A SYNOPSIS OF GUETTARDELLA BENTH. AND THE OLD WORLD SPECIES OF ANTIRHEA A.L. DE JUSSIEU (Rubiaceae: Guettardeae)

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SUMMARY

The generic differences between Antirhea Comm. ex A.L. de Juss. and Guettardella Benth. in Champ. (Rubiaceae: Guettardeae) are discussed. Antirhea borbonica J.F. Gmel. and A. bifurcata (Desr.) Hook. f., the only Old World species of Antirhea and until now inadequately known are fully described. In Guettardella, 10 new species are proposed and 8 new combinations are made.

INTRODUCTION

Antirhea was originally described as a genus by A.L. de Jussieu (1789) on a specimen collected by Commerson in Mauritius. On the same specimen was based A. borbonica J.F. Gmelin (1791). A later synonym is A. dioica, described by De Candolle (1830), who remarked that the flowers were dioecious by abortion (hence the epithet). On the other hand, he mentions of the other two species of Antirhea, A. fragulacea DC. and A. verticillata (Willd.) DC., both also found on Mauritius, that the flowers are hermaphrodite.

It is now known that A. verticillata is a synonym of A. borbonica, while A. fragulacea is a synonym of A. bifurcata (Desr.) Hook. f. and that the flowers of these species are actually hermaphrodite.

Obviously not thinking of a possible alliance to the geographically remote Antirhea, Bentham (1852) described the genus Guettardella based on a species from Hongkong (G. chinensis) and one from the Philippines (G. philippinensis). The first species is here selected as the type of the genus. In 1866 he added G. putaminosa from Australia and noted that the flowers were 'probably polygamous'.

Hooker f. (1873) placed G. chinensis in Antirhea and the other species were subsequently also removed to that genus, whereby generally Guettardella was considered to be congeneric.

This is not surprising, as the two genera seem to have a number of features apparently in common:
1. Unisexuality of the flowers had been reported for both genera.
2. The general appearance of the male inflorescences and flowers is similar.
3. The hypanthia (of the bisexual and female flowers) have a limited number of locules.

4. The fruits contain a horny putamen when ripe.

In the present study, however, it has been discovered that the two genera can be distinguished on several accounts:

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*Guettardella multiflora* M.E. Jansen is exceptional in the genus for having 60–100 flowers in the male inflorescences and 13–30 in the female ones (hence its epithet). On the other hand, the flowers are unisexual, the hypanthium is 4- or 5-celled and the mature fruits show a putamen, whereby its relationship is clearly with *Guettardella*.

The genus *Antirhea* is said to occur in South America with a number of species as well. Some of these have been placed in *Stenostomum* Gaertn. f. (Britton & Wilson, 1925) or in *Neolaugeria* Nicolson (Nicolson, 1979). This problem could not fully be studied here, partly because the subject was a survey of the Old World species, partly because of lack of material. South American species were studied, as far as material of them was available, but a study of these species in this part of the New World is left here to future authors.

*Antirhea* A.L. de Juss. and *Guettardella* Benth. are members of the Guettardeae, the only tribe of the subfamily Antirheoideae, which is characterized by absence of raphides and locules of the hypanthium with only 1 pendulous ovule with little or no endosperm. *Antirhea* and *Guettardella* are distinct within the tribe because of the presence of a putamen in the mature fruits (pyrenes, fused into a single indurated mass). It is possible, that this putamen develops only later during maturation in some species. The position of *Guettarda kajewskii* Guillaum. is a doubtful one. It may be a *Guettardella*, but Merrill & Perry (1945) have suggested that the pyrenes remain distinct. Because this species was not represented by any material, *Guettarda kajewskii* is considered as a doubtful species in the present study.

The knowledge of the type of ripe fruits is usually essential to assign a taxon occurring in Malesia to either *Timonius* Rumph. or to *Guettardella* Benth. *Timonius* is another genus belonging to the Guettardeae. Like *Guettardella*, *Timonius* is widespread in this area and dioecious too. *Guettardella* is distinct from *Timonius* by the presence of at most 10, exceptionally 14 locules per hypanthium, while the latter has 12–many locules. Moreover, in the mature fruits of *Timonius*, a putamen is never present.

The species of *Guettardella* are apparently rare, local and in the herbaria usually represented by incomplete collections. Still, even in the absence of a completing series, it is very well possible to recognize distinct species. The genus can be divided
into two major groups, considering the size of the fruits. One group of species possesses large fruits, measuring (14—)17–30(—40) × (7—)11–25(—30) mm; the other group possesses smaller fruits, 3.5—8 × 2–8 mm. To the former group belong G. erythrocarpa, G. megacarpa, G. novo-britanniense, G. oromiumense, G. pachyphylla, G. smithii, G. solomonense, G. schmutzii. To the latter group belong G. atropurpurea, G. caudata, G. chinensis, G. hexasperma, G. livida, G. microphylla, G. multiflora, G. obscura, G. ovatifolia, G. putaminosa.

To a lesser extent, the shape of the apices of the stipules is correlating with this major dividing character. In both groups, stipules with acute apices occur, but in the group of species with larger fruits, this character tends only towards very short, broadly acuminate stipules; whereas in the species with smaller fruits, the apices of the stipules are in a number of them fine, narrowly long caudate.

Equally more or less correlated with the larger size of the fruits are further a higher number of locules in the hypanthia, the absence of ribs on the fruits and the possession of relatively larger leafblades.

An intermediate position between the two groups of species occupies G. tenuiflora of which the ribbed fruits measure 9—15 × 5—10 mm, the stipules are acute to slightly acuminate, in the hypanthia is a small number of locules present (3 or 4) and of which the leafblades are intermediate in size throughout the genus.

Fig. 1. Distribution of the genus Guettardella Benth. The encircled localities show the distribution of locally occurring species. Numbers refer to the numbers of these species.
No key to the species has been given here, because through lack of material the variation in the characters could not adequately be studied within the various species. To point out the various relationships between them, notes are therefore given under the species wherever appropriate.

Some species are apparently more or less restricted to limestone: *G. atropurpurea*, *G. erythrocarpa* (also on sand and clay), *G. hexasperma* (substrate only mentioned once), *G. multiflora* (also on beaches), *G. obscura*, see also under the species.

Finally, not all the types of the names here treated have been seen, while some material turned out to be on loan to Ms. Shu-miaw Chaw, New Orleans. Occasionally, I therefore had to rely upon the original descriptions and toptotypical collections for their application. The majority of the species in *Guettardella* are local endemics (see Fig. 1); this local occurrence of the species facilitated the application of the names.

REFERENCES


GMELIN, J.F. 1791. Syst. Veg. 1: 244.


1. ANTIRHEA


*Sturmia* Gaertn., De Fruct. Suppl. 3 (1805) t. 192. – T y p e : *S. lucida* Gaertn.

1. Antirh borbonica J.F. Gmel. – Fig. 2.


Guettarda barbinervis Sieb. ex Cham. & Schlecht., Linnaea 4 (1829) 190. – A. dioica var. barbinervis DC., Prod. 4 (1830) 460. – Type: Sieber nr. 61, Fl. Maur. II (HAL, holo?, n.v.; L, iso).

