

A REVISION OF AGANONERION PIERRE EX SPIRE, PARAMERIA BENTH. & HOOK. f. AND URCEOLA ROXB. (APOCYNACEAE)

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SUMMARY

The closely related genera *Aganonerion*, *Parameria* and *Urceola* are revised. One species of *Aganonerion* is recognised. Three species of *Parameria* are recognised and *Parameriopsis* is included in synonymy. *Ecdysanthera*, *Chavannesia*, *Xylinabaria*, *Hymenolphus*, *Parabarium*, *Pezisicarpus*, *Xylinabariopsis* and *Chunechites* are included in synonymy of *Urceola* in which 16 species are recognised. Within *Urceola* one new species is described.

INTRODUCTION

The genera *Urceola*, *Parameria* and *Aganonerion* constitute a closely related group within subfamily Apocynoideae of the Apocynaceae. The group composes the subtribe Urceolinae under the scheme by Pichon (1948, 1950) although he recognised a number of generic segregates, some of which he then excluded from the subtribe.

The largest of the three genera is *Urceola*, the history and composition of which has been discussed by Middleton (1994c). In that paper the genera *Urceola*, *Ecdysanthera*, *Chavannesia*, *Parabarium*, *Xylinabaria* and *Xylinabariopsis* were synonymised with *Urceola* taking priority. The position of *Chunechites* was left open as no material had been examined. Material of this genus has now been studied and it can be confirmed that there are no grounds for its maintenance separate from *Urceola*. The single species had already been placed in *Xylinabariopsis* (Lý, 1986) and *Ecdysanthera* (Li, 1990), genera which are now synonyms of *Urceola*. It would appear to be most closely related to *Urceola napeensis*. *Pezisicarpus* is also inseparable from *Urceola* and, indeed, the single species *P. montana* is a synonym of *Urceola minutiflora*.

There are a number of problem areas in *Urceola* largely centred around the species found in Malesia and those from Indo-China, corresponding very roughly to the limits of the former *Urceola* and *Parabarium* respectively. Considerably more work has been done on the latter genus through the work of Spire (1905) and Lý (1978) who revised *Parabarium*. Lý insisted that *Parabarium* was separate from its related genera although subsequent authors largely included it in synonymy of *Ecdysanthera* until both genera were included in *Urceola*. His detailed work on morphology and anatomy resulted in the recognition of 16 species, a number of which also had varieties. Unfortunately many of the taxa he recognised have not been maintained here as it was felt that many of the characters used were insufficient to recognise distinct entities rather than normal variation within a species. I have not repeated the detailed

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anatomical study conducted by Lý but the numbers of collections examined (most commonly only one per species) would leave one with serious concern whether observed differences between species were due to taxonomic differences rather than lack of sampling to detect infraspecific variation. Variation in leaf anatomy can be quite enormous in other genera and families and conclusions based on a small sample size can be misleading (see Middleton, 1993). I have not been able to observe some of the differences in hair type observed by Lý.

In Malesia the problems in recognising the species are quite considerable. Only *Urceola torulosa* in fruit is readily discernible and even then is frequently mistaken for a species of *Parameria*. *Urceola javanica*, *U. lucida* and *U. brachysepala* can be difficult to distinguish from each other at the extremes of variation of each species and *U. laevis* and *U. torulosa* are difficult to distinguish in flower.

There are few nomenclatural problems in the group except for some problems of typification. It was intended that a number of new combinations would be published by Middleton (1994c) and in that paper they were indicated as such. However, because of delays in publication two of the new combinations from that paper, *U. minutiflora* and *U. napeensis*, were actually published in *Blumea* a week or so earlier (Middleton, 1994b). Because of the necessity of having names in *Urceola* for the species occurring in China for the Flora of China some combinations were published earlier without any explanation of the generic questions in the group (Middleton, 1994a). It was indicated in this short communication that the list was preliminary and that not all the new combinations published may stand closer scrutiny and indeed this new work has reduced some of those species to synonymy. Care needs to be taken in interpreting a number of type specimens for the species published by Spire (1905) as his own collection numbers sometimes contain different species under the one number. For instance, *Spire 11*, the type number for *Parabarium vernetii*, has three specimens in the Paris herbarium representing *Urceola micrantha*, *U. latifolia* and *Parameria laevigata*. From Spire's description and notes it is clear that the former is the type specimen for *P. vernetii*.

P.T. Li (1990) seems to regard the species published by Pierre (1902) as *nomina nuda* and he publishes some new combinations in *Ecdysanthera*. However, there appears to be no problem with the original descriptions to me and the original Pierre *Ecdysanthera* combinations did not need to be republished.

A glance at the list of synonymy for *Urceola* reveals that there have been a number of infrageneric groupings within *Urceola sensu stricto* and within *Parabarium*. These infrageneric taxa are not maintained. Within *Urceola* as previously defined there were two subgenera which have no basis whatsoever. Indeed the fruit and sepal characters used by Hooker (1882) to establish the subgenera do not hold up even for the species he cited under each. The scheme proposed by Lý (1978) for *Parabarium* has been found to be very unsatisfactory and some species placed in different subgenera and sections have now been synonymised under the same species, particularly *U. tournieri*. Middleton (1994c) noted that there were two recognisable groups although these groups could not be recognised as distinct taxa. This further work supports that conclusion. The two groups correspond more or less to *Urceola / Chavannesia / Xylinabaria / Peziscarpus / Hymenolophus* on the one hand and *Ecdysanthera / Parabarium / Chunechites / Xylinabariopsis* on the other.

Parameria is instantly distinguishable from *Urceola* primarily in the aestivation of the corolla lobes which is to the left in *Parameria* and to the right or valvate in *Urceola*. *Parameria* also generally has larger, often salverform, flowers. It is debatable whether *Parameria* is sufficiently distinct from *Urceola* to be maintained in light of the fact that other genera in the Apocynaceae have species with left and right aestivation (e.g. *Alstonia*, *Tabernaemontana*) but there is no doubt that the species would be quite distinct within *Urceola*, even though *Urceola* itself is quite diverse, and therefore *Parameria* is maintained as a separate genus here.

Aganonerion has corolla lobes overlapping to the right in bud but is distinguishable from *Urceola* in its very much longer corolla tube and salverform flowers which are in small spike-like cymes.

MATERIALS AND METHODS

Herbarium material was studied from the following herbariums: A, AAU, ABD, B, BK, BKF, BM, BO, BR, BRI, C, CANB, CGE, E, G, GH, H, IBSC, K, KEP, KLU, K-W, KYO, L, LAE, NY, M, MEL, MO, NSW, P, PE, S, SING, SYS, TCD, TI, U, UPS, US, W, WRSL, Z (Holmgren et al., 1990). All specimens cited have been seen unless otherwise stated.

The dimensions given in the descriptions are for dried material except for the gynoecium and androecium characters which are for flowers rehydrated with water. Any type specimens associated with taxa described by Tsiang previously cited for LU or SYS now appear to be housed in IBSC and the holotypes are, therefore, cited IBSC. Lectotypification has become somewhat confused in *Urceola*. Lý (1978) designated lectotypes for several species but has not indicated so on the specimens themselves. This presents a problem when there are two or more duplicates in the herbarium making the lectotypification invalid. On these occasions the lectotypification is redone here.

KEY TO THE GENERA

- 1a. Corolla lobes in bud overlapping to the left **2. Parameria**
 b. Corolla lobes in bud overlapping to the right or corolla lobes valvate **2**
 2a. Inflorescence spike-like; corolla salverform, tube \geq 3.5 mm long
 **1. Aganonerion**
 b. Inflorescence paniculate or cymose; corolla urceolate or campanulate, tube < 2.5 mm long **3. Urceola**

SYSTEMATIC TREATMENT

1. AGANONERION

Aganonerion Pierre ex Spire, Contr. Apoc. (1905) 43, non Planch.; Pichon, Mém. Mus. Nat. Hist. Nat. Paris, sér. B, Bot. 1 (1950) 86. — Type species: *Aganonerion polymorphum* Pierre ex Spire.

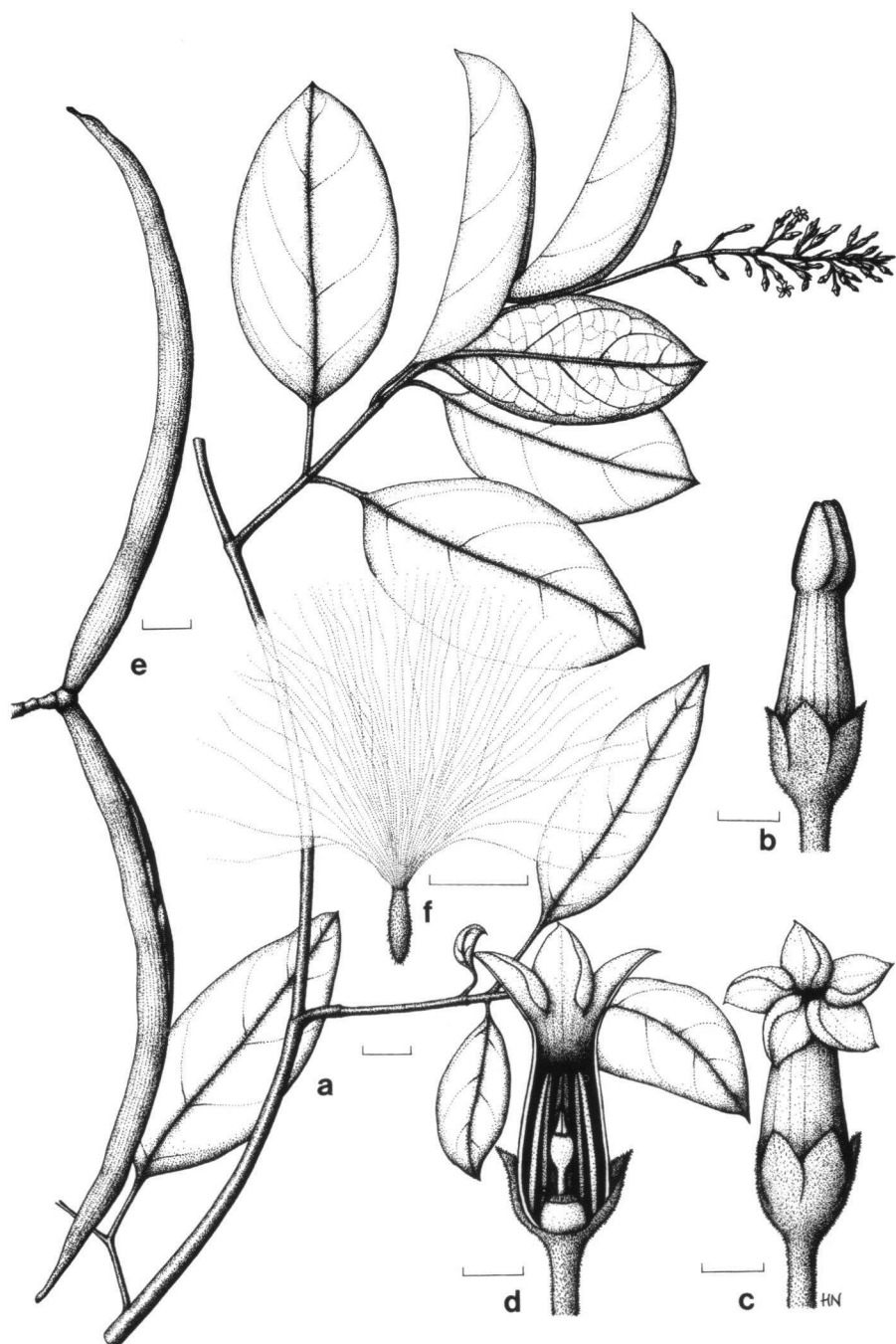


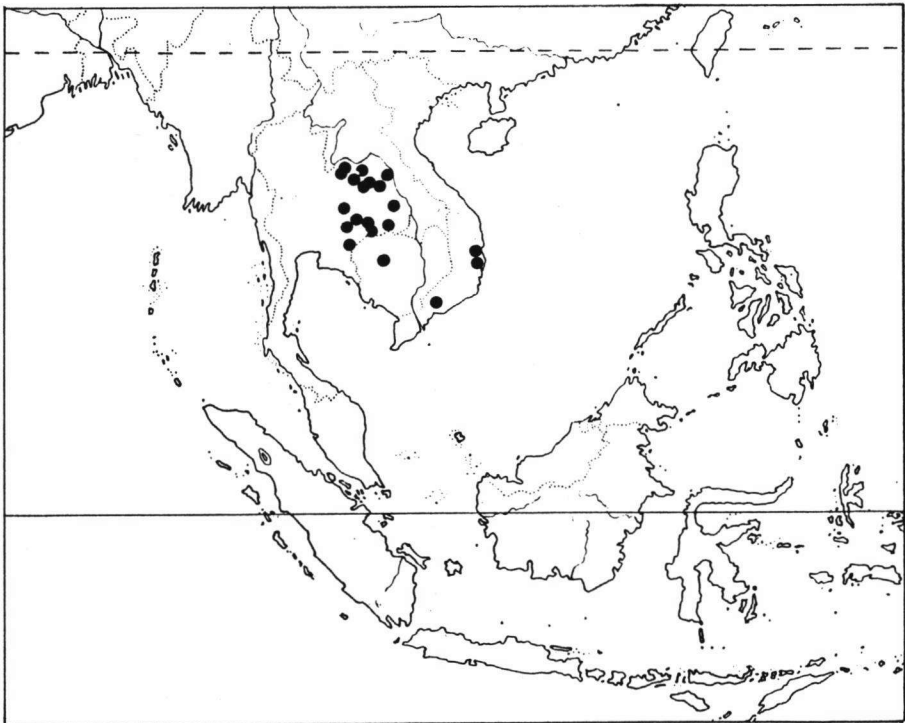
Fig. 1. *Aganonerion polymorphum* Pierre ex Spire. a. Habit; b. flower in bud; c. open flower; d. flower dissection; e. fruit; f. seed (a–d: Larsen *et al.* 31366; e, f: Thorel 1099). Scale bars: a, e, f = 1 cm; b–d = 1 mm.

Climbers; producing latex. Branches lenticellate or not; branchlets puberulent to glabrous. *Leaves*: opposite, those of a pair equal; petiolate, with few glands in axils; papery, entire. *Inflorescence* a terminal congested cyme which appears like a spike. *Flowers* 5-merous, actinomorphic. *Sepals* with few colleters inside. *Corolla*: lobes in bud overlapping to the right, consisting of a wide tube which narrows to an acute or acuminate head; open corolla salverform; lobes with a projection to the right as viewed from the inside. *Stamens* completely included within the corolla tube, attached in a ring to the pistil head; filaments short; anthers narrow triangular, base sagittate, sterile at apex and base. *Disc* annular. *Ovary* of 2 separate carpels united into a common style, superior, ovoid, densely puberulent on top; ovules numerous; style glabrous, very short; pistil head ovoid with a projection on top. *Fruit* of paired follicles; long, narrow and torulose; longitudinally dehiscent. *Seeds* hirsute; ellipsoid, flattened; with a coma pointing towards the end of the fruit.

Distribution — One species in Thailand, Vietnam, Cambodia.

***Aganonerion polymorphum* Pierre ex Spire, Contr. Apoc. (1905) 43. — Fig. 1; Map 1**

Aganonerion polymorphum Pierre ex Spire, Contr. Apoc. (1905) 43; Pitard in Lecomte, Fl. Gén. Indo-Chine 3 (1933) 1226; Kerr, Fl. Siam. Enum. 2 (1939) 470; Lý, Feddes Rep. 97 (1986) 268. — Type: *Pierre 4525* (P lecto, designated here; A, L, P iso).



Map 1. Distribution of *Aganonerion polymorphum* Pierre ex Spire (●).

Branchlets short puberulent, becoming glabrous with age. *Leaves*: petiole 0.6–3.2 cm long; blade papery when dried, ovate to elliptic, apex acuminate, rarely to obtuse, base weakly cordate, rarely to cuneate, 2.1–11.3 × 1–5.4 cm, 1.2–2.7 × as long as wide, 3–7 pairs of lateral nerves, strongly ascending, puberulent in axils of lateral nerves with midrib, sometimes on midrib above. *Inflorescence* spike-like, puberulent, 3–9 cm long; pedicels 1.5–4.2 mm long. *Sepals* ovate to lanceolate, 1.8–3.5 × 0.9–1.7 mm, 1.4–3.2 × as long as wide, sparsely puberulent to glabrous. *Corolla* pink and yellow; bud tubular, acuminate at apex, open corolla salverform; tube 3.5–5.2 mm long; lobes falcate, 1.5–2.5 mm long, 0.4–0.7 × as long as tube; pubescent to glabrous outside, pubescent inside tube, densely so at top, more sparsely lower down. *Stamens* inserted at 1.5 mm from corolla base; filaments 0.5–0.7 mm long; anthers 3.2–4.2 × 0.6–0.7 mm, 5.3–6 × as long as wide. *Disc* annular, 0.3 mm long. *Ovary* 0.9–1.1 long; style + pistil head 2 mm long. *Fruit* long, narrow, weakly torulose, glabrous, 5.5–14.2 cm long, 4–6 mm wide. *Seed* grain 10–10.2 × 1.7–3.2 mm; coma 1.5–3.3 cm long.

Distribution — Thailand, Vietnam, Cambodia.

Habitat — In dry deciduous forest or scrub to 700 m altitude.

Selection of the 40 collections studied:

THAILAND. Buri Ram: near Buri Ram city, *Murata et al. T- 37422* (A, L). Chaiyaphum: Pha Baan Moei, *S. N. 250* (BKF). Khon Kaen: Ubol Ratana District, Wat Phu Phra Bat, *Chantaranothai et al. 1112* (BKF, K, TCD). Loei: Na Noi, foot of Phu Krading, *Charoenphol et al. 4938* (K). Nakhon Phanom: Dawn Tan, *Kerr 21516* (A, AAU, ABD, BM, E, K, L); Mukdanan, Muang, *Koyama et al. T- 30886* (A). Nakhon Ratchasima: Pak Thong Chai, *van Beusekom & Charoenphol 2024* (L). Prachin Buri: Aranya Pratet, *Kerr 19616* (BM, CGE, E, K, L, MO, TCD). Sakon Nakhon: Phu Phan Nat. Park, *Mitsuta et al. T- 50358* (A). Si Sa Ket: near Kantharalak, *Murata et al. T- 37885* (L). Ubon Ratchathani: Baan Muang, *Lakshnakara 911* (BM). Udon Thani: Phu Khieo, *Larsen et al. 31366* (AAU, B, BKF, K, L, TI).

VIETNAM. Dong Nai: ad Bao Chiang, *Poilane 4525* (A, L, P – type). Khánh Hòa: Nhatrang, *Poilane 2691* (A).

CAMBODIA. Siem Réab–Oddâr Méanchey: Kâmping Khleang, *Martin 12* (L).

2. PARAMERIA

Parameria Benth. in Benth. & Hook f., Gen. Pl. 2 (1876) 715; K. Schum. in Engler & Prantl, Nat. Pflanzenfam. 4, 2 (1895) 162; Pichon, Mém. Mus. Nat. Hist. Nat., sér. B, Bot. 1 (1950) 102. — Type species: *Parameria glandulifera* (Wall. ex G. Don) Benth. ex Kurz [= *Parameria laevigata* (Juss.) Moldenke].

Parameriopsis Pichon, Bull. Mus. Nat. Hist. Nat., sér. 2, 20 (1948) 299; Mém. Mus. Nat. Hist. Nat., sér. B, Bot. 1 (1950) 85. — Type species: *Parameriopsis polyneura* (Hook. f.) Pichon [= *Parameria polyneura* Hook. f.].

Climbers; producing latex. Branches lenticellate or not; branchlets puberulent to glabrous. *Leaves*: opposite, those of a pair equal, very rarely in whorls of 3; petiolate, with glands in axils; papery to subcoriaceous, entire. *Inflorescence* of terminal and/or axillary cymes often forming a panicle. *Flowers* 5-merous, actinomorphic. *Sepals* with colleters inside. *Corolla*: lobes in bud overlapping to the right, consisting of a narrow tube and a globose head or whole bud ovoid; open corolla salverform to campanulate; lobes falcate, broad and rounded or oblong and acute to obtuse. *Stamens*

completely included within the corolla tube, attached in a ring to the pistil head; filaments short; anthers narrow triangular, base sagittate, sterile at apex and base. *Disc* 5-crenate to 5 completely separate lobes. *Ovary* of 2 separate carpels united into a common style, superior, ovoid, densely puberulent on top; ovules numerous; style glabrous, very short; pistil head ovoid with a projection on top. *Fruit* of paired follicles; long, narrow and strongly to weakly torulose; longitudinally dehiscent. *Seeds* hirsute; ellipsoid, flattened; with a coma pointing towards the end of the fruit.

Distribution — Three species from southern Burma, China to western Indonesia.

KEY TO THE SPECIES

- 1a. Corolla bud densely pubescent all over; anther apex acute or shortly acuminate; fruit weakly torulose **3. *P. polyneura***
 b. Corolla bud glabrous, pubescent only on tube or pubescent on tube and only very sparsely on head; anther apex long acuminate; fruit strongly and distantly torulose **2**
 2a. Leaves: puberulent only in nerve axil domatia or glabrous; inflorescence axis delicate; fruits glabrous **2. *P. laevigata***
 b. Leaves: puberulent all over beneath especially on nerves and veins; inflorescence axis robust; fruits pubescent **1. *P. densiflora***

1. *Parameria densiflora* Oliv.

Parameria densiflora Oliv., Hook. Ic. Pl. 16 (1886) t. 1520; Boerl., Handl. Fl. Ned. Indië 2 (1899) 399; King & Gamble, J. As. Soc. Beng. 74 (1907) 480; Ridley, Fl. Malay Penins. 2 (1923) 359. — Type: *Curtis 158* (K lecto; K, P, SING, US, W iso).

Branchlets densely brown pubescent. *Leaves*: petiole 4.5–7 mm long; blade subcoriaceous, obovate, apex acuminate, base rounded to acute, 5.5–17.9 × 2.8–7.2 cm, 1.6–3.4 × as long as wide, 5–8 pairs of lateral nerves, curved ascending, tertiary venation lax, puberulent all over beneath, especially on nerves and veins. *Inflorescence* a dense terminal panicle, densely brown puberulent, 2.6–9.8 cm long; pedicels 2.1–4.8 mm long. *Sepals* ovate, apex acuminate to obtuse, 0.8–1.2 × 0.5–0.8 mm, 1.1–1.7 × as long as wide, puberulent. *Corolla* bud drumstick-shaped, open corolla salverform; tube 2.2–2.9 mm long; lobes falcate to the left, apex rounded, 3.5–5.9 mm long, 1.7–3.1 mm wide, 1.7–2.1 × as long as wide, 1.5–2.5 × as long as tube; densely pubescent on tube outside, sparsely pubescent or glabrous on parts of lobes exposed in bud, glabrous inside. *Stamens* inserted at 0.2–0.3 mm from corolla base, which is 0.1–0.2 of tube length; filaments 0.4–0.5 mm long; anthers 0.8–1.5 × 0.2–0.3 mm, 4–5 × as long as wide. *Disc* 5-dentate, 0.2–0.3 mm long. *Ovary* 0.4–0.5 mm long; style + pistil head 0.8–1 mm long. *Fruit* distantly torulose, sparsely puberulent, 20–35 cm long, 4–8 mm wide. *Seed* grain 10–11 × 1.9–2.5 mm; coma 2–2.5 cm long.

Distribution — Malaysia, Indonesia (Sumatra).

Collections studied:

MALAYSIA. Peninsula: Penang, Government Hill, *Curtis 158* (K, P, SING, US, W – type), 1546 (SING), *s.n.* (SING), *s.n.* (K).

INDONESIA. Sumatra: *s.l.*, *van Romburgh s.n.* (BO), *Batten Pool s.n.* (SING).

2. *Parameria laevigata* (Juss.) Moldenke — Fig. 2; Map 2

Parameria laevigata (Juss.) Moldenke, Rev. Sudamer. Bot. 6 (1940) 176; Tsiang & P.T. Li, Fl. Reip. Pop. Sin. 63 (1977) 166; J. Ying & P.T. Li, Fl. Yunnanica 3 (1983) 523; Lý, Feddes Rep. 97 (1986) 271; Gangopadhyay & Chakraborty, J. Econ. Tax. Bot. 16 (1992) 48. — *Aegiphila laevigata* Juss., Ann. Mus. Hist. Nat. Paris 7 (1806) 76. — Type: De Jussieu Herbarium, Cat. No. 5037 (P).

Parsonsia barbata Blume, Bijdr. (1826) 1042. — *Ecdysanthera barbata* (Blume) Miq., Fl. Ind. Bat. 2 (1857) 451. — *Parameria barbata* (Blume) K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. 4, 2 (1895) 162; Koord.-Schum., Syst. Verz. 1 (1912) 179; Merr., Enum. Born. Pl. (1921) 500; Enum. Philipp. Flow. Pl. 3 (1923) 331; Tsiang, Sunyatsenia 2 (1934) 115; Bull. Fan Mem. Inst. Biol. (Bot.) 9 (1939) 19; Kerr, Fl. Siam. Enum. 2 (1939) 464. — Type: *Horsfield s.n.* (L lecto; CGE, K iso).

Echites densiflora Blume, Bijdr. (1826) 1040. — *Chonemorpha densiflora* (Blume) G. Don, Gen. Syst. 4 (1837) 76. — *Ecdysanthera densiflora* (Blume) Miq., Fl. Ind. Bat. 2 (1857) 452; Boerl., Handl. Fl. Ned. Indië 2 (1899) 398. — Type: *Blume s.n.* (U lecto; BO, L, U iso).

Echites glandulifera Wall. ex G. Don, Gen. Syst. 4 (1837) 75. — *Ecdysanthera glandulifera* (Wall. ex G. Don) A.D.C., Prodr. 8 (1844) 443. — *Parameria glandulifera* (Wall. ex G. Don) Benth. ex Kurz, J. As. Soc. Beng. 46 (1877) 255; Kurz, Fl. Burm. 2 (1877) 189; Hook. f., Fl. Brit. India 3 (1882) 660; Spire, Contr. Apoc. (1905) 40; King & Gamble, J. As. Soc. Beng. 74 (1907) 478; Ridley, Fl. Malay Penins. 2 (1923) 358; Parkinson, For. Fl. Andaman Isl. (1923) 207. — Type: *Wallich 1659* (K-W lecto; BM, CGE, E, G, G-DC, K-W, K, M, W iso).

Ecdysanthera griffithii Wight, Ic. Pl. 4 (1848) t. 1307. — Type: *Griffith s.n.* (CGE lecto; BM, CGE, K iso).

Echites torosa Llanos, Fragm. Pl. Filip. (1851) 59, non Jacq. (1760). — Type: *Merrill Sp. Blanc. 140* (US neo; A, BM, BO, K, L, MO, P, W isoneo). There is a specimen collected by Llanos and labelled *Echites torosa* in the Geneva herbarium but it carries the date 1853 and is, therefore, unlikely to be the type collection. *Ecdysanthera torosa* appears in Index Kewensis and is credited to Llanos but this is a mistake.

Ecdysanthera barbata var. *angustior* Miq., Fl. Ind. Bat. 2 (1857) 452. — *Parameria angustior* (Miq.) Boerl., Handl. Fl. Ned. Indië 2 (1899) 399. — Type: *Korthals s.n.* (U holo).

Parameria philippinensis Radlk., Sitzber. Math.-Phys. Kl. K. Ak. Wiss. München 14 (1884) 518. — *Parameria glandulifera* var. *philippinensis* (Radlk.) Stapf, Trans. Linn. Soc. Lond. 4 (1894) 207. — Type: *Cuming 1126* (M lecto; BM, C, CGE, E, G, K, L, MEL, MO, P, UPS, W iso).

Parameria vulneraria Radlk., Sitzber. Math.-Phys. Kl. K. Ak. Wiss. München 14 (1884) 519. — Type: *Rothduscher 1025* (M lecto). Epitype: *Rothduscher 1029* (M). The original material now consists of nothing more than twigs. Radlkofer himself labelled *Rothduscher 1029* as *Parameria vulneraria* and it was also collected in Cebu so can be taken as an epitype of this species.

Parameria glandulifera var. *pierrei* Pitard in Lecomte, Fl. Gén. Indo-Chine 3 (1933) 1201. — *Parameria barbata* var. *pierrei* (Pitard) Kerr, Fl. Siam. Enum. 2 (1939) 464. — [*Parameria pierrei* Baill., Hist. Pl. 10 (1888) 167, nom. nud. — *Ecdysanthera glandulifera* var. *pierrei* Heim in Spire, Contr. Apoc. (1905) 40, nom. illeg. (in synonymy of *Parameria glandulifera*)]. — Type: *Pierre 1458* (K lecto; A, BR, L, K iso). There are a number of different collections under the same number. The type collection is from Kampot in Cambodia.

[*Parameria barbata* var. *puberula* Planch., Produits des Apocynacées (1894) 206, nom. nud.]

[*Parameria barbata* var. *rumphii* Pierre ex Planch., Produits des Apocynacées (1894) 207, nom. nud.]

Parameria glandulifera var. *poilanei* Pitard in Lecomte, Fl. Gén. Indo-Chine 3 (1933) 1203. — Type: Untraced (none of the Poilane collections seen bore this name).

