

The genus *Trichoscypha* (Anacardiaceae) in Upper Guinea: A synoptic revision

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ABSTRACT

The African genus *Trichoscypha* is revised for Upper Guinea (a similar revision for Lower Guinea will follow). Fourteen species are recognized for the area, five of which are described as new. Ten species are confined to Upper Guinea, and the remaining four species also occur in Lower Guinea. A key to the species is given and their distributions are mapped. The new species are illustrated, as are the male and the female flowers of the other species, when known.

KEY WORDS

Trichoscypha,
Anacardiaceae,
Upper Guinea.

RÉSUMÉ

Le genre Trichoscypha (Anacardiaceae) en Haute Guinée : révision synoptique.

Le genre africain *Trichoscypha* est révisé pour la Haute Guinée ; une révision similaire suivra pour les espèces de la Basse Guinée. Quatorze espèces sont reconnues pour cette région dont cinq nouvelles décrites ici. Dix espèces sont endémiques de la région, les quatre autres espèces étant aussi présentes en Basse Guinée. Une clé de détermination et des cartes de répartition sont présentées. Les nouvelles espèces sont illustrées, de même que les fleurs mâles et femelles des autres espèces, lorsqu'elles sont connues.

MOTS CLÉS

Trichoscypha,
Anacardiaceae,
Haute Guinée.

INTRODUCTION

The genus *Trichoscypha* is confined to tropical Africa. It was described by HOOKER f. in 1862 and was based on *T. mannii*, the type of which was collected from the border between Gabon and Equatorial Guinea. Eighty-four species have been described in the genus: 35 by ENGLER, partly in co-operation with VON BREHMER, most of

them from Cameroun; 12 by VAN DER VEKEN and seven by DE WILDEMAN from Congo - Kinshasa; nine by LECOMTE from Gabon; and five by AUBRÉVILLE & PELLEGRIN from Côte d'Ivoire. The remaining 16 species have been described by 10 different authors.

Although several treatments have been published, such as those in the second edition of the Flora of West Tropical Africa (KEAY 1958), the

Flore du Congo Belge et du Ruanda-Urundi (VAN DER VEKEN 1960), and the Flore Forestière de la Côte d'Ivoire (AUBREVILLE 1959), a revision of the genus as a whole has never been undertaken. The paper presented here is the first part of a synoptic revision of the entire genus, dealing with the species of Upper Guinea. In the second part that will follow, the remaining species will be treated.

CHARACTERS OF THE GENUS *TRICHOSCYPHA*

Trees, usually small and slender, branched or not, shrubs or lianas. Exudate little, white, black when dry. Leaves alternate, imparipinnate, rarely simple, often crowded at the top of the trunk or of the branches. Inflorescence many-flowered, terminal or subterminal, or borne below the leaves on the main stem or branches. Flowers unisexual, dioecious, rather small (≤ 7 mm), usually 4-merous, rarely 5-, very rarely 6-merous, sessile or pedicellate, the female flowers generally less numerous and with longer pedicels than the corresponding male flowers. Sepals united at base. Petals free, imbricate to valvate, erect, spreading or reflexed. Stamens the same number as the petals and alternate with them, inflexed in bud. Disc present, glabrous or variously hairy, in the male flower sometimes surrounding a small pistilode, in the female flower at the base of the ovary, sometimes surrounding it partly. Staminodes present in the female flower. Ovary glabrous to hairy,

crowned by 3-4(-6) styles with entire to shallowly bilobed stigmas, or stigmas \pm sessile, 1-locular, with one pendulous ovule. Fruit fleshy, 1-seeded, rarely dehiscent.

TYPE. — *Trichoscypha mannii* Hook. f.

MORPHOLOGICAL NOTES

The position of the lowest pair of leaflets, which can be close to the leaf base or not, has been used as a character for distinguishing species (e.g. KEAY 1958). However, this feature is too variable to be used as such. Also, the number of leaflets as well as their shape and their indumentum often vary to such an extent that these elements likewise cannot satisfactorily be used in specific segregation.

The variation in the indumentum of the calyx can be very extensive. A glabrous calyx adjacent to a hairy one in the same inflorescence has been observed in *T. lucens*, as well as a single calyx with some glabrous and some hairy lobes, also in *T. lucens*. The disc, however, offers good characters for specific distinction. Sometimes the disc may be absent, probably eaten away by visiting ants.

Hairy ovaries may produce fruits that remain hairy to a variable degree of density, or they may form glabrous fruits, in which case they often bear some remnants of the initial indumentum, such as in *T. mannii*. Glabrous ovaries always produce glabrous fruits.

Key to the species of *Trichoscypha* in Upper Guinea

This key is mainly based on material with male flowers, unless stated otherwise. When useful and when known, characters of the female flower and/or fruit have been included. The disc in the female flower is similar to that of the male flower. It remains observable, with or without hairs, in fruit.

- | | |
|--|------------------------|
| 1. Disc glabrous, at most with a very few hairs | 2 |
| 1'. Disc hairy | 9 |
| 2. Pedicels \pm 10 mm long; inflorescence very lax | 7. <i>T. laxissima</i> |
| 2'. Pedicels at most 6 mm long; inflorescence lax or not | 3 |
| 3. Midrib of leaflets above glabrous and prominent | 1. <i>T. arborea</i> |
| 3'. Midrib of leaflets above glabrous or not, usually impressed above (sometimes partly plane but not prominent) | 4 |

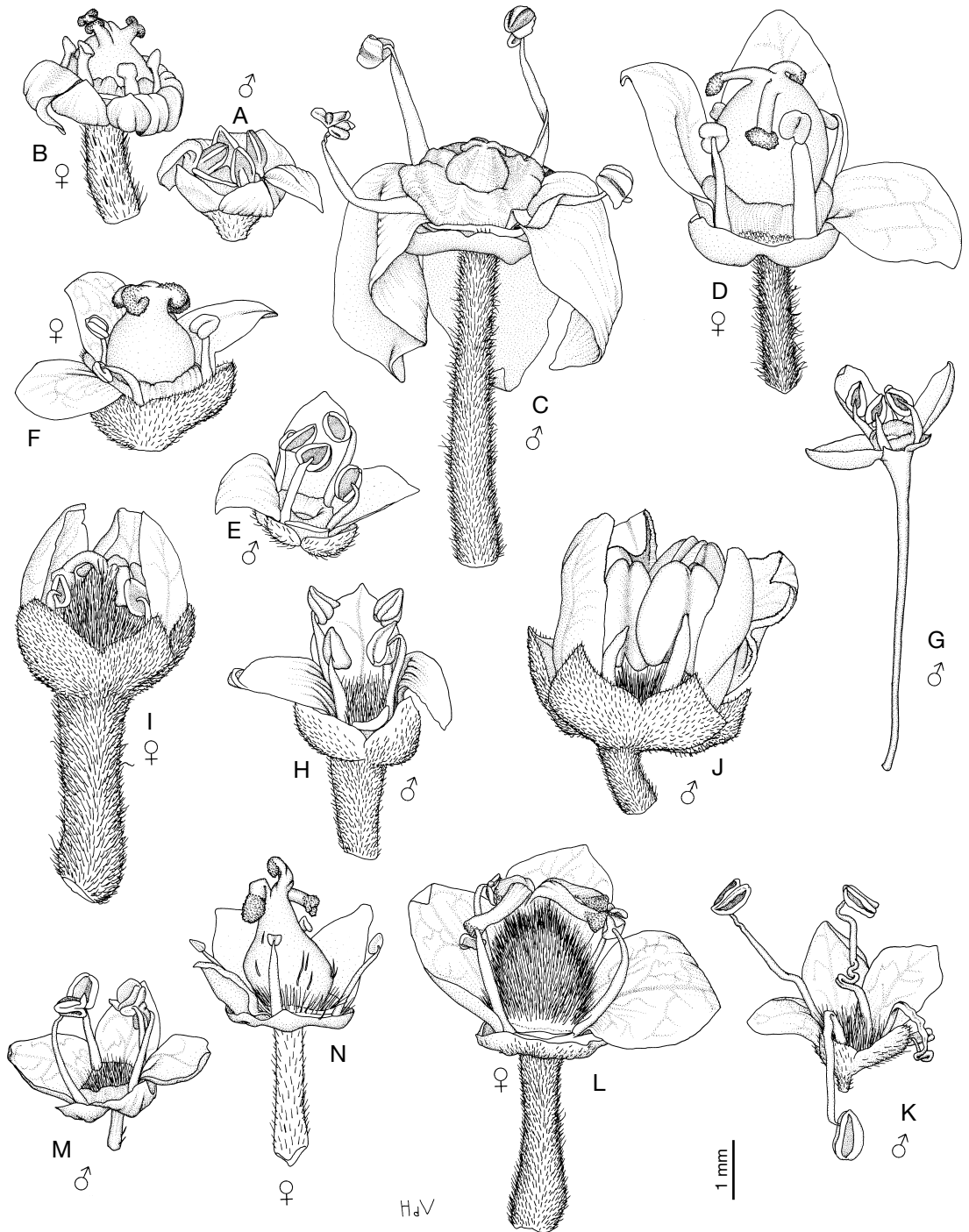


Fig. 1. — Flowers of *Trichoscypha* species, one petal removed: **A-B**, *T. arborea* (A. Chev) A. Chev.; **C-D**, *T. baldwinii* Keay; **E-F**, *T. bijuga* Engl.; **G**, *T. cavalliensis* Aubrév. & Pellegr.; **H-I**, *T. liberica* Engl.; **J**, *T. longifolia* (Hook. f.) Engl.; **K-L**, *T. lucens* Oliv.; **M-N**, *T. smythei* Hutch. & Dalz. (A, de Wilde 311, B, van der Burg 766; C, van Meer 11; D, Adam 25718; E, Stoop - van de Kasteel 210; F, Beentje 889; G, Leeuwenberg & Voorhoeve 4938; H, Jansen 2151; I, Voorhoeve 452; J, Vogel 160; K, de Koning 3909; L, Beentje 875; M, Chevalier 18792; N, Jansen 2250). Drawing by H. DE VRIES.

