

THREE NEW SPECIES OF *CALATHEA* (MARANTACEAE)
ENDEMIC TO COLOMBIA

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ABSTRACT

Calathea neurophylla H. Kenn., *C. barryi* H. Kenn., and *C. velutinifolia* H. Kenn., endemic to Colombia, are described as new. *Calathea neurophylla* is characterized by the single cauline leaf subtending one or more inflorescences of spirally arranged bracts and the markedly ridged, narrowly elliptic leaf blades (length 6.25–8.46 times width). *Calathea barryi* is characterized by the single cauline leaf subtending several inflorescences with 25–43 spirally arranged bracts and the very closely spaced lateral veins (ca. 67 per 3 cm). *Calathea velutinifolia* is distinguished by the 4–15 basal leaves, the densely appressed velvety tomentose adaxial leaf surface and the 8–10 distichous, white bracts.

RESUMEN

Se describen como nuevas *Calathea neurophylla* H. Kenn., *C. barryi* H. Kenn., y *C. velutinifolia* H. Kenn., endémicas de Colombia. *Calathea neurophylla* se caracteriza por su única hoja caulinar que subtende una o más inflorescencias con brácteas dispuestas en espiral, y las láminas con costillas marcadas, estrechamente elípticas (longitud 6.25–8.46 veces la anchura). *Calathea barryi* se caracteriza por la única hoja caulinar que subtende varias inflorescencias con 25–43 brácteas dispuestas en espiral y las venas laterales muy apretadas (ca. 67 por 3 cm). *Calathea velutinifolia* se distingue por las 4–15 hojas basales, con tomento densamente apresado y aterciopelado en el haz y las 8–10 brácteas disticas, blancas.

Colombia, with its great diversity of habitats, is rich in Marantaceae. Suárez-Suárez (2016) recognized 148 species in 11 genera for Colombia of which she noted 89 species in the genus *Calathea*, four of which are non-native, cultivated species. The attractive, patterned-leaved, *Calathea calderon-saenzii* H. Kenn. & M. Serna was recently added to the total (Kennedy & Serna, 2016). The number of new species still to be discovered is certainly substantial and at least 9 additional undescribed species have been identified, including the three herein described. With the ongoing interest in documenting the incredible biodiversity of Colombia, there is sure to be a substantial increase in the number of Marantaceae species recorded for the country.

Calathea neurophylla H. Kenn., sp. nov. (**Fig. 1**). TYPE: COLOMBIA. CAUCA: Munic. Santa Rosa, km 37 de la carretera Mocoa-Pitalito, tomando el antiguo camino que de Mocoa conduce a Villalobos, 1120 m, 2 Sep 1993, L. García et al. 697 (HOLOTYPE: MO 4932522).

Haec species *Calathea pluriplacatae* H. Kenn. affinis, sed ab ea lamina foliari 5.2–6 (vs. 9–16) cm lata longitudinis cum latitudine proportionem >6.25 (vs. <4) atque vena minore solitaria (vs. venis minoribus tribus) inter venas majores praesente; a ceteris speciebus ad gregem *Calathea lanicaulis* H. Kenn. pertinentibus lamina foliari angustiore valde porcata distinguitur.

Plants caulescent, rhizomatous, perennial herbs, ca. 85 cm; stem appressed tomentose, hairs more dense adaxially and just below the node, the hairs to 1 mm. **Leaves** 1 or more basal and 1 cauline, borne above an elongate internode of ca. 34 cm; leaf sheath not auriculate, appressed tomentose, hairs more dense along the margins, sheath of subtending leaf ca. 8.4 cm, others 16 or more cm; petiole light green, sparsely appressed tomentose, more sparsely so on sides, bearing a groove adaxially, ca. 2.3 cm in subtending leaf, 20.5–24 or more cm in others; pulvinus elliptic in cross-section, articulate, petiole thicker than pulvinus, densely tomentose adaxially, hairs very sparse, scattered, on sides and abaxially, the hairs colorless, 0.5–0.7 mm, 2–3.4 cm; leaf blade stiff, chartaceous, markedly ridged, major veins raised, narrowly elliptic, apex acuminate, base obtuse; 37–44 × 5.2–6 cm (length:width ratios 6.25–8.46:1), 1 minor vein between major veins, ca. 20 veins per 2 cm, vein

