

THE AFRICAN DICHAPETALACEAE II* THREE NEW SPECIES FROM WEST AFRICA

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INTRODUCTION

Among the material from West Africa, often identified as or confused with *Dichapetalum cymulosum* (Oliv.) Engl., there proved to be two new species of *Dichapetalum* which are described here for the first time. These species are indeed close relatives of *D. cymulosum*, but have a more Western distribution, mainly Ivory Coast. *D. cymulosum*, however, is in West Africa only known from the type locality (Nigeria, Cameroons R.), but proved to be very common in the Kribi area in Cameroun, where it has been collected several times recently by Bos and Breteler. The specimens collected in Gabon by G. Le Testu (no's 2081; 2106; 6060) doubtfully belong to this taxon. Fruiting specimens from this area are needed to prove the true identity of this material.

Also described is a new species of *Tapura*, which brings the number of African species of this mainly Tropical American genus to seven.

Dichapetalum dictyospermum Bret., sp. nov.

Fig. 1

Liana vel frutex scandens ramulis pilosis glabrescentibus. *Stipulae* subulatae. *Folia* anguste elliptica vel anguste obovata, basi cuneata, apice sensim acuminata, subglabra. *Inflorescentia* laxa, fragilis, ramulis tenuibus. *Bracteae* bracteolaeque parvae. *Flores* pedicellati. *Sepala* ovato-elliptica, reflexa. *Petala* erecta vel reflexa, glabra. *Stamina* glabra, corollam aequantia. *Connectivae* haud valde prominentes, glabrae. *Staminodia* quadrata, glabra. *Ovarium* villosum, 3-loculare. *Ovula* cum obturatori praedita. *Fructus* obovoideus, basi angustatus, apice acuminatus, glaber. *Endocarpium* coriaceum. *Testa* tenuis, brunnea, glabra, distincte venosa. *Cotyledones* extus reticulato-sulcatae, intus margine inferiori pilosae.

Liana, climbing shrub or shrub. Branches terete, brown to black, with paler, scattered lenticels, glabrous. Branchlets brown to black, mostly glossy, shortly and sparsely appressed pilose, glabrescent. *Stipules* subulate, unequal, the longer on the upper side of the branches 1.5–4 mm long, the shorter at the lower side of the branches 1–2 mm long, the latter often inserted at a higher level, but never reaching as high as the upper one, sparsely appressed pilose, glabrescent. *Leaves* on the lateral or plagiotropic branches distichous or nearly so; petiole subterete to semicircular in cross section, slightly canaliculate above, 2–5(7) mm long, sparsely appressed pilose, glabrescent; blade thinly coriaceous or papyraceous, mostly glossy at least when fresh, narrowly elliptic to narrowly obovate, 2.5–3.5 × as long as wide, (4) 10–14 cm long, (1.7) 3–4.5 cm wide, cuneate at base,

* The African Dichapetalaceae I in *Act. Bot. Neerl.* 18 (2): 375 (1969)

