

THE GENUS STIXIS (CAPPARACEAE). A CENSUS

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INTRODUCTION

For a long time, the genus *Stixis* has been known in the Indian Floras under the name *Roydsia*, until Pierre monographed it in 1887. Several of Pierre's species have in the present paper been reduced, leaving *Stixis* a genus comprising 7 species and 1 subspecies.

The genus, which is very uniform, extends from the eastern Himalayas to Hainan and western Malaysia, its centre being in Indo-China.

The 3 Malaysian species have been treated in the Flora Malesiana I, 5 (1960) 95—99. For a description of the genus and of the Malaysian species I refer to the Flora Malesiana revision; here only their synonymy and distribution are given. In the key all taxa have been included.

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STIXIS

Lour., Fl. Coch. (1790) 295; ed. Willd. (1793) 361; Pierre, Bull. Soc. Linn. Paris 1 (1887) 652; Pax & Hoffm. in E. & P., Pfl. Fam. ed. 2, 17b (1936) 201; Jacobs, Fl. Mal. I, 5 (1960) 95, f. 28, 29 (map). — *Roydsia* Roxb. Pl. Corom. 3 (1819) 87; Benth. & Hook. f., Gen. Pl. 1 (1862) 110; Hook. f. & Th. in Hook. f., Fl. Br. Ind. 1 (1872) 180, (1874) 409. — *Covilhamia* Korth., Ned. Kruidk. Arch. 1 (1848) 307.

Type species: *Stixis suaveolens* (Roxb.) Pierre.

Distribution: Seven species in India (Sikkim, Assam, Chittagong), Burma, N. Siam, S. China (Yunnan), Indo-China, Hainan, and western Malaysia.

KEY TO THE SPECIES

1. Gynophore (as measured from the torus) longer than 6 mm. Ovary glabrous.
 2. Sepals reflexed in anthesis. Style undivided. 1. *S. philippinensis*
 2. Sepals more or less spreading in anthesis, not reflexed. Style none or very short, stigmas 3, distinct.
 2. *S. suaveolens*
1. Gynophore (as measured from the torus) shorter than 5 mm. Sepals reflexed in anthesis.
 3. Adult leaves hairy underneath. Ovary hairy. 3. *S. ovata*
 4. Gynophore glabrous all over. Flowers in axillary racemes, rarely in a terminal panicle, the inflorescence mostly shorter than 12 cm. Bracts 2—3(—4) mm. 3a. *ssp. ovata*
 4. Gynophore glabrous only at the base, otherwise hirsute. Flowers in terminal panicles about 12—35 cm long, or in axillary racemes longer than 12 cm. Bracts (3—)4 mm. 3b. *ssp. fasciculata*
 3. Adult leaves glabrous, occasionally with a few hairs on the nerves.
 5. Gynophore glabrous. Ovary glabrous, style longer than the ovary, or as long.

6. Leaves *c.* $1\frac{1}{2}$ —2 times as long as wide. Inflorescences terminal. Style 1 — $1\frac{1}{2}$ mm. 4. *S. scortechinii*
 6. Leaves *c.* 2—3 times as long as wide. Inflorescences axillary. Style $1\frac{1}{2}$ — $2\frac{1}{2}$ mm. 5. *S. hookeri*
 5. Gynophore hairy. Style or stigmas shorter than the ovary.
 8. Ovary glabrous. Style none or very short, but 3 stigmas distinct. 6. *S. obtusifolia*
 8. Ovary hairy. Style simple. 7. *S. scandens*

