long, anthers sagittate, 2–2.5 mm long, apex mucronate, dehiscing extrorsely, base of thecae obtuse. *Staminodes* lanceolate, 2.5–3.5 mm long, apex long aristate, subcarinate at dorsal side. *Ovary* ovoid-globose, c. 2 mm in diam. and high, 5-lobed, yellowish pilose; style subulate, 8–10 mm long, angular, glabrous. *Fruits* ellipsoid or ovoid, 2–3 by 0.8–1.5 cm, 1- or 2-seeded, attenuate at base, crowned by the up to 7 mm long remnant of the style, yellowish or ferruginously villous, glabrescent, blackish or brownish when dry, pericarp fleshy; seeds ellipsoid, 10–12 by 3–4 by 2–3 cm, acute at either end, black, nitidous, scar as long as seed, embryo unknown.

Lectotype specimen: *Masters s.n.* in K.

Vern. name: dieng-soh-mānong-ksui (Khasi).

Distr.: Assam.

ASSAM. without loc.: *Masters s.n.* (K), fr.; ibidem: *Hooker (?) 628* (K), fr.; ibidem, *Jenkins s.n.* (L), fl.

Remarks: As Clarke did not indicate a type specimen it is proposed to select *Masters s.n.* as a lectotype specimen. This specimen bears fruit only and therefore *Jenkins s.n.* is proposed as a 'typus florum'.

14. *X. embeliifolia* (Merrill) van Royen, nov. comb. — *Sideroxylon embeliaefolium* Merrill, Lingnan Sc. Journ. 14, 1935, 45, f. 14 — Fig. 9.

Shrubs or trees, 2.5—15 m, sometimes spiny. Branchlets terete or angular. 1—3 mm in diam., blackish or brownish, striate, glabrous; spines 1—1.5 cm, black, acute. *Leaves* scattered or sometimes borne on brachyblasts, spatulate, obovate-oblong, obovate or elliptic, 2—9 by 0.7—3 cm, apex retuse, obtuse, acute or obtusely or acutely acuminate, base tapering, decurrent; margins involute, undulate; coriaceous, glabrous and nitidous or nitidulous on either side; midrib impressed above, prominent below, secondary nerves 7—12, ascending at an angle of 45°—65°, straight, irregularly joined and sometimes forming a nearly straight intramarginal nerve, impressed above, prominent below, tertiary nerves reticulate, subparallel or parallel to the secondary nerves, impressed above, sometimes inconspicuous, below as much prominent as the secondary nerves; petioles 2—6 mm long, canaliculate above, rounded below, glabrous. *Flowers* mostly solitary, sometimes in few-flowered clusters; pedicels terete, 3—5 mm long, yellowish to whitish sericeous. *Sepals* ovate-lanceolate, 5—5.5 by 2—2.5 mm, apex subacute, yellowish or whitish sericeous on either side. *Corolla* white, 10—14 mm long, lobes linear, 7—10.5 by 2—3 mm, apex obtuse. *Stamens* 6—8.5 mm long, filaments subulate, 4—5 mm long, anthers sagittate, 3—4 mm long, connective prolonged, with two acute teeth at the top, dehiscing extrorsely. *Staminodes* ovate, 4—7.5 mm long, apex long aristate, densely ciliate along margin at base. *Ovary* ovoid, c. 1.5 by 2.5 mm, 5-lobed, densely ferruginously tomentose; style subulate, 11—15 mm long, 5-ribbed, with 5 stigmas. *Fruits* globoid or obliquely obovoid, 1—1.5 by 1—1.5 cm, often provided with a short remnant of the style, 1- or 2-seeded, black when dry, glabrous or slightly pubescent at base, pericarp fleshy; seeds ellipsoid, laterally compressed, c. 12 by 7 by 5 mm, brown, nitidous, subrostrate at apical part of scar, scar fairly broad, nearly as long as seed, 2—5 mm wide, whitish, albumen copious, cotyledons foliaceous, radicle conoid, 1—2 mm, obtuse.

Type specimen: *Lau 567* in NY.

