
NOTES AND NEW SPECIES IN PAPUASIAN *SYZYGium* (*MYRTACEAE*)

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Syzygium cratermontensis, *S. kipidamasii*, *S. pseudomegistophyllum* and *S. ubogoensis* are newly described from Papua New Guinea. Some notes on the taxonomic position and geographic distribution of *S. megistophyllum* Merrill & Perry are also provided.

Keywords. *Cleistocalyx*, floristic survey, Papua New Guinea.

INTRODUCTION

Syzygium Gaertner is one of Papuasia's most speciose and prominent floristic elements. Unfortunately it is also currently among the more neglected genera. When T.G. Hartley began a study of *Syzygium* vouchers from his phytochemical survey in the 1960s, the amount of unnamed material at Arnold Arboretum was equal to that of the named (Hartley & Perry, 1973: 160). Many of these unnamed specimens were subsequently described as new species in a preliminary synopsis of Papuan *Syzygium* (ibid.). In the decades following that initial synthesis, the undetermined holdings in international herbaria have returned to former proportions. At Lae National Herbarium, for example, the volume of unidentified sheets is nearly twice that of the named collections. Owing to the marked increase in available specimens, a re-evaluation of the genus would undoubtedly yield new insights, especially when so many taxa were previously known only from single or very few collections (Hartley & Perry, 1973). In the following account, several gatherings from some of Papua New Guinea's most poorly documented wilderness environments are described as new taxa. Even in a genus already containing over 130 Papuan species, the opportunities for further discovery are probably substantial, particularly considering the relatively unexplored status of the New Guinea flora and its high endemism (see Balgooy *et al.*, 1996; Welzen, 1997).

The problematic nature of intergeneric relationships in the syzygioid *Myrtaceae* is well known to investigators. Although the separation of *Cleistocalyx* Blume from *Syzygium* has been accepted for Papuan *Myrtaceae* since the time of Merrill and Perry (Merrill & Perry, 1942a,b), there is still considerable disagreement over the appropriateness of this division. Within Papuasia, *Cleistocalyx* was previously known only by the little-collected *C. baeuerlenii* (F. Muell.) Merrill & Perry from Western Province (Merrill & Perry, 1937: 327, 331–332), but, as reported below, another species with a calyptrate calyx has now been discovered by the Nature Conservancy

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surveys in Madang. Newly acquired collections also indicate that *Syzygium megistophyllum* Merrill & Perry has the essential features of a *Cleistocalyx*. If *Cleistocalyx* is maintained as a viable segregate from *Syzygium*, there are thus at least three Papua New Guinean species.

Several authors have recently concluded, however, that *Cleistocalyx* and other comparable satellites are artificial assemblages which should be merged into an enlarged circumscription of *Syzygium* (*inter alia* Craven, 1998, 2001). The latter view will be adopted here, though there is obviously a persisting lack of consensus on the generic taxonomy of the entire complex (Kostermans, 1981; Hyland, 1983; Chantaranothai & Parnell, 1994).

SPECIES DESCRIPTIONS AND NOTES

***Syzygium cratermontensis* W. Takeuchi, sp. nov.**

Species haec ab *S. anomalo* Lauterb. differt in inflorescentiis e trunco infero ortis (non terminalibus).

Type: Papua New Guinea, Chimbu Province, Crater Mt. Wildlife Management Area, E of Haia village, hill forest with some anthropogenic disturbance, 6°43'S, 145°00'E, 777m, 8 iii 1997 (fl), *W. Takeuchi* 11719 (holo. LAE!; iso. A!, BRIT!, CANB!, K!, L!, NY!).

Subcanopy tree to c.10m in height, moderately (or sparingly) branched; outer bark pale brown to orange-brown on boles, generally smooth, not exfoliating. *Branchlets* terete, 2–5mm diam. near the top, occasionally compressed or furrowed but never angulate, new surfaces green *in vivo*, blackened when dried, densely glandular-tuberculate, older internodes with light brown periderm, decorticating in flakes. *Leaves* obliquely spreading from branchlets; blades papyraceous or coriaceous, opaque, pellucid-punctate in transmitted light, copiously and bifacially marked by black tuberculate glands in reflected light, often with smaller black spots between the tubercles, adaxial surfaces dark green, abaxially yellowish-green, orange-brown or dusky when dried, minutely pulverulent on undersides, highly variable in shape: lanceolate, broadly ovate, elliptic, or elliptic-oblong, 21.5–41.5 × 6.5–16.5cm, apex acute to attenuate-caudate, curved to one side or not, margins reflexed, base obtuse or cuneate; midrib weakly raised above, prominent and carinate beneath; secondaries 15–28 per side, 4–16mm apart on larger leaves, discoloured, often black, adaxially plane, abaxially prominulous, usually straight, sometimes confluent, diverging 20–45° from the midrib; commissural nerve 1–2mm from the margin; intersecondaries obscure or invisible, scalariform; petiole 8–17 × 2–5mm, swollen, often brown and twig-like in aspect, adaxially flattened, convex beneath. *Inflorescence* cauligerous from woody callosities, branching at the base, ultimately cymose, rachis usually to 2.0cm long, all axes brown and ramentaceous; bracts persistent, inconspicuous, broadly ovate or triangular, to c.0.75 × 1.0mm; pedicels 1–3mm long. *Flowers* (measurements from spirit-preserved material) cylindrical to obovoid in bud, 9–11 × 6–8mm, articulate at the base; perianth laxly glandular-tuberculate on all