A. dioica var. acuminata DC., Prod. 4 (1830) 460. – Type: Sieber nr. 60, Fl. Maur. II (G, holo; L, iso).

Shrubs or treelets up to 8 m high. Main branches with the leaves in whorls of 3, lateral branchlets oppositely leaved. Stipules caducous, ovate to ovate-lanceolate, 4–9 × 1–3.5 mm, conspicuously keeled, outside moderately sericeous, glabrescent, inside densely long light brown sericeous, margins light brown sericeous, apex 2–3 mm acuminate. Petiole flat above, 3.5–5.5 (–8) mm, glabrous. Leafblade obovate, (2.5–)3.5–12 × (1–)1.7–6 cm, coriaceous, above glabrous, below glabrous to sparsely pilose, when young sparsely hispid on midrib and sometimes on lateral nerves, margins glabrous, apex up to 6 mm acuminate, base attenuate; lateral nerves 4–6 pairs, in the axils domatia present, these densely hispid on young leaves. Inflorescence axillary, dichotomous, 8–11-flowered, solitary; peduncle 10–20 mm long, densely long sericeous, glabrescent. Flowers hermaphrodite, protandrous, sessile. Hypanthium subcylindrical, c. 1.2 × 0.8 mm, upper part moderately long sericeous, basely more densely so, glabrescent. Calyx cylindrical to slightly campanulate, 0.75–0.9 × 1.5–1.8 mm, outside sparsely sericeous, inside upper part glabrous, basally long densely hispid; lobes 4, ovate, 0.7–0.9 × 0.5–0.6 mm, margin moderately pubescent. Corolla tube cylindrical, 4.5–7.5 mm long, 0.5–1.0 mm wide basally, at the throat 1.0–1.5 mm wide, outside basally glabrous, upper 1 mm moderately sericeous, inside glabrous; lobes 4, oblong, 1.2–1.4 × 1.0–1.1 mm, outside moderately sericeous, inside glabrous, margin moderately sericeous, apex rounded. Stamens inserted at 3.5–6.5 mm from the base; anthers dorsiverticil, linear, 2.5–3 × 0.3–0.4 mm; filaments c. 0.6 mm long, long pilose. Disk a black carnose ring, c. 0.2 mm high, c. 0.7 mm in diameter, glabrous. Style filiform, c. 2.5 mm long, glabrous; stigmas 2, filiform, c. 0.65 mm long, glabrous. Fruits 7–9 per infructescence, ovoid-lanceolate, 5–7 × 2–3 mm, apex and base rounded, glabrous; exocarp fleshy; locules 2, 4–6 × 0.5 mm; peduncle 1.5–3.5 (–4.7) mm long, moderately long sericeous.

Distribution. Mascarene Islands.

MASCARENE ISLANDS. Mauritius I. Sieber Fl. Maur. II, nr. 60, 61 (both L), Fl. Mixta nr. 209 (L); Commerson 1396 (L); between Pétrin and Grand Bassin, Coode 4431 (L).

Ecology. Shallow soil over lava. Altitude 660 m.

Field notes. Fruits green, ripening to purplish black.

2. Antirhea bifurcata (Desr.) Hook. f. – Fig. 2.


A. frangulacea DC., Prod. 4 (1830) 459. – Type: Sieber nr. 59, Fl. Maur. II (G, holo; L, iso).
Shrubs up to 1.8 m high. Main and lateral branches oppositely leaved. Stipules semi-persistent or caducous, ovate, 2–4 × 1–1.5 mm, slightly keeled, outside moderately short sericeous, glabrescent, inside densely sericeous, margins densely sericeous, apex acute or up to 2.5 mm acuminate. Petiole flat or canaliculate above, 4–10 mm, glabrous. Leaf blade lanceolate, 3–7.5(–10.5) × 1–4 cm, chartaceous, above glabrous or very sparsely short pubescent, glabrescent, below and margins sparsely pubescent, glabrescent, apex acute, base acute to attenuate; lateral nerves 4–7 pairs, in the axils domatia present, these densely hispid on young leaves. Inflorescence axillary, dichotomous, (6–)17–30-flowered, solitary; peduncle (9–)11–22 mm long, moderately sericeous, glabrescent. Flowers hermaphrodite, protandrous, sessile. Hypanthium cylindrical, 1–1.3 × 0.5–1 mm, sparsely to moderately sericeous, glabrescent. Calyx cylindrical, 0.2–0.3 × 0.9–1.1 mm, outside moderately pubescent, inside glabrous; lobes 4, ovate, 0.45–0.6 × 0.25–0.3 mm, margin moderately to densely pubescent. Corolla tube infundibular, (3–)4–8 mm long, 0.5–0.9 mm wide basally, at the throat 1.2–1.8 mm wide, outside and inside glabrous; lobes 4, oblong, 1–1.8 × 0.6–1.5 mm, outside and inside glabrous, apex broadly rounded. Stamens inserted at (2.5–)4–6 mm from the base; anthers sessile, dorsifixed, linear, 1.6–1.8 × 0.25–0.35 mm. Disk a light brown carnose ring, 0.25–0.3 mm high, c. 0.65 mm in diameter, glabrous. Style filiform, c. 1.2 mm long, glabrous; stigmas 2 or 3, filiform, c. 0.55 mm long, glabrous. Fruits up to 20 per infructescence, ovoid, 1.5–2.5 × 1–1.5 mm, apex rounded, base broadly rounded, glabrous; exocarp fleshy; locules 2 or 3, 1–2 × 0.5 mm; peduncle 10–45 mm long, glabrous.

Distribution. Mascarene Islands.

MASCARENE ISLANDS. Mauritius I. Commerson ?376 (L); Sieber Fl. Mixta nr. 190 (L), Fl. Maur. II, nr. 59, 275 (both L); Herb. Hasskarl s.n. (L).

2. GUETTARDELLA


1. Guettardella atropurpurea (Craib) M. E. Jansen, comb. nov.


Distribution. Thailand, Malay Peninsula.

PENINSULAR THAILAND. Surat Thani: Khao Lak, on road Surat-Takuapa, Smitinand & Sleumer 1187 (L). — Phuket: Trang, Kao Kao, Chawm Lem hill-summit, Rabil 309 (L).

MALAY PENINSULA. Perak. (‘one locality’, fide Chin, 1982). — Langkawi I. Selat Panchor, mainland side, Chin 1834 (L); east coast, Soepadmo & Mahmud 1255 (L); east end facing P. Timun, Stone 11010 (L); Kerr 21738 (L).
Ecology. Shrubs up to 3 m high. Limestone ridges or cliffs. Altitude 0–250 m.

Field notes. Flowers white. Fruits pale green or green when young, purple when mature.

Note. Henderson (1939), followed by Chin (1982) stated that G. atropurpurea is possibly restricted to limestone. The specimens studied and those mentioned in the literature all originate from only four localities: Peninsular Thailand (Surat Thani, Phuket) and Malay Peninsula (Perak, Langkawi 1). Two of the specimens studied (Chin 1834 and Stone 11010) were reported to be collected on limestone on the Langkawi Islands. It is well-known that extensive limestone masses predominate on these islands. Smitinand & Sleumer 1187 from Khao Lak (Thailand) was found on limestone too.