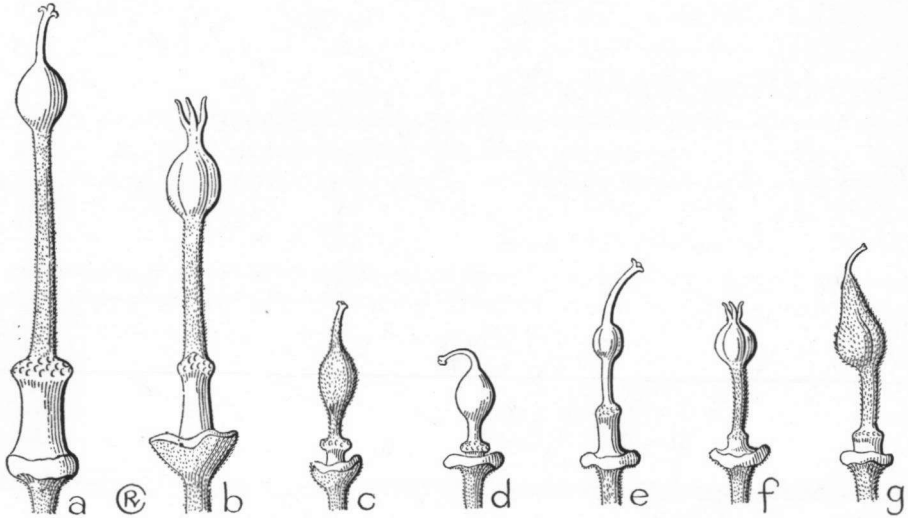


Fig. 1. Androgynophores, gynophores, and pistils in *Stixis*. a. *S. philippinensis* (Turcz.) Merr. (McGregor 454); b. *S. suaveolens* (Roxb.) Pierre (Clarke 37761); c. *S. ovata* (Korth.) Hall. f. ssp. *fasciculata* (King) Jacobs (*Spire* 1188); d. *S. scortechinii* (King) Jacobs (*Lörzing* 8683); e. *S. hookeri* Pierre (*Schmid* 2); f. *S. obtusifolia* (Hook. f. & Th.) Pierre (*Harmand M1*); g. *S. scandens* Lour. (*Poilane* 10381), all x 4.

1. *S. philippinensis* (Turcz.) Merr., Govt. Lab. Publ. (Philip.) n. 35 (1906) 72; Philip. J. Sci. 1 Suppl. (1906) 58; En. Philip. 2 (1923) 213; Erdtman, Pollen Morph. (1952) 97; Jacobs, Fl. Mal. I, 5 (1960) 97. — *Roydsia philippinensis* Turcz., Bull. Soc. Nat. Moscou 27, 2 (1854) 329; F.-Vill., Nov. App. (1880) 11; Vidal, Synopsis Atlas (1883) 13, t. 6 f. B. — [Type specimen: Cuming 541 (BM, G, K, L, W)]. — *Roydsia floribunda* Planch. ex Hook. f., Fl. Br. Ind. 1 (1874) 409. — *S. floribunda* (Planch. ex Hook. f.) Pierre, Bull. Soc. Linn. Paris 1 (1887) 655. — [Type specimen: also Cuming 541 (BM, G, K, L, W)]. — Fig. 1a.

Distribution: Continental Asia: NE. Burma (see Note 1); Malaysia: Philippines (Luzon: Bataan and Laguna Prov.; Basilan; Mindanao: Surigao, Cotabato, and Davao Prov.). See Jacobs *l.c.* f. 29 (map). Seems to be very local.

Notes. 1. *Pottinger s.n.* (CAL), collected in northeastern Burma at Bansparao on 23 March of a year at the end of the 19th century, agrees so well with *S. philippinensis* that it indeed seems to belong to that species. The leaves are *c.* 12—16 by $3\frac{1}{2}$ — $6\frac{1}{2}$ cm, obovate, distinctly acuminate, nerves *c.* 8 pairs, surfaces glabrous but full of pustules on both sides. Racemes axillary, 2—3 cm. Sepals reflexed, 9—10 by $1\frac{1}{2}$ —2 mm; androgynophore $3\frac{1}{2}$ mm, stamens 20, filaments *c.* 10 mm; gynophore (as measured from the torus) $9\frac{1}{2}$ — $10\frac{1}{2}$ mm, puberulous, ovary 2 mm in diameter, glabrous, style $1\frac{1}{2}$ mm, curved,

pale, glabrous, distinctly 3-lobed. No other collection thusfar is known from outside the Philippines.

2. *S. suaveolens* (Roxb.) Pierre, Bull. Soc. Linn. Paris 1 (1887) 654; Gagn., Fl. Gén. I.-C. 1 (1908) 204; Hall, f., Bot. Centralbl. 39 (1921) 35; Merr., Lingn. Sci. J. 6 (1930) 277; Gagn., Fl. Gén. I.-C. Suppl. 1 (1939) 173. — *Roydsia suaveolens* Roxb., Pl. Corom. 3 (1819) 87, t. 289; Fl. Ind., ed. Carey 2 (1832) 643; Walp., Rep. 1 (1842) 202; Voigt, Hort. Suburb. Calc. (1845) 75; Griff., Not. Pl. As. 4 (1854) 578; Ic. Pl. As. (1854) t. 606; Hook. f. & Th. in Hook. f., Fl. Br. Ind. 1 (1872) 180, (1874) 409; Hook. f., Bot. Mag. 112 (1886) t. 6881; Brandis, Ind. Trees (1906) 36, f. 15; Kanj. & Das, Fl. Assam 1 (1934) 79. — [Type: Roxburgh's plate, l.c.].

Stixis flavescens Pierre, Bull. Soc. Linn. Paris 1 (1887) 654; Gagn., Fl. Gén. I.-C. 1 (1908) 205; Suppl. 1 (1939) 173, f. 16, 1-6. — [Type specimen: Harmand hb. Pierre 4022 (not 4002) (P)].