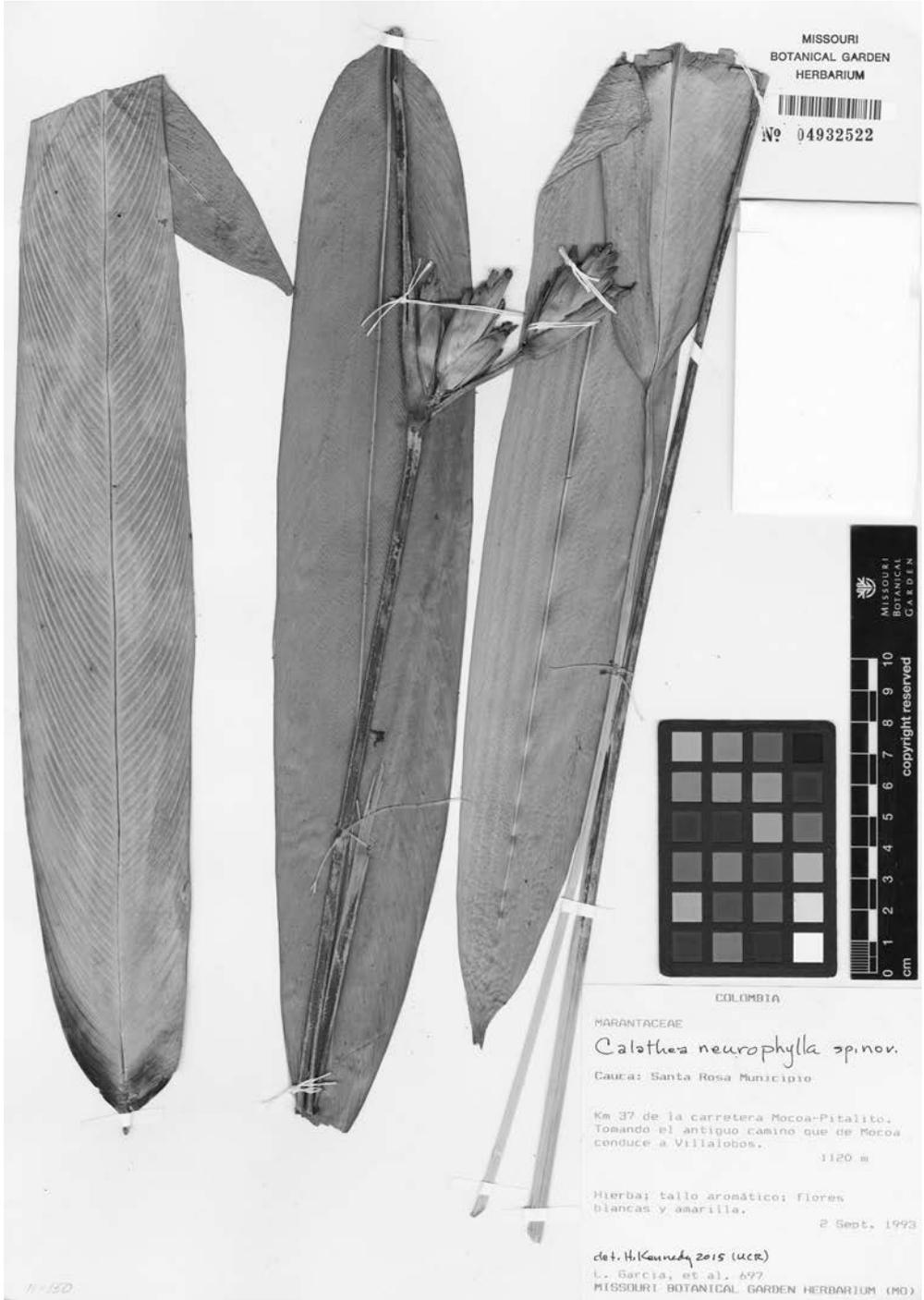


FIG. 1. *Calathea neurophylla* H. Kenn. Holotype. Scan of Missouri Botanical Garden specimen (Garcia et al. 697, MO).