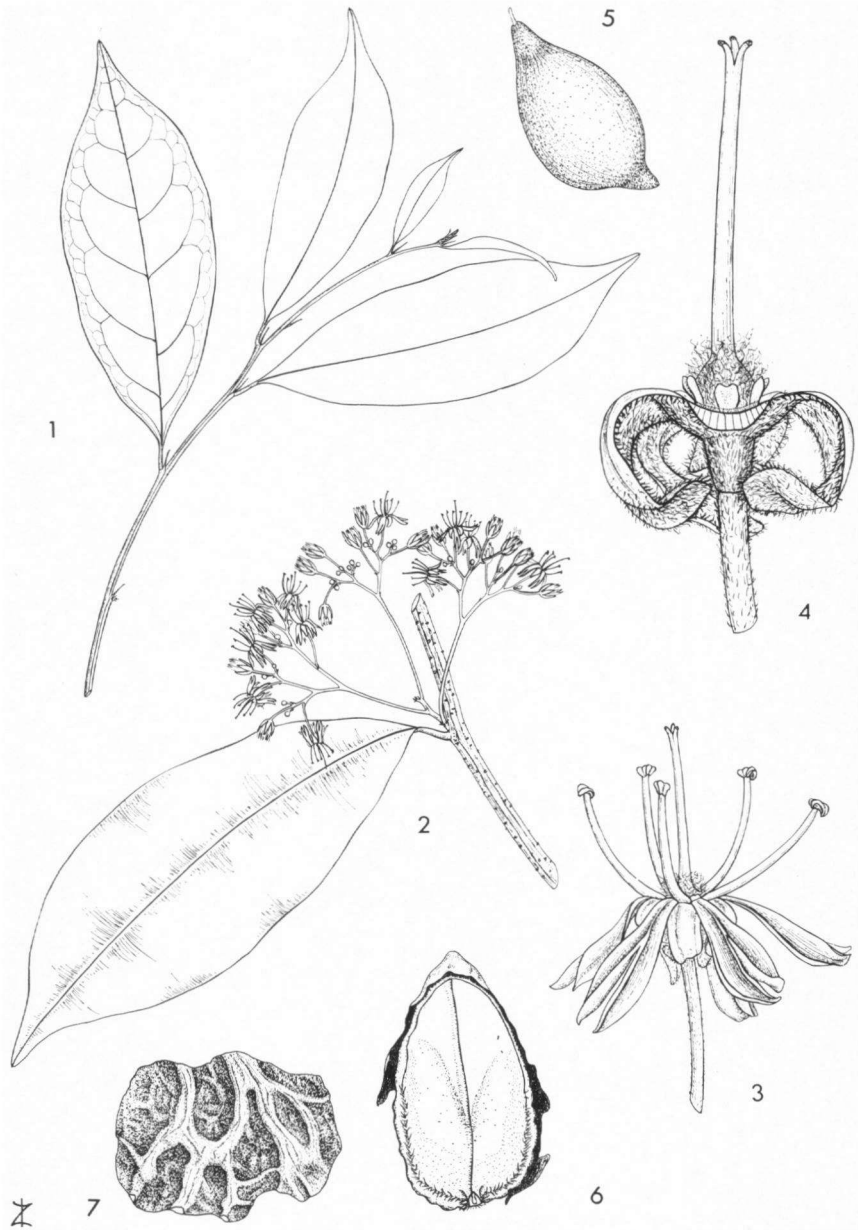


Fig. 1. *Dichapetalum dictyospermum*: 1. leafy branchlet with stipules, $3/4 \times$; 2. flowering branch, $3/4 \times$; 3. flower, $6 \times$; 4. calyx (one sepal removed) with pistil, $12 \times$; 5. fruit, $3/4 \times$; 6. cotyledon inner surface, $2\frac{1}{2} \times$; 7. part of testa seen from outside, $4\frac{1}{2} \times$. (1-4: Oldeman 962; 5-7: Leeuwenberg 1863).