Branches often lenticellate; branchlets glabrous to densely and minutely puberulent. *Leaves*: petiole 1–4 mm long; blade papery when dried, elliptic to obovate, apex acute to caudate, most commonly acuminate, base obtuse to cuneate, 1.5–15 × 0.7–6.3 cm, 1.6–4.1 × as long as wide, 3–6 pairs of lateral nerves, curved ascending,

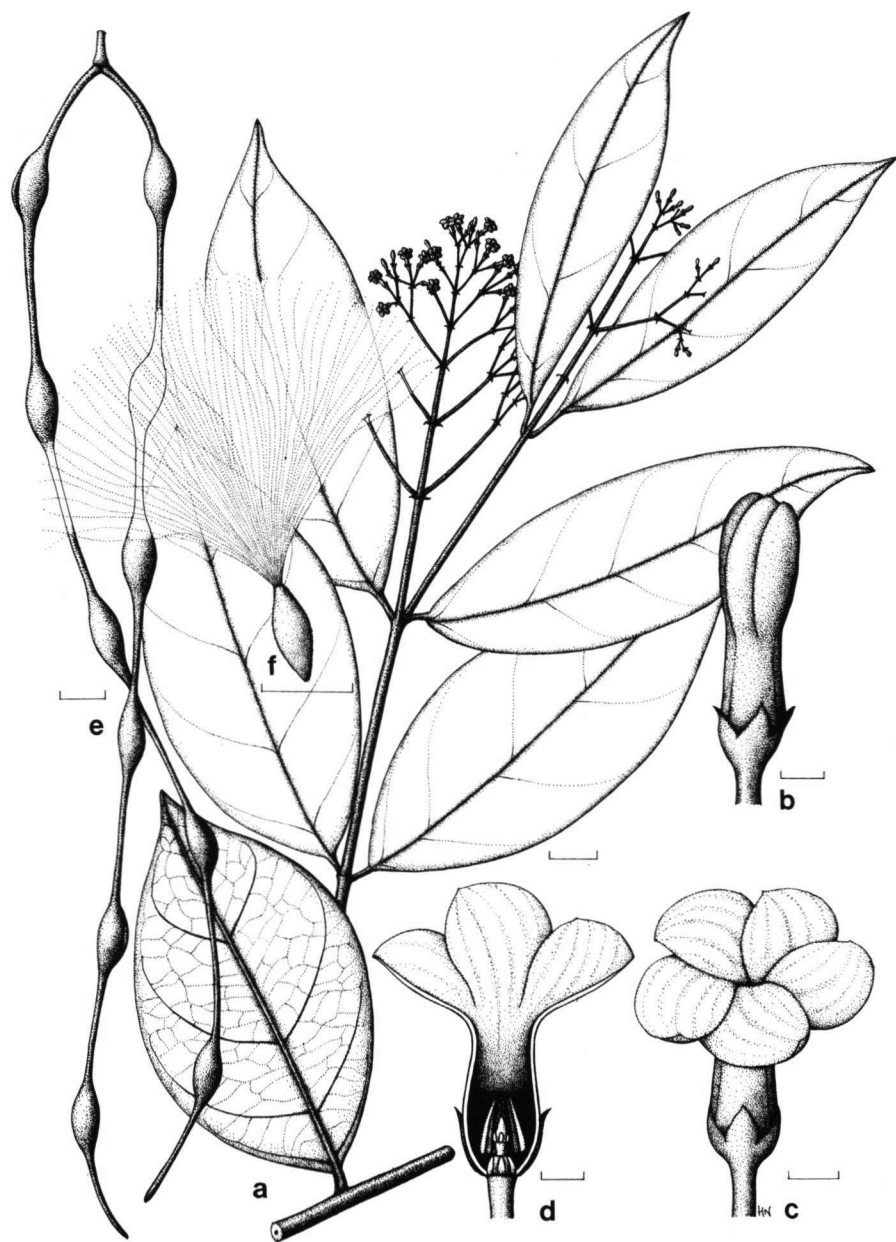
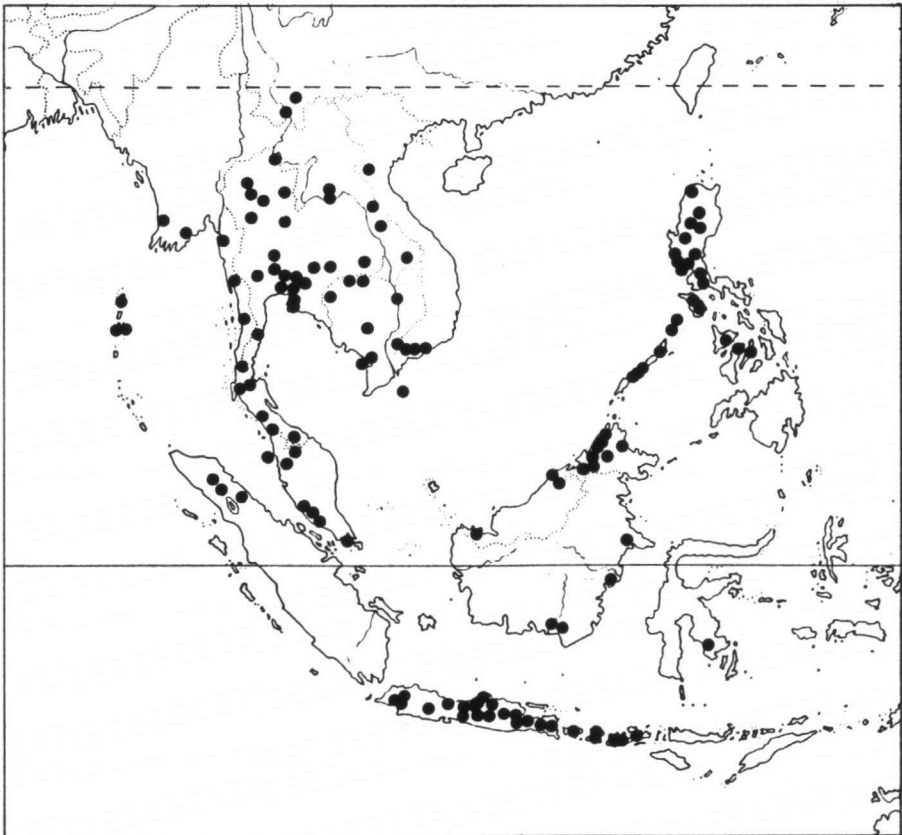


Fig. 2. *Parameria laevigata* (Juss.) Moldenke a. Habit; b. flower in bud; c. open flower; d. flower dissection; e. fruit; f. seed (a–d: van Beusekom & Santisuk 3220; e, f: Weber 1540). Scale bars: a, e, f = 1 cm; b–d = 1 mm.

tertiary venation lax and obscure, puberulent in domatia in lateral nerve axils with midrib or, rarely, glabrous. *Inflorescence* of axillary and/or terminal cymes often forming a panicle, glabrous to densely and minutely puberulent, 2–16 cm long; pedicels 1.2–7.5 mm long. *Sepals* ovate, apex obtuse to acuminate, 0.5–1.3 × 0.4–0.9 mm, 1–2 × as long as wide, puberulent, rarely glabrous. *Corolla* white, pink or red; bud drumstick-shaped, open corolla salverform; tube 1.2–2.5 mm long; lobes falcate to the left, apex rounded, 1.7–4 mm long, 1–2.7 mm wide, 1–1.8 × as long as wide, 0.9–2.5 × as long as tube; glabrous to puberulent on tube outside, glabrous inside. *Stamens* inserted at 0.2 mm from corolla base, which is 0.1 of tube length; filaments 0.2–0.5 mm long; anthers 0.8–1.4 × 0.3–0.4 mm, 2.7–5 × as long as wide. *Disc* 5-dentate to consisting of 5 separate lobes, 0.2–0.3 mm long. *Ovary* 0.3–0.6 mm long; style + pistil head 0.6–1.2 mm long. *Fruit* distantly torulose, glabrous, 12–32 cm long, 0.4–0.7 cm wide. *Seed* grain 5.7–12 × 1.1–4 mm; coma 1.7–3.2 cm long.

Distribution — India (Andaman Islands), Burma, China, Thailand, Laos, Vietnam, Cambodia, Malaysia, Singapore, western Indonesia, Philippines.

Habitat — In a wide variety of primary and secondary forests and thickets to 1500 m altitude.



Map 2. Distribution of *Parameria laevigata* (Juss.) Moldenke (●).

Notes — This is an extremely variable species and the extremes of variation look very different from each other. There is, however, no clear line to separate the two extremes (lax cyme with minute hairs on the inflorescence and corolla tube to the congested cyme with longer hairs) even into varieties.

Ecdysanthera griffithii is typified by a Griffith specimen from Malacca. There are two Griffith specimens from Malacca: one *Parameria laevigata* and the other *Parameria polyneura*. Following Wight's usage and the label on the specimen, *E. griffithii* has been typified by the Griffith collection of *P. laevigata*. Pierre's new combination, *Parameria griffithii*, however, is clearly based on the belief that the other Griffith collection, the *P. polyneura*, is the type of this species. Pierre has labelled the Paris isotype of *P. polyneura* as *P. griffithii*.

Squires 937 from Vietnam is somewhat unusual for this species in its narrower corolla lobes although is otherwise unremarkable. Its distinctness does not warrant a separate taxonomic status.

Selection of the 370 collections studied:

INDIA. Andaman Islands: South Andaman, Miletalak, *Balakrishnan 713* (E).

BURMA. Mon: Amherst, *Wallich 1659* (BM, CGE, E, G, K-W, K, M, W – type of *Echites glandulifera*). Irrawaddy: Bassein, Thabyu Chg. near Simma Res., *Kermode 7111* (K). Tenasserim: Tavoy, *Parisks 147* (K).

CHINA. Yunnan: Simao, *Henry 12681* (A, E, K, MO).

THAILAND. Bangkok: *Kerr 7935* (AAU, BM, E, K, L, MO, P). Buri Ram: *Phengkhlai et al. 3279* (BKF). Chachoengsao: Phanomsarakham district, Khao Hinson Botanic Garden, *Koyama et al. T- 33020* (A). Chiang Mai: Doi Sutep, *Maxwell 87-1450* (AAU, BKF, L). Chon Buri: Si Racha, *Maxwell 74-833* (AAU, L). Phangnga: Takuapa, *Kerr 17079* (AAU, BM, E, K, L, P). Prachuap Khiri Khan: Huey Yang, *Put 3157* (A, AAU, ABD, BM, E, K, L, P). Ranong: Nam Chut, *Kerr 11698* (A, AAU, ABD, BM, E, K, L, P). Si Sa Ket: Nua, *Kerr 8320* (BM, E, K, L, MO, P, SING, TCD). Surat Thani: Kiensa, *Kerr 18134* (ABD, BM, K). Trat: Ko Kut, *van Beusekom & Santisuk 3220* (AAU, C, E, KYO, L, P). Uthai Thani: *Kerr 3939* (AAU, BM, E, K, L, P).

LAOS. Attapu: Attapu valley, *Harmand s.n.* (P). Kham Mouan: Tak Pret, *Poilane 28175* (AAU, P). Kâmpôt: Kâmpôt, *Pierre 1458* (A, BR, K, L – type of *Parameria glandulifera* var. *pierrei*). Savannakhét: km 20, route from Savannakhét to Quang Tri, *Poilane 11825* (A, BO, P). Viang Chan: Tha Ngon, *Vidal 4079* (L, P).

VIETNAM. Dong Nai: Bien Hoa, route 20, *Poilane 21367* (P). Ho Chi Minh City: Botanic Garden, *Hiep 337* (AAU, P). Nghê Tinh: Khua Kan Ken, *Spire 2* (K, P). So'n Island: *Harmand 668* (P). Tay Tinh: *Poilane 695* (A, B, K, P, US).

CAMBODIA. Bat Dâm Bâng: Near Rosmei Sang Ha, *Vidal 4657* (P). Kâmpông Thum: between Tabeng & Pra-pranap, *Poilane 14863* (AAU, P). Kâmpôt: s.l., *Geoffray 49* (P). Siem Reab–Oddâr Méanchey: Anglong Veng, *Poilane 14056* (AAU, P). Stœng Trêng: Stœng Trêng, *Poilane 14149* (P).

MALAYSIA. Peninsula: Malacca: *Griffith s.n.* (BM, CGE, K – type of *Ecdysanthera griffithii*). Negri Sembilan: Bukit Kandong, *Alvins 1032* (SING). Penang: Government Hill, *Curtis 1142* (SING). Perak: Gunung Lanoh, near Bukit Gajah, *Mills & Henderson 15066* (SING). Selangor: Ulu Langat, *Umbai 1257* (K, KEP, L, SING). — Borneo: Sabah, Mt Kinabalu, Kiau, *Clemens 10199* (A). Sarawak, 4th Division, Miri, 6.5 miles Bakam Road, *Au & Chai S 24130* (A, BO, KEP).

SINGAPORE. *Lobb s.n.* (K).

INDONESIA. Sumatra: Aceh, Gunung Leuser NR, Ketambe, Alas River valley, *de Wilde & de Wilde-Duyffes 18396* (L). Utara: Huta Padang, Asahan, *Rahmat si Boeea 927* (E). — Java: s.l., *Korthals s.n.* (U – type of *Ecdysanthera barbata* var. *angustior*), *Horsfield s.n.* or *16* (CGE, K, L – type of *Parsonsia barbata*); *Blume s.n.* (BO, L, U – type of *Echites densiflora*). Barat: Pulau Panaitan, Gunung Parat, *van Borssum Waalkes 791* (A, BO, K, L, SING). Tengah: Semarang, Ngarenagan, *Beumée 3543* (BO). Timur: near Madiun, Pilangrejo, *Wisse 428* (BO). — Kalimantan: Selatan,

Banjarmasin, *Motley 776* (CGE, K). Timur: Sangkulirang, Pelawanbesar, *Aet 378* (BO). — Lesser Sunda Islands: Bali: Banjupoh North Bali, *Dilmy 1088* (BO, K, L, US). Lombok: Gunung Pusuk, *Unknown 9213* (BO). Sumbawa: Trail Raba Baka-Matuato, Dompou, *Soejarto 72* (BO, L). — Sulawesi: Tenggara, Ponggalia-Poli-polia-Kolaka, *Prawiroatmodjo & Maskuri 1487* (BO).

PHILIPPINES. s.l., *Merrill Sp. Bl. 140* (A, BM, BO, K, L, MO, P, US, W – neotype of *Echites torosa*). — Cebu: *Rothdauscher 1025* (M – type of *Parameria vulneraria*). – Culion: *Merrill 564* (GH, K, US). — Luzon: Bataan, Mt Mariveles, *Elmer 6865* (E, G, K). Central: Limutan, *Loher 4023* (K). Rizal: Manilla, *Cuming 1126* (BM, C, CGE, E, G, K, L, M, MEL, MO, P, UPS, W – type of *Parameria philippinensis*). Zambales: *Ramos 5112* (K). — Mindoro: Oriental, Bulalacao, *Bernejos 1552* (US, Z). — Negros: Occidental, *Usteri s.n.* (Z). — Palawan: Puerto Princessa, Irawan River valley head, *Ridsdale SMHI 60* (A, K, L). — Panay: Iloilo, *Robinson 18082* (US).

3. *Parameria polyneura* Hook. f. — Map 3

Parameria polyneura Hook. f., Fl. Brit. India 3 (1882) 660; Boerl., Handl. Fl. Ned. Indië 2 (1899) 399; Merr., Enum. Born. Pl. (1921) 500; King & Gamble, J. As. Soc. Beng. 74 (1907) 479; Ridl., Fl. Malay Penins. 2 (1923) 359; Tsiang, Sunyatsenia 2 (1934) 116; Kerr, Fl. Siam. Enum. 2 (1939) 465. — *Parameriopsis polyneura* (Hook. f.) Pichon, Bull. Mus. Nat. Hist. Nat. Paris, sér. 2, 20 (1948) 300. — Type: *Griffith s.n.* (K lecto; AAU, BO, BR, CGE, GH, K, L, M, P iso).

Parameria griffithii Pierre, Rev. Cult. Colon. 11 (1902) 229, nom. inval. See note under *P. laevigata*.

Branches lenticellate or not; branchlets glabrous to puberulent. *Leaves*: petiole 3–9 mm long; blade subcoriaceous, elliptic, obovate or oblong, apex acuminate to acute, base cuneate to obtuse, 3–12.8 × 1.1–6.2 cm, 1.8–3.1 × as long as wide, 4–9 pairs of lateral nerves, tertiary venation conspicuous, puberulent in domatia in nerve axils with midrib. *Inflorescence* terminal and/or axillary, often forming panicles, densely short puberulent, 5.5–12.4 cm long; pedicels 2–4.8 mm long. *Sepals* ovate, apex acute to obtuse, 0.8–1.6 × 0.6–1 mm, 1.1–2 × as long as wide, densely puberulent. *Corolla* white and pinkish; bud ovoid, open corolla salverform to campanulate; tube 1–1.8 mm long; lobes oblong, falcate to the left, 2.6–4.7 mm long, 1–1.6 mm wide, 2.4–4.3 × as long as wide, 1.7–3.6 × as long as tube; densely puberulent on tube and on parts exposed in bud outside, sparsely puberulent in tube inside. *Stamens* inserted at 0.3–0.4 mm from corolla base, which is 0.2 of tube length; filaments 0.3–0.7 mm long; anthers 1–1.4 × 0.2–0.5 mm, 2.6–5 × as long as wide. *Disc* 5-crenate or 5-dentate, 0.5 mm long. *Ovary* 0.3–0.5 mm long; style + pistil head 1–1.3 mm long. *Fruit* weakly torulose, sparsely lenticellate, 37–90 cm long, 0.4–0.5 cm wide. *Seed* grain 14.5–22 × 2.6–3 mm; coma 3–4.1 cm long.

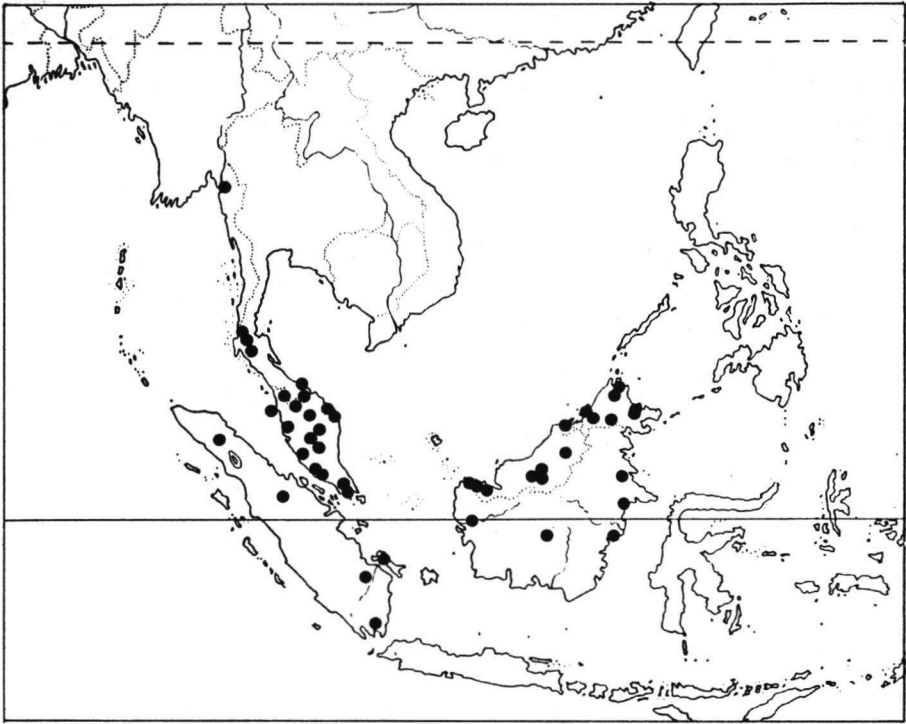
Distribution — Southern Burma, Thailand, Malaysia, Singapore, Brunei, Indonesia (Sumatra, Kalimantan).

Habitat — In forest to 800 m altitude.

Collections studied:

BURMA. Mon: Moulmein, *Lobb 432* (BM, CGE, E, G, TCD).

THAILAND. Krabi: Khao Phanom, *Kerr 18794* (A, ABD, BM, E, K, L, P, TCD). Narathiwat: Sungei Kolok, Nikhom Waeng, *Larsen & Larsen 33005* (AAU). Pattani: Toh Moh, *Lakshnakara 604* (BM, E, K, L, P). Ranong: Khao Pawta Luang Khao, *Kerr 16999* (BM, BR, E, K, L, MO, P, TCD). Surat Thani: Bangbao, *Smitinand 3805* (BKF, K).



Map 3. Distribution of *Parameria polyneura* Hook. f. (●).

MALAYSIA. Peninsula: Johor, Sungei Berassau, Mawai-Jemulang, *Corner* 28967 (KEP, SING). Kedah: Gunong Lang, *Kiah SF* 35066 (A, BM, K, KEP, SING). Kelantan: Southern, South of Sungei Anak Ketil, *Whitmore* 20718 (A, K, KEP, L). Malacca: *Griffith s.n.* (or 9) (AAU, BO, BR, CGE, GH, K, M, P - type). Negri Sembilan: Pasoh Forest Reserve, *LaFrankie* 2380 (A). Pahang: Taman Negara, beside Sg. Tahan, *Wong & Khairuddin FRI* 32653 (KEP). Penang: Pinara Bukit, *Curtis* 1455 (BM, K, SING). Perak: Larut, *King's coll.* 5687 (BO, CGE, L, SING). Selangor: Serendah, *Symington* 17516 (KEP, SING). Terengganu: Kuala Terengganu, Hutan Simpan Bukit Kesing, *Teo & P.* 1071 (L). — Borneo: Sabah, Sandakan district, Kretam Forest Reserve, *Amin et al.* SAN 96712 (KEP, L). Sarawak: 4th Div., c. 120 km upstream of Bintulu, Bukit Pesu, *Fuchs* 21348 (A, G, K, L).

SINGAPORE. Garden Jungle, *Ridley s.n.* (BO).

BRUNEI. Seria district, en route from Kampong Mendaram to Bukit Teraja, Teraja Forest Reserve, *Hotta* 12712 (L).

INDONESIA. — Kalimantan: Tengah, Headwaters of Sungei Kahayan, 5 km NW of Tumbang Sian logging camp, *Burley et al.* 770 (A, KEP, L, SING). Timur: East Kutei, Gunung Sekrat, S of Sangkulirang, *Kostermans* 5887 (A, BO, K, L). Sumatra: Aceh, Ketambe, Lau Alas valley, 35 km NW of Kutatjane, *de Wilde & de Wilde-Duyffes* 16542 (BO, K, KEP, L, MO, US). Riau: Upper Riau, Pakanbaru, Tenajan River, *Soepadmo* 97 (A, B, BISH, BO, E, K, L, MO, S, SING, UPS). Selatan: Bangka, Lobok-besar, Gunung Pading, *Kostermans & Anta* 989 (A, BO, K, L, SING). Lampung: Lampung, Jandjong Pinang, *van Romburgh s.n.* (BO).

3. URCEOLA

- Urceola* Roxb., As. Res. 5 (1798) 169; A.DC., Prodr. 8 (1844) 358; Benth. & Hook. f., Gen. Pl. 2 (1876) 716; K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. 4, 2 (1895) 163; Pichon, Mém. Mus. Nat. Hist. Nat. Paris, sér. B, Bot. 1 (1950) 84; Middleton, Kew Bull. 49 (1994) 760. — *Urceola* sect. 1, *Urceola* proper Hook. f., Fl. Brit. India 3 (1882) 657. — *Urceola* sect. *Euurceola* K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. 4, 2 (1895) 163. — *Uricola* Boerl., Handl. Fl. Ned. Indië 2 (1899) 399, orth. var. — Type species: *Urceola elastica* Roxb.
- Ecdysanthera* Hook. & Arn., Bot. Beech. Voy. (1837) 198; A.DC., Prodr. 8 (1844) 442; Benth. & Hook. f., Gen. Pl. 2 (1876) 714; K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. 4, 2 (1895) 162; Spire, Contr. Apoc. (1905) 2; Pichon, Mém. Mus. Nat. Hist. Nat. Paris, sér. B, Bot. 1 (1950) 85. — Type species: *Ecdysanthera rosea* Hook. & Arn. [= *Urceola rosea* (Hook. & Arn.) D.J. Middleton].
- Chavannesia* A.DC., Prodr. 8 (1844) 444; Pichon, Mém. Mus. Nat. Hist. Nat. Paris, sér. B, Bot. 1 (1950) 83. — Type species: *Chavannesia lucida* (Wall. ex G. Don) A.DC. [= *Urceola lucida* (Wall. ex G. Don) Kurz].
- Urceola* sect. *Dittormos* Hook. f., Fl. Brit. India 3 (1882) 659. — Type species: *Urceola torulosa* Hook. f.
- Xylinabaria* Pierre, Bull. Mens. Soc. Linn. Paris n.s. 1 (1898) 26; Spire, Contr. Apoc. (1905) 57; Pichon, Mém. Mus. Nat. Hist. Nat. Paris, sér. B, Bot. 1 (1950) 83. — *Xylinabaria* sect. *Indosinaria* Pichon, Mém. Mus. Nat. Hist. Nat. Paris, sér. B, Bot. 1 (1950) 83. — Type species: *Xylinabaria minutiflora* Pierre [= *Urceola minutiflora* (Pierre) D.J. Middleton].
- Hymenolophus* Boerl., Bull. Inst. Bot. Buitenzorg 5 (1900) 13. — Type species: *Hymenolophus romburghii* Boerl. [= *Urceola javanica* (Blume) Boerl.].
- Pezisicarpus* Vernet, Bull. Econ. Indo-Chine 35 (1904) 1193. — Type species: *Pezisicarpus montana* Vernet [= *Urceola minutiflora* (Pierre) D.J. Middleton].
- Parabarium* Pierre ex Spire, Contr. Apoc. (1905) 9; Pichon, Mém. Mus. Nat. Hist. Nat. Paris, sér. B, Bot. 1 (1950) 82; Lý, Feddes Rep. 89 (1978) 205. — Type species: *Parabarium micranthum* (Wall. ex G. Don) Pierre ex Spire [= *Urceola micrantha* (Wall. ex G. Don) D.J. Middleton].
- Xylinabariopsis* Pitard in Lecomte, Fl. Gén. Indo-Chine 3 (1933) 1261; Pichon, Mém. Mus. Nat. Hist. Nat. Paris, sér. B, Bot. 1 (1950) 101. — Type species: *Xylinabariopsis reynaudii* (Jum.) Pitard [= *Urceola napeensis* (Quintaret) D.J. Middleton].
- Chunechites* Tsiang, Sunyatsenia 3 (1937) 305. — Type species: *Chunechites xylinabariopsoides* Tsiang [= *Urceola xylinabariopsoides* (Tsiang) D.J. Middleton].
- Xylinabaria* sect. *Birmaria* Pichon, Mém. Mus. Nat. Hist. Nat. Paris, sér. B, Bot. 1 (1950) 83. — Type species: *Xylinabaria esculenta* (A. DC.) Pierre ex Spire [= *Urceola lucida* (Wall. ex G. Don) Benth. ex Kurz].
- Xylinabaria* sect. *Javaria* Pichon, Mém. Mus. Nat. Hist. Nat. Paris, sér. B, Bot. 1 (1950) 83. — Type species: *Xylinabaria koordersii* Pierre ex Koord.-Schum. [= *Urceola javanica* (Blume) Boerl.].
- Parabarium* subsect. *Hookera* Lý, Feddes Rep. 89 (1978) 251. — Type species: *Parabarium hookeri* Pierre ex Spire [= *Urceola tournieri* (Pierre) D.J. Middleton].
- Parabarium* sect. *Burmanicum* Lý, Feddes Rep. 89 (1978) 252. — Type species: *Parabarium burmanicum* Lý [= *Urceola tournieri* (Pierre) D.J. Middleton].
- Parabarium* subg. *Pleioclasium* Lý, Feddes Rep. 89 (1978) 252. — Type species: *Parabarium quintaretii* (Pierre) Pierre ex Spire [= *Urceola quintaretii* (Pierre) D.J. Middleton].

Climbers; producing latex. Branches lenticellate or not; branchlets puberulent to glabrous. *Leaves*: opposite, those of a pair equal; petiolate, with or without glands in axils; papery to coriaceous, entire. *Inflorescence* cymose, terminal and/or axillary sometimes forming a panicle. *Flowers* 5-merous, actinomorphic. *Sepals* with few colleters inside or absent. *Corolla*: lobes in bud overlapping to the right or valvate, bud variable in shape from globose to ovoid to ellipsoid; open corolla urceolate to campanulate; lobes triangular or falcate to the right often with a marked projection

pointing to the right as viewed from the inside. *Stamens* completely included within the corolla tube, attached in a ring to the pistil head; filaments short; anthers narrow triangular, base sagittate, sterile at apex and base. *Disc* annular to 5-dentate. *Ovary* of 2 separate carpels united into a common style, superior, ovoid, densely puberulent on top; ovules numerous; style glabrous, very short; pistil head ovoid with a projection on top. *Fruit* of paired follicles; very variable in shape; longitudinally dehiscent. *Seeds* hirsute; ellipsoid, flattened; with a coma pointing towards the end of the fruit.

Distribution — 16 species from India and China through Indo-China and the Indonesian archipelago to Papua New Guinea.