spacing 0.8–1.2 mm, ca. 37 veinlets per 5 mm (measured at midpoint of each side of the blade), adaxial surface green, glabrous, midrib glabrous, abaxial surface glabrous, midrib glabrous. **Inflorescences** 1–3, or possibly more, per shoot depending on age, the first terminal, the next in the axil of the subtending leaf, imbricate, obovoid, 4.2–4.5 × 1.2–2.3 cm; peduncle appressed tomentose, more densely so on adaxial side, most densely so at the junction with the lowest bract, essentially nil to 3.8 cm. **Bracts** 9–13, spirally arranged, stiff, chartaceous, elliptic, apex obtuse, 2.9–3.3 × 1.25–1.4 cm, abaxial surface appressed tomentose at base and along center back, margins and apex in lowermost bract, upper bracts subglabrous at base and centrally, appressed tomentose at apex and apical margins; bicarinate prophyll membranous, ovate, apex acute to 90°, glabrous, 2.5–2.9 × 0.7–0.9 cm, ca. 0.55 cm wide, carina to carina; secondary bract membranous, elliptic, apex acute, glabrous, 2.3–2.5 × 0.5–0.7 cm; bracteoles 2 per flower pair, membranous, medial, one channeled and one carinate, 1.8–2.1 × ca. 0.25 cm. **Flowers** white and yellow (*vide Garcia 697*). **Sepals** membranous, narrowly elliptic, nearly linear, obtuse with minute acumen, glabrous, 8.5–10 × ca. 2 mm. **Corolla** glabrous, tube 16–18 mm, corolla lobes subequal, elliptic, obtuse, ca. 12 × 3 mm. **Staminodes** 3; outer staminode obovate, clawed at base, 8–9 × ca. 6 mm; callose staminode totally callose, rectangular, apex obtuse, but offset to one side, ca. 8 mm; cucullate staminode ca. 4 mm. **Ovary** glabrous, ca. 3 mm. **Capsule** obovoid, an immature one to 9 mm; crowned by a persistent calyx.

Distribution and habitat.—*Calathea neurophylla* is endemic to Colombia. It is known only from the type in Department Cauca at 1200 m in tropical montane forest. *Calathea neurophylla* was collected in flower in September.

Discussion.—*Calathea neurophylla* belongs to the informally recognized “*C. lanicaulis* group” in *Calathea* (Kennedy 1988:47) with basal leaves and a single cauline leaf subtending one or more inflorescences of spirally arranged bracts. It is readily distinguished from all other species in that group by the narrowly elliptic leaf blades (length 6.25–8.46 × width) with sharply raised major veins, giving it a distinctly ridged texture and the narrow leaves (5.2–6 cm). *Calathea neurophylla* shares the ridged leaf texture, the relatively small inflorescences (less than 6 × 3.5 cm) with few (16 or fewer) coriaceous, green bracts, and the presence of two medial, membranous, bracteoles with the related, *C. pluriplicata*. However, *C. neurophylla* is readily distinguished from *C. pluriplicata* by the narrower (5.2–6 vs. 9–16 cm) and proportionally longer and narrower leaf blades (length/width ratio >6.25 vs. <4:1), as well as having a single vs. three minor veins between the major veins.

Interestingly, the principal collector, L. Garcia, notes “tallo aromatic” in the label data. Though potentially a good field character, it is lost in the dried material.

Etymology.—The specific epithet, *neurophylla*, refers to the distinctive, prominently raised veins of the leaf.