Vern. name: ko to (Lai).

Distr.: Hainan.

HAINAN. Chiang-kiang distr., Tsat Cha Ling, moist gentle slope, loam: *Lau 1945* (BM), tree 5 m, fr. June; Tan distr., I Kap Shan, dry gentle slope, sandy soil, thicket: *Lau 1184* (BM), tree 6 m, fl. Febr.; ibidem: *Lau 1172* (BM), tree 5 m, fl. white, Febr.; Wenchang distr., Tung Koo Shan and vicinity, near Shan Hoi village, dry gentle slope, sandy soil, thicket: *Fung 20357* (BM, SING), tree 5 m, fr. Aug.; Ngai distr., Naam Shan Leng, dry gentle slope: *Lau 269* (K), tree c. 2.5 m, fr. July; ibidem, Ko Leng, on moist loamy, gentle slope in thicket: *Lau 567* (K), tree 15 m, fl. & fr. Oct.; Yaichow, c. 350 m, in forest: *Chun & Tso 44618* (K), tree 8 m, fl. Dec.; Kan-en distr., Chim Fung Ling near Sam Mo Watt village, dry gentle slope, forest,

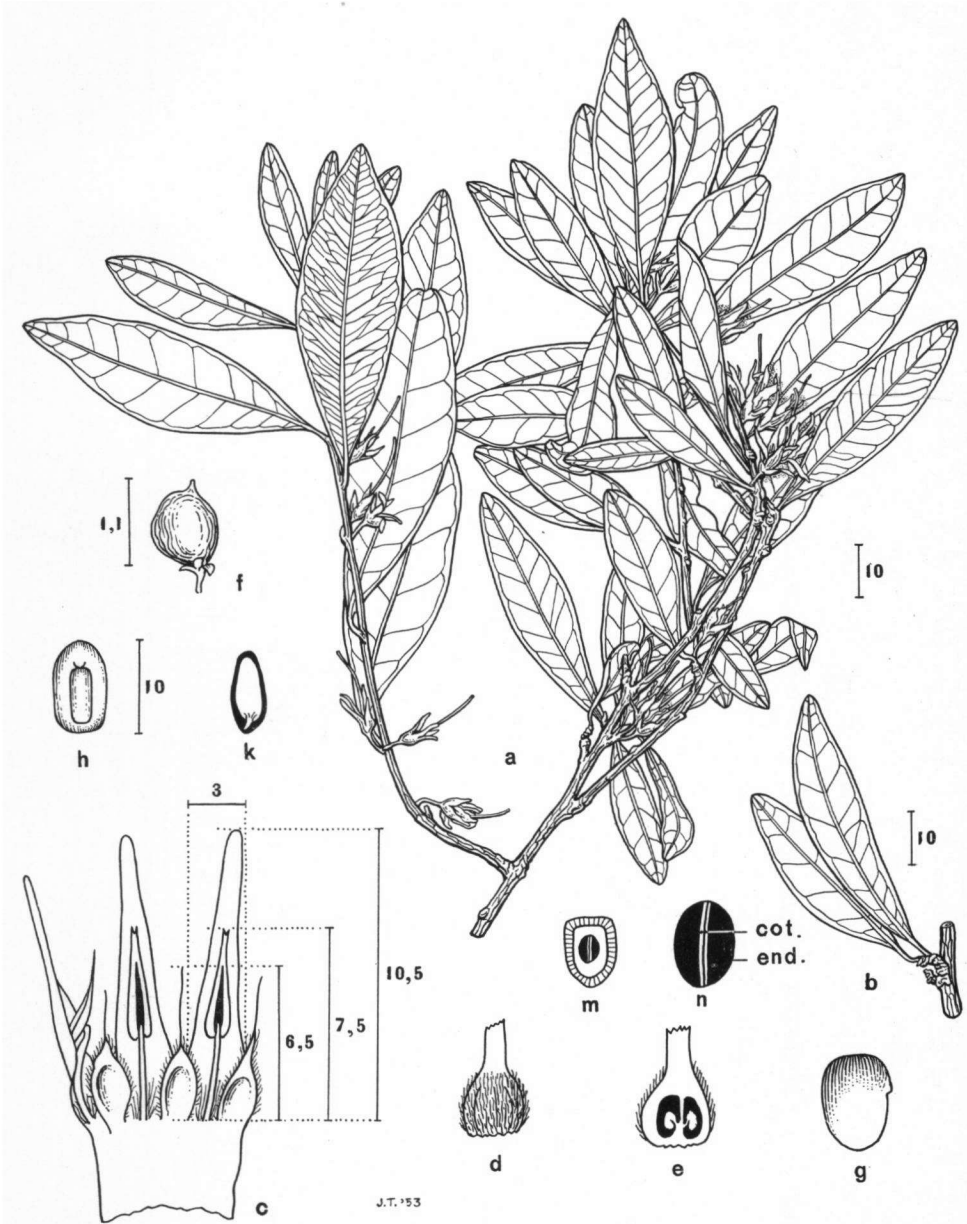


Fig. 9. *X. embeliifolia*, a. habit, b. brachyblast with leaves, c. corolla, inside, d. ovary, e. longitudinal section of ovary, f. fruit, g. seed, h. seed, k. longitudinal section of embryo, m. transverse section of seed, n. transverse section of embryo. (from *Law 3092*).

fairly common: *Lau 3507* (S), tree 4 m, fl. March, juv. fr.; without loc., on rocks at top of mountain: *Liang 66089* (S), shrub 2 m, fl. white; ibidem, in shaded thicket: *Liang 63012* (S), tree 4–6 m, fr. green, Sept.