KEY TO THE SPECIES

- 1a. Corolla lobes in bud overlapping to the right, sometimes only slightly 2
- b. Corolla lobes in bud valvate 9
- 2a. Sepals papery and leafy; leaves punctate beneath **12. U. quintaretii**
- b. Sepals variable, not leafy; leaves only very rarely punctate beneath 3
- 3a. Leaves: densely pubescent beneath 4
- b. Leaves: glabrous or only very sparsely pubescent beneath 6
- 4a. Leaf margin somewhat inrolled; follicles parallel, stipitate
- **16. U. xylinabariopsoides**
- b. Leaf margin not inrolled; follicles divergent or parallel, not stipitate 5
- 5a. Corolla densely pubescent outside; fruits divergent, 6–8 cm long
- **3. U. huaitingii**
- b. Corolla glabrous or only sparsely pubescent outside; fruits parallel, 13–17 cm long **6. U. latifolia**
- 6a. Flower buds acute or acuminate at apex; corolla lobes more or less symmetrical, pinkish or reddish **13. U. rosea**
- b. Flower buds rounded or obtuse at apex; corolla lobes falcate, white or greenish white 7
- 7a. Corolla lobes 1.3–2 × as long as tube; follicles parallel, stipitate
- **11. U. napeensis**
- b. Corolla lobes 0.5–1(–1.3) × as long as tube; follicles divergent to sub-parallel, not stipitate 8
- 8a. Branchlets densely pubescent; inflorescences mostly axillary; fruit thick-walled, wider near base, tapering to end **15. U. tournieri**
- b. Branchlets sparsely to densely pubescent; inflorescences axillary and terminal forming panicles; fruits thin-walled, generally linear, often very narrow
- **9. U. micrantha**
- 9a. Leaves pubescent all over beneath 10
- b. Leaves glabrous or pubescent only in nerve axils and sometimes also on the midrib 12
- 10a. Leaves: very thin and translucent when dry; corolla tube 0.8–1 mm long, lobes 0.3–0.6 mm long; follicles stipitate, parallel **10. U. minutiflora**
- b. Leaves: subcoriaceous to coriaceous; corolla tube 0.8–2.3 mm long, lobes 0.5–1 mm long; follicles only rarely stipitate, divergent 11

- 11a. Sepals ovate or oblong, 0.6–2.1 mm long, 1–2.1 × as long as wide **7. U. lucida**
- b. Sepals narrowly linear, 2.1–4 mm long, (2.3–)3.5–6 × as long as wide
- **2. U. elastica**
- 12a. Sepals oblong to spatulate, 1.9–4 mm long; leaves usually shiny above; fruits long and distinctly torulose **14. U. torulosa**
- b. Sepals ovate to oblong, 0.6–3 mm long; leaves not shiny above; fruits not torulose 13
- 13a. Sepals longer than corolla tube, oblong 14
- b. Sepals shorter than to as long as corolla tube, ovate to oblong 15
- 14a. Corolla tube narrow, not noticeably wider at base; fruit dagger-shaped; Philippines, Sulawesi, Borneo **5. U. laevis**
- b. Corolla tube frequently noticeably wider at base; fruit fusiform to linear; widespread **1. U. brachysepala**
- 15a. Sepals strongly reflexed 16
- b. Sepals not reflexed 17
- 16a. Leaves: elliptic to obovate, base often cordate, coriaceous **7. U. lucida**
- b. Leaves: elliptic, base rounded, papery **8. U. malayana**
- 17a. Inflorescence densely pale puberulent; corolla bud globular; fruits dagger-shaped 18
- b. Inflorescence densely to sparsely dark puberulent; corolla bud ovoid to subglobular; fruits linear to fusiform **1. U. brachysepala**
- 18a. Leaves: mostly obovate, base cordate, nerves very prominent beneath; fruit thick-walled **7. U. lucida**
- b. Leaves: mostly elliptic or oblong, base rounded to cuneate, nerves not or barely prominent beneath; fruit thin-walled **4. U. javanica**

1. Urceola brachysepala Hook. f. — Map 4

Urceola brachysepala Hook. f., Fl. Brit. India 3 (1882) 659; Boerl., Handl. Fl. Ned. Indië 2 (1899) 399; Bull. Inst. Bot. Buitenzorg 5 (1900) 17; King & Gamble, J. As. Soc. Beng. 74 (1907) 474; Koord.-Schum., Syst. Verz. 1 (1912) 180; Merr., Enum. Born. Pl. (1921) 501; Ridley, Fl. Malay Penins. 2 (1923) 357; Backer & Bakh. f., Fl. Java 2 (1965) 235, p.p. — *Chavannesia brachysepala* (Hook. f.) Pichon, Bull. Mus. Nat. Hist. Nat. Paris, sér. 2, 20 (1948) 302. — Type: *Maingay 1714* [Kew Distr. no. 1079] (K lecto, designated here; P iso, scrap).

Urceola maingayi Hook. f., Fl. Brit. India 3 (1882) 658; Boerl., Handl. Fl. Ned. Indië 2 (1899) 399; Bull. Inst. Bot. Buitenzorg (1900) 17; King & Gamble, J. As. Soc. Beng. 74 (1907) 473; Merr., Enum. Born. Pl. (1921) 501; Ridley, Fl. Malay Penins. 2 (1923) 357. — Type: *Maingay 3353* [Kew Distr. no. 1083] (K lecto, designated here; K, P iso, scrap).

Urceola acute-acuminata Boerl., Bull. Inst. Bot. Buitenzorg 5 (1900) 19; Merr., Enum. Born. Pl. (1921) 500. — Type: *van Romburgh 27* (L lecto; BO iso).

Carruthersia imberbis Elmer, Leafl. Philipp. Bot. 2 (1909) 588. — *Urceola imberbis* (Elmer) Merr., Philipp. J. Sc., Bot. 10 (1915) 68; Enum. Philipp. Flow. Pl. 3 (1923) 332. — *Chavannesia imberbis* (Elmer) Pichon, Bull. Mus. Nat. Hist. Nat. Paris, sér. 2, 20 (1948) 302. — Type: *Elmer 9239* (K lecto; A, BM, BO, E, L, MO, NSW, NY, US, W, Z iso).

Urceola philippinensis Merr., Philipp. J. Sc., Bot. 10 (1915) 69; Enum. Philipp. Flow. Pl. 3 (1923) 332. — *Chavannesia philippinensis* (Elmer) Pichon, Bull. Mus. Nat. Hist. Nat. Paris, sér. 2, 20 (1948) 302. — Type: *Clemens 1098* (M lecto; BO, GH iso).

Urceola lucida auct. non (Wall. ex G. Don) Benth. ex Kurz: Backer & Bakh. f., Fl. Java 2 (1965) 235.

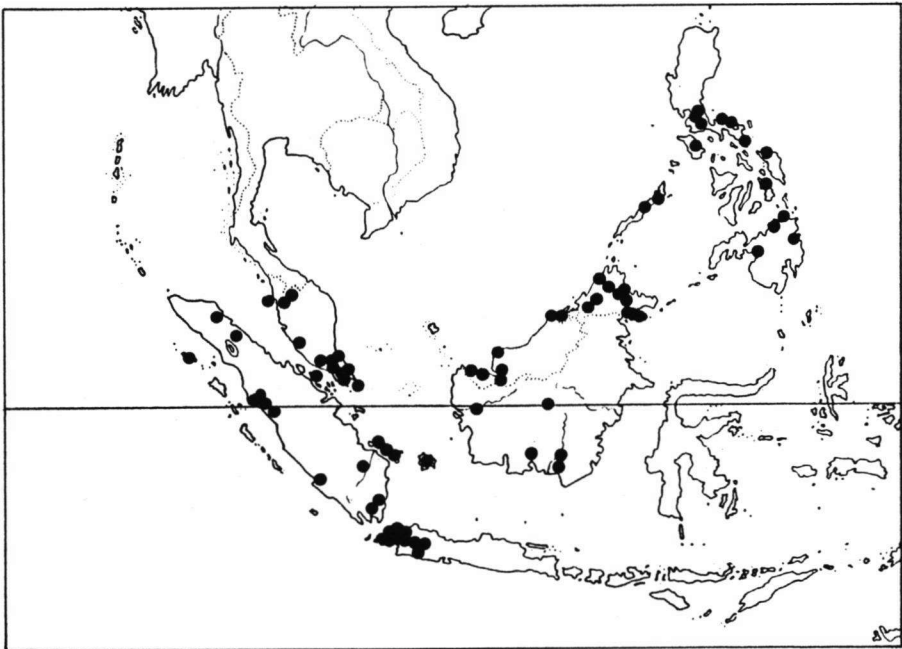
Urceola javanica auct. non (Blume) Boerl.: Koord.-Schum., Syst. Verz. 1 (1912) 180, p.p.; Backer & Bakh. f., Fl. Java 2 (1965) 235, p.p.

Branchlets glabrous to densely puberulent. *Leaves*: petiole 0.6–3.4 cm long; blade papery to subcoriaceous, ovate to elliptic, rarely obovate, apex acuminate, base cuneate to subcordate, 2.5–22 × 0.9–13 cm, 1.3–3.5 × as long as wide, 5–10 pairs of lateral nerves, curved ascending, sparsely puberulent on midrib and in nerve axils, only in nerve axils or glabrous, often punctate all over beneath. *Inflorescence* terminal and axillary, forming panicles, puberulent, especially in upper parts, 1.5–12.5 cm long; pedicels 0.9–3.6 mm long. *Sepals* ovate or oblong, apex acute to rounded, 0.7–3 × 0.5–1.4 mm, 1.1–2.8(–4.4) × as long as wide, puberulent. *Corolla* greenish white; corolla lobes valvate in bud which is subglobular to ovoid, open corolla urceolate; tube 1–2.3 mm long; lobes triangular, 0.6–1.2 mm long, 0.5–1 mm wide, 0.3–0.7 × as long as tube; pubescent outside, pubescent to almost glabrous inside. *Stamens* inserted at 0.2–0.5 mm from corolla base, which is 0.1–0.3 of tube length; filaments 0.3–0.9 mm long; anthers 1–1.6 × 0.3–0.6 mm, 2.2–4 × as long as wide. *Disc* 5-crenate to almost annular, 0.2–0.7 mm long. *Ovary* 0.3–0.7 mm long; style + pistil head 0.5–1.4 mm long. *Fruit* linear to fusiform, glabrous, 7–27 cm long, 3–10 mm wide. *Seed* grain 8.5–15.2 × 1.4–3.1 mm; coma 1.9–5.5 cm long.

Distribution — Malaysia, Singapore, Indonesia (Sumatra, Java, Borneo), Brunei, Philippines.

Habitat — In a wide variety of habitats from cliffs to primary forest or swamp forest to 1000 m altitude.

Note — This species is extremely variable with three indistinct groups corresponding roughly to the old *U. brachysepala*, *U. maingayi* and *U. imberbis*. These groups, however, merge into each other and cannot be recognised even at varietal level.



Map 4. Distribution of *Urceola brachysepala* Hook. f. (●).

Selection of the c. 210 collections studied:

MALAYSIA. Peninsula: s.l., *Maingay 1714* (KD 1079) (K, P – type of *Urceola brachysepala*), *1823* (KD 1080) (K, P – syntype of *Urceola brachysepala*), *3353* (KD 1083) (K, P – type of *Urceola maingayi*). Johor: mile 5 Kota Tinggi–Mawai Road, *Corner SF 30894* (SING). Malacca: between Durian Tunggal & Air Panas, *Burkill 535* (SING). Pahang: Endau, *Mohammad 15513* (K, KEP, SING). Penang: *Curtis 403* (K, SING). Perak: Maxwell's Hill, *Burkill & Haniff 12560* (SING). Selangor: Ulu Langat, Bukit Glung, K. Pansom, *Umbai KL 1599* (KEP). — Borneo: Sabah, Sandakan and vicinity, *Ramos 1826* (US). Sarawak, Division 3, Kelapaan, *Brooke 8886* (BM, G, L, SING, US); Division 1, near Kuching, *Haviland 1527* (K).

SINGAPORE. Sungei Jurong, *Ridley 10772* (K, SING).

INDONESIA. Sumatra: Aceh: Pulau Simeulue, *Achmad 1057* (BO, L, U). Barat: Lubuksikaping, *van Romburgh s.n.* (BO). Lampung: Tandjungpinang, *van Romburgh s.n.* (BO). Riau: P. Bengkalis, *Beguín 311* (BO, L). Selatan: Palembang, *Grashoff 214* (L). Utara: Adian Rindang, Asahan, nr Hoeta Tomoean Dolok, *Rahmat si Boeea 8593* (A, US). — Java: Barat, Depok, *Backer 22125* (BO, L); Cibodas, *Boerlage s.n.* (L). Jakarta: Barengkok, *Bakhuizen van den Brink 6436* (BO, L). — Kalimantan: Barat, Pontianak, *van Romburgh 27* (BO, L – type of *Urceola acute-acuminata*). Tengah, Koeala Kapoeas, Mangkoetoep, *Boschwezen 2194* (BO). Timur, West Kutei, Mt Paliamasan near Tabang on Belajan River, *Kostermans 13124A* (BO, L).

BRUNEI. Belait, Bukit Sawat, along Sungei Belait, *Simpson 2019* (K).

PHILIPPINES. Bucas Grande: *Ramos & Pascasio 35144* (K, US). — Leyte: *Wenzel 689* (A, BM, GH, MO). — Luzon: Camarines Norte: Mt Cadig, *Gregorio & Edaño 40158* (BM). Laguna: *McGregor 22831* (A, BM, K, P, US). Rizal: Montalaban, *Loher 13336* (M). Sorsogon: Mt Bulusan, *Sulit 2620* (A, BO, L, MO, SING). Tayabas: Lucban, *Elmer 9239* (A, BM, BO, E, K, L, MO, NSW, NY, US, W, Z – type of *Carruthersia imberbis*). — Mindanao: Agusan del Norte, Tungao So., Mateo Bo., Butuan, *Mendoza 42215* (K, L, SING). Lanao de Sur: Camp Keithley, Lake Lanao, *Clemens 1098* (BO, GH, M – type of *Urceola philippinensis*). Surigao de Sur, Hinatuan, *Piper 512* (L). — Mindoro: Oriental, Pinamalayan, *Ramos 40957* (A, BO, K, L). — Palawan: Pagdanan range, 10 km E of San Vicente, *Ridsdale SMHI 1518* (A, BO, K, KEP, L). — Samar: Mt Cansayao, Cartaman, *Sulit 14564* (A, BO, G, L, SING, US).

2. *Urceola elastica* Roxb. — Fig. 3; Map 5

Urceola elastica Roxb., As. Res. 5 (1798) 169; Miq., Sumatra (1862) 228; Hook. f., Fl. Brit. India 3 (1882) 657; Boerl., Handl. Fl. Ned. Indië 2 (1899) 399; Bull. Inst. Bot. Buitenzorg 5 (1900) 16; King & Gamble, J. As. Soc. Beng. 74 (1907) 472; Ridley, Fl. Malay Penins. 2 (1923) 356. — *Tabernaemontana elastica* (Roxb.) Spreng., Syst. Veg. 1 (1824) 639. — Type: Drawing in Roxb., As. Res. 5 (1798) 165 excluding fruit.

Urceola brachysepala var. *pilosa* Boerl., Bull. Inst. Bot. Buitenzorg 5 (1900) 18. — Type: *van Romburgh 50* (L lecto; BO iso).

Branchlets densely brown puberulent. *Leaves*: petiole 0.8–3 cm long; blade coriaceous or subcoriaceous, elliptic to obovate, apex acuminate, rarely to obtuse, base weakly cordate to obtuse, margins often slightly inrolled, 3.5–19.5 × 1.6–8.5 cm, 1.4–2.6 × as long as wide, 8–16 pairs of lateral nerves, strongly prominent beneath, densely to sparsely puberulent all over beneath, sparsely so to glabrous above. *Inflorescence* axillary and terminal, forming panicles, densely brown puberulent, 5.2–19 cm long; pedicels 1.6–4 mm long. *Sepals* narrow linear, apex acuminate to obtuse, 2.1–4 × 0.5–1 mm, (2.3–)3.5–6 × as long as wide, puberulent. *Corolla* greenish white; corolla lobes valvate in bud; bud ovoid, open corolla urceolate; tube 1.2–2.3 mm long; lobes triangular, 0.7–1.1 mm long, 0.4–0.6 mm wide, 0.4–0.8 × as long as tube; pubescent outside, sparsely pubescent to glabrous inside. *Stamens* inserted

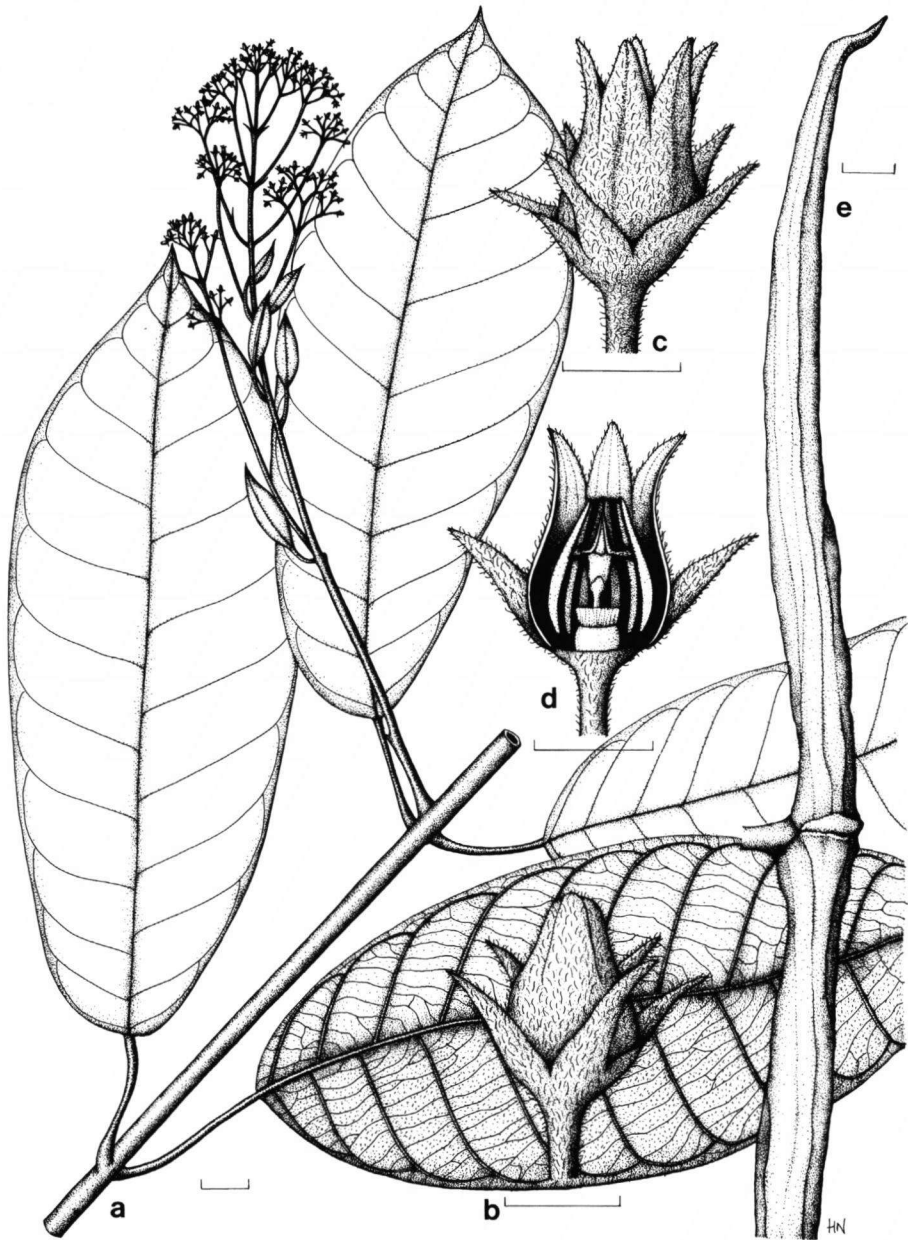
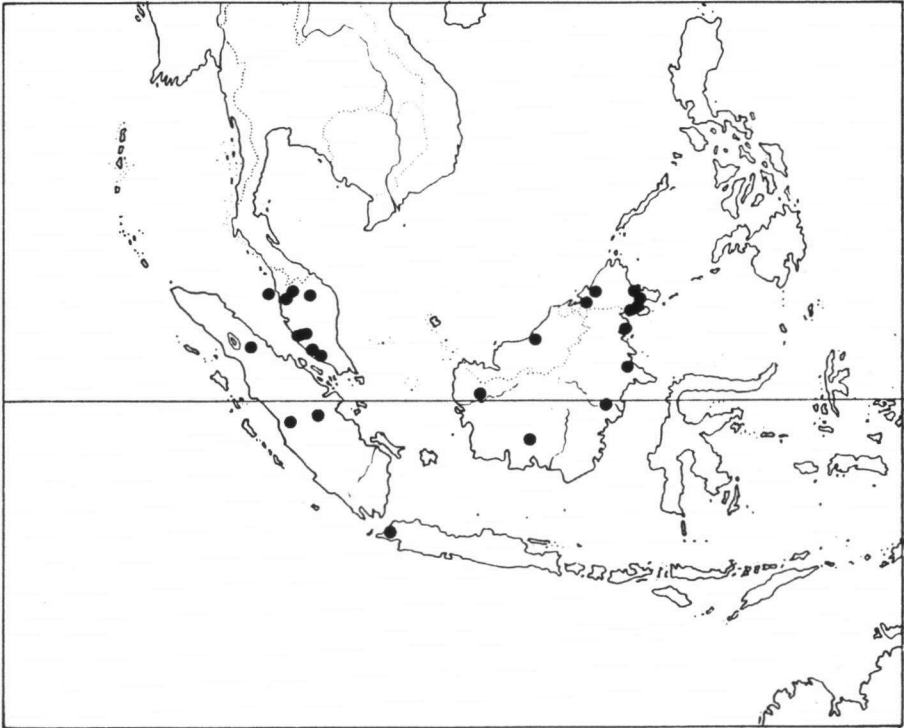


Fig. 3. *Urceola elastica* Roxb. a. Habit; b. flower in bud; c. open flower; d. flower dissection; e. fruit (a–d: *Aban & Saikheh SAN 82306*; e: *Aban SAN 18618*). Scale bars: a, e = 1 cm; b–d = 1 mm.

at 0.2–0.6 mm from corolla base, which is 0.1–0.3 of tube length; filaments 0.4–0.7 mm long; anthers 1–1.6 × 0.4–0.5 mm, 3–4 × as long as wide. *Disc* weakly 5-crenate or 5-dentate, 0.2–0.4 mm long. *Ovary* 0.5–0.7 mm long; style + pistil head 0.9–1.5 mm long. *Fruit* linear to fusiform, divergent, thick-walled, sparsely puberulent, 8.5–26 cm long, 0.5–1.5 cm wide. *Seed* grain 10–20 × 2.6–3.6 mm; coma 2.9–6.2 cm long.

Distribution — Malaysia, Sumatra, Java, Borneo.

Habitat — In primary, secondary or disturbed forest to 800 m altitude.



Map 5. Distribution of *Urceola elastica* Roxb. (●)

Selection of the c. 55 collections studied:

MALAYSIA. Peninsula: Kelantan: Central, Gunong Strong, *Whitmore FRI 12426* (K, KEP, L, SING). Malacca: Bukit Bruang, *Derry 1031* (SING). Negri Sembilan: Bukit Tanggapass, *Ridley s.n.* (K, SING). Penang: Government Hill, *Curtis 823c* (SING). Perak: Larut, *King's coll. 2241* (SING). Selangor: Ulu Klang, *Teo 401* (K, SING). — Borneo: Sabah: Lahad Datu, Mile 35 Lahad Datu-Tawau Road, *Madani SAN 102187* (E). Sarawak: Ulu Sg. Tar, Merurong, Bintulu district, 4th Div, *Tong S 34964* (K, KEP, L).

INDONESIA. Sumatra: Barat, Central, Mt Sago near Ladang Lawas, *Meijer 4044* (L). Utara: Anggoli, *Unknown s.n.* (L 34.931-14). — Java: Barat, Bantam, Tjitoedjoh, *van Romburgh 4* (BO). — Kalimantan: Barat, Biang, *van Romburgh 50* (BO, L – type of *Urceola brachysepala* var. *pilosa*). Tengah: KTC Camp Buntut Emban, Tumbang Atey, *Wiriadinata 3457* (K, L). Timur: W Koetai, Liham Batoe Beng, *Endert 2271* (BO, K, L).

3. *Urceola huaitingii* (Chun & Tsiang) D.J. Middleton

Urceola huaitingii (Chun & Tsiang) D.J. Middleton, *Novon* 4 (1994) 151. — *Parabarium huaitingii* Chun & Tsiang, *J. Arnold Arbor.* 28 (1947) 245; Tsiang & P.T. Li, *Fl. Reip. Pop. Sin.* 63 (1977) 241; Lý, *Feddes Rep.* 89 (1978) 278. — *Ecdysanthera huaitingii* (Chun & Tsiang) P.T. Li, *J. S. China Agric. Univ.* 11 (1990) 33. — Type: *Chun 5027* (IBSC holo).

Branchlets densely brown tomentose. *Leaves*: petiole 4–8 mm long; blade papery, elliptic, apex acuminate, base rounded to subcordate, 2.5–11 × 1.5–4.5 cm, 1.8–2.6 × as long as wide, 6–8 pairs of lateral nerves, strongly ascending, densely tomentose above and beneath. *Inflorescence* paniculate, densely tomentose, 4–7.5 cm long; pedicels 1–2.9 mm long. *Sepals* narrowly ovate, apex obtuse to acute, 1.2–2 × 0.5–1 mm, 2–2.4 × as long as wide, tomentose. *Corolla* yellowish; corolla lobes overlapping to the right in bud, open corolla campanulate; tube 1.3–2 mm long; lobes falcate, 1.6–2 mm long, 0.7–1 mm wide, 1–1.3 × as long as tube; pubescent outside, pubescent at base inside. *Stamens* inserted at 0.1 mm from corolla base, which is 0.1 of tube length; filaments 0.2 mm long; anthers 0.9 × 0.4 mm, 2.3 × as long as wide. *Disc* 5-crenate, 0.2 mm long. *Ovary* 0.4 mm long; style + pistil head 0.5 mm long. *Fruit* dagger-shaped, tapering, 6–8 cm long, 1.5–2 cm wide. *Seed* grain 10–16 × 2–3.5 mm; coma 3–4.6 cm long.

Distribution — China (Guangxi, Guangdong, Guizhou).

Note — I have only been able to see the type and two other collections of this species. The original description cites several collections which I have not been able to obtain although I have used some of the dimensions in the original publication in the above description.

Collections studied:

CHINA. Guangxi: Ta Tseh Tsuen, Yung Hsien, *Steward & Cheo 800* (A, BM); Shih-Wan-Ta Shan, Hsiang-Tze, *Chun 5027* (IBSC – type of *Parabarium huaitingii*). Guangdong: Lun Hsien, *Chun 5547* (IBSC).

4. *Urceola javanica* (Blume) Boerl. — Map 6

Urceola javanica (Blume) Boerl., *Handl. Fl. Ned. Indië* 2 (1899) 399; *Bull. Inst. Bot. Buitenzorg* 5 (1900) 18; Koord.-Schum., *Syst. Verz.* 1 (1912) 180, p.p. — *Parsonsia javanica* Blume, *Bijdr.* (1826) 1041. — *Chavannesia javanica* (Blume) Miq., *Fl. Ind. Bat.* 2 (1857) 458. — Type: *Blume 2182b* (IL lecto, sh. 898.112-185).

Hymenolophus romburghii Boerl., *Bull. Inst. Bot. Buitenzorg* 5 (1900) 14. — Type: *van Romburgh s.n.*, 25-9-1898 (BO lecto; BO iso).

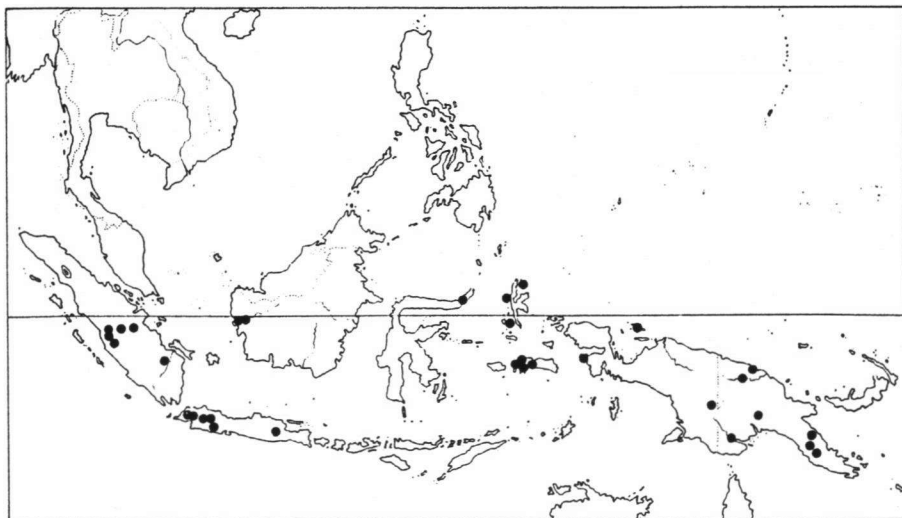
Urceola pilosa Boerl., *Bull. Inst. Bot. Buitenzorg* 5 (1900) 19; Merr., *Enum. Born. Pl.* (1921) 501. — Type: *van Romburgh 38* (BO lecto; BO iso).