Stixis suaveolens var. *cochinchinensis* Pierre, Bull. Soc. Linn. Paris 1 (1887) 654. — [Type specimen: Pierre 4021 (P)]. — Fig. 1b.

Climber c. 2-15 m. Branchlets rather stout, terete, downy puberulous, soon glabrescent, red-brownish; internodes $\frac{3}{4}$ -5 cm. Petiole c. $1\frac{1}{2}$ -2 $\frac{3}{4}$ cm. Leaves subcoriaceous, c. 2-4 times as long as wide, widest about the middle to sometimes above, ($10\frac{1}{2}$ -) 13-20 (-30) by $3\frac{1}{2}$ -6 $\frac{1}{2}$ (-12 $\frac{1}{2}$) cm; base acute to rounded, top more or less rounded and less or more abruptly acuminate, tip c. $\frac{1}{2}$ -1 $\frac{1}{4}$ cm, wider or narrower triangular, acute to blunt; midrib slightly sunken above, prominent, sometimes pustulate beneath, nerves 7-9 pairs, thinly prominent, sometimes subdepressed above, prominent beneath, reticulation distinct; surfaces glabrous, smooth except for some pustules above along the midrib. Flowers in axillary racemes sometimes sparsely branched or occasionally in a sturdy panicle (3-) 15 (-43) cm long; axes and bracts tomentose to downy-puberulous, bracts linear to ovate-acute, c. 3 mm, caducous; pedicels 2-4 mm. Buds subglobose, c. 4 mm diameter. Flowers sweet-scented, yellowish, once reported initially white. Torus c. $3\frac{1}{2}$ mm wide, dish-shaped. Sepals not reflexed but spreading or appressed to the stamens, elliptic-oblong, narrowed at the base, 4-6 by 2-3 mm, top acute to obtuse, densely tomentose on both sides. *Androgynophore* c. 2 mm, subconical, passing gradually into the gynophore, glabrous. Stamens (27-) 40-43 (-50 or more: Gagnepain; -100: Hooker f.), glabrous, filaments 4-6 (-11) mm, anthers elliptic, c. $\frac{1}{2}$ - $\frac{3}{4}$ mm long, bright yellow. Gynophore (as measured from the torus) 7-10 mm, stretching slightly during and after anthesis, up to 10 mm, fulvously hairy, ovary ellipsoid, $1\frac{3}{4}$ -2 $\frac{1}{2}$ by $1\frac{1}{2}$ mm, glabrous, stigma none, styles 3, $\frac{3}{4}$ -1 mm. Fruit on a stipe 8 mm long as measured from the torus, orange, ellipsoid, c. 4-5 $\frac{1}{2}$ by 3-4 cm, sparsely warted; endocarp thin but woody, splitting into 3 valves (Hooker f.).

Distribution: Asia: India (Sikkim; very common in Assam; Manipur, Chittagong), Burma (Upper and Lower Burma, a few collections), Siam (one collection from Lampang in the North), S. China (two collections from Yunnan), Hainan (very common), Indo-China (all countries, several collections). Of all the species, this one is by far the commonest.

Ecology: Light forest, often along rivers, thickets, secondary forest, on loamy or rocky soil, once reported from the sea shore, to 1500 m altitude.

Uses: The fruit is reported to be eaten in Assam and in Hainan. The leaves may be used as tea.

Notes: 1. Occasionally there are plants with the pistil composed of 4 or 5 carpels and styles.

2. The specimens *Clemens 3664* and *4113* from Annam, by Merrill reckoned to *S. scandens*, actually belong here.

3. *S. ovata* (Korth.) Hall. *f.*, *Beih. Bot. Centralbl.* 39, ii (1921) 35.

3a. ssp. *ovata* — Jacobs, *Fl. Mal.* I, 5 (1960) 97, f. 28, f. 29 (map: 2b). — *Covillhamia ovata* Korth., *Ned. Kruidk. Arch.* 1 (1848) 307; *Miq., Fl. Ind. Bat.* 1, 2 (1858) 180; *Merr., En. Born.* (1921) 381. — [*Type specimen: Korthals s.n.* (L), Borneo].

S. fasciculata var. *borneensis* Heine, *Mitt. Bot. Staatss. München Heft* 6 (1953) 212. — [*Lectotype specimen: Clemens 26000* (A, BM, BO, G, K, L)].

Distribution: Malaysia: Borneo.

3b. ssp. *fasciculata* (King) Jacobs, *stat. nov.* — Jacobs, *Fl. Mal.* I, 5 (1960) 97, f. 29 (map: 2a, name only). — *Roydsia fasciculata* King, *Ann. Bot. Gard. Calc.* 5, 2 (1896) 121, t. 140A. — *Roydsia sp.* King, *J. As. Soc. Beng.* 58 ii (1889) 397; *Brandis, Ind. Trees* (1906) 37. — *S. fasciculata* (King) Gagn., *Fl. Gén. I.-C.* 1 (1908) 201. — [*Type specimen: Gallatly 499* (CAL, type; DD)].