4. Inflorescence terminating a long shoot with simple leaves borne below, these lacking pustules (see Fig. 8); anthers ≤ 0.3 mm long 13. *T. olodiana*
- 4'. Inflorescence differently situated, if with simple leaves below (possible in *T. baldwinii*) these leaves densely and minutely pustulate on both sides; anthers > 0.3 mm long 5
5. Leaves 9-15-jugate; leaflets lanceolate to oblong, gradually long-acuminate, with 15-20 pairs of main lateral nerves, finely but not densely pustulate above, glossy on both sides, especially beneath, \pm long-hairy on midrib above and below (see Fig. 7) 9. *T. linderi*
- 5'. Above characters not associated 6
6. Male flowers sessile, the calyx (at least the lobes) usually hairy (observe more than one flower); female flowers sessile or nearly so, the glabrous ovary with a cupular to saucer-shaped disc at base 4. *T. bijuga*
- 6'. Male flowers pedicellate, at least shortly but distinctly so, the calyx glabrous or nearly so; female flowers distinctly pedicellate, the glabrous or nearly glabrous ovary with a \pm flat disc at base 7
7. Pedicel glabrous, rarely with a very few hairs 6. *T. cavalliensis*
- 7'. Pedicel hairy, at least in the basal part 8
8. Petals ≥ 2.5 mm long, stamens shorter than petals 2. *T. baldwinii*
- 8'. Petals 1-1.5(-2) mm long, stamens longer than petals 14. *T. smythei*
9. Disc (only female flowers seen) cupular, hairy only inside and on upper margin, glabrous outside 5. *T. blydeniae*
- 9'. Disc not as above 10
10. Leaflets coriaceous, glabrous; stamens shorter than petals 11
- 10'. Leaflets usually papery and/or hairy at least on the impressed midrib above, if not then at least stamens longer than petals 12
11. Leaflets smooth above, \pm oblong, up to 30×10 cm, with 13 or more pairs of main lateral nerves, these very distinct beneath; flowers (4-)5(-6) merous; anthers 1.5-2 mm long 10. *T. longifolia*
- 11'. Leaflets minutely pustulate above, narrowly elliptic, up to 28×8 cm, with 13 pairs of main lateral nerves or less, distinct or not beneath; flowers 4-merous, anthers ≤ 1 mm long 8. *T. liberica*
12. Petals (2.5-)3-5 mm long; anthers ≥ 1 mm long 12. *T. mannii*
- 12'. Petals ≤ 2.5 mm long (up to 3 mm long in female flowers); anthers < 1 mm long 13
13. Leaves (4-)6-10-jugate, rachis as well as margin and midrib of leaflets on both sides with long and short hairs, in young but fully developed leaves very distinct to the naked eye; male inflorescence with conspicuous, narrowly ovate-triangular, long-brown-hairy, rather early caducous bracts (see Fig. 3) 3. *T. barbata*
- 13'. Plants without the above set of characters 14
14. Disc and ovary usually densely brown-velutinous; fruit distinctly hairy, usually densely so 11. *T. lucens*
- 14'. Disc loosely hairy, its surface easily visible between the hairs; ovary and fruit glabrous or with a very few hairs only 15
15. Disc flat or nearly so; petals 1-1.5(-2) mm long 14. *T. smythei*
- 15'. Disc cupular; petals 2.5 mm long 9. *T. linderi*

1. *Trichoscypha arborea* (A. Chev.) A. Chev.

Explor. Bot.: 161 (1920); Keay in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958); Aubréville, Fl. For. Côte d'Ivoire, ed. 2, 2: 196, fig. 198 (1959).
Emiliomarcelia arborea A. Chev., Bull. Soc. Bot. France 58, Mém. 8d: 151 (1912). — Type: *Chevalier 22322*, Côte d'Ivoire, Yapo, fr. Oct. (holo-, P; iso-, K, WAG).

Tree up to 30 m tall, trunk to 40 cm diam. Leaves 6-8-jugate with coriaceous, glabrous leaflets. Inflorescence up to c. 80 cm long. Flowers (Aug.-Nov.) red to purplish. Fruits (Nov.-Jan.) red and glabrous at maturity. — Figs. 1A-B, 4.

HABITAT AND DISTRIBUTION. — Rain forest of Sierra Leone, Liberia, Côte d'Ivoire and Ghana. Also in western part of Lower Guinea.

SELECTED SPECIMENS. — CÔTE D'IVOIRE: *Aké Assi 13045*, Soubré, ♂ fl. Sep. (K); *Aubréville 70*, Abidjan, fr. Jan. (B, P); *J.J. de Wilde 3111*, Niéky, ♂ fl. Oct. (K, WAG). — GHANA: *Enti R 1101*, Ankasa F.R., fr. Dec. (WAG); *Jongkind et al. 1794*, Atewa Range F.R., y.fr. Oct. (WAG); *Taylor 5357*, Tarkwa, ♂ fl. Aug. (B, K, P). — LIBERIA: *Baldwin 10202*, Karmadhun, fr. Nov. (K); *Versteegh & Jansen 778*, Tchien, y.fr. Oct. (WAG); *Voorhoeve 55*, Gola Nat. For., ♂ fl. Aug. (WAG). — SIERRA LEONE: *Small 861*, Booni (Mende), fr. Dec. (K, P).

NOTE. — *Trichoscypha arborea* is rather difficult to distinguish from *T. patens* (Oliv.) Engl.,

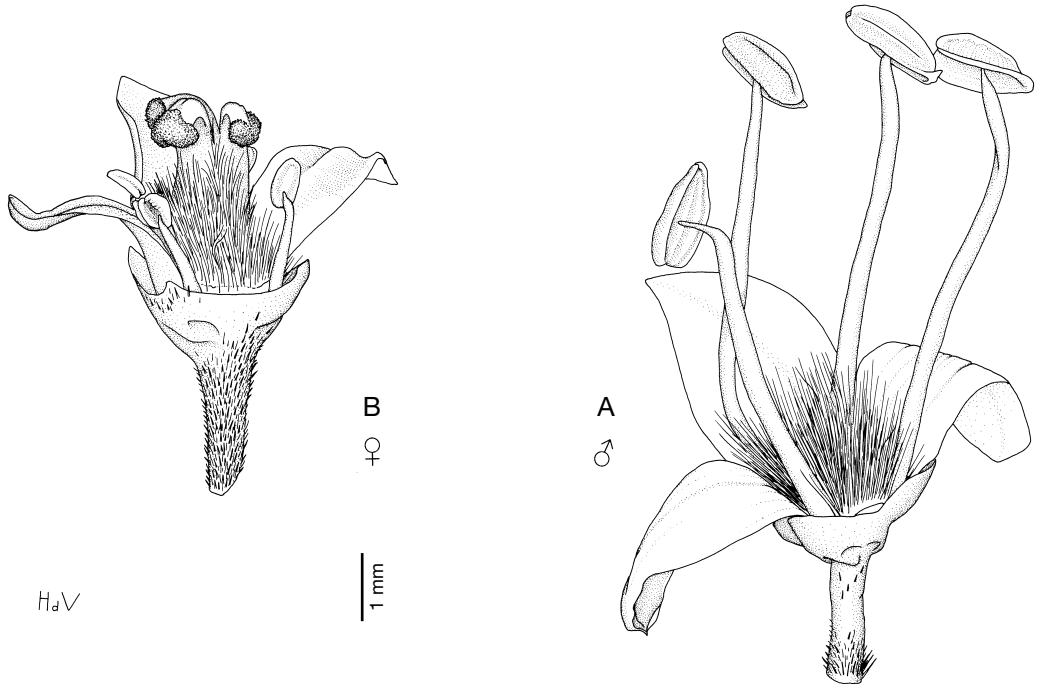


Fig. 2. — Flowers of *Trichoscypha*, one petal removed: **A-B**, *T. mannii* Hook. f. (A, Versteegh & den Outer 739; B, Talbot 1278). Drawing by H. DE VRIES.

a common species in Lower Guinea. Both occur in Nigeria and western Cameroun. Apart from the difference in flower colour, the two species look in fact quite different, especially their leaves, although these differences are not so easy to circumscribe (see KEAY, 1958: 734). The distinction between these two taxa will be dealt with when treating *Trichoscypha* from Lower Guinea.

2. *Trichoscypha baldwinii* Keay

Bull. Jard. Bot. Brux. 26: 206 (1956); in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958). — Type: *Baldwin 6938*, Liberia, Zeahtown, ♂ fl. Aug. (holo-, K).

Small tree up to 10 m tall, trunk to c. 6 cm diam. Leaves 4-6(-8)-jugate, sometimes unifoliate; leaflets papery, minutely and densely pustule

late on both sides, glabrous except for the midrib on both sides. Inflorescence slender, rather lax, up to 75 cm long. Flowers (June-Sep.) red with a yellow disc, stamens inflexed. Fruits (Nov.-Jan.) glabrous, ellipsoid, 2-2.5 × 1 cm, black at maturity. — Figs. 1C-D, 4.

HABITAT AND DISTRIBUTION. — Rain forest of Sierra Leone, Liberia, Côte d'Ivoire, and Ghana.