2. Guettardella caudata M.E. Jansen, spec. nov. — Fig. 3.

Arbusculae usque ad 7 m altae. Stipuláe deciduæ ovato-lanceolatae, 4–10 mm longae, 2–4.5 mm latae, apicibus 2–5 mm caudatis. Lamina folii oblonga, (3.5–)4–7 cm longa, (1.5–)2.5–4 cm lata, apice 7–10 mm acuminata, basi acuta ad rotundata, nervibus lateralisibus 4–6 paribus. Inflorescentia 1–8 floribus, pedunculus 18–42 mm longus. Flores masculi cum pedicello 0–2.5 mm longo. Bracteola una 2–3 mm longa. Calyx campanulatus, (0.3–)0.5–0.7 mm longus, (0.4–)0.8–1.5 mm latus, lobi acuți, unum alius multo breviores. Tubus corollae cylindricus, 6.2 mm longus, 0.9 mm diametro. Antherae 5.5 mm supra basin tubi insertae. Discus cylindricus, 0.18 mm altus, 0.54 mm diametro, dense breviter hirsutus. Stylus 2.6 mm longus, 0.18 mm latus, pilosus; stigmata 0.9 mm longa, glabra. Flores feminei alabastria tantum viore. Pedicellus 0–1.5 mm longus. Bracteolae 1 vel 2, 1.5–3.0 mm longae. Hypanthium campanulatum 0.6 mm longum, 0.2–0.5 mm in diametro. Calyx cylindricus, 0.8 mm longus, 1.0 mm latus, unum alius multo breviores. Fructus ignoti. — Typus: Sulit PNH12315 (L, holo; PNH, iso, n.v.).

Treelets up to 7 m high. Stipules twisted, deciduous, ovate-lanceolate, 4–10 × 2–4.5 mm, not keeled; outside long moderately to densely pubescent, glabrescent, inside glabrous to moderately short sericeous, margins sparsely to moderately pilose, apex 2–5 mm caudate. Petiole flattened to a bit canaliculate above, 3–15 mm, densely sericeous, glabrescent. Leafblade oblong, (3.5–)4–7 × (1.5–)2.5–4 cm, membranous, above sparsely short pubescent, glabrescent, below moderately long sericeous, more densely so on midrib and nerves, glabrescent, margins moderately long pilose, glabrescent, apex acute or up to 10 mm acuminate, base acute to rounded; lateral nerves 4–6(–8) pairs. Inflorescence axillary, solitary, dichotomous, with either 3–8(–11) male flowers or 1 or 2 female flowers; peduncle 18–42 mm long, moderately to densely pubescent, glabrescent. Male flowers: Pedicel 0–2.5 mm long, moderately pubescent. Bracteoles 1 per flower, filiform, 2–3 mm long, basally pubescent, upper part glabrous. Calyx campanulate, (0.3–)0.5–0.7 mm long, 0.8–1.5 mm in diameter above, 0.4–0.9 mm in diameter below, outside glabrous or sparsely to moderately pubescent, inside glabrous; lobes 4, 3 of which linear, 2.4–5.3 × 0.35–0.6 mm, one ovate, 0.6–0.85 × 0.25–0.3 mm, outside long sparsely to moderately pubescent, inside glabrous, apex acute. Corolla tube cylindrical, c. 6.2 × 0.9 mm, outside sparsely pubescent, inside glabrous; lobes 4, oblong, 1.1–1.2 × 0.6–0.7 mm, outside hirsute-pubescent, inside glabrous, apex rounded. Stamens inserted
at 5.5 mm from the base; anthers already open in young buds, linear, c. 1.8 x 0.25—0.3 mm, sessile. Disk a carnose ring, c. 0.2 mm high, c. 0.55 mm in diameter, densely white shortly hirsute. Style filiform, c. 2.6 x 0.2 mm, very sparsely short pilose; stigmas 2, filiform, c. 0.9 x 0.1 mm, glabrous. Female flowers: only seen in bud; pedicel 0—1.5 mm long, sparsely pilose to moderately pubescent. Bracteoles 1 or 2 per flower, filiform, 1.5—3 mm long. Hypanthium campanulate, c. 0.6 mm
long, c. 0.5 mm in diameter above, c. 0.2 mm in diameter below, moderately to densely pubescent. Calyx cylindrical, c. 0.8 × 1 mm, outside glabrous, inside glabrous; lobes 4, 3 of which lanceolate to linear, 2–4 × 0.5–0.75 mm, one linear, 2–3 × 0.5–0.7 mm, outside and inside glabrous. Fruits unknown.

Distribution. Philippines.


Ecology. On densely forested riverbanks. Altitude 100 m.

Field notes. Flowers pale pink.

Notes. A conspicuous character of this species is the shortly hirsute disk in the male flowers, also met with in G. obscura. Guettardella caudata is named after its long caudate stipules, a character in which this species is particularly related to G. hexasperma, G. livida, G. microphylla and G. obscura. Guettardella caudata differs, however, from G. hexasperma in the length of the leaves and the number of lateral nerves; both from G. hexasperma and G. livida in the larger number of male flowers per inflorescence in the two latter species; from G. microphylla in the shorter peduncled male inflorescences in this species.

Another conspicuous character of G. caudata, in which it is easily recognizable from the other four species mentioned above, is the unequal length of the calyx-lobes in the male flowers. In this character G. caudata is related to G. ovatifolia.

3. Guettardella chinensis Benth. in Champ.


HONGKONG. Hillside, Wright s.n. (L).

PHILIPPINES. Palawan. Panacan, southeast slope Mt Victoria, Sulit 3873 (L).

Ecology. Shrubs or small trees up to 5 m high, on rocky ridges in dense forest. Altitude up to 1000 m.

Field notes. Male flowers white. Female flowers yellow. Fruits black or dark purple.

4. Guettardella erythrocarpa M.E. Jansen, spec. nov.

Arbusculae usque ad 30 m altae. Stipulae caducae vel interdum semi-persistentes, triangulatae, (2–)4–7 mm longae, 1.5–3 mm latae, apicibus acutis ad leviter acuminatis. Lamina folii oblonga usque ad leviter obovata vel lanceolata, 7–19 (–21) cm longa, 4–8.5 (–10) cm lata, apice acuto, basi rotundata ad obtusa ad acuta, nervibus lateralibus 5–9 paribus. Inflorescentia et flores ignoti. Fructus globosus; loculis 8–11; pedicello 18–29 mm longo. – T y p u s: Versteegh BW 4759 (L, holo).
Trees, up to 30 m high. Stipules not twisted, caducous (sometimes tardily so), triangular, (2—)4—7 × 1.5—3 mm, outside densely light brown sericeous, inside densely sericeous, margins moderately sericeous, apex acute to slightly acuminate. Petiole canaliculate to slightly flattened above, 8—14 mm long, densely sericeous lanate when young slightly glabrescent. Leafblade chartaceous, oblong to slightly obovate or lanceolate, 7—19(—21) × 4—8.5(—10) cm, above glabrous, below glabrous to moderately pubescent on midrib, margins glabrous, apex acute or up to 15 mm acuminate, base rounded or obtuse to acute, lateral nerves 5—9 pairs. Inflorescence and flowers unknown. Fruits 1 per infructescence, globose to ovoid, 18—26 × (11—)21—23 mm, glabrous; exocarp fleshy; locules 8—11, cylindrical, 20 × 0.8—1.2 mm; pedicel laterally strongly flattened, 24—36 mm long, moderately to densely light brown pubescent-sericeous.