Xylinabaria koordersii Pierre ex Koord.-Schum., *Syst. Verz.* 1 (1912) 179. — Type: *Koorders 26315* (L lecto; BO, K, P iso).

Xylinabaria bantamensis Pierre ex Pichon, *Mém. Mus. Nat. Hist. Nat. Paris, sér. B, Bot.* 1 (1950) 83. The collection labelled as *X. bantamensis* by Pierre, *Koorders 40124*, was included by Koorders-Schumacher (1912) in *X. koordersii*. The other specimen she cited, *Koorders 26315*, has been chosen as the lectotype for *X. koordersii* and also synonymised under *U. javanica*.

Urceola brachysepala auct. non (Blume) Boerl.: Backer & Bakh. f., *Fl. Java* 2 (1965) 235, p.p.

Branchlets puberulent. *Leaves*: petiole 0.6–2 cm long; blade papery to subcoriaceous, elliptic to oblong, apex acuminate, base rounded to cuneate, 2.9–12.6 × 0.9–



Map 6. Distribution of *Urceola javanica* (Blume) Boerl. (●)

5.1 cm, 1.4–3.4 × as long as wide, 4–11 pairs of lateral nerves, puberulent on mid-rib beneath and in lateral vein axils, rarely puberulent all over beneath or glabrous. *Inflorescence* terminal and axillary, forming panicles, delicate, densely pale pubescent, 1.9–13.1 cm long; pedicels 0.8–3.3 mm long. *Sepals* ovate, apex acute to acuminate, 0.6–1 × 0.5–0.7 mm, 1.1–1.8 × as long as wide, densely puberulent. *Corolla* white to yellowish; corolla lobes valvate in bud which is ovoid, open corolla urceolate; tube 0.8–1.8 mm long; lobes triangular, 0.5–0.8 mm long, 0.4–0.8 mm wide, 0.4–0.8 × as long as tube; densely pubescent outside and inside. *Stamens* inserted at 0.2 mm from corolla base, which is 0.1–0.2 of tube length; filaments 0.2–0.4 mm long; anthers 0.9–1.5 × 0.3 mm, 3–5 × as long as wide. *Disc* 5-crenate or 5-dentate, 0.3–0.6 mm long. *Ovary* 0.4–0.7 mm long; style + pistil head 0.6–0.9 mm long. *Fruit* shortly stipitate or not, dagger shaped, tapering, glabrous, 5–11.5 cm long, 0.4–1.9 cm wide. *Seed* grain 9.3–16.1 × 1.4–3.7 mm; coma 1.9–5.2 cm long.

Distribution — Indonesia, Papua New Guinea.

Habitat — In primary or secondary forest to 1500 m altitude.

Notes — The species as described here is somewhat different to the sense in which it was used by Backer & Bakhuizen van den Brink (1965). There are a number of specimens in Leiden labelled by Blume as *Parsonsia javanica* any of which could be the type specimen of the species. Unfortunately these specimens belong to two different species: the one here described and *U. brachysepala*. Blume's original description was vague enough to have applied to either but Miquel (1857) appears to have described the species in the sense it is used here. Using the name for this species avoids the need to replace the name of the common and widespread *U. brachysepala*.

There are two specimens in the Leiden herbarium with the number *Blume 2182b*. They represent two different collections comprising two different species and care

should be taken to note the Leiden Herbarium number. There is also a specimen of *Urceola* in the Leiden Herbarium with the number *Blume 881*. This same collection number is the type specimen of *Willughbeia javanica* Blume, but again they represent two distinct collections.

Selection of the c. 50 collections studied:

INDONESIA. Sumatra: Selatan, Palembang, *Grashoff 875* (BO). Barat, Gunung Sungei Laboeh, *van Romburgh s.n.* (BO 936.20.51 – type of *Hymenolopus romburghii*). Riau: Kep. Riau, Sungai Kritang, *Buwalda 6954* (L). — Java: s.l., *Blume 2182b* (L – type of *Urceola javanica*). Barat, Bandung, *Koorders 26315* (BO, K, L, P – type of *Xylinabaria koordersii*). — Kalimantan: Barat, Pontianak, *Polak 298* (BO). — Sulawesi: Utara, Minahasa, Mt Soputan, *de Vogel 2512* (A, L). — Moluccas: Halmahera: Morotai, Totodohu, *Kostermans 7821* (BO, L). Ternate: West Pitoe, *Beguina 2228* (BO, L). Bacan: Gunung Sibela nr Waiaua, *de Vogel 3738* (BO, K, L, MO). Seram: near Kaniiki, *Kornassi 550* (BO, L, U). — Irian Jaya: Fak-Fak Div., Kowap, N of Fak-Fak, *Vink BW 12157* (BO).

PAPUA NEW GUINEA. Central: Port Moresby Subdistr., S of Manuma village, *Isles & Vinas LAE 59039* (A, E, K, L). Gulf: Hill at SW margin of junction of Kapau & Tauri Rivers, *Schodde & Craven 4651* (K, L). Morobe: Kasu village, near Garaina, *Gillison & Kairo NGF 25781* (A, BO, BRI, CANB, K, L, SING). Sepik: Ambunti Subdistr., near Wagu, *Hoogland & Craven 10436* (A, CANB, L).

5. *Urceola laevis* (Elmer) Merr. — Fig. 4; Map 7

Urceola laevis (Elmer) Merr., Philipp. J. Sc., Bot. 10 (1915) 69; Enum. Philipp. Flow. Pl. 3 (1923) 332. — *Carruthersia laevis* Elmer, Leaffl. Philipp. Bot. 4 (1912) 1449. — Type: *Elmer 12837* (A lecto; A, B, BISH, BM, BO, BRI, E, L, MO, NSW, NY, P, U, US, W, Z iso).

Branchlets puberulent to glabrous. *Leaves*: petiole 0.7–2.2 cm long; blade papery to coriaceous, ovate to elliptic, apex acuminate, base rounded to obtuse, 2.9–10.5 × 1.2–5.3 cm, 1.6–2.5 × as long as wide, 5–8 pairs of lateral nerves, glabrous or sparsely puberulent on midrib beneath and in vein axils. *Inflorescence* of few flowered terminal and axillary cymes, puberulent, 3.8–13 cm long; pedicels 0.7–3.5 mm long. *Sepals* oblong, imbricate, apex rounded, rarely obtuse, 1.7–2.7 × 0.5–1.3 mm, 1.4–4.4 × as long as wide, sparsely puberulent. *Corolla* white or greenish; corolla lobes valvate in bud which is ovoid, open corolla urceolate; tube 1.2–1.8 mm long; lobes triangular, 0.5–1.1 mm long, 0.4–0.8 mm wide, 0.3–0.7 × as long as tube; pubescent outside and inside. *Stamens* inserted at 0.2–0.3 mm from corolla base, which is 0.1–0.2 of tube length; filaments 0.4 mm long; anthers 1.3 × 0.3–0.5 mm, 2.6–4.3 × as long as wide. *Disc* 5-crenate, 0.3–0.6 mm long. *Ovary* 0.5–0.6 mm long; style + pistil head 0.9–1.3 mm long. *Fruit* stipitate, dagger-shaped, puberulent when immature, 5.3 cm long, 1 cm wide. *Seeds* not seen.

Distribution — Borneo (Sabah), Sulawesi, Philippines (Palawan).

Habitat — In forest to 1500 m altitude.

Collections studied:

MALAYSIA. Borneo: Sabah: Mt Kinabalu, Tenompok, *Clemens 29858* (B, K, NY), 29885 (A, BO, G, K, L, NY, SING, US); Lamag Distr., S slope of G. Lotung Inarat, *Cockburn SAN 83295* (K, L).

INDONESIA. Sulawesi: Selatan, Todjambae–Palopo, *Kjellberg 1847* (BO, S); Malili, *Kjellberg 2379* (BO, S); Todjambae, *Kjellberg 2979* (BO, S).

PHILIPPINES. Palawan: Mt Victoria, Trident Mine, Dransfield SMHI 1276 (K, L); Puerto Princesa, Mt Pulgar, *Elmer 12837* (A, B, BISH, BM, BO, E, L, MO, NSW, NY, P, US, W, Z – type of Car-

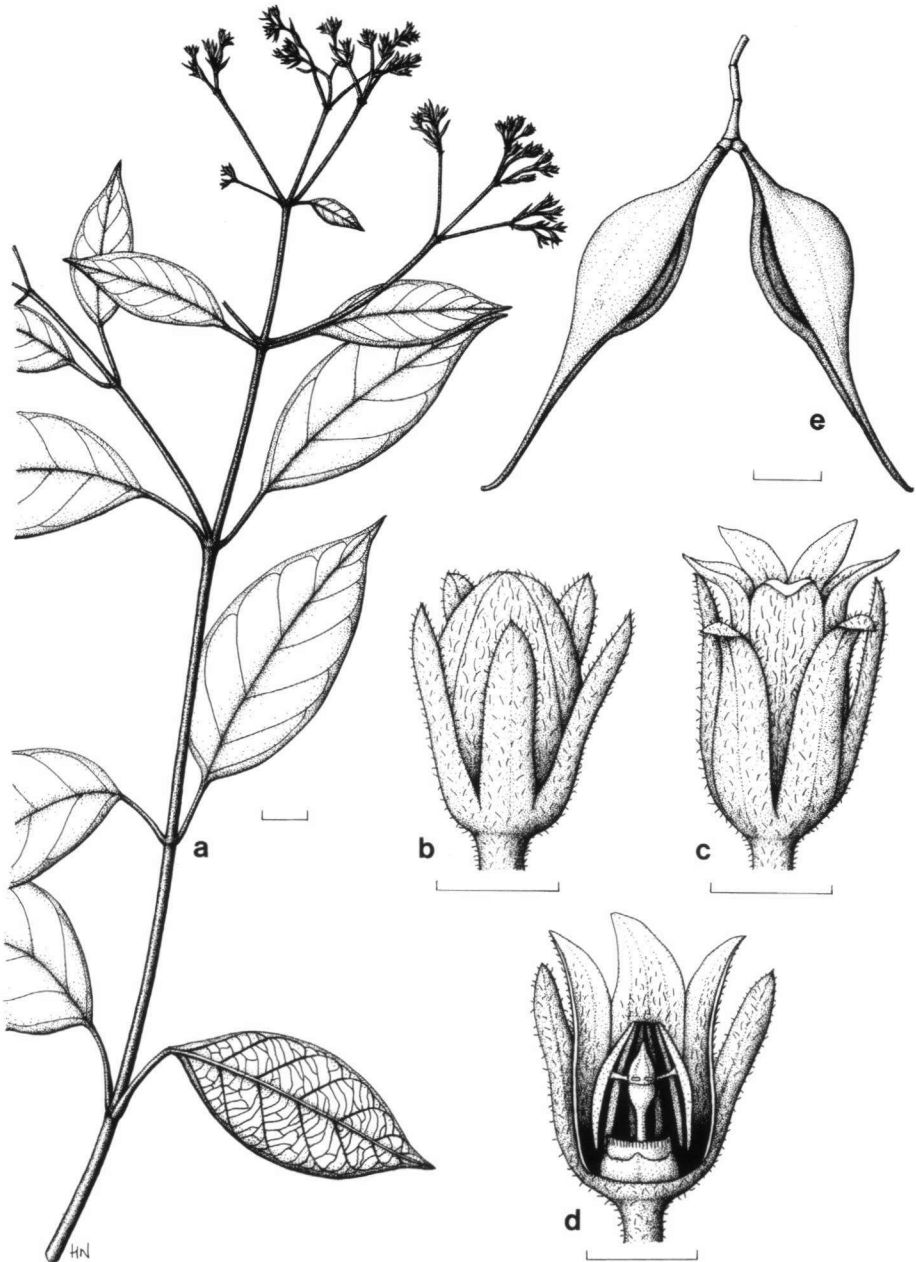
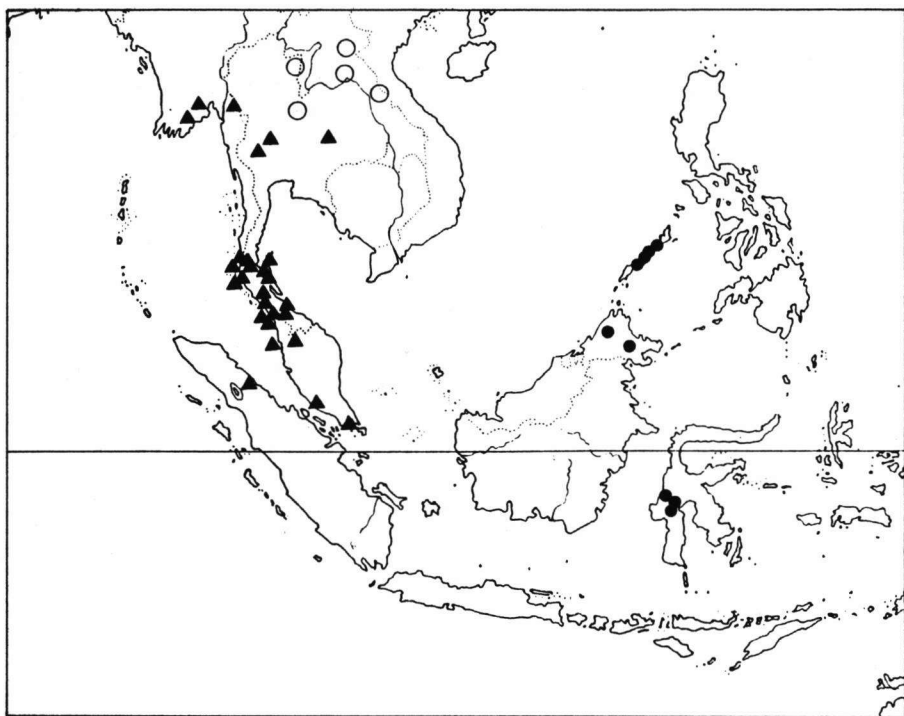


Fig. 4. *Urceola laevis* (Elmer) Merr. a. Habit; b. flower in bud; c. open flower; d. flower dissection; e. fruit (a–d: Sulit 12367; e: Podzorski SMHI 616). Scale bars: a, e = 1 cm; b–d = 1 mm.



Map 7. Distribution of *Urceola laevis* (Elmer) Merr. (●); *U. latifolia* (Pierre ex Spire) D.J. Middleton (○); *U. lucida* (Wall. ex G. Don) Benth. ex Kurz (▲).

ruthersia laevis); Irawan River valley, head on lower slopes of Mt Beaufort, *Podzorski SMHI 605* (A, K, L), *SMHI 616* (A, BO, K, L); Panacan, Aborlan, Victoria Mountains, *Sulit PNH 12324* (BO, L, SING), *PNH12367* (A, BO, L); St. Paul's Bay, Mt Bloomfield, WNW to W face, *Ridsdale SMHI 1617* (K, L).

6. *Urceola latifolia* (Pierre ex Spire) D.J. Middleton — Map 7

Urceola latifolia (Pierre ex Spire) D.J. Middleton, *Kew Bull.* 49 (1994) 761. — *Parabarium latifolium* Pierre ex Spire, *Contr. Apoc.* (1905) 19; Pitard in Lecomte, *Fl. Gén. Indo-Chine* 3 (1933) 1217; Kerr, *Fl. Siam. Enum.* 2 (1939) 462; Lý, *Feddes Rep.* 89 (1978) 272. — Type: *Spire 14* (P lecto, selected by Middleton, 1994c; P, S iso).

Xylinabaria spirei Pierre ex Spire, *Contr. Apoc.* (1905) 61; Pitard in Lecomte, *Fl. Gén. Indo-Chine* 3 (1933) 1204. — Type: *Spire 15* (P holo).

Parabarium velutinum Pitard in Lecomte, *Fl. Gén. Indo-Chine* 3 (1933) 1214; Lý, *Feddes Rep.* 89 (1978) 270. — Type: *Unknown collector 6* (P holo).

Parabarium velutinum var. *koratianum* Lý, *Feddes Rep.* 89 (1978) 271. — Type: *Kerr 4988* (P holo; A, ABD, BK, BM, E, K, L, P, TCD iso).

Branchlets densely hirsute. *Leaves*: petiole 0.9–1.6 cm long; blade papery, elliptic to weakly obovate, apex acuminate, base acute to obtuse, 9.3–23 × 3.8–7.4 cm, 1.8–3.3 × as long as wide, 7–9 pairs of lateral nerves, strongly ascending, sparsely pubescent above, densely pubescent beneath. *Inflorescence* axillary and/or terminal,

often forming a panicle, densely pubescent, 9.5–14 cm long; pedicels 1–2 mm long. *Sepals* ovate, apex acute to obtuse, 0.6–1 × 0.5–0.8 mm, 1.2–1.3 × as long as wide, puberulent. *Corolla* yellowish; corolla lobes overlapping to the right in bud which is ovoid or tubular, open corolla campanulate; tube 1–1.6 mm long; lobes falcate, 1–1.3 mm long, 0.8 mm wide, 0.8–1.1 × as long as tube; glabrous to sparsely puberulent outside, glabrous to pubescent inside. *Stamens* inserted at 0.2 mm from corolla base, which is 0.1 of tube length; filaments 0.2–0.5 mm long; anthers 1.2–1.3 × 0.3–0.4 mm, 3–4 × as long as wide. *Disc* 5-dentate, 0.2–0.3 mm long. *Ovary* 0.5 mm long; style + pistil head 0.7 mm long. *Fruit* narrow, tapering, parallel, sparsely puberulent, 13–17 cm long, 8–9 mm wide. *Seed* grain c. 13 × 3 mm; coma c. 3 cm long.

Distribution — Laos, Thailand.

Habitat — The few collections are recorded from evergreen forest at 1400–1500 m altitude.

Note — The type of *U. latifolia*, *Spire 14*, has a number of supposed duplicates in Paris, some of which, however, are actually *U. micrantha*.

Collections studied:

LAOS. North, *Unknown collector 6* (P – type of *Parabarium velutinum*). Kham Mouan, between Na Pho & Ban Bo, *Spire 15* (P – type of *Xylinabaria spirei*). Xiang Khoang, *Spire 14* (P, S – type of *Parabarium latifolia*). Tran Ninh, *Spire 11* (P).

THAILAND. Loei: Dan Sai, Phu Lom Lo, *Kerr s.n.* (BM). Nan: Phu Huat, *Kerr 4988* (A, ABD, BM, E, K, L, P, TCD – type of *Parabarium velutinum* var. *koratianum*).

7. *Urceola lucida* (Wall. ex G. Don) Benth. ex Kurz — Map 7

Urceola lucida (Wall. ex G. Don) Benth. ex Kurz, J. As. Soc. Beng. 46 (1877) 255; Hook. f., Fl. Brit. India 3 (1882) 658; Boerl., Handl. Fl. Ned. Indië 2 (1899) 399; King & Gamble, J. As. Soc. Beng. 74 (1907) 475; Ridley, Fl. Malay Penins. 2 (1923) 358; Kerr, Fl. Siam. Enum. 2 (1939) 465; D.J. Middleton, Kew Bull. 49 (1994) 762. — *Echites lucida* Wall. ex G. Don, Gen. Syst. 4 (1837) 75. — *Chavannesia lucida* (Wall. ex G. Don) A.DC., Prodr. 8 (1844) 444. — Type: *Wallich 1670* (K-W lecto, selected by Middleton, 1994c; BM, CGE, E, G, GH, K, K-W, L, M, MEL, P, S, SING, W iso).

Echites esculenta Wall., Num. List (1829) 1671, nom. nud. — *Chavannesia esculenta* A.DC., Prodr. 8 (1844) 444. — *Urceola esculenta* (A.DC.) Benth. ex Kurz, Fl. Burma 2 (1877) 184; Hook. f., Fl. Brit. India 3 (1882) 658. — *Xylinabaria esculenta* (A.DC.) Pierre ex Spire, Contr. Apoc. (1905) 66. — Type: *Wallich 1671* (G-DC holo; BM, K-W iso).

Urceola reticulata King & Gamble, J. As. Soc. Beng. 74 (1907) 477. — Type: *Ridley 2745* (K lecto, selected here; NSW iso).

Branchlets glabrous or sparsely and minutely puberulent. *Leaves*: petiole 0.8–2.8 cm long; blade coriaceous, obovate to elliptic, apex acuminate to caudate, base weakly cordate to obtuse, 3–26 × 0.9–11.2 cm, 1.6–2.6 × as long as wide, 7–13 pairs of lateral nerves, prominent beneath, glabrous or, more rarely with hairs on midrib beneath and in vein axils or sparsely all over beneath. *Inflorescence* of axillary and terminal cymes forming a panicle, puberulent, 9.6–29 cm long; pedicels 0.9–3.2 mm long. *Sepals* ovate to oblong, often imbricate and reflexed, apex obtuse to weakly retuse, 0.6–2.1 × 0.5–1.2 mm, 1–2.1 × as long as wide, puberulent. *Corolla* white; lobes valvate in bud which is ovoid, open corolla urceolate to campanulate; tube 0.8–1.5 mm long; lobes triangular, 0.5–1 mm long, 0.5–0.7 mm wide, 0.5–1 × as long as tube; puberulent outside, sparsely puberulent inside. *Stamens* inserted at 0.2–0.3

mm from corolla base, which is 0.1–0.2 of tube length; filaments 0.2–0.5 mm long; anthers 0.9–1.3 × 0.2–0.4 mm, 2.8–4.3 × as long as wide. *Disc* 5-crenate, 0.2–0.4 mm long. *Ovary* 0.3–0.5 mm long; style + pistil head 0.7–1.9 mm long. Fruit dagger-shaped, tapering, rarely stipitate, glabrous, rarely puberulent, 4.5–11 cm long, 0.7–2 cm wide. *Seed* grain 10–17 × 3–5 mm; coma 3.4–5.4 cm long.

Distribution — Burma, Thailand, Malay Peninsula, Singapore, Sumatra.

Habitat — In evergreen or deciduous, primary or secondary forest to 950 m.

Note — This species is similar to *U. javanica* but is distinguished by the generally less densely puberulent inflorescences, the coriaceous leaves, the normally imbricate, reflexed sepals and the thicker fruit wall.

Selection of the c. 70 specimens studied:

BURMA. s.l., *Wallich 1671* (BM, G-DC, K-W – type of *Chavannesia esculenta*); Thaug Yin, Sw Ka Li Chg, *Maung Ba Pe 12914* (K).

THAILAND. Chaiyaphum: Tunkamang, *van Beusekom et al. 4390* (L). Kanchanaburi: Khao Yai, E of Sangkhla, *van Beusekom & Phengkhilai 423* (AAU, C, E, K, KYO, P, Z). Nakhon Sawan: Khao Pado, *Kerr 6079* (AAU, ABD, BM, E, K, L, P). Nakhon Si Thammarat: Lansagah Distr., Garome Falls, Khao Luang National Park, *Maxwell 85-1032* (A, L). Phangnga: Khao Nang Hong, *Larsen et al. 31166* (AAU, B, L). Phuket: Hugap, *Haniff & Nur 4048* (ABD, BM, BO, SING). Ranong: Ko Chang, *Kerr 16611* (AAU, ABD, BM, E, K, P). Satun: Khuan Kalong forest, *Smitinand 7166* (BKF, C, K, L, P). Songkhla: Hat Yai, Ko Hong Hill, *Sirirugsa 771* (A). Surat Thani: Ta Khanon, *Kerr 12352* (A, AAU, ABD, BM, E, K, L, P). Trang: Khao Chong, *Phusomsaeng 93* (BKF, C, L). Yala: Kue Long, *Geesink & Hattink 6421* (L).

MALAYSIA. Peninsula: Kedah: Pulau Langkawi, Kuah, *Curtis s.n.* (SING). Malacca: Bukit Bruang, *Derry 1158* (SING). Penang: *Wallich 1670* (BM, CGE, E, G, GH, K, L, M, MEL, P, S, SING, W – type of *Urceola lucida*). Perak: *Scortechini 17b* (BM, CGE, E, K, L, P).

SINGAPORE. Pulau Ubin, *Ridley 2745* (K, NSW – type of *Urceola reticulata*), *5628* (K - syntype of *Urceola reticulata*).

INDONESIA. Sumatra: Sumatera Utara, Asahan, Hoeta Padang, *Krukoff 4382* (A, BR, BO, G, L, MO, SING, US).

8. *Urceola malayana* D.J. Middleton, *spec. nov.* — Fig. 5

Urceola lucida affinis sed floribus plerumque parvioribus et foliis chartaceis differt. — Typus: *Nur SF.32823* (L holotype; A, K, SING iso).

Branchlets densely brown puberulent. *Leaves*: petiole 0.7–1.4 cm long; blade papery, elliptic, apex acuminate, base obtuse, 3.6–14.5 × 1.5–7.5 cm, 1.6–2.8 × as long as wide, 7–9 pairs of lateral nerves, puberulent on midrib and veins beneath. *Inflorescence* a terminal panicle, densely puberulent, 8.7–12.5 cm long; pedicels 2.2–3.8 mm long. *Sepals* ovate, reflexed, apex obtuse, 0.7–0.9 × 0.4–0.5 mm, 1.8 × as long as wide, long pubescent. *Corolla* lobes valvate in bud; bud narrow ovoid, open corolla tubular; tube 0.9–1 mm long; lobes triangular, 0.6–0.9 mm long, 0.6 mm wide, 0.7–0.9 × as long as tube; pubescent outside and inside. *Stamens* inserted at 0.3 mm from corolla base, which is 0.3 of tube length; filaments 0.4 mm long; anthers 1 × 0.3 mm, 3.3 × as long as wide. *Disc* 5-crenate, 0.2 mm long. *Ovary* 0.3 mm long; style + pistil head 0.8 mm long. *Fruit* unknown.

Distribution — Malay Peninsula.

Note— This species is close to *U. lucida* from which it differs in leaf shape and thickness and in its generally smaller flowers and longer hairs on the inflorescence.

Collections studied:

MALAYSIA. Pahang: Lubok Jamang, *Symington 36202* (K, KEP); Cameron Highlands, *Nur SF 32823* (A, K, L, SING – type).

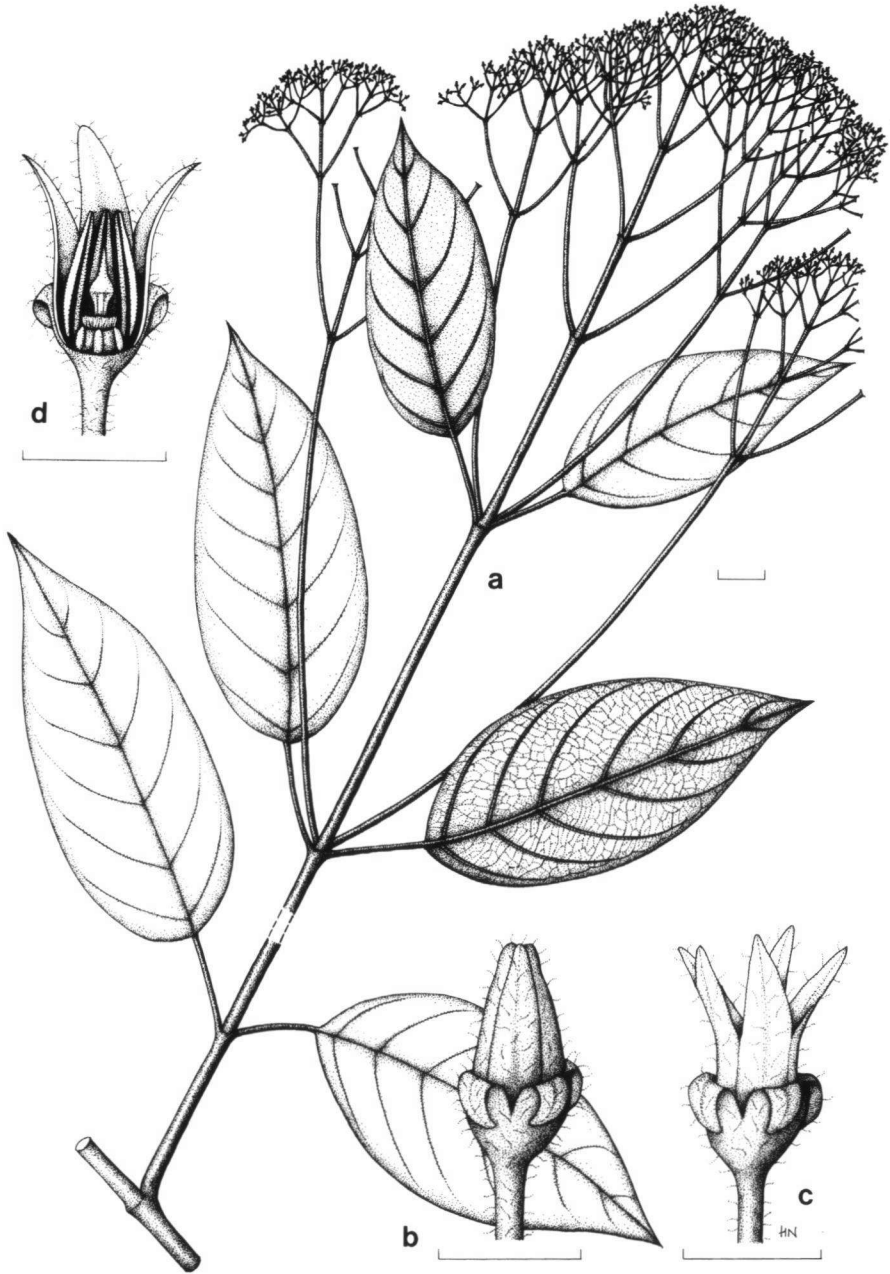


Fig. 5. *Urceola malayana* D.J. Middleton. a. Habit; b. flower in bud; c. open flower; d. flower dissection (*Nur SF 32823*). Scale bars: a = 1 cm; b–d = 1 mm.