SELECTED SPECIMENS. — CÔTE D'IVOIRE: *Chatelain & Téré 1302*, Guiglo, fl. buds June (G, WAG); *Guillaumet 1638*, Forêt de Keilbly, ♂ fl. July (P). — GHANA: *Enti FH 7536*, Neung F.R., y.fr. Oct. (B, K, WAG); *Vigne 1983*, Bonsa Su, ♂ fl. buds May (K). — LIBERIA: *Adam 25178*, Nimba, ♀ fl. June (K); *de Gier & Goll 188*, Lofa, fr. Jan. (WAG); *Jansen 2154*, 18 miles S of Tchien, ♂ fl. July (P, WAG); *Leeuwenberg & Voorhoeve 4917*, 32 km N of Kakata, ♂ fl. Aug. (B, HBG, K, P, WAG); *van Meer 11*, Bomi Hills, ♂ fl. July (WAG). — SIERRA LEONE: *Samai 42*, Tunkia, ♂ fl. Aug. (K).

3. *Trichoscypha barbata* Breteler, *sp. nov.*

Trichoscyphae linderi Breteler *et T. mannii* Hook. *f. affinis foliis pilosis sed differt margine barbato foliorum et bracteis longipilosis conspicuis in inflorescentia masculina.*

TYPUS. — *Jansen 2150*, Liberia, 18 miles S of Tchien, ♂ fl. July (holo-, WAG; iso-, BR n.v., MO n.v., P).

Small tree to c. 10 m tall, trunk to 15 cm diam., or a liana. Branchlets densely brown-velutinous to tomentose. Leaves (4-)6-10-jugate, rachis as well as margins and midrib of leaflets on both sides with long and short hairs, densely so and very distinct in young but fully developed leaves, (partly) early caducous or not; leaflets oblong-elliptic, (2-)2.5-3.5 times as long as wide, (4.5-)10-18(-23) × (2-)4-6(-8) cm, rounded and often unequal-sided at base, acuminate, the acumen 0.5-2 cm long; main lateral nerves (11-)13-19 pairs; midrib impressed above and main laterals also impressed to a lesser extent or not, prominent beneath; petiolule 2-5(-9) mm long, hairy as rachis. Inflorescence terminal, up to c. 40 cm long, densely brown-velutinous, the female more compact than the male; bracts narrowly ovate-triangular, (3-)5-15 mm long, long-brown-hairy outside, glabrous inside, in female inflorescences less distinct than in the male ones; flowers white to pinkish, 4(-5)-merous. Male flower: pedicel up to 1.5 mm long, velutinous; calyx c. 1 mm long, subappressed-brown-hairy, the lobes ± triangular, c. 0.5 mm long; petals suberect, ovate-elliptic, 1.5-2 × c. 1 mm, glabrous; stamens longer than petals, 3-3.5 mm long, glabrous, anthers ovate, cordate at base, c. 0.7 mm long; disc ± flat, velutinous, margin shallowly lobed. Female flower: pedicel 3-4(-6) mm long, velutinous; calyx 1.5-2 mm long, subappressed-brown-hairy, the lobes ± triangular, c. 1 mm long; petals suberect to reflexed, ovate-elliptic, 2.5-4 × 1.5-2 mm, subglabrous to ± densely appressed-short-hairy outside with ± glabrous margins, glabrous inside; staminodes shorter than petals; disc densely velutinous; ovary ± depressed globose, c. 2 mm long, densely velutinous, styles 3(-4), spreading, 1-2 mm long, subglabrous to densely

velutinous, stigmas entire to shallowly bilobed. Fruit unknown. — Figs. 3, 4.

HABITAT AND DISTRIBUTION. — Rain forest of Liberia and western Côte d'Ivoire.

PARATYPES. — CÔTE D'IVOIRE: *Aubréville, Service Forestier 2789*, s.loc., ♀ fl. — (P); *Schnell G 180*, Gliké, ster. Aug. (P); *1641*, Tai, ster. Aug. (P). — LIBERIA: *Baldwin 9133*, Yila, ♀ fl. Aug. (K); *Linder 721*, Gbanga, ♀ fl. Sep. (K).

NOTE. — In the second edition of the Flora of West Tropical Africa material of this species was referred to by KEAY as *T. sp. A (Linder 721)* and *T. sp. B (Baldwin 9133)*.

4. *Trichoscypha bijuga* Engl.

Bot. Jahrb. Syst. 1: 425 (1881); Keay in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958). — Type: *Mann 2343*, Equatorial Guinea, Bioko (Fernando Po), s.loc., ♂ fl. Mar. (holo-, B, delet.; lecto-, K, designated here; iso-, A, P).

Trichoscypha preussii Engl., Bot. Jahrb. Syst. 15: 110 (1892); Keay in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958). — Type: *Preuss 463*, Cameroun, Barombi-ba-Mbu, ♂ fl. Sep. (holo-, B, delet.; lecto-, K, designated here).

Trichoscypha beguei Aubrév. & Pellegr., Bull. Soc. Bot. France 81: 648 (1934); Aubrév., Fl. For. Côte d'Ivoire, ed. 2, 2: 198, fig. 199 (1959). — Type: *Aubréville, Service Forestier 1789*, Côte d'Ivoire, Be Yakassé, ♂ fl. Aug. (holo-, P; iso-, WAG).

Shrub to small tree up to 20 m tall and c. 15 cm in diam. Leaves 2-10-jugate. Leaflets usually papery, above with an impressed hairy midrib. Inflorescence usually on a leafy shoot, above, between or just below the leaves, often shaply reflexed at base and pendulous. Flowers (Aug.-Sep.) white to pale-red, sessile or nearly so. Fruits (Oct.-Dec.) ellipsoid, up to ± 3 × 1.5 cm, red, glabrous. — Figs. 1E-F, 4.

HABITAT AND DISTRIBUTION. — Rain forest of Liberia, Côte d'Ivoire, and Ghana. Also known from Lower Guinea.

SELECTED SPECIMENS. — CÔTE D'IVOIRE: *Aké Assi 12963*, E of Sakré, ♂ fl. Aug. (K); *Beentje 889*, 10 km ESE Taï, ♀ fl. Sep. (WAG); *W. de Wilde c.s. 1039*,

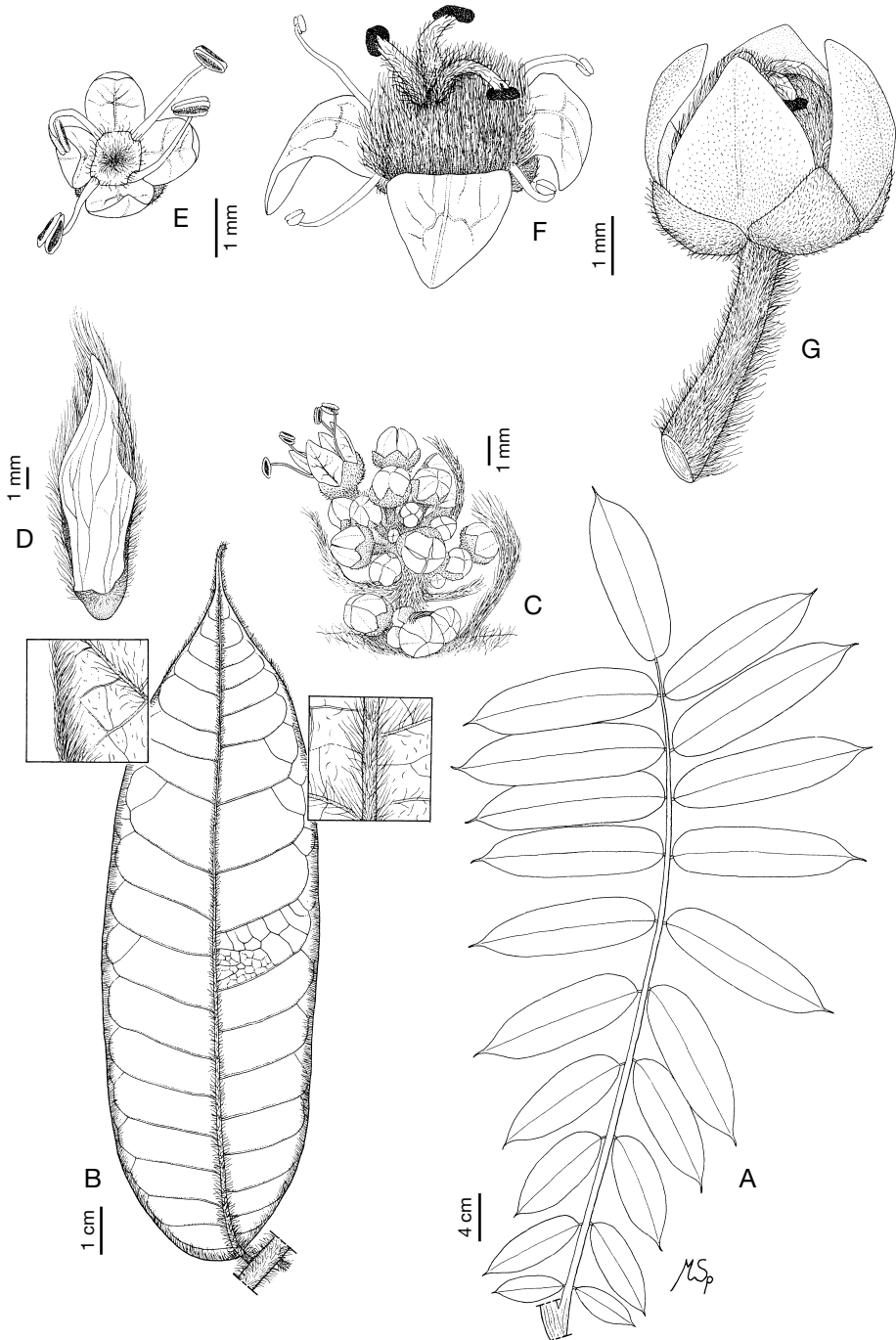


Fig. 3. — *Trichoscypha barbata* Breteler: **A**, leaf; **B**, leaflet, lower surface with detail of midrib and margin; **C**, part of male inflorescence; **D**, bract; **E**, male flower from above; **F-G**, female flowers. (A-E, *Jansen 2150*; F-G, *Linder 721*). Drawing by M. SPITTELER.

