

Fig. 1. — a, *Cupaniopsis grandiflora* : 1, leaflet lower side  $\times 1$ ; 2, petal inside  $\times 8.4$ ; 3, fruit  $\times 2.1$ . (1 and 2 after McPherson 3805, type; 3, after Guillaumin & Baumann-Bodenheim 8683). — b, *Cupaniopsis squamosa* : 1, leaflet lower side  $\times 1.4$ ; 2, *idem*, detail showing the glandular scales  $\times 35$ ; 3, fruit  $\times 2.8$ ; 4, seed  $\times 4.2$ . (After MacKee 20428).



scales. Leaflets opposite to alternate, upper ones 2.5-6.5 × 0.5-2.5 cm (index 2.40-4.60), widest above or about the middle, lower ones 2-5 × 1-2.5 cm (index 2.10-4.0), widest above or about the middle, coriaceous, glabrous to rather densely scaly above, densely scaly below, base oblique, cuneate, usually tapering in the petiolules, apex obtuse to rounded, margin entire, midrib slightly prominent above, prominent below, nerves 4-8 per side, 4-15 mm apart, at 45° (-60°) to midrib; petiolule 0-4 mm, pulvinate, grooved above, with scales.

Inflorescences axillary or pseudoterminal, 3.5-4 cm, with long or short branches, axes densely scaly, without or with few to many short patent hairs. Bracts lanceolate to deltoid, 0.4-0.7 × 0.4-0.6 mm, outside with scales, inside glabrous. Pedicels 0.8-1.2 mm, articulate at base to halfway. Buds globular, 1.8 × 1.6-1.8 mm. Male flowers: Sepals 5, free, imbricate, concave, outer 2 smaller, ovate to elliptic, 1.2-2.5 × 0.8-1.3 mm, scarious rim narrow to rather wide, innermost elliptic to obovate or orbicular, 1.8-3.1 × 1.6-2.2 mm, scarious rim very wide, outside with scales except rim, inside glabrous, ciliolate at least at base. Petals 5, rarely 6, elliptic to orbicular, irregularly dentate, 1.2-2.0 × 0.7-1.6 mm, outside appressed hairy in lower half, inside appressed hairy in basal part, ciliate in lower part, scales 2, not crested, 0.6-1.2 mm, woolly. Disc complete, lobed, glabrous or with some hairs ± in 5 bundles. Stamens 8 (9), exserted, filaments 1.6-2.4 mm, patent hairy in lower half to 2/3, anthers 0.7-1.1 mm, glabrous or hairy. Pistillode 3-celled, outside hairy, 0.4-0.8 × 0.4-0.6 mm. Female flowers not known. Fruit obovoid to obpyramidal, slightly 3-lobed at apex, 10-13 × 6-9 mm, stipe 1-1.5 mm, pericarp 0.5 mm thick, exocarp smooth, with scales, sometimes also with short hairs at the apex, endocarp velutinous to appressed hairy, septum complete. Seeds obovoid, 6-8.5 × 3.5-6 mm, testa shiny dark brown or black, arilloid covering 2/3 to almost whole of seed, lobed to fimbriate, cotyledons superposed.

#### FIELDNOTES :

a. Ecological notes : Dense maquis-like scrubs on serpentine, 380-600 m. Fl. December-February; fr. May-August.

b. Additional descriptive notes : Leaves shiny green above, paler or greyish green below, brown below when young. Flowerbuds green. Corolla white. Filaments white. Fruits brown.

NOTES : In one seed of *MacKee* 20428 an embryo with three cotyledons was found.

SPECIMENS EXAMINED : *Bernardi* 10277, *MacKee* 21326, 40147, *McPherson* 6176 (type), Dôme de Tiébaghi; *Jaffré* 1235, 2374, Massif du Boulinda; *MacKee* 20428, Haute Népoui, Oua Péoué, Contrefort sud du Kopéto.

### 3. *Cupaniopsis phalacrocarpa* Adema, *sp. nov.* — Fig. 2, a.

*Arbor vel arbuscula 3-8 m alta, partibus juvenilibus adpresse pilosis. Folia 3-5-jugata, foliolis integerrimis, domatiis pustuliformibus. Inflorescentiae axillares. Flores ut in C. apiocarpa autem majores. Discus glaber. Stamina (7-)8 exserta, filamentis pubescentibus, antheris glabris raro pauce pilosis. Capsula fere globosa ad ellipsoidea, extus glabra vel disperse breviter pilosa, intus adpresse pilosa. Arilloidia semina fere tota obtegentia.*

TYPE : *MacKee* 38361, Canala, Chiamoué, 600 m, 29.12.1980 (holo-, P!; iso-, L!).