9. *Urceola micrantha* (Wall. ex G. Don) D.J. Middleton — Fig. 6; Map 8

- Urceola micrantha* (Wall. ex G. Don) D.J. Middleton, Novon 4 (1994) 151; Kew Bull. 49 (1994) 762. — *Echites micrantha* Wall. ex G. Don, Gen. Syst. 4 (1837) 75. — *Ecdysanthera micrantha* (Wall. ex G. Don) A.D.C., Prodr. 8 (1844) 442; Hook. f., Fl. Brit. India 3 (1882) 662; King & Gamble, J. As. Soc. Beng. 74 (1907) 482; Ridley, Fl. Malay Penins. 2 (1923) 360. — *Parabarium micranthum* (Wall. ex G. Don) Pierre ex Spire, Contr. Apoc. (1905) 38; Tsiang, Sunyatsenia 2 (1934) 117; Bull. Fan Mem. Inst. Biol. (Bot.) 9 (1939) 19; Kerr, Fl. Siam. Enum. 2 (1939) 21, 463; Guangdong Coll. Agric. For. (P.T. Li?), Fl. Hainanica 3 (1974) 238; Lý, Feddes Rep. 89 (1978) 252; Feddes Rep. 97 (1986) 266. — Type: *Wallich 1667*, p.p. (CGE lecto, selected here; BM, CGE, E, G, K, K-W iso).
- Ecdysanthera brachiata* A.D.C., Prodr. 8 (1844) 443; Kurz, J. As. Soc. Beng. 46 (1877) 255; Kurz, Fl. Burma 2 (1877) 189. — *Parabarium brachiatum* (A.D.C.) Pierre ex Spire, Contr. Apoc. (1905) 37. — [*Echites brachiata* Wall., Num. List. (1829) 1668, nom. nud.] — Type: *Wallich 1668* (K-W lecto, selected by Middleton, 1994c; BM, BR, G, G-DC, K, K-W, P iso).
- Ecdysanthera cambodiensis* Pierre, Rev. Cult. Colon. 11 (1902) 228. — *Parabarium cambodiense* (Pierre) Pierre ex Spire, Contr. Apoc. (1905) 38; Pitard in Lecomte, Fl. Gén. Indo-Chine 3 (1933) 1221; Lý, Feddes Rep. 89 (1978) 256; Feddes Rep. 97 (1986) 266 [as *P. cambodianum*]. — Type: *Pierre 1434* (P lecto, selected by Middleton, 1994c; BR, P iso).
- Ecdysanthera linearcarpa* Pierre, Rev. Cult. Colon. 11 (1902) 228. — *Parabarium linocarpum* Pierre ex Spire, Contr. Apoc. (1905) 36, orth. var.; Pitard in Lecomte, Fl. Gén. Indo-Chine 3 (1933) 1215. — *Parabarium linearcarpum* (Pierre) Pichon, Bull. Mus. Nat. Hist. Nat. Paris, sér. 2, 20 (1948) 302; Tsiang & P.T. Li, Fl. Reip. Pop. Sin. 63 (1977) 243; Lý, Feddes Rep. 89 (1978) 257; J. Ying & P.T. Li, Fl. Yunnanica 3 (1983) 560. — *Ecdysanthera linocarpa* (Pierre) P.T. Li, J. S. China Agric. Univ. 11 (1990) 34, orth. var. — *Urceola linearcarpa* (Pierre) D.J. Middleton, Novon 4 (1994) 151. — Type: *Tournier 6615* (P lecto, selected by Lý, 1978).
- Ecdysanthera annamensis* Vernet, Bull. Econ. Indo-Chine 7 (1904) 1189. — Type: *Vernet s.n.* (P holo).
- Ecdysanthera langbianii* Vernet, Bull. Econ. Indo-Chine 7 (1904) 1185. — *Parabarium langbianii* (Vernet) Pichon, Mém. Mus. Nat. Hist. Nat. Paris, sér. B, Bot. 1 (1950) 82; Lý, Feddes Rep. 89 (1978) 265. — *Parabarium langbienense* Lý, Feddes Rep. 97 (1986) 665, orth. var. — Type: *Vernet s.n.*, Dec. 1902 (P lecto, selected here). Lý designated *Vernet 8* (5-2-1901) as the type of this name. This seems to have no basis other than that it was collected in Lang Bian and must be rejected in favour of *Vernet s.n.*, a plant also collected in Lang Bian and labelled *Ecdysanthera langbianii* by Vernet himself, unlike *Vernet 8*.
- Parabarium spireanum* Pierre ex Spire, Contr. Apoc. (1905) 22; Pitard in Lecomte, Fl. Gén. Indo-Chine 3 (1933) 1220; Tsiang & P.T. Li, Fl. Reip. Pop. Sin. 63 (1977) 244; J. Ying & P.T. Li, Fl. Yunnanica 3 (1983) 560. — Type: *Spire 20* (K lecto, selected by Middleton, 1994c; A, BO, P, S iso).
- Parabarium vernetii* Pierre ex Spire, Contr. Apoc. (1905) 34; Pitard in Lecomte, Fl. Gén. Indo-Chine 3 (1933) 1218; Lý, Feddes Rep. 89 (1978) 263; Feddes Rep. 97 (1986) 266. — Type: *Spire 11* (P holo).
- Ecdysanthera utilis* Hayata & Kawakami, Bot. Mag. Tokyo 20 (1906) 51; Tsiang, Sunyatsenia 3 (1936) 139; Guangdong Coll. Agric. For. (P.T. Li?), Fl. Hainanica 3 (1974) 237; Tsiang & P.T. Li, Fl. Reip. Pop. Sin. 63 (1977) 235; J. Ying & P.T. Li, Fl. Yunnanica 3 (1983) 538; Huang, Tawania 31 (1986) 96; P.T. Li, J. S. China Agric. Univ. 11 (1990) 34. — *Parabarium utile* (Hayata & Kawakami) Lý, Feddes Rep. 89 (1978) 261; Feddes Rep. 97 (1986) 266. — Type: *Kawakami s.n.* (K lecto, selected by Middleton, 1994c; TI iso).
- Ecdysanthera multiflora* King & Gamble, J. As. Soc. Beng. 74 (1907) 482; Ridley, Fl. Malay Penins. 2 (1923) 360. — *Parabarium multiflorum* (King & Gamble) Lý, Feddes Rep. 89 (1978) 260. — Type: *King 2294* (BM lecto, selected by Lý (1978); K iso).
- Parabarium diu-do* Dub. & Eberh., Agric. Prat. Pays Chaud 13 (1913) 238; Pitard in Lecomte, Fl. Gén. Indo-Chine 3 (1933) 1219; Lý, Feddes Rep. 89 (1978) 254; Feddes Rep. 97 (1986) 266. — Type: *Eberhardt s.n.* (P lecto, selected here; P iso).

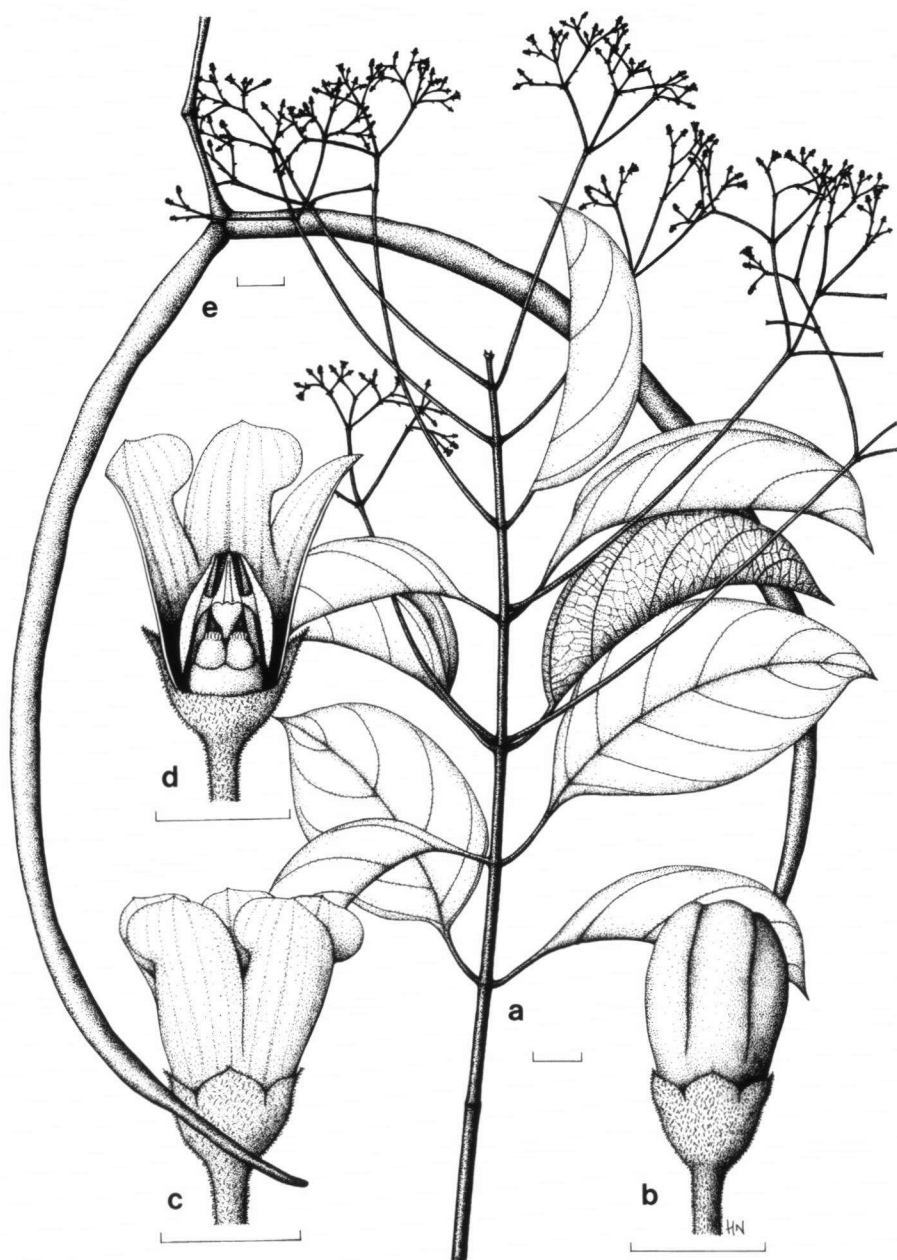


Fig. 6. *Urceola micrantha* (Wall. ex G. Don) D.J. Middleton. a. Habit; b. flower in bud; c. open flower; d. flower dissection; e. fruit (a–d: Charoenphol, Larsen & Warncke 4188; e: How 73491). Scale bars: a, e = 1 cm; b–d = 1 mm.

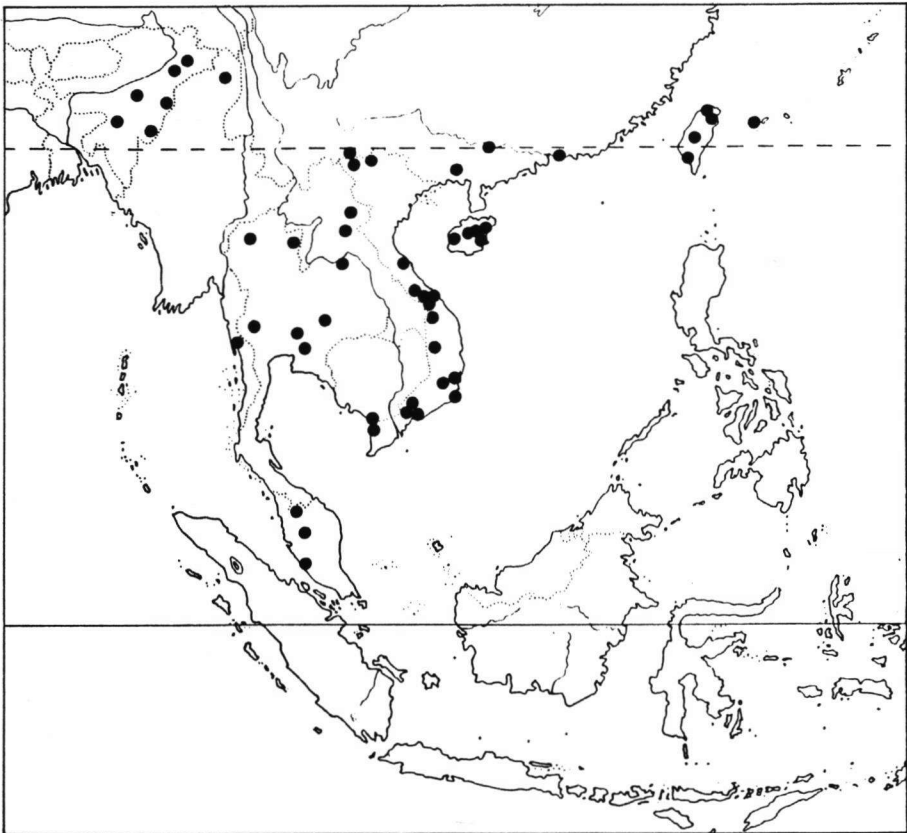
Parabarium diu-do var. *longifolia* Dub. & Eberh., Agric. Prat. Pays Chaud 13 (1913) 240; Pitard in Lecomte, Fl. Gén. Indo-Chine 3 (1933) 1219. — Type: Eberhardt s.n. (P lecto, selected here; P iso).

Parabarium chevalieri Pitard in Lecomte, Fl. Gén. Indo-Chine 3 (1933) 1212; Lý, Feddes Rep. 89 (1978) 259; Feddes Rep. 97 (1986) 665. — Type: *Chevalier 38604* (P lecto, selected here; P iso).

Urceola montana M.R. Hend., Gard. Bull. Str. Settlem. 7 (1933) 108. — *Chavannesia montana* (M.R. Hend.) Pichon, Bull. Mus. Nat. Hist. Nat. Paris, sér. 2, 20 (1948) 302. — Type: *Henderson 23601* (SING lecto; BO, K iso).

Parabarium utile var. *kerrii* Lý, Feddes Rep. 89 (1978) 263. — Type: *Kerr 9930* (P holo; ABD, BK, BM, E, K, L, TCD iso).

Branches with pale lenticels; branchlets minutely puberulent, rarely glabrous. *Leaves*: petiole 0.6–2 cm long; blade papery to subcoriaceous, elliptic to ovate, apex acuminate, base cuneate to rounded, 2.8–18 × 1.1–5.7 cm, 1.7–3.7 × as long as wide, 3–7 pairs of lateral nerves, strongly ascending, tertiary venation weakly scalariform and reticulate, glabrous or with a puberulent petiole, usually with hairs in the axils of the secondary nerves with the midrib, occasionally completely glabrous, sometimes punctate beneath. *Inflorescence* of axillary and terminal cymes, usually forming a panicle, puberulent, rarely glabrous, 5.8–18 cm long; pedicels 0.6–6.2 mm long.



Map 8. Distribution of *Urceola micrantha* (Wall. ex G. Don) D.J. Middleton (●).

Sepals ovate, sometimes reflexed, apex abruptly acuminate, obtuse or apiculate, 0.5–1 × 0.4–0.8 mm, 0.9–2 × as long as wide, puberulent or glabrous, ciliate. *Corolla* white or greenish white; lobes overlapping to the right in bud which is ovoid, open corolla campanulate; tube 0.7–1.5 mm long; lobes falcate to the right, 0.6–1.2 mm long, 0.4–1(–1.3) × as long as tube; glabrous outside, rarely sparsely pubescent on upper parts, pubescent inside. *Stamens* inserted a 0.2–0.5 mm from corolla base, which is 0.1–0.4 of the tube length; filaments 0.1–0.5 mm long; anthers 0.9–1.3 × 0.3–0.4 mm, 2.3–3.3 × as long as wide. *Disc* 5-crenate, 0.2–0.4 mm long. *Ovary* 0.3–0.7 mm long; style + pistil head 0.6–0.9 mm long. *Fruit* not stipitate, linear, follicles mostly divergent, lenticellate, glabrous, 6.7–25 cm long, 0.3–1 cm wide. *Seed* grain 7.3–18 × 2.2–3.9 mm; coma 2.8–6 cm long.

Distribution — China, Taiwan, India, Nepal, Burma, Vietnam, Laos, Cambodia, Thailand, Malaysia, Japan (Ryukus).

Habitat — In evergreen or secondary forest to 1500 m altitude.

Note — This is a very variable and widespread species, most closely related to *U. tournieri*. Sometimes the part of the corolla lobe which is curved over and covered in the flower bud is very small which is probably what led to the synonym *U. montana* being described in *Urceola* at a time when the genera were distinguished on valvate versus overlapping corolla lobes.

Collections studied:

CHINA. Guangdong: Tseh Kou Shan, near Wu Kan Tin, *Tsiang* 90 (A, B, E). Guangxi: Ping Nam Hsien, *Wang* 40421 (A, MO). Hainan: Pak Shik Ling, Ku Tung village, Ching Mai, *Lei* 881 (A, B, BO, K, L, P, SING, US, W). Hong Kong: Kowloon, *Herb. Hongkong* 10169 (A). Yunnan: Ping-pien-Hsien, *Tsai* 61579 (A, BO).

TAIWAN. Nantou: Lian-hwa-chyr, *Lu* 15492 (A); Taipei County, Ta-chi-tou-shan, *Kuo, Chiang & Liu* 15436 (MO); Tiran, *Wilson* 10153 (A, BM, K, US).

INDIA. Pundua: *Wallich* 1667 (BM, CGE, E, G, K – type of *Echites micrantha*), 1668 (BM, BR, G, K, P – type of *Ecdysanthera brachiata*); Manipur, Trong, *Meebold* 5358 (K).

BURMA. Kachin State: Sumprabum subdivision, between Hpuginkha & N'Dum Zup, *Keenan, Aung & Hla* 3919 (E). Tavoy: On Nwalabo, *Parker* 2305 (A, K).

VIETNAM. Dong Nai: N of Pnom Sapoum, near Blao, *Poilane* 23822 (P). Gia Lai-Kon Tum: Song Lang, An Khe, *Lý* 562 (B). Lam Dong: E of Dan Kia, Near Da Lat, *Vernet s.n.* (P – type of *Parabarium langbianii*). Nghe Tinh: Cua Rao, *Spire* 20 (A, BO, K, P, S – type of *Parabarium spireanum*). Khanh Hoa: Nha Trang, *Vernet s.n.* (P – type of *Ecdysanthera annamensis*); Houba, *Chevalier* 38604 (P – type of *Parabarium chevalieri*). Phu Quoc Island: *Pierre* 1434 (BR, P – type of *Parabarium cambodiense*). Quang Tri: Ben Tram, *Poilane* 1090 (A, B, BO, K, P, US). Thua Thien Hue, *Eberhardt s.n.* (P – type of *Parabarium diu-do*), *s.n.* (P – type of *Parabarium diu-do* var. *longifolia*). Thuan Hai: Ca Na, *Poilane* 5996 (P).

LAOS. Houa Phan: Xam Nua, Na Ham, *Poilane* 1877 (A, P, US). Tran Ninh: *Tournier* 6615 (P – type of *Ecdysanthera linearicarpa*), *Spire* 11 (P – type of *Parabarium vernetii*).

CAMBODIA. Kampot: Mt Bokor, *Smitinand* 6528 (K).

THAILAND. Chaiyaphum: Phu Khieo, *Smitinand* 11918 (BKF). Chiang Mai: Doi Sutep, *Kerr* 6372 (BM). Kanchanaburi: Khao Yai, E of Sangkhla, *van Beusekom & Phengkhlai* 287 (P). Nakhon Ratchasima: Khao Yai National Park, *van Beusekom & Charoenphol* 1722 (AAU, E, K, L). Nan: Doi Wao, *Kerr* 2426 (BM, E, K, TCD). Nong Khai: Pon Pisai, *Kerr* 8575 (A, AAU, ABD, BM, E, K, L, P). Surin: *Phengkhlai* 3552 (BKF). Bien-hoa Giarai, *Chevalier* 39873 (P).

MALAYSIA. Peninsula: Pahang: Cameron Highlands, *Henderson* 23601 (BO, K, SING – type of *Urceola montana*). Perak: Larut, *King's coll.* 2294 (BM, K – type of *Ecdysanthera multiflora*). Selangor: Ulu Klang, Ampang, *Umbai* 1749 (A, K, KEP, L, SING).

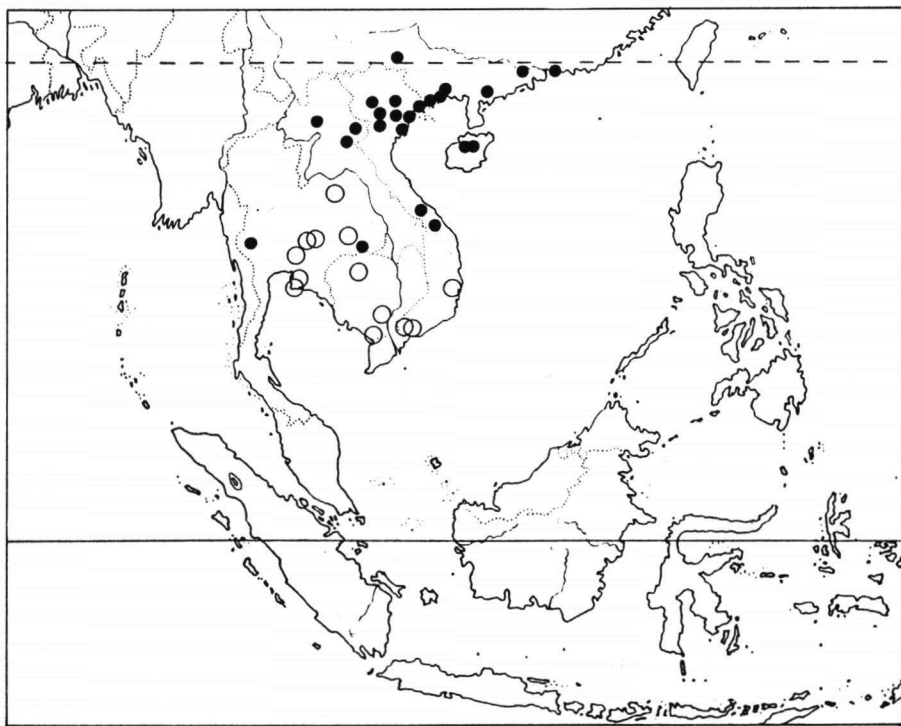
JAPAN. Ryukus: Iriomote, along Nakara River, *Hatusima* 18773 (TI, US).

10. *Urceola minutiflora* (Pierre) D.J. Middleton — Map 9

Urceola minutiflora (Pierre) D.J. Middleton, *Blumea* 39 (1994) 89; *Kew Bull.* 49 (1994) 764. — *Xylinabaria minutiflora* Pierre, *Bull. Soc. Linn. Paris*, sér. 2, 1 (1898) 28; *Spire, Contr. Apoc.* (1905) 58; Pitard in Lecomte, *Fl. Gén. Indo-Chine* 3 (1933) 1204; Kerr, *Fl. Siam. Enum.* 2 (1939) 463; Lý, *Feddes Rep.* 97 (1986) 664. — *Microchites minutiflora* (Pierre) P.T. Li, *J. S. China Agric. Univ.* 11 (1990) 34. — Type: *Pierre 4501* (P lecto, selected by Middleton, 1994c; A, BO, BR, C, K, L, MO, P, SING, US iso).

Pezisicarpus montana Vernet, *Bull. Econ. Indo-Chine* 35 (1904) 1193. — Type: *Vernet s.n.* (P lecto, selected here). The original description makes reference to flowering and fruiting collections but the fruiting specimen has not been found.

Branches sparsely lenticellate or not; branchlets brown pubescent. *Leaves*: petiole 0.5–1 cm long; blade papery, elliptic to oblong, apex acuminate to retuse, base obtuse to weakly cordate, 3.3–10 × 1.7–5.5 cm, 1.7–2.9 × as long as wide, 6–12 pairs of lateral nerves, tertiary venation scalariform and reticulate, puberulent on midrib and veins beneath, occasionally sparsely so above. *Inflorescence* of axillary and terminal cymes, sometimes forming a panicle, puberulent, 3.5–10 cm long; pedicels 1–2.1 mm long. *Sepals* ovate, apex acute to obtuse, 0.7–1.2 × 0.3–0.7 mm, 1.5–3.3 × as long as wide, sparsely puberulent. *Corolla* yellowish; lobes in bud valvate; bud ovoid, open corolla urceolate; tube 0.8–1 mm long; lobes triangular, 0.3–0.6 mm long, 0.4 mm wide, 0.4–0.6 × as long as tube; sparsely pubescent outside and inside. *Stamens* inserted at 0.1–0.2 mm from corolla base; filaments 0.4–0.5 mm long; anthers 0.7–



Map 9. Distribution of *Urceola minutiflora* (Pierre) D.J. Middleton (○); *U. napeensis* (Quintaret) D.J. Middleton (●).

1.1 × 0.3–0.4 mm, 2.8–3.7 × as long as wide. *Disc* 5-crenate, 0.2–0.3 mm long. *Ovary* 0.4–0.5 mm long; style + pistil head 0.6–0.9 mm long. *Fruit* stipitate, widest near base and tapering, parallel, glabrous, 3.8–8 cm long, 0.7–0.9 mm wide. *Seed* grain 8.5–9 × 3.3–5.2 mm; coma 1.9–2.7 cm long.

Distribution — Thailand, Cambodia, Vietnam.

Habitat — In open thickets or evergreen forest to 400 m altitude.

Selection of the 20 collections studied:

THAILAND. Chon Buri: Sattahip, *Maxwell 71-421* (AAU). Nakhon Ratchasima: Sakaerat, *Fukuoka & Ito T- 34760* (L). Saraburi: Sahm Lahn forest, *Maxwell 75-588* (AAU, L). Udon Thani: Non Sang, *Bunchai 1638* (BKF, C, K, L, P).

CAMBODIA. Angkor: *Thorel 2107* (A, B, K, P). Chut Angkot, *Magnen s.n.* (P). Kampot: Knang Repoueu, *Pierre 4501* (A, BO, BR, C, K, L, MO, P, SING, US – type of *Xylinabaria minutiflora*).

VIETNAM. Dong Nai: Moi de Pourteng, *Vernet s.n.* (P – type of *Pezisicarpus montana*). Khanh Hoa: between Nha Trang & Minh Hoa, *Poilane 8291* (P).

11. *Urceola napeensis* (Quintaret) D.J. Middleton — Fig. 7; Map 9

Urceola napeensis (Quintaret) D.J. Middleton, *Blumea* 39 (1994) 89; *Kew Bull.* 49 (1994) 764. — *Microchites napeensis* Quintaret, *Compt. Rend. Acad. Sci.* 134 (1902) 438. — *Ecdysanthera napeensis* (Quintaret) Pierre, *Rev. Cult. Colon.* 11 (1902) 228. — *Parabarium napeensis* (Quintaret) Jum. ex Spire, *Contr. Apoc.* (1905) 33. — *Xylinabariopsis napeensis* (Quintaret) Metcalfe, *J. Arnold Arbor.* 26 (1945) 202. — Type: *Quintaret s.n.* (P holotype).

Xylinabaria reynaudii Jum., *Rev. Cult. Colon.* 10 (1902) 363; Spire, *Contr. Apoc.* (1905) 57. — *Xylinabariopsis reynaudii* (Jum.) Pitard in Lecomte *Fl. Gén. Indo-Chine* 3 (1933) 1261. — Type: *Reynaud s.n.* (P lectotype, selected by Middleton, 1994c; P iso).

Parabarium candollei Pierre ex Spire, *Contr. Apoc.* (1905) 37. — Type: *Balansa 2079* (P lectotype; G, K, P iso).

Parabarium micrantha auct. non (Wall. ex G. Don) Pierre ex Spire: Tsiang & P.T. Li, *Fl. Reip. Pop. Sin.* 63 (1977) 239; J. Ying & P.T. Li, *Fl. Yunnanica* 3 (1983) 559.

Branches sparsely lenticellate or not; branchlets puberulent, sometimes turning glabrous when older. *Leaves*: petiole 0.5–2.3 cm long; papery, elliptic to ovate, apex acuminate to subcaudate, base rounded to cuneate, 2.6–12.7 × 1.3–7.2 cm, 1.9–3.4 × as long as broad; 3–8 pairs of lateral nerves, tertiary venation scalariform and reticulate; with hairs in the lateral nerve axils with the midrib and sometimes sparsely so on midrib beneath. *Inflorescence* of axillary and terminal cymes usually forming a panicle, puberulent, 2–9 cm long; pedicels 1.1–2.8 mm long. *Sepals* ovate, apex acute, rarely obtuse, 0.6–1.3 × 0.4–0.7 mm, 1.1–2.6 × as long as wide, puberulent. *Corolla* white; corolla lobes overlapping to the right in bud which is ovoid, open corolla campanulate; tube 0.7–1.5 mm long; lobes strongly falcate to the right as viewed from inside, 1.1–2.3 mm long, 0.5–0.8 mm wide, 1.3–2 × as long as tube; glabrous outside, densely pubescent to almost glabrous inside. *Stamens* inserted at 0.2 mm from corolla base, which is 0.2 of tube length; filaments 0.1–0.3 mm long; anthers 0.7–0.8 × 0.2–0.3 mm, 2.3–3.5 × as long as wide. *Disc* 5-crenate, 0.2–0.3 mm long. *Ovary* 0.3–0.6 mm long; style + pistil head 0.5–0.7 mm long. *Fruit* stipitate, widest near base and tapering, parallel or slightly diverging, glabrous, 4.1–5.8 cm long, 0.4–1 cm wide. *Seed* grain 10–17 × 2.3–3 mm; coma 2.6–3.8 cm long.

