

PSYCHOTRIA GOLMANII SP. NOV. (RUBIACEAE), A NEW ADDITION TO THE FLORA OF THE UPPER SEPIK IN PAPUA NEW GUINEA

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Abstract. *Psychotria golmanii* is described from remote environments in Papua New Guinea's upper Sepik drainage. The new species is similar to other congeners with reflexed peduncles but is immediately distinguished by its diminutive stature and tomentose panicles.

Keywords: Kaiserin-Augusta-Fluss Expedition, new species, Papuasias

The upper Sepik basin in Papua New Guinea (PNG) is probably the most prolific geographic venue for botanical discovery in east Malesia. During PNG's German territorial period, the vast drainage was explored by the seminal Kaiserin-Augusta-Fluss Expedition of 1912–1913, laying the foundation for Lauterbach's (1912–1924) *Beitrag zur Flora von Papuasien* and all following floristic summaries

of Papuasias. Despite a century of subsequent progress, Sepik environments continue to yield unusual novelties from multidisciplinary surveys of its interior tributaries (Takeuchi and Golman, 2002; Crome, 2011). The author's specimen backlog from the 2009–2011 Frieda surveys has 21 *species novae* still queued on a deferred publication schedule (Takeuchi, 2011).

MATERIALS AND METHODS

Taxonomic descriptions are based on the attributes from dried specimens. Characters determined in situ from living plants are reported separately as "field characters."

Ancillary collections (silica-dried leaf samples and ethanol-preserved fruits) were misplaced during transit from expeditionary bivouacs and are presumed lost.

TAXONOMY

Psychotria golmanii W. N. Takeuchi, *sp. nov.* TYPE: PAPUA NEW GUINEA. West Sepik Province: Wara Mifyam, alluvial flats in floodplain forest, densely shaded understory, 04°09'37"S, 141°18'34"E, 140 m, 10 December 2017, W. N. Takeuchi 26972 (Holotype: A; Isotypes: BISH, K, L, LAE). Fig. 1–6.

Affinis Psychotriae apdavisianae W. N. Takeuchi *sed infructescentiis paniculatis fructibus pilosis persistentibus differt.*

Subshrubs 40–75(–125) cm tall, monoaxial or with 1(–3) branches. *Basal stems* cylindrical, 4–8 mm diam., firm, straight-ascending, nigrescent, dull, smooth (or obscurely furrowed), abscission scars lax, trigonous to circular, ca. 3–5 mm wide, lenticels absent. *Branchlets* (if present) obliquely spreading, usually opposed, compressed or cylindrical, 1.5–5.0 mm diam., planate-angulate at the top, pithy, black; indument tomentose, hirtellous on older parts, subsisting, orange brown, hairs ca. 0.5–1.0 mm long, crispate, septate; defoliate nodes transversely marked by stipule scars, bearded; internodes 1.5–11.0(–14.5) cm long. *Leaves* equal, divergent, bicolorous; stipules ovate, 14–26 × 12–19 mm, notched or cleft to the middle, paired, free, persisting, papery, brittle, black, adaxially lanate-barbate at the base, elsewhere densely pilosulous on the inside, fringed, outer side variably hairy, glabrescent, lobes acuminate, 5–11(–15) × 5–9 mm; petioles 10–40(–72) × 1–3 mm, planoconvex, indument as the subtending branch, not articulated, not expanded at either pole; leaf-blades elliptic, obovate, (or orbicular), (5.6–)11.0–22.0(–29.0) ×

