Calyptranthera schatziana (Apocynaceae s.l., Secamoneae), a new species from Madagascar

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ABSTRACT
Calyptranthera schatziana Klack., a new species of Apocynaceae s.l., Secamoneae, from NE Madagascar, is described, illustrated and compared to the other six members of the genus.

MOTS CLÉS
Apocynaceae,
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RÉSUMÉ
Calyptranthera schatziana (Apocynaceae s.l., Secamoneae), une nouvelle espèce de Madagascar.
Une nouvelle espèce de *Calyptranthera* (Apocynaceae s.l., Secamoneae), du NE de Madagascar, *C. schatziana* Klack., est décrite, illustrée et comparée aux six autres membres du genre.

In the course of analyzing new asclep material from Madagascar collected by collaborators at the Missouri Botanical Garden, I have come across a specimen that belongs to the genus *Calyptranthera* Klack. (Apocynaceae s.l., Secamoneae). It has proved to represent a new species, and is here described, illustrated and given the name *Calyptranthera schatziana*.

The genus *Calyptranthera* was recognized recently (KLACKENBERG 1996a) on only one collection with sparse flowering material. The type species, *C. caudiclava* (Choux) Klack., had previously been placed in *Toxocarpus* Wight & Arnott (CHOUX 1914: 415). One year later the genus was revised and four new species, *C. baronii* Klack., *C. brevicaudata* Klack., *C. grandiflora* Klack., *C. pubipetala* Klack., all from eastern Madagascar, were added to the genus (KLACKENBERG 1997). Recently a sixth species, *C. gautieri* Klack., was described on newly collected material from the western part of the island (Sambirano) (KLACKENBERG 1998).

Calyptranthera has pollinaria with four pollinia each and is placed in tribe Secamoneae, close to the genus *Pervillea* Baill. (KLACKENBERG 1996b) from the drier western Madagascar, but differs in leaf morphology (venation, pubescence), outline of the corolla lobes and buds, structure of the inflorescences, and by having a cup-shaped entrance for the pollinaria below the anther wings on the filament tube. Tribe Secamoneae was formerly placed in Asclepiadaceae. Several recent analyses using both morphological (JUDD et al. 1994, STRUWE et al. 1994) and molecular (SENNBLAD & BREMER 1996, CIVEYREL et al. 1998) data, however, show the traditional Asclepiadaceae to be a subgroup in the Apocynaceae, and the two families are now usually united in Apocynaceae s.l., which is followed here.

The new species described here is named after George SCHATZ (MO), who collected the hitherto only known material of this taxon.

Calyptranthera schatziana Klack., **sp. nov.**

Species haec Calyptrantherae baronii *et* C. grandiflorae *similis sed floribus minoribus (lobi calycis 1.7-1.9 mm longi, lobi corollae 20 mm longi) et connectiviis prolongatis lobos coronae valde superantibus (lobi coronae parvuli, 0.8-0.9 mm longi) differt.*

TYPUS. — *Schatz & Bernard 3693*, Madagascar, Antsiranana prov., Masoala Peninsula, 0.1 km SE of "Tamany Fred" watershed of the Anaovandrano River, 15°45'15''S, 50°12'30''E, 50 m alt., 17 Nov. 1996 (holo-, MO; iso-, P, S, TAN).

Suffrutescent twiner with milky latex, climbing to 5 m above ground, with younger branches densely covered by more or less bent reddish hairs, glabrescent. Leaves opposite, somewhat coriaceous, dark green above, light olive-green below with purple mid-rib, usually revolute at the very margin; blade 9-12 × 3.5-5 cm, elliptic to obovate, cuneate at the base, acuminate, pubescent with reddish bent hairs beneath particularily along the veins and margins, very sparsely so on lamina and totally glabrous above, without colleters at the very base above; margin even; venation pinnate and looped, reticulate; mid-rib when dry distinctly impressed above and raised beneath; primary veins divaricate to right-angled, slightly raised on both sides when dry; secondary veins grossly reticulate, ± even with the leaf surface; epidermis ± smooth on both sides; petiole distinct, 1-1.5 cm long, with dense reddish mostly appressed hairs. Inflorescences extra-axillar, about as long as to usually shorter than the adjacent leaves; cyme with few flowers in pairs near the apex with short internodes that elongate when older with distinct scars of earlier flower-pairs, rather sparsely covered by bent reddish hairs; pedicels slender, 2-3.5 cm long; bracts and bracteols narrow, 1.5-2 mm long. Flowers pentamerous, actinomorphic. Calyx lobes united only at the very base, 1.8-1.9 × 0.9-1.1 mm, longer than the corolla tube, triangular, acute, with a few reddish hairs outside, glabrous inside, with a small colleter at each lobe sinus. Corolla elliptic in bud, contorted with the left lobe margin overlying, not or only slightly twisted, with the lobes fused at the base only into a short tube, olive-green suffused with purple towards centre; tube 0.4-0.6 mm long, glabrous; lobes 17-21 × 5-6 mm, narrowly elliptic, rounded at the apex, rotate and with the lobes slightly curved backwards, glabrous outside, glabrous inside except for a patch of straight erect white hairs near the base and with long distinct somewhat bulbous hairs in a submarginal ca. 1.3 mm long row at each side, with 5-7 parallel veins. Stamens in a column 11.5-12.5 mm high (including projecting connectives), inserted at the base of the corolla tube; filaments broad with short sclerified margins (anther wings) and with a cup-like projection below (pollinium entrance), united into a short but distinct cylinder at base; anthers (excluding connectives) 1.7-1.9 mm long, with hairy/papillate thecae; connectives much prolonged into five free filiform and somewhat club-shaped appendages, 10-10.5 mm long, hairy/papillate, lavender. Corona lobes filiform, 0.8-0.9 mm long, bent upwards, much shorter than the connectives, glabrous. Pollinaria each with 4 pollinia grouped close together; pollinia two in each anther locule, ascending, ellipsoidal, ca. 0.2 mm long, attached on U-folded soft corpuscula at the margin of a discoid style head. Ovary subinferior, with numerous ovules. Style narrow and cylindric at lower half but conical below the