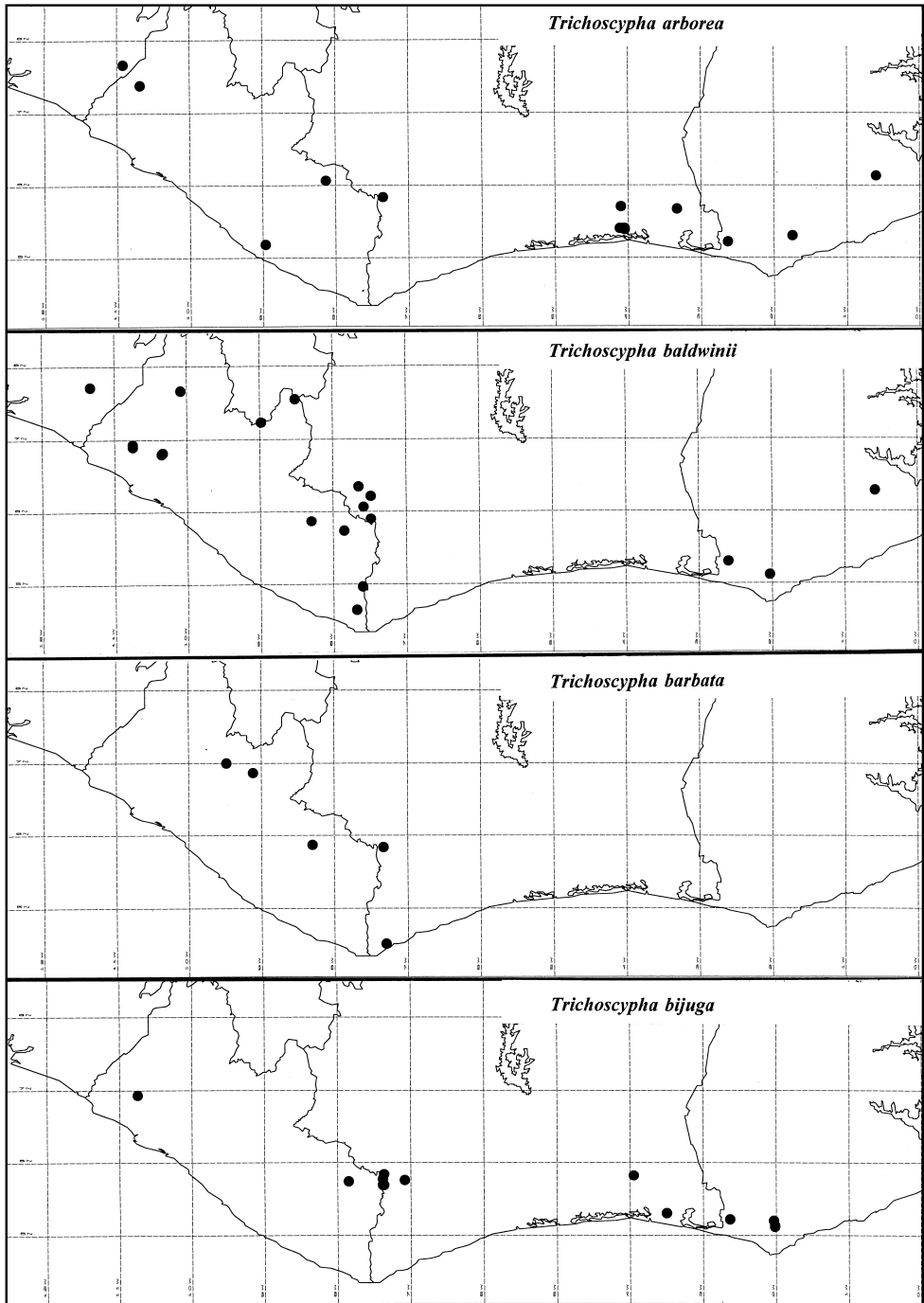


Fig. 4. — Distribution of *Trichoscypha* species 1-4.

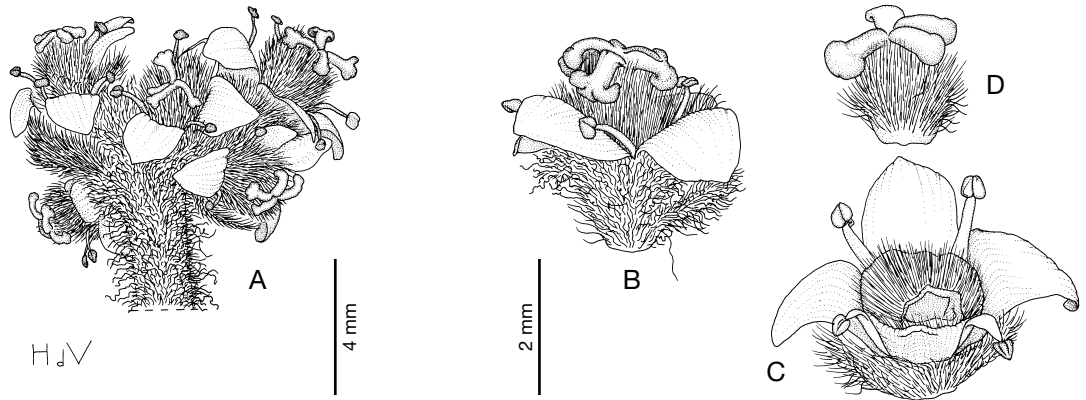


Fig. 5. — *Trichoscypha blydeniae* Breteler. **A**, part of female inflorescence; **B**, female flower; **C**, female flower, pistil removed; **D**, pistil. (A-D, Blyden 929). Drawing by H. DE VRIES.

Troya, fr. Oct. (K, P, WAG). — GHANA: *Enti & Awnah R 1151*, Ankassa F.R., fr. Oct. (K); *Enti FE 2121*, Neung F.R., y.fr. Sep. (WAG); *FH 7462*, *ibid.*, fr. Oct. (K, P). — LIBERIA: *Baldwin 6974*, Zeahtown, ♂ fl. Aug. (K); *Stoop - van de Kastelee 210*, Gola Nat. For., ♂ fl. Aug. (WAG).

5. *Trichoscypha blydeniae* Breteler, *sp. nov.*

Trichoscyphae bijugae Engl. *affinis folio et floribus sessilibus sed differt pistillo piloso et disco cupuliformi intra et ad marginem superum piloso autem extra glabro.*

TYPUS. — *Blyden 929*, Liberia, Grand Gedeh, Tchien, along road from Zwedru to Sinoe, ♀ fl. July (holo-, WAG; iso-, K).

Small tree, ± 5 m tall, trunk c. 5 cm in diam. Branchlets velutinous-tomentose, glabrescent. Leaves 5-8-jugate; petiole, rachis and petiolules velutinous-tomentose, glabrescent; leaflets narrowly elliptic, 2.5-4 times as long as wide, (6-)12-15(-20) × (2-)3-6 cm, rounded to shortly cuneate at base, acuminate, the acumen slender, 0.5-1.5 cm long; midrib impressed and hirsute above, prominent beneath, the (10-)13-16 pairs of main laterals ± plane above, prominent beneath, both with short hairs mixed with some long hairs, much less densely so on the main laterals, the remaining surface beneath sparsely appressed-short-hairy to almost glabrous. Inflorescence (sub)terminal, short-brown-hairy. Male flower

unknown. Female flower: 4(-5)-merous, sessile; calyx appressed-hairy outside, 1-1.5 mm long, the lobes half as long; petals ovate-elliptic, ± 2.5 × 2 mm, reflexed, usually hairy outside, especially so in a central band, glabrous inside; staminodes distinctly shorter than petals, ± as long as pistil; disc cupular, glabrous outside, hairy on margin and inside; pistil subglobose, ± 1.5 mm high, 1.5-2 mm in diam.; ovary densely hairy; styles 4, ± appressed against ovary, 0.5-0.7 mm long, the stigmas shallowly bilobed. Fruit ellipsoid, c. 1.5 × 1 cm, subappressed-brown-hairy. — Figs. 5, 9.

HABITAT AND DISTRIBUTION. — Rain forest of Liberia.

PARATYPE. — LIBERIA: *Versteeg & Jansen 794*, Tchien, fr. Oct. (K, WAG).

NOTE. — This species is named after Miss Florence BLYDEN, curator of the Harley Herbarium (LIB) in Monrovia at the time she collected the type specimen.

6. *Trichoscypha cavalliensis* Aubrév. & Pellegr.

Bull. Soc. Bot. France 81: 647 (1934); Keay in Hutch. & Dalz., *Fl. West Trop. Afr.*, ed. 2, 1: 736 (1958); Aubréville, *Fl. For. Côte d'Ivoire*, ed. 2, 2: 200 (1959). — Type: *Chevalier 19834*, Côte d'Ivoire, between Taté and Tabou, ♂ fl. Aug. (holo-, P).

Understory tree up to c. 20 m tall, trunk to \pm 20 cm diam. Leaves c. 4-7-jugate; leaflets papery, glabrous or nearly so, apex caudate-acuminate, with glabrous impressed midrib above. Inflorescence lax, (sub)terminal, up to \pm 50 cm long with thinly pedicelled, small, glabrous, whitish, male flowers. Female flowers unknown. Fruits glabrous. — Figs. 1G, 9.