(3.9–)6.4–11.6 cm, chartaceous; base cuneate or attenuate, symmetrical, poorly delimited from the petiole or not; margin entire; apex acuminate (or acute), acumen to ca. 2.2 × 1.5 cm, often curved to one side; lamina surfaces adaxially fuliginous, glabrescent, minutely pustulate, cystoliths linear, discolourously pale, infrequent, abaxially brunnescent to orange brown, persistently hirtellous especially along veins, domatia absent; venation brochidodromous (or eucamptodromous), secondary veins (7–)13–24 per side, 3–18 mm apart, at the lamina center straight-diverging 45°–80° from midribs (elliptic blades with the smaller angles and intervein separations), ± parallel, closing by abruptly looping nerves 0.5–4.0 mm from margins, not anastomose beyond the commissural loops; tertiary (crossing) nerves scalariform, reticulum conspicuous, coarsely areolate; all veins weakly raised or invisible on the upper side, prominent beneath. *Inflorescence* (seen only in early emergence) terminal, condensed, globular, ca. 12 × 15 mm, all parts obscured by orange brown tomentum; peduncle ca. 10 × 2 mm, nodding. *Flowers* unknown. *Infructescence* paniculiform, 47–87 × 32–44 mm, solitary, persistently bracteate, velutinous, surfaces black, striate or not; primary axes 5–13 × 0.8–2.0 mm; secondary axes 3–12 × 0.5–2.0 mm, 2–4 together in pseudowhorls; bracts linear-acuminate, 2.0–6.5 × 0.3–1.2 mm; pedicels cylindrical, 1.5–2.5(–4.0) × 0.5–0.8 mm, not articulated. *Drupe*s obovoid (or ellipsoid), 5–8 × 3.5–5.5 mm (exclusive of calyx), sparsely hirtellous, exocarp jet black, copiously set with pale raphides; fruiting sepals 5, free, ovate to triangular, ca. 1.0–1.5 × 1 mm,

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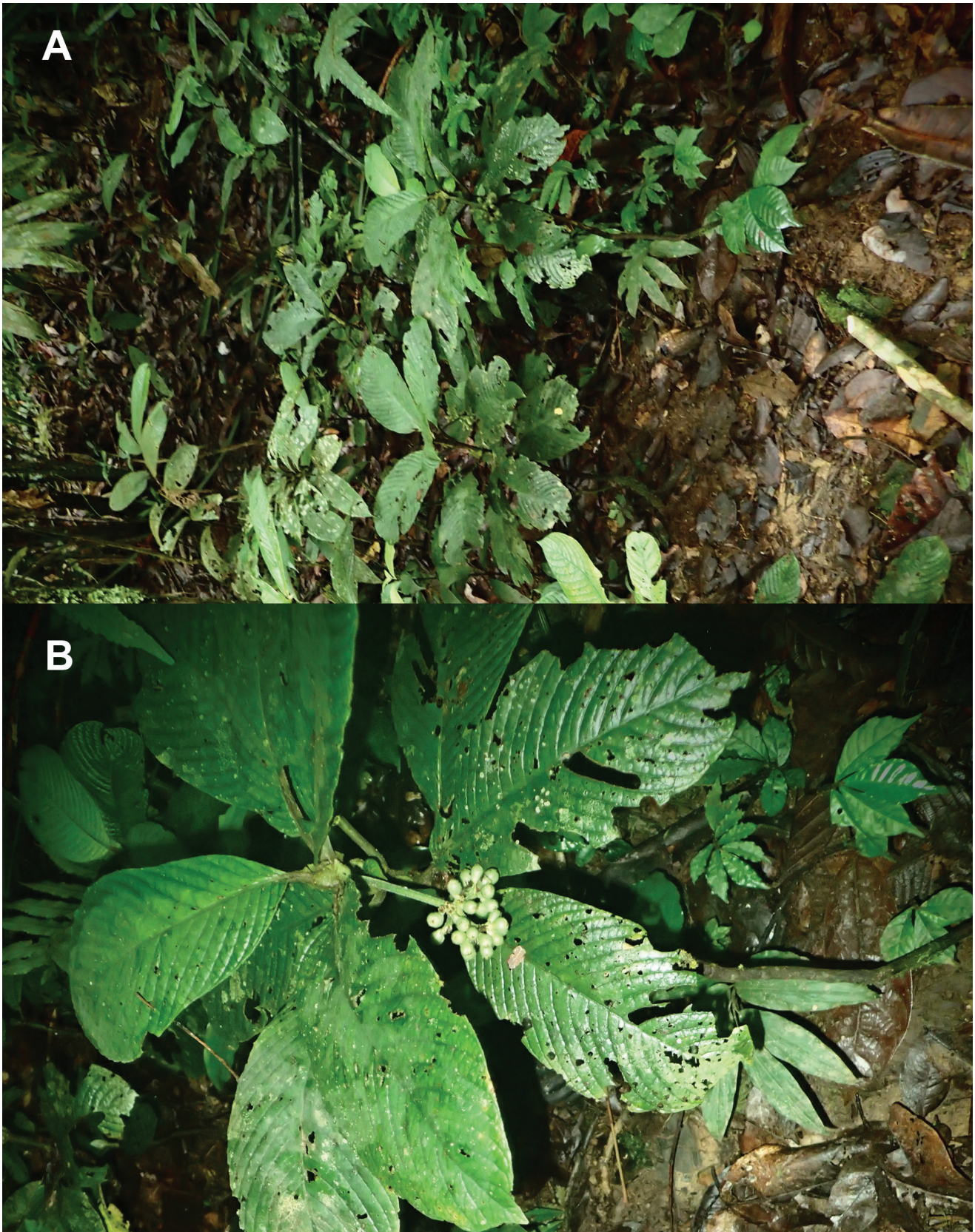