Calathea barryi H. Kenn., sp. nov. (**Fig. 2**). TYPE: COLOMBIA, NARIÑO: Valley of Río Guiza, road from El Espino to Tumaco, ca. 19 km W of Ricaurte, on steep slopes along small stream, 900 m, 01°15'N, 078°06'W, 7 Dec 1988, B. Hammel 17140 (HOLOTYPE: MO 5320319).

Haec species *Calathea asplundii* H. Kenn. arcte affinis, sed ab ea lamina foliari ad centrum subglabra marginibus pilosis (vs. venis majoribus et costa dense tomentosis), bracteis 4.3–5.7 (vs. 2.7–3.5) cm longis, sepalis 19–20 (vs. 13–16) mm longis atque corollae tubo lobisque pilosis (vs. glabris), a *Calathea hagbergii* H. Kenn. bracteis in quaque inflorescentia 25 ad 43 (vs. 5 ad 13) atque florum quoque pari bracteolis 2 (vs. 4) subtento distinguitur.

Plants rhizomatous, caulescent, perennial herbs, ca. 2 m. **Leaves** basal (number unknown, one or more) and 1 cauline; leaf sheath not auriculate, pilose along margins, center portion, abaxially, glabrous just below petiole, sparsely pilose toward base and densely appressed pilose at very base and onto upper 5–6 mm of the internode below, the hairs ca. 0.2 mm, sheath of subtending leaf ca. 16 cm, sheath plus petiole and pulvinus to 2 m in basal leaves (*vide Hammel 17140*); petiole glabrous, ca. 7.5 cm in subtending leaf; pulvinus elliptic in cross-section, a reddish brown when dried, glabrous, ca. 13 cm in subtending leaf, unknown for others; leaf blade chartaceous, elliptic, apex eccentric, obtuse with narrow acumen displaced to one side, base rounded, shortly abruptly attenuate, ca. 85 × 30 cm in subtending leaf, other leaves ca. 1 m (*vide Hammel 17140*), (length:width ratio ca. 2.8:1), 7 minor veins between major veins, major veins sharply raised above, vein angle from midrib



Fig. 2. *Calathea barryi* H. Kenn. Holotype. Photo of Missouri Botanical Garden specimen (Hammel 17140, MO).

(measured at midpoint of blade) ca. 55°–60°s, ca. 67 veins per 3 cm, ca. 63 veinlets per 5 mm (measured at midpoint of each side of the blade), adaxial surface green, nearly glabrous centrally, pilose along the margins, the hairs 0.5–1 mm, densely appressed apically and on acumen, sparsely in basal portion, midrib minutely pilose, the hairs 0.4–0.5 mm, abaxial surface pilose along veins, more densely so along major veins and near midrib, hairs sparser toward the margins, midrib appressed pilose on sides basally, pilose throughout apically. **Inflorescences** clustered, the number variable depending on age, but up to 8 per shoot, the first one terminal, subsequent ones borne in the axil of the lowest bract, the axil of the bicarinate prophyll, the axil of the subtending leaf and the cataphyll associated with the shoot of that inflorescence, the inflorescence imbricate, ellipsoid, 9.5–12.5 × 4.5–7 cm; peduncle essentially nil or up to 0.8 cm. **Bracts** 25–43 (in type specimen), spirally arranged, chartaceous, lowermost ones elliptic with rounded to obtuse apices, upper bracts ovate with an acute apex; 4.3–5.7 × 1.4–2.3 cm, each bract subtending at least 3 flower pairs, abaxial surface of bracts wine-colored (*vide Hammel 17140*), densely pilose along margins, sparsely so centrally and occasionally also at apex, the hairs pale straw-colored, 0.5–0.8 mm; adaxial surface densely appressed pilose in upper 1/4–1/5; bicarinate prophyll membranous, except thickened along junction with carina, ovate, apex obtuse, acute in upper bracts, appressed pilose on sides and adjacent surface of carina, glabrous at very margin, the hairs 1 mm, the center back glabrous, 2.8–3.2 × 0.8–1.3 cm, 0.6–1.1 cm wide, carina to carina; secondary bract membranous, ovate, apex acute, pilose along margin and in apical 1/4, 2.9–3.3 × 0.8–1.2 cm; bracteoles 2 per flower pair, medial, membranous, both carinate, narrowly ovate, acute, pilose along carina mainly on adaxial surface, the hairs to 0.8 mm, with a tuft of hairs at the very base where carina meets the side, 2.3–2.75 × 0.4–0.55 cm. **Sepals** with hyaline margins, very narrowly obovate, sordid white to wine tinged, sparse scattered hairs except at very base at the junction with the ovary, the hairs to 0.5 mm, all around the ovary, 19–20 × 2–3 mm. **Corolla** tube 32–35 mm, corolla lobes yellow, elliptic, obtuse, pilose, the hairs 0.5 mm, ca. 12 × 4 mm. **Staminodes** 3, outer staminode unknown; callose staminode ca. 11 mm; cucullate staminode, ca. 8 mm; anther 1.5 mm. **Ovary** smooth, glabrous, ca. 4 mm. **Capsule** crowned by a persistent calyx, capsule and seeds immature in specimen.