HABITAT AND DISTRIBUTION. — Rain forest of Liberia, Côte d'Ivoire, and Ghana.

SPECIMENS EXAMINED. — CÔTE D'IVOIRE: *Chevalier 19834*, between Taté and Tabou, ♂ fl. Aug. (P, type). — GHANA: *Chipp 331*, Ankassa, fr. Aug. (K); *Enti R 1104*, Ankassa F.R., fr. Dec. (WAG); *J.B. Hall 2645*, Tarkwa, fr. Oct. (K). — LIBERIA: *Baldwin 6977*, Zeahtown, fl. b. Aug. (K); *Cooper 107*, Dukwai R., fr. Oct. (BM, K); *Leeuwenberg & Voorhoeve 4938*, 32 km N of Kakata, ♂ fl. Aug. (K, P, WAG).

7. *Trichoscypha laxissima* Breteler, *sp. nov.*

Trichoscyphae baldwinii Keay *affinis sed foliis laevibus non pustulatis, inflorescentia lax et pedicellis longioribus differt*; *Trichoscyphae cavalliensis* Aubrév. & Pellegr. *affinis sed floribus multo majoribus differt*.

TYPUS. — *Stoop - van de Kastele 186*, Liberia, Snofere Beach, ♂ fl. Aug. (holo-, WAG).

Shrublet. Branchlets appressed-puberulous. Leaves 2-3-jugate, petiole, rachis and the 2-3 mm long petiolules appressed-puberulous; leaflets papery, smooth, ovate-elliptic, 2.5-3 times as long as wide, 6-9 \times 2.5-3 cm, shortly cuneate at base, apex caudate-acuminate, the acumen 1-1.5 cm long, often curved, obtuse to emarginate; lateral nerves 9-13 pairs, rather obscure on both sides; midrib above with an erect-hairy furrow, leaflets otherwise glabrous except for a few hairs on the midrib beneath and the top of the acumen. Male inflorescence terminal, very lax, nearly glabrous. Flowers pink, \pm concentrated at the ends of the lateral branches, 4-merous, glabrous. Pedicel 10-12 mm long; calyx \pm 1 mm long, shallowly lobed; petals ovate-elliptic, 3.5 \times 2 mm, spreading; stamens shorter than petals, 3 mm long, anthers \pm 0.7 mm long; disc quadrate, \pm flat. Female flower unknown. Fruit unknown. — Figs. 6, 9.

HABITAT AND DISTRIBUTION. — Only known from the type locality near Monrovia, Liberia, a riverbank in the Firestone Plantation.

8. *Trichoscypha liberica* Engl.

Bot. Jahrb. Syst. 15: 108 (1892); Keay in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 737 (1958). — Type: *Naumann s.n.*, Liberia, near Monrovia, ♂ fl. Aug. (holo-, B, delet.). Neotype (designated here): *Jansen 2151*, Liberia, 18 miles S of Tchien, ♂ fl. July (WAG; iso-, BR n.v., MO n.v., P).

Shrub or small tree to 10 m tall, trunk to 15 cm in diam. Leaves 3-5-jugate; leaflets coriaceous, glabrous, minutely pustulate above, elliptic, up to 28 \times 8 cm with 13 pairs of main lateral nerves or less. Inflorescence axillary or terminal. Male flowers purple-red. Fruit unknown. — Figs. 1H-I, 9.

HABITAT AND DISTRIBUTION. — Rain forest of Liberia.

SPECIMENS EXAMINED. — LIBERIA: *Jansen 2151*, 18 miles S of Tchien, ♂ fl. July (P, WAG), neotype; *Voorhoeve 452*, Monrovia, ♀ fl. Sep. (WAG); *1209B*, Duport, ♀ fl. Aug. (K).

NOTE. — The neotype that has been designated does not fit the original description of *T. liberica* in all aspects. The number of lateral nerves for instance are 4-6 in the original diagnosis, much lower than in the specimens assigned to this species in this publication. Analysis of ENGLER's description reveals that his mention of 4-6 veins must be too low. He described the size of the leaflets as 10-15 \times 5-6 cm, and the nerves as being 1-1.5 cm apart. Based on these data the number of main laterals must therefore have been higher than 4-6 pairs. The second notable difference is seen in the male flowers, which ENGLER described as sessile whereas in the neotype the flowers have a pedicel of 1-1.5 mm. This difference may be of little importance as, at least in some species (e.g. *T. lucens*), this element varies to the same degree.

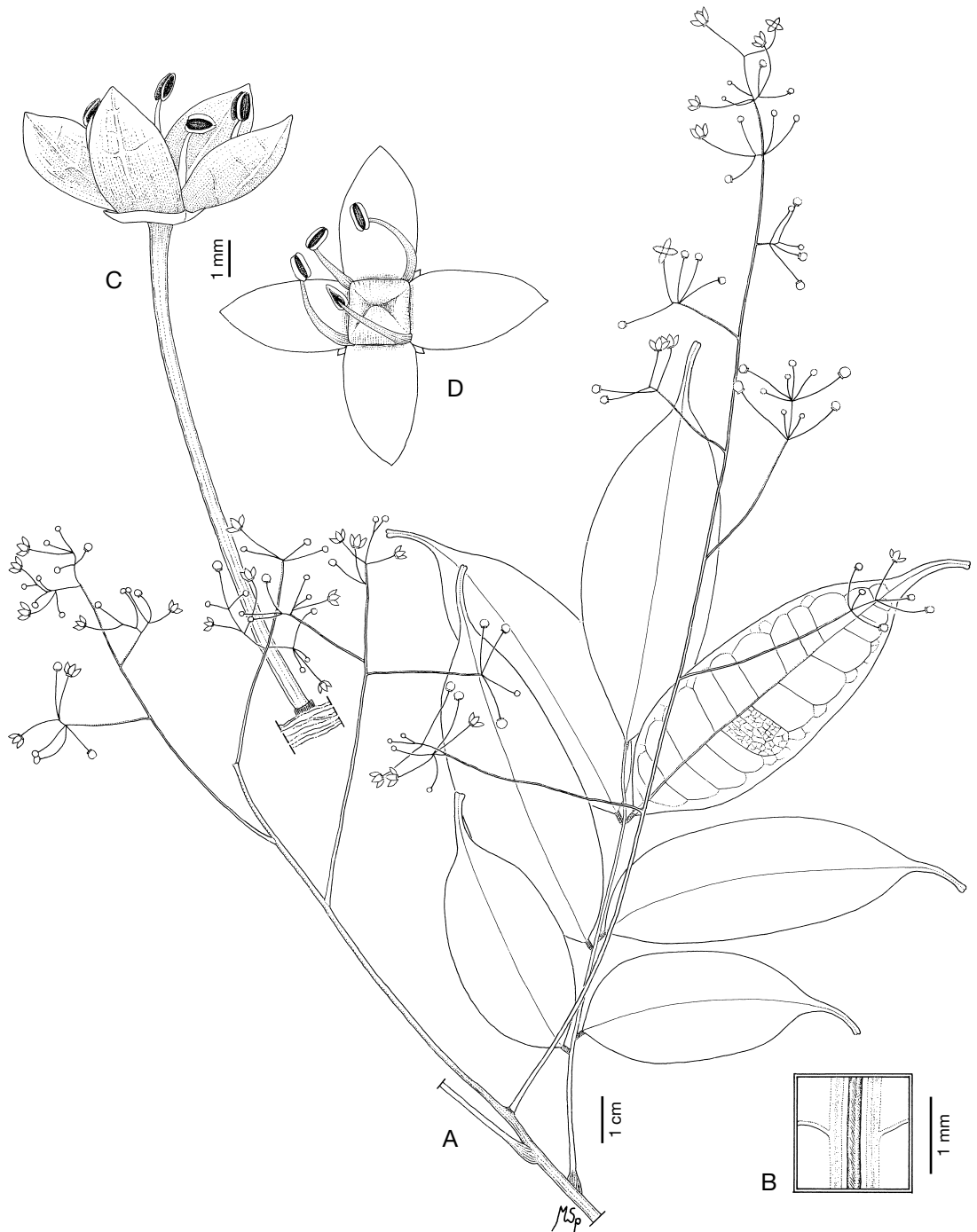


Fig. 6. — *Trichoscypha laxissima* Breteler: **A**, flowering branch; **B**, detail of midrib above; **C**, male flower; **D**, male flower from above. (A-D, Stoop - van de Kastelee 186). Drawing by M. SPITTELER.

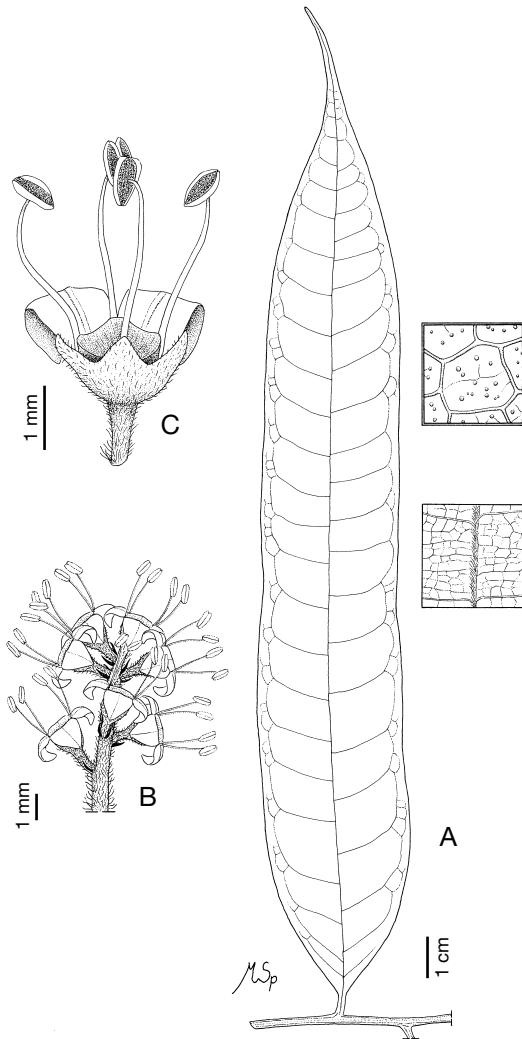


Fig. 7. — *Trichoscypha linderi* Breteler: **A**, leaflet, upper surface, with enlarged detail of midrib and pustules; **B**, part of male inflorescence; **C**, male flower. (A, *de Gier & Goll 195*; B-C, *Linder 1329*). Drawing by M. SPITTELER.