FIGURE 1. *Psychotria golmanii* W. N. Takeuchi. Habit. **A**, understory monocauls 40–50 cm tall in alluvial forest; **B**, leaves are often insect-damaged or covered by debris and bryophytic epiphylls. From *W. N. Takeuchi 26972*.

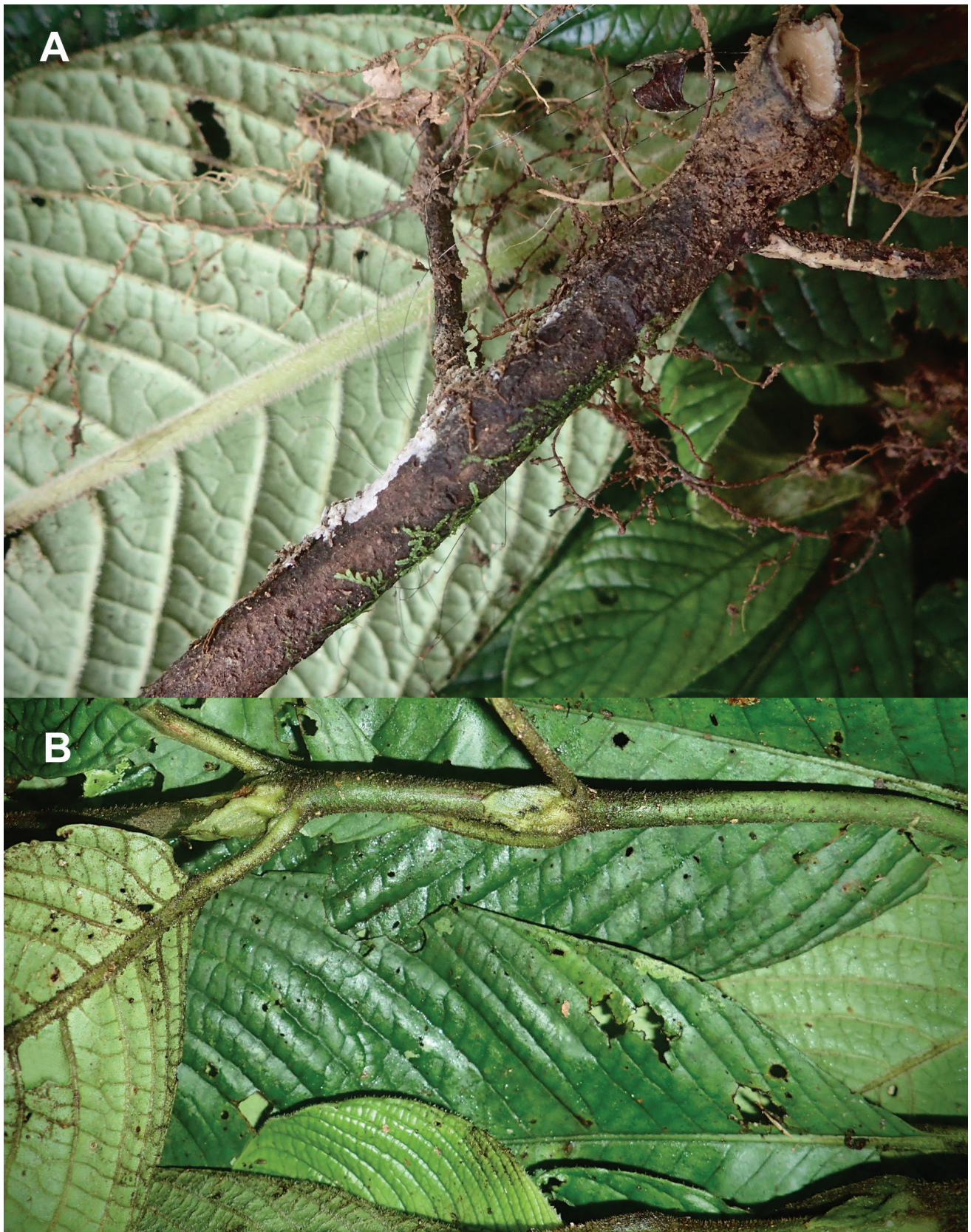


FIGURE 2. *Psychotria golmanii* W. N. Takeuchi. Stems. **A**, basal section; **B**, apical section. From W. N. Takeuchi 26972.