parts; calyx tube cupuliform at anthesis, dull yellow-green turning red or purple-red towards the limb, distinctly fleshy at the top and on inner surfaces, lobes 4 in 2 unequal pairs, obtuse, the larger lobes $3.0 \times 5.5\text{--}7.0\text{mm}$ (1.5–2.0mm long when dry), the smaller lobes $1.0\text{--}1.5 \times 3.5\text{--}4.0\text{mm}$; petals 5–6, rounded or oblongish, $3.5\text{--}5.0 \times 5.5\text{--}6.0\text{mm}$, collectively calyprate; androecium 1–3-seriate, filaments white or pale yellow-green, 3–11mm long, anthers versatile, c.1mm long; ovary bilocular, ovules several per cell; style subulate, $8.5\text{--}9.5 \times 1.5\text{mm}$, light green or yellowish-green, smooth throughout, stigma small. *Fruits* not seen.

Distribution and habitat. *Syzygium cratermontensis* is known only from Crater Mt., in lower- to mid-montane forest.

Etymology. The epithet commemorates the Crater Mt. Wildlife Management Area, a conservation unit administered by the Research and Conservation Foundation of Papua New Guinea.

Additional specimens examined. Papua New Guinea, Chimbu Province, Crater Mt. Wildlife Management Area, descending slopes between Mt. Widau and Wara Oo (first river to E of Widau), hill forest with some anthropogenic disturbance, $6^{\circ}43'S$, $145^{\circ}00'E$, 640–777m, 19 ix 1996 (fl), *W. Takeuchi* 11235 (A!, BRIT!, K!, LAE!); Crater Mt. Wildlife Management Area, ridges around Abegarema, short-stature montane forest, near $6^{\circ}30'S$, $145^{\circ}03'E$, 1770m, 3 viii 1998 (fl), *W. Takeuchi* 13004 (A!, CANB!, L!, LAE!).

The known species of Papuan *Syzygium* generally flower among the leaves, or have inflorescences from defoliate axils; comparatively few produce flowers exclusively from old wood. *Syzygium cratermontensis* belongs to a strictly cauliflorous alliance from which there are apparently several undescribed taxa.

The new species will key out closest to *S. anomalum* Lauterb., but its real affinity is probably to an unnamed taxon represented by specimens such as *Hays* 126, *Sayers* 185 and *Kairo* 775. *Syzygium cratermontensis* can be identified by replacing the ultimate lead for *S. anomalum* with the following continuation (Hartley & Perry, 1973: 171, sp. 76).

Inflorescence cymose

Inflorescence of terminal cymes _____ **S. anomalum**
 Inflorescence of cauliflorous cymes _____ **S. cratermontensis**

***Syzygium kipidamasii* W. Takeuchi, sp. nov. Fig. 1.**

Species haec ab *S. acutangulo* K. Schum. differt foliis sessilibus vel subsessilibus, inflorescentiis caulifloris corymbosis usque ad 14cm longis.

Type: Papua New Guinea, Madang Province, Bismarck Range, ridge above Camp 4, hill forest, $5^{\circ}31'S$, $144^{\circ}51'E$, 900m, 23 x 1995 (fl), *W. Takeuchi* 11068 (holo. LAE!; iso. A!, BRIT!, K!).

Understorey shrub, 3–4m in height, entirely glabrous, bole decorticating in crustaceous flakes and ferruginous on the exposed surfaces; wood straw-coloured, dense.