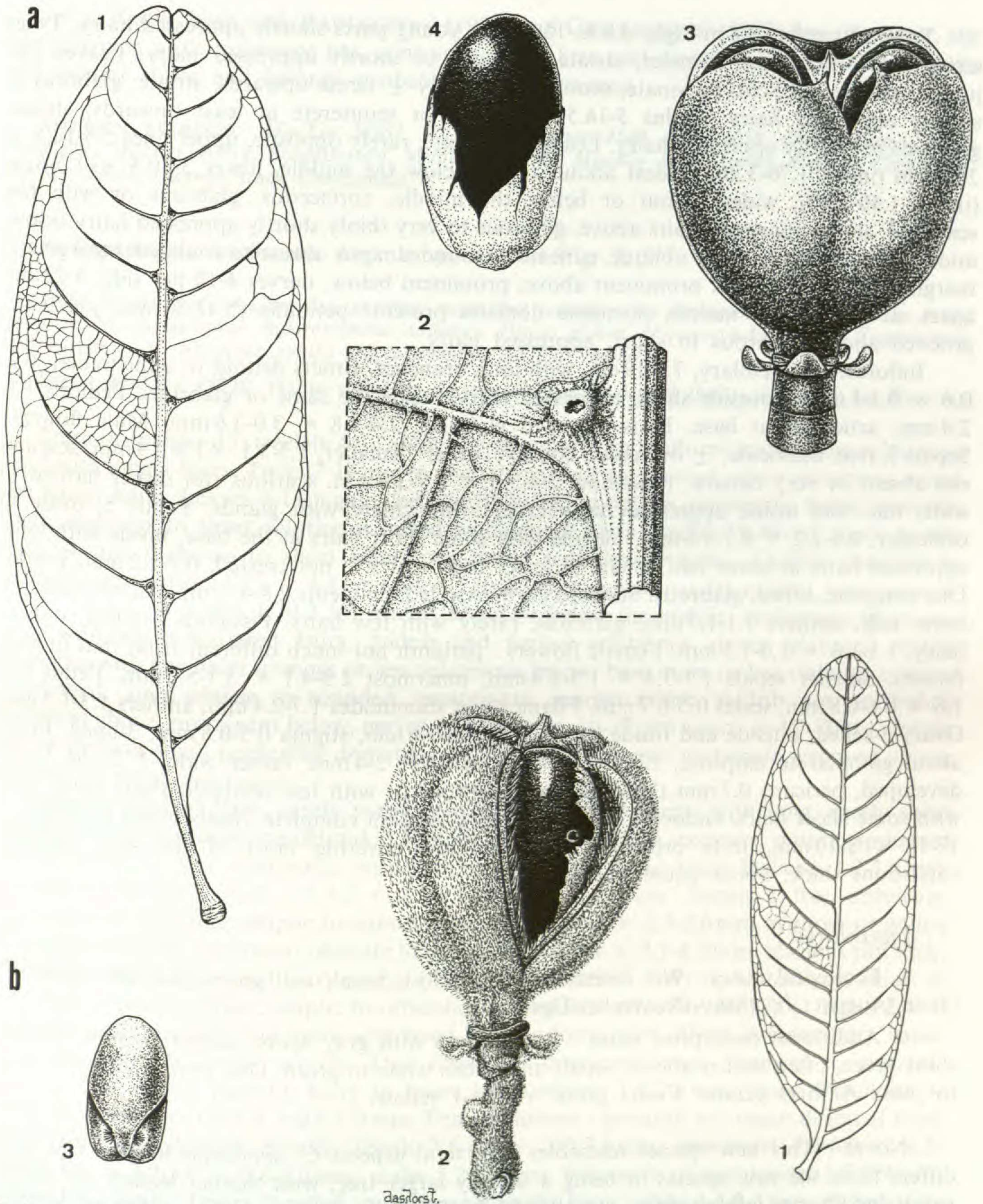


Fig. 2. — a, *Cupaniopsis phalacrocarpa* : 1, leaflet lower side  $\times 1.4$ ; 2, domatium  $\times 8.4$ ; 3, fruit  $\times 2.1$ ; 4, seed  $\times 2.1$ . (After McPherson 4540). — b, *Cupaniopsis mackeeana* : 1, leaflet lower side  $\times 0.35$ ; 2, fruit  $\times 2.1$ ; 3, embryo  $\times 1.4$ . (1, after Mackee 18710, type; 2 and 3 after Schmid 2888).