9. *Trichoscypha linderi* Breteler, sp. nov.

Trichoscyphae barbatae Breteler *affinis foliis multi-jugis et foliolis multinerviis sed differt indumento barbato nullo in margine foliolorum et disco glabro vel fere glabro*.

TYPUS. — *Linder 1329*, Liberia, Bumbumi - Moala, ♂ fl. Nov. (holo-, A; iso-, K).

Small tree to c. 10 m tall, trunk c. 10 cm in diam. Leaves ± crowded at the top, up to c. 1.4 m long, 9-15-jugate; rachis short-hairy, mixed with longer hairs or not; leaflets lanceolate to oblong, 20-35 × 3-6 cm, with 15-20 pairs of main lateral nerves, widely cuneate at base, gradually tapering into a narrow acumen up to 3 cm long, midrib long-hairy both sides, less densely to sparsely so on main laterals and the remaining surface beneath, firmly but not densely pustulate above, glossy on both sides, especially so beneath. Male inflorescence born below the leaves (at least in the type specimen), rather shaggy pilose. Male flowers 4-merous; pedicel up to 1 mm long, sparsely appressed-hairy; calyx rather wide, ± cupular, c. 1.5 mm long, sparsely appressed-hairy, the lobes triangular, c. 0.7 mm long; petals sharply reflexed, elliptic, 2.5 × 1.5 mm, glabrous; stamens ± suberect, longer than petals, 3-3.5 mm long, glabrous, anthers ± 0.8 mm long; disc cupular, shallowly lobed, glabrous or with a few hairs. Female flowers unknown. Fruit plum-like, c. 2.5 × 2 cm, smooth, glabrous, red at maturity. — Figs. 7, 9.

HABITAT AND DISTRIBUTION. — Rain forest of Liberia.

PARATYPE. — *De Gier & Goll 195*, 58 miles E of Bopulu, fr. Jan. (WAG).

NOTE. — See under *Trichoscypha smythei* Hutch. & Dalz.

10. *Trichoscypha longifolia* (Hook. f.) Engl.

Bot. Jahrb. Syst. 1: 425 (1881); Key in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958). — *Dupuisia ? longifolia* Hook. f., Fl. Nigrit.: 287 (1849). — Type: *Vogel 160*, s.loc., ♂ fl. (holo-, K).

Tree to 25 m tall, trunk to 30 cm in diam. with clean bole and no buttresses. Leaves 6-9-jugate; leaflets coriaceous, smooth, glabrous, oblong-lanceolate, up to 30 × 10 cm, with 13 or more pairs of main lateral nerves, distinct beneath, midrib impressed above. Inflorescence (sub)terminal or borne below the leaves. Flowers (July-Sep.)

red-brown, 5(-6) merous, in the male ones stamens shorter than petals. Fruits (Nov.-May) ellipsoid, slightly oblique, laterally compressed, $2.5 \times 1.5-2 \times \pm 1$ cm, glabrous, dehiscent (fide Cooper 435). — Figs. 1J, 9.

HABITAT AND DISTRIBUTION. — Rain forest of Sierra Leone and Liberia.

SPECIMENS EXAMINED. — LIBERIA: *Baldwin 10236*, Zuie, fr. Nov. (K); *Cooper 366*, Dukwai R., ♂ fl. Sep. (K); 435, fr. May (K); *Leeuwenberg & Voorhoeve 4921*, 32 km N of Kakata, fr. Aug. (WAG). — SIERRA LEONE: *Fox 108*, Kangama, fl. b. May (K); *Sawyer FHK 13572*, Dodo Hills F.R., fr. Jan. (K); *Thomas 885*, Makump, ♂ fl. July (K); *Vogel 160*, s.loc., ♂ fl. (K), type.

11. *Trichoscypha lucens* Oliv.

Fl. Trop. Afr. 1: 444 (1868). — Type: *Mann 1749*, Equatorial Guinea / Gabon, River Muni, ♂ fl. Aug. (lecto-, K; isolecto-, A), see note.

Trichoscypha albiflora Engl., Bot. Jahrb. Syst. 36: 223 (1905); Keay in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958). — Type: *Dinklage 2024*, Liberia, Fishtown, ♂ fl. Aug. (holo-, B; iso-, A, K).

Trichoscypha chevalieri Aubrév. & Pellegr., Bull. Soc. Bot. France 81: 647 (1934); Keay in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958); Aubréville, Fl. For. Côte d'Ivoire, ed. 2, 2: 196, fig. 199 (1959). — Type: *Chevalier 19835*, Côte d'Ivoire, between Tahé and Tabou, ♂ fl. Aug. (holo-, P).

Trichoscypha oba Aubrév. & Pellegr., Bull. Soc. Bot. France 81: 648 (1934); Keay in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958); Aubréville, Fl. For. Côte d'Ivoire, ed. 2, 2: 198, fig. 200 (1959). — Type: *Martineau 297*, Côte d'Ivoire, Banco, ♂ fl. Oct. (lecto-, P, designated here; isolecto-, WAG), see note.

Trichoscypha yapoensis Aubrév. & Pellegr., Bull. Soc. Bot. France 81: 649 (1934); Keay in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958); Aubréville, Fl. For. Côte d'Ivoire, ed. 2, 2: 198, fig. 199 (1959). — Type: *Aubréville 593*, Côte d'Ivoire, Yapo NE, fr. (holo-, P; iso-, WAG).

Shrub to small tree up to c. 15 m tall, trunk to 15 cm in diam., with or without buttresses. Leaves (4-)5-8(-10)-jugate; leaflets papery to coriaceous, the lowest pair close to the stem or not, (8-)13-25(-30) \times (4-)5-7(-9) cm, with 10-

16 pairs of main lateral nerves, \pm glabrous or appressed-short-hairy beneath, the midrib impressed above, hairy or not, minutely pustulate or not above. Inflorescence brown-velutinous, (sub)terminal or borne below the leaves. Flowers (June-Oct.) with white to pinkish petals. Fruits (Oct.-Nov.) pink to wine-red, densely to more sparsely hairy, subellipsoid, up to c. 2×1.5 cm. — Figs. 1K-L, 9.

HABITAT AND DISTRIBUTION. — Rain forest of Liberia, Côte d'Ivoire, and Ghana, extending to Lower Guinea.

SELECTED SPECIMENS. — CÔTE D'IVOIRE: *Aubréville 593*, Yapo NE, fr. (P, WAG), type of *T. yapoensis*; *Beentje 228*, Nganda-Nganda, ♀ fl. July (WAG); 615, ibid., ♂ fl. July (WAG); *Boughy 18128*, along Tai, ♂ fl. Aug. (K); *Chevalier 19835*, between Tahé and Tabou, ♂ fl. Aug. (P), type of *T. chevalieri*; *J.J. de Wilde 66*, Adiopodoumé, ♂ fl. July (WAG); *Jolly 154*, Dabou, fr. Nov. (P); *Leeuwenberg 4981*, Abouabou, fr. Aug. (B, K, WAG); *Martineau 297*, Banco, ♂ fl. Oct. (P, WAG), type of *T. oba*. — GHANA: *Enti 2114*, Neung F.R., ♂ fl. Sep. (WAG); *J.B. Hall GC 35530*, Anrebo-Aluabo Rd., fl. b. July (K); *Jongkind 3771*, Cape Three Points F.R., ♂ fl. Oct. (WAG). — LIBERIA: *Cooper 114*, Dukwai R., fr. Nov. (K); *Dinklage 2024*, Fishtown, ♂ fl. Aug. (A, B, K), type of *T. albiflora*; *Jansen 758*, Jenatam, ♂ fl. Sep. (WAG).

NOTES. — OLIVER based this species on *Mann 1749* (♂ fl.) and *Mann 1830* (young fruits), both collected at 1°N latitude, River Muni, in Central Africa. Although OLIVER did not cite MANN's material by number, it is clear that he had two collections at hand for his description, a male and a female plant. Both specimens have been located at K and both bear the name *Trichoscypha lucens* in the same handwriting. They are not conspecific however, and ENGLER (1881) based his *Trichoscypha oliveri* on *Mann 1830*. Two years later, in the monograph of the Anacardiaceae, ENGLER (1883) treated both *T. lucens* and *T. oliveri*. Here, he explicitly restricted the former name to *Mann 1749*, which lectotypified *T. lucens* by this specimen.