Remarks: This species differs in a few details from the other species of the genus, *viz.* in the reticulate tertiary nervation subparallel or parallel to the secondary nerves, the rather broad scar of the seed, the relatively large flowers and the 2-tipped connective of the anther. Though the broad scars resemble those in the genus *Mastichodendron* where it is roundish and basal I do not hesitate to insert this species in *Xantolis* on account of the hairs at the base of the filaments and the aristate staminodes with ciliate margins.

Collectors' numbers

The numbers between brackets indicate the number of the species.

Balansa 4337 (5) — Beddome 4854 (10), 4855 (10) — Bon 2899 (2), 4266 (5), 5220 (5) — Bourne 6134 (11) — Caday 38268 (5) — Chun & Tso 44270 (2), 44618 (14) — Clemens 18198 (8) — J. & M. S. Clemens 3317 (9) — Collett 740 (10) — Conklin PNH 19335 (8) — Cuming 1147 (8) — Forrest 17886 (1), 18555 (1) — Fung 20357 (14) — Haines 4849a (11) — Hooker 4 (3), 628 (13) — Jenkins s.n. (13) — Kerr 5555 (10), 5809 (10), 6392 (10), 9602 (10), 10124 (7) — Lace 5987 (10), 6241 (10) — Lau 269 (14), 567 (14), 1172 (14), 1184 (14), 1945 (14), 3507 (14) — Liang 63012 (14), 66089 (14) — Lushington s.n. (11) — Masters s.n. (13) — MacClure 8488 (2), 8559 (2) — Meebold 6994 (11) — Pavie s.n. (2) — Perrottet 29 (11) — Pételot s.n. (5) — Phra Vanpruk 469 (10) — Pierre 921 (12), 3274 (11), 3276 (9) — Poilane 9718 (6), 9721 (6) — Ramos 1925 (8) — Ritchie 1104 (11) — Stocks s.n. (11) — Thompson s.n. (11) — Thorel s.n. (3, 12) — Wang 73529 (4), 73977 (4), 74441 (4), 75394 (4), 75088 (4), 77042 (4), 77109 (4), 77205 (4) — Wight 1747 (11) — Winit 848 (12).

Index

The numbers are those of the species in the text; those in *italics* are synonyms and names in **bold** figures are new combinations.