- NEW GUINEA. Salawati I. Kaloal, Koster BW 1393, BW 1444, BW 1469, BW 4264 (all L). – Vogelkop Peninsula. E. of Sorong, Warsamson R., Schram BW 2955, BW 12465; Moll BW 11571, BW 11678, BW 11685 (all L); Manokwari, Koster BW 4338, BW 10834, BW 10978, BW 11925; Bouwer BW 398; Lorenzo BW 7256; Moll BW 15667; Versteegh BW 4759 (all L). – Japen I. Seroci, Aisaoe, Iwanggin BW 10026; Schram BW 10528 (both L).

Ecology. In primary, sometimes in the wet season inundated forests or (old) secondary forests. Also in marsh forests, inundated at high tide. Usually on sandy or stony clay or clayey soil, sometimes on coral limestone with a small layer of clay (Versteegh BW 4759). Altitude 0—250 m.

Field notes. Bole up to 17 m high, d.b.h. up to 58 cm. Buttresses when present up to 2 m high, up to 50 cm wide, up to 10 cm thick. Outer bark not fissured, not or a little (sometimes strongly) peeling, smooth, (dark) brown to brown-purplish to black; inner bark white to brownish yellow or yellowish green with little purple sap, without exudate, with sweet smell. Slash up to 12 mm, yellow to reddish brown, layered. Sapwood yellow to brown. No hardwood. Fruits green, turning red during maturation.


Notes. Although G. erythrocarpa is one of the most well-represented species among the material studied, none of the specimens present possessed male or female flowers. Possibly, the flowers of this species are in bloom for only a very short time.

I named this species after its large red fruits, a character in which the species, together with the ovate or triangular acute stipules and its large, mostly oblong, ovate or obovate leafblades is related to G. novo-britanniense, G. oriomonense, G. pachyphylla, G. smithii, G. schmutzii and G. solomonense.

5. Guettardella hexasperma (Roxb.) M.E. Jansen, comb. nov.

Pyrostria hexasperma Roxb. [Hort. Beng. (1814) 83, nomen nud.], Fl. Ind. ed. Carey 1 (1820) 403; ed. 2, 1 (1832) 388; repr. (1874) 130. — Type: Roxburgh s.n., Honimoa (Saparoea), Moluccas (n.v.).


**Distribution.** Lesser Sunda Islands, Celebes, Moluccas, Philippines.

**LESSER SUNDA ISLANDS.** Lombok. Zollinger 3209 (L).

**CELEBES.** Buton I. Bau-bau, Elbert 2609 (L).

**MOLUCCAS.** Ceram. de Vriese s.n. (L). — *Saparoea*. Teysmann & Binnendijk s.n. (L); Cult. Hort. Bog. 437 (L). — *Ambon*. Ema, Teysmann s.n. (L); Cult. Hort. Bog. IV E 50 (L); IV E 50a (L).

**PHILIPPINES.** Luzon. Rizal Prov., Merrill FB 2805 (n.v.); Cagayan Prov., Ahern FB 1867 (n.v.); Batangas Prov., Ramos 1865 (L).

**Ecology.** In Buton I. found in a very dry habitat on coral limestone. Altitude up to 75 m.

**Notes.** Roxburgh described the fruits as 'with as far as 6—8 one-seeded nuts'. Apparently, he must have had only very young material at his disposal, in which the pultamen had not yet developed.

*Guettarda hexasperma* is closest related to *G. livida.* Both species possess very long caudate stipules and a relatively large number of male flowers in the inflorescences. They differ from each other in the size and shape of the fruits and the number of these in the infructescences.


*Guettarda inconspicua* Seem., Fl. Vit. (1866) 131; Gillespie, Mus. Bull. 91 (1932) 29, t. 32. — *Type*: Seemann 257 (BM, holotype; n.v.).


**Distribution.** Fiji Islands, Samoa.

**FIJI ISLANDS.** Ovolau. Seemann 257.

**SAMOA.** West. Upolu, Lefaga, Bristol 2318 (L).

**Ecology.** In Samoa found on very steep rocky coast.

**Field notes.** Small trees, 6 m high. In the male flowers the corolla tube is dull red, the throat and corolla lobes pale yellow.

**Vernacular name.** Fales'ela (Samoa).


Distribution. Philippines.


Note. For relationships see under G. hexasperma.


*Antirhea megacarpa* Merrill & Perry, J. Arn. Arbor. 26 (1945) 234. — Type: Brass 946 (A, holo; n.v.).


Ecology. On primary alluvial forest. Altitude 20 m.

Field notes. Slight buttresses present. Bark pocked and finely pustular grey; blaze pale brown; wood dark cream.

9. Guettardella microphylla (DC.) M.E. Jansen, comb. nov.


Distribution. Philippines, Moluccas.


MOLUCCAS. Talaud I. Karakelang, E. slope of Mt Piapi, Lam 3260 (L).

Ecology. On rocky soil, on open slopes. Altitude 350—450 m.

Field notes. Trees 5—7 m high, d.b.h. 30 cm. Male flowers with dirty red calices and light red corollas. Fruits black.

Vernacular name. Omin’a (Talaud I.).

Note. *Guettardella microphylla* is closest related to *G. caudata* through the size of the leaves and the caudate stipules. The two species differ from each other in the long-peduncled male inflorescences and the unequal length of the calyx lobes of the male flowers in *G. caudata*. 
10. Guettardella multiflora M. E. Jansen, spec. nov. — Fig. 4.

Arbusculae usque ad 6 m altae. Stipulae caducae, ovatae ad ovato-lanceolatae, 5—7 mm longae, 2—3.5 mm latae, apicibus 1.5—5 mm caudatis. Lamina folii lanceolata, 5—17 cm longa, (1.5—)2—
6.5 cm lata, apice acuto vel ad 7 mm acuminato, basi acuta, nervibus lateralisbus 6–9 paribus. Inflorescentia 10–100-floribus, pedunculo 7–38 mm longo. Flores masculi sessiles. Bracteolae 2 vel 3, 2–3 mm longae. Calyx cylindricus, 0.4–0.5 mm longus, 0.9–1.1 mm latus, lobi acuiloni. Tubus corollae cylindricus, 5.5 mm longus, 0.6 mm latus. Antherae c. 5 mm supra basin tubi insertae. Discus conicus, c. 0.2 mm altus, 0.3 mm latus, glabre. Stylus 2.8 mm longus, 0.2 mm latus, glaber; stigmata desunt. Flores feminei alabastria tantum cogniti, sessiles. Bracteola una, 2–3 mm longa. Hypanthium cylindricum, c. 1.2 mm longum, c. 0.7 mm latum. Calyx cylindricus, c. 1 mm longus, c. 0.4 mm latus, lobi acuiloni. Fructus 4–8 pro infructescentia, 4–vel 5-costata, 4 vel 5 loculis. – Typus: Brass 21936 (L, holo).