Trichoscypha oba was based on three syntypes, *Martineau 297* and *317* from the Banco Forest near Abidjan, and *Jolly 154* from Dabou. *Martineau 297* has been chosen lectotype because

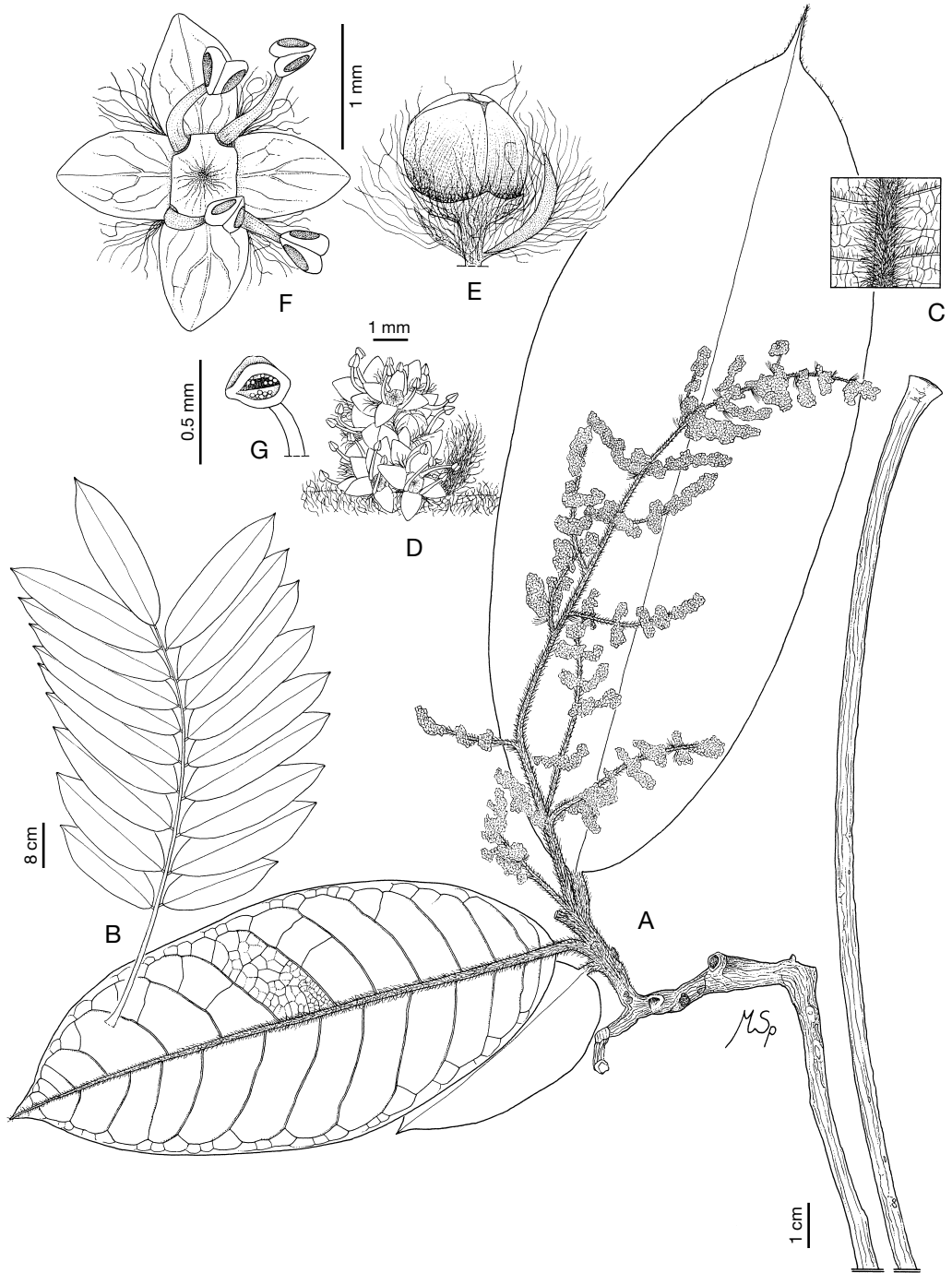


Fig. 8. — *Trichoscypha olodiana* Breteler: **A**, flowering branch with simple leaves; **B**, compound leaf; **C**, detail of midrib beneath; **D**, part of male inflorescence; **E**, male flower bud; **F**, male flower from above; **G**, stamen. (A-C, Hall & Abbiw GC 45542; D-G, Voorhoeve 1215). Drawing by M. SPITTELER.

it is the only collection with male flowers and the only one that is duplicated in another herbarium.

Trichoscypha lucens is the most common and the most variable member of the genus in Upper Guinea (see also note under *T. smythei*). This variation especially concerns the leaves in many of their aspects. The habit of *T. lucens*, however, has always been quoted as a shrub or small tree, never a liana. The lectotype, *Mann 1749*, however, is described as a "climbing plant of 30 feet".

12. *Trichoscypha mannii* Hook. f.

In Benth. & Hook. f. Gen. Pl. 1: 423 (1862); Keay in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958). — Type: *Mann 941*, Equatorial Guinea / Gabon, Gaboon R., lat. 1° N., ♀ fl. July (holo-, K). *Trichoscypha atropurpurea* Engl., Bot. Jahrb. Syst. 36: 222 (1905); Keay in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958). — Type: *Dinklage 2082*, Liberia, Fishtown, ster. Oct. (holo- (?), B; iso-, A), see note.

Shrub to small tree up to c. 10 m tall, trunk to 10 cm in diam. Leaves up to 11-jugate, usually with hispid petiole and rachis, the lowest pair of leaflets close to the stem or not; leaflets papery, oblong-elliptic, often narrowly so, usually slender-tipped and with long hairs on main nerves beneath, the midrib impressed and hispid above. Inflorescence (sub) terminal or not, shorter than the leaves, hispid. Flowers (Aug.-Nov.) relatively large, dark red. Fruits (Nov.) subovoid, 2-2.5 × 1-1.5 cm, dark-red, sparsely hispid, glabrescent. — Figs. 2A-B, 9.

HABITAT AND DISTRIBUTION. — Rain forest from Liberia to Ghana. Also in Lower Guinea.

SPECIMENS EXAMINED. — CÔTE D'IVOIRE: *Bégué 2960*, Yapo, ster. May (P); *Breteler 6090*, 48 km N of Abidjan, fr. Nov. (WAG); *Chatelain & Téhé 816*, Agboville, ster. Nov. (G, WAG); *J.J. de Wilde 579*, Yapo, y.fr. Sep. (WAG); *Nozeran s.n.*, N'zida, ♂ fl. Aug. (P); *Versteegh & Den Outer 739*, Anyama-Adzopé Rd., ♂ fl. Sep. (WAG). — GHANA: *Vigne 1439*, Axim, ♂ fl. Nov. (K). — LIBERIA: *Baldwin 10283A*, Javajai, ♂ fl. Nov. (K); *Dinklage 2082*, Fishtown, ster. Oct. (A, B); *Linder 1122*, Kolubanu, ♂ fl. Oct. (K).

NOTE. — The sterile specimen *Dinklage 2082* received on loan from B may be a duplicate of the original material of *T. atropurpurea*, which was described with male flowers.

13. *Trichoscypha olodiana* Breteler, sp. nov.

Trichoscyphae bijugae Engl. *affinis floribus masculinis circum sessilibus et disco glabra sed differt foliis simplicibus sub inflorescentia et antheris multo minoribus.*

TYPUS. — *Hall & Abbiw GC45542*, Côte d'Ivoire, Olodia, ♂ fl. Aug. (holo-, K).

Tree 4 m tall. Branchlets densely velutinous. Leaves 9-jugate or simple (see note), the petiole, rachis, petiolules and midrib of leaflets beneath woolly-velutinous, the same indumentum present on the impressed midrib above and the main laterals beneath, and to a lesser extent on remaining lower surface. Leaflets and simple leaves ± papery, elliptic to lanceolate (8-)13-30 × (3-)4-8 cm, up to 4 times as long as wide, with 11-14(-20) pairs of main lateral nerves, rounded to obtuse at base, shortly acuminate, the acumen 0.5-1 cm long acute at apex. Inflorescence terminating a long shoot with some simple leaves below, woolly-velutinous. Male flower: sessile or nearly so; calyx subappressed-hairy to almost glabrous, 0.5-1 mm long, the subtriangular lobes minute, ≤ 0.2 mm long; petals ovate-elliptic, 1-1.5 mm long, glabrous or with a few hairs outside or on both sides; stamens ± as long as petals, glabrous, anthers ≤ 0.3 mm long; disc ± flat to runcate, or concave, glabrous or with a very few hairs. Female flower and fruit unknown. — Figs. 8, 9.

HABITAT AND DISTRIBUTION. — Rain forest of Liberia and western Côte d'Ivoire.

SPECIMENS EXAMINED. — CÔTE D'IVOIRE: *Hall & Abbiw GC45542*, Olodia, ♂ fl. Aug. (K), type. — LIBERIA: *Voorhoeve 1215*, Bomi Hills, ♂ fl. Aug. (WAG).

NOTE. — The leaves below the inflorescence are described as simple, not as unifoliate, which might be expected in a family with compound

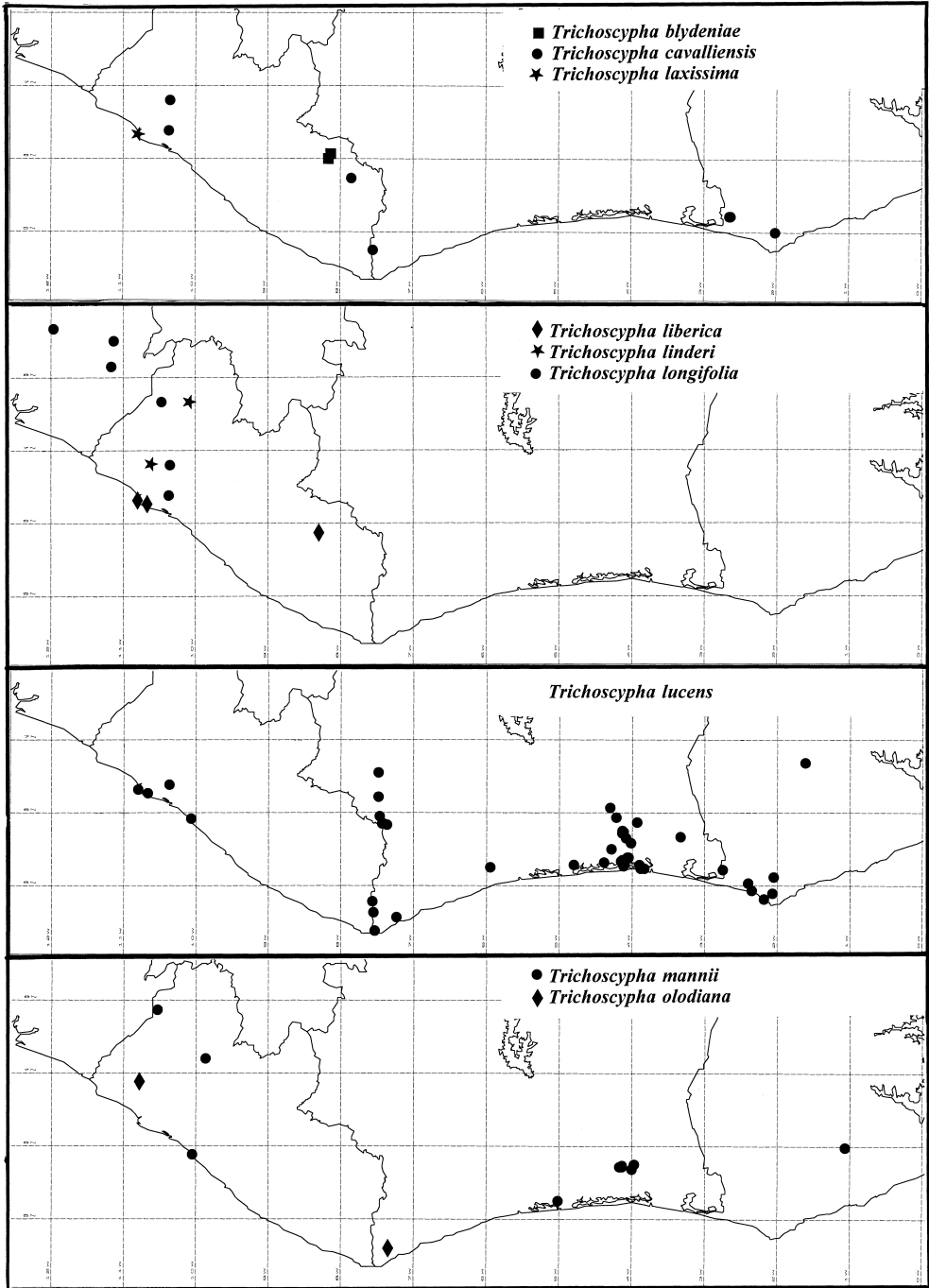


Fig. 9. — Distribution of *Trichoscypha* species 5-13.

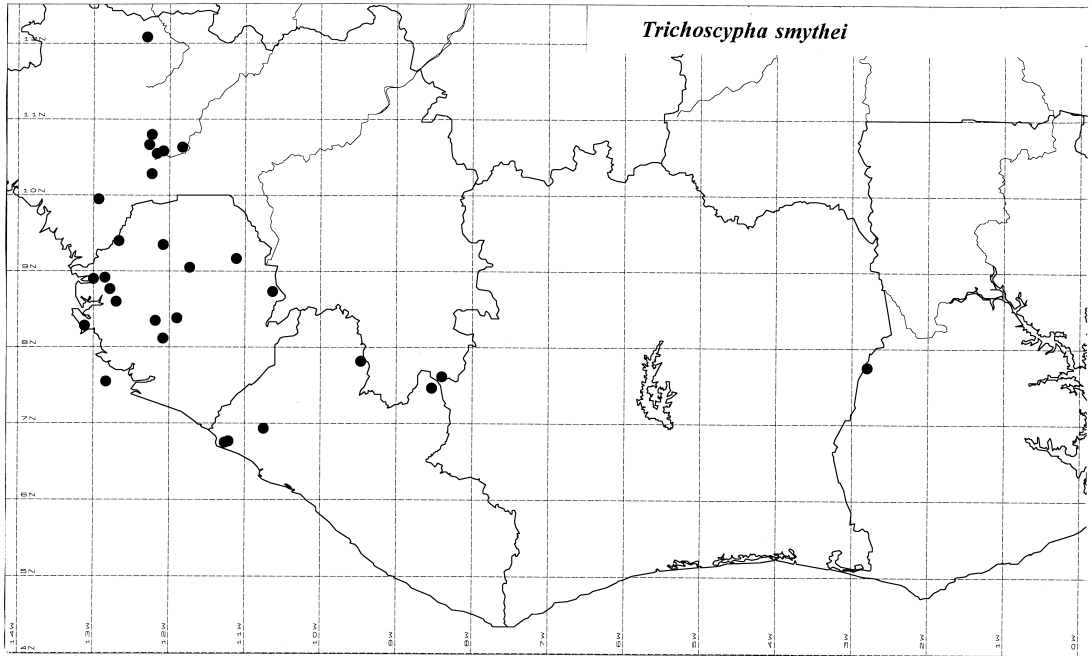


Fig. 10. — Distribution of *Trichoscypha smythei* Hutch. & Dalz.

leaves. They look simple and I have not found any indication that ‘unifoliolate’ would be a better characterization. Moreover, simple leaves do occur in Anacardiaceae, for instance in *Anacardium*, *Fegimanra*, *Heeria* and *Mangifera*.

14. *Trichoscypha smythei* Hutch. & Dalz.

Fl. West Trop. Afr., ed. 1, 1: 508 (1928); Kew Bull. 1929: 28 (1929); Keay in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958), partly (see Notes). — Type: *Unwin & Smythe 33*, Sierra Leone, Picket Hill, ♂ fl. Dec. (holo-, K).
Trichoscypha smeathmannii Keay, Bull. Jard. Bot. Brux. 26: 205, fig. 63 (1956); Keay in Hutch. & Dalz., Fl. West Trop. Afr., ed. 2, 1: 736 (1958). — Type: *Smeathmann s.n.*, s.loc. ♂ fl. — (holo-, P-LA; iso-, BM, G).

Shrub or small tree up to 15 m tall, trunk to 20 cm in diam. Leaves (2-)3-6(-7)-jugate; leaflets papery to coriaceous, lanceolate to narrowly elliptic, 2.5-4(-4.5) times as long as wide, (6-)8-

17(-27) × 2.5-5(-7) cm, shortly cuneate to rounded at base, gradually acuminate, lateral nerves often rather indistinct, c. 8-12 pairs; midrib impressed above, glabrous or nearly so. Inflorescence (sub)terminal, more rarely borne below the leaves. Flowers (Sep.-Dec.) usually pedicellate, the female ones distinctly so, white, fragrant. Fruits (Jan.-Mar.) glabrous or nearly so. — Figs. 1M-N, 10.

HABITAT AND DISTRIBUTION. — Rain forest or gallery forest up to 1,400 m altitude, from Guinea to Ghana. Not recorded from Côte d’Ivoire.

SELECTED SPECIMENS. — GHANA: *Vigne 3496*, Adamsu, ♂ fl. Dec. (P). — GUINEA: *Chevalier 12443*, Timbo, Fouta Djallon, fr. Mar. (P); *14753*, Kouria ♂ fl. (K, P); *Chillou 1846*, Friguiagbé, fr. Feb. (P); *Schnell 3836*, Mts. Nimba, fl. b. Oct. (P). — LIBERIA: *Adames 820*, Mts. Nimba, ♀ fl. Dec. (K); *Bos 2569*, Zorzor, ♂ fl. Dec. (WAG); *Jansen 2250*, Bendu, ♀ fl. Nov. (P, WAG); *van Meer 202*, Gola Nat. For. ♂ fl. Oct. (K, WAG). — SIERRA LEONE: *Deighton 1412*, Njala, ♂ fl. Oct. (K); *3616*, Mange, fr. Feb. (K); *King*

64 B, Kasawe, ♀ fl. Dec. (K); *Thomas 3278*, Bumbuna ♂ fl. Oct., (B, K); *Unwin & Smythe 33*, Picket Hill, ♂ fl. Dec. (K), type.

NOTES. — KEAY (1958) included in *T. smythei* *Linder 1329*, the type of the new species *T. linderi*. In his key to the species he used a character of this specimen, viz. that the inflorescence is born below the leaves. This feature, however, is not shown by the type (*Unwin & Smythe 33*), nor is it mentioned by HUTCHINSON & DALZIEL, the authors of *T. smythei*. KEAY in fact misinterpreted the identity of this specimen and as a consequence proposed *T. smeathmannii* as a new name for *Brucea paniculata* Lam., for which *T. smythei* was in fact available, and did not recognize that *Linder 1329* represented a new species.

Trichoscypha linderi is very different from *T. smythei*, not only by its cauliflorous habit, which occasionally occurs in the latter as well, but especially by its very different leaves and larger male flowers with a cupular disc.

Trichoscypha smythei is very closely related to *T. lucens*. I have refrained from uniting them in particular for the lack of fruiting specimens. The disc and the ovary vary from completely glabrous or with a few sparse hairs, as represented by *T. smythei*, to densely velutinous as in *T. lucens*. The scarce available fruiting material can be classified in the same way, i.e. with glabrous or nearly glabrous fruits in *T. smythei* and with densely

velutinous fruits in *T. lucens*. More fruiting material, especially from Côte d'Ivoire, is needed to decide whether *T. smythei* can be maintained as a distinct species.

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