Distribution — China (Guangdong, Guangxi, Hainan), Hong Kong, Thailand, Laos, Vietnam.

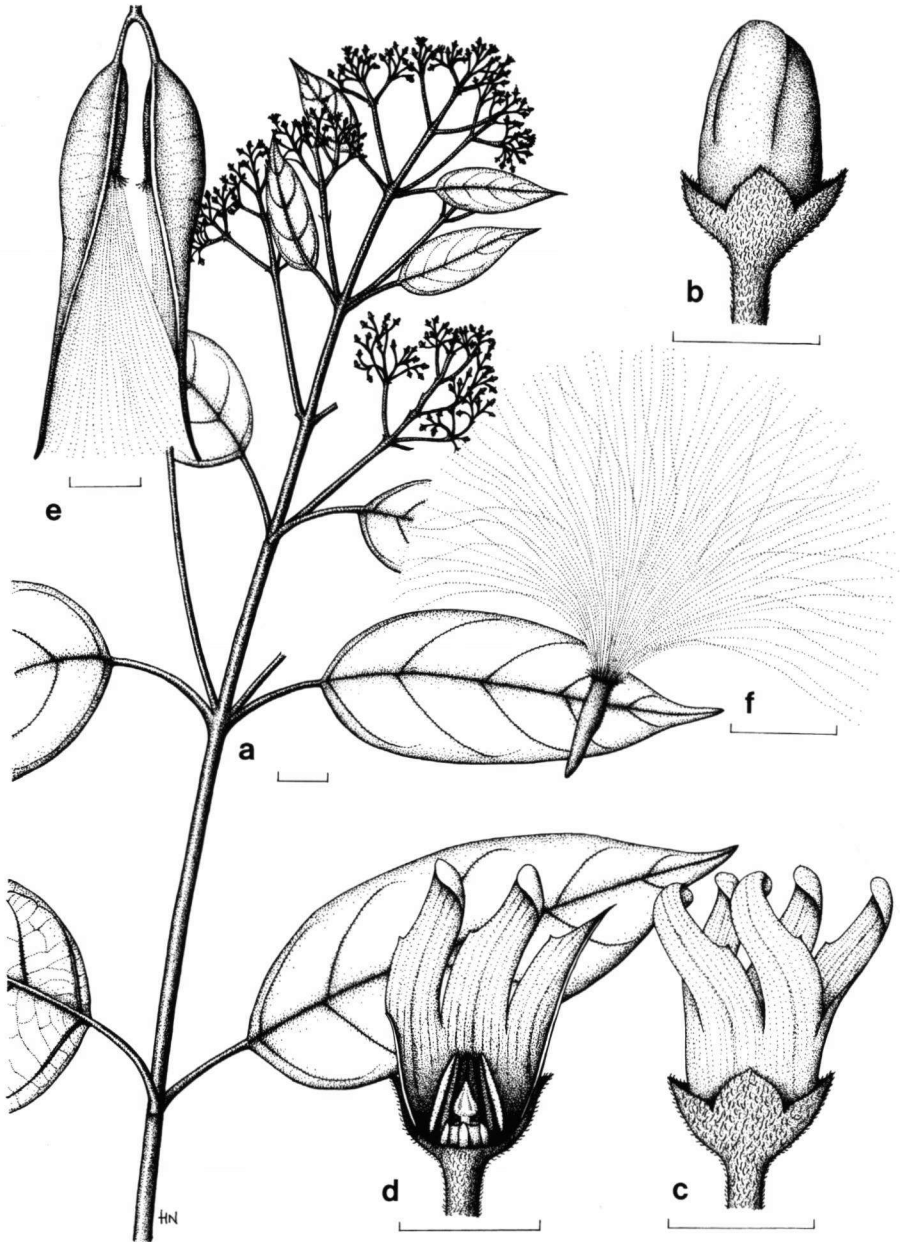


Fig. 7. *Urceola napeensis* (Quintaret) D.J. Middleton. a. Habit; b. flower in bud; c. open flower; d. flower dissection; e. fruit; f. seed (a–d: *Poilane 26110*; e, f: *Eberhardt 3769*). Scale bars: a, e, f = 1 cm; b–d = 1 mm.

Habitat — In a wide variety of habitats, frequently in thickets and on dry sandy soil.

Notes— Middleton (1994c) designated a neotype for this species on the grounds that the type could not be traced. Since then, however, a specimen has come to light in the Paris herbarium which was collected by Quintaret in Nape in Kham Mouan Province; it has numerous handwritten notes and is almost certainly the type of this species.

There seems to have been some confusion between this species and *Urceola micrantha* in the various Chinese works on the Apocynaceae. Illustrations of *Parabarium micranthum* in Tsiang & Li (1977) and Ying & Li (1983) actually represent *Urceola napeensis*.

Selection of the c. 60 collections studied:

CHINA. Gaungdong: Dinghushan, *Shi 14691* (BM). Guangxi: Yao Shan, Ping Nan, *Wang 39139* (A). Hainan: Po-ting, *How 72685* (A). Hong Kong: Lantao Island, Lantao peak, *Taam 1748* (A, G, H, US).

THAILAND. Kanchanaburi: Huay Bankan, *van Beusekom et al. 3538* (A, BKF, C, K, L). Si Sa Ket: Kantarakal Distr., Roong Subdistr., 10 km N of Chang Bat Lak, *Maxwell 76-209* (AAU, L).

LAOS. Tran Ninh: *Spire 11* (A, P). Kham Mouan: Nape, *Quintaret s. n.* (P – type of *Micrechites napeensis*).

VIETNAM. s.l.: *Balansa 2079* (G, K, P – type of *Parabarium candollei*). Bac Thai: Son Cot, *Reynaud 6617* (P – type of *Xylinabaria reynaudii*). Ha Bac: Co-Phah woods, between Hanoi & Bac-ninh, *Balansa 4669* (P). Ha Noi: So'n Tay, between Tong & Da Chong, *Pételot 5784* (A, P). Ha So'n Binh: Lu'o'ng So'n, between Dong Mo & Van Linh, *Pételot 2444* (A, MO, US). Quang Nam Da Nang: Mt Bana 25 km from Da Nang, *Clemens 4036* (A, BM, K, P). Quang Ninh: Dam Ha, Sai Wong Mo Shan, *Tsang 30252* (A, BO, C, E, G, K, L, P, SING, UPS). Quang Tri: *Poilane 13450* (P). Vinh Phu: Vinh Yen, Lang Nue, *Eberhardt 3769* (A, P).

12. *Urceola quintaretii* (Pierre) D.J. Middleton — Fig. 8; Map 10

Urceola quintaretii (Pierre) D.J. Middleton, *Novon* 4 (1994) 151. — *Ecdysanthera quintaretii* Pierre, *Rev. Cult. Colon.* 11 (1902) 228; P.T. Li, *J. S. China Agric. Univ.* 11 (1990) 33. — *Parabarium quintaretii* (Pierre) Pierre ex Spire, *Contr. Apoc.* (1905) 27; Pitard in Lecomte, *Fl. Gén. Indo-Chine* 3 (1933) 1212; Lý, *Feddes Rep.* 89 (1978) 275; *Feddes Rep.* 97 (1986) 266. — Type: *Unknown* (probably *Quintaret* or *Tournier*) 6618 (P lecto, selected here; P iso).

Parabarium hainanense Tsiang, *Sunyatsenia* 2 (1934) 123; Guangdong Coll. Agric. For. (P.T. Li?), *Fl. Hainanica* 3 (1974) 238; Tsiang & P.T. Li, *Fl. Reip. Pop. Sin.* 63 (1977) 239. — Type: *Chun & Tso 43733* (IBSC holo; A, B, US iso).

Parabarium handelianum Tsiang, *Sunyatsenia* 2 (1934) 121. — *Ecdysanthera parameroides* Tsiang, *Sunyatsenia* 2 (1934) 123, nom. illeg. (mentioned as an earlier but unpublished name for *P. handelianum*). — Type: *Ching 5611* (SYS holo [probably now in IBSC], n.v.; A, W iso).

Parabarium chunianum Tsiang, *Sunyatsenia* 2 (1934) 119; Guangdong Coll. Agric. For. (P.T. Li?), *Fl. Hainanica* 3 (1974) 238; Tsiang & P.T. Li, *Fl. Reip. Pop. Sin.* 63 (1977) 237. — Type: *Liang 60632* (IBSC holo; A, W iso).

Branches lenticellate; branchlets sparsely puberulent or glabrous. *Leaves*: petiole 4–9 mm long; blade papery to subcoriaceous, elliptic to obovate, apex acuminate, base cuneate to acute, 2.5–14.8 × 0.8–3.2 cm, 1.8–5.3 × as long as wide, 4–8 pairs of lateral nerves, strongly ascending, tertiary venation obscure or reticulate, punctate beneath, with or without hairs in the axils of the lateral nerves and midrib. *Inflorescence* of axillary, long peduncled cymes, densely short puberulent, 1.7–8 cm long;

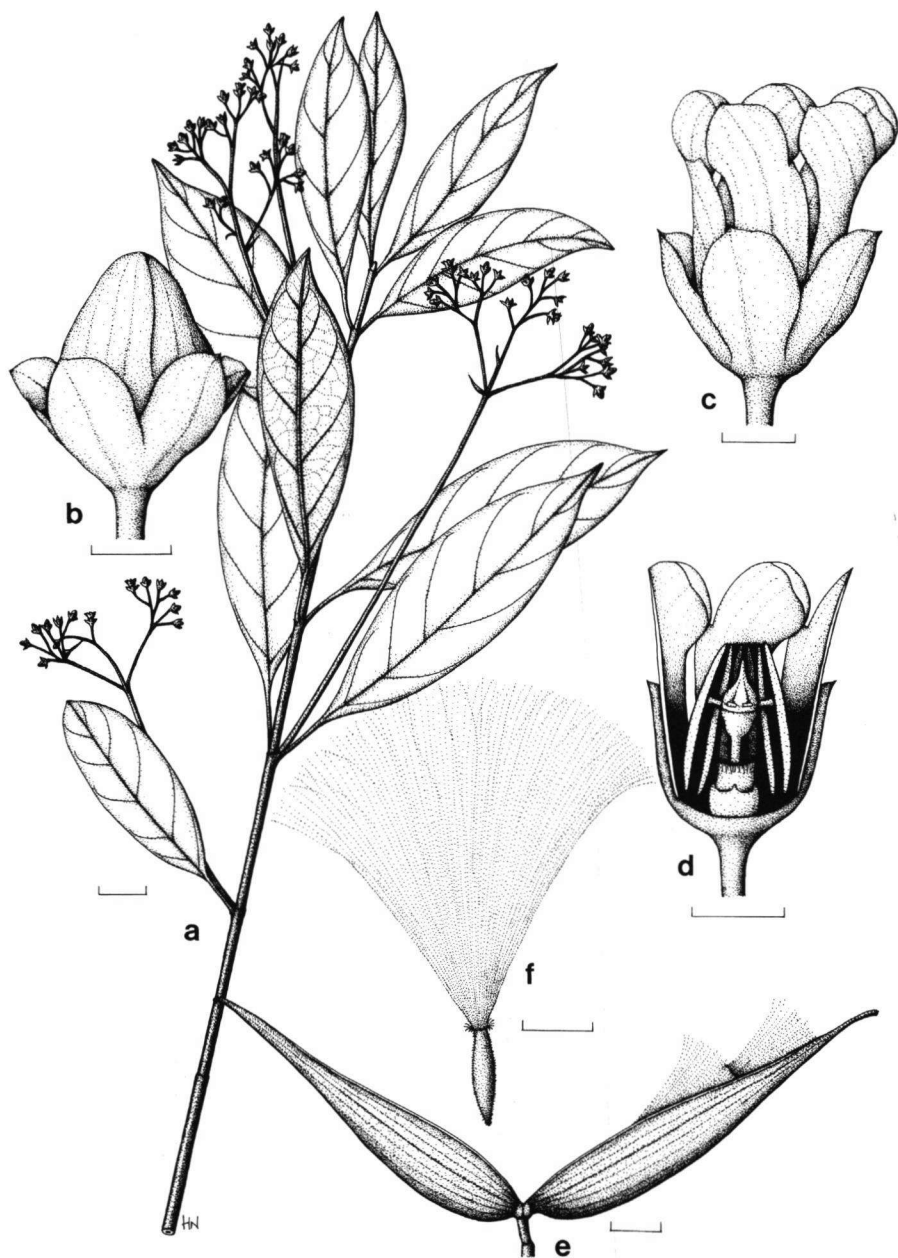
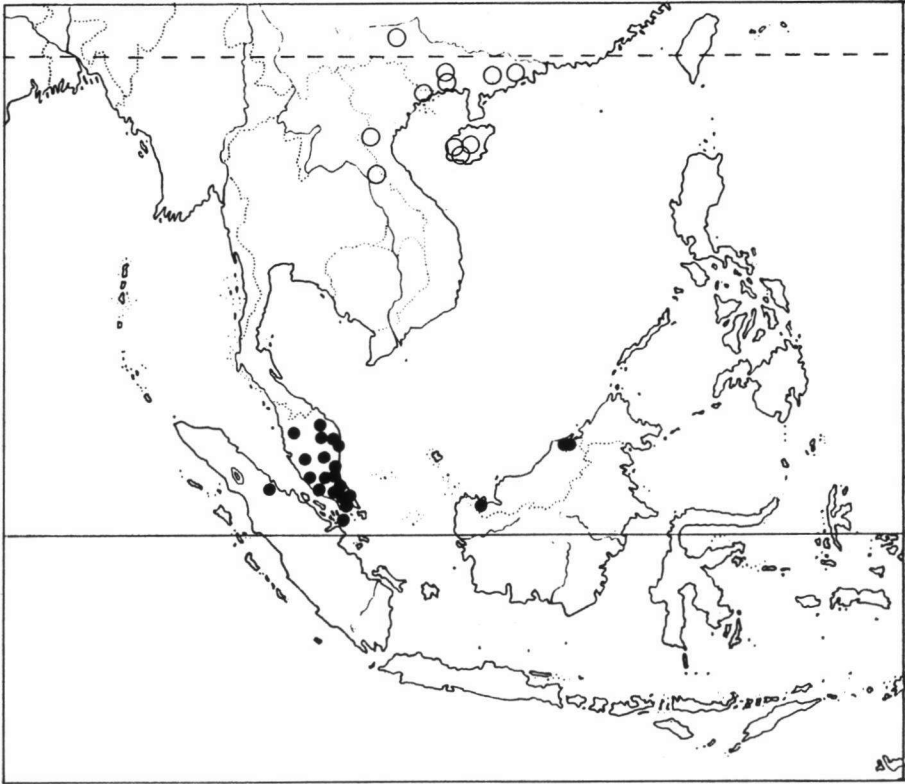


Fig. 8. *Urceola quintareti* (Pierre) D.J. Middleton. a. Habit; b. flower in bud; c. open flower; d. flower dissection; e. fruit; f. seed (a–d: Tsang 22262; e, f: How 73670). Scale bars: a, e, f = 1 cm; b–d = 1 mm.



Map 10. Distribution of *Urceola quintareti* (Pierre) D.J. Middleton (○); *U. torulosa* Hook. f. (●).

pedicels 1.6–3.5 mm long. *Sepals* thin and leafy, ovate or oblong, apex rounded to obtuse, strongly imbricate, 1.4–2.4 × 0.6–1.7 mm, 1.4–2.8 × as long as wide, glabrous or sparsely puberulent. *Corolla* white or greenish white; corolla lobes overlapping to the right in bud which is ovoid, open corolla campanulate; tube 1.4–1.7 mm long; lobes slightly falcate, 1–1.1 mm long, 0.7 mm wide, 0.6–0.8 × as long as tube; pubescent outside at base of lobes, pubescent inside. *Stamens* inserted at 0.3 mm from corolla base, which is 0.4 of tube length; filaments 0.2 mm long; anthers 1.4 × 0.4 mm, 3.5 × as long as wide. *Disc* 5-crenate, 0.3 mm long. *Ovary* 0.5 mm long; style + pistil head 1 mm long. *Fruit* not stipitate, widest at base, tapering to ends, divergent, glabrous, 3.7–7.2 cm long, 0.5–0.9 cm wide. *Seed* grain 11–17 × 3–4 mm; coma 1.5–4 cm long.

Distribution — China, Vietnam, Laos.

Habitat — In forest, sometimes on swampy ground, to 760 m altitude.

Selection of the 20 collections studied:

CHINA. Guangdong: Wan Tong Shan, Liang 60632 (A, IBSC, W – type of *Parabarium chunianum*); Sup-man-ta Shan, Tso 23547 (A – paratype of *Parabarium chunianum*). Guangxi: Tung Hoo, N of Luchen, Ching 5611 (A, W – type of *Parabarium handelianum*); Sen-feng Dar Shan, S Nan-

ning, *Ching* 8283 (W). Hainan: Dung Ka, *Chun & Tso* 43733 (A, IBSC, US – type of *Parabarium hainanensis*); Po-ting, *How* 72734 (G, P).

VIETNAM. Nghe Tinh: Cua Rao, *Spire* 21 (K, P). Quang Ninh: Dam Ha, Sai Wong Mo Shan, Lung Wan Village, *Tsang* 30071 (A, K, SING).

LAOS. Cam-mon: *Quintaret* 6618 (P – type of *Ecdysanthera quintareti*).

13. *Urceola rosea* (Hook. & Arn.) D.J. Middleton — Fig. 9; Map 11

Urceola rosea (Hook. & Arn.) D.J. Middleton, *Novon* 4 (1994) 151; *Kew Bull.* 49 (1994) 765. — *Ecdysanthera rosea* Hook. & Arn., *Bot. Beech. Voy.* (1837) 198; *Spire*, *Contr. Apoc.* (1905) 2; *Merr.*, *Suppl. List Hainan Pl.* 6 (1930) 330; *Pitard in Lecomte, Fl. Gén. Indo-Chine* 3 (1933) 1210; *Tsiang, Sunyatsenia* 2 (1934) 116; *Sunyatsenia* 3 (1936) 140; *Bull. Fan Mem. Inst. Biol. (Bot.)* 9 (1939) 19; *Kerr, Fl. Siam. Enum.* 2 (1939) 20, 463; *Guangdong Coll. Agric. For. (P.T. Li?)*, *Fl. Hainanica* 3 (1974) 236; *Tsiang & P.T. Li, Fl. Reip. Pop. Sin.* 63 (1977) 234; *J. Ying & P.T. Li, Fl. Yunnanica* 3 (1983) 556; *Huang, Taiwanica* 31 (1986) 95; *Lý, Feddes Rep.* 97 (1986) 662. — Type: *Vachell 144* (K lecto, selected by Middleton, 1994a; CGE, E iso).

Ecdysanthera pedunculosa Miq., *Fl. Ind. Bat., Suppl.* (1861) 557; *Sumatra* (1862) 230. — *Parameria pedunculosa* (Miq.) *Fern.-Vill., Nov. App.* (1880) 130; *Boerl., Handl. Fl. Ned. Indië* 2 (1899) 399. — Type: *Teijsmann 4305* (L lecto; BO, K, MEL, U iso).

Antirrhoea esquirolii Lév., *Fl. Kouy-Tcheou* (1914) 364. — Type: *Esquirol 867* (E holo; scrap in A).

Branchlets glabrous or sparsely puberulent when young. *Leaves*: petiole 0.8–2.2 mm long; blade papery, elliptic to obovate, apex acuminate to obtuse, base cuneate, 1.7–8.8 × 0.7–3.9 cm, 1.3–2.9 × as long as wide, 3–6 pairs of lateral nerves; with domatia in lateral vein axils, usually hair-filled. *Inflorescence* of axillary and terminal cymes forming panicles, puberulent, 5–17 cm long; pedicels 2–6 mm long. *Sepals* ovate, apex acute to obtuse, 1–2.1 × 0.5–1.2 mm, 0.9–2.4 × as long as wide, puberulent. *Corolla* pink and/or red; corolla lobes overlapping to the right in bud which is ovoid, acuminate or acute, open corolla campanulate; tube 1.4–2.4 mm long; lobes elliptic, rounded, 1.5–2.9 mm long, 0.8–1.7 mm wide, 0.9–1.6 × as long as tube; glabrous to minutely puberulent outside, densely pubescent inside. *Stamens* inserted at 0.5–1.5 mm from corolla base, which is 0.3–0.4 of corolla length; filaments 0.2–0.5 mm long; anthers 1.5–1.9 × 0.3–0.5 mm, 3.8–6.3 × as long as wide. *Disc* annular to weakly 5-crenate, 0.3–0.6 mm long. *Ovary* 0.4–0.9 mm long; style + pistil head 1–1.4 mm long. *Fruits* linear, parallel, densely lenticellate, 2.8–22 cm long, 0.5–1.8 cm wide. *Seed* grain 10.6–14.3 × 2.4–3.8 mm; coma 2.9–5.5 cm long.

Distribution — Southern China, N Eastern India, Taiwan, Burma, Thailand, Vietnam, Laos, Cambodia, Malaysia, Indonesia (Sumatra, Java), Japan (?).

Habitat — In evergreen or secondary forest to 1600 m altitude.

Note — There is a single collection labelled 'Japan'. It is not clear where this specimen was collected. It may be that it was collected in the Ryukus, thereby exhibiting a distribution similar to *U. micrantha*. If it was collected further north it would certainly be a far outlier. Fernandez-Villar (1880) suggests this species (under the name *Parameria pedunculosa*) has been collected in the Philippines on the island of Panay. I have seen no material from the Philippines.

Selection of the c. 170 collections studied:

CHINA. Fujian: Buong Kang Yenping, *Chung* 3324 (A, E, MO, W). Guangdong: *Vachell 144* (CGE, E, K – type of *Ecdysanthera rosea*). Guangxi: Ta Tseh Tsuen, *Yung Hsien, Steward & Cheo* 857 (A, P, S). Guizhou: *Esquirol 867* (E, A – type of *Antirrhoea esquirolii*). Hainan: Hung Mo

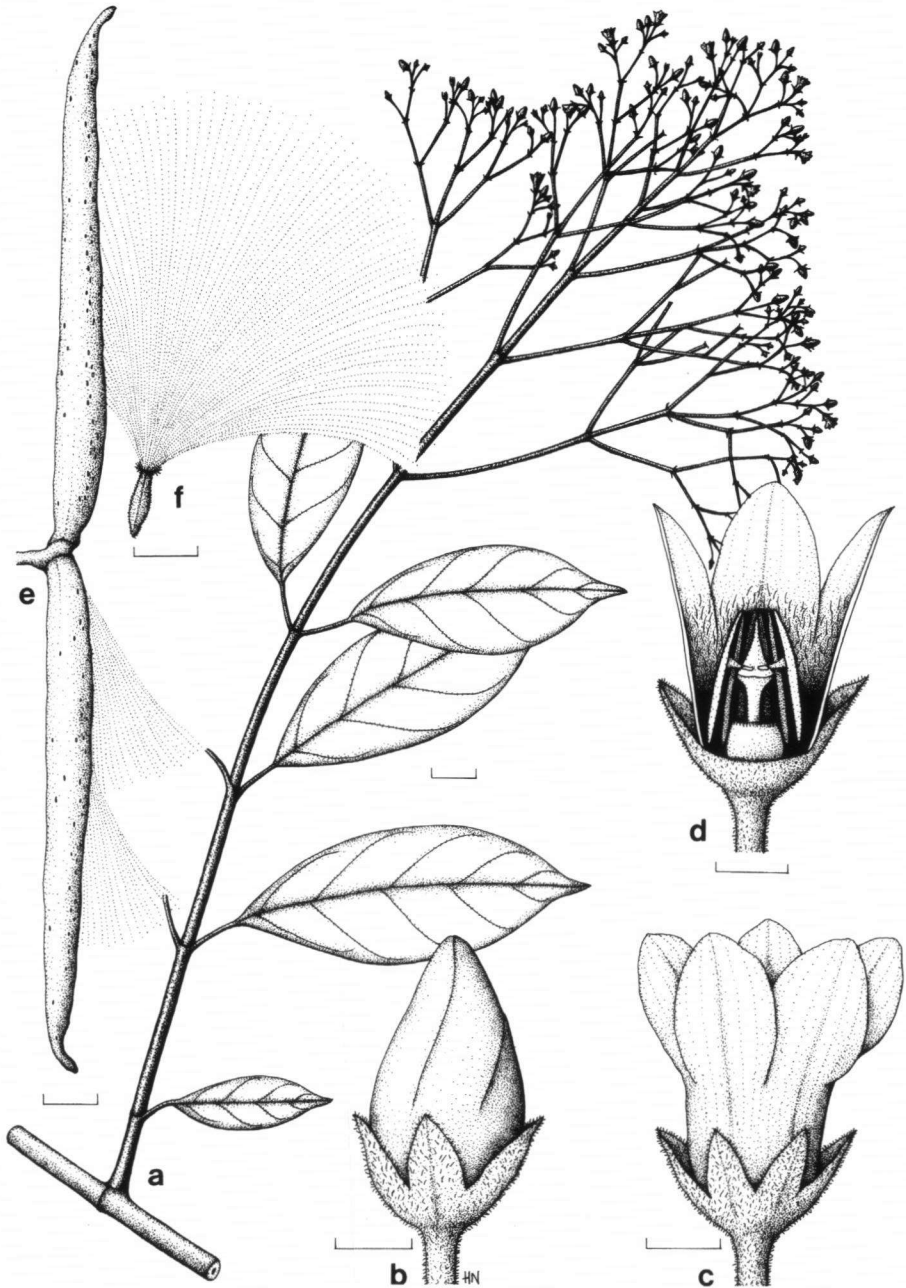
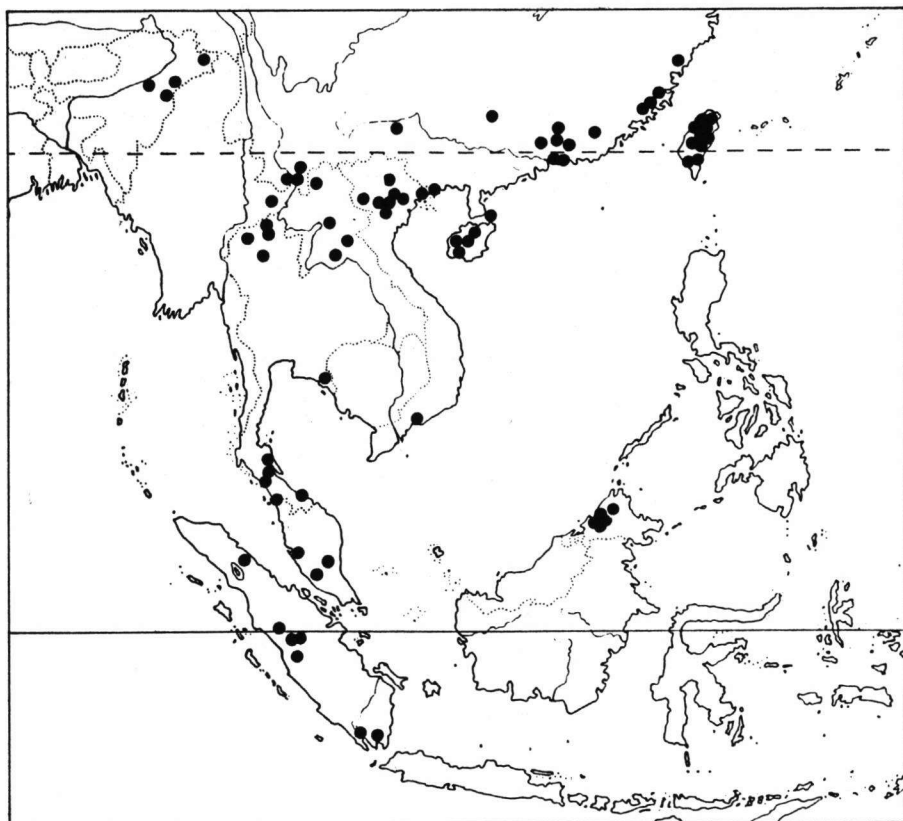


Fig. 9. *Urceola rosea* (Hook. & Arn.) D.J. Middleton. a. Habit; b. flower in bud; c. open flower; d. flower dissection; e. fruit; f. seed (a–d: Wang 40839; e, f: Rock 1961). Scale bars: a, e, f = 1 cm; b–d = 1 mm.



Map 11. Distribution of *Urceola rosea* (Hook. & Arn.) D.J. Middleton (●).

Shan, Ue Chap Tang, *Tsang & Fung 660* (A, B, K, US). Hong Kong: Lantau Island, Tungchung, *Taam 2128* (A, G, H, US). Yunnan: Meng-bang, Jenn-yeh Hsien, *Wang 80353* (A). Zhejiang: Feng Yang Mt, *Zou 912* (A).