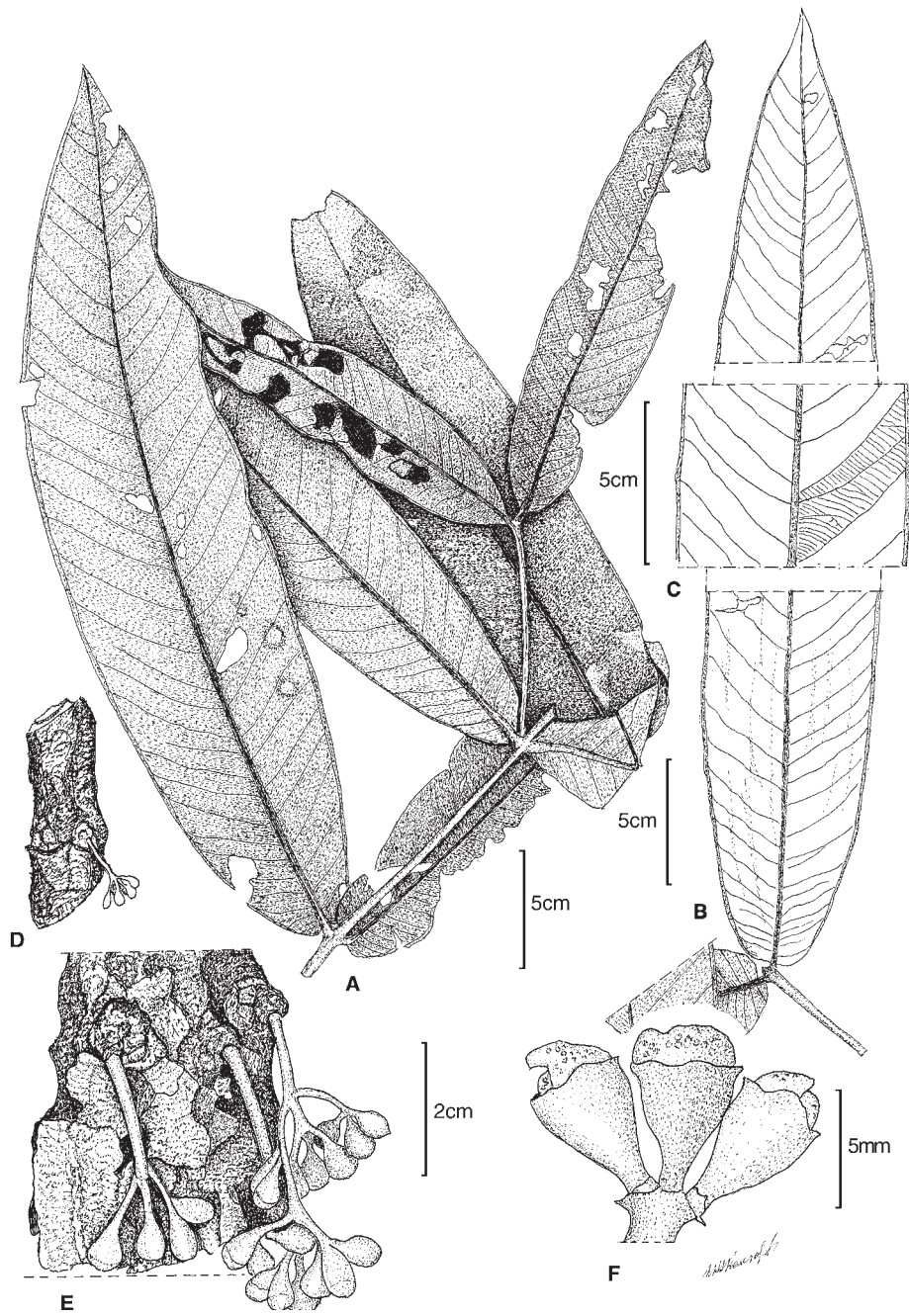


FIG. 1. *Syzygium kipidamasii*. A, vegetative habit; B–C, leaf, basal, middle and apical sections; D–E, inflorescence; F, flowers. (D same scale as A) Drawn from the type.

Branchlets terete (to quadrangular) but not distinctly alate, smooth and purple-black near the top, later brunnescent. *Leaves* obliquely spreading from branchlets; blades coriaceous, opaque, adaxially medium or dark green, abaxially yellow-green, discoloured and brown after drying, pellucid-punctulate in transmitted light, granular beneath, also with raised glandular spots on both sides, lamina elliptic-oblong, 26.0–38.5 × 4.5–8.5 cm, gradually and evenly tapered to the apex, curved to one side or not, base subcordate (or obtuse), never cuneate; midrib swollen at the petiole; secondaries 30–37 per side, 5–12 mm apart, usually straight, occasionally incomplete or confluent before the margin, crowded and transversely spreading at the lamina base, diverging 55–65° from the midrib at the lamina centre, adaxially prominulous, more raised beneath; commissural nerve 1 mm from the margin; tertiary nerves scalariform, obscure; petiole swollen, blackened, at most 2–3 mm long but with the leaf often overlapping the branchlet when seen from above and appearing sessile. *Inflorescence* cauline, corymbiform, cymose, few-flowered, solitary or several together from woody callosities on the stem, 3–4(–14) cm long, axes brown, terete or compressed, distally corrugate, surfaces minutely ± ramentaceous but not furfuraceous; peduncle 15–30(–85) × 1.5–2.0 mm; bracts usually paired, inconspicuous, patent, deltate, 0.5–1.5 mm long, persisting; pedicels 1–2(–4) × 1.0–1.5 mm, articulated at either end. *Flowers* 4–13 per inflorescence, obovoid in bud, 6.5–7.5(–14) × 4.0–5.0(–6) mm, 1.0(–2.5) mm stipitate; calyx tube white, purple towards the margin, entirely black after drying, obconical to cupuliform, 5.0–6.5(–10) × 4.5–5.0(–6) mm, limb sinuate or repand, lobules 4, subequal, to 1.0 × 3.0 mm, (c. 1.0–1.5 mm long when rehydrated); petals 4, suborbicular, 4.0 × 4.5 mm, concave, light green, fleshy and incrassate near the centre and base, thin-hyaline towards the margins, glandular spotted on both surfaces; androecium polyandrous (c. 30), stamens biseriate on a narrow rim lacking a thickened adaxial margin, anthers oblongoid; ovary bilocular, ovules several per cell; style subulate, to nearly 4.0 mm long in bud. *Fruits* not seen.

Distribution and habitat. Endemic to mainland Papua New Guinea, from humid mid-elevation forests.

Etymology. The epithet recognizes colleague Kipiro ‘Kipi’ Damas, the senior research dendrologist at Lae National Herbarium.

Additional specimens examined. Papua New Guinea, Milne Bay District, Raba Raba Subdistrict, Paori, Mt. Suckling complex, well-drained rain forest, 9°45'S, 149°04'E, 1200 m, 16 vi 1972 (fl), *P.F. Stevens & J.F. Veldkamp* LAE 54083 (A!, BRI, CANB, E, K, L, LAE!); Milne Bay District, Raba Raba Subdistrict, junction Ugat and Mayu Rivers, near Mayu Island, *Castanopsis* dominated forest, 9°37'S, 149°10'E, 1000 m, 19 vii 1972 (fl), *H. Streimann & P. Katik* NGF 28977 (A!, BO, BRI, CANB, K, L, LAE!, SING).