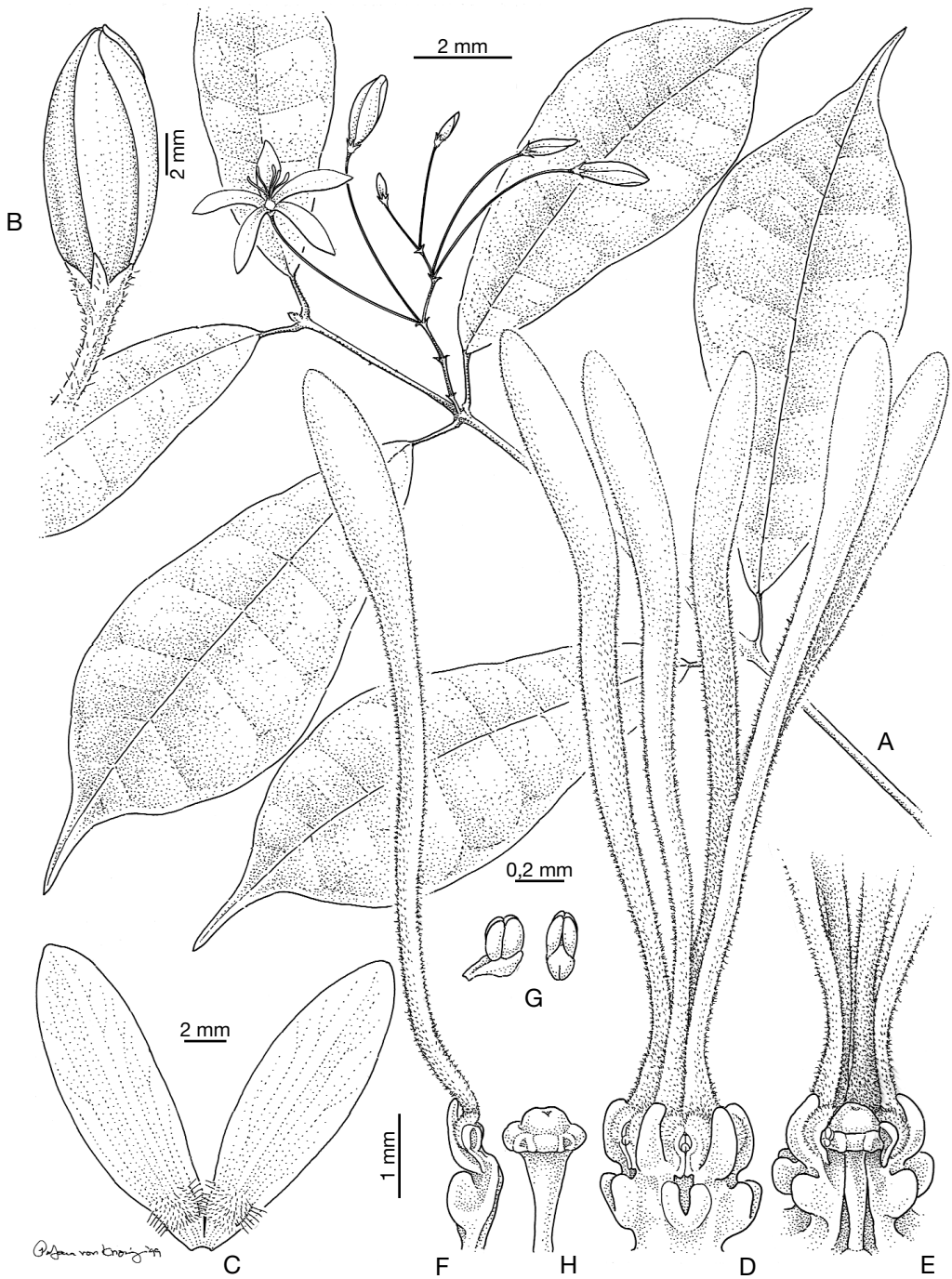

Fig. 1. — ***Calyptranthera schatziana***: **A,** habit; **B,** flower in bud; **C,** portion of corolla from within; **D,** gynostegium; **E,** gynostegium with one anther removed; **F,** anther seen in lateral view; **G,** pollinaria; **H,** style head. (*Schatz & Bernard 3693*; B-H from spirit material). Drawn by P. VON KNORRING.

style head, 1.1-1.3 mm high; style head 0.5-0.6 mm high, with a discoid lower part abruptly narrowed into the style, and with a narrower and short upper part, which is slightly depressed at the apex, about as long as the thecae. Follicles not seen. — Fig. 1.