gradually acuminate into an obtuse, acute or mucronate apex; midrib impressed above, prominent beneath; main lateral nerves 5–7 on each side of the midrib, prominent beneath; glabrous or with a few, scattered, mostly appressed hairs on the margin, the midrib on both sides, and the main lateral nerves beneath; glandless or with a few, small, inconspicuous, scattered glands on the lower surface. *Inflorescence* a loose, thin-branched, fragile cyme, axillary, solitary or 2–5 together on a leafless, short, axillary branch, appressed puberulous; bracts and bracteoles small, subdeltoid-subulate, ca. 0.5–1 mm long; peduncle slender, 9–20 mm long. *Flowers* pedicellate; pedicel articulate, lower part (3) 4–6 (8) mm long, upper part 0.25–0.75 mm long, tomentose. *Calyx* obtuse or rounded at base. *Sepals* reflexed, shortly united at base, ovate-elliptic, rounded or acute at top, 2–3 mm long, ca. 1 mm wide, outside and top inside tomentose. *Petals* erect, spreading or reflexed, narrowly obovate, 3–4 mm long, 1.5–2 mm bilobed, at base free or very shortly united with filaments, glabrous; lobes concave, rounded at top. *Stamens* 4 mm long; filaments laterally compressed, glabrous; anthers ca. 0.5 mm long, connective not very prominent, glabrous. *Staminodes* flattened, quadrate to slightly oblong, top obtuse or emarginate 0.2 × 0.3 mm, glabrous. *Pistil* 3.5–5 mm long; style glabrous or with a few, scattered hairs, 3-lobed at top; lobes 0.3–0.8 mm long, papillate at top; ovary villous, 0.75–1 mm long, 3-locular, with 2 pendulous collateral ovules per cel; ovules with an obturator. *Fruits* obovoid, tapering at base, acuminate at top, 3–4 cm long, 1.5–2 cm thick, yellow, smooth, glabrous. Endocarp coriaceous. *Testa* thin, brown, glabrous, firmly veined. *Cotyledons* plano-convex with a trace of endosperm between, outside reticulately grooved, inside with hairs along the lower margin, and on the short stalk of the plumule.

Type: Ivory Coast, Forêt du Banco, 3 km W. of Abidjan, *R. A. A. Oldeman 962* (WAG, holotype; K, isotype).

Ecology: Rain forest.

Distribution: Ivory Coast, near Abidjan.

Forêt du Banco, 3 km W. of Abidjan, *J. J. F. E. de Wilde 537* (WAG), 3199 (K; WAG); *ibid.* *H. C. D. de Wit 8287* (WAG); 15 km N.W. of Abidjan, Forêt de l'Anguedédou, *J. J. F. E. de Wilde 296* (WAG); *ibid.* *Leeuwenberg 1863* (K; WAG).

Notes. *D. dictyospermum* differs from *D. flicale* in the more loose, many-flowered inflorescence, the reflexed sepals, the deeper split petals and the cuneate leaf base. From *D. cymulosum* it can easily be distinguished by its inflorescence which is in *D. cymulosum* as in *D. flicale*, the indumentum of the ovary and the shape of the fruit.

This species is named *D. dictyospermum* because of its strongly net-veined seed coat.

Dichapetalum filicaule Bret., sp. nov.**Fig. 2**

Liana vel frutex scandens, ramulis atrobrunneis usque nigris, stipulae subulatae. *Folia* oblongo-elliptica, anguste obovata, basi cordata, subcordata vel rotundata, apice sensim acuminata, costa supra strigosa glabrescenti. *Inflorescentia* pauciflora. *Flores* pedicellati. *Sepala* erecta vel parum patentia, anguste oblonga usque anguste ovato-oblonga. *Petala* erecta breviter biloba. *Stamina* petala aequantes, glabra. *Staminodia* quadrata, glabra. *Ovarium* 2-3-loculare, strigulosum. Obturator parvus in ovulis adest vel deest. *Fructus* obovoideus, apice acuminatus vel obtusus basi rotundatus, 1-2-spermus, subglaber. *Mesocarpium* dulce, succosum. *Endocarpium* coriaceum, fibrosum. *Testa* brunnea, nitens.