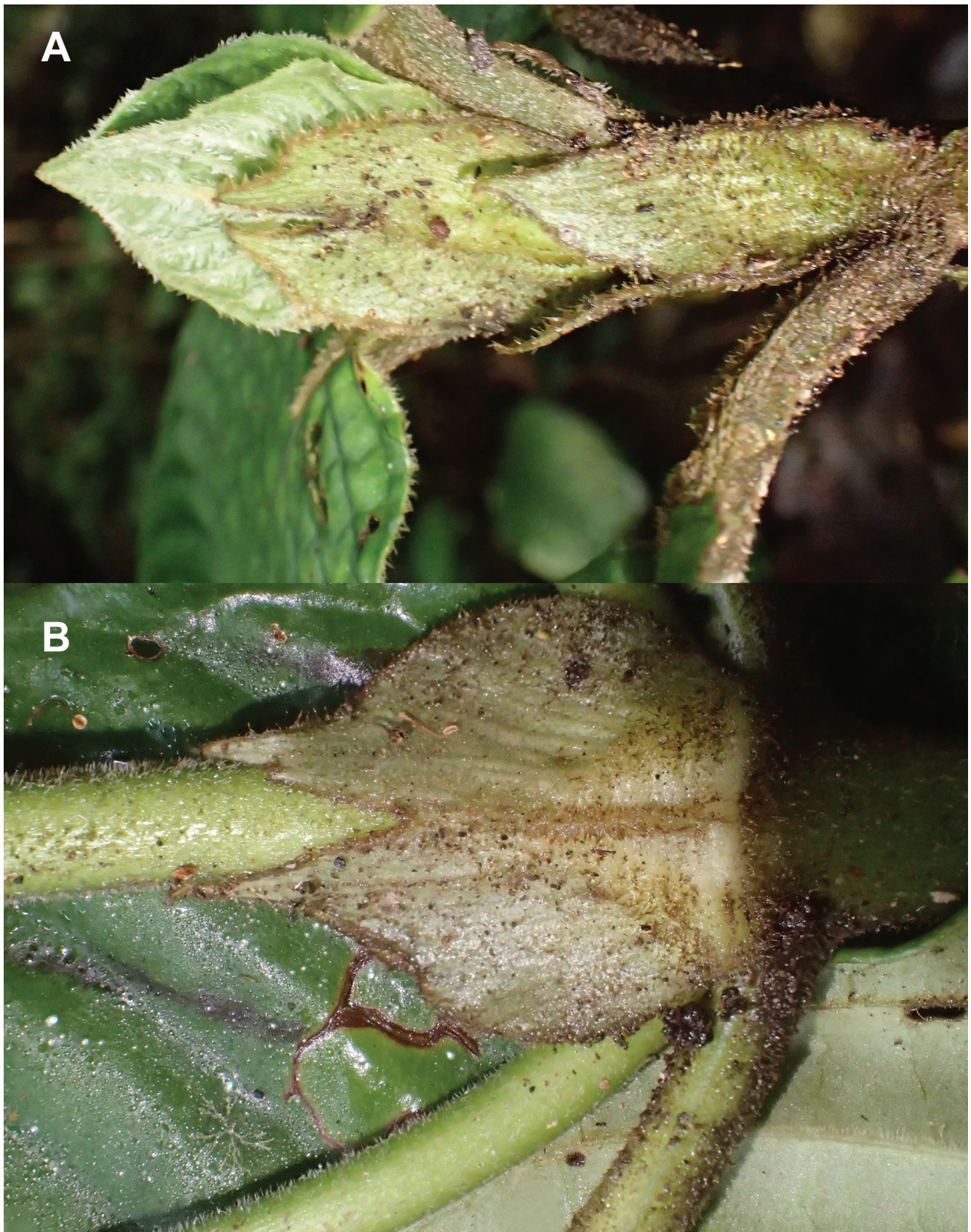


FIGURE 3. *Psychotria golmanii* W. N. Takeuchi. Stipules. **A**, from apical nodes (two shown); **B**, lower node. From W. N. Takeuchi 26972.