Trees up to 6 m high, d.b.h. up to 8 cm. Stipules twisted, caducous, ovate-lanceolate, 5–7 × 2–3.5 mm, outside densely sericeous, inside upper half sparsely to moderately pubescent, lower half densely long sericeous, margins glabrous, apex 1.5–5 mm acuminato to caudate. Petiole 4–21 mm, cylindrically, densely sericeous, not glabrescent. Leafblade lanceolate to (sometimes) obovate-lanceolate, 5–17 × (1.5–2)–6.5 cm, membranous, above sparsely to moderately sericeous on midrib and nerves, sparsely pilose between them, below long very densely sericeous on midrib and nerves, moderately so between them, margin glabrous, apex acute or up to 7 mm acuminate, base obtuse to acute; lateral nerves 6–9 pairs. Inflorescence axillary, solitary, a thyrse, with either 60–100 male flowers or 13–30 female flowers; peduncle 7–38 mm long, sparsely to densely, (sometimes) long sericeous-lanate. Male flowers: sessile. Bracteoles 2 or 3 per flower, filiform, 2–3 mm long, pubescent. Calyx cylindrically, 0.4–0.5 × 0.9–1.1 mm, outside moderately long sericeous, inside upper half glabrous to sparsely pubescent, lower half densely long sericeous; lobes 4, ovate, 0.3–0.5 × 0.3–0.6 mm, outside glabrous to moderately sericeous, inside glabrous to sparsely pubescent, apex rounded. Corolla tube cylindrically, c. 5.5 × 0.6 mm, outside moderately sericeous-lanate, inside lower 2.5 mm moderately very long hirsute, upper part glabrous; throat glabrous; lobes 4, oblong, 1.35–1.65 × 0.9–1.1 mm, outside moderately short sericeous-lanate, inside glabrous, margin glabrous, apex rounded. Stamens inserted at c. 4.9 mm from the base; anthers already open in bud, linear, c. 2.3 × 0.4 mm, sessile. Disk conical, carnose, c. 0.2 mm high, 0.3 mm in diameter, glabrous. Style filiform, c. 2.8 × 0.2 mm, glabrous; stigmas absent. Female flowers: only buds seen, sessile. Bracteoles one per flower, filiform, 2–3 mm long. Hypanthium cylindrically, 1.2 × 0.7 mm, densely long sericeous. Calyx cylindrically, 1 × 0.4 mm, outside sparsely to moderately pubescent, inside glabrous, margins glabrous; lobes 4, ovate, 0.45–0.5 × 0.9–1 mm, outside pubescent, inside glabrous. Fruits 4–8 per infructescence, globose, 4–5 × 3–4 mm, with 4–5 ribs, sparsely pubescent; exocarp fleshy; locules 4–5, cylindrically, 3.3 × 0.5 mm; pedicel not flattened, 24–25 mm long, densely sericeous-lanate.


NEW GUINEA. East Milne Bay Dist., Cape Vogel Peninsula, Menapi, Brass 21936 (L), Dabora, Saunders 151 (L); Trobriand I., Kiriwina I., Kaibola, Frodin UPNG 2037 (L); d’Entrecasteaux I., Normanby I., Maideba, Croft et al. LAE 68898 (L).

Ecology. In regrowths or in undergrowth of primary, secondary or disturbed lowland rainforest; also found along beaches. On reddish limestone soil (Saunders 151). Altitude 0–250 m.
Field notes. Outer bark cream brown, inner bark straw. Wood straw. Leaves yellow to dull dark green above, light to mid green below. Male flowers yellow. Ripe fruits red.

Vernacular name. Umaswakoakora (Minufia lang., Dabora).

Note. Easily recognizable by the conspicuous high number of flowers in the inflorescences, together with its relatively large leaves.


Arbores usque ad 30 m altae. Stipulae deciduae, ovatae, 4–7 mm longae, apicibus acutis ad 2 mm acuminatis. Lamina folii obovata ad oblonga, 19–23.5 cm longa, 7–11 cm lata, apice ad 15 mm acuminato, basi acuta ad rotundata, nervibus lateralisibus 9–12 paribus. Inflorescentia et flores ignoti. Fructus oblongus, loculis 10; pedicello c. 23 mm longo. –

**Typus:** White NGF 10058 (L, holo).

Trees up to 30 m high, d.b.h. up to 75 cm. Stipules not twisted, deciduous, ovate, 4–7 × 2.5–4 mm, not keeled, outside densely short sericeous, inside densely long sericeous, margins glabrous, apex acute to up to 2 mm acuminate. Petiole flattened to slightly canaliculate above, 3–15 mm, densely sericeous, glabrescent. *Leafblade* obovata to oblongeolate, 19–23.5 × 7–11 cm, chartaceous, above glabrous, midrib basally densely long sericeous, moderately so between lateral nerves, glabrescent, margin glabrous, apex up to 15 mm acuminate, base acute to rounded; lateral nerves 9–12 pairs. Inflorescences and flowers unknown. *Fruits* one per infructescence, oblong, 27–30 × 16–23 mm, glabrous; exocarp fleshy; locules 10, cylindrical, 22–24 × 1.5 mm; pedicel c. 23 × 1 mm, densely sericeous to floccose.

**Distribution.** New Britain.

**NEW BRITAIN. South.** Eliak Creek, White NGF 10058 (L); Pulie R., Henty & Frodin NGF 27229 (L).

Ecology. In rainforests on creekbanks; on limestone covered with red soil (Henty & Frodin NGF 27229). Altitude 0–30 m.

Field notes. Bark light grey brown or brown, shedding into irregularly small flakes. Blaze streaky yellow brown. Wood pale cream or orange. Ripe fruits red.

Vernacular name. Igey.

Note. Within the group of species with which *G. novo-brittaniense* is related (see sub *G. erythrocarpa*), it closest resembles *G. schmutzii* in the high number of lateral nerves and the very large leaves and fruits.

12. Guettardella obscura M.E. Jansen, spec. nov. – Fig. 4.

Arbusculae usque ad 6 m altae. Stipulae caducae interdum deciduae, ovatae, (2–)3.5–7 mm longae, (1–)2–3.5 mm latae, apicibus 2.5–7 mm caudatae. Lamina folii obovata ad oblonga ad lanceolata, (2.5–)3–8.5 cm longa, 1–4.5 cm lata, apice 4–11 mm acuminato, basi rotundata, nervibus lateralisibus 6–9 paribus. Inflorescentia 3–vel 7–9-floribus, pedunculo 6–20 mm longo. Flores masculi sessiles. Bracteola una, 1–3 mm longa. Calyx cylindricus, 0.35–0.5 mm longus, c. 1.2 mm latus; lobi rotundati. Tubus corollae infundibuliformis, 4.9–5.3 mm longus, 0.6–0.75
mm diametro. Antherae c. 4.2 mm supra basin insertae. Discus obconicus, c. 0.25 mm altus, c. 0.4 mm diametro, dense pubescens. Stylus c. 1.8 mm longus, 0.15—0.18 mm latus, glaber; stigmata 0.5—0.55 mm longa, glabra. Flores femininei alabastria tantum video, sessiles. Bracteoleae 3, 2.25—3.75 mm longae. Hypanthium campanulatum, c. 1 mm longus, c. 1.2 mm diametro. Calyx cylindricus, 0.6—0.9 mm longus, 0.9—1.2 mm latus. Fructus oblongus; loculis 4; pedicello 12—33 mm longo. — Typus: Endert 5397 (L, holo).