Trees or treelets 3-8 m high, d.b.h. 15-20 cm, young parts shortly appressed hairy. Twigs terete, 1.5-3(-5) mm in diameter, striate, glabrous to shortly appressed hairy. Leaves 3-5-jugate; petiole 3-8.5 cm, pulvinate, semiterete, usually  $\pm$  terete upwards, striate, glabrous to shortly appressed hairy; rachis 5-14.5 cm, terete, or semiterete at least upwards, striate, glabrous to shortly appressed hairy. Leaflets alternate, rarely opposite, upper ones 5.5-12.5  $\times$  2-6.5 cm (index 1.70-3.20), widest about, rarely below the middle, lower 3-10.5  $\times$  1.5-6 cm (index 1.40-2.40), widest about or below the middle, coriaceous, glabrous or with few scattered, short, appressed hairs above, glabrous to very thinly shortly appressed hairy below, midrib a bit denser so, base oblique, cuneate to rounded, apex obtuse to rounded, emarginate, margin entire, midrib not prominent above, prominent below, nerves 4-10 per side, 5-22 mm apart, at (50°-)60° to midrib, pustulate domatia present; petiolule (5-)7-20 mm, pulvinate, grooved above, glabrous to short, appressed hairy.

Inflorescences axillary, 7.5-19 cm, with long branches. Bracts deltoid to semicircular, 0.2-0.6  $\times$  0.3-1.0 mm, outside short, appressed hairy, inside the same or glabrous. Pedicels 1.1-2.4 mm, articulate at base. Buds flattened globular, 2.4-2.8  $\times$  3.0-3.6 mm. Male flowers: Sepals 5, free, imbricate,  $\pm$  orbicular, concave, outer 2 smaller, 1.3-3.1  $\times$  1.9-2.9 mm, scarious rim absent or very narrow, innermost 2.4-3.6  $\times$  2.9-3.6 mm, scarious rim rather narrow to wide, out- and inside appressed hairy except rim, ciliate with glands. Petals 5, ovate to orbicular, 0.8-2.2  $\times$  0.7-1.6 mm, outside with some short hairs at the base, inside with long, appressed hairs in lower half, ciliate in lower half, scales 2, not crested, 0.6-1.2 mm, woolly. Disc complete, lobed, glabrous. Stamens (7) 8, exserted, filaments 2.8-4.2 mm, patently hairy in lower half, anthers 1.1-1.7 mm, glabrous, rarely with few hairs. Pistillode 3-celled, outside hairy, 1.1-1.6  $\times$  1.0-1.3 mm. Female flowers: perianth not much different from that in male flowers. Smaller sepals 1.7-3.4  $\times$  1.9-3.4 mm, innermost 2.9-4.1  $\times$  3.1-5.0 mm. Petals 0.8-1.6  $\times$  0.6-0.8 mm, scales 0.5-0.7 mm. Filaments of staminodes 1.7-2.4 mm, anthers 1.3-1.7 mm. Ovary 3-celled, outside and inside hairy, style 0.8-1.6 mm, stigma 0.5-0.8 mm, 3-lined. Fruits about globular to ellipsoid, 22-30  $\times$  17-20 mm, stipe 2-4 mm, rather wide, 1, 2, or 3 cells developed, pericarp 0.7 mm thick, exocarp glabrous or with few scattered short hairs, stipe with some short hairs, endocarp appressed hairy, septum complete. Seeds ovoid or ellipsoid, 17-18  $\times$  8-10 mm, testa brownish, arilloid thick, covering most of the seed, lacerate, cotyledons thick, about equal, superposed.

FIELDNOTES :

a. Ecological notes : Wet forests on mica schist, basalt and greywacke, 400-700 m. Fl. (June-)August; fr. (May-)November-December.

b. Additional descriptive notes : Bark brown with gray spots, almost smooth. Leaflets shiny green, often darker above. Sepals and petals white to green. Disc pink. Filaments white to pink. Anthers yellow. Fruits green. Arilloid yellow.

NOTES : This new species resembles in several aspects *C. apiocarpa* Radlk. The latter differs from the new species in being a usually larger tree, with thinner leaflets on shorter petiolules, shorter inflorescences, usually smaller flower parts, a hairy disc and hairy, slender-stiped fruits with smaller seeds.