S. mollis Pierre, *Bull. Soc. Linn. Paris* 1 (1887) 656; Gagn., *Fl. Gén. I.-C.* 1 (1908) 201; Pax & Hoffm. in E & P., *Pfl. Fam. ed.* 2, 17b (1936) 202. — [*Type specimen: Pierre 4023* (G, K, L; P, type)].

S. balansae A.D.C., *Bull. Herb. Boiss.* ii 4 (1904) 1072; Gagn., *Fl. Gén. I.-C.* 1 (1908) 203; Pax & Hoffm. *l.c.* — [*Type specimen: Balansa 4711* (A; type; P)].

S. longiracemosa A.D.C., *Bull. Herb. Boiss.* ii 4 (1904) 1071; Gagn., *Fl. Gén. I.-C.* 1 (1908) 202 (“*longeracemosa*”); Hall. *f.*, *Beih. Bot. Centralbl.* 39 (1921) 35; Gagn., *Fl. Gén. I.-C. Suppl.* 1 (1939) 171. — [*Type specimen: Balansa 4073* (A, BO; G, type; K, L, P)].

S. fasciculata var. *tristis* Gagn., *Fl. Gén. I.-C.* 1 (1908) 201, f. 18: 2—9; Pax & Hoffm. *l.c.* (1936) f. 112 B-J. — [*Type specimen: Spire 1188* (P)]. — **Fig. 1c.**

Climbing shrub 1½—3(—15) m. Twigs terete, fairly straight, densely set with small soft stellate, sometimes simple, fulvous hairs, late glabrescent, and more densely lenticellate than in the other species. Petiole terete, 1½—2½(—4½) cm. *Leaves* firmly herbaceous, (1.5—)2.3—2.6(—4.0) times as long as wide, widest at the middle to above, 11—14(—17) by (2½—)3—5½(—9) cm; base mostly acute to obtuse, sometimes cuneate, top rounded and rather abruptly acuminate, tip ¾—1 cm, narrow, acutish to blunt; midrib sunken above, nerves 6—8 pairs, not or hardly depressed above, reticulation distinct; surfaces with light brownish stellate hairs, above soon glabrescent except sometimes on the main nerves, mostly sparsely pustulate, especially along the main nerves. *Inflorescence* mostly a terminal slender sparsely branched leafy panicle (8—)12—35(—40) cm long; sometimes axillary racemes or sparsely branched panicles occur; rather densely flowered, densely hairy as the twigs; bracts c. 3—4 mm, narrow, caducous; pedicels thin, 3—6 mm long. Buds obovoid, 4—5 mm long. Flowers fragrant. *Sepals* reflexed, inserted on a torus nearly 1 mm wide, 4—6 by 1½—2½ mm, lanceolate obovate, hairy on both sides, obscurely 3—5-nerved, top acutish. *Androgynophore* c. 1½ mm long, glabrous. Stamens (20—)26—30(—40), glabrous, filaments (1½—)3½—5½ mm. Gynophore (as measured from the torus) 2—2½ mm at anthesis, later stretching to c. 3½ mm, glabrous at the base, otherwise yellow-brown hirsute; ovary subglobose, 1½—2 mm diameter, also hirsute; style 1—1½ mm, hirsute at the base, otherwise glabrous, stigma obscurely 3-lobed. *Fruit* ellipsoid, c. 4 by 3 cm, pericarp 2—3 mm thick, spongy inside, surface spotted with many corky warts.

Distribution: Asia: Burma (Upper Burma and Tenasserim, few collections), Indo-China (common in Tonkin and Annam; a few collections from Laos and Cochinchina).

Ecology: Forests, in hills below some 800(—1500?) m altitude. Most of the flowers in May, most of the fruits in August, but also fertile in other months.

Uses: The leaves are applied in case of eye-sore. The fruits are recorded as edible.

4. ***S. scortechinii*** (King) Jacobs, Fl. Mal. I, 5 (1960) 99, f. 29, 3 (map). — *Roydsia scortechinii* King, J. As. Soc. Beng. 58 ii (1889) 397; Ann. R. Bot. Gard. Calc. 5 (1896) 120, t. 139; Ridley, Fl. Mal. Pen. I (1922) 121. — [*Type specimen*: King's coll. Kunstler 8464 (BM; CAL, type; G)].

Roydsia parviflora (non Griff.) King, J. As. Soc. Beng. 58 ii (1889) 396. — Fig. 1d.

Distribution: Malaysia: Northern Sumatra (East and West Coast Residency), Malaya (Wellesley, Perak, Selangor, Negri Sembilan, Penang).