Thin liana up to 1 cm in diam., shrublet or climbing shrub. Branches terete or subterete, dark brown to black, glabrous or glabrescent, lenticellate, rather smooth; bark later fissuring, flakes curled. Young terminal shoots mostly very slender, densely sericeous-strigose, glabrescent. *Branchlets* appressed pubescent-strigose, mostly soon glabrescent. *Stipules* subulate, mostly appressed, the upper (1.5)2-3(3.5) mm long, the lower 1-2(2.5) mm long, strigose. *Leaves* mostly distichous. Petiole subterete, sometimes canaliculate above, (1)2-3(7) mm long, densely strigose. Blade papery, medium to dark green and glossy or shining when fresh, mostly slightly bullate, oblong-elliptic to narrowly obovate, cordate, subcordate or rounded at base, gradually acuminate into a rounded, acute or mucronate apex, 2-3 times as long as wide, (3)6-9(13) cm long, (1)2-3(5) cm wide; nervation rather prominent, especially beneath, with 6-9 main lateral nerves at each side of the midrib; above with a strigose glabrescent midrib, otherwise glabrous; beneath with a few hairs on the midrib and lateral nerves, glabrescent; margin slightly revolute, hairy, glabrescent. Glands inconspicuous, often absent. *Inflorescence* cymose, (3)5-8(15) - flowered, 8-15 mm long, with small, narrowly triangular bracts and bracteoles, sericeous-tomentose. Peduncle free, 1-3(6) mm long. *Flowers* pedicellate; pedicel articulate, sericeous-tomentose; lower part 1-2.5 mm long; upper part 0-1 mm long. *Calyx* obtuse or tapering at base. *Sepals* erect or somewhat spreading, shortly united at base, narrowly oblong to narrowly ovate-obovate, 2-3 mm long, 0.75-1 mm wide, slightly concave, obtuse, rounded, acute or mucronate-apiculate at top; outside sericeous-tomentose, inside puberulous. *Petals* erect, 4-5 mm long, 0.5-1.5 mm split; at base very shortly united with filaments; glabrous or with a very few hairs outside below the split; lobes concave, mostly rounded at top. *Stamens* 4-5 mm long, glabrous. Filaments broadening to the base, laterally compressed. Anthers 0.3-0.4 mm long; connective prominent or not. *Staminodes* small, quadrate to slightly oblong, flat, ca. 0.3 × 0.3 mm, top emarginate or bilobed, glabrous. *Pistil* 4.5-5.5 mm long. Style glabrous or with a very few hairs; 2-3-lobed at top; lobes subequal 0.3-1.5 mm long. *Ovary* subglobose, abruptly or gradually tapering into style, 2-3-locular, strigulose. Ovules without or with a small obturator. *Fruit* obovoid or broadly obovoid (2-seeded), rounded at base, acuminate (sometimes rounded) at top, 2.2-3.5 cm long, 1.5-2.6 cm in diam., 1-2-seeded. *Exocarp* smooth, glossy, glabrous or with a very few hairs, orange at maturity, ca. 1 mm thick. *Mesocarp* 1-2 mm thick, sweet, juicy. *Endocarp* firmly coriaceous, fibrous, smooth and shining inside. *Seed* ovoid, 15-20 mm