Because of the glabrous fruits fruiting specimens of the new species key out to *C.*



*psilocarpa* Radlk. both with RADLKOFERS' (1934) and GUILLAUMINS' (1948) key. However, the type specimen of *C. psilocarpa* has, contrary to both keys and descriptions, rather hairy fruits with slender stipes and belongs probably to *C. apiocarpa*.

SPECIMENS EXAMINED : MacKee 28961, 37135, McPherson 4540, 4056, 4058, 4774, Pouébo, Mont Mandjéla; MacKee 40514, Ponérihouen, Mont Aoupinié; MacKee 38361 (type), Canala, Chiamoué; MacKee 29637, Canala, track Ciu-Coindé.

4. *Cupaniopsis mackeeana* Adema, *sp. nov.* — Fig. 2, b.

*Arbor vel arbuscula 4-12 m alta, partibus juvenilibus velutinis pilis longioribus immixtis. Folia 4-12-jugata, foliolis integerrimis. Inflorescentiae axillares. Discus glaber. Hypocotyledon pilosa. Cupaniopsis macrocarpae et C. azanthae similis sed in omnibus partibus majoribus.*

TYPE : MacKee 18710, Haute vallée de l'Amoa, 300 m, 28.4.1968 (holo-, P!; iso-, L!, P!).

Trees or (palmoid?) treelets 4-12 m high, young parts and inflorescences short velutinous mixed with longer hairs. Twigs 7-14 mm in diameter, striate to grooved, short velutinous mixed with longer hairs. Leaves 4-12-jugate; petiole 10-34 cm, pulvinate, semiterete, terete upwards, striate, glabrous to short velutinous mixed with longer hairs; rachis 18-44 cm, more or less terete, striate, glabrous to short velutinous mixed with longer hairs. Leaflets opposite to alternate, upper ones 15-21 × 4-8 cm (index 2.20-3.30), widest about the middle, lower ones 9-14.5 × 3.5-6.5 cm (index 1.70-2.50), widest about or below the middle, coriaceous, glabrous, rarely with some scattered hairs, midrib and nerves velutinous above, glabrous midrib sometimes with few hairs to more or less velutinous below, base more or less oblique, cuneate to rounded, apex obtuse to rounded, emarginate, margin entire, midrib not or slightly prominent above, prominent below, nerves 7-20 per side, 10-22 mm apart, at 45°-70° to midrib, with or without small pocketlike domatia; petiolule (8-)15-30 mm, pulvinate, grooved above, glabrous to short velutinous.

Inflorescences axillary, rarely pseudoterminal, (6.5-)13.5-53 cm, with long, rarely short branches. Bracts lanceolate to deltoid, 0.5-3.0 × 0.5-1.6 mm, thick, concave, outside appressed hairy to more or less velutinous, inside appressed hairy at the base. Pedicels 1.2-1.4 mm, articulate at the base. Buds 1.8-4.2 × 2.3-4.8 mm. Male flowers : Sepals 5, free, imbricate, concave, outer 2 smaller, elliptic to almost orbicular, 2.8-4.2 × 1.7-2.6 mm, without or with a narrow scarious rim, innermost obovate to orbicular, 3.6-5.4 × 3.1-4.2 mm, scarious rim wide, outside and inside appressed hairy except rim, inside sometimes only up to halfway, ciliate in lower half. Petals 5, oblique elliptic to orbicular, or lingulate (MacKee 26592), (1.1-)1.8-2.4 × (0.3-)1.2-2.2 mm, outside and inside appressed hairy in lower part, ciliate in lower part, scales 2, not crested, 0.8-2.0 mm, woolly. Disc complete, lobed, glabrous. Stamens 8, exerted, filaments 2.3-4.6 mm, patently hairy in lower half, anthers 1.4-2.3 mm, hairy. Pistillode 3-celled, outside hairy, 1.0-1.4 × 0.6-1.0 mm. Female flowers : perianth not much different from that of the male flowers. Smaller sepals 3.6-4.8 × 3.0-3.6 mm, innermost 4.0-6.0 × 4.2-4.8 mm. Petals 2.2-3.6 × 0.8-2.0 mm, scales 1.2-2.5 mm. Filaments of staminodes 1.7-2.9 mm, anthers 1.4-2.0 mm. Ovary 3-celled, outside and inside hairy, style 1.4-2.5 mm, stigma 1.1-1.6 mm, 3-lined. Fruits globular to obovoid, 22-25 × 20-24 mm, stipe 1-2 mm, pericarp 0.8-1.8 mm thick, exocarp smooth, short velutinous, endocarp velutinous to appressed hairy,



septum complete. Seeds ellipsoid, 15-18 × 9-10 mm, testa shiny black, arilloid covering almost the whole of the seed, lacerate, cotyledons equal or unequal, (obliquely) superposed, hypocotyl hairy on the sides.