Ecology: Dry sunny places, young secondary forest, landslides, jungles, to 1100 m altitude. Fertile throughout the year.

5. ***S. hookeri*** Pierre, Bull. Soc. Linn. Paris I (1887) 656; Gagn., Fl. Gén. I.-C. I (1908) 203 (“*hookerii*”); Pax & Hoffm. in E. & P., Pfl.Fam. ed. 2, 17b (1936) 202. — [*Type specimen*: Poilane 1498 (A, BM, G, K, L; P, type; US)]. — Fig. 1e.

Climber up to 12 m. Twigs fairly straight, the youngest stage unknown, later glabrous. Petiole 1¼—2 cm. *Leaves* subcoriaceous, ovate to obovate, c. 2—3 times as long as wide, 8½—12 by 3½—5½ cm; base rounded to acutish, top rounded to narrowed with a short, blunt, sometimes brown and leathery acumen; midrib flattish above, prominent beneath, nerves 5—7 pairs, subprominent above, reticulation distinct; surfaces glabrous (youngest stage unknown), smooth except for a few pustules near the base of the midrib on the upper side. *Inflorescence* an axillary raceme few to 10 cm long, more or less densely flowered, densely fulvous puberulous, the hairs in bundles or simple; bracts subulate, 2—4 mm, caducous; pedicels 3—10 mm. Buds ellipsoid-ovoid, 5 mm long. Torus c. 1—1½ mm wide. *Sepals* reflexed, 5—6 by 1—1½ mm, somewhat obovate, top obtuse, tomentose on both sides. *Androgynophore* 1—1¼ mm, glabrous; stamens (14—)16—22, glabrous, filaments 3—5½ mm, filiform. Gynophore (as measured from the torus) 2—2¾ mm, glabrous; ovary subglobose, 1 mm in diameter, glabrous, style (1½—)2¼ mm, glabrous, stigma obscurely 3-lobed. *Fruit* ellipsoid, 3½—4½ by 2½—3¼ cm, sometimes the style persistent, pericarp leathery, thin, sometimes with a few wart-like lenticels; pale green at maturity (*ex coll.*), (glossy) brown when dried.

Distribution: Asia: Indo-China (Cambodia, Cochín-China; rare).

Notes: In my opinion, the sheets labelled Dong-nai River, January 1867, and Thu-duc, January 1872, both under number *Pierre 1498*, were probably taken from the same individual plant. The same holds good for a sheet in A, labelled *Pierre 491*, which is considered to be erroneous as that number is the type of *S. obtusifolia*. In his publication, Pierre himself cited Thu-duc as the locality for his number 1498.

6. ***S. obtusifolia*** (Hook. f. & Th.) Pierre, Bull. Soc. Linn. Paris I (1887) 654; Gagn., Fl. Gén. I.-C. I (1908) 201, in the key only; Hall. f., Beih. Bot. Centralbl. 39 ii (1921) 36; Pax & Hoffm. in E. & P., Pfl.Fam. ed. 2, 17b (1936) 202. — *Roydsia obtusifolia* Hook. f. & Th. in Hook. f., Fl. Br. Ind. I (1872) 180, (1874) 409; Kurz, For. Fl. Br. Burma I (1877) 67; Brandis, Ind. Trees (1906) 36. — [*Type specimen*: M'Clelland (K?, n.v.)].

S. harmandiana Pierre, Bull. Soc. Linn. Paris I (1887) 654; Gagn., Fl. Gén. I.-C. I (1908) 205, f. 18: 12; Fl. Gén. I.-C. Suppl. I (1939) 173; Pax & Hoffm. in E. & P., Pfl.Fam. ed. 2, 17b (1936) 202. — [*Type specimen*: *Pierre 491* (K, L; P, type)]. — Fig. 1f.