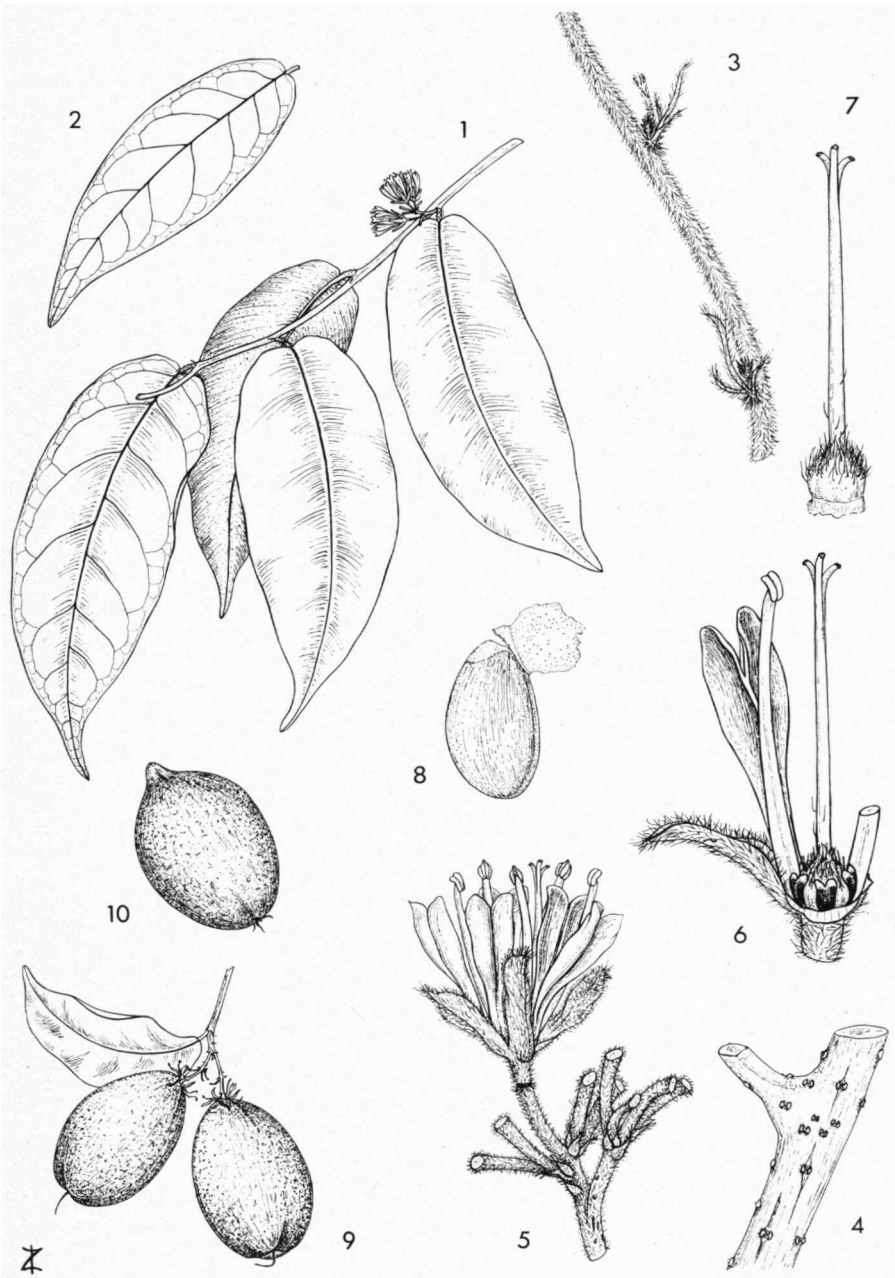


Fig. 2. *Dichapetalum filicaule*: 1. flowering branch, $3/4 \times$; 2. smaller leaf, $3/4 \times$; 3. young shoot, $2\frac{1}{2} \times$; 4. branch with lenticels, $2\frac{1}{2} \times$; 5. inflorescence, $4\frac{1}{2} \times$; 6. part of flower, $9 \times$; 7. pistil, $9 \times$; 8. ovule, $45 \times$; 9. branchlet with fruits, $3/4 \times$; 10. fruit, $3/4 \times$. (1, 4-5, 9-10: Breteler 5923; 2: Breteler 5324; 3, 6-8: Leeuwenberg 4047).

long, ca. 10 mm in diam. Testa brown, glossy, veined. *Cotyledons* plano-convex, mostly with a trace of endosperm between, sometimes ciliate at the lower margin.

Type: Ivory Coast, N. of Aboisso (3°11'W, 5°32'N), *Breteler 5923* (WAG, holotype; isotypes: B; BR; COI; EA; K; P; UCI; WU; Z).

Ecology: Rain forest area; in forest as well as on road sides.

Distribution: Ivory Coast, West Ghana. Very common near Abidjan.