FIELDNOTES :

a. Ecological notes : Humid forests on greywacke, 30-700 m. Fl. March-June ; fr. June, December.

b. Additional descriptive notes : Bark brown, a bit rough. Leaflets glossy dark green above, light to dark green below. Sepals pale green to greenish white. Petals white to pale yellow. Filaments white. Anthers yellow or red. Pistil greenish white to greyish green.

NOTES : Strongly resembling *C. macrocarpa* and *C. azantha*, but usually larger in most parts. The leaflets are never acuminate in the present species. Hairy hypocotyls are a rare phenomenon in *Cupaniopsis*.

*MacKee 26592* has rather small sepals and petals, the latter being lingulate in stead of more or less elliptic to orbicular.

I named this species in honour of Dr. H. S. MACKEE, an indefatigable collector of New Caledonia plants. Of *Cupaniopsis* he collected no fewer than 167 specimens, including the types of the present species and *C. phalacrocarpa*.

The vernacular name "Imoinri" has been given to this and several other species of *Cupaniopsis* and to other *Sapindaceae* (*MacKee 20894*).

SPECIMENS EXAMINED : *MacKee 16951*, Koumac, Le Cresson ; *Schmid 2888*, Inédété ; *MacKee 18710* (type), Haute vallée de l'Amoa ; *MacKee 26582, 26592, 26607*, Ponérihouen, pente est du Mont Aoupinié ; *McPherson 1692*, Thy River Valley, 12 km NE of Nouméa.

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## Un *Digitaria* (*Poaceae*) nouveau d'Ethiopie méridionale

J.-P. LEBRUN

**Résumé :** *Digitaria neghellensis* J.-P. Lebrun est décrit d'Ethiopie méridionale. Cette plante vivace évoque bien le *D. flaccida* Stapf, mais aussi le *D. gayana* (Kunth) Stapf ex A. Chev. par sa panicule à épillets longuement soyeux argentés.

**Summary :** *Digitaria neghellensis* J.-P. Lebrun is described from southern Ethiopia. This perennial plant has the general habit of *D. flaccida* Stapf, but resembles *D. gayana* (Kunth) Stapf ex A. Chev. in its panicle, the spikelets being furnished with long, silky hairs.

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Dans la troisième partie du volume consacré aux Poacées du domaine de la « Flora of Tropical East Africa » W. D. CLAYTON insiste sur le fait que le genre *Digitaria* est difficile ; et que sa subdivision classique en sous-genres et sections multiples selon la nature des poils portés par les épillets, aussi bien que d'après le groupement des épillets sur le rachis n'est guère satisfaisant. De sorte qu'en présence d'une espèce nouvelle, il est difficile de déterminer ses réelles affinités. C'est bien le cas ici ; car la plante qui nous occupe ressemble par certains côtés au *D. flaccida* Stapf de la section *Flaccidulae* mais aussi au *D. gayana* (Kunth) Stapf ex A. Chev. de la section *Tricholaenoides*, par un autre caractère. Cependant, comme elle ne présente pas de glume supérieure gibbeuse — caractère remarquable, mais souvent difficile à saisir, du fait de la présence d'une pilosité considérable — c'est finalement par rapport au *D. gayana* que nous la décrivons. En attendant que de nouveaux travaux éclairent les affinités spécifiques au sein du vaste genre *Digitaria*, riche en espèces ( $\pm 200$ ), mais pauvre en caractères bien tranchés.

***Digitaria neghellensis* J.-P. Lebrun, sp. nov.**

*Species similis D. gayanae a qua habitu perenni, culmis basi sericeo-villosis, laminis foliorum, latioribus spiculis inflorescentiae grise-ardesiaceis differt.*

**TYPUS :** Rippstein 842, Ethiopie, Sidamo, mont Filtu, ca. 41° E  $\times$  5° N, sur pente à 5 % avec *Digitaria arushae* Clayton (holo-, ALF).