Climbing shrub. Twigs fairly straight, mostly with 2 very minute protrusions near the petiole insertion, the young parts with an ashen brown or ferruginous pubescence, soon glabrescent. Petiole (1—)1½(—2¼) cm, the lower part incassate. *Leaves* subcoriaceous, *c.* 1.5—1.8(—2.0) times as long as wide, widest below the middle to above, 10—12½(—16) by 5½—7(—8) cm, towards the inflorescence often diminishing in size; base rounded to acute, top rounded with a small thin-leathery brownish acumen which sometimes remains abortive; midrib more or less depressed above, prominent beneath, nerves *c.* 9—11 pairs connected near the margin, often with a lesser nerve between, reticulation distinct; upper surface more or less glossy with many small somewhat translucent pustules all over, especially near the main nerves, lower surface glossy; both surfaces glabrous. *Inflorescence* a panicle, mostly terminal with often the basal branches in the axil of leaves or (in Burma specimens) also a leafless panicle lateral on older twigs, *c.* 12 by 8 to 20 by 10 cm, the branches angular, mostly simple, *c.* 4—6 cm long, bearing flowers over the whole length but more laxly towards the base, densely yellowish tomentose, especially when young; bracts up to 1½ mm, subulate, mostly soon caducous, tomentose, ciliate, with 2 minute protrusions at the base; pedicels *c.* 1 mm. Buds globose, 2½ mm diameter. Torus cup-shaped, *c.* 1 mm wide. *Sepals* sometimes coherent in twos, reflexed, 4 by 1½ mm, top narrowed, obtuse; tomentose on both sides. *Androgynophore* nearly ½ mm long, glabrous, stamens *c.* 26—40 (in Burma specimens *c.* 18—21), filaments 3½—5 mm, incassate below the top (especially to be observed in young flowers). *Gynophore* (as measured from the torus) *c.* 3½ mm, thinly pubescent; ovary subglobose, 1 mm diameter, glabrous; style none or very short (in Burma specimens), stigmas *c.* ⅔ mm, glabrous. *Fruit* on a thick woody stipe *c.* 3—5 mm long, ellipsoid, (3—)4½ by (2—) 3 cm, pericarp rough, seed villose (?; Pierre), endocarp muricate with long soft prickles (Brandis).

Distribution: Asia: Burma (Lower Burma), Siam (Central and eastern), Indo-China (Cambodia, Cochinchina).

Ecology: Flowers in March, fruits in June (Gagnepain).

7. *S. scandens* Lour., Fl. Cochinch. (1790) 295; ed. Willd. (1793) 361; Pierre, Bull. Soc. Linn. Paris 1 (1887) 656; Gagn., Fl. Gén. I.-C. 1 (1908) 206; Pax & Hoffm. in E. & P., Pfl.Fam. ed. 2, 17b (1936) 202. — [*Neotype:* Poilane 10381 (A, type; K, P)].

Roydsia parviflora Griff., Not. Pl. As. 4 (1854) 578; Ic. Pl. As. (1854) t. 607 f. 1; Hook. f. & Th. in Hook. f., Fl. Br. Ind. 1 (1872) 180, name; Hook. f., l.c. (1874) 409, descr.; Kurz, J. As. Soc. Beng. 43 ii (1874) 33; For. Fl. Burma 1 (1877) 67; Brandis, Ind. Trees (1906) 37; Ridl., Fl. Mal. Pen. 1 (1922) 120. — *Stixis parviflora* (Griff.) Pierre, Bull. Soc. Linn. Paris 1 (1887) 655; Gagn. in Lecomte, Fl. Gén. I.-C. 1 (1908) 200, in the key only; Hall. f., Beih. Bot. Centralbl. 39 (1912) 32. — [*Type specimen:* Griffith Burma and Malay Peninsula 175 (CAL, GH; K, type; L, P, W)].

Stixis elongata Pierre, Bull. Soc. Linn. Paris 1 (1887) 655; Gagn. in Lecomte, Fl. Gén. I.-C. 1 (1908) 203; Pax & Hoffm. in E. & P., Pfl.Fam. ed. 2, 17b (1936) 202; Gagn., Fl. Gén. I.-C., Suppl. 1 (1939) 171. — [*Type specimen:* Harmand hb. Pierre 4025 (K.; P, type)]. — Fig. 1g.

Twigs when young densely fulvous puberulous, the hairs simple or stellate, glabrescent; lenticels relatively few. Petiole *c.* 1½ cm. *Leaves* firmly herbaceous to subcoriaceous, (2.1—)2.3—2.9(—3.5) times as long as wide, widest at the middle to mostly above, 11—13 by 4—5½ cm; base acute to rounded, top rounded and acuminate, the tip ¼—½(—1) cm, blunt; midrib depressed above, prominent beneath, nerves 5—8 pairs,

subprominent above, connected near the margin, reticulation distinct; surface above glabrous with a few pustules along the basal part of the midrib, underneath glabrous but a few hairs sometimes on the main nerves, with a few pustules on the main nerves. *Raceme* axillary, 5—7½ (—9) cm, densely fulvous-puberulous, bracts subulate, *c.* 2—3½ mm, early caducous, pedicels *c.* 3—6 mm long. Buds ovoid, 4—5 mm long. Torus *c.* 1 mm wide. *Sepals* reflexed, 5—6 by 1½ mm, obovate, top obtuse, densely tomentose on both sides. *Androgynophore c.* ¼—½ mm, glabrous; stamens 16—24, filaments 2½—5 mm. Gynophore (as measured from the torus) ¾—1½ mm, densely fulvous-hairy, style ½ mm, glabrous, stigmas obscure to distinct. *Fruits* (mature? described on the type of *S. elongata*) on a thick woody stalk 6 mm long, ellipsoid, *c.* 2 by 1¾ cm with persistent style 1½ mm, pericarp rough with many flattish warts.

