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THREE NEW SPECIES OF *CHASSALIA* AND *PSYCHOTRIA* (RUBIACEAE) FROM CENTRAL AFRICA

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Three new species of Rubiaceae from Central Africa are described and illustrated. *Chassalia lutescens* O.Lachenaud & D.J.Harris (widespread from Cameroon to Democratic Republic of Congo) is recognised inter alia by the T-shaped ventral furrow of the seeds and the orange-yellow discoloration of inflorescences in herbarium specimens. *Psychotria nodiflora* O.Lachenaud & D.J.Harris (Central African Republic, Congo-Brazzaville and Democratic Republic of Congo), belonging to *Psychotria* subgen. *Psychotria* sect. *Involucratae*, is unique among African species of the genus in having paired axillary inflorescences. *Psychotria pteropus* O.Lachenaud & D.J.Harris (Central African Republic and Democratic Republic of Congo) belongs to *Psychotria* subgen. *Tetramerae*; it is closely related to *P. leptophylla* Hiern but differs in its narrow corolla tube and globose to ellipsoid fruits.

Keywords. Central Africa, *Chassalia*, *Psychotria*, Rubiaceae, taxonomy.

Introduction

The Rubiaceae – Psychotrieae are a very diverse group in tropical rainforests, especially in Central Africa, where they are mostly represented by the genera *Psychotria* L. (> 150 species), *Chassalia* Comm. ex Poir. (c.15 species) and *Chazaliella* E.M.A.Petit & Verdc. (c.15 species). The first two genera in particular are still very poorly known. The only revision available for the African species of *Psychotria* is that of Petit (1964, 1966), dating back to a time when large areas of Central Africa were not or scarcely prospected, while no revision at all is available for the Central African *Chassalia* (although one is currently in preparation by the first author).

Among the plants collected by the second author in the Dzanga-Sangha Reserve, Central African Republic, several unidentified Rubiaceae – Psychotrieae were recorded (Harris, 2002). Three of them, one *Chassalia* and two *Psychotria* species, have since been confirmed as new, and more material has been found from other

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Central African countries, allowing for their description. In addition, some of the other unidentified species listed in the same work have been identified as follows:

Chazaliella sp. A sensu Harris 2002: = **Chazaliella oddonii** (De Wild.) E.M.A.Petit & Verdc. var. **cameroonensis** Verdc. New record for Central African Republic.

Psychotria sp. B sensu Harris 2002: = **Polysphaeria subnudifaux** Verdc.

Psychotria sp. E sensu Harris 2002: = **Psychotria auxopoda** E.M.A.Petit. Another collection from the country has been found: Boukoko, *Tisserant* 2571 (P). Together these are the first records from Central African Republic.

Species Descriptions

Chassalia lutescens O.Lachenaud & D.J.Harris, **sp. nov. Figs 1, 2.**
Chassalia sp. A sensu Harris, Vasc. Pl. Dzanga-Sangha Reserve 163 (2002).

Ab omnibus Africanibus congeneribus endospermio in sectione transversali fissura mediana T-formi munito differt. Habitu erecto corollaque tubo brevi et recto *C. coralliferae* et *C. kolly* affinis, sed differt a primo lamina papyracea (nec coriacea) et a secundo corolla majora, fructibusque bilobatis (nec globosis vel ellipsoideis); ab ambabus etiam differt pyrenis facie adaxiali plana et sine apertura, inflorescentiis corollaeque in sicco saepe aurantiaco-luteis. – Type: Cameroon, Zingui hill, 20 km WSW of Ebolowa, fl. & fr. 5 iv 1970, *Letouzey* 10268 (holo BR; iso K, P, YA).

Erect shrub, 0.4–1.6 m high, little-branched or occasionally single-stemmed, with dark brown bark; wood whitish in life, becoming orange-yellow when dry. *Twigs* glabrous, smooth or very faintly bicostate, slender (1–1.5 mm thick). *Stipules* 2–4 mm, triangular, acute, entire to very shortly notched, connate at base for 1/3 to 1/2 of their length, glabrous, persistent and becoming corky. *Petiole* 0.9–2.3(–3.5) cm long, glabrous. *Lamina* elliptic to slightly obovate, attenuate at base and acuminate at apex, 8.5–16 × 3–6 cm, papyraceous, glabrous on both surfaces, in life shiny dark green above and pale silvery green below, in herbarium olive green to olive brown with underside of nerves often tinged yellow; midrib prominent above; lateral nerves 5–9(–11) pairs, slightly impressed above, arching 1.5–3 mm from margin; tertiary nerves apparent but very lax. *Inflorescences* shortly paniculate, hemispherical, trichotomously branched, glabrous, whitish-green at anthesis, becoming fleshy, white to pale blue (rarely pale pink) in fruit, in both stages drying orange or yellowish-brown; peduncle 0.2–1(–1.5) cm; flowering part 0.8–2 × 1.5–2 cm at anthesis, up to 3.5 cm broad in fruit; pedicels indistinct; bracts minute. *Flowers* 5-(rarely 4- or 6-)merous, very fragrant, smelling of grilled coconut, heterostylous.

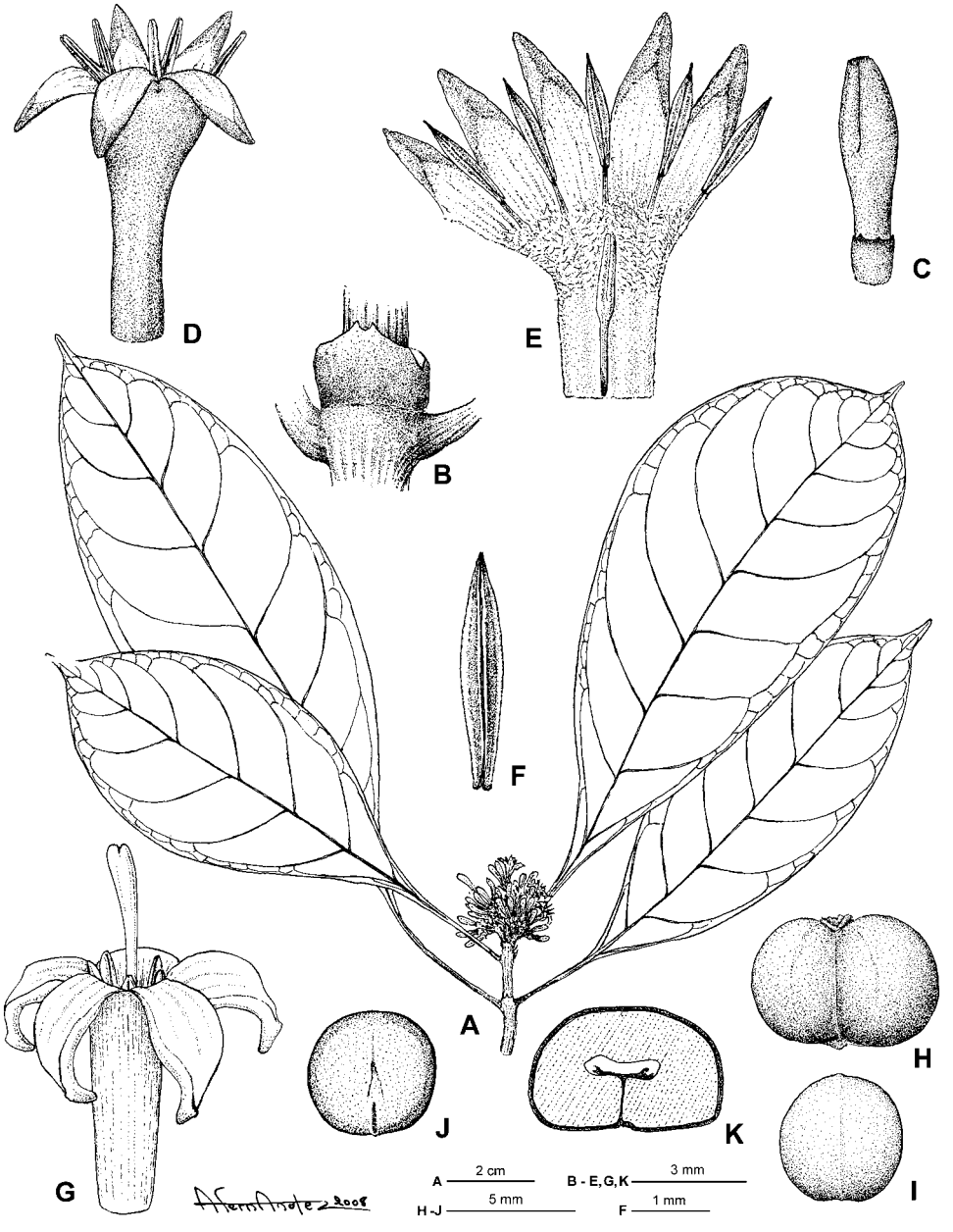

FIG. 1. *Chassalia lutescens* O.Lachenaud & D.J.Harris. A, flowering twig; B, stipules; C, flower bud; D, short-styled flower; E, same, interior of corolla; F, anther; G, long-styled flower; H, fruit; I, pyrene, dorsal view; J, same, ventral view; K, same, cross-section. From *Breteler* 12876 (A, C–F), *De Wilde & Jongkind* 9457 (B, H–K) and *Lachenaud et al.* 625 (G).

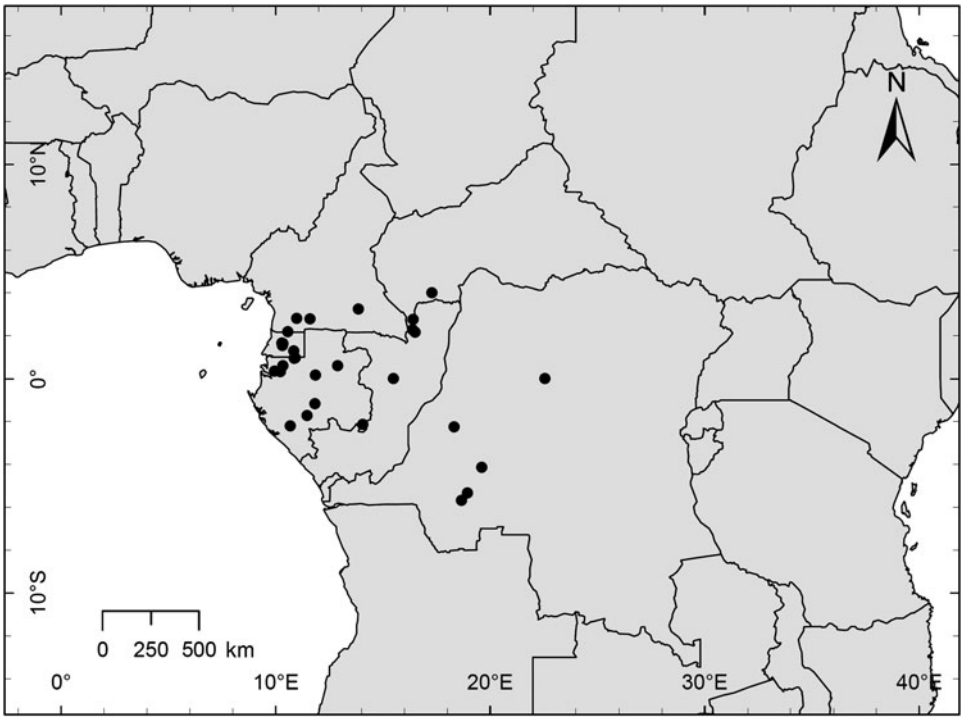

FIG. 2. Distribution of *Chassalia lutescens*.

Calyx very shortly cupuliform, c.0.25 mm, with minute teeth. *Corolla* pure white on both sides (drying orange to brownish), with straight funnel-shaped tube ± broadened towards throat, c.5–6 × 1.5 mm, and patent lobes 2 mm long, thickened at apex (but lacking any appendages); outer surface glabrous; inside of tube pubescent in upper half below throat; flower buds cylindrical, rounded. *Anthers* yellow, linear, c.2 × 0.5 mm, included except for the tip (long-styled flowers) or exserted for most of their length (short-styled flowers). *Ovary* c.0.75 mm high, glabrous; disk hemispherical, c.0.5 mm, glabrous. *Style* shortly bifid, glabrous, exserted by c.2 mm (long-styled flowers) or included (short-styled flowers). *Fruits* green turning to dark blue and then shiny black when fully mature, bilobed (mature fruits nearly globose in the fresh state), 7–10 mm diameter in life, c.5 × 7 mm when dry. *Pyrenes* hemispherical, 5 × 5 mm, planoconvex, dorsally smooth and ventrally closed (without any opening but sometimes with a very faint depression in the middle), opening with one dorsal slit. *Seeds* with deep ventral T-shaped furrow, otherwise entire.

Distribution. Widespread from southern Cameroon to western Democratic Republic of Congo (Fig. 2). Locally common, at least in Gabon (apparently not so in Democratic Republic of Congo given the small number of collections).

Ecology. Undergrowth of evergreen and mixed evergreen/semideciduous forests; usually on dry land (although Tailfer records it growing in marshy areas). Recorded from c.100 to 1100 m, but most commonly between 400 and 800 m.

Local names. Fang dialect: *mvunga* (van Reeth).

IUCN conservation assessment. Least Concern (LC). This species has a large range and is locally common.

Additional specimens examined. Cameroon. Efoulan, S of Akom II, fl. & fr. imm. 8 v 2009, *Lachenaud et al.* 625 (BR, YA); Engon, S of Efoulan, fr. 7 iii 2004, *Sonké & Beina* 3337 (BRLU, K); Nkamouna, fr. imm. 14–15 vi 2004, *Sonké & Nguembou* 3503 & 3532 (both BR); Efoulan, fl. 24 iv 2000, *Tchouto et al.* 2821 (WAG); Efoulan, hills around Akom II, fl. buds 27 iv 2000, *Tchouto et al.* EFOUX 319 (WAG); Nsengou, fr. imm. 8 ii 2001, *Tchouto et al.* NSEX 42 (WAG).

Equatorial Guinea. Monte Alen National Park, fr. 21 x 1993, *Lejoly* 93/389 & 93/413 (both BRLU); Kukumangkok, 13 km W of Aconibe, fr. 29 vii 1998, *Lejoly & Esono* 58 (BRLU); Monte Alen, fr. 12 iii 1997, *Ngomo* 17 (BRLU); Monte Alen National Park, fr. 11 iii 2002, *Senterre et al.* 2778 (BR, BRLU); Monte Alen National Park, fr. 12 xii 1997, *van Reeth* 27 (BRLU); ibid., fr. 23 xii 1997, *van Reeth* 92 (BRLU); ibid., fr. 3 i 1998, *van Reeth* 124 (BRLU).

Gabon. Tchimbélé, fl. 15 ix 1994, *Breteler et al.* 12876 (WAG); Agonenzorck, upper Komo river, fl. buds 7 x 1912, *Chevalier* 26950 (P); 2 km N of Tchimbélé, fr. 6 ii 2008, *Dessein et al.* 1727 (LBV); km 23 Tchimbélé–Kinguélé, fr. (fallen) 7 ii 2008, *Dessein et al.* 1775 (BR, LBV); Mount Iboundji, fr. 3 iii 2008, *Dessein et al.* 2319 (BR, LBV); Ivindo National Park, Ivindo River downstream from Ipassa, fr. 9 iii 2008, *Dessein et al.* 2487 (LBV); 15 km N of Doussala, fr. 19 iii 1988, *De Wilde & Jongkind* 9457 (WAG); Région de l'Estuaire près Adza 'montagne de sable', fl. (fallen) 22 ix 1983, *Floret & A.M. Louis* 1380 (P, WAG); 7 km NE of Makokou, fr. 11 iii 1961, *N. Hallé* 1456 (P); border of Komo river near Mbel, fr. 11 i 1968, *N. Hallé & Villiers* 4310 (P); Andem, 70 km on road Libreville–Kango, 2 km NE, fl. buds 26 ix 1985, *A.M. Louis & Wilks* 1810 (WAG); Koumameyong, fl. buds & fr. imm. xi 1987, *A.M. Louis et al.* 2559 (WAG); Mont Koum, fl. buds 14 iv 2002, *Mboma* 44 (BRLU); ibid., fl. & fr. 18 iv 2002, *Mboma* 139 (BRLU); c.9 km ESE of Medouneu, Efot, inselberg Simanguen, fl. (fallen) 21 xii 2002, *Ngok Banak et al.* 1059 (BR, LBV, WAG); Haut-Ogooué, 1 km from camp PPG, 2°07′S, 14°04′E, fr. 24 i 2004, *Niangadouma & Stone* 362 (LBV, MO, WAG); Mt Fene, inselberg at foot of Efot village, 15 km from Médouneu to Sam, 15 i 2000, *Parmentier & Nguema* 635 (BRLU); 4 km N of Yeno, fr. 19 iv 1986, *Wilks* 1267 (LBV, WAG).

Congo (Brazzaville). Road from Makoua to Etoumbi, 18 km from Makoua, fr. 20 vii 1985, *Cusset* 1487 (P); Nouabalé-Ndoki National Park, Goualango study site, 38 km E Bomassa, fr. imm. 13 vi 2002, *Harris* 8016 (E); Sangha Region, 4 km E of Ndoki river on Mbeli watershed, Nouabalé-Ndoki National Park, fr. imm. 9 v 2007, *Harris & Ndolo Ebika* 9158 (E, IEC); ibid., fl. 9 v 2007, *Harris & Ndolo Ebika* 9161 (E, IEC).

Central African Republic. Kongana Research Camp, 25 km SE of Bayanga, fr. imm. 6 vii 1993, *Harris* 3402 (E); ibid., fl. 20 v 1994, *Harris* 4905 (E); ibid., fl. 23 v 1994, *Harris* 4932 (E); ibid., fl. 31 v 1994, *Harris* 4994 (E); ibid., fr. 3 xi 2000, *Harris* 6992 (BR, E); ibid., fr. 7 xi 2000, *Harris* 7099 (E); ibid., fr. imm. 23 v 2001, *Harris* 7814 (E); ibid., fr. imm. 25 v 2001, *Harris* 7866 (E); 5 km W of Ngotto, fr. imm. 14 vi 2003, *Sonké & Beina* 3018 (BRLU, K); Ngotto Forest, fl. buds 27 iii 2000, *Yongo* 167 (BRLU).

Democratic Republic of Congo. **Kasai**: Kiyaka-Kwango, ster. 7 ix 1955, *Devred* 2597 (BR); towards Makamba, terr. Bulungu, fr. 21 iv 1976, *Pauwels* 5567 (BR); Ipamu, ster. viii 1921, *Vanderyst* 10440 (BR); Ipamu, ster. no date, *Vanderyst* 11778 (BR). **Central Forest**:

TABLE 1. Distinguishing characters between *Chassalia corallifera*, *C. kolly* and *C. lutescens*

Character	*C. corallifera*	*C. kolly*	*C. lutescens*
Stems	Entirely green (except the stock)	Woody at base	Woody at base
Leaves	Very coriaceous	Papyraceous	Papyraceous
Tertiary nerves	Invisible in the fresh state	Lax but distinct	Lax but distinct
Corolla tube	Funnel-shaped, c.6 mm	Narrowly cylindric, 2.5–3.5 mm	Funnel-shaped, 5–6 mm
Corolla lobes	Patent, c.2.5 mm	Erect, 0.5–1 mm	Patent, c.2 mm
Infructescence colour	Bright red	Purple	White or pale blue, rarely pale pink
Fruits	Bilobed	Globose to ellipsoid	Bilobed (or almost globose when fully mature)
Ventral side of pyrenes	With small round opening in the middle	Broadly excavated	Flat, without opening
Seeds in cross-section	With narrow unbranched ventral intrusion	With broad, C-shaped ventral excavation	With T-shaped ventral intrusion

Wamba, zone de Djolu, fr. (fallen) 6 xii 1988, *Nsola* 1235 (BR); Patambalu, fl. buds 3 iv 1958, *Tailfer* 56 (BR, K).

This species can be placed in *Chassalia* by its pyrenes which open with one dorsal slit, persistent stipules, and blue to black fruits. *Chassalia lutescens* resembles *C. corallifera* (A.Chev. ex De Wild.) Hepper and *C. kolly* (Schumach.) Hepper in having an erect habit, hemispherical inflorescences and a short, straight corolla tube. However, it differs from both in the characters listed in Table 1. Particularly noteworthy are the seeds with a T-shaped ventral furrow in transverse section (unique among African *Chassalia*: other species have either an unbranched I-shaped groove or a broad C-shaped excavation). The lack of a ventral opening to the pyrenes is also unusual in the genus, but occurs, for example, in *Chassalia subherbacea* (Hiern) Hepper and *C. ischnophylla* (K.Schum.) Hepper.

In addition, the inflorescences and corollas of *Chassalia lutescens* (and often also the nerves on the underside of the lamina) usually turn bright orange-yellow on drying. This is an immediate way of recognising most herbarium collections, although the discoloration is not apparent on overdried specimens. *Chassalia subspicata* K.Schum. often shows a similar discoloration but is readily separated by its spiciform inflorescences and long, curved corolla tube.

Psychotria nodiflora O.Lachenaud & D.J.Harris, **sp. nov. Figs 3, 4.**

Uragoga mortehanii De Wild., Mém. Inst. Roy. Colon. Belge, Sect. Sci. Nat. 4: 163 (1936), nom. inval.

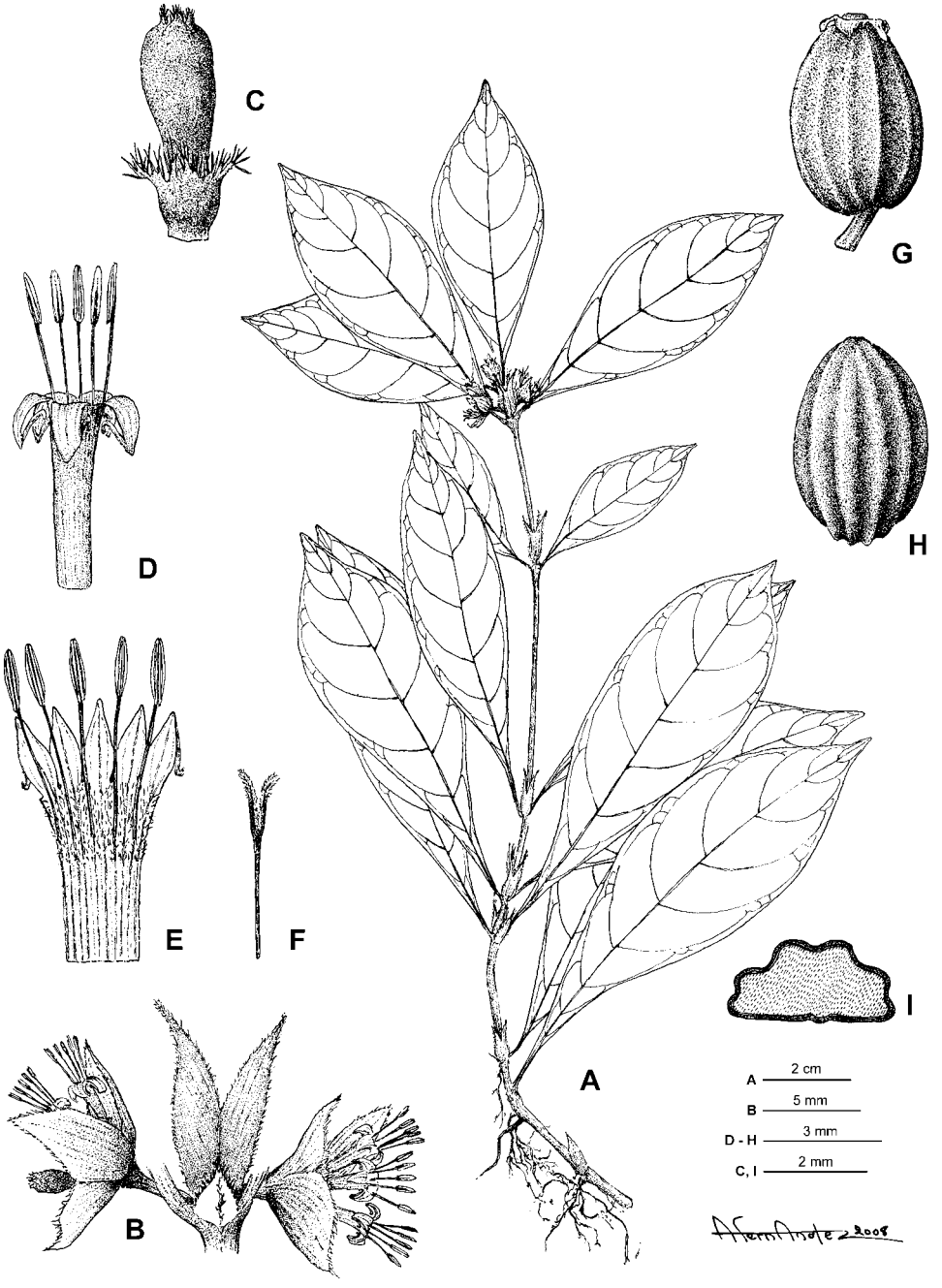

FIG. 3. *Psychotria nodiflora* O.Lachenaud & D.J.Harris. A, flowering twig; B, node with stipule and paired inflorescences; C, flower bud; D, short-styled flower; E, same, interior of corolla; F, style; G, dried fruit; H, pyrene, dorsal view; I, same, cross-section. From *Robyns* 718 bis (A–B), *De Giorgi* 1248 (C), *Louis* 7391 (D–F) and *Louis* 6463 (G–I).

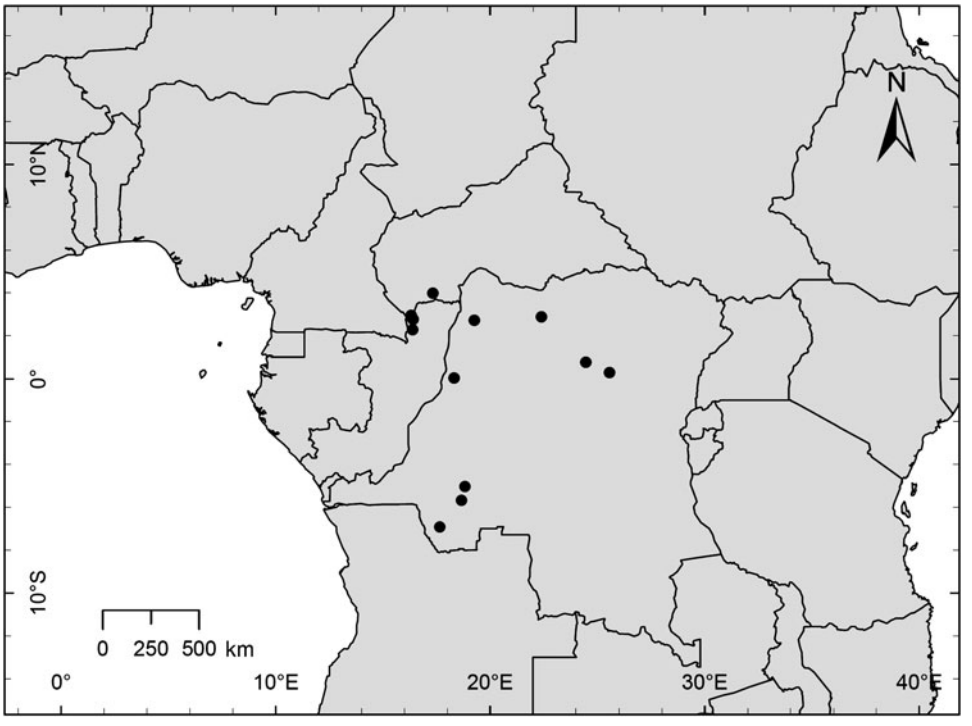

FIG. 4. Distribution of *Psychotria nodiflora*.

Psychotria sp. C sensu Harris, Vasc. Pl. Dzanga-Sangha Reserve 178 (2002).
Psychotria sp. D sensu Harris, Vasc. Pl. Dzanga-Sangha Reserve 178 (2002).

Inflorescentiis capitatis et involucratis, fructibus caeruleis et pyrenis dorso costatis sect. *Involucratae* pertinens. Habitu humili et reptante *P. schnellii* et *P. mwinilungae* valde affinis, sed inflorescentiis axillaribus et geminatis (raro solitaribus), alabastris corniculatis et pubescentibus (nec rotundatis et glabris), bracteisque angustioribus differt. – Type: Central African Republic, Madibwé, close to St François road, c.12 km NE Bayanga, fl. 8 v 2001, *Harris* 7609A (holo BR; iso E).

Undershrub, creeping at base, with ascending stems 20–50 cm high. *Stems* either pubescent all around, or glabrous except for two opposite longitudinal lines of hairs below the nodes. *Stipules* 9–20 × 5–10 mm, rather narrowly obovate and deeply bifid with acuminate triangular lobes, with slightly prominent basal keel, pubescent on margins or all over, tardily caducous to persistent. *Petiole* 0.3–1.5 cm long, channelled above, pubescent on channel margins or all over. *Lamina* elliptic to usually slightly obovate, attenuate at base, acuminate (usually shortly) at apex, 5.5–12(–17.5) × 2.2–5.5(–7) cm, papyraceous, upper surface glabrous and drying ashy green to olive brown, lower surface glabrous to densely pubescent and drying pale olive to pale greyish-brown; lateral nerves 9–16 pairs, arched c.2 mm from the

margin; tertiary nerves rather dense but inconspicuous below. *Domatia* and bacterial leaf nodules absent. *Inflorescences* axillary and paired, or sometimes only one developing per node, capitate and involucrate; peduncle 0.2–0.6 cm (rarely up to 2 cm in fruit), shortly pubescent; flowering part 0.5–0.7 × 0.9–1.5 cm; pedicels very short. *Involucre* consisting of two pairs of free, entire bracts (sometimes with additional smaller bracts inside); bracts elliptic to slightly obovate, acute at top, 3–8 × 3–5 mm, pubescent on the margin. *Flowers* 5-merous, heterostylous. *Calyx* cupuliform, with 0.5–1 mm long tube and 1–1.5 mm long, somewhat patent, lobes, ciliate on the margin. *Corolla* white, drying dark brown, with tube slender, c.4 × 1.25 mm and lobes c.2 mm, with an apical horn outside; outer surface pubescent on summit of lobes, otherwise glabrous; inside of tube pubescent in upper half below throat; flower buds cylindrical, horned. *Anthers* linear, c.1.5 mm long, included (long-styled flowers) or with filaments long and exceeding throat (short-styled flowers). *Ovary* c.0.5 mm high, glabrous; disk hemispherical, c.0.5 mm high, glabrous. *Style* bifid with shortly pubescent stigmas, exceeding throat by c.2 mm (long-styled flowers) or included (short-styled flowers). *Fruits* blue, ellipsoid, c.10 × 8 mm in life, very fleshy when mature. *Pyrenes* ellipsoid, c.5 × 4 mm, planoconvex, dorsally ribbed, indehiscent. *Seeds* subentire, with two very faint ventral furrows.

Distribution. Widespread in the middle part of the Congo Basin (northern and southwestern Democratic Republic of Congo, southern Central African Republic and northern Congo-Brazzaville) (Fig. 4). The species might also occur in extreme southeastern Cameroon.

Ecology. Rainforest on dry land, especially *Gilbertiodendron dewevrei* (De Wild.) J.Léonard formations; altitude c.400–500 m.

Local names. Turumbu dialect: *likawfi* (*J. Louis* 7391, 14846, 14898, 16315); *likawfi li fufow* (*J. Louis* 6463). 'Likawfi' is a collective name used for many *Psychotria* species (see *P. pteropus* below).

IUCN conservation assessment. Least Concern (LC). The species is not rare and has a large range.

Additional specimens examined. Congo (Brazzaville). Sangha Region, 4 km E of Ndoki river on Mbeli watershed, Nouabalé-Ndoki National Park, fr. imm. 9 v 2007, *Harris & Ndolo Ebika* 9163 (E, IEC).

Central African Republic. Kongana camp, 8 vii 1993, *Harris* 3439 (E); ibid., fr. 29 i 1994, *Harris* 4340 (E); ibid., fr. 31 v 1994, *Harris* 5015 (E); ibid., fl. 1 ii 1996, *Harris* 5420 (E); ibid., fl. 7 iii 1996, *Harris* 5490 (E); ibid., fr. 5 xi 2000, *Harris* 7050 (E); Ngotto Forest, fr. imm. 21 xii 1999, *Zawa* 535 (BRLU).

Democratic Republic of Congo. **Kasai**: Kidima, fr. ii 1952, *Callens* 3503 (BM, BR); towards Makamba, terr. Bulungu, fr. 21 iv 1976, *Pauwels* 5544 (BR); Kikwit, fl. x 1920, *Vanderyst* 8132 (BR); Malamfu, fr. v 1932, *Vanderyst* 31155 (BR). **Central Forest**: Dundusana,

fl. buds vi 1913, *De Giorgi* 1032 (BR); Musa, fl. ix 1913, *De Giorgi* 1248 (BR); 15 km N of Wanié-Rukula, Amunyalu falls, fl. buds 13 v 1979, *Lejoly* 5159 (BR); Yangambi, Itasukulu plateau, fr. 30 x 1937, *J. Louis* 6463 (BR); Yangambi, along Lilanda river, fr. 5 i 1938, *J. Louis* 7391 (BR); Yangambi, Réserve flore Isalowe, fl. buds 16 v 1939, *J. Louis* 14846 (BR); ibid., fr. 18 v 1939, *J. Louis* 14898 (BR); ibid., fl. buds 22 v 1939, *J. Louis* 14918 (BR); km 51 route Bengamisa, fr. 11 xi 1939, *J. Louis* 16315 (BR); Dundusana, fl. buds x 1913, *Mortehan* 563 (BR); route Lubutu km 44, fr. imm. 15 vi 1981, *Ndjele* 287 & 289 (both BR); Mongo, surroundings of Eala, fl. 24 ix 1925, *Robyns* 718 bis (BR, K).

De Wildeman's (1936) description is not valid, being published in French shortly after Latin was made obligatory; indeed, De Wildeman makes it clear that the species described in French are only provisional names (some species described in the same work have a Latin diagnosis). Furthermore, his epithet cannot be taken up since there is already a *Psychotria mortehanii* De Wild.

The involucrate heads, blue fruits and ridged indehiscent pyrenes of this species readily place it in *Psychotria* subgen. *Psychotria* sect. *Involucratae* E.M.A.Petit & Verdc., a difficult group which is not treated in Petit's (1964, 1966) revision of African *Psychotria*. With its low creeping habit, *Psychotria nodiflora* resembles *P. schnellii* (Aké Assi) Verdc. of Ivory Coast and Guinea, and *P. mwinilungae* Verdc. of Zambia, both of which are very poorly collected. The differences between the three species are summarised in Table 2.

The inflorescences of *Psychotria nodiflora* are truly axillary, which is unique among African species of the genus. In all other species the inflorescences are solitary and terminal, though often appearing lateral due to sympodial growth of the stem. Species with paired axillary inflorescences are also known in the related genera *Hymenocoleus* Robbr. (*H. axillaris* Robbr.: Robbrecht, 1977) and *Chazaliella* (*C. letouzeyi* Robbr.: Robbrecht, 1989), both of which usually have terminal inflorescences. It is, therefore, not too surprising to find axillary inflorescences in a species of *Psychotria* as well.

Psychotria nodiflora is a somewhat variable species. The collections from Kasai have densely pubescent stems and undersides of the leaves, while in those from, for example, the Yangambi area these parts are almost glabrous. However, both hairy

TABLE 2. Distinguishing characters between *Psychotria mwinilungae*, *P. nodiflora* and *P. schnellii*

Character	*P. mwinilungae*	*P. nodiflora*	*P. schnellii*
Leaf base	Cuneate	Cuneate	Obtuse
Inflorescences	Terminal, solitary	Axillary, usually paired at nodes (sometimes only one developing)	Terminal or lateral, solitary
Bracts	Suborbicular, slightly acute, c.7 × 7 mm	Elliptic to obovate, acute, 3–8 × 3–5 mm	Broadly elliptic, obtuse, c.10 × 7 mm
Apex of flower buds	Rounded, glabrous	Corniculate, hairy	Rounded, glabrous

and glabrescent forms occur at the same locality in Central African Republic. They were initially listed as two different species (respectively *Psychotria sp. C* and *sp. D* of Harris, 2002) but are now regarded as conspecific, there being no differences other than pubescence. Specimens from Kasai also tend to be more robust, with more strongly acuminate leaves, and as a consequence can have a quite different facies, but these characters are not constant.

Psychotria pteropus O.Lachenaud & D.J.Harris, **sp. nov. Figs 5, 6.**

Psychotria sp. A sensu Harris, Vasc. Pl. Dzanga-Sangha Reserve 177 (2002).

Nodulis in lamina dispersis subgen. *Tetramerae* pertinens; foliis glabris et sicco viridibus, pedunculisque conspicue alatis *P. leptophyllae* valde affinis, sed differt nodulis densioribus (20–50/cm^2, nec 3–12), corollae tubo angusto, 2–3 × 0.6–1 mm (nec lato et 1.25–2 × 1–2 mm), filamentis in floribus brevistylis longiore exsertis, fructibus globosis vel ellipsoideis, lamina tenuiter coriacea et opaca (nec membranacea et ± nitidula), inflorescentiis ad anthesim reflexis statu fructifero solum erectis (nec semper erectis). – Type: Democratic Republic of Congo, Mofinu, terr. Maluku, fl. 10 xi 1970, *Breyne* 964 (holo BR).

Erect shrub 0.4–1.25 m high, not or little branched. *Twigs* glabrous to minutely and sparsely puberulous, green, slender (1–2 mm thick). *Stipules* 3–7 × 1.5–4 mm, bifid with linear lobes, glabrous, very caducous. *Petiole* 0.7–2 cm long, glabrous to minutely puberulous. *Lamina* elliptic, attenuate at base and acuminate at top, 5.5–17 × 2.5–6(–7) cm, slightly coriaceous, glabrous, drying matt olive green above and pale green below; lateral nerves 6–9(–11) pairs, somewhat ascending, inconspicuously arching 1–3(–5) mm from the margin; tertiary veins not or hardly visible on both sides. *Domatia* absent. *Bacterial leaf nodules* regularly dispersed in lamina, very conspicuous, dense (20–50 per cm^2), dot-like and small (c.0.2–0.5 mm in diameter), or some of them occasionally larger and linear. *Inflorescences* laxly paniculate, 4–11.5 cm long, glabrous, reflexed at anthesis, erect or half-erect in fruit; peduncle 2–9.5 cm long, with two broad (0.5–1.5 mm wide) longitudinal wings; flowering part pyramidal to hemispherical, 1.5–3.5 × 1.6–2.5(–4) cm, with secondary branches opposite or rarely verticillate; pedicels 1–3 mm long; bracts minute. *Flowers* 4- to 5-merous, probably heterostylous but only short-styled form collected. *Calyx* shortly cupuliform, c.0.5 mm long, truncate to minutely denticulate, glabrous. *Corolla* white, drying yellowish brown, with slender tube 2–3 × 0.6–1 mm, about three times as long as broad, and lobes 1–1.5 mm long, lacking appendages; outer surface glabrous, inside of tube with a ring of dense hairs in upper half below throat; flower buds cylindrical, rounded. *Anthers* narrowly elliptic, c.1 × 0.3 mm, on long exserted filaments (exceeding throat by c.1.5 mm). *Ovary* c.0.5 mm high, glabrous; disk shortly conical, c.0.5 mm, glabrous. *Style* bifid, with shortly papillose stigmas, included (almost reaching throat). *Fruits* green turning red at maturity, globose to slightly ellipsoid, 4–5 mm in diameter when dry, on pedicels 4–8 mm long. *Pyrenes* slightly ellipsoid, c.4 × 3.5 mm, planoconvex, dorsally smooth, indehiscent. *Seeds* entire.

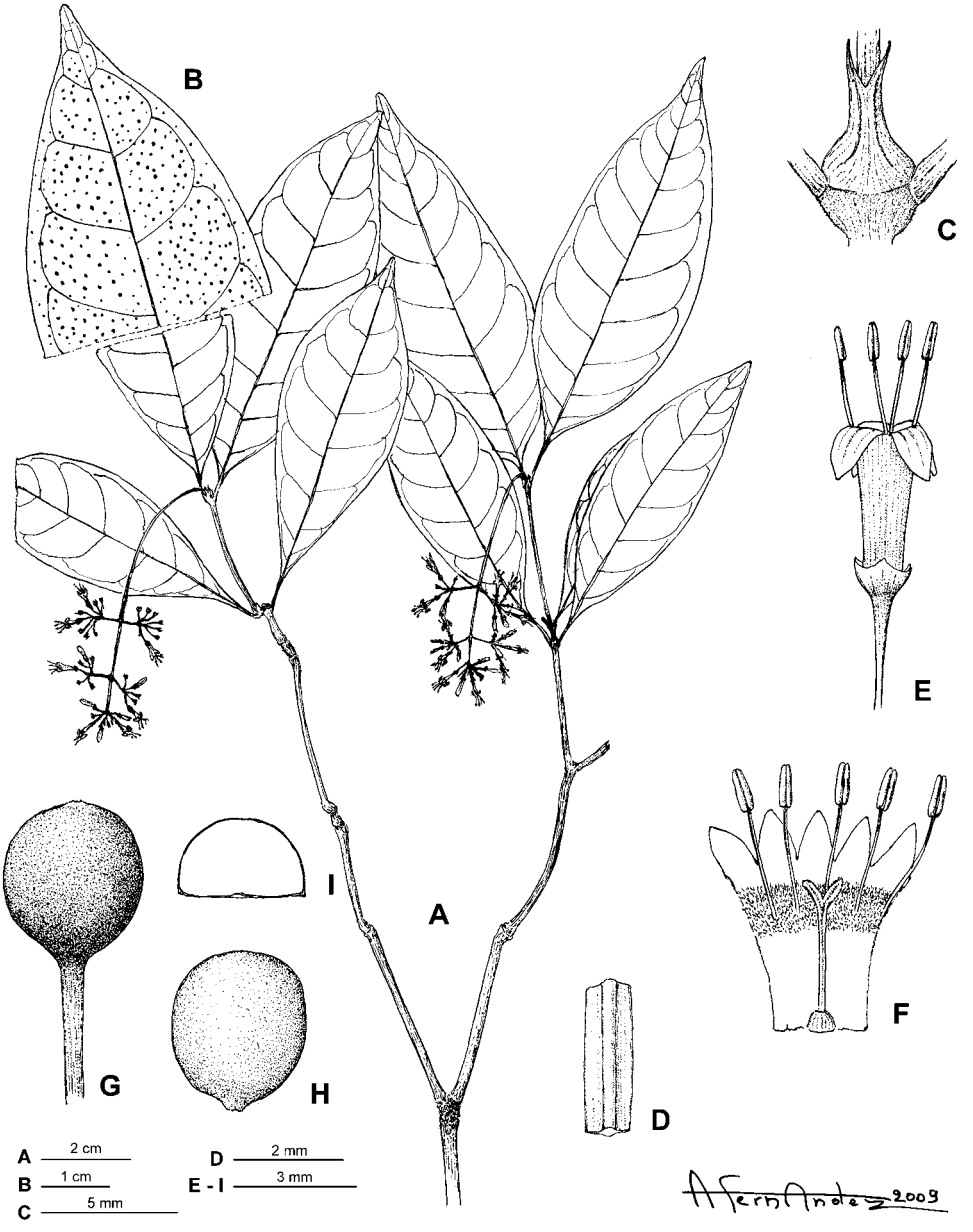

FIG. 5. *Psychotria pteropus* O.Lachenaud & D.J.Harris. A, flowering twig; B, detail of lower leaf surface, showing bacterial nodules; C, stipules; D, winged peduncle; E, short-styled flower; F, same, interior of corolla; G, fruit; H, pyrene, dorsal view; I, seed, cross-section. From *Breyne* 964 (A–B, E–F), *Breyne* 2946 (D, G–I) and *J. Louis* 15485 (C).

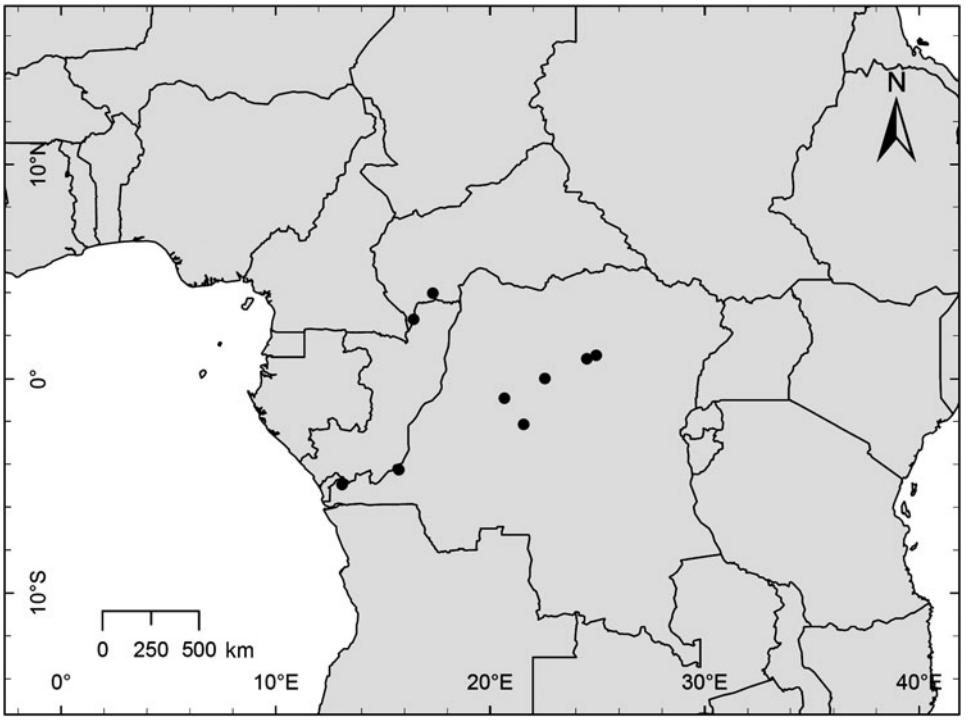

FIG. 6. Distribution of *Psychotria pteropus*.

Distribution. Western Democratic Republic of Congo and extreme southwestern Central African Republic (Fig. 6); possibly also in Congo-Brazzaville (see note below) and to be expected in southeastern Cameroon as well. Despite a fairly extensive range, the species appears to be rare.

Ecology. Undergrowth of rainforest, often riverine; recorded from *Gilbertiodendron dewevrei* forest (Harris, Evrard, Louis), *Julbernardia* forest (Breyne) and *Cleistanthus* riparian forest (Evrard). Recorded altitudes are 470–700 m, but some collections probably come from lower areas.

Local names. Mongo dialect: *loka* (*Evrard* 2835). Turumbu dialect: *itoko* (*J. Louis* 10032); *inaolo a likawfi* (*J. Louis* 14485). The names 'itoko' and 'likawfi' are used collectively for many *Psychotria* species, and the first one as well for other herbaceous Rubiaceae and Acanthaceae; 'inaolo' means 'related to'.

IUCN conservation assessment. Least Concern (LC). Although uncommon, the species has a rather broad range, including some very remote areas, and is, therefore, not currently threatened.

Additional specimens examined. CENTRAL AFRICAN REPUBLIC. Kongana camp, 22 km SE Bayanga, fl. 1 ii 1996, *Harris* 5422 (E); ibid., fr. 29 x 2000, *Harris* 6938 (E); ibid., fr. 7

xi 2000, *Harris* 7103 (E); Ngotto Forest, fr. 30 vii 1985, *Zawa* 95/146 (BRLU); Ngotto Forest, fl. 25 v 1997, *Zawa* 97/224 (BRLU).

Democratic Republic of Congo. **Mayumbe**: Maduda, northern Mayumbe, fr. 15 iv 1976, *van Hove* 109 (BR). **Lower Congo**: Mofinu, fr. 1 iv 1976, *Breyne* 2946 (BR); ibid., terr. Maluku, fl. 10 xi 1970, *van Hove* 25 (BR). **Central Forest**: Iwama, terr. Monkoto, fr. 13 x 1957, *Evrard* 2835 (BR); Salonga river, left bank, 3 km upstream from Yenge, fr. imm. 5 viii 1958, *Evrard* 4492 (BR); Yalibwa, 25 km NW of Yangambi, fr. 16 vi 1938, *J. Louis* 10032 (BR); cirque sources de la Ngula, km 62 Weko–Bengamisa, fr. imm. 6 vii 1939, *J. Louis* 14485 (BR); Wamba, zone de Djolu, fr. 7 xii 1988, *Nsola* 1251 (BR).

The red fruits, indehiscent pyrenes, and bacterial nodules in the leaves of *Psychotria pteropus* allow it to be recognised as a member of *Psychotria* subgen. *Tetramerae* (Hiern) E.M.A.Petit. The earliest, and very poor, collections of the species (*Evrard* 2835, *J. Louis* 10032 & 14485) were identified as 'cf. *Psychotria leptophylla* Hiern' by Petit, but not cited in his revision of the group (Petit, 1966), presumably due to some doubt (expressed by the 'cf.') over their identity. *Psychotria leptophylla* and *P. pteropus* are indeed very closely related, sharing glabrous leaves, a typical green colour when dry, winged peduncles, entire seeds, and dot-like nodules (not star-like as in *P. gossweileri* E.M.A.Petit, another related species). However, they can be separated by the characters in Table 3. The separation is rather easy in flower but much more difficult in fruit. *Psychotria leptophylla* occurs from eastern Nigeria to northern Gabon, and (apparently disjunctly) in northern and southwestern Democratic Republic of Congo, where its area overlaps that of *P. pteropus*.

The fact that all flowering specimens of *Psychotria pteropus* have strongly reflexed inflorescences, while all fruiting specimens (some of them from the same locality as flowering ones) have erect or half-erect peduncles, strongly suggests that the peduncles turn upwards after flowering. Field observations are needed to confirm

Table 3. Distinguishing characters between *Psychotria leptophylla* and *P. pteropus*

Character	*P. leptophylla*	*P. pteropus*
Corolla tube	Not or hardly longer than broad, 1.25–2 × 1–2 mm	Much longer than broad, 2–3 × 0.6–1 mm
Anther filaments (in short-styled flowers)	Just reaching throat	Long exceeding throat (by c.1.5 mm)
Inflorescences	Always erect	Pendulous in flower (becoming ± erect in fruit)
Fruits	Slightly broader than long, or occasionally globose if 1-seeded	Globose to ellipsoid
Density of nodules	Lax (3–12 per cm^2)	Dense (20–50 per cm^2)
Leaves	± shining, thinly membranous	Matt, slightly thicker

this phenomenon, which would be very exceptional (the opposite case, of erect inflorescences turning downwards in fruits, is much more usual).

A collection from Congo-Brazzaville: Mt Lebayi (Moutienne), 2°40′43″S, 13°35′54″E, fl. 29 iii 2009, *Cheek et al.* 14465 (BR, E, IEC n.v., K) is very close to *Psychotria pteropus* but the inflorescences are larger, and still pendulous in fruit. Flowering material from the same area would be needed to assess whether it is a variant of *Psychotria pteropus*, or a new related taxon.

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