Herbacée vivace, haute d'environ 70 cm. Chaumes rigides, dressés, atteignant 4-5 mm de diamètre juste au-dessus de la base, qui est un peu renflée par des gaines velues-soyeuses, plus



minces ensuite, parfois divisées, atteignant finalement moins d'1 mm sous l'inflorescence. Nœuds supérieurs violets-noirs, glabres. Feuilles à gaines velues-soyeuses par une pubescence double; l'une constituée de soies souvent étalées horizontalement, blanches-soyeuses, certaines à base tuberculée, atteignant 4-5 mm de longueur du moins sur les gaines de la moitié inférieure de la plante; l'autre formée de poils courts également étalés, gaines supérieures simplement munies sur les côtes de nombreuses et courtes spicules. Ligule membraneuse puis déchiquetée-ciliée, courte. Limbes arrondis à la base et même légèrement amplexicaules, longs d'environ 50 mm, larges d'environ 7 mm ( $22 \times 3$  à  $6 \times 8$ ), à bords cartilagineux, ondulés-crispés, lancéolés, pointus.

Inflorescence formée d'un axe central plus long que les autres racèmes; cette panicule contractée est longue d'environ 13 cm, constituée de 4-5 racèmes non verticillés, flexueux, inclus l'axe central se terminant par un racème. Racèmes longs de 75-120 mm, certains présentant à leur base une partie nue, dépourvue d'épillets. Epillets généralement groupés par 2, l'un courtement, l'autre longuement pédicellé, parfois par 3 à la base des racèmes, quelquefois le troisième épillet très réduit. Epillets elliptiques, gris-ardoise, soyeux, longs de 6,5 mm, poils compris, qui eux forment une longue mèche légèrement torsadée au-delà du sommet des pièces elles-mêmes. Glume inférieure réduite à une écaille d'environ 0,5 mm de longueur, glabre; glume supérieure longue de 2,5 mm, à trois nervures principales vertes, accompagnées de deux nervures latérales plus faibles, vues de l'intérieur totalement glabres, mais extérieurement totalement recouvertes de longs poils argentés-soyeux. Première fleur réduite à une glumelle inférieure à trois nervures principales vertes, accompagnées de deux nervures intermédiaires plus faibles, de l'intérieur totalement glabre, longue de 2,5 mm; mais extérieurement toute recouvertes de longs poils gris-ardoise, soyeux, sauf tout à fait à sa partie inférieure; cette pièce présente à sa base sur plus du tiers de sa longueur des bords enveloppants, repliés vers l'intérieur. Fleur fertile longue d'un peu plus de 2 mm, formée d'une part d'une glumelle inférieure chartacée, brun-violacé, marquée de ponctuations disposées en lignes longitudinales régulières, terminée brusquement en pointe relativement longue et presque cylindrique; d'autre part d'une glumelle supérieure de même nature, quasi totalement enveloppée par la pièce précédente, sauf à la base sur une très petite surface en forme de goutte d'eau.

AUTRES ÉCHANTILLONS ÉTUDIÉS : *Sandford in Mooney 7424*, Ethiopie : Sidamo, 20 miles North of Moyale, open *Acacia* bush on red clay, alt. 3500 ft., 2-7.1958; *Friis et al. 891*, about 35 km SE of Neghelle, on the road to Filtu ( $5^{\circ}15'N-39^{\circ}SSE$ ), about 1600 m alt., rocky limestone slope with *Acacia nilotica*, *Terminalia* sp., *Commiphora* sp., *Barbeya oleoides*, *Balanites* sp., etc., 2.11.1972; *Gilbert 3342*, 32 km ESE of Neghelle, along Filtu Rd. ( $5^{\circ}14'N-39^{\circ}52'E$ ), alt. 1570 m, mixed deciduous woodland with *Acacia etbaica*?, *Combretum*, *Barbeya oleoides*, limestone slope, 6.5.1974; *Gilbert et al. 7708*, 37 km SE of Filtu on road to Dolo ( $4^{\circ}53'N-40^{\circ}54'E$ ), 1100 m alt.; rather dense woodland/bushland, *Acacia*, *Commiphora* and *Euphorbia* sp. aff. *scheffleri* (n° 7709), dark soil, 21.5.1983.

Espèce spectaculaire évoquant bien, à première vue, par ses épillets très longuement poilus-soyeux, les *D. gayana*, *flaccida* Stapf, *tricholaenoides* Stapf et *pellita* Stapf, mais dont les affinités réelles restent à préciser.

Au terme de cette note, nous tenons à adresser nos biens sincères remerciements au Dr. W. D. CLAYTON des Jardins Royaux de Kew, pour ses avis et remarques particulièrement autorisés.