Distribution: Asia: India (Assam; see Note 3), Burma (Northern and Upper Burma), Indo-China (Laos, Annam).

Notes: 1. The complete combination of characters given in Loureiro's description of *S. scandens* can apply only to this species. Another one which could come into consideration is *S. ovata* ssp. *fasciculata*, but there the smallest number of stamens observed was 20, and the leaves are so distinctly hairy underneath, that it seems unlikely that Loureiro, who noticed the hairs on the ovary, would omit mentioning the pubescence on the leaves from his description.

Merrill, in his Commentary on Loureiro's Flora Cochinchinensis (1935) 174, mentions 2 specimens *Clemens* 3774 and 4113. These clearly belong to *S. suaveolens*, but that species possesses a couple of characters Loureiro's description does not agree with, *viz.* the sepals being appressed and not "petala revoluta", the stamens 40—50 in number and not 16, the ovary glabrous and not "germen pilosum".

In *S. obtusifolia*, Loureiro would have observed 3 free styles, and not "stylus brevis, crassius, stigmata 3, rotunda", a terminal inflorescence and not "racemis simplicibus, longis, axillaribus", and more than 26 stamens.

It is remarkable that Loureiro had a species which is definitely rare and not the common *S. suaveolens* and *obtusifolia*, but this is hardly an argument to stand against a careful interpretation.

2. A sterile specimen collected in Laos by *J. Vidal s.n.* (P) probably belongs here. The leaves are 1¼ cm petiolate, lanceolate, obovate, 16—22 by 3—5¼ cm, narrowed towards the base and gradually acuminate at the top, with 8—12 pairs of strong nerves, glabrous, above with some pustules near the base of the midrib which is subprominent, and with a glaucous tinge underneath.

3. A specimen from the Naga hills in Assam, *Meebold* 7533, most probably belongs here, although the gynophore is as long as 3 mm.

INDEX

Synonyms are in *italics*; accepted names in normal type; new names in **bold type**. The numbers refer to the species.

<i>Covilhamia</i>	<i>Stixis</i>	<i>mollic</i> Pierre 3b
<i>ovata</i> Korth. 3a	<i>balansae</i> A.DC. 3b	<i>obtusifolia</i> (Hook. f. & Th.) Pierre 6
<i>Roydsia</i>	<i>elongata</i> Pierre 7	<i>ovata</i> (Korth.) Hall. f.
<i>fasciculata</i> King 3b	<i>fasciculata</i> (King) Gagn. 3b	ssp. <i>fasciculata</i> (King) Jacobs 3b
<i>floribunda</i> Hook. f. 1	var. <i>borneensis</i> Heine 3a	ssp. <i>ovata</i> 3a
<i>obtusifolia</i> Hook. f. & Th. 6	var. <i>tristis</i> Gagn. 3b	<i>parviflora</i> (Griff.) Pierre 7
<i>parviflora</i> Griff. 7	<i>flavescens</i> Pierre 2	<i>philippinensis</i> (Turcz.) Merr. 1
<i>philippinensis</i> Turcz. 1	<i>floribunda</i> (Hook. f.) Pierre 1	<i>scandens</i> Lour. 7
<i>scortechinii</i> King 4	<i>harmandiana</i> Pierre 6	<i>scortechinii</i> (King) Jacobs 4
<i>suaveolens</i> Roxb. 2	<i>hookeri</i> Pierre 5	<i>suaveolens</i> (Roxb.) Pierre 2
	<i>longiracemosa</i> A.DC. 3b	var. <i>cochinchinensis</i> Pierre 2

INDEX TO EXAMINED SPECIMENS, THE MALAYSIAN ONES INCLUDED

The number a specimen is referred to, corresponds with the number of the taxon in the text. A type specimen is marked (T).