TAIWAN. Hualien Hsien, Yuli Town, Yushan NP en route from Nanan to Shanfeng, *Liao et al. 1579* (E). Taipei, Yum Ho Tume, *Cheun et al. s.n.* (MO).

INDIA. Arunachal Pradesh: Mishmi Hills, *Kingdon Ward 18583* (BM). Nagaland, *Prain's coll. 948* (A).

BURMA. Shan: Keng Tung Territory, Ban Meh Huak & Pang Mah Ki Hat, *Rock 1961* (A, K, US).

THAILAND. Chanthaburi: Doi Soi Dao, *Geesink et al. 6728* (AAU, BKF, K, L, P). Chiang Mai: Mae Dang, Ban Mae Taman, Geut Chang subdistrict, along Mae River, *Maxwell 90-448* (A, MO). Nakhon Si Thammarat: Yao Yong, *Kerr 15364* (BM, E, K, L, P, TCD). Pattani: Koke Po Distr., Sai Khao falls, *Maxwell 85-728* (A, E, L, SINU). Phatthalung: Sak, *Kerr 19245* (BM, E, K, L, MO, P, SING, TCD, US). Trang: Khao Chong, *Sangkhachand 1507* (BKF, C, E, K, L, P).

VIETNAM. Dong Nai: St Agricole de Blao, *Poilane 22244* (AAU, C, P). Ha Noi: Sontay, between Da Chong & les Roches votre Dame, *Pételot 5986* (P). Ha So'n Binh: Hoa Binh, *Dung s.n.* (K). Quang Ninh: Dam Ha, Sai Wong Mo Shan, Lung Wan Village, *Tsang 29802* (A, BO, C, E, K, L, P, SING). So'n La: Muong Mua Chan de Nau Son, *Pételot s.n.* (P). Bac Thai: between Thai Nguyen & Phan Me, *Pételot 5282* (P).

LAOS. Viangchan: Muang Baw, *Kerr 21804* (BM, K, L, P). Xiang Khoang: Tatom, *Kerr 20840* (BM, K, L, P).

MALAYSIA. Peninsula: Pahang: Raul Gold mine, *Burkill & Haniff s.n.* (BO, SING). Perak: SE, Slim Hills F.R., *Whitmore FRI 842* (A, KEP, L). Perlis: Bukit Bintang F.R., *Whitmore FRI 478* (KEP). Selangor: Bukit Lagong F.R., *Hamid 37581* (BO, K, KEP, L, SING, US). — Borneo: Sabah: Keningau Distr., Crocker Range F.R., Kimanis Road, *Abas SAN 85642* (L).

INDONESIA. Sumatra: Barat, Lubuksikaping, *van Romburgh s.n.* (BO, L). Lampung: *Teijsmann HB 4305* (BO, K, L, MEL, U — type of *Ecdysanthera pedunculosa*). Utara: Timbanglangkat, *Lesger 257* (BO). — Java: s.l., *Lobb s.n.* (K).

JAPAN. s.l., *Ito s.n.* (BM).

14. *Urceola torulosa* Hook. f. — Map 10

Urceola torulosa Hook. f., Fl. Brit. India 3 (1882) 659; Boerl., Handl. Fl. Ned. Indië 2 (1899) 399; King & Gamble, J. As. Soc. Beng. 74 (1907) 476; Ridley, Fl. Malay Penins. 2 (1923) 358. — *Chavannesia torulosa* (Hook. f.) Pichon, Bull. Mus. Nat. Hist. Nat. Paris, sér. 2, 20 (1948) 302. — Type: *Maingay 3304A* [*Kew Distr. no. 1086*] (K lecto, designated here; GH, L iso).

Urceola malaccensis Hook. f., Fl. Brit. India 3 (1882) 658; Boerl., Handl. Fl. Ned. Indië 2 (1899) 399; King & Gamble, J. As. Soc. Beng. 74 (1907) 475; Ridley, Fl. Malay Penins. 2 (1923) 357. — Type: *Maingay 2937* [*Kew Distr. no. 1098*] (K lecto, designated here; GH, K, L iso).

Urceola longispala Merr., Papers Mich. Acad. Sc. 19 (1934) 188. — Type: *Bartlett 7590* (K lecto; G, L iso).

[*Echites monilifera* Wall., Num. List (1829) 1660, nom. nud.]

Branchlets minutely puberulent, rarely glabrous. *Leaves*: petiole 0.8–2.6 cm long; blade ovate to elliptic, apex acuminate, base rounded to cuneate, 2.6–17.5 × 0.9–6.7 cm, 1.6–5 × as long as wide, 5–9 pairs of lateral nerves; with hairs in lateral vein axils, rarely glabrous. *Inflorescence* of axillary and terminal congested cymes, minutely puberulent, 2.5–5.5 cm long; pedicels 1.4–4.1 mm long. *Sepals* oblong to spatulate, apex rounded to obtuse, 1.9–4 × 0.7–1.5 mm, 2.1–4.6 × as long as wide, puberulent. *Corolla* lobes in bud valvate; bud elongate ovoid, open corolla tubular; tube 1.4–1.9 mm long; lobes triangular, 0.7–0.8 mm long, 0.6–0.7 mm wide, 0.4–0.5 × as long as tube; puberulent outside, sparsely puberulent inside. *Stamens* inserted at 0.2 mm from corolla base, which is 0.1 of tube length; filaments 0.4 mm long; anthers 1.5 × 0.4 mm, 3.8 × as long as wide. *Disc* 5-crenate, 0.5 mm long. *Ovary* 0.6 mm long; style and pistil length 1.3 mm long. *Fruit* long, torulose, glabrous, 4.6–45 cm long, 3–7 mm wide. *Seed* grain 7.8–11.2 × 3.2–5.4 mm; coma 1.5–3.3 cm long.

Distribution — Malaysia, Singapore, Sumatra, Borneo, Brunei.

Habitat — In evergreen or secondary forest to 550 m altitude.

Note — This species is most clearly recognised in fruit when it is quite unlike any other species of *Urceola* but could be confused with *Parameria laevigata*. Previously there seemed to be a clear situation where fruiting material of this genus was ascribed to *U. torulosa* and flowering material to *U. malaccensis*. Hooker (1882) described the fruits of *U. malaccensis* as 'elongate filiform' but there are immature fruits on the type material which are clearly torulose.

Selection of the 60 collections studied:

MALAYSIA. Peninsula: Johor: Sungei Juasseh, Labis, *Ahmad SA 307* (K, L, SING). Kelantan: Bukit Baka F.R., *Stone et al. 15233* (KLU, L). Malacca: *Maingay 3304* [*Kew Distr. no. 1086*] (K

— syntype of *Urceola torulosa*, 3304A [*Kew Distr. no. 1086*] (GH, K, L — type of *Urceola torulosa*). Pahang: Belukar near Kg. Baapa in Fort Iskandar area, *Stone & Sidek 12275* (KLU). Selangor: 21st mile, Jalan Bentong, Ulu Gombak, *Shah & Ali MS 3070* (KEP). Terengganu: Kg. Kuala Kemaman, Ulu Bendong, *Corner 30044* (A, BM, BO, K, SING). — Borneo: Sarawak: 1st Division, near Matang Dam, *Smythies S 14076* (K, L, SING).

SINGAPORE. MacRitchie Reservoir, *Jusuali 3501* (SINU).

INDONESIA. Sumatra: Riau: Kepalaun Riau, Pualu Durian, *Rachmat 95* (BO, L, SING). Utara: near Aek Sordang, Loendoet concession, Koealoe, *Bartlett 7590* (G, K, L — type of *Urceola longisepala*).

BRUNEI. Bangar, *Ashton BRUN 3371* (BO, KEP, L, SING); Belait district, Jalan Merangkings-Buau, *Nangkat NN 244* (A, K, KEP, SING).

15. *Urceola tournieri* (Pierre) D.J. Middleton — Fig. 10; Map 12

Urceola tournieri (Pierre) D.J. Middleton, *Novon* 4 (1994) 151. — *Ecdysanthera tournieri* Pierre. *Rev. Cult. Colon.* 11 (1902) 228; P.T. Li, *J. S. China Agric. Univ.* 11 (1990) 34. — *Parabarium tournieri* (Pierre) Pierre ex Spire, *Contr. Apoc.* (1905) 13; Pitard in Lecomte, *Fl. Gén. Indo-Chine* 3 (1933) 1216; Tsiang & P.T. Li, *Fl. Reip. Pop. Sin.* 63 (1977) 243; Lý, *Feddes Rep.* 89 (1978) 268; J. Ying & P.T. Li, *Fl. Yunnanica* 3 (1983) 559. — Type: *Tournier 6613* (P lecto, selected by Middleton, 1994a; K, P iso).

Parabarium tournieri var. *guignardii* Pierre ex Spire, *Contr. Apoc.* (1905) 15; Lý, *Feddes Rep.* 89 (1978) 270. — Type: *Spire 1* (P lecto, selected here; A, BO, K, P iso).

Parabarium hookeri Pierre ex Spire, *Contr. Apoc.* (1905) 38; Lý, *Feddes Rep.* 89 (1978) 266. —

Type: *Hooker s.n.* (P lecto, selected here; BM, C, CGE, G, GH, K, L, M, P, S, TCD, U, W iso).

Parabarium burmanicum Lý, *Feddes Rep.* 89 (1978) 273. — Type: *Mokim s.n.* (U holo; UPS, Z iso).

Branchlets puberulent. *Leaves*: petiole 0.7–1.6 cm long; blade papery to subcoriaceous, narrow elliptic to oblong, apex acuminate to caudate, base rounded to cuneate, 5.6–21.5 × 1.4–6.8 cm, 2.1–6.5 × as long as wide, 5–10 pairs of lateral nerves; with hairs in domatia in lateral nerve axils, rarely puberulent on midrib beneath. *Inflorescence* mostly axillary, rarely also terminal, puberulent, rarely glabrous, 2.7–16 cm long; pedicels 1–3.4 mm long. *Sepals* ovate, apex acute to obtuse, 0.5–1.3 × 0.4–0.8 mm, 1–2.5 × as long as wide, puberulent or glabrous, ciliate. *Corolla* white; corolla lobes overlapping to the right in bud which is long ovoid, open corolla campanulate to subsalverform; tube 0.9–1.7 mm long; lobes falcate, 0.6–0.9 mm long, 0.5–0.9 mm wide, 0.5–0.9 × as long as tube; glabrous or sparsely pubescent on upper parts outside, pubescent inside tube. *Stamens* inserted at 0.2 mm from corolla base, which is 0.2 of tube length; filaments 0.1–0.2 mm long; anthers 0.9–1.3 × 0.3–0.4 mm, 2.8–4 × as long as wide. *Disc* 5-crenate, 0.2–0.4 mm long. *Ovary* 0.3–0.6 mm long; style + pistil head 0.7–0.9 mm long. *Fruit* wider near base, tapering to end, 4.7–10.5 cm long, 0.9–1.7 cm wide. *Seed* grain 14.3–25 × 3.6–6 mm; coma 2.6–4.9 cm long.

Distribution — India, Bhutan, Nepal, China, Burma, Thailand, Laos, Vietnam.

Habitat — In forest at 600–1900 m altitude.

Note — This species is close to *U. micrantha* and they are difficult to distinguish in flower. The clearest difference is in the fruit which is thick and tapering in *U. tournieri* and narrower and more linear in *U. micrantha*. *Urceola tournieri* more commonly has pubescent branchlets, the inflorescences are usually axillary and do not form a terminal panicle, and the hairs of the inflorescence are longer.



Fig. 10. *Urceola tournieri* (Pierre) D.J. Middleton. a. Habit; b. flower in bud; c. open flower; d. flower dissection; e. fruit; f. seed (a–d: *Grierson & Long 3494*; e, f: *Henry 13289*). Scale bars: a, e, f = 1 cm; b–d = 1 mm.

Selection of the c. 50 collections studied:

INDIA. Bengal: Darjeeling, *Cowan s. n.* (E). Arunachal Pradesh: Denning, Lohit Valley, *Kingdon Ward 19123* (BM, E). Meghalaya: Khasia, *Griffith s. n.* (MEL). Sikkim: s. l., *Hooker s. n.* (BM, C, CGE, G, GH, K, L, M, P, S, U, W – type of *Parabarium hookeri*). Nagaland: Lakema, *Bar 2771* (K).

BHUTAN. Samchi district, Tamangdhanra forest, Samchi, *Grierson & Long 3494* (E).

NEPAL. Tamur Valley, Taplejung, *Stainton 5843* (BM).

CHINA. Yunnan: Szemao, *Henry 13289* (A, K).

BURMA. Southern Shan States, *MacGregor 196* (E); Kachin Hills, *Mokim s.n.* (U, UPS, Z – type of *Parabarium burmanicum*).

THAILAND. Chiang Mai: Pha Hom Pok, Fang, *Niyomdham 1133* (AAU).

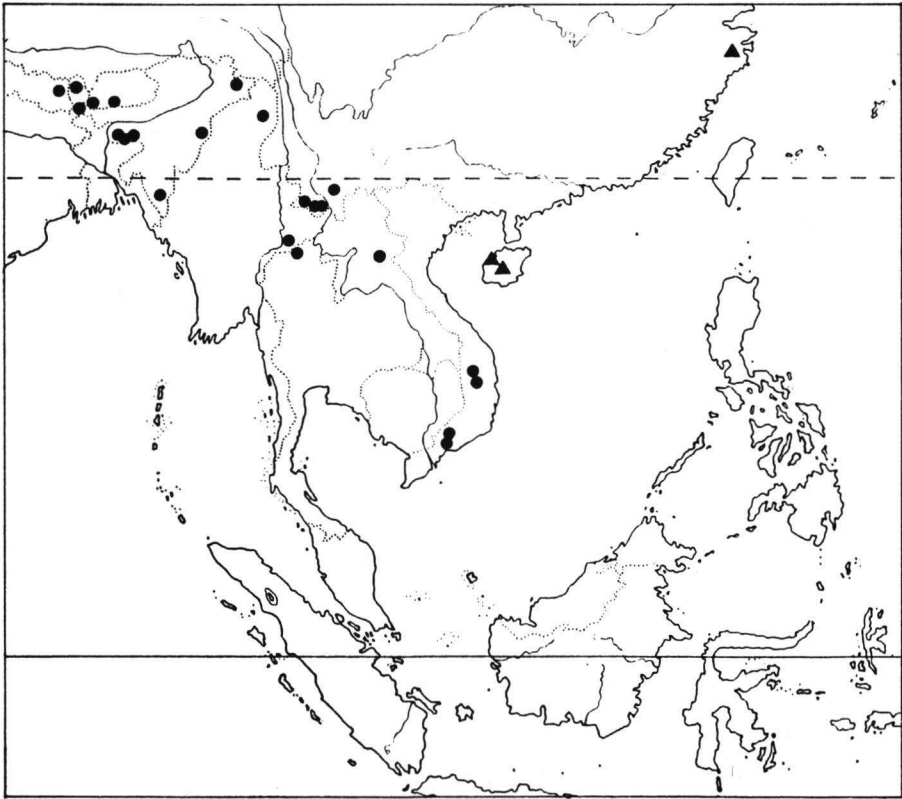
LAOS. Tran Ninh: Mak Khao ngoua, *Tournier 6613* (K, P – type of *Ecdysanthera tournieri*). Xi-ang Khoang: Mak Sang Khao, *Spire 1* (A, BO, K, P – type of *Parabarium tournieri* var. *guignardii*).

VIETNAM. Dong Nai: Tai Tia, S of Dolat, *Poilane 24799* (P). Gia Lai–Kon Tum Ngok Pan, *Poilane 35746* (P).

16. *Urceola xylinabariopsoides* (Tsiang) D.J. Middleton — Map 12

Urceola xylinabariopsoides (Tsiang) D.J. Middleton, *Novon* 4 (1994) 151. — *Chunechites xylinabariopsoides* Tsiang, *Sunyatsenia* 3 (1937) 306; *Guangdong Coll. Agric. For.* (P.T. Li?), *Fl. Hainanica* 3 (1974) 236; Tsiang & P.T. Li, *Fl. Reip. Pop. Sin.* 63 (1977) 229. — *Xylinabariopsis xylinabariopsoides* (Tsiang) Lý, *Feddes Rep.* 97 (1986) 679. — *Ecdysanthera xylinabariopsoides* (Tsiang) P.T. Li, *J. S. China. Agric. Univ.* 11 (1990) 33. — Type: *Lau 27035* (IBSC holo; A iso).

Xylinabariopsis ventii Lý, *Feddes Rep.* 86 (1975) 500. — Type: *Lau 1648* (P holo; A, BM iso).



Map 12. Distribution of *Urceola tournieri* (Pierre) D.J. Middleton (●); *U. xylinabariopsoides* (Tsiang) D.J. Middleton (▲).

Branches not lenticellate; branchlets densely hirsute. *Leaves*: petiole 3–5 mm long; blade papery, elliptic or oblong, apex acuminate, base obtuse to weakly cordate, 2.3–8.1 × 0.7–3 cm, 2.6–4.1 × as long as wide, 6–9 pairs of lateral nerves, tertiary venation reticulate; densely hirsute on petiole and on blade beneath, sparsely so above. *Inflorescence* of numerous axillary and terminal cymes, densely brown hirsute, 1.6–4.2 cm long; pedicels 1.5–3 mm long. *Sepals* narrowly ovate, apex acute, 1.1–1.5 × 0.4–0.5 mm, 2.2–3.8 × as long as wide, densely hirsute. *Corolla* orange; bud cylindrical with a flat or rounded head; tube 1.4–1.5 mm long; lobes strap shaped, slanting to the right, 1.7 mm long, 0.8 mm wide, 1.2 × as long as tube; glabrous outside, sparsely pubescent or glabrous inside. *Stamens* inserted at 0.2 mm from corolla base, which is 0.1–0.2 of tube length; filaments 0.2–0.3 mm long; anthers 0.8 × 0.2 mm, 4 × as long as wide. *Disc* 5-crenate, 0.2 mm long. *Ovary* 0.4 mm long; style + pistil head 0.6 mm long. *Fruit* stipitate, parallel, widest near base and tapering to end, 6.3–7 cm long, 0.5–0.6 cm wide. *Seeds* not seen.

Distribution — China (Hainan, Zhejiang).

Habitat — Reported from thickets on sandy soil.

Collections studied:

CHINA. Hainan: Ka Chik Shan, Ch'ang-kiang District, *Lau 1648* (A, BM, P – type of *Xylina-bariopsis ventii*); Loktung, *Lau 26863* (A), *27035* (A, IBSC – type of *Chunechites xylinabariopsoides*). Zhejiang: *Unknown 60108* (A).

INSUFFICIENTLY KNOWN TAXA

Ecdysanthera lakhimpurensis Srivastava & Mehrotra, *Candollea* 41 (1986) 381. — Type: *S. K. Srivastava 16105* (CDRI holo).

I have been unable to get hold of material of this species. The description and illustration provided are reminiscent of *Urceola rosea*.

Ecdysanthera barbata var. β Miq., *Fl. Ind. Bat.* 2 (1857) 452. — Type: *Korthals*.

There are a number of Korthals collections of both *Parameria laevigata* and *P. polyneura*, species of the genus to which this variety probably belongs, in the Leiden herbarium and it is not obvious which was intended to be the type.

Urceola acute-acuminata Boerl. var. *polyneura* Boerl., *Bull. Inst. Bot. Buitenzorg* 5 (1900) 19. — Type: *van Romburgh 62* – untraced; probably a synonym of *Urceola brachysepala*.

Urceola ? Hook. f., *Fl. Brit. India* 3 (1882) 659.

Hooker only tentatively placed *Maingay 1069* in *Urceola* but suggested it could be a new undescribed genus. I have been unable to find this specimen but from the description it sounds like it could be a *Chonemorpha* or an *Anodendron*.

SPECIES EXCLUSAE

Aganonerion dongnaiense Pierre ex Planch., *Prodr. Apoc.* (1894) 206, nom. nud. = *Cleghornia malaccensis* (Hook. f.) King & Gamble.

- Ecdysanthera godefroyana* Pierre, Rev. Cult. Colon. 11 (1902) 228. — *Parabarium godefroyana* (Pierre) Pierre ex Spire, Contr. Apocyn. (1905) 12. — Type: *Godefroy s.n.* (P). The material of this species is unidentifiable but is almost certainly not Apocynaceae.
- Ecdysanthera inflata* (Blume) K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. 4, 2 (1895) 163 = *Trachelospermum inflatum* (Blume) Pierre ex Pichon.
- Ecdysanthera myrtifolia* (Miq.) K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. 4, 2 (1895) 163 = *Trachelospermum* sp.
- Ecdysanthera rubescens* (Teijsm. & Binn.) Boerl., Handb. Fl. Ned. Indië 2 (1899) 398. — *Dendrocharis rubescens* Teijsm. & Binn., Natuurk. Tijds. Ned. Indië 25 (1863) 403 = *Anodendron candolleianum* Wight.
- Ecdysanthera scandens* Hassk., Cat. Hort. Bogor. alt. (1844) 309 = *Anodendron candolleianum* Wight.
- Ecdysanthera schrieckii* Heurck & Müll. Arg. in Heurck, Obs. Bot. Pl. Nov. (1871) 191 = *Ichnocarpus serpyllifolius* (Blume) P.I. Forster.
- Parameria esquirolii* Lév., Feddes Rep. 9 (1911) 325 = *Sindechites henryi* Oliv.
- Parameria wariana* Schltr., Kautschuk-Exped. Kaiser Wilhelms-Land (1911) 127, 71 = *Ichnocarpus warianus* (Schltr.) D.J. Middleton.
- Urceola vandellii* Roem. & Schult., Syst. 3 (1818) 99. — This species is described from Brazil where *Urceola* does not occur. I am unable to ascertain its current identity.

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 Spire, C. 1905. Contribution à l'étude des Apocynacées. Challamel, Paris.

INDICES OF EXSICCATAE

For *Parameria* and *Urceola*: the letters in brackets refer to the first three letters of the species to which the specimen belongs.

For *Aganonerion polymorphum*

- van Beusekom & Charoenphol 2024 — BKF 5910 — Burma 11.
 Chantaranonthai et al. 1112, 90/420 — Charoenphol et al. 4938.
 Geesink et al. 6966 — Gentry & Niyomdham 66711, 66712.
 Hardial 572, 614.
 Kerr 19616, 21516 — Koyama et al. T-30886.
 Lakshnakara 911 — Larsen et al. 31366.
 Marcan 792 — Martin 12 — Maxwell 76-491 — Mitsuta et al. T-50358 — Murata et al. T-37325, T-37396, T-37422, T-37475, T-37885.
 Native Collector DE 97 — Noe 280.
 Phengkhilai et al. 3463 — Poilane 2691, 4507, 4525, 4540, 5363, 6095, 9776 — Put 4268.
 S.N. 250 — Smitinand 597 — Smitinand & Natamphun 10710.
 Takahashi T-63593 — Thorel 1099.

For *Parameria*

- Aet 378 (lae) — Ahern's coll. 18, 1113, 1979 (lae) — Alvins 235 (lae), 1029 (pol), 1032 (lae), 1221 (pol) — Ambriansyah & Arifin AA 282 (pol) — Amin & Jarvis SAN 116262 (lae), SAN 120937 (pol) — Amin et al. SAN 96712 (pol), SAN 123164 (lae) — Ansari 1371 (lae) — Au & Chai S 24130 (lae).
 Backer 2857, 17195, 22124, 23502, 23968, 30624, 32665 (lae) — Bakhuizen van den Brink 2957, 5898 (lae) — Balakrishnan 713, 714 (lae) — Barnes 84, 352 (lae) — Bermejos 222, 259, 1552 (lae) — Beumée 554, 679, 703, 761, 3543, 3876, 3999, 4375, 4560, 4916, 5208, 6042 (lae) — van Beusekom & Charoenphol 1964, 1966 (lae) — van Beusekom & Santisuk 3220 (lae) — van Beusekom et al. 3841 (lae) — BKF 9506, 10572 (lae) — Blume 1073 (lae) — Bodner 146 (lae) — van Borssum Waalkes 791 (lae) — Bradley 72 (lae) — Burkill & Haniff 2026, 15651 (pol) — Burley et al. 770 (pol).
 Cantley 2870 (pol) — Carr 27933 (lae) — Cenabre 29182 (lae) — Chai & Ismawi S 45213 (pol) — Clason & Laarman 755, 698 (lae) — Clemens & Clemens 9926, 10199, 10430, 17649 (lae), 21212 (pol), 26108, 26108 A, 26815, 26816, 30360 (lae) — Collins 87, 1382, 1527, 2031 (lae) — Corner 28967 (pol) — Cuming 1126, 1870 (lae) — Curran 5447, 15606 (lae) — Curtis 158 (den), 1142 (lae), 1455, 1456 (pol), 1546 (den), 2731 (lae), 3025 (pol).
 Danser 6443 (lae) — Darnton 411 (lae) — David 166 (pol) — Den Berger 42 (lae) — Derry 910, 943 (lae), 1013, 1206 (pol) — Dewol et al. SAN 109230 (lae) — Dilmy 1088 (lae) — Docters van Leeuwen 409, 442, 606 (lae).

- Ebalo 495, 527, 620 (lae) — Edaño 4126, 14085, 26813, 48757 (lae) — Elmer 6190, 6865, 8510 (lae) — Enggoh 7316 (pol) — Esquirol 2718 (lae) — Everett 4207 (lae).
- Fedilis SAN 128290, SAN 128298 (pol) — Fenix 12696 (lae) — Forbes 2951 (pol) — Fox 4906 (lae) — Foxworthy 1910 (lae) — Fraser 99, 125 (lae), 255 (pol) — Fuchs 21348 (pol).
- Geoffray 49 (lae) — Goklin 1304 (pol) — Goodenough 1241 (pol), 1740 (lae) — Griffith 9 (pol) — Grusserink 3202, 3249 (lae).
- Hallier 1013 (pol), 4249 (lae) — Hamid 11644 (pol) — Haniff & Nur 3440 (pol), 3950 (lae) — Hansen et al. 11190 (lae) — Harini 128 (lae) — Harmand 668 (lae) — van Hasselt 96 (lae) — Haviland 1359 (lae), 1598, 1796, 1898 (pol), 1993, 2056 (lae) — Henderson 23758 (lae), 23862 (pol) — Henry 12116, 12232, 12269 A, 12269, 12681 (lae) — Hiep 337 (lae) — Hoogland 4068 (lae) — Horsfield 18, 16 (lae) — Hose 444 (pol) — Hotta 12712 (pol) — Hullett 394 (pol).
- Jacobs 4713 (lae) — Jaheri 1108 (pol) — Jussieu Cat.no. 5037 (lae) — Jusuali 3156 (pol).
- Kermode 7111 (lae) — Kerr 2771, 3939, 5072, 7935, 8320, 9113, 9694, 9746, 11698, 13860 (lae), 16999 (pol), 17079, 18134 (lae), 18794 (pol) — Kiah SF 35066, SF 37733 (pol) — King's coll. 3337, 3640, 5687, 7491 (pol) — Koorders 10104, 22527, 25283, 28086, 28463, 28724, 28886, 30734, 31169, 33468, 34455, 34457, 34458, 37225, 37227, 37231 (lae) — Kostermans & Anta 989 (pol) — Kostermans 4312 (lae), 5887, 12050 (pol), 18388, 19038 (lae), 21158 (pol) — Koyama et al. T-31933, T-33020 (lae) — Kramer 10 (lae) — Kuswata 90 (lae).
- Lace 5695 (lae) — LaFrankie 2380 (pol) — Lajangah 44567 (lae) — Lakshnacara 258 (lae), 604 (pol) — Larsen & Larsen 33005 (lae) — Leeuwenberg 13275 (lae) — Lobb 204, 352, 432 (pol) — Loher 3885, 4022, 4023, 4024, 4025, 6518, 6528, 6546, 7278, 12153, 13190, 13808, 13818, 13890 (lae) — Lopez 42029 (lae) — Luang S 24310 (lae).
- Mabesa 9611 (lae) — Maikin et al. 55947 (lae) — Maingay 1078, 1080 (pol), 1093 (lae), 1077 (1833) (lae), 1077 (1834) (lae) — Mamit et al. S 34415 (pol) — Mangoenbroma D 119 (lae) — Masirom 43232 (pol) — Maxwell 13-10-69, 71-218, 71-595, 71-724, 72-561, 73-458, 74-833, 75-204, 86-1072, 87-1450 (lae) — McGregor 11212, 11428, 20202, 43590 (lae) — Meijer 2186 (lae) — Merrill Sp. Blanc. 140 (lae) — Merrill 564, 924, 1650, 4449, 9300, 9475, 9827 (lae) — Merritt & Darling 13965 (lae) — Mills & Henderson 15066 (lae) — Motley 776 (lae) — Murata et al. T-16886 (lae).
- Nooteboom 1319 (lae).
- Ogata KEP 110371 (pol) — Otones 17689 (lae) — Othman et al. S 43539 (pol).
- Parisks 147 (lae) — Parker 2559, 2565 (lae) — Parkinson 183, 232 (lae) — Pawanchee 13791 (pol) — Phengklai et al. 3279 (lae) — Phung Van Dieu 49 (lae) — Pierre 1458 (lae) — Ploem 18962 (lae) — Poilane 695, 2197, 11825, 13911, 14056, 14149, 14863, 21350, 21367, 22858, 22913, 23646, 28175 (lae) — Prawiroatmodjo & Maskuri 1487 (lae) — Puasa 3863 (lae), 4868 (pol), 36490 (lae) — Put 453, 472, 1527, 2658, 3157 (lae).
- Quisumbing 18824 (lae).
- Rahmat si Boeoa 927 (lae) — Ramos 12, 5112, 5329, 7726 (lae) — Ramos & Edaño 44676 (lae) — Reillo 19163 (lae) — Ridley 2713, 2721, 3190, 10790 (pol) — Ridsdale (all SMHI) 60, 155, 156, 1849, 1893, 1898 (lae) — Robinson 18082 (lae) — Rogers 83 (lae) — Rothauscher 1020, 1021, 1022, 1023, 1025, 1028, 1029 (lae).
- Sadau SAN 50406, SAN 50414 (lae) — Sangkhachand 1206 (lae) — Santos 6150 (lae) — Schiffner 2648 (lae) — Scortechini 1838 (pol) — Shea & Aban 76902 (pol) — Shimizu et al. T-18123, T-21546 (lae) — Sidiyasa & Kochummen 493, 553 (pol) — Sign et al. SAN 97169 (pol) — Sinclair & Kadim 10370 (pol) — Siriruga 980 (lae) — Smitinand 3805 (pol) — Soegandiredja 273, 298, 329 (lae) — Soejarto et al. 72, 6159, 7505 (lae) — Soepadmo 97, 755 (pol) — Spire 2 (lae) — Squires 937 (lae) — van Steenis 12754 (lae) — Strugnell 13194 (pol) — Sulit & Conklin 16888, 16889 (lae) — Symington 17516, 24410 (pol).
- Talbot de Malahide 102 (lae) — Talip SAN 50552, SAN 93305 (lae) — Teo & P 1030, 1071 (pol) — Thorenaar 2013 (lae) — Tong & Jugah S 33256 (pol) — Topacio 20030 (lae).
- Umbai 1257, KL 1749 (lae).
- Vanoverbergh 2627 (lae) — Vidal 405, 462, 481, 1283, 1284, 1293, 1294, 1317, 1689, 3292, 4079, 4657, 5890 (lae) — de Voogd 2928 (lae).