DISTRIBUTION AND HABITAT. — *Calyptranthera schatziana* is known only from the type locality at the Masoala Peninsula in the northeastern part of Madagascar. It was found in humid evergreen forest on laterite at 50 m altitude in flower in November. It differs from all other species of the genus by its well-developed thread-like and somewhat club-shaped prolonged connectives in combination with very small and erect cylindric corona lobes, which do not exceed the thecae.

DISCUSSION

Calyptranthera schatziana has large flowers as well as filiform and ascending corona lobes, characters found also in *C. baronii* and *C. grandiflora*, but it differs in not having the smaller flowers with distinctly spathulate and horizontal corona lobes that are seen in the remaining four species of the genus, viz. in *C. brevicaudata*, *C. caudiclava*, *C. gautieri* and in *C. pubipetala* (KLACKENBERG 1997, 1998). It is furthermore united to *C. baronii* and *C. grandiflora*, and also to *C. caudiclava,* by having a submarginal straight line of bulbous hairs near the base on the corolla lobes (Fig. 1C). Although *C. schatziana* shares overall similarity with *C. baronii* and *C. grandiflora*, it is distinguished by several characters. The first impression of *C. schatziana* is of a taxon with large flowers (corolla lobes ca. 2 cm long), but the flowers are in fact considerably smaller than in both *C. baronii*, whose lobes are ca. 3.5 cm long, and particularly *C. grandiflora*, with lobes ca. 5 cm long. A significant difference is observed in the size of the calyx: *C. schatziana* has lobes that are less than 2 mm long opposed to more than 7 mm in *C. baronii* and *C. grandiflora*. The corona lobes are much shorter in *C. schatziana*, not exceeding the thecae, whereas they are well developed in both *C. baronii* and *C. grandiflora*. On the other hand, the connectives are elaborate in the new species, protruding ca. 9 mm above the thecae, compared to ca. 1.5 mm in *C. grandiflora* and ca. 3 mm in *C. baronii.* Minor differences in the pubescence of the corollas are also observed. As mentioned above submarginal straight lines of bulbous hairs near the base on the corolla lobes are present, but this line is shorter in *C. schatziana* with fewer hairs and not so distinct as compared to *C. baronii* and *C. grandiflora*. *Calyptranthera schatziana* has glabrous margins of the corolla lobe, whereas in *C. baronii* and *C. grandiflora* the left (seen from above) margin is finely pubescent.

Calyptranthera schatziana is furnished with much prolonged and filiform anther connectives, a character seen in all species of the genus except in *C. brevicaudata* and *C. pubipetala*. In *C. schatziana* the prolonged connectives are slightly club-shaped and distinctly hairy/papillate, a condition that is also observed only in *C. caudiclava*. The new species, however, lacks the distinct calyptra formed by the broadened, more or less fused bases of these connectives, a character that is unique to *C. caudiclava*. It also lacks the spathulate and rotate corona lobes mentioned above, and *C. schatziana* is clearly distinguished from and probably vicariant to the more southern *C. caudiclava*.

The flowers of the species described here seem to develop in pairs along a main axes, with one to two mature flowers and some additional buds grouped together near the top of the inflorescence axes, all in different stages of development. The inflorescence, however, is basically a dichasial cyme with a terminal flower developing at each node. In addition, two side branches also develop at each node, one of which has much reduced internodes and consist almost entirely of a terminal flower on a long pedicel, which flower constitutes the second flower of each flower-pair. The other axillary bud develops fully and continues the shoot system. In this way the terminal flower at each node develops slightly earlier than the one that is born on the corresponding reduced side branch. After anthesis the internodes elongate slightly, forming an unbranched main axis with distinct scars of flower pairs at each node. This structure is probably the basic condition in all species of the genus, although the cymes of *C. brevicaudata*, *C. gautieri* and *C. pubipetala* are more condensed and umbel-like with the ramification pattern less evident.

Three other species of *Calyptranthera*, viz. *C. brevicaudata*, *C. grandiflora* and *C. pubipetala*, have been found in the same area as *C. schatziana*. Of these, *C. brevicaudata* was found in dunes in coastal forest, and is probably ecologically allopatric. *C. grandiflora* and *C. pubipetala*, however, are known from evergreen forest/ savoka, and it is surprising to find a third sympatric species of this genus from the Masoala peninsula in the same habitat. All species of *Calyptranthera* are solely known from their type localities, except for *C. caudiclava* from the SE coast of Madagascar, for which several collections are available. Caution is thus needed when describing another new species based on only one collection. Nevertheless, *C. schatziana* differs significantly from all known taxa, as seen above, in several both quantitative and qualitative characters, and I do not hesitate to describe it as a new species.

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