Syzygium kipidamasii is distinguished by large, elliptic-oblong, sessile or only very shortly petiolate leaves. The small inflorescences are always cauline and borne from woody callosities near the trunk base.

Syzygium kipidamasii keys out to *S. acutangulum* K. Schum. (Hartley & Perry,

1973: 171), but can be readily distinguished from the latter (see couplet below). Among the taxa recognized by Hartley and Perry, it is closest in overall aspect to *S. megistophyllum*. The large cordately based leaves and cauligerous inflorescence are immediate points of similarity. However, as noted in the following discussion, *S. megistophyllum* has a calyprate calyx, while *S. kipidamasii* is a *Syzygium s. str.* (see Merrill & Perry, 1938: 206).

Collections from the Bismarck Archipelago such as *Stone & Streimann* LAE 53680 and *Croft & Katik* NGF 41439 are also similar to *S. kipidamasii*, but have tetra-pterous stems and many-flowered paniculate inflorescences. These specimens represent either a distinct infraspecific taxon, or a separate species possibly allied to *S. delicatulum* Merrill & Perry, the latter differing primarily in its terminal or axillary panicles. Although *S. kipidamasii* is here described from mainland Papua New Guinean provenances, it may eventually include populations from stations as distant as the Solomon Islands, depending on how the variation is interpreted.

The new species can be added to the existing key by replacing the ultimate lead for *S. acutangulum* (Hartley & Perry, 1973: 171, sp. 79) with the following:

Leaves longer than 10cm; inflorescence not terminal

Lamina cuneate (or obtuse) at base, petiole usually at least 1cm long;
 inflorescence infrafoliar, from defoliate axils, pyramidal _____ **S. acutangulum**
 Lamina cordate at base, sessile or with petiole at most 2–3mm long;
 inflorescence cauligerous, often corymbiform _____ **S. kipidamasii**

Syzygium megistophyllum Merrill & Perry in *J. Arnold Arbor.* 23: 279 (1942). Type: Netherlands New Guinea, Idenburg River, 4km SW of Bernhard Camp, *Agathis* forest, 900m, iii 1939 (fr), *Brass* 13340 (holo. A!). **Fig. 2.**

Specimens examined. Papua New Guinea, Central District, Moitaka, shale ridge, 9°30'S, 147°10'E, 200ft, 11 xii 1964 (fr), *A.N. Gillison* NGF 22045 (BRI, L, LAE!); Gulf Province, Lakekamu, E branch of the Avi Avi River, alluvial forest, 7°44'S, 146°30'E, 105m, 8 xi 1996 (fr, spirit, xylarium), *W. Takeuchi & J. Kulang* 11601 (A!, BRIT!, CANB!, K!, L!, LAE!, NY!); West Sepik District, Vanimo Subdistrict, Ossima, lowland forest on side of ridge, 2°56'S, 141°17'E, 100ft, 31 i 1969 (fr), *H. Streimann & A. Kairo* NGF 39291 (A!, BRI, CANB, K, L, LAE!).

Syzygium megistophyllum was previously known only from the type collection made in West Papua (Netherlands New Guinea) but it is now apparent that the species also occurs in northern and southern Papua New Guinea.

Merrill & Perry (1942b: 279) noted that the dried fruit is different in shape from fresh or spirit-preserved material, a distinction which is clearly expressed in the Lakekamu specimen. The fruits of *S. megistophyllum* are lageniform after drying, also becoming characteristically prolonged and umbilicate at the summit, but are otherwise subcompressed-globose *in vivo*. The pericarp is scrobiculate both on exsiccatae and in the living plant. In very immature fruits the calyx tube is truncated by a thickened rim consistently lacking any indication of lobes (cf. *Takeuchi & Kulang*