Small trees up to 6 m high. Stipules twisted, caducous (sometimes deciduous), ovate, (2—)3.5—7 × (1—)2—3.5 mm, sometimes slightly keeled, outside moderately short pubescent, below moderately short pubescent and long sparsely hirsute, laterally glabrous, inside densely long sericeous, margins glabrous, apex 2.5—7 mm caudate. Petiole rounded above, 3—12 mm, densely short sericeous and moderately velutinous, glabrescent. Leafblade obovate to oblong to lanceolate, (2.5—)3—8.5 × 1—4.5 cm, membranous, above sparsely pilose, glabrescent, below short sericeous, more densely so and sparsely velutinous on midrib and nerves, glabrescent, margins sparsely pilose, glabrescent, apex 4—11 mm acuminata, base rounded; lateral nerves 6—9 pairs. Inflorescence axillary, solitary, dichotomous, with either 7—9 male flowers or 3 female flowers; peduncle 6—15 mm long in male inflorescences, 15—20 mm long in female inflorescences, densely sericeous, glabrescent. Male flowers: sessile. Each flower except central one subtended by one bracteole, these filiform, 1—2(—3) × 0.15—0.3 mm, glabrous to sparsely pubescent. Calyx cylindricus, 0.35—0.5 × 1.2 mm, outside sparsely pubescent, inside glabrous; lobes ovate, 0.4—0.5 × 0.6—0.7 mm, outside sparsely pubescent, inside glabrous, apex rounded. Corolla tube infundibular, 5—5.5 × 0.6—0.75 mm, outside densely sericeous, inside glabrous; throat 1—1.2 mm in diameter, glabrous inside; lobes ovate, 0.7—1 × 0.8—0.9 mm, outside densely sericeous, laterally glabrous, inside glabrous, apex rounded. Stamens inserted at 4.2 mm from the base, antthers already open in bud, linear, 1.85—2 × 0.25 mm, sessile. Disk obconical, c. 0.25 mm high, c. 0.4 mm in diameter, densely pubescent. Style filiform, c. 1.8 × 0.15—0.2 mm, glabrous; stigmas 2, filiform, 0.5—0.55 mm long, glabrous. Female flowers: sessile. Each flower except central one subtended by 3 bracteoles, these filiform, 2.25—3.75 × 0.1—0.2 mm, moderately pubescent. Only buds seen. Hypanthium campanulatum, c. 1 × 1.2 mm, densely long sericeous. Calyx cylindrical, 0.6—0.9 × 0.9—1.2 mm, outside densely sericeous, inside sparsely pubescent below, glabrous above; lobes oblong, c. 0.6 × 0.35—0.45 mm, apex rounded, densely sericeous outside, glabrous inside. Corolla tube cylindrical, outside densely long sericeous, inside glabrous; lobes outside densely sericeous, inside glabrous. Fruits 1—3 per infructescence, oblong, 4.3—4.5 × c. 2 mm, moderately short pubescent; exocarp fleshy; locules 4, cylindrical, c. 3.8 × 0.65—0.85 mm; pedicel 12—33 × c. 0.5 mm, moderately sericeous and velutinous.

Distribution. Borneo.


Ecology. On forested hillridges, on (coral) limestone rock (Wood SAN A4623). Altitude 150—500 m.
Field notes. Bark smooth. Male flowers white.

Notes. The Gomantong hill, where Wood SAN A4623 was found, is at the north-east of a fine-grained coral-foraminiferal limestone massif, Dulang Lambu. Small patches of limestone are scattered in Borneo. Endert 5397 was collected in Kombeng, but Endert (1927) does not cite this specimen in his treatment of the limestone flora of the Kombeng. A number close to this, Endert 5400 (Nauclea spec.), however, was mentioned by him as collected on limestone.

The hairy disk in the male flowers of G. obscura, rather a conspicuous character, is also present in G. caudata. In stipule and leaf characters these two species resemble each other too. The species differ in the unequal length of the calyx lobes in the male flowers, the longer peduncled male inflorescences and flower characters in G. caudata.


Arbusculae usque ad 18 m altae. Stipulae caducae, ovatae, 4—5 mm longae, 2—3 mm latae, apicibus acutis. Lamina folii oblonga ad obovata, 7—15.5 cm longa, 2.5—5.5 cm lata, apice acuto ad 10 mm acuminato, basi acuta, nervibus lateraliuis 5—7 paribus. Inflorescentia c. 18-floribusc. Flores ignoti. Fructus globosus ad ovoideus; loculis 9—10; pedicello 17—21 mm longo. — Typus: White & Gray NGF 10439 (L, holo).

Trees up to 18 m high, d.b.h. up to 37.5 cm. Stipules not twisted, caducous, ovate, 4—5 x 2—3 mm, outside densely dark brown long sericeous, inside densely light brown long sericeous, margins glabrous, apex acute. Petiole rounded above, 8—15 mm, densely puberulous, glabrescent. Leafblade oblong to obovate, 7—15.5 x 2.5—5.5 cm, chartaceous, above glabrous or sparingly short pubescent on midrib and nerves, below long moderately sericeous on midrib and nerves, glabrescent, margin glabrous, apex acute to up to 10 mm acuminate, base acute, lateral nerves 5—7 pairs. Inflorescences axillary, solitary, dichotomous, with c. 18 male flowers; peduncle 23—25 mm long, densely puberulous-pubescent. Male flowers: sessile. Calyx cylindrical, undulate, 1.5—2 x 1 mm, moderately sericeous outside, glabrous inside. Female flowers unknown. Fruits 1 per infructescence, globose to ovoid, 17—27 x 11—25 mm, glabrous; exocarp fleshy; locules 9—10, cylindrical, 20—22 x 1—1.5 mm; pedicel rounded above, 17—21 mm long, densely puberulous.


NEW GUINEA. East. Gulf Dist., Bamu R., Cameron 21 (L); Western Dist., Oriomo R. White & Gray NGF 10438, 10439 (both L).

Ecology. In rainforests. Altitude 0—120 m.


14. Guettardella ovatifolia M.E. Jansen, spec. nov. — Fig. 3.

Frutices vel arbusculae usque ad 5 m altae. Stipulae deciduae, ovato-lanceolatae ad lanceolatae, 1—3 mm longae, 1—2 mm latae, apicibus acutae. Lamina folii oblonga vel ovata ad ovato-
lanceolata, 1.5–6.5 cm longa, 0.7–3.5 cm lata, apice acuto, basi rotundata ad obtusa, nervibus lateralibus 3–5(–6) paribus. Inflorescentia 1–3-floribus, pedunculo 9–14 mm longo. Flores masculi pedicello 0–1.5 mm longo. Bracteola una, 1.5–3 mm longa. Calyx campanulatus, 0.6–0.7 mm longus, 0.9–1.1 mm diametro, lobi duo adiacentes aliis breviore. Tubus corollae infundibuliformis, c. 4.8 mm longus, c. 0.65 mm diametro. Anthereae c. 4.3 mm supra basin insertae. Discus conicus, c. 0.6 mm altus, 0.3–0.5 mm diametro, sparse pubescens. Stylus c. 2 mm longus, c. 0.18 mm latus, glaber; stigmata nulla. Flores feminine ignoti. Fructus globosus; loculis 4–6; pedicello 10–11.5 mm longo. — Typus: Brass 18667 (L, holo).