Wallich 1659 (lae) — Wang 75381, 75410, 75606, 75948, 79206 (lae) — Weber 1540 (lae) — van Welzen 955 (lae) — Whitmore 20718 (pol) — de Wilde & de Wilde-Duyfjes 12110 (pol), 13865, 13875 (lae), 16542 (pol), 18396 (lae) — Williams' coll. 472, 1374 (lae) — Winit 1481, 1822 (lae) — Wisse 110, 428 (lae) — Wong & Khairuddin FRI 32653 (pol) — Wood 1865, 2616 (pol), SAN A 4437 (lae), SAN 15214 (pol) — Wray 2308, 3459 (pol) — Wülfing 4240 (lae). Yates 1475 (lae). Zollinger 1201 (lae).

For *Urceola*

Aban 18618 (ela) — Aban & Saikah SAN 82306 (ela) — Abas SAN 85642 (ros) — Achmad 1057 (bra) — Afriastini 450 (bra) — Agama 492 (bra) — Ahmad SA 307, SAN 1269, 1417 (tor) — Alvins 37 (luc), 322, 323, 810 (bra), 1751 (tor) — Ambriansyah & Arifin 568 (ela) — Ampuria SAN 32659, 41192, 41193 (bra) — Anderson 7909, 8557 (bra) — Angian 7755 (ros) — Ashton BRUN 3371 (tor).

Backer 11023, 11569 (jav), 22125 (bra) — Bakhuizen van den Brink 2985, 3460, 6361, 6436, 6735, 6783 (bra) — Balansa 2077 (ros), 2079, 2093, 4669 (nap), 4678 (ros) — Bar 2771 (tou) — Bartholomew & Tse 1785 (ros) — Bartlett 6260 (ros), 7590 (tor) — Beguin 311 (bra), 2228 (jav) — Berkhout 18, 120, 1310 (bra) — Beumée 6725 (bra) — van Beusekom et al. 287 (mic), 423 (luc), 1722 (mic), 3538 (nap), 4390 (luc) — BKF series 5218 (luc), 11242 (ros), 58469 (luc), 69201 (min) — Blume 184, 881 (jav), 2182b p.p. (bra), 2182b p.p. (jav), [L 898.112-186] s.n., [L 898.112-190] s.n. (bra) — Rahmat si Boeea 8593, 9419 (bra) — Bon 658 (ros), 4786 (nap) — Boschwezen 2194 (bra) — Brooke 8886 (bra) — Bruggeman 9, 777 (jav), 1184 (bra) — Bruinisma 17 (bra) — Bujang 13498 (bra) — Bunchai 1638 (min) — Bunnab 198, 273 (luc) — Bunnak 109 (ros) — Burkil 535 (bra), HMB 4542 (tor) — Burkill & Haniff 12560 (bra) — Butscan 20 (nap) — Buwalda 6855 (ela), 6954 (jav), 7688 (bra).

Canicosa 9772 (bra) — Cantley 109, 121 (tor) — Carr 12781 (jav) — Castellini 22 (nap) — Champion 200 (ros) — Chan 1493 (ros), FRI 16917 (tor) — Charoenphol et al. 4188, 4269 (mic) — Cheern 9695 (ros) — Chen 1001 (ros) — Chevalier 38604, 39873 (mic) — Ching 5421 (ros), 5611 (qui), 7567 (nap), 8152 (mic), 8283 (qui) — Chuang 4864 (mic) — Chun 5027, 5547 (hua), 6438, 6466 (nap), 40951 (ros) — Chun & Ting 414 (nap) — Chun & Tso 43733 (qui), 44620 (ros) — Chung 3324, 7580 (ros) — Chung's coll. 4005 (ros) — Clarke 21928, 27669A, 36792C/B, 43592B, 45841A, 45853D/E (tou) — Clemens & Clemens 1098 (bra), 4036 (nap), 22252, 26758 (bra), 29858, 29885 (lae) — Cockburn FRI 8186 (tor), SAN 83295 (lae) — Colani 3224 (ros) — Collenette 3779 (ros) — Collins 913, 1684 (min) — Congdon 465 (luc) — Corner 21310 (bra), 30044 (tor), SF 30894 (bra), 34529 (tor) — Curtis 403 (bra), 661 (luc), 823a, 823b, 823c (ela), 941 (luc), 2395 (tor), 3477 (ela), 3478 (bra).

David 168 (tor) — Derry 122, 333 (luc), 404 (ela), 527, 978 (luc), 1024, 1031 (ela), 1096 (tor), 1158 (luc) — Dewol et al. (all SAN) 71156 (bra), 77544 (ros), 90353 (ela), 99418 (bra) — Dransfield SMHI 1276 (lae) — Dunn 2914 (ros).

Eberhardt 2569, 2660, 2863, 2869 (mic), 3769 (nap), 4271 (ros), 4807 (nap) — Edaño 40157 (bra) — Elmer 9239 (bra), 12837 (lae), 16608 (bra) — Endert 2271 (ela), 2450, 3205 (bra) — Enggoh 10211, 10663 (bra) — Esquirol 867 (ros) — Evangelista 273 (bra).

Faurie 269 (mic), 8202 (ros) — Fedilis & Sumbing SAN 88361 (bra) — Forbes 886, 938 (jav) — Ford 21354 (mic) — Forman & Blewett 844 (bra) — Forrest 18351 (ros) — Foxworthy 1144 (ela) — Free & Sumbing SAN 79175 (bra) — Fukuoka & Ito T-34760 (min).

Gamble 564A, 6867A (tou) — Geesink & Hattink 6421 (luc) — Geesink et al. 6728 (ros) — Gentry & Tagi 33885 (bra) — Gillison & Kairo NGF 25781 (jav) — Goodenough 10600 (ela) — Grashoff 89, 214 (bra), 875, 1089 (jav) — Gregorio & Edaño 40158 (bra) — Gressitt 44 (ros), 885, 1141 (nap), 1334 (ros) — Grierson & Long 3494, 4117 (tou) — Griffith 310, 965 (tou), 981 (mic) — Guard 2 (luc).

- Hallier 349 (bra), 623a (jav), 868 (bra), 985 (jav) — Hamid 8897, 37252 (ela), 37581 (ros) — Hance 474 (ros) — Hance & Simson 691 (ros) — Handel-Mazzetti 134 (ros) — Haniff 375, 3569 (luc) — Haniff & Nur 4048 (luc) — Hara et al. 13956 (tou) — Hartley 10395 (jav) — Hasskarl [L. 898.112-539] s.n. (bra) — Hatusima 18773 (mic) — Haviland 1525, 1527, 1767, 3043, 3497 (bra) — Henderson 23472, 23486, 23601 (mic) — Henry 388, 616, 838 (ros), 8534 (nap), 12760 (ros), 13289 (tou) — Herb. Hongkong 9057 (ros), 10169 (mic) — Holttum s.n. (tor) — Hoogland & Craven 10436 (jav) — Horsfield 19 (jav), 26, 27, 62 (bra) — Hose 268 (bra) — How 70715 (ros), 71677, 72685 (nap), 72734, 73209 (qui), 73491 (mic), 73670 (qui) — How & Chun 70257 (mic) — Hsu 2242 (ros), 5251 (mic), 5403 (ros) — Hu 5276, 7628, 10367, 11703, 11942 (ros) — Hu & But 20315 (mic) — Huang 10246 (ros), 10471 (mic) — Huang et al. 15600 (ros) — Hullett 398 (bra), 425, 860 (luc), 909 (tor) — Hwang 242 (ros).
- Isles & Vinas LAE 59039 (jav).
- Jaamat 47057 (ela) — Jacobs 4566 (jav), 8359 (ros) — Jusuali 3501 (tor).
- Kadim & Noor KN 141, KN 344 (tor) — Kari 780 (tou) — Kawakami 1, 32, 228 (mic) — Keenan, Aung & Hla 3919 (mic) — Kerr 2426 (mic), 4988 (lat), 6079 (luc), 6372 (mic), 8191 (min), 8575, 9930, 9967 (mic), 12352, 12423, 12478, 13590, 14775 (luc), 15364 (ros), 16611, 18173, 18354 (luc), 19245, 20840, 21804 (ros) — Kiah (ros) — King's coll. 70 (mic), 203 (tou), 1329 (luc), 1749, 2241 (ela), 2294 (mic), 3597, 4239 (ela), 4743 (bra), 4886 (ela), 4929 (luc), 5061 (ela), 5134 (bra), 7567, 10348 (ela) — Kingdon Ward 18583 (ros), 19123 (tou) — Kjellberg 1847, 2379, 2979 (lae) — Ko 55129 (ros) — Kochummen 71968 (ros) — Koelz 29298 (tou) — Koorders & van Romburgh 40634, 42204 (bra) — Koorders 20356, 26315 (jav), 31163, 33157 (bra), 33328 (jav), 34456 (bra), 40124 (jav), 41154 (bra) — Kornassi 550 (jav) — Kostermans 6094, 6531, 7031 (bra), 7821 (jav), 9687 (ela), 12687, 13124 A (bra), 21033 (ela) — Kostermans & Anta 606, 806 (bra) — Krispinus SAN 86683 (bra), SAN 119704 (ela) — Krukoff 4382 (luc) — Kunstler 2447 (ela) — Kuo 4939 (ros), 9356 (mic), 11017 (ros) — Kuo, Chiang & Liu 15436 (mic) — Kwant 5855, 11852 (ros), 60108 (xyl).
- Lanjouw 46 (bra) — Larsen et al. 31166 (luc) — Lau 325, 1600 (ros), 1648 (xyl), 3161 (ros), 3292, 3570, 3670 (mic), 3782, 5211 (ros), 5611 (qui), 25629, 25859 (mic), 25930 (qui), 26337 (ros), 26863, 27035 (xyl), 27046 (ros), 27299 (qui), 28065 (nap) — Laumonier TFB 4521 (jav) — Lay 47 (ros) — Lei 253 (nap), 420 (mic), 582 (ros), 881 (mic) — Leighton 113 (bra) — Lesger 257 (ros) — Leu & Hu 982 (ros) — Liang 60632 (qui), 63473 (ros), 63513 (qui), 64025 (ros), 65271, 65271 (qui), 66379, 69754 (ros), 69795 (qui) — Liao et al. 1579 (ros) — Lingnan no. 16555 (ros) — Loher 13336, 14480 (bra) — Lu 15492 (mic) — Lý 72 (nap), 562 (mic).
- Madani SAN 102187 (ela) — Maingay 1080 (tor), 1091 (ela), 1098 (tor), 1058 (1639) (ela), 1079 (1714) (bra), 1080 (1832) (bra), 1082 (2737) (bra), 1083 (3353) (bra), 1086 (3304) (tor), 1086A (3304A) (tor) — Mantor SAN 116722 (bra) — Maradjo 4 (ros) — Masirom & Henry SAN 40009 (ela) — Maung Ba Pe 12914 (luc) — Maxwell 71-421, 71-532, 74-888, 75-361, 75-588 (min), 76-209 (nap), 77-141 (bra), 81-237, 82-187 (tor), 84-207, 85-159 (luc), 85-728 (ros), 85-1032 (luc), 86-353 (ros), 87-1066 (mic), 90-448 (ros) — McClure CCC 7923 (nap) — McGregor 196 (tou), 22831 (bra) — Meebold 5358 (mic) — Meegan 2 (bra) — Meijer 2495 (ela), 2961 (bra), 4044 (ela), 4539 (ros), 6808, 7167 (bra), SAN 28721 (ros) — Mendoza 42215 (bra) — Mohammad 15513 (bra) — Moulton 255 (tor) — Murata 30183 (ros).
- Nangkat NN 244 (tor) — Native coll. 449, 856, 1058 (bra), 1700 (tor), 1814, 1868 (bra), 5863, 5924, 5968 (tou) — Newman 216 (mic) — Ngadiman 34744 (bra) — Niyomdham et al. 216 (luc), 1133 (tou) — Nur SF 7796 (bra), SF 32823 (mal) — Nurta & Hasan 16 (jav).
- Ogata 10515 (tor) — Ohwi 1360 (ros) — Oldham 328 (ros).
- Parker 2305 (mic) — Parry 411 (tou) — Peng 10004 (ros) — Pételot 2392 (nap), 2433 (mic), 2439, 2444 (nap), 3224 (ros), 4694, 4805 (nap), 5282 (ros), 5784 (nap), 5986 (ros), 6002, 6004, 6649 (nap), 6678 (ros) — Phengkhlai 679, 3552 (min) — Phloenchit 697 (luc) — Phusomsaeng 93 (luc) — Pierre 1434 (mic), 4501 (min) — Piper 512, 545 (bra) — Podzorski SMHI 605, SMHI 616 (lae), SMHI 889 (bra) — Poilane 933, 1090, 1877, 1996 (mic), 2003 (nap), 2472 (tou), 5996 (mic), 8291 (min), 10291, 10844, 13450 (nap), 18830, 21234, 21780 (mic), 22053

(min), 22244 (ros), 23822, 23828 (mic), 24163, 24799 (tou), 26065 (ros), 26110 (nap), 31470 (mic), 32269, 35746 (tou) — Polak 298 (jav) — Poore 890 (tor) — Prain's coll. 540, 787, 806 (mic), 948 (ros) — Price 186, 210 (mic), 727 (ros) — Purseglove P 5405 (bra) — Put 873 (luc), 3575 (mic).

Quintaret 6618 (qui).

Rabil 374 (luc) — Rachmat 95 (tor) — Rahim et al. SAN 100356 (ros) — Ramos 1826, 40957 (bra) — Ramos & Pascasio 34760, 35144 (bra) — Rant 683 (bra) — Reksodihardjo 274 (jav) — Reynaud H.Pierre 6617 (nap) — Ridley 152, 1564, 1610 (bra), 2416 (luc), 2717 (bra), 2722 (tor), 2727 (bra), 2745 (luc), 3188, 3602a, 4433, 4960 (tor), 5628, 5658 (luc), 6317, 6523 (tor), 6937, 8397, 9125, 9158 (bra), 9666 (tor), 10772 (bra), 11132 (tor), 11348 (bra), 12572 (tor) — Ridley & Derry 1169 (luc) — Ridsdale PBU 182, SMHI 1518 (bra), SMHI 1617 (lae), SMHI 1631 (bra) — Robbins 2098 (jav) — Rock 1961 (ros) — van Romburgh [BO 936.20.51] s.n., [BO 936.20.54] s.n. (jav), 1, 2, 3 (bra), 4 (ela), 6, 22, 27 (bra), 38 (jav), 50 (ela), 76, 77 (bra) — van Rossum 214, 215, 761 (bra) — RRI 36 (ela) — Rutten 1916 (jav) — Rutton 21890c (tou).

Sampson 412 (ros) — Sanan 288, 992 (luc) — Sangkhachand 1507 (ros) — Sasaki 264, 380466 (mic) — Schodde & Craven 4651 (jav) — Scortechini 17b (luc) — Shah & Ali MS 3070 (tor) — Shah & Shukor MS 2366 (bra) — Shah & Sidek MS 4073 (bra) — Shah et al. MS 2621 (tor) — Shi 14691 (nap) — Shimizu 12644, 12731 (ros) — Sidiyasa 1051 (bra) — Simada-Hidetaro SH 723 (ros) — Simpson 2019 (bra) — Sinangul SAN 57254 (bra) — Sinclair 5530, 6403, 10751 (tor), 10844 (bra), s.n. (tor) — Sirirugsa 771 (luc) — Sitam 12223 (bra) — Smitinand 939 (luc), 6528 (mic), 7166 (luc), 11918 (mic) — Smythies S 14076 (tor) — Sow & Tachun 16856 (ros) — Spare 1042 (tor) — Spire 1 (tou), 6 (ros), 11 p.p. (lat), 11 p.p. (mic), 11 p.p. (nap), 14, 15 (lat), 20 (mic), 21 (qui), 206 (ros), s.n. (tou) — Squires 160 (mic) — Stainton 5843 (tou) — van Steenis 2839 (bra) — Steward & Cheo 800 (hua), 857 (ros) — Stone & Sidek 12275 (tor) — Stone et al. 15233 (tor) — Sulit 2620 (bra), 12324, 12367 (lae), 14564 (bra) — Sumbing SAN 122027 (bra) — Suzuki 4476, 4478 (ros) — Symington 36202 (mal).

Taam 1748 (nap), 2128 (ros) — Tahir 9225 (bra) — Talip & Ejan SAN 86998 (ros) — Tanaka & Shimada 11055 (ros) — Tang 1316 (ros) — Teo 401 (ela), 1032 (tor) — Teijsmann HB 987 (ros), 1135b (jav), HB 4305 (ros), 11340 (jav) — Thavorn 992 (luc) — Thorel 2107, 2802 (min) — Ting & Shih 604 (nap), 1043 (qui), 1494 (ros) — Tong S 34964 (ela) — Tournier 6613 (tou), 6615 (mic) — Trimen s.n. (luc) — Tsai 61579, 61622 (mic) — Tsang 107 (nap), 284, 21471 (ros), 22104, 22158, 22165 (nap), 22262 (qui), 22625, 23875, 24034 (nap), 24151, 24589 (mic), 26523, 26643, 27253 (nap), 27294 (ros), 27522 (nap), 28858, 29006 (ros), 29161 (nap), 29802 (ros), 29846 (nap), 30071 (qui), 30252 (nap) — Tsang et al. 660, 67 (ros) — Tsiang 90 (mic), 2105 (nap) — Tso 23547 (qui) — Tsou & Lin s.n. (mic) — Tsui 239, 553 (ros).

Umbai KL 1599 (bra), KL 1749 (mic).

Vachell 144 (ros) — Versteegh & Vink BW 8293 (jav) — Villamil 189 (bra) — Vink BW 12157 (jav) — de Vogel 2512, 3738 (jav).

Wallich 1667, 1668 (mic), 1670, 1671 (luc) — Walsingham 58496 (ros) — Wang 393, 35043 (ros), 39139 (nap), 39302 (ros), 39901 (nap), 40421 (mic), 40839, 40850 (ros), 74119 (tou), 74616 (ros), 75276 (tou), 75554, 75934, 77466, 77725, 77742 (ros), 78243 (tou), 79791, 80353 (ros), 80693 (mic) — Wenzel 689, 1167, 3405 (bra) — Whitmore (all FRI) 478, 842 (ros), 12426 (ela) — Wilford 401 (ros) — Williams S 17136 (bra) — Wilson 4092, 10007 (ros), 10077, 10153 (mic) — Winckel 991β (bra) — Winit 1829, 1834 (ros) — Wiriadinata 3457 (ela) — Wissmann 1041 (ros) — Wong, K.M. FRI 32412 (tor) — Wood 818 (bra), SAN 16724 (ela) — Wood et al. SAN 17554 (bra) — Wray 595, 1812, 2308A, 2599, 4273 (ela) — Wright 329 (ros), 331, 487 (mic).

Zou 912 (ros).

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The letters and numbers in brackets are the first three letters and the number of the species under which each name can be found except (mor) = *Aganonerion polymorphum*, (pde) = *Parameria densiflora*, (pla) = *Parameria laevigata*, (ppo) = *Parameria polyneura*. Accepted names are in Roman type; synonyms, excluded species and insufficiently known species in italics; new species and combinations in bold type; (x) = species exclusae; (ik) insufficiently known species.

- Aegiphila laevigata* Juss. (pla)
Aganonerion Pierre ex Spire
dongnaiense Pierre ex Planchon (x)
polymorphum Pierre ex Spire (mor)
Anodendron candolleianum Wight (x)
Antirrhoea esquirolii Lév. (ros 13)
Carruthersia imberbis Elmer (bra 1)
laevis Elmer (lae 5)
Chavannesia A.DC.
brachysepala (Hook. f.) Pichon (bra 1)
esculenta A. DC. (luc 7)
imberbis (Elmer) Pichon (bra 1)
javanica (Blume) Miq. (jav 4)
lucida (Wall. ex G. Don) A. DC. (luc 7)
montana (M. R. Hend.) Pichon (mic 9)
philippinensis (Merr.) Pichon (bra 1)
torulosa (Hook. f.) Pichon (tor 14)
Chunechites Tsiang
xylinabariopsoides Tsiang (xyl 16)
Cleghornia malaccensis (Hook. f.) King & Gamble (x)
Dendrocharis rubescens Teijsm. & Binn. (x)
Ecdysanthera Hook. & Arn.
annamensis Vernet (mic 9)
barbata Miq. (pla)
var. *angustior* Miq. (pla)
var. β Miq. (ik)
brachiata A. DC. (mic 9)
cambodiensis Pierre (mic 9)
densiflora Miq. (pla)
glandulifera (Wall. ex G. Don) A. DC. (pla)
var. *pierrei* Heim (pla)
godefroyana Pierre (x)
griffithii Wight (pla)
huaitingii (Chun & Tsiang) P.T. Li (hua 3)
inflata (Blume) K. Schum. (x)
lakhimpurensis Srivastava & Mehrotra (ik)
langbianii Vernet (mic 9)
linearicarpa Pierre (mic 9)
micrantha (Wall. ex G. Don) A. DC. (mic 9)
multiflora King & Gamble (mic 9)
myrtifolia (Miq.) K. Schum. (x)
napeensis (Quintaret) Pierre (nap 11)
parameroides Tsiang (qui 12)
pedunculosa Miq. (ros 13)
- (*Ecdysanthera*)
quintaretii Pierre (qui 12)
rosea Hook. & Arn. (ros 13)
rubescens Boerl. (x)
scandens Hassk. (x)
schrieckii Heurck & Müll. Arg. (x)
torosa Llanos (pla)
tourneri Pierre (tou 15)
utilis Hayata & Kawakami (mic 9)
xylinabariopsoides (Tsiang) P.T. Li (xyl 16)
- Echites brachiata* Wall. (mic 9)
densiflora Blume (pla)
esculenta Wall. (luc 7)
glandulifera Wall. ex G. Don (pla)
lucida Wall. ex G. Don (luc 7)
micrantha Wall. ex G. Don (mic 9)
monilifera Wall. (tor 14)
torosa Llanos (pla)
Hymenolophus Boerl.
romburghii Boerl. (jav 4)
Ichnocarpus serpyllifolius Heurck & Müll. Arg. (x)
warianus (Schltr.) D. J. Middleton (x)
Micrechites minutiflora (Pierre) Li (min 10)
napeensis Quintaret (nap 11)
Parabarium Pierre ex Spire
brachiatum (A. DC.) Pierre ex Spire (mic 9)
burmanicum Lý (tou 15)
cambodiense (Pierre) Pierre ex Spire (mic 9)
candollei Pierre ex Spire (nap 11)
chevalieri Pitard (mic 9)
chunianum Tsiang (qui 12)
diu-do Dub. & Eberh. (mic 9)
var. *longifolia* Dub. & Eberh. (mic 9)
godefroyana (Pierre) Pierre ex Spire (x)
hainanense Tsiang (qui 12)
handelianum Tsiang (qui 12)
hookeri Pierre ex Spire (tou 15)
huaitingii Chun & Tsiang (hua 3)
langbianii (Vernet) Pichon (mic 9)
langbienense Lý (mic 9)
latifolium Pierre ex Spire (lat 6)
linearicarpum (Pierre) Pichon (mic 9)
linocarpum Pierre ex Spire (mic 9)

(Parabarium)

- micranthum* (Wall. ex G. Don) Pierre ex Spire (mic 9)
multiflorum (King & Gamble) Lý (mic 9)
napeensis (Quintaret) Jum. ex Spire (nap 11)
quintaretii (Pierre) Pierre ex Spire (qui 12)
spireanum Pierre ex Spire (mic 9)
tournieri (Pierre) Pierre ex Spire (tou 15)
 var. *guignardii* Pierre ex Spire (tou 15)
utile (Hayata & Kawakami) Lý (mic 9)
 var. *kerrii* Lý (mic 9)
velutinum Pitard (lat 6)
 var. *koratianum* Lý (lat 6)
vernetii Pierre ex Spire (mic 9)

Parameria Benth.

- angustior* (Miq.) Boerl. (pla)
barbata (Blume) K. Schum. (pla)
 var. *pierrei* (Pitard) Kerr (pla)
densiflora Oliv. (den)
esquirolii Lév. (x)
glandulifera (Wall. ex G. Don) Benth. ex Kurz (pla)
 var. *philippinensis* (Radlk.) Stapf (pla)
 var. *pierrei* Pitard (pla)
 var. *poilanei* Pitard (pla)
griffithii Pierre (ppo)
laevigata (Juss.) Moldenke (pla)
pedunculosa (Miq.) Benth. ex Boerl. (ros 13)
philippinensis Radlk. (pla)
pierrei Baill. (pla)
polyneura Hook. f. (ppo)
vulneraria Radlk. (pla)
wariana Schltr. (x)

Parameriopsis Pichon

- polyneura* (Hook. f.) Pichon (ppo)

Parsonsia *barbata* Blume (pla)

- javanica* Blume (jav 4)

Pezisocarpus Vernet

- montana* Vernet (min 10)

Sindechites *henryi* Oliv. (x)Tabernaemontana *elastica* (Roxb.) Spreng. (ela 2)Trachelospermum *inflatum* (Blume) Pierre ex Pichon (x)

Urceola Roxb.

- acute-acuminata* Boerl. (bra 1)
 var. *polyneura* Boerl. (ik)
brachysepala Hook. f. (bra 1)
 var. *pilosa* Boerl. (ela 2)
elastica Roxb. (ela 2)
esculenta (A. DC.) Benth. ex Kurz (luc 7)
huaitingii (Chun & Tsiang) D. J. Middleton (hua 3)
imberbis (Elmer) Elmer (bra 1)
javanica (Blume) Boerl. (jav 4)
laevis (Elmer) Merrill (tae 5)
latifolia (Pierre ex Spire) D. J. Middleton (lat 6)
linearicarpa (Pierre) D. J. Middleton (mic 9)
longisepala Elmer (tor 14)
lucida (Wall. ex G. Don) Benth. ex Kurz (luc 7)
maingayi Hook. f. (bra 1)
malaccensis Hook. f. (tor 14)
malayana D. J. Middleton (mal 8)
micrantha (Wall. ex G. Don) D. J. Middleton (mic 9)
minutiflora (Pierre) D. J. Middleton (min 10)
montana M. R. Hend. (mic 9)
napeensis (Quintaret) D. J. Middleton (nap 11)
philippinensis Elmer (bra 1)
pilosa Boerl. (jav 4)
quintaretii (Pierre) D. J. Middleton (qui 12)
reticulata King & Gamble (luc 7)
rosea (Hook. & Arn.) D. J. Middleton (ros 13)
torulosa Hook. f. (tor 14)
tournieri (Pierre) D. J. Middleton (tou 15)
vandelli Roem. & Schult. (x)
xylinabariopsoides (Tsiang) D. J. Middleton (xyl 16)

Xylinabaria Pierre

- bantamensis* Pierre ex Pichon (jav 4)
esculenta (Wall. ex G. Don) Pierre ex Spire (luc 7)
koordersii Pierre ex Koord.-Schum. (jav 4)
minutiflora Pierre (min 10)
reynaudii Jum. (nap 11)
spirei Pierre ex Spire (lat 6)

Xylinabariopsis Pitard

- napeensis* (Quintaret) Metcalfe (nap 11)
reynaudii (Jum.) Pitard (nap 11)
ventii Lý (xyl 16)
xylinabariopsoides (Tsiang) Lý (xyl 16)