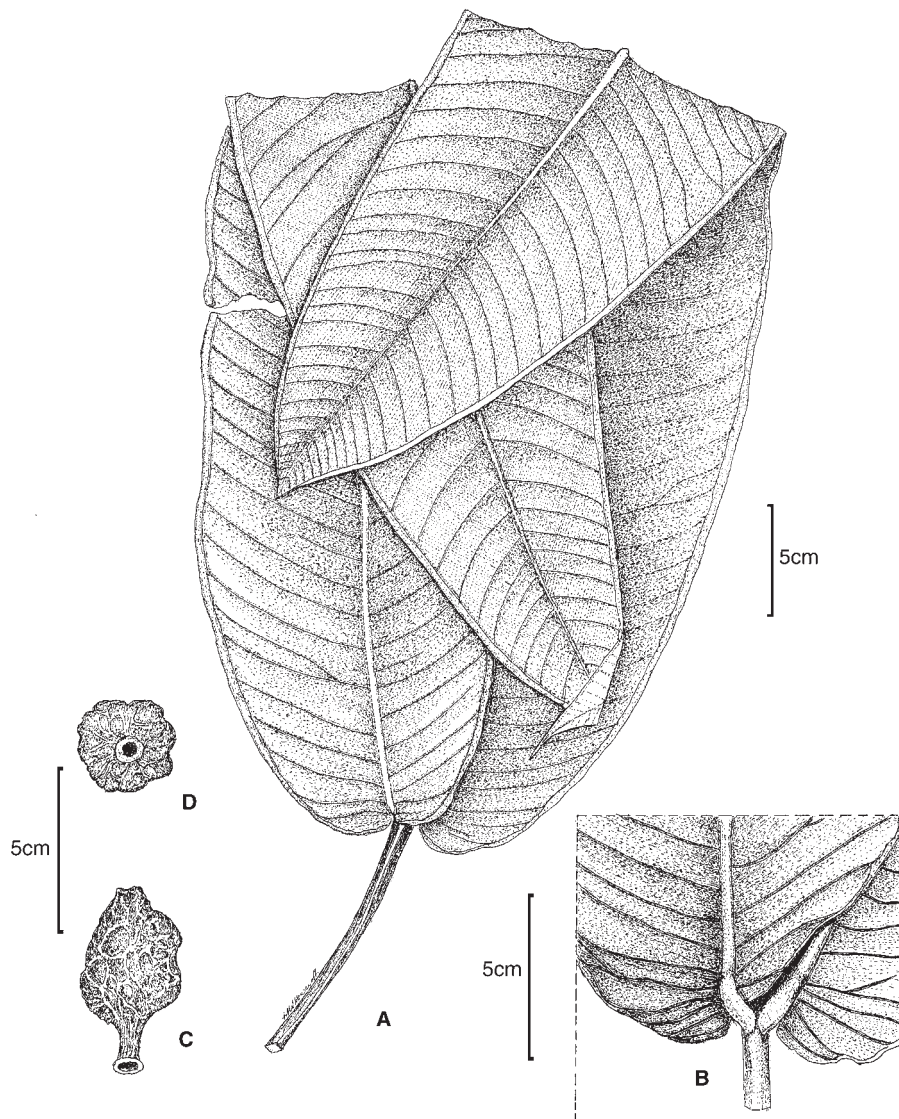


FIG. 2. *Syzygium megistophyllum*. A, two whole leaves; B, detail of leaf base, abaxial surface; C, dried fruit, side view; D, dried fruit in distal perspective, with the umbilicate summit. Drawn from Takeuchi & Kulang 11601.

11601, also with old inflorescences bearing remnants of abscised calyces). If *Cleistocalyx* is accepted as valid, and since it is defined by a calyptrate calyx (Merrill & Perry, 1937: 323), the evidence from the Lakekamu number shows that *S. megistophyllum* is referable to *Cleistocalyx*. Merrill and Perry had reaffirmed the separation between *Syzygium* and *Cleistocalyx* in a paper preceding their principal publication on Papuan *Syzygium* (ibid.). According to the standards of the time,

S. megistophyllum should have been described under *Cleistocalyx*. However, the type for *S. megistophyllum* is a fruiting specimen which lacks the critical character (the calyptrate calyx) necessary for generic assignment on an acceptance of *Cleistocalyx*. By circumstance, the species was described in accordance with more recent views.

The observation by Hartley & Perry (1973: 160–161) of variability in branchlet form for certain *Syzygium* species (whether terete, compressed, or angulate) also applies to *S. megistophyllum*. The species has branchlets which are either manifestly quadrangular-marginate (e.g. the LAE duplicate of *Takeuchi & Kulang* 11601) or terete (e.g. the A duplicate from the same individual plant), so the description of terete branchlets in the type specimen is not diagnostic.

***Syzygium pseudomegistophyllum* W. Takeuchi, sp. nov. Fig. 3.**

S. megistophyllo Merrill & Perry aemulans differt inflorescentiis sessilibus.

Type: Papua New Guinea, Madang Province, Josephstaal Forest Management Agreement Area, Guam River, alluvial forest on successional terraces, 4°32'S, 144°59'E, 86m, 11 ix 1998 (fl), *W. Takeuchi & E. Saxon* 13068 (holo. LAE!, iso. A!).

Subarborescent, c.5–7m in height, laxly branched, glabrous; outer bark brunnescent to reddish-brown, crustaceous, not decorticating; wood straw-coloured. *Branchlets* virgate, plagiotropic from a gnarled bole, quadrangulate (or tetrapterous), 7–10mm diam. near the top, green *in vivo*, smooth, internodes c.12–13cm long, marked by minutely raised glands. *Leaves* obliquely spreading from branchlets; blades pergamentaceous, pellucid-punctulate in transmitted light, also bifacially black-spotted in reflected light, adaxial surfaces dull dark green, abaxially yellowish-green, olivaceous to ochraceous when dried, elliptic-oblong, 53–64 × 12.5–17.0cm, apex acute, base shallowly cordate; midrib prominent, firm, distinctly swollen near the petiole; secondaries 39–45 per side, straight or arcuate, 5–24mm apart, more crowded near the lamina base, shallowly impressed or plane above, raised beneath, occasionally confluent, at the centre of the lamina diverging 30–40° from the midrib to a commissural nerve 1–3mm from the margin; tertiary nervules scalariform, reticulum obscure; petiole 5–10 × 5–9mm, swollen, blackened, rugulose. *Inflorescence* cauligerous from woody callosities, emerging near ground level; bracts numerous, approximated, subulate or acuminate, c.2–3mm long, falling early. *Flowers* sessile, fascicled, crowded, buds initially clavate, later cylindrical, to 21–24 × 4–6mm (including beak), tube incrassate, c.1mm thick, fleshy; calyx limb completely closed, circumscissile, conspicuously prolonged to a 2–4mm acumen; petals 5, glandular, apex obtuse; androecium 3-seriate, filaments 6–9mm long, anthers c.1.5 × 0.5mm, versatile; ovary bilocular, ovules compressed, approximately 10 per locule; style exerted 10–11mm, gradually tapered to a small stigma. *Fruits* not seen.