Mastichodendron <i>racemosum</i> (Lec.)		<i>siamensis</i> Fletcher	7
H. J. Lam	5	<i>stenosepala</i> (Hu) Hu	4
Planchonella <i>assamica</i> (Clarke)		<i>tomentosa</i> (Roxb.) Pierre	11
Pierre	13	<i>Pouteria assamica</i> (Clarke) Baehni	13
<i>assamica</i> (Clarke) Fletcher	13	<i>boniana</i> (Dub.) Baehni	2
<i>boniana</i> Dubard	2	† <i>burmanica</i> (Coll. & Hemsl.)	
<i>burmanica</i> (Coll. & Hemsl.)		Baehni	10
H. J. Lam	10	<i>cambodiana</i> (Pierre) Baehni ...	12
<i>cambodiana</i> Pierre	12	† <i>dongnaiensis</i> (Pierre) Baehni	11
<i>dongnaiensis</i> (Pierre) Pierre ...	11	<i>eluvivola</i> Baehni	2
<i>hookeri</i> (Clarke) Pierre	3	<i>hookeri</i> (Clarke) Baehni	3
<i>laotiana</i> Dubard	2	† <i>lenticellata</i> (Fletcher) Baehni	10
<i>lenticellata</i> Fletcher	10	<i>maritima</i> (Pierre) Baehni	9
<i>maritima</i> Pierre	9	<i>parvifolia</i> (A. DC) Baehni	8
<i>parvifolia</i> (A. DC) Pierre	8	† <i>pavieana</i> (Pierre) Baehni ...	2
<i>pavieana</i> Pierre	2	† <i>punctata</i> (Fletcher) Baehni...	10
<i>punctata</i> Fletcher	10	† <i>siamensis</i> (Fletcher) Baehni...	7
<i>racemosa</i> Dubard	5	<i>tomentosa</i> (Roxb.) Baehni	11
<i>rostrata</i> (Merr.) H. J. Lam ...	2	<i>Sapota parvifolia</i> A. DC	8

Sideroxylon <i>assamicum</i> Clarke	13	var. <i>paviana</i> (Pierre) van Royen	2
<i>baranense</i> Lec.	6	var. <i>rostrata</i> (Merr.) van Royen	2
<i>bonianum</i> (Dub.) Lec.	2	<i>burmanica</i> (Coll. & Hemsl.) van Royen	10
<i>burmanicum</i> Coll. & Hemsl. ...	10	var. <i>burmanica</i>	10
<i>cambodianum</i> Pierre	12	var. <i>lenticellata</i> (Fletcher) van Royen	10
<i>dongnaiense</i> Pierre	11	<i>cambodiana</i> (Pierre) van Royen	12
<i>eburneum</i> Chevalier	5	var. <i>cambodiana</i>	12
<i>embeliaefolium</i> Merrill	14	var. <i>thorellii</i> (Lec.) van Royen	12
<i>hookeri</i> Clarke	3	<i>embellifolia</i> (Merr.) van Royen	14
var. <i>mekongense</i> Lecomte ...	3	<i>hookeri</i> (Clarke) van Royen ...	3
<i>maritimum</i> Pierre	9	<i>maritima</i> (Pierre) van Royen ...	9
<i>parvifolium</i> (A. DC) F.-Vill. ...	8	<i>parvifolia</i> (A. DC) van Royen ...	8
<i>racemosum</i> Dubard	5	<i>racemosa</i> (Dub.) van Royen ...	5
var. <i>subracemosum</i> Lecomte .	5	<i>shweliensis</i> (W. W. Smith) van Royen	1
<i>rostratum</i> Merrill	2	<i>siamensis</i> (Fletcher) van Royen	7
<i>shweliense</i> W. W. Smith	1	<i>stenosepala</i> (Hu) van Royen ...	4
<i>tomentosum</i> Roxb.	11	<i>tomentosa</i> (Roxb.) Rafinesque... ..	11
<i>tomentosum</i> Wallich	13		
Xantolis <i>assamica</i> (Clarke) van Royen	13		
<i>baranense</i> (Lec.) van Royen ...	6		
<i>boniana</i> (Dub.) van Royen	6		
var. <i>boniana</i>	2		