- d'Alleizette* 371: 3b. *Alvins* 789: 4.
Badul Khan 148: 2. *Balansa* 1554: 3b; 4071: 2; 4072: 3b; 4073: 3b (T); 4074: 2; 4711: 3b (T); 4789: 2.
Beddome 255: 2. *BNB For. Dept 3019 Poklin*: 3a. *Bon* 4800: 3b; 5419: 3b; 6179: 3b. *BS 49079 Ramos & Edaño*: 1; 49617 *Ramos & Edaño*: 1. *Buchanan* 27: 7.
Chatterjee 86735: 2. *Poilane hb. Chevalier P* 1353: 3b; *P* 1713: 3b; *Fleury hb. Chevalier* 32308: 3b; 32354: 3b; 32598: 3b. *Chun* 6444: 2. *Clarke* 26605: 2; 27060: 2; 37753: 2; 37761: 2; 43180: 2; 43340: 2. *Clemens* 3774: 2; 4113: 2; 26000: 3a (T); 26647: 3a; 26887: 3a; 30380: 3a. *Cuming* 541: 1 (T). *Curtis* 3284: 4.
Darnton 446: 3a. *Dent* 3807: 2.
Eberhardt 4743: 2.
FB 2263 *R. Meyer*: 1; *FB* 2326 *Borden*: 1; *FB* 6101 *Hutchinson*: 1; *FB* 24199 *Bawan*: 1; *FB* 26266 *Mallonga*: 1; *FB* 26315 *Mabesa*: 1. *Fung* 20151: 2.
Gage 77: 2. *Gallatly* 499: 3b (T). *Galoengi* 517: 4. *Gamble* 1044: 2. *Gaudichaud voy. Bonite* 252: 2; 254: 2; 257: 2; 577: 2. *Griffith E. Bengal* 175A: 2; 427: 2; 578: 2. *Griffith Burma and Malay Peninsula* 175: 7 (T).
Hallier f. B 2579: 3a. *Harmand M1*: 6. *Godefroy exp. Harmand* 123: 6; 124: 6. *Harmand 745bis*: 6; 4025: 7 (T). *Henry* 13819: 2. *Hooker f.* 122: 2; 123: 2. *How* 70420: 2; 70761: 2; 72177: 2; 72594: 2.
Jenkins, comm. Anderson 28: 2; 70: 2; 362: 2.
Kanjilal 148P: 2; 1730: 2; 5775: 2; 6534: 2. *KEP* 53949 *Sow*: 4. *Kerr* 7004: 6. *King's coll.* 295: 2; 371: 2; 430: 2. *King's coll. Kunstler* 1611: 4; 4225: 4; 8464: 4 (T). *Kingdon-Ward* 224, 1512: 3b. *Ko* 52205: 2; 62410: 2. *Korthals s.n.*: 3a (T). *Kurz* 1802: 6.
Lace 2177: 2. *Lakshnakara* 1307: 6. *Lau* 60: 2; 1401: 2; 1664: 2. *Liang* 62065: 2; 64722: 2; 65394: 2. *Lister* 223A: 2. *Lörzing* 4222: 4; 6826: 4; 7588 (with *Jochems*): 4; 7962: 4; 8683: 4; 9696: 4; 10052: 4; 11247: 4; 15218: 4.
Maradjo 349: 4. *Maung Mya* 2944: 2; 2930: 2. *McGregor* 454: 1. *Meebold* 7533: 7. *Mouret* 82: 3b.
Parker 3240: 2. *Parkinson* 2562: 2. *Parrey* 219: 2. *du Pasquier* 3020: 3b. *Pételot* 966: 3b; 1869: 3b; 2204: 2; 4682: 2; 4824: 3b; 7851: 3b. *PNH* 8060 *Quisumbing*: 1. *Talmy hb. Pierre* 354: 6. *Pierre* 491: 6 (T); 1498: 5 (T); 2815: 2; 4021: 2 (T); 4022: 2 (T); 4023: 3b (T); *comm. Anderson hb. Pierre* 4023: 2; *ditto* 4024: 2. *Poilane* 237: 5; 1353: 3b; 7058: 2; 10197: 3b; 10381: 7 (T); 11052: 3b; 11244: 3b; 13075: 3b; 15740: 2; 20297: 2; 20387: 2; 20503: 2; 23596: 5; 24843: 3b; 24737A: 3b; 25830: 2; 25875: 2; 26025: 2; 31429: 2. *Po Khant* 172: 2; *DR.* 195: 2. *Prain's coll.* 840: 2; 930: 2; 977: 2. *Purkayastha* 22: 2. *Put* 2538: 6 (prob.); 2543: 6.
Rachmat Si Boeca 7321: 4; 7349: 4; 7688: 4. *Rao* 5560: 2. *Ridley* 7355: 4; 15634: 4. *Ruse* 417: 2.
Schmid field no. 11: 3b; 12: 5. *Scortechinii s.n.*: 4 (T). *Spire* 913: 2; 1188: 3b (T). *Su Koe* 9093: 7.
Talmy 750: 6. *Thorel* 2039: 6; 2099: 6; 9306: 3b. *Toppin* 3105: 7. *Tsang* 75: 2; 15576: 2; 16824: 2; *c.s.* 17780: 2; 27347: 3b; 30519: 3b.
J. Vidal 1232: 2; 2452: 2; 2622: 2. *Vidal y Soler* 964: 1.
Wallich 4200: 2. *Wang* 32780: 2; 75605: 2; 79158: 2. *Warburg* 13483 (not 13183): 1. *Watt* 7336: 2; 10413: 2; 11825: 2; 12403: 2. *Williams* 2718: 1. *Winit* 1923: 2.
Yates 1786: 4.