Distribution and habitat. Known only from riverine forest in the Josephstaal area.

Etymology. The epithet reflects the resemblance to *S. megistophyllum*.

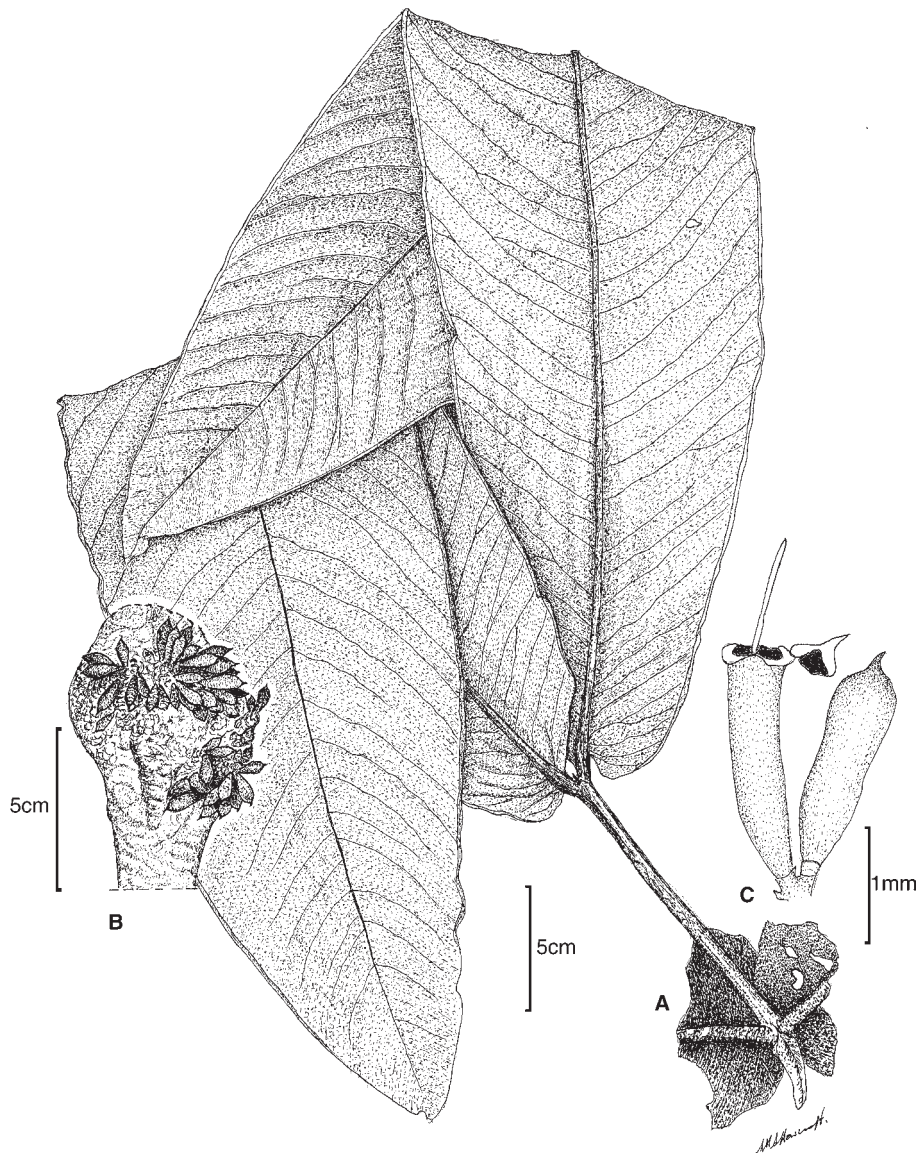


FIG. 3. *Syzygium pseudomegistophyllum*. A, vegetative habit; B, inflorescence from section of old wood; C, flower with calyprate calyx. Drawn from the type.

Syzygium pseudomegistophyllum is similar to *S. megistophyllum* in foliage, habit and ecology. However, in *S. megistophyllum* the infructescence has a robust 9cm long rachis with branches up to 1.5cm length (Merrill & Perry, 1942b: 279) while the mature flower clusters for *S. pseudomegistophyllum* are sessile. Both species would be consigned to *Cleistocalyx* because of their circumsciss calyces, should that genus be upheld.

Two continuations from existing keys are thus provided below: the first with *S. pseudomegistophyllum* added to the *Cleistocalyx* key in Merrill & Perry (1937: 326–329), which is still the most effective means for identifying the calyprate Malesian taxa; and the second based on an assignment to *Syzygium* as actually adopted in the present paper.

In the context of the calyprate species, *S. pseudomegistophyllum* can be easily separated from the only previously known Papuan species, *C. baeuerlenii*, by marked differences in flower characters. [The appropriate combinations in *Syzygium* are not available for all the species treated by Merrill & Perry (1937) under *Cleistocalyx*. *Cleistocalyx* binomials are thus used when referring to distinctions between *S. pseudomegistophyllum* and other calyprate species treated by those authors.] In *C. baeuerlenii* the calyx is cupulate, pseudostipitate, and with the tube usually less than 12mm long (calyx clavate-cylindriciform, sessile, and with tube 16–20mm long in *S. pseudomegistophyllum*). The inflorescence is axillary or terminal in *C. baeuerlenii*, but strictly cauline in *S. pseudomegistophyllum*. Although the latter will key directly to *C. fullagarii* (F. Muell.) Merrill & Perry, it is clearly not that species. *Syzygium pseudomegistophyllum* can be identified by replacing the lead for *C. fullagarii* (Merrill & Perry, 1937: 327, fork F, sp. 6) with the following couplet:

F. Flowers long, calyx tube (after calyptra has fallen) c.18mm long

Lamina obovate, apex obtuse; calyx minutely apiculate; tube infundibular.