Distribution and habitat.—*Calathea barryi* is endemic to Colombia. It is known only from the type locality in Department Nariño at 900 m. *Calathea barryi* was collected in flower in December.

Discussion.—*Calathea barryi* belongs to the informally recognized “*C. lanicaulis* group” in *Calathea* (Kennedy 1988:47) with basal leaves and a single cauline leaf subtending one or more inflorescences of spirally arranged bracts. The most striking feature of this species is the very close vein spacing, ca. 67 lateral veins per 3 cm (measured at midpoint of blade) which alone would probably distinguish it from all other related species in the “*C. lanicaulis* group” and probably from all, or virtually all, described species of *Calathea*. *Calathea barryi* is most closely related to *C. asplundii*, sharing a similar leaf shape with an eccentric acumen apically and rounded base, the relatively numerous (25 or more) coriaceous bracts per inflorescence, a number of which are elliptic with obtuse to rounded apices, and having two membranous bracteoles per flower pair. *Calathea barryi* is distinguished from *C. asplundii* by the closer lateral vein spacing (ca. 67 vs. 34–39 veins per 3 cm); leaf blade centrally subglabrous with the margins pilose vs. the major veins and midrib densely tomentose; the longer bracts (4.3–5.7 vs. 2.7–3.5 cm); the longer sepals (19–20 vs. 13–16 mm); and the corolla tube and lobes pilose vs. glabrous. It differs from the less closely related, *C. hagbergii*, which also has spirally arranged purple bracts, by the more numerous bracts per inflorescence (25–43 vs. 5–13) in which the basal bracts are elliptic with rounded to obtuse apices vs. all ovate with acute apices and the presence of two vs. four bracteoles per flower pair. Two Panamanian species *C. allenii* Woodson and *C. confusa* H. Kenn., also exhibit the markedly raised major veins, but are readily distinguished in having a single inflorescence of green to yellow-green, herbaceous, bracts and lacking secondary bracts and bracteoles.

Etymology.—The specific epithet, *barryi*, is in honor of Barry Hammel, curator, Missouri Botanical Garden, for his invaluable help to me in the field over many years for the Manual of Plants of Costa Rica treatment, his many collections and knowledge of Marantaceae both in Central and South America and his wonderful hospitality during my visits.

Calathea velutinifolia H. Kenn., sp. nov. (Figs. 3–4). TYPE: COLOMBIA. VALLE DEL CAUCA: Costa del Pacifico, Bahía de Buenaventura, Quebrada de Aguadulce, 0–10 m, 11 Nov 1945, J. Cuatrecasas 19747 (HOLOTYPE: F 1273501).

Haec species *Calathea striata* H. