

INTRODUCTION

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PART XI A REVISION OF MOTANDRA A. DC. (APOCYNACEAE)

A. DE CANDOLLE (1844) described the genus *Motandra*, basing it on *M. guineensis* which had already been described in *Echites* by THUNBERG in 1827. The name *Motandra* comes from the Greek *motov* or *gonog*, penicillium, referring to the penicillate hairs at the apex of the anthers.

Several new species were described about 1900, some of which have turned out to be synonymous with *M. guineensis*, while others belong to the closely related genera *Burkea* and *Oncidium*.

The two other species which are maintained here, *M. lujae* De Wild. & T. Durand and *M. poecilophylla* A. P. M. de Kruijf, were described in 1901 and 1916 respectively.

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GEOGRAPHICAL DISTRIBUTION

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The genus *Motandra* is restricted to West and Central Africa. The most widely distributed species, *M. guineensis* inhabits mostly primary decidual forests or gallery forests from Guinea (Conakry) to Uganda and south to Angola. *M. lujae* and *M. poecilophylla* are restricted to the same humid rain forests and secondary forests of Western Central Africa. The area of distribution of both of the latter species partly overlaps that of *M. guineensis*.

HABIT AND GROWTH

All *Motandra* species are lianas or climbing shrubs. As the present author observed in the field, *M. guineensis* shows the architectural model of Taxis (HALLÉ & OLDEMAN 1970: 125; — & THUNBERG 1976: 242). This species winds either to the right as to the left, or is not twining.

FLOWERING SEASON

Motandra species flower towards the end of the dry and the beginning of the rainy season and fruits mature in the dry season.

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HISTORY OF THE GENUS

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Several new species were described about 1900, some of which have turned out to be synonymous with *M. guineensis*, while others belong to the closely related genera *Baissea* and *Oncinotis*.

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FLOWERING SEASONS

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RELATIONSHIP TO OTHER GENERA

Motandra belongs to the subtribe *Baisseinae* of the tribe *Ichnocarpeae* of the *Apocynoideae*. The present author is of the opinion that the subtribe *Baisseinae* is a well defined natural unit, but he is not yet sure about the delimitation of the *Ichnocarpeae*, which could certainly be placed in the *Apocynoideae*. He will come back to the subject in one of his forthcoming publications.

Baisseinae Pichon ex De Kruif, subtribus nova; Pichon 1950: 112 (French description only).

Lignosae scandentes vel suffrutices repentes herbis perennis similissimae, inermes, omnibus partis latice albo suffultae. Petioli latere adaxiale glandulas gerentes. Corolla aestivatione dextrorsa. Antherae conum pistili capitem obtectantem formantes, pedem connectivis pro parte cohaerentes. Ovarium semi-inferum disco quinquelobato circumdatum. Fructus folliculis duabus basi connatis latere adaxiale dehiscentibus compositus. Semina anguste ellipsoidea, non rostrata, apice coma pilis simplicibus suffulta.

Lianas, climbing shrubs or rhizomatous creepers with white latex in all parts. Spines, tendrils and stipules absent. Glands present at the adaxial side of the petiole. Secondary veins curved towards the margin, anastomosing; domatia or pits usually present in the axils of some secondary veins. Inflorescences axillary or terminal – sometimes both at the same time. Calyx lobes imbricate, almost free, often with colleters at the base. Corolla tube inside with tufts of hairs alternating with the stamens, corolla lobes in bud overlapping to the right. Stamens: anthers connivent in a cone around the gynoecium, adaxially pubescent, polliniferous in the upper part only, sagittate at the base, acuminate at the apex, coherent with the pistil head by a retinacle (an orbicular or nearly oblong patch inside on the connective). Pistil: ovary hemi-inferior; carpels two, connate at the extreme base only, abruptly narrowed into the style, surrounded by a disk, which is adnate to the ovary at the base only, with 5 sometimes obscure lobes, alternating with the stamens; pistil head consisting of a cylindrical lower portion, to which the 5 anthers adhere, a slightly 5-winged central portion and a bilobed apex. Fruit composed of 2 follicles, connate at the base, adaxially dehiscent with a longitudinal slit. Seeds narrowly ellipsoid, more or less laterally compressed, not beaked, with an apical coma; endosperm in a thin layer completely surrounding the embryo.

Type genus: *Baissea* A. DC.

3 genera:

Baissea A. DC. (14 species in tropical Africa).

Motandra A. DC. (3 species in tropical Africa).

Oncinotis Benth. (7 species in tropical Africa and Madagascar).

GENUS DIAGNOSIS

Motandra A. DC. 1844: 423; Benthams & Hooker 1876: 715; Baillon 1889: 206; Schumann 1895: 164; Stapf 1902: 224–226; 1904: 613–614; Pichon 1950: 113.

Type species: *M. guineensis* (Thonning) A. DC.

Climbing shrubs or lianas; white latex present. Branches unarmed, slightly sulcate when dry. Branchlets terete. Stipules none. *Leaves* opposite or subopposite, those of a pair equal, without colleters in the axils; petiole often rounded beneath and channeled above when dry, otherwise terete, glandular along the adaxial side; blade ovate to obovate or narrowly so, acuminate at the apex, rounded or less often slightly cordate at the base, entire, sparsely pubescent to almost glabrous on both sides; midrib pubescent, glabrescent on both sides, impressed above and prominent beneath; on each side 5–8(–9) conspicuous secondary veins, which are curved towards the margin, anastomosing, impressed above and prominent beneath; with tufts of hairs (domatia) in the axils of some secondary veins; tertiary venation inconspicuous, reticulate. *Inflorescence* terminal, thyrsoïd, many-flowered. Bracts, and – if present – bracteoles, sepal-like or leafy, inside glabrous. Flowers 5-merous, actinomorphic or with only sepals unequal. *Sepals* imbricate, connate up to 1 mm at the base, subacute to obtuse at the apex, entire, outside densely pubescent, inside glabrous, ciliate, with inside at the base 0–3 colleters per sepal, situated at the margins; colleters elliptic to ovate or narrowly so. *Corolla*: tube with 5 deep dents, which are appearing as incrasations inside, from about half the length to the base of the lobes; tube outside shortly pubescent, except the portion covered by the sepals, inside glabrous, except for tufts of stiff hairs, alternating with the stamens; lobes in bud contorted and overlapping to the right, obtuse to subacute at the apex, recurved, entire, slightly ciliate. *Stamens* included, connivent in a cone, inserted on a slightly thickened ring at the base of the corolla tube; filaments obscurely s-shaped, abaxially glabrous, adaxially pubescent, most densely so in the upper half; anthers introrse, narrowly triangular, basifixed, acuminate and with penicillate hairs at the apex, sagittate at the base and at both tips provided with a subglobose incrassation which is up to 0.1 mm in diameter; cells two, discrete, parallel, dehiscent throughout by a longitudinal slit; between the tails inside on the connective an orbicular patch, the retinacle, 0.1–0.2 mm in diameter, with long hairs along the margin, adhering to the pistil head. *Pistil*: ovary hemi-inferior; carpels two, connate at the extreme base only, ovoid, laterally compressed, entirely or only apically densely pubescent, abruptly narrowed into the style, surrounded by a disk, adnate to the ovary at the base only, which is composed of a ring and 5 oblong lobes, alternating with the stamens; style obconical to almost cylindrical, composed of two connate strands; pistil head glabrous, consisting of a slightly 5-winged upper and a cylindrical lower portion, to the latter of which the 5 retinacles adhere; pistil head at the apex with two appendices which are united at the base, glabrous. Placentas adaxial, ovuliferous at the abaxial side

only. *Fruits* pendulous, composed of two (sub-)equal, spreading follicles, connate at their extreme base, dehiscent along an adaxial line of dehiscence, almost fusiform, with longest diameter below the middle, at the apex acute and when dry often curled; exocarp woody, with several conspicuous or obscure longitudinal wings, except at the adaxial side; endocarp stiff, thinly parchamentaceous, smooth inside. *Seeds* attached to the adaxial side of the fruit, with at the apex a dense tuft of simple hairs (coma), which is directed towards the apex of the fruit; grain flat, elliptic to ovate, glabrous, rounded at both ends, thickened at the margin with the hilum at the base and with a raphe ascending to the apex; testa very thin, smooth or minutely rugose; endosperm fleshy, in a very thin layer, which completely surrounds the embryo; embryo straight; cotyledons ovate or broadly so, cordate or less often cuneate at the base, rounded or sometimes slightly acuminate at the apex, glabrous on both sides, with 5–7 secondary veins; rootlet terete, rounded at the apex, glabrous.

Distribution: 3 species in West and Central Africa.

KEY TO THE SPECIES

- 1. Inflorescence congested; bracts conspicuous, mostly larger than the sepals, 1–16 × 0.2–10 mm; corolla 6.3–12.2 mm long, tube 4.2–10.2 mm long, lobes 2–2.7 × 1–1.5 mm; follicles 4–6 × as long as wide, 4.5–7.5 × 0.6–1.8 × 0.6–1.5 cm, longitudinally winged, wings 1–2 mm wide in the mature fruit; seeds up to 25 in each follicle. From Equatorial Guinea to Angola (Cabinda) 2. **M. lujaei**
Inflorescence rather lax; bracts inconspicuous, sepal-like, 0.5–1.8 × 0.2–1 mm 2
- 2. Corolla 1.4–3 mm long, tube 1.5–2 mm long, lobes 1–1.5 × 0.7–1.2 mm; follicles 12–20 × as long as wide, 3–10 × 0.3–0.6 × 0.3–0.7 cm, obscurely longitudinally winged; wings up to 1 mm wide in the mature fruit; seeds up to 8 in each follicle. From Southern Cameroun to Congo(-Brazzaville) 3. **M. poecilophylla**
Corolla 4.8–10.6 mm long, tube 2.5–4 mm long, lobes 2.3–7 × 1–2.1 mm; follicles 2–9.5 × as long as wide, 4–18 × 1–3.5 × 1–3.5 cm, conspicuously longitudinally winged; wings 0.5–5 mm wide in the mature fruit; seeds numerous. West and Central Africa. 1. **M. guineensis**

SPECIES DESCRIPTIONS

1. *Motandra guineensis* (Thonning) A. DC. 1844: 423; Bentham 1876: 74, pl. 1185; Schumann 1895: 164; Hiern 1898: 672–673; Hua 1902: 480–481; Stapf 1902: 224–225; Irvine 1930: 295; Hutchinson & Dalziel 1931: 47; Robijns 1947: 79–80; Irvine 1961: 628; Huber 1963: 80. **Fig. 1; Phot. 1; Map 1**

Basionym: *Echites guineensis* Thonning 1827: 149; 1828: 169; Junghans 1961: 323; Hepper 1976: 27.

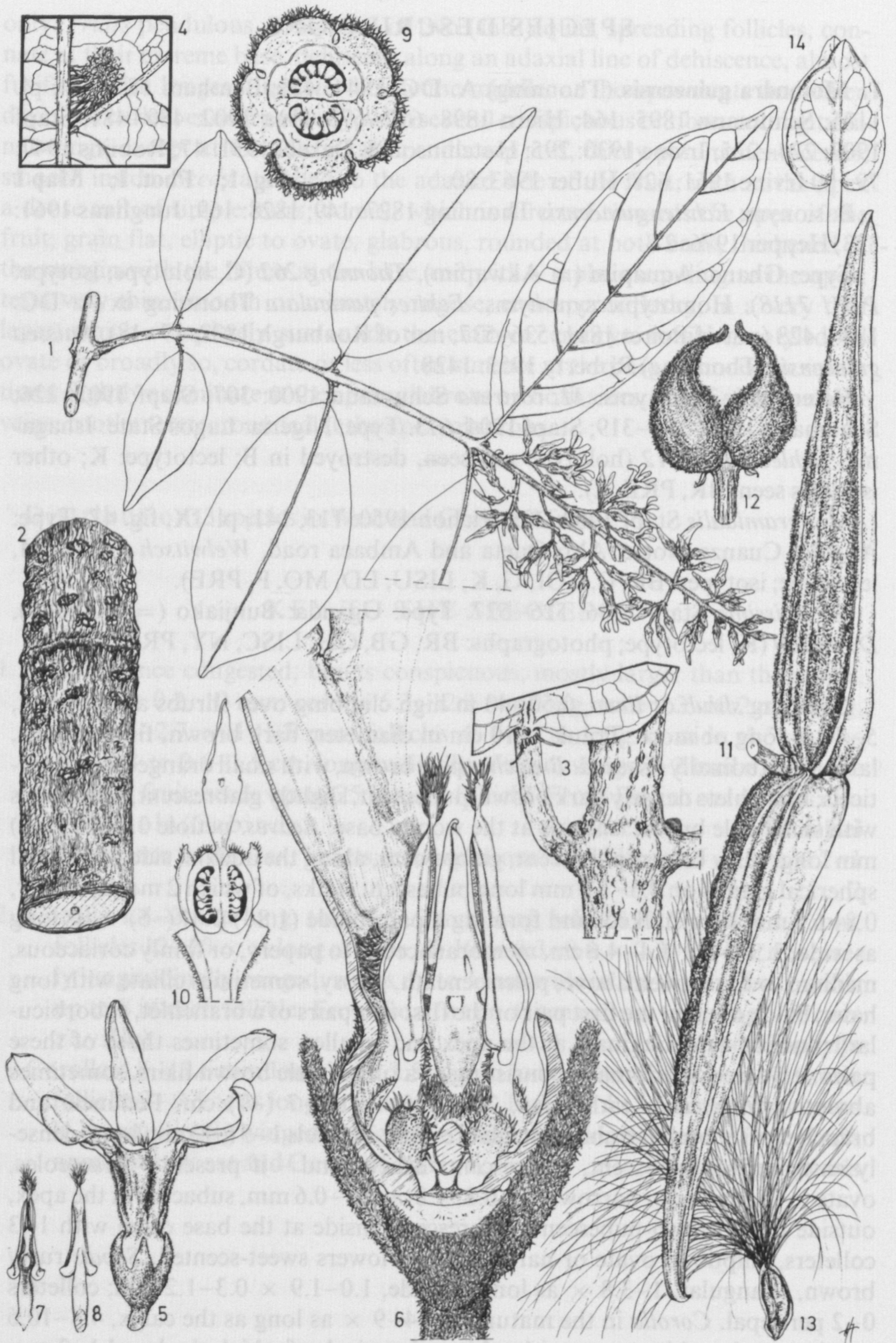
Type: Ghana: Aquapim (= Akwapim), Thonning 262 (C, holotype; isotype: P-JU 7118). Homotypic synonyms: *Echites paniculata* Thonning ex A. DC. 1844: 423 (not of Poiret 1811: 536–537, nor of Roxburgh 1832: 17–18). *Baissea guineensis* (Thonning) Roberty 1953: 1428.

Heterotypic synonyms: *M. rostrata* Schumann 1900: 307; Stapf 1902: 226; Schumann 1903: 318–319; Stapf 1904: 613. Type: Nigeria: Lagos State: Ishagama, Schlechter 12312 (holotype not seen, destroyed in B; lectotype: K; other isotypes seen: BR, PRE, Z).

M. pyramidalis Stapf 1902: 225; Pichon 1950: 113, 141, pl. IX, fig. 47. Type: Angola: Cuanza Norte: Alto Queta and Ambaca road, Welwitsch 5964 (BM, lectotype; isotypes: BR, C, COI, G, K, LISU, LD, MO, P, PRE).

M. altissima Stapf 1906: 526–527. Type: Uganda: Bunjiako (= Bunjako), Dawe 260 (K, lectotype; photographs: BR, GB, GH, LISC, NY, PRE, WAG).

Climbing *shrub* or *liana*, 0.50–40 m high climbing over shrubs and in trees, 5–40 m long or more. Trunk 1–10 cm in diameter; bark brown, first smooth, later longitudinally fissured. *Branches* pale brown, with small orange-brown lenticels; branchlets densely dark brown-pubescent, slightly glabrescent, sometimes with small pale brown lenticels at the woody base. *Leaves*: petiole 3.5–10 (–13) mm long, rusty brown-pubescent, glabrescent, along the adaxial side with small spherical glands on 0.3–1.5 mm long pubescent stalks, of which 2 mostly larger, 0.8–1.5 mm long stalked, and forming a pair; blade (1.8–) 2–4 (–5) × as long as wide, 3.5–14 × 1.4–4.6 cm, membranaceous to papery, or thinly coriaceous, medium to dark green above, paler beneath, glossy, sometimes ciliate with long hairs; blade often in the first pair or the first two pairs of a branchlet, suborbicular, rounded or emarginate at the apex and smaller, sometimes those of these pairs very unequal; domatia consisting of a tuft of pale brown hairs, sometimes absent. *Inflorescence* rather lax, 2.5–15.5 × 1.5–7 (–9) cm. Peduncle and branches rusty brown-pubescent, glabrescent. Pedicels 1–5 (–8) mm long, densely rusty brown-pubescent, glabrescent. Bracts, and – if present – bracteoles, ovate to triangular or narrowly so, 0.8–1.8 × 0.2–0.6 mm, subacute at the apex, outside rusty brown-pubescent, glabrescent, inside at the base often with 1–3 colleters, elliptic to ovate or narrowly so. Flowers sweet-scented. *Sepals* rusty brown, triangular, 1–3.8 × as long as wide, 1.0–1.9 × 0.3–1.2 mm; colleters 0–2 per sepal. *Corolla* in the mature bud 4–9 × as long as the calyx, 4.8–10.6 mm long; tube white to greenish-white, obconical, of which the basal 1–2 mm urceolate, 1.8–3.2 × as long as the calyx, 2.5–4 mm long, 2.5–3 mm in diameter



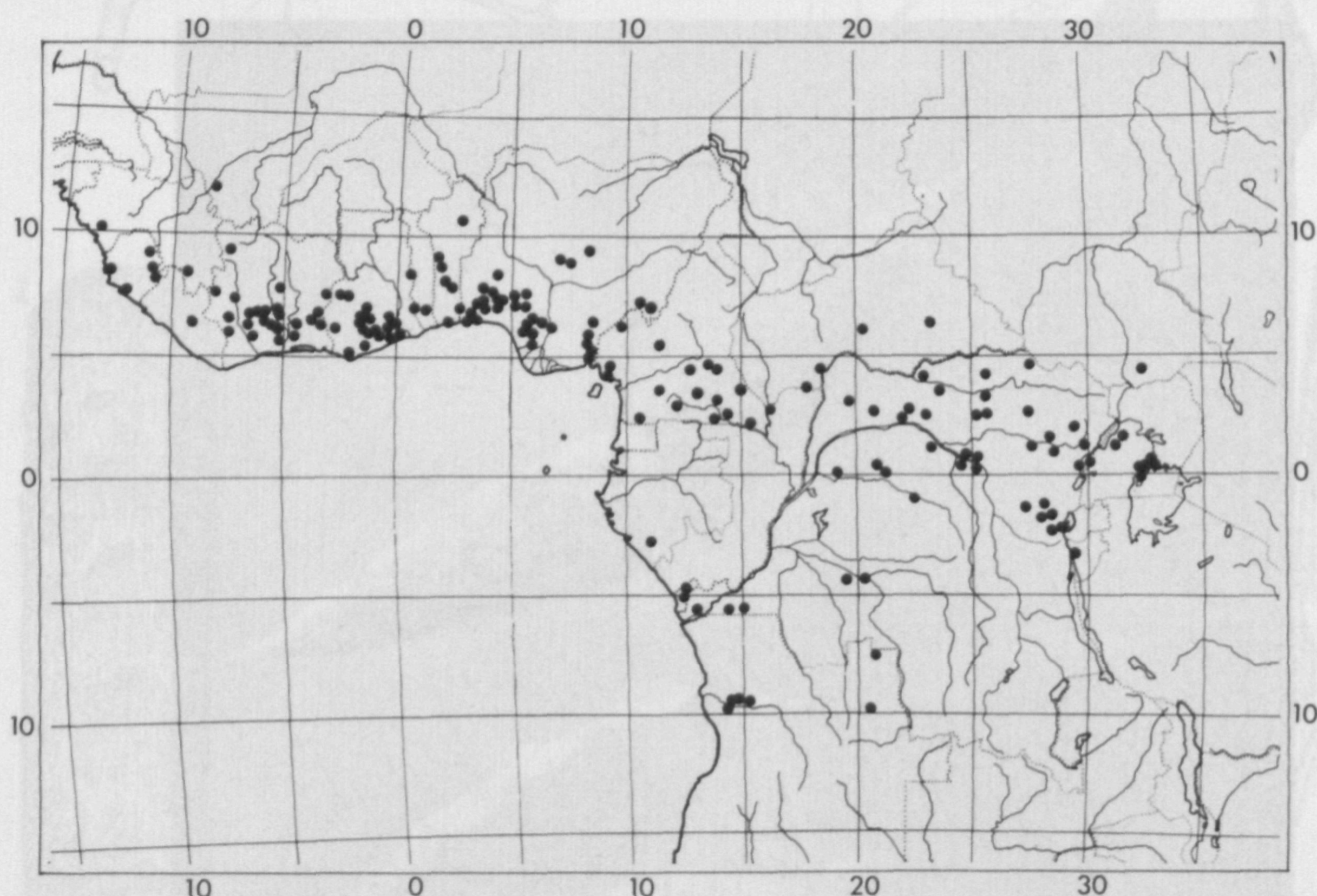
at the apex, 0.9–2 mm at the base; inside with tufts of hairs at 0.9–1.9 mm from the base; lobes white to greenish-white, narrowly ovate to narrowly obovate, $0.9-2 \times$ as long as the tube, $2.5-5.5 \times$ as long as wide, $2.3-7 \times 1-2.1$ mm, obscurely veined, outside glabrous or puberulous, usually only at the base, inside glabrous. *Stamens* inserted at 0.2–0.4 mm from the base of the tube; filaments 0.8–1.2 mm long; anthers $1.4-2.6 \times$ as long as the filaments, 1.5–2.5 mm long, at the apex with 0.4–1 mm long hairs; tails 0.4–0.5 mm long; fertile portion 0.7–1 mm long. *Pistil* 2.5–3.1 mm long; carpels $0.8-1.2 \times 0.5-0.9 \times 0.2-0.3$ mm, superior portion 0.4–0.7 mm long; disk: ring 0.1–0.3 mm high, lobes $0.3-0.7 \times 0.3-0.5$ mm, glabrous or only at the apex pubescent, sometimes with colleters, resembling those of the sepals, between the lobes; style 0.2–0.7



PHOT. 1. *Motandra guineensis* (Thonning) A. DC. (De Kruif 685, phot. LEEUWENBERG).

FIG. 1. *Motandra guineensis* (Thonning) A. DC.: 1. flowering branch, $\frac{2}{3} \times$; 2. part of branch, $\frac{2}{3} \times$; 3. leaf base with petiole from above, $4 \times$; 4. domatium, $4 \times$; 5. flower, $4 \times$; 6. opened flower showing 2 stamens and the pistil; the anther of the right stamen detached from the clavuncula; part of corolla, calyx, and 3 stamens removed, $20 \times$; 7. stamen, adaxial side, $6 \times$; 8. stamen, abaxial side, $6 \times$; 9. transverse section of ovary, $10 \times$; 10. pistil with longitudinal section of ovary, $10 \times$; 11. fruit, $\frac{2}{3} \times$; 12. immature fruit, $2 \times$; 13. seed, $\frac{2}{3} \times$; 14. embryo, $2 \times$. (1. Binuyo FHI 41203; 2. De Kruif 665; 3. De Kruif 685; 4, 11. De Kruif 722; 5–10. Leeuwenberg 11974; 12–14. Gossweiler 5223B).

mm long, glabrous; pistel head: upper portion $0.3-0.5 \times 0.3$ mm, lower portion $0.2-0.5 \times 0.3$ mm; appendices $0.5-1$ mm long, free portion $0.3-0.7$ mm long. Each placenta with 25–40 ovules. *Fruits* often with many lenticels, often subtended by the persistent calyx and bracts; follicles shaping an angle of about $130-180^\circ$, $2-9.5 \times$ as long as wide, $4-18 \times 1-3.5 \times 1-3.5$ cm; exocarp $1-2$ mm thick, longitudinally winged; wings undulate, in the mature fruit $0.5-5$ mm wide; exocarp at the outer surface with a $2-4$ mm thick, deciduous, rusty brown tomentum, which may hide the wings. *Seeds* numerous; coma $29-78$ mm long; grain $11-18.5 \times 5-8.5$ mm; testa smooth or minutely rugose; cotyledons broadly ovate, $4.9-9.5 \times 3-8$ mm; rootlet $2.5-3.5$ mm long.



MAP 1. *Motandra guineensis* (Thonning) A. DC.

Distribution: West and Central Africa from Guinea (-Conakry) to Uganda and south to Angola.

Ecology: Mostly light or secondary deciduous forests or gallery forests and in secondary regrowth, on sand, clay and rocky outcrops; alt. 0–1200 m.

A selection of the about 350 specimens examined:

GUINEA (-Conakry): Komé (fl. May) *Paroisse* 164 (P); Macenta (fl. Mar.) *Jacques-Félix* 1549 (P); Kaoulendougou, near Nzo (fl. Mar.) *Chevalier* 21073 (P).

MALI: Kaba (Kangaba) (fl. May) *Chevalier* 13133 & 13242 (P).

SIERRA LEONE: Konno Town (fl.) *Burbridge* 481 (K); near Yifin (fl. Mar.) *Morton & Gledhill* SL 1150 (K, MO, WAG); Bunumbu (fl. Apr.) *Deighton* 3949 (K).

LIBERIA: Cess R., near Baitown (fr. Aug.) *Baldwin* 9013 (K).

IVORY COAST: Odienné (fr. Oct.) *adam* 27087 (MO); km 27 road Tai-Guiglo (imm. fr. July) *Garnier* PG/UB 32 (K); 17 km S of Daloa (fl. Mar.) *Leeuwenberg* 3058 (BR, C, COI, E, FHO, FI, GOET, K, L, LD, M, MO, P, PRE, U, UC, WAG, Z); km 13 road Divo-Tiassalé (Oct.) *De Kruif* 665 (UCI, WAG); Nzi-Noua, km 20 road Ndouci-Yamoussoukro (fl. Apr.) *De Kruif* 23 (UCI, WAG);

Bouroukro, on road Tanda-Koun-Fao (Oct.) *De Kruif* 680 (UCI, WAG); 8 km S. of Aniassué, along road to Akoupé (imm. fr. Oct.) *De Kruif* 685 (UCI, WAG).

GHANA: Tain Tributaries Block II For. Res. (fr. Dec.) *Adams* 2785 (K); Dedeswa (fl. Feb.) *Chipp* 145 (BM, FHO, K, Z); Bobira For. Res. (fl. Feb.) *Leeuwenberg* 11974 (WAG); Akin (= Achim) (fl.) *Dudgeon* 4 (P); Aquapim (= Akwapin) (fl.) *Thonning* 262 (C, P.JU, type); Shiare (fl. Apr.) *Hall* 1375 (K).

TOGO: Missahohé (fr. Nov.) *Mildbread* 7379 (HBG, K); Asrama, 30 km E. of Nuatja (fr. Sept.) *J. W. A. Jansen* 2658 (Wag).

BENIN REPUBLIC: Adja Ouéré (fl. Mar) *Le Testu* 115 (BM, K, P); ibid. (fr. Dec.) *Le Testu* 272 (BM, P); Bassila Forest (fr. Dec.) *Poisson* 100 (K, P); Pobé (Sept.) *Adjanohoun* 102 (K, P).

NIGERIA: Oyo State: km 15 road Ibadan-Lagos (fl. Mar.) *Meikle* 1247 (B, BR, K, P); Gambari For. Res. (fl. Mar.) *Bernardi* 8725 (BR, G, K, S, WAG). Ogun State: 9 km N of Abeokuta (fl. May) *Roberty* 1593 (G, P). Lagos State: Ishagama (fl. Mar.) *Schlechter* 12312 (BR, K, PRE, Z, type of *M. rostrata*). Ondo State: Akure For. Res. (fl. Apr.) *Guile* 2595 (MO). Niger State: Abuja Idu, Kuje Distr. (fl. May) *Eimunjeze et al.* *FHI* 66455 (K, MO, WAG). Kaduna State: Sanga For. Res. (fr. Dec.) *Olorunfemi* *FHI* 55146 (K). Bendel State: Ubiaja For. Res., Ishan Distr. (fl. Apr.) *Daramola* *FHI* 31263 (FHO, K). Anambra State: Onitsha (fl.) *Barter* 1636 (K). Cross River State: Iyamoyong For. Res., Obubra Distr. (fl. Apr.) *Binuyo* *FHI* 41203 (BR, FHO, K, WAG). Gongola State: Baissa (fl. Apr.) *Chapman* 5332 (K).

CAMEROUN: near Kumba (fr. Nov.) *Krukoff* 61 (MO); Ga, on road Mapou-Nganbé (fl. Aug.) *Letouzey* 7743 (P, YA); km 15 road Bertoua-Deng Deng (fl. Mar.) *Breteler* 1207 (A, BR, FI, G, K, LISC, M, P, UC, WAG, YA); Yaoundé (fl.) *Zenker & Staudt* 794 (BM, BR, COI, GOET, K, LE, M, NY, WU, S, Z); Nkolbisson (fl. Mar.) *Breteler* 2628 (A, BR, FI, K, M, P, UC, WAG, YA); ibid. (fl. Apr.) *De Wilde & De Wilde-Duyfjes* 2275 (BR, K, MO, P, PRE, WAG, YA, Z); ibid. (fl., imm. fr. May) *Leeuwenberg* 5731 (BR, K, P, WAG, YA); near Baréto (fl. Feb.) *Letouzey* 12011 (K, P, WAG, YA).

CENTRAL AFRICAN REPUBLIC: Bayanga (fl. Feb.) *Wraber* 26 (K); Boukoko (fl. Mar.) *Tisserant* 1111 (BM, BR, LISC, P, WAG); Bangui (fr. Oct.) *Breyne* 1593 (BR); Les Moroubas (fl. Mar.) *Tisserant* 1462 (BM, P, WAG); Yalinga (fl. Mar.) *Le Testu* 4608 (BM, BR, LISC, MO, P, WAG).

GABON: Tchibanga (fl. Oct.) *Le Testu* 1799 (BM, P).

ZAÏRE: Equateur: Boketa (fl. Mar.) *Evrard* 503 (BR); Likimi (imm. buds, Feb.) *Malchair* 194 (BR); Dundusana (fl. Sept.) *Mortehan* 444 (BR); Ifale R., Befale Terr. (fl. Feb.) *Evrard* 3485 (BR); Mondombe (fl., fr. Nov.) *Jespersen* 28 (BR); Djoa (imm. fr. May) *Evrard* (BR). Haut-Zaïre: Monga (fl. Feb.) *Lebrun* 2290 (BR, WAG); Kulu (fl., fr.) *Van den Brande* 136 (BR); Tukpo (fl. Apr.) *Gérard* 4517 (BR); Batande R., Doruma Terr. (fl. Apr.) *De Graer* 218 (BR); Bambesa (fl., fr. Mar.) *Gérard* 2288 (BR, P, WAG); Burumbu (fl. Nov.) *Bequaert* 1152 (BR, K); Weko, along road Ngazi-Bengamisa (fl., fr. Oct.) *Louis* 273 (BR, K, NY, P, UC); Yangambi (fr. July) *Louis* 10557 (BR, C, K, P); ibid. (fr. Feb.) *Louis* 13521 (B, BR, K, P); near Nala (fl. Mar.) *Seret* 790 (BR); Irumu (fl. Mar.) *Bequaert* 2937 (BR, K). Kivu: Semliki R., between Lesse and Vieux-Beni (fl. Mar.) *Bequaert* 3279 (BR); Mutongo (fl. May) *Gutzwiller* 2845 (BR, WAG); Bunyakiri (fl. Apr.) *Léonard* 4030 (BR, WAG). Bandundu: between Ipamu and Bandu (fl. Oct.) *Vanderijst* 12257 (BR). Bas-Zaïre: Mata-di (fl. Feb.) *Dacremont* 344 (BR, P, WAG); Lovo, Songololo Terr. (imm. fr. Nov.) *Compère* 907 (BR, K).

SUDAN: Lotti Forest, Torit Distr. (fl. Mar.) *Jackson* 1281 (BM).

UGANDA: Bugoma Forest (buds, imm. fr.) *Dawe* 702 (K, paratype of *M. altissima*); Bunjako (fl.) *Dawe* 260 (K, lectotype of *M. altissima*).

BURUNDI: Usumbura (= Bujumbura) (fl. Feb.) *Léonard* 1602 (BR, WAG).

ANGOLA: Cabinda: near Buco Zau (fr. Aug.) *Gossweiler* 6597 (BM, COI, K, LISJC, LISU); ibid. (fr. July) *Gossweiler* 7284 (BR, COI, LISJC, LISU). Lunda: Dundo (fl.) *Gossweiler* 15 Oct. 1946 (B). Cuanza Norte: Alto Queto and Ambaca road (fl.) *Welwitsch* 5964 (BM, BR, C, COI, G, K, LD, LISU, MO, P, PRE, lectotype of *M. pyramidalis*); Golungo Alto (fr.) *Welwitsch* 1118 (BM, paratype of *M. pyramidalis*); Granja de S. Luiz (fl. Nov.) *Gossweiler* 5162 (BM, BR, COI, LISU); ibid. (fl.) *Gossweiler* 5223 (BM, COI, LISJC, LISU); ibid. (fr. Nov.) *Gossweiler* 5223B (BM, COI, LISJC, LISU); Fazenda (fr. Aug.) *Gossweiler* 5188 (BM, COI, LISJC, LISU).

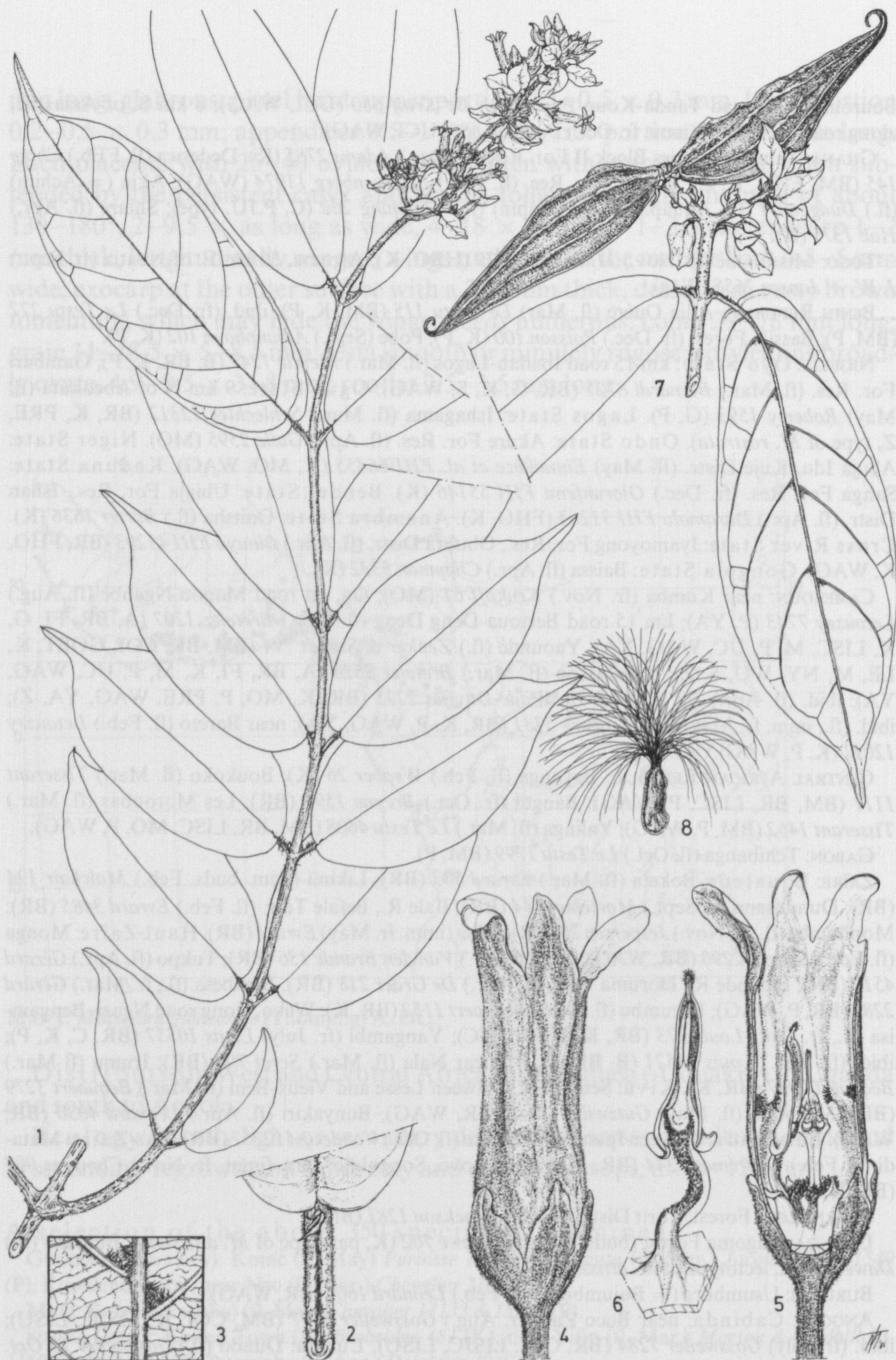


FIG. 2. *Motandra lujaei* De Wild. & T. Durand: 1. flowering branch, $\frac{2}{3} \times$; 2. fruiting branch, $\frac{2}{3} \times$; 3. leaf base with petiole from above, $4 \times$; 4. domatia, $2 \times$; 5. flower, $6 \times$; 6. opened flower showing 1 stamen and the pistil; part of corolla, calyx and 4 stamens removed, $6 \times$; 7. stamen, adaxial side, $10 \times$; 8. seed, $\frac{2}{3} \times$. (1, 5–7. Gossweiler 6009; 2, 4, 8. N. Hallé & Le Thomas 161; 3. Luja 274).

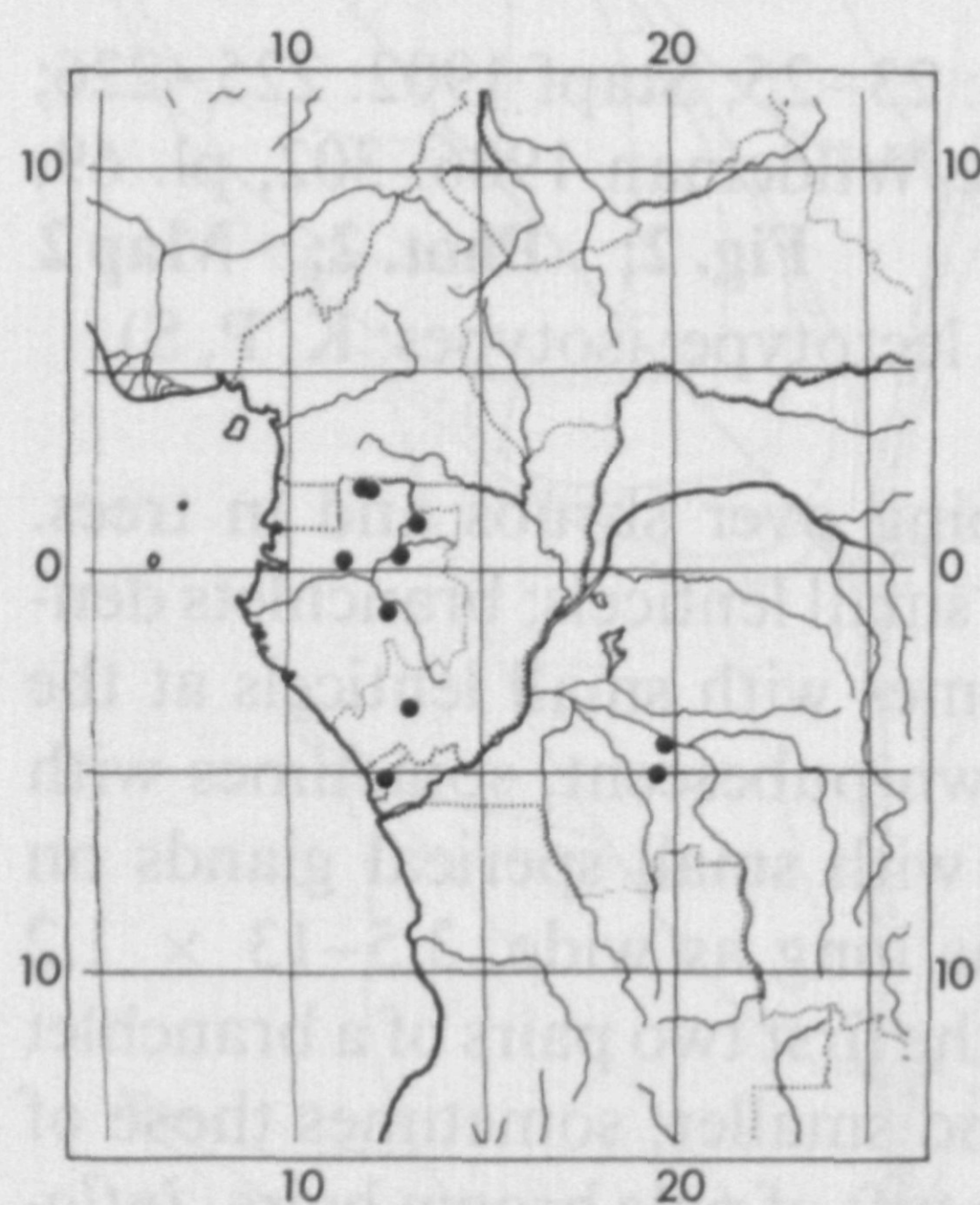
Note: The lectotype of *M. pyramidalis*, Welwitsch 5964, is a composite number, consisting of 2 collections not far from each other, viz. Ambaca road and Alto Queta.

2. *Motandra lujaei* De Wild. & T. Durand 1901: 23–25; Stapf 1902: 225–226; De Wildeman 1903: 17–18; Stapf 1904: 613; De Wildeman 1906: 302, pl. 69; Pichon 1950: 113. **Fig. 2; Phot. 2; Map 2**

Type: Zaïre: Bandundu: Lubue, *Luja* 274 (BR, lectotype; isotypes: K, P, S).

Climbing *shrub* or *liana*, 1–10 m high climbing over shrubs and in trees. *Branches* dark to medium brown when dry, with small lenticels; branchlets densely dark brown-pubescent, glabrescent, sometimes with small lenticels at the base. *Leaves*: petiole 3–10 mm long, rusty brown-pubescent, sometimes with long hairs, glabrescent, along the adaxial side with small sperical glands on 0.5–1.5 mm long stalks; blade (1.8–) 2–4 × as long as wide, 3.5–13 × 1.2 × 4.9 cm, papery; blade often in the first pair or the first two pairs of a branchlet suborbicular, rounded or emarginate at apex and smaller, sometimes those of these pairs very unequal; domatia consisting of a tuft of pale brown hairs. *Inflorescence* congested, 1.5–5 (–7.5) × 1–2.5 cm. Peduncle and branches dark brown-pubescent, sometimes also with some long hairs, glabrescent. Pedicels 1–4 mm long, dark brown-pubescent. Bracts numerous, ovate or narrowly so, 1–16 × 0.2–10 mm, obtuse to acuminate at the apex, cuneate to cordate at the base, outside dark brown-pubescent; bracteoles – if present – sepal-like. *Sepals* dark brown, ovate to triangular, 1.5–2 × as long as wide, 2–2.3 × 1.2–1.5 mm; colleters 0–3 per sepal. *Corolla* in the mature bud 2.5–6 × as long as the calyx, 6.3–12.2 mm long; tube white, less often yellow or dark brown, cylindrical, or nearly so, wider near the base, 1.9–5.1 × as long as the calyx, 4.2–10.2 mm long, 1–2.2 mm in diameter; inside with tufts of hairs at 1.9–2.8 mm from the base; lobes white, less often yellow or dark-brown, ovate to triangular, 0.2–0.5 × as long as the tube, 1.6–2 × as long as wide, 2–2.7 × 1–1.5 mm, outside densely pubescent and there often with glabrous patches, inside slightly pubescent or glabrous. *Stamens* inserted at about 0.2 mm from the base of the tube; filaments 1.2–1.6 (–2) mm long; anthers 1.2–2 × as long as the filaments, 2–2.5 mm long, with 0.1–0.5 mm long hairs at the apex; tails 0.4–0.5 mm long; fertile portion 1–1.2 mm long. *Pistil* 3–3.7 mm long; carpels 1–1.3 × 0.5–1.2 × 0.3–0.4 mm, superior portion 0.7–1 mm long; disk: ring 0.3–0.4 mm high, lobes 0.6–0.8 × 0.4–0.5 mm, pubescent; style 0.7–1.2 mm long, glabrous or sometimes slightly pubescent; pistil head: upper portion 0.2–0.5 × 0.3 mm, lower portion 0.3–0.4 × 0.3 mm; appendices 0.8–1 mm long, free portion 0.5–0.7 mm long. Each placenta with 10–25 ovules. *Fruits* often with many lenticels, often subtended by the persistent calyx and bracts; follicles shaping an angle of about 180°, 4–6 × as long as wide, 4.5–7.5 × 0.6–1.8 × 0.6–1.5 cm; exocarp up to 1 mm thick, longitudinally winged; wings undulate, in the mature fruit 1–2 mm wide; exocarp at the outer surface with a 1–2 mm thick,

deciduous, dark brown tomentum, which may hide the wings. *Seeds* up to 25 in each follicle; coma 15–30 mm long; grain $12-15 \times 4-8$ mm; testa minutely rugose; cotyledons ovate, $8-9.5 \times 5-6$ mm; rootlet 3–4 mm long.



MAP 2. *Motandra lujaei* De Wild. & T. Durand

Distribution: Equatorial Guinea to Angola (Cabinda).

Ecology: Rain forests or secondary forests, also in open places; alt. 0–900 m.



PHOT. 2. *Motandra lujaei* De Wild. & T. Durand (Caballé 259, phot. CABALLÉ).

Specimens examined:

EQUATORIAL GUINEA: Rio Muni: sin. loc (fl.) *Tessmann* 945 (K).

GABON: Minvoul (fl.) *Cottes* 30 Aug. 1906 (P); Acourenzorc (fl. Mar.) *Le Testu* 9060 (BM, LISC, P); Bélinga (fl. Oct.) *Caballé* 259 (WAG); *ibid.* (fr. July) *N. Hallé* 4199 (P); *ibid.* (fr. July) *N. Hallé & Le Thomas* 161 (P); 10 km NE of Lalara (fl. Sept.) *Breteler & De Wilde* 411/78 (WAG); Makokou (fl. June) *Farron* 7541 (P); *ibid.* (fl. Oct.) *Hladik* 1561 (P); *ibid.* (fl. Feb.) *Hladik* 2575 (WAG); Lastoursville (fl. Apr.) *Le Testu* 7165 (BM, G, P); *ibid.* (fl. Apr.) *Le Testu* 18 Apr. 1929 (BM); *ibid.* (fl. Nov.) *Le Testu* 5 Nov 1929 (BM, BR, LISC, MO, US); km 16 road Lastoursville-Moanda (fl., fr. Sept.) *Breteler & De Wilde* 759/78 (WAG)

CONGO(-BRAZZAVILLE): N'Gouma, along Komono-M'Bila road (fl. Jan.) *Bouquet* 2397 (P).

ANGOLA: Cabina: Punga Munga (fl. Dec.) *Gossweiler* 6009 (BM, COI, LISJC, LISU).

ZAÏRE: Bandundu: Ipamu (fl. Sept.) *Vanderijst* 10798 & 10799 (BR); *ibid.* (fl. Oct.) *Vanderijst* 11145 (BR); Lubue (fl., imm. fr. May) *Luja* 274 (BR, K, P, S, lectotype); *ibid.* (fl., imm. fr. June) *Luja* 287 (BR, paratype); Idofa (fl. Oct.) *Vanderijst* 12606 (BR).

3. *Motandra poecilophylla* Wernham 1916: 228.

Type: Cameroun: Bitye, Bates 649 (BM, holotype; isotype: MO).

Fig. 3; Map 3

Climbing *shrub* or *liana*, 1–5 m high climbing, up to at least 6 m long. *Branches* greyish-brown, not lenticellate; branchlets with a deciduous, rusty brown, short tomentum, turning sparsely pubescent with age. *Leaves*: petiole 5–8 mm long, with a deciduous, rusty brown, short tomentum; blade 1.5–3.5 (–4) × as long as wide, 3–11 × 1.9–3.7 cm, papery to thinly coriaceous when dry, pale to medium green above, paler and sometimes with whitish-green patches beneath, glossy; blade sometimes rounded or emarginate at the apex and smaller, usually so in the first two pairs of leaves of a branchlet; domatia consisting of a tuft of rusty brown hairs. *Inflorescence* rather lax, 7–27 × 2–7 cm. Peduncle and branches with a deciduous, rusty brown, short tomentum. Pedicels 2–4 mm long, rusty brown-tomentellous. Bracts, and – if present – bracteoles, ovate to triangular or broadly so, 0.5–0.9 × 0.4–1 mm, subacute at the apex, outside rusty brown-tomentellous, inside at the base often with 1–3 colleters, elliptic to ovate. *Sepals* rusty brown, ovate to triangular or rhombic, 0.7–1.4 × as long as wide, 0.7–1.1 × 0.6–1.1 mm; colleters 0–3 per sepal. *Corolla* in the mature bud 1.5–4 × as long as the calyx, 1.4–3 mm long; tube white, sometimes with a yellowish-white throat, slightly obconical of which the basal 1 mm urceolate, 1.6–2.6 × as long as the calyx, 1.5–2 mm long; 0.7–1 mm in diameter at the apex, 1.2–1.5 mm at the base; inside with tufts of hairs at 0.7–1.2 mm from the base; lobes white, broadly ovate to broadly triangular, 0.5–0.7 × as long as the tube, 0.9–1.5 × as long as wide, 1–1.5 × 0.7–1.2 mm, obscurely veined, outside pubescent, usually only at the base, inside glabrous. *Stamens* inserted at about 0.2 mm from the base of the tube; filaments 0.5–0.7 mm long; anthers 1.5–2.6 × as long as the filaments, 1.1–1.5 mm long, with 0.2–0.6 mm long hairs at the apex; tails 0.3–0.4 mm long; fertile portion 0.6–0.7 mm long. *Pistil* 2–2.8 mm long; carpels 0.6–1 × 0.3–0.5 × 0.2–0.3 mm, superior portion 0.4–0.7 mm long; disk: ring 0.1–0.2 mm high, lobes 0.2–0.5 × 0.1–0.5 mm,

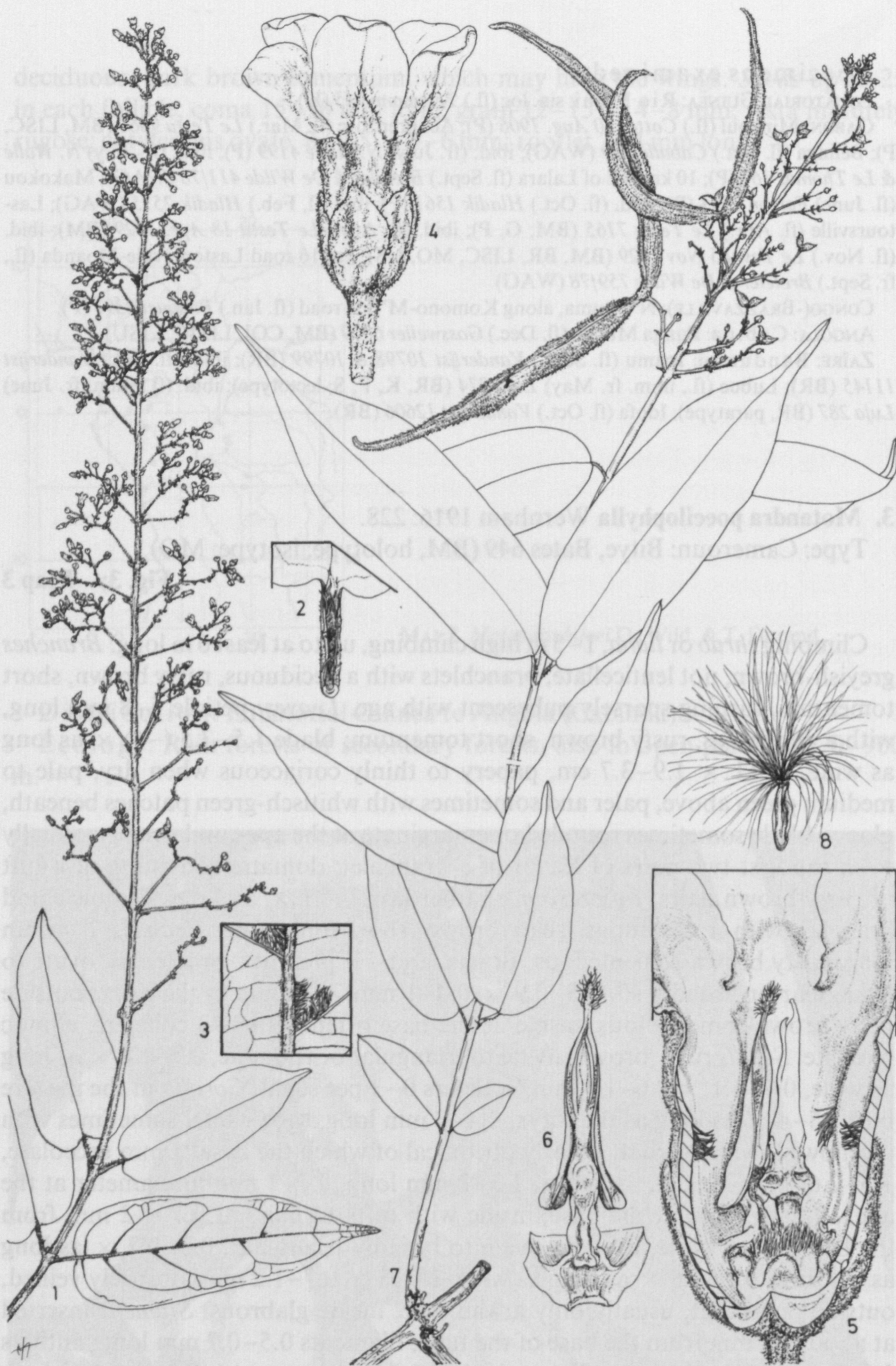
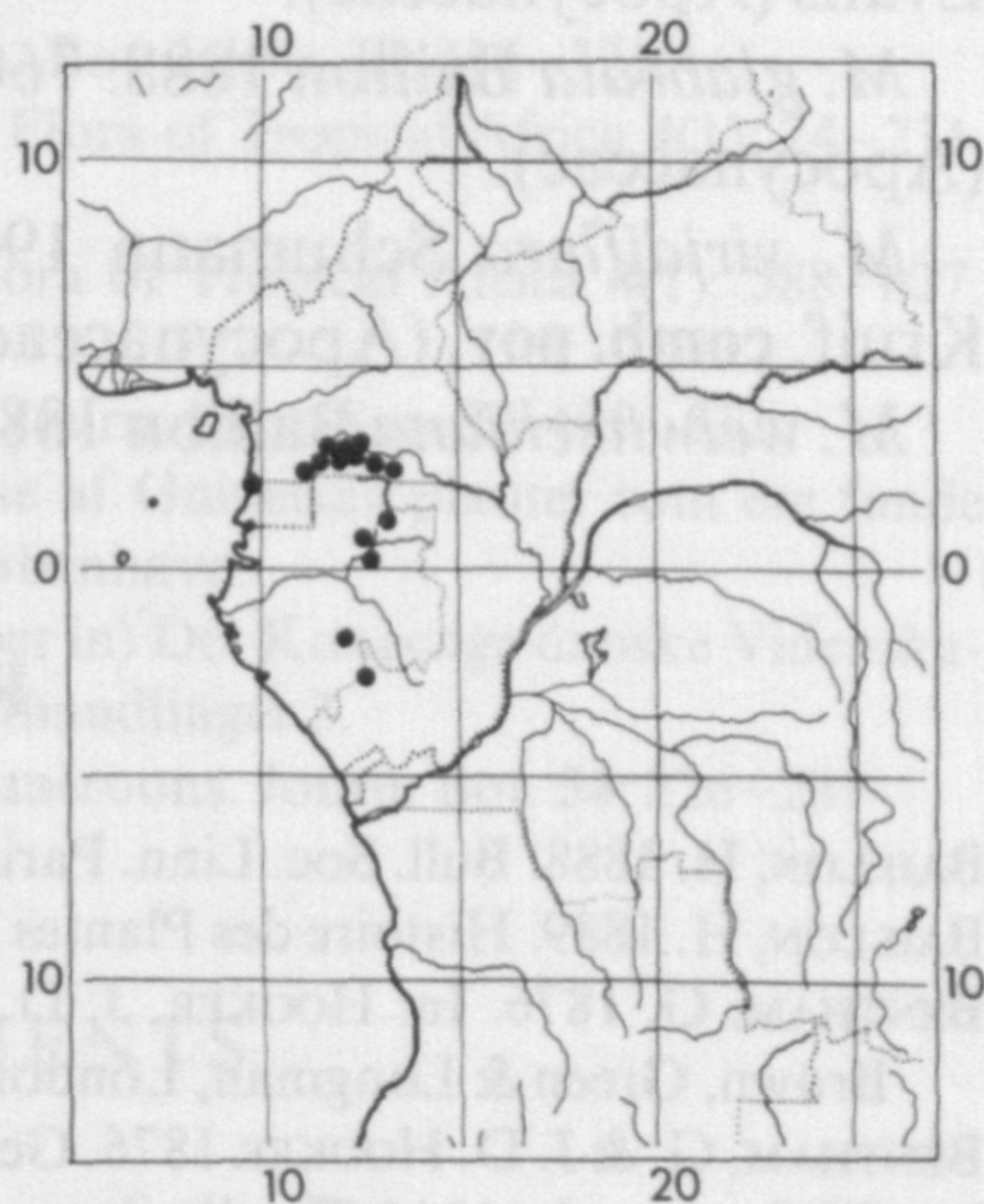


FIG. 3. *Motandra poecilophylla* Wernham: 1. flowering branch, $\frac{2}{3} \times$; 2. fruiting branch, $\frac{2}{3} \times$; 3. leaf base with petiole from above, $2 \times$; 4. domatia, $2 \times$; 5. flower, $10 \times$; 6. opened flower showing 1 stamen and the pistil; part of corolla, calyx, and 4 stamens removed, $20 \times$; 7. stamen, adaxial side, $20 \times$; 8. seed, $\frac{2}{3} \times$. (1. Florence 1697; 2-8. Letouzey 8276)

glabrous or only at the apex pubescent; style 0.2–0.4 mm long, glabrous; pistil head: upper portion 0.2–0.5 × 0.3 mm, lower portion 0.2–0.4 × 0.3 mm; appendices 0.6–1.2 mm long, free portion 0.3–0.9 mm long. Each placenta with 5–8 ovules. *Fruits* often subtended by the persistent calyx; follicles shaping an angle of about 90–180°, 12–20 × as long as wide, 3–10 × 0.3–0.6 × 0.3–0.7 cm; exocarp very thin, obscurely longitudinally winged, at the outer surface with an up to 1 mm thick, deciduous, rusty brown tomentum. *Seeds* up to 8 in each follicle; coma 20–35 mm long; grain 10–14 × 2–4 mm; rootlet 3–4 mm long.



MAP 3. *Motandra poecilophylla* Wernham.

Distribution: From Southern Cameroun to Congo.

Ecology: Rain forests or secondary forests, also in open places; alt. 0–700 m.

Specimens examined:

CAMEROON: 15 km S of Ebolowa (fl., fr. Feb.) *De Wilde & De Wilde-Duyfjes 1988A* (WAG), 1988B (BR, K, MO, P, WAG, YA); N'Koemvone, km 14 road Ebolowa-Ambam (fl. Oct.) *J. J. F. E. de Wilde 7591A* (WAG); Ekouk (fr.) *Mildbraed 5693* (HBG); between Kondébilong and Méyila, 53 km SE. of Mbalmayo (fl. May) *Asonganyi 80* (WAG, YA); near Oveng, 30 km WNW of Sangmélisma (fl., fr. July) *Letouzey 11433* (BR, K, P, WAG, YA); Sangmélisma (buds, June) *Hédin 1271* (P); ibid. (buds, Mar.) *Meijer 15289* (WAG); Mézèsé, 20 km ENE of Sangmélisma (fl. Oct.) *Letouzey 8163* (BR, P, YA); near Méyos-Méla, 30 km ENS of Djoum (fl., fr. Nov.) *Letouzey 8276* (BR, K, P, WAG, YA); Bitye (fl. Dec.) *Bates 649* (BM, MO, type); ibid. (fl., fr. Oct.) *Bates 1476* (HBG); ibid. (fl. Nov.) *Bates 1526* (HBG); ibid. (fl. July) *Hédin 1232* (P); Mékas, 72 km SE of Akonolinga (fl. July) *Asonganyi 241* (WAG, YA); near curve of the Dja R. (fl. May) *Mildbraed 5414* (HBG); along road Minton I-Alati (fl. Jan.) *Letouzey 11754* (P, YA).

EQUATORIAL GUINEA: Rio Muni: Campo area (fl. Mar.) *Tessmann 508* (K).

GABON: Bélinga (buds, Dec.), *N. Hallé 3599* (P); Lastoursville (fl., imm., fr., Mar.) *Le Testu 7061* (BR, LISC, MO, P, WAG); ibid. (fl., fr. Apr.) *Le Testu 7170* (BR, HBG, LISC, P, WAG); ibid. (fl., fr. Feb.) *Le Testu 7940* (BM, BR, LISC, P, WAG); 10 km S of Makokou (fl., imm. fr. Mar.) *Florence 1697* (WAG); SE of Makokou (fl. Feb.) *N. Hallé 1045* (P); Lindémé (fl. Apr.) *Le Testu 8018* (BR, HBG, P, WAG); sin. loc. (fl. July) *N. Hallé & Le Thomas 3* (P).

CONGO(-BRAZZAVILLE): along road Mossendjo-Gabon (fl., fr. May) *F. Hallé 1837* (P, WAG).

NOMEN NUDUM

M. stapfiana Mildbr. 1922: 80, 89. = *M. poecilophylla* Wernham. Specimens cited: *Mildbraed* 5414 (HBG) and 5693 (HBG).

EXCLUDED SPECIES

M. erlangeri Schumann 1903: 318. = *Oncinotis inandensis* J. M. Wood & M. Evans (Apocynaceae).

M. glabrata Baillon 1888: 760. = *Oncinotis glabrata* (Baillon) Stapf ex Hiern (Apocynaceae).

M. viridiflora Schumann 1903: 319. = *Baissea viridiflora* (Schumann) De Kruif, **comb. nov.** (Apocynaceae).

M. welwitschiana Baillon 1888: 760. = *Oncinotis hirta* Oliver (Apocynaceae).

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