(Lord Howe Island) _____ **Cleistocalyx fullagarii**

Lamina elliptic-oblong, apex acute; calyx with a 2–4mm long acumen; tube cylindrical. (Madang Province, Papua New Guinea) _____

_____ **Syzygium pseudomegistophyllum**

Hartley & Perry (1973) treated Papuan *Syzygium* in a narrow sense exclusive of *Cleistocalyx*. This was not explicitly stated by the authors, but can be inferred from the taxonomy. Their key, for example, uses first order couplets based on calyx lobes (which are absent in *Cleistocalyx*). *Syzygium pseudomegistophyllum* can be identified by making the following change to couplet 40 (ibid.: 168, 171):

40. Calyx calyprate, lobes absent _____ **Syzygium pseudomegistophyllum**

Outer calyx lobes 2mm or more high _____ to couplet 41

Outer calyx lobes not more than 2mm high, mostly less _____ to couplet 55

***Syzygium ubogoensis* W. Takeuchi, sp. nov. Fig. 4.**

Differt a *S. malaccense* (L.) Merrill & Perry foliis brevioribus, floribus minoribus solitariis.

Type: Papua New Guinea, Southern Highlands Province, Kutubu, NE of Waro airstrip near Ubogo village, *Metroxylon* swamp, 6°32'S, 143°12'E, 442m, 9 ix 1993 (fl), *W. Takeuchi* 9155 (holo. LAE!; iso. A!, K!, L!).

Depauperate shrubs or small trees to c.10m in height, glabrous on vegetative parts;

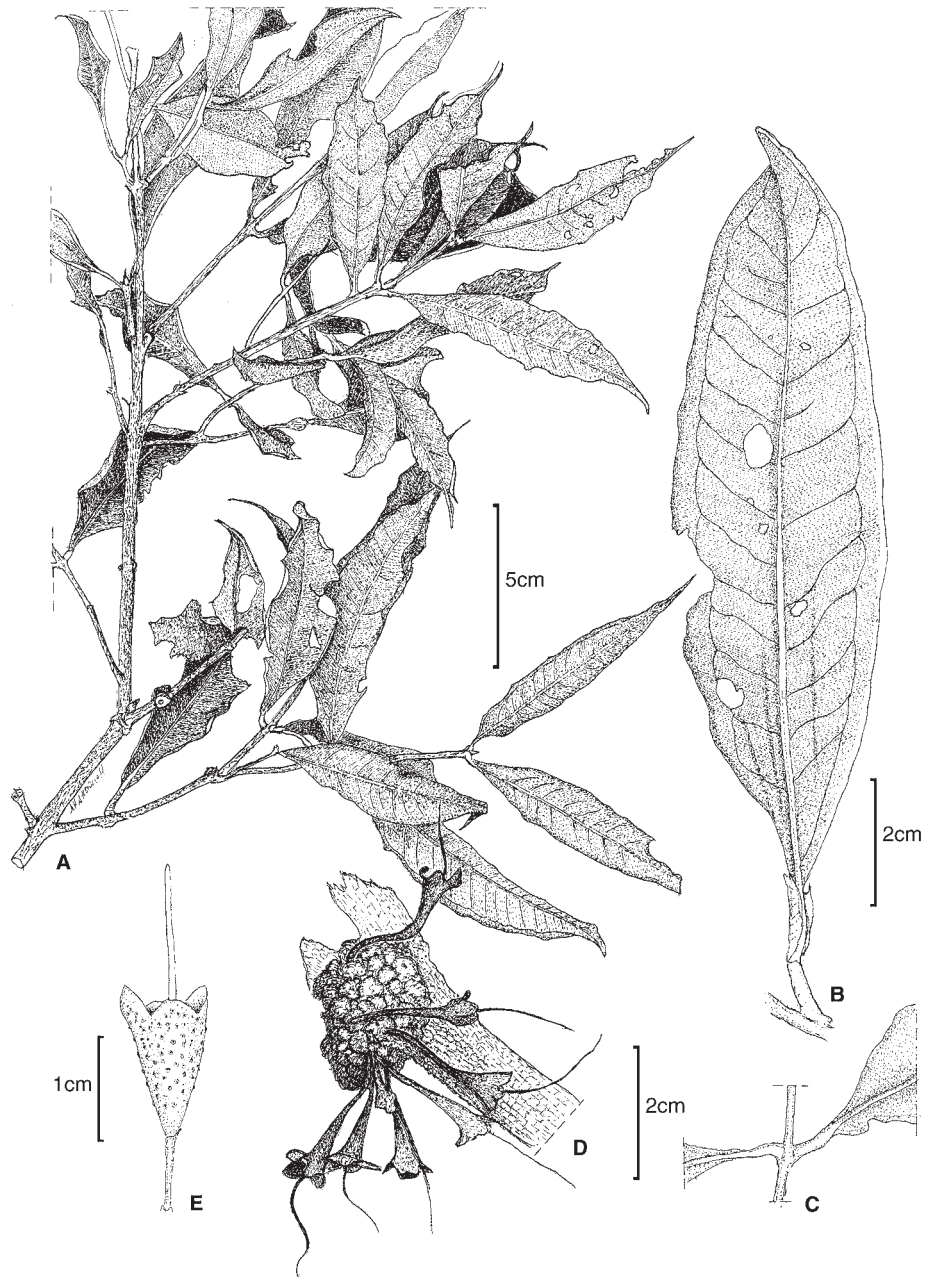


FIG. 4. *Syzygium ubogoensis*. A, vegetative habit; B, leaf, abaxial surface; C, petioles and branchlet; D, inflorescence and stem callosity, with dried flowers; E, calyx tube from preserved flower. (C same scale as D) Drawn from the type.