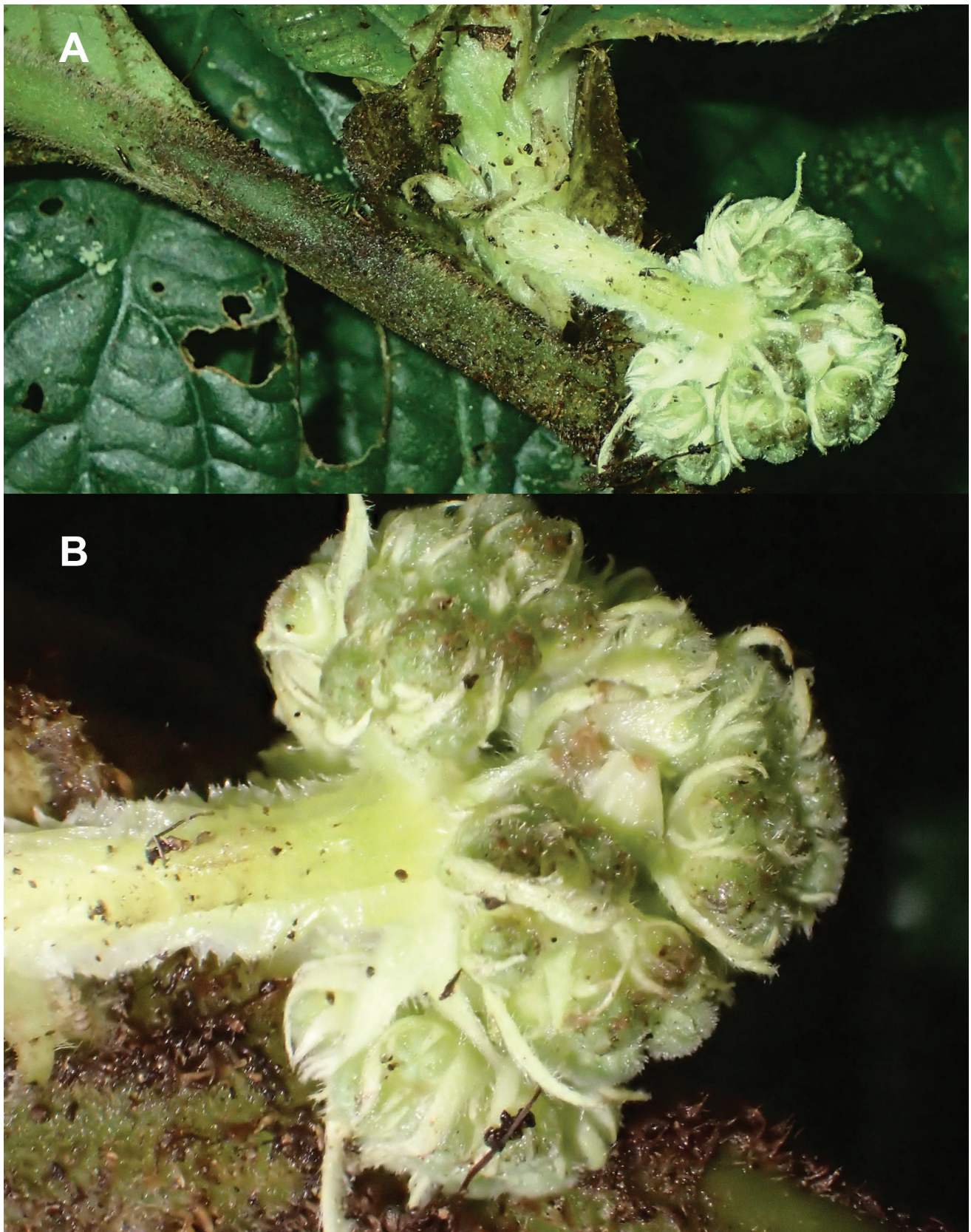


FIGURE 4. *Psychotria golmanii* W. N. Takeuchi. Emerging inflorescence. **A**, aspect; **B**, same, in close-up. From W. N. Takeuchi 26972.



FIGURE 5. *Psychotria golmanii* W. N. Takeuchi. Infructescence. **A**, aspect; **B**, submature fruits. The ripe drupes are probably white, as in other dwarf congeners. From W. N. Takeuchi 26972.



FIGURE 6. Comparison of fruiting structures between *Psychotria golmanii* W. N. Takeuchi and the species closest to it (*P. apdavisiana* W. N. Takeuchi). **A**, infructescence paniculate in *P. golmanii*; **B**, capituliform in *P. apdavisiana*. **A** from W. N. Takeuchi 26972; **B** from W. N. Takeuchi, A. Gambia & T. Jisaka 23261 (from the type collection).

ascending or curled; pyrenes 2, hemispherical, endocarp crustaceous, acutely 3(–4)-ridged on the back, commissural face flat; preformed germination slits 2, marginal, extending halfway to the apex; seed coat without ethanol soluble pigments, endosperm ruminant.

Etymology: the new species is named after Martin Wakiagamb Golman, the current director of the PNG Forest Research Institute and the writer’s longtime colleague in Papuanian botany.

Field characters: erect understory subshrubs, gregarious,

not stoloniferous, usually monoaxial, periderm dark brown, smooth; stem indument brown, shaggy; stipules foliaceous, thickened at the base, pale yellow green; leaf-blades fleshy, adaxially rugose, dark green, abaxially yellow green to mid-green; immature inflorescence whitish green, bracts linear-deltate; infructescence always directed downward, surfaces pale green, indument white, dense, setiform.

Distribution: throughout the alluvial and colline zones of West Sepik Province, near historical localities of the Kaiserin-Augusta-Fluss Expedition of 1912–1913 (Fig. 7).