IVORY COAST: 50 km W. of Sassandra, *Leeuwenberg 4047* (BR; E; EA; HBG; K; LISC; M; NY; P; UCI; WAG; WU; Z); 23 km N.W. of Sassandra, *Breteler 5867* (BR; HBG; K; LISC; W; WAG); Grand Drevin, *Roberty 15723* (Z); Dabou, *Chevalier 17165* (K); *ibid. Jolly 22* (P); Adiopodoumé, 17 km W. of Abidjan, *Breteler 5220* (BM; C; FI; LISU; NY; PRE; WAG), *W. de Wilde 1001* (WAG); *Geerling & Bokdam 830* (WAG), *1486* (WAG), *Tolliez 304* (P); between Adiopodoumé and Abidjan, *Breteler 5368* (P; WAG), *5503* (B; BM; BR; COI; HBG; K; LISC; M; P; PRE; UCI; W; WAG; Z); Abidjan, Avenue Lamblin, *Breteler 5504* (P; WAG); near Aboisso, *Breteler 5306* (E; P; WAG), *5324* (B; BR; K; M; NY; WAG; WU; Z), *5328* (BM; HBG; LISU; WAG).

GHANA: Tano Anwia F.R., *Adams 2254* (K; WAG); Cape Coast, *Hall 956* (K).

Notes: *D. filicaule* can be distinguished from *D. cymulosum* by the sepals which are not reflexed, by the petals which are shortly lobed and by the fruit which is depressed globose in *D. cymulosum*.

The name *D. filicaule* was chosen because of the young shoots which are mostly very slender in this species.

Tapura ivorensis Bret., sp. nov.

Fig. 3

Frutec vel arbor parva ramulis brunneis, glabris vel glabrescentibus. *Stipulae* anguste usque late oblique triangulares. *Folia* disticha vel fere disticha, papyracea vel tenuiter coriacea, obovato-elliptica usque anguste obovata, basi cuneata vel rotundata, apice sensim acuminata, nervis lateralibus utrinque 5–8, glabrescentia. *Inflorescentia* glomerulata, pedunculus petiolo omnino adnatus. *Flores* sessiles vel subsessiles. *Sepala* inaequalia. *Corolla* ex lobis 2 majoribus bicucullatis et lobis 3 minoribus simplicibus composita, extus sparse pubescentibus, intus villosis. *Stamina* fertilia 3, connectivo valde prominenti. *Staminodia* basalia 2–3, connata, plana, glabra. *Pistillum* quam corolla paululum longius, stylus superne pubescenti. *Ovarium* seminiferus, 3-loculare. *Ovulae* obturatore fimbriato praeditae. *Fructus* ovoideus, dispermus, luteus, tenuiter tomentosus. *Endocarpium* osseum, extus rugosum.

Shrub or small tree up to 3 m tall. Branches brown, glabrous or glabrescent. Branchlets appressed puberulous-strigulose, glabrescent. *Stipules* narrowly to broadly obliquely triangular, the lower narrower and shorter than the upper; the first 2–3 mm long, 1–1.5 mm wide, the latter 3–4 mm long, 1.5–2 mm wide; top often slightly curved, appressed puberulous-strigulose, early deciduous or not. *Leaves* distichous or nearly so; petiole (2)3–8(9) mm long, canaliculate above, strigose, glabrescent; blade papery or thinly coriaceous, glossy on both sides, dark green above, paler green beneath, obovate-elliptic to narrowly