Shrubs or treelets up to 5 m high. Stipules not twisted, deciduous, ovate-lanceolate to lanceolate, 1–3 × 1–2 mm, not keeled, outside moderately to densely pubescent, glabrescent, inside densely pubescent, margins densely pubescent, apex acute. Petiole flattened above, 2–8 mm, densely hispid-lanate, not glabrescent. Leafblade ovate to ovate-lanceolate or oblong, 1.5–6.5 × 0.7–3.5 cm, chartaceous, above sparsely hirsute on midrib and nerves, more densely so on lower 1/4, glabrescent, glabrous between them, below sparsely pilose on midrib, more densely so on lower 1/3, glabrescent, margin sparsely pilose, apex acute, base rounded to obtuse; lateral nerves 3–5(–6) pairs. Inflorescence axillary, solitary, dichotomous, with either 3 male flowers or 1–3 female flowers; peduncle 9–14 mm long, glabrous or sparsely to moderately pilose. Male flowers: Pedicels 0–1.5 mm long, long moderately pubescent. Bracteoles one per flower, filiformous, 1.5–3 mm long, sparsely pilose. Calyx campanulate, 0.6–0.7 × 0.9–1.1 mm, outside long moderately sericeous, inside glabrous; lobes 4, two of them oblong, 0.3–0.8 × 0.25–0.35 mm, two of them lanceolate, 0.9–1.8 × 0.35–0.6 mm, outside long moderately sericeous, inside glabrous, apex acute. Corolla tube infundibular, c. 4.8 × c. 0.65 mm, at throat c. 1.25 mm in diameter, outside densely sericeous, inside glabrous, throat glabrous; lobes 4, almost orbicular, 0.9–1.1 × 1.1–1.2 mm, outside and inside glabrous, apex broadly rounded. Stamens inserted at c. 4.3 mm from the base; anthers already open in bud, linear, c. 1.65 × 0.3 mm, sessile. Disk fleshy, conical, 0.6 × 0.3 (basally) to 0.5 (apically) mm, sparsely pubescent. Style filiform, c. 2 × 0.2 mm, glabrous; stigmas 2, reduced. Female flowers unknown. Fruits solitary, globose, 4–8 mm in diameter, glabrous; exocarp fleshy; locules 4–6, cylindrical, 3–6 × 0.6–0.9 mm; pedicel 10–11.5 mm long.

Distribution. Australia.

AUSTRALIA. Queensland. Lockerbie near Somerset, Brass 18547 (L); Newcastle Bay near Somerset, Brass 18667, 18682 (both L); Brown's Creek, Pascoe R., Brass 19599 (L); Rocky R., Hyland 6821 (L); Old Lockhart River Mission, Hyland 6944 (L); between Snake Creek and Bromley Outstation, Hyland 8944 (L).

Ecology. In or on the edge of dry (coastal) rainforest; in the undergrowth of or gregarious in savanna forest. On sand. Altitude 0–75(–150) m.

Field notes. Male buds green. Fruits black, fleshy.

Vernacular names. Yoko, lunisan (Newcastle Bay).

Note. In the unequally long lobes of the male flowers, G. ovatifolia is related to G. caudata. The two species differ in the larger, long caudate stipules, the acuminate leaves and the longer peduncle of the male inflorescences in G. caudata and in the number of flowers in the male inflorescences.
15. Guettardella pachyphylla M.E. Jansen, spec. nov.

Arbores usque ad 27 m altae. Stipulae caducae, triangulatae, 5—6 mm longae, 2—3 mm latae, apicibus acutis vel 1.5 mm acuminatis. Lamina folii oblonga, 8.5—15.5 cm longa, 3.5—7 cm lata, apice ad 10 mm acuminato, basi rotundata, nervibus lateralisibus 5—7 paribus. Inflorescentia 1-vel 11—14-floribus. Flores masculi et feminei ignoti. Fructus globosus vel oblongus; loculis 9—14; pedicella c. 15 mm longa. — Ty pus: Katik NGF 46553 (L, holo).

Trees up to 27 m high, d.b.h. up to 1.2 m. Stipules not twisted, caducous, triangular, 5—6 x 2—3 mm, outside densely puberulous to sericeous, inside densely long sericeous, margins moderately pubescent, apex acute or up to 1.5 mm acuminated. Petiole canaliculate, 5—13 mm, densely puberulous, glabrescent. Leafblade oblong, 8.5—15.5 x 3.5—7 cm, coriaceous, above glabrous, below densely pubescent-lanate on midrib and nerves, less densely so between them, not glabrescent, margins glabrous, apex up to 10 mm acuminated, base rounded; lateral nerves 5—7 pairs. Inflorescence axillary, solitary, dichotomous, with either 11—14 male flowers or 1 female flower; peduncle 15—18 x 1 mm in male inflorescences, 7—10 x 1 mm in female inflorescences, densely sericeous. Male flowers: only young buds present, sessile. Calyx campanulate to slightly spindle-shaped, truncate to undulate, outside glabrous above, densely sericeous below, inside densely sericeous, margin densely long sericeous. Female flowers: only buds present, sessile. Hypanthium cylindrical, 3—4 x 2.5 mm, short densely sericeous-lanate below, sparsely so above. Calyx cylindrical, truncate to undulate, 1.5 x 3 mm, outside sparsely sericeous-lanate, inside glabrous, margins glabrous. Fruits solitary, globose or oblong in outline, 20—25 x (12—)18—23 mm, glabrous; exocarp fleshy; locules 9—14, 23—28 x 1 mm; pedicel c. 15 mm long, densely puberulous.


NEW GUINEA. East. Madang Dist., Sepi catchment, Gogol valley, Clunie LAE 63527 (L); Gogol R., Katik NGF 46639, 46553 (both L); Aupan logging area, Katik NGF 46642 (L).

Ecology. Flat, drained, sometimes mixed, lowland rainforest. Altitude 30—60 m.

Field notes. Bole straight, up to 20 m high. Bark grey to mid or dark brown; underbark green or orange brown to brown; inner bark yellow to orange-straw. Wood dark straw to yellow. Leaves dark or light green, waxy. Fruits immature light green, turning red in maturation.


Distribution. Australia (Queensland).

Ecology. In deciduous vine thicket. Altitude 300 m.

Field notes. Small trees 5 m high. Fruits almost black when ripe.

Note. Guettardella putaminosa may be considered as the most distinct species within the genus. The species is conspicuous for its very small leaves (1.5—2.5 x 0.7—1.3 cm) with rounded to emarginate apices. The globose, black mature fruits are among the smallest present in this genus, with a diameter of c. 5 mm.

17. Guettardella schmutzii M.E. Jansen, spec. nov.

Arbusculae usque ad 10 m altae. Stipulae caducae, triangulatae, 5—6 mm longae, 2—2.5 mm latae, apicibus acutis. Lamina folii obovata, 16—22 cm longa, 6—10.5 cm lata, apice acuto vel ad 9—15 mm acuminato, basi attenuata, nervibus lateralisibus 8—13 paribus. Inflorescentia, flores masculi et flores feminei ignoti. Fructus oblongus, solitarius; loculis 8; pedicello c. 22 mm longo.

Typus: Schmutz 4820 (L, holo).