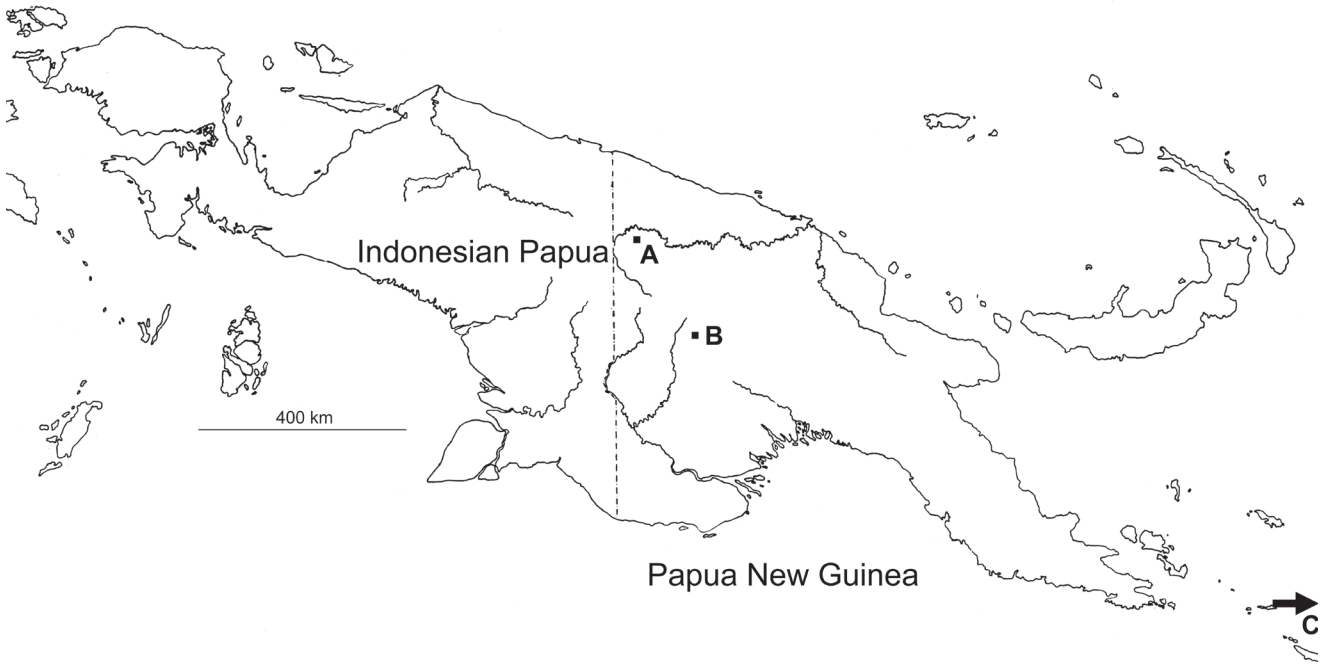


FIGURE 7. Island of New Guinea. A, type locality for *Psychotria golmanii*; B, type locality for *P. apdavisiana*; C, type locality for *P. reflexapedunculata* (Rossel Island, ca. 35 km outside the map’s lower right margin).

Habitat and ecology: a dominant understory species in lowland forests from 115 to 160 m.

Phenology: scattered individuals fruiting or in the early stages of flowering during December.

The *species nova* is a miniature monocaul with reflexed peduncles. Among Papuanian congeners, only *Psychotria reflexapedunculata* Sohmer from Rossel Island and *P. apdavisiana* W. N. Takeuchi of Western Province have this unusual combination of features (Sohmer, 1988; Takeuchi, 2013). Because of its small stature and downward-directed inflorescence, the fertile structures in the new plant are

concealed beneath the foliage. This circumstance is probably responsible for historical failures at detection, despite the presence of large populations.

Although vegetatively similar to *Psychotria apdavisiana*, the Sepik novelty is instantly distinguished by its paniculate infructescence and hirsute fruits. With their known ranges restricted to opposite-flowing drainages across the Central Divide, *P. golmanii* and *P. apdavisiana* are possibly sister species. The Papuanian congeners with reflexed peduncles can be readily separated using the following key:

- 1a. Glabrous or nearly so on all parts (Milne Bay Province) *Psychotria reflexapedunculata*
- 1b. Plants conspicuously hairy on all parts 2
- 2a. Fruits sessile, congested in a single terminal cluster. (Western Province) *P. apdavisiana*
- 2b. Fruits pedicellate, lax, arranged in an open panicle (West Sepik Province) *P. golmanii*

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APPENDIX

ADDITIONAL SPECIMEN CITED IN THE TEXT

- Psychotria apdavisiana* W.N.Takeuchi. PAPUA NEW GUINEA. Western Province: Strickland drainage, Juha South, survey track 1 to sinkhole area, mossy montane forest, 5°53.994'S, 142°26.234'E, 910 m, 21 February 2008, *Takeuchi, Gambia & Jisaka 23261* (holotype: A; isotypes: K, LAE).