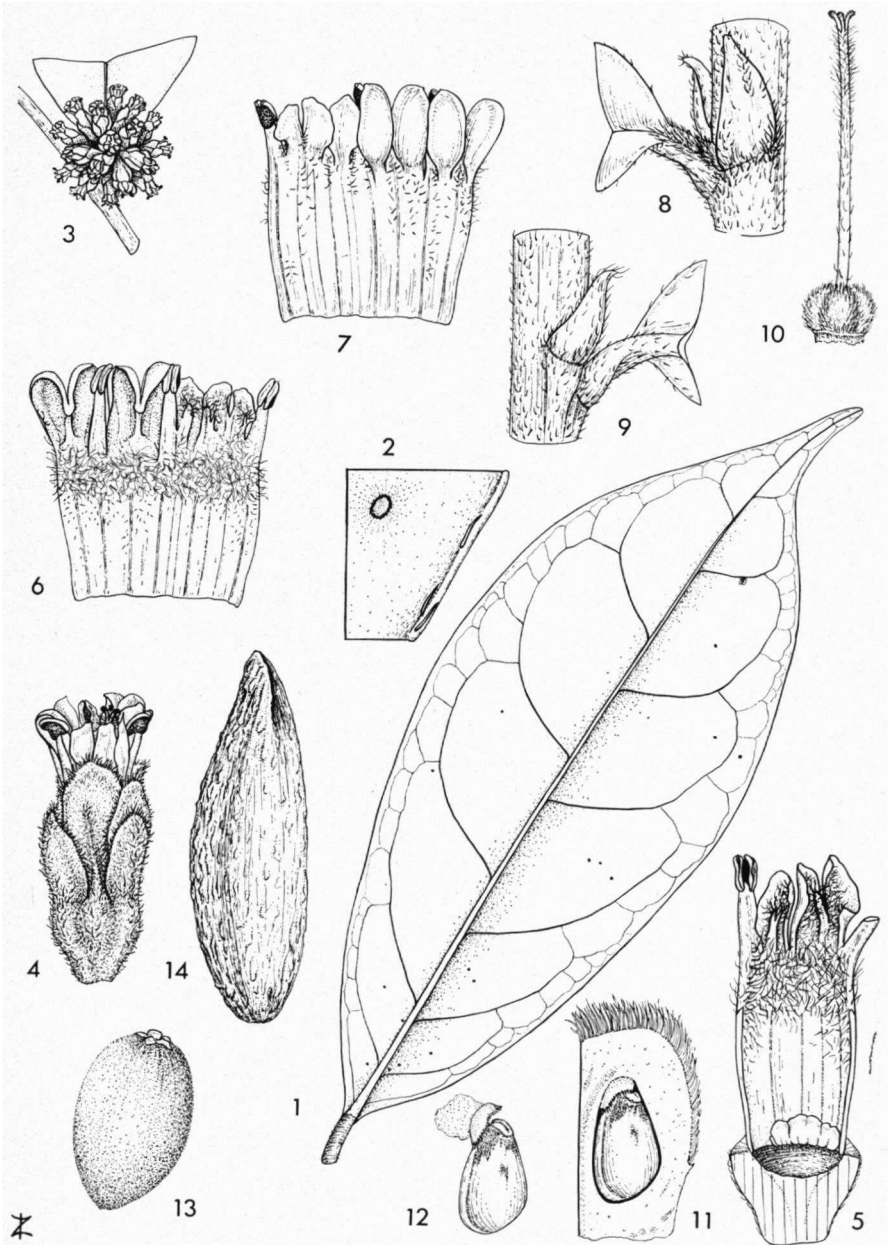


Fig. 3. *Tapura ivorensis*: 1. leaf, lower surface, $3/4 \times$; 2. part of lower leaf surface with gland, $9 \times$; 3. inflorescence, $3/4 \times$; 4. flower, $4\frac{1}{2} \times$; 5. length cut of flower, pistil removed, $6 \times$; 6. corolla inside, $4\frac{1}{2} \times$; 7. corolla outside, $4\frac{1}{2} \times$; 8-9. stipules, $4\frac{1}{2} \times$; 10. pistil, $6 \times$; 11. length cut ovary cell, $22\frac{1}{2} \times$; 12. ovule with obturator, $22\frac{1}{2} \times$; 13. fruit, $3/4 \times$; 14. endocarp, $2\frac{1}{4} \times$. (1, 2, 8, 9, 13, 14: Bretelet 5955; 3-7, 10-12: Bretelet 5964).