Small trees up to 10 m high. Stipules not twisted, caducous (sometimes tardily so), triangular, 5—6 x 2—2.5 mm, outside densely light brown long sericeous, glabrescent, inside densely sericeous, margins sericeous, glabrescent, apex acute. Petiole canaliculate above, 9—20 mm, densely sericeous when young, glabrescent. Leafblade obovate, 16—22 x 6—10.5 cm, membranous, above glabrous, below moderately pubescent-sericeous on midrib and nerves, glabrescent, margins glabrous, apex acute or 9—15 mm acuminate, base attenuate; lateral nerves 8—13 pairs. Inflorescence and flowers unknown. Fruits one per infructescence, oblong in outline, 23—29(—40) x 15—20(—29) mm, glabrous; exocarp fleshy; locules 8, cylindrical, 24—26 x 1 mm; pedicel c. 22 mm long.

Distribution. Lesser Sunda Islands.

LESSEr SUNDA ISLANDS. Flores. Manggarai, Paku, Schmutz 4820, 4948 (both L).

Ecology. Rainforest. Altitude 400—500 m.

Field notes. Fruits red when mature.

Note. I have named this species after Father E. Schmutz, SVD. Through numerous collections he contributes already for years considerably to the knowledge of the flora of Flores.

18. Guettardella smithii (Fosberg) M.E. Jansen, comb. nov.


Distribution. Fiji Islands.

FIJI ISLANDS. Viti Levu. Rewa, Veisari, Pillay & Apenisa 13679 (L). — Ovolau. West of Lovon'i valley, Mt Korolevu, A.C. Smith 7664 (L); Mt Tana Lailai, A.C. Smith 7685 (L).

Ecology. In dense forests on ridges and crests.

Field notes. Trees up to 18 m high. Ripe fruits red.
19. Guettardella solomonense M. E. Jansen, spec. nov.

Arbusculae usque ad 18 m altae. Stipulae caducae, ovatae, (2—)4—5 mm longae, 1.5—2.5 mm latae, apicibus acutis vel ad 2 mm acuminatis. Lamina folii oblonga ad lanceolata, 6—12 (—13) cm longa, 2.5—4.6 (—6.3) cm lata, apice 4—10 (—15) mm acuminato, basi acuta, nervibus lateribus 6—7 paribus. Inflorescentia, flores masculi et flores feminei ignoti. Fructus globosus, solitarius, loculis 6—10, pedicello 12—18 mm longo. Typus: Mauriasi BSIP 17719 (L, holo).

Trees up to 18 m high. Stipules (not) twisted, caducous, ovate, (2—)4—5 × 1.5—2.5 mm, keeled, outside very short, very densely sericeous in the middle, laterally glabrous, inside long densely sericeous, margins densely sericeous, apex acute or up to 2 mm acuminate. Petiole flattened to a bit canaliculate above, 10—18 mm, densely short sericeous, glabrescent. Leafblade oblong to lanceolate, 6—12 (—13) × 2.5—4.5 (—6.5) cm, chartaceous, above glabrous, below densely short sericeous on midrib and nerves, glabrescent, margins glabrous, apex 4—10 (—15) mm acuminate, base acute, lateral nerves 6—7 pairs. Inflorescences and flowers unknown. Fruits 1 per infructescence, globose, 19—21 × 22—23 mm, glabrous; exocarp fleshy; locules 6—10, 18 × 1.5—2 mm; pedicel 12—18 mm long, densely short sericeous.

Distribution. Solomon Islands.


Ecology. In well-drained primary forest, along riversides, on hillsides or on flat plains. Altitude 0—30 m.

Field notes. Bole at breast height up to 90 cm diam. Female flowers with creamy yellow corolla tube, not smelling. Fruits light green when young, red when mature.

20. Guettardella tenuiflora (Benth.) M. E. Jansen, comb. nov.


Distribution. New Guinea, Australia.

NEW GUINEA. East. Western Dist., Morehead, Pullen 7191 (L); Tarara, Wassi Kussa R., Brass 8525, 8585 (both L); Weam, Ridsdale NGF 33621, Ridsdale & Galore NGF 33479 (both L). AUSTRALIA. North Queensland. Cape York Peninsula, Irvine 922, 1708 (both L); Leo Creek, Upper Nesbit R., Brass 19861 (L); Etty Bay near Innisfail, Smith 3251; Lock Creek, along Davies Creek, Smith 12058 (L).

Ecology. In the undergrowth of lowland rainforest; along wet drainages, banks of creeks or streams, sometimes in closed savannah forest. Altitude 30—510 m.

Field notes. Shrubs to small trees up to 12 m high, d.b.h. up to 22.5 cm. Outer bark brownish, corky, pale brown within; inner bark pinkish to pale yellowish brown inwards. Male flowers pale or yellowish green to pale greenish cream to white; anthers brown. Fruits bright red, fleshy, pendant.
DUBIOUS SPECIES

Timonius kajewskii Fosberg, Bull. Torrey Bot. Club 70 (1943) 393; 
Merr. & Perry, J. Arn. Arbor. 26 (1945) 233. — Type: 
Kajewski 724 (n.v.).
The position of the species remains uncertain (see Introduction).

Guettardella sandwicensis (A. Gray) H. Mann, Proc. Amer. Ac. 7 (1866) 170, n.v. — 

EXCLUDED SPECIES

Antirhea bifida (Lam.) Johnston, J. Arn. Arbor. 16 (1935) 166. — Type: Commer-
son s.n. = Tournefortia bifida Lam. (Boraginaceae).

Syntypes: Foxworthy 278 (n.v.); Hose 64 (B, lost; K, L, iso) = Timonius fla-
vescens (Jack) Baker.

Antirhea esquirolii Léveillé, Fl. Kouy-Tchéou (1914) 364. — Type: unknown, = 

Cavalier 1025, = Sindechites henryi Oliv. (Apocynaceae), fide Lauener, Notes 

Antirhea myrtoides (F.v.Muell.) Baill. — Type: Dallachy s.n. (MEL, holo; n.v.), = 
Bobea myrtoides (F.v.Muell.) Valeton. This species resembles Guettardella puta-
minosa closely.

n.v.). This species was probably described by Korthals on his own collection(s) 
from Sumatra, but in the Old World the genus is only known from the Mascarenes. 
The genus Guettardella has exclusively unisexual flowers, but A. strigosa was de-
scribed by Korthals as having bisexual ones. Guettardella is so far unknown from 
Sumatra. It would therefore seem that the species does not belong to either genus. 
This may explain why no original material could be found in L, where all Korthals’ 
original specimens are present. Antirhea strigosa could probably be the ‘common 
Sumatran species’ referred to by Hooker f. (Fl. Brit. India 3, 1880, 126, footnote).

ACKNOWLEDGEMENTS

I am indebted to Dr. J.F. Veldkamp for assistance with the Latin language; both to him and to 
Dr. C.E. Ridsdale for scrutinizing the text thoroughly. The illustrations were prepared by Mr. J.J. 
Vermeulen.
### INDEX TO SCIENTIFIC NAMES

Numbers refer to the number of the accepted species, preceded by 1: for *Antirhea*, and 2: for *Guettardella*. New names and combinations are in bold type. Synonyms have '=' before the number of the species to which they belong. Dub. and Excl. refer to dubious and excluded species respectively.

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<td>borbonica Gmel.</td>
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<td>var. barbinervis DC.</td>
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<td><strong>Guettardella</strong></td>
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