outer bark minutely fissured, not decorticating, reddish-brown, slash concolorous, periderm 5–6mm thick on branches, fibrous and extractable in continuous strips or plates, furrowed on inner surfaces; wood straw-coloured, very dense. *Branchlets* usually opposed, spreading in a single plane, nodose, terete, compressed on the newest growth but never alate, pale orange-brown, surfaces cracking and falling away in small flakes near the top, crustaceous on older intervals. *Leaves* obliquely diverging from branchlets; blades firm to coriaceous, adaxially nitid green, abaxially dull yellow-green, on both sides brown or olivaceous after drying, also pustulate, the entire undersurface white-punctulate and minutely pulverulent, pellucid spots not visible through the thick leaf tissues; lamina elliptic, 6.0–18.0 × 1.3–4.0cm, usually 12–15.5 × 3.5cm, apex gradually acuminate or caudate, often curved to one side, margin crisped after drying, sometimes repand, base cuneate, attenuate on larger laminae, reducing equally to the petiole; midrib adaxially impressed, channelled, prominent beneath; secondaries 8–17 per side, 3–16mm apart, filiform, obscure, bifacially plane, at most weakly raised, diverging 25–35° from the midrib then confluent to a commissural nerve 1–4mm from the margin, partial intersecondary nervules often present between the complete veins; reticulum lax, invisible or very inconspicuous; petiole 2–8mm long, brown, rugulose, flattened or grooved on the upper side, rounded below. *Inflorescence* of single flowers clustered on woody callosities, cauliflorous (or ramiflorous), almost never near the leaves, the flowering callosities approximately hemispherical, to 3cm diam. and 1.5cm height, initially fulvous pilose with hyaline and uniseriate-septate hairs; peduncles bright red, 5–9 × 0.5mm, numerous bracteate at the base, also with paired bracts at the apex and frequently near the middle, the bracts ovate or triangular, minute, to c.1.0mm long. *Flowers* verruculose on most exterior surfaces; calyx tube entirely pinkish-red, vasiform, 9–11 × 2–3.5mm, pustulate when dried, at the top slightly thickened on the adaxial margin, lobes 4 in 2 unequal pairs, obtuse (or apiculate), the larger lobes 3.5–4.0 × 4–5mm, alternating with smaller lobes 2–3 × 3–5mm; corolla white, falling early, reticulately venose, petals 4, c.7–11 × 4.5–7.0mm, unguiculate, distally concave; androecium biseriate, stamens 12–15mm long, filaments entirely white, apically contracted, anthers versatile, oblongoid, 0.50–0.75mm long; style 25–27 × 0.5mm, resembling the filaments but pink towards the summit, stigma punctiform. *Fruits* subglobose, 2.5–3.0cm diam. (spirit material), monospermous, exocarp bright red, smooth, mesocarp spongy and white; fruiting calyx persisting, fleshy, lobes ovate, not or only weakly accrescent; seed c.1.5cm diam.

Distribution and habitat. *Syzygium ubogoensis* is thus far known only from *Metroxylon* swamp and limestone karst at the type locality.

Etymology. The new species is named after Ubogo village.

Additional specimens examined. Papua New Guinea, Southern Highlands Province, Kutubu, limestone karst ridge next to Waro airstrip, 6°32'S, 143°12'E, 500–600m, 3 viii 1991 (fr), *W. Takeuchi* 7300 (A!, BRIT!, K!, LAE!).

Syzygium ubogoensis is allied to a complex centred on *S. malaccense* (L.) Merrill & Perry. The dried leaves of *S. ubogoensis* have the characteristic texture of *S. malaccense s. lat.* and with similar venation patterns, but are much smaller. The inflorescences are also consistently single-flowered with white filaments, rather than pluriflorous with red filaments as in *S. malaccense*. However, the calyces of both taxa have the same pustular surfaces after drying. Although most *Syzygium* species are entirely glabrous, the flower-bearing callosities on *S. ubogoensis* are initially pilose.

Syzygium ubogoensis will key out to a group consisting of *S. saliciforme* Merrill & Perry, *S. uniflorum* Merrill & Perry, and *S. xylopiaceum* (Diels) Merrill & Perry (Hartley & Perry, 1973: 169). The new species can be added to the existing key with the following modifications to couplet 46 (ibid.):

46. Flowers always solitary, verrucose and/or pustulate
- Inflorescence cauliflorous (or ramiflorous), inserted on woody callosities;
secondary veins 3–16mm apart _____ **S. ubogoensis**
Inflorescence axillary; secondary veins 3–5mm apart _____ **S. uniflorum**
46. At least some inflorescences with more than one flower, flowers not verrucose or pustulate
- Inflorescence axillary or terminal, bearing up to 15 (or more) flowers; young branchlets acutely quadrangular _____ **S. xylopiaceum**
Inflorescence axillary, bearing 1–3 flowers; young branchlets not acutely quadrangular _____ **S. saliciforme**

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