obovate, cuneate or rounded at base, rather gradually acuminate into a rounded top, (8)12–17 cm long, (3.5)5–8 cm wide, lateral nerves 5–7(8) at each side of the midrib, mostly inconspicuous above, prominent beneath; glabrous above, beneath with a few appressed hairs on the main nerves and along the margin, soon glabrescent; glands few, scattered, on the lower surface. *Inflorescence* glomerulous, the peduncle completely adnate to the petiole, ca. 1.5–2 cm in diam.; bracts and bracteoles small, triangular, almost glabrous above, below appressed hairy. *Flowers* sessile to subsessile; pedicel articulate, lower part wanting, upper part 0–1 mm, tomentose. *Calyx* zygomorphic, cuneate at base (more obtuse in dry specimens), tomentose outside, inside glabrous. *Sepals* shortly united at base; the two outer ones smaller, ovate-elliptic or obovate-elliptic, 3.5–4.5 mm long, 1.5–2.5 mm wide, top acute; the inner sepals broadly elliptic-obovate, 4–5 mm long, 3–4 mm wide, top rounded, obtuse-emarginate or oblique. *Petals* 7 mm long, with the filaments united in a 3–5 mm long tube, deeper split at the side of the fertile stamens, sparsely pubescent outside, inside villous, mainly on upper part of the tube; the two major corolla lobes 1 mm split, bicucullate, glabrous or nearly so; the 3 minor lobes (the central one mostly smaller) rounded at top. *Stamens* 3, fertile, equaling the larger corolla lobes, the free part of the filaments glabrous; the two outer mostly provided with a villous appendix at the side of the smaller corolla lobes, not unlike the sterile filaments; anthers ca. 1 mm long with a very prominent, glabrous connective; sterile stamens 2, shortly free from the tube or not and then very inconspicuous or invisible, densely villous at top. *Basal staminodes* 2–3, united at the side of the smaller petals, flat, ca. 1 mm tall, glabrous. *Pistil* 7.5–8 mm long, slightly longer than the corolla; style glabrous in lower part or almost so, pubescent in the upper part, 3-lobed at top. *Ovary* semi-inferior, depressed globose, sometimes slightly 3-lobed, sericeous-tomentose, 3-locular, with 2 pendulous ovules per cel. *Ovules* with a fimbriate obturator. *Fruit* superior, ovoid, laterally compressed, 2-seeded, 3 cm long, 2 cm broad, ca. 1.5 cm thick, yellow, rather smooth, finely tomentose. Pulp slimy. Endocarp bony, rugose outside. *Seed* narrowly ellipsoid, 18 mm long, 7 mm in diam. Testa brown, glabrous, glossy.

Type: Ivory Coast, 5 km E. of Aboisso, *Breteler 5955* (WAG, holotype; isotypes: B; BR; EA; K; LISC; M; P; UCI; W; Z); paratype: 6 km E. of Aboisso, *Breteler 5964* (BM; C; COI; E; FI; HBG; LISU; NY; P; PRE; UCI; WAG; WU).

Ecology: Rain forest.

Distribution: Only twice collected in East Ivory Coast.

Notes: In Africa, *T. ivorensis* is most closely related to *T. africana* Oliv., but can easily be distinguished from this species by the nervation of the leaves, the sessile or almost sessile larger flowers, and the indumentum of the calyx. The

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distribution of *T. africana* is mainly Central Africa (Eastern Nigeria, Cameroun, Gabon). The most western locality where this species has been collected is in the Ogoja Province of Nigeria.

In the key given by HALLÉ et HEINE (*Adansonia* sér. 2., 7(1). 1967, p. 43) *T. ivorensis* will key out under 5: *T. guianensis* Aubl., but can easily be distinguished from this species by the corolla, which is deeply split, and by the smaller corolla lobes which are oblong in *T. guianensis*.

ACKNOWLEDGEMENTS

The author is indebted to Miss I. Zewald for her fine drawings and to Miss Dr. G. J. H. Amshoff for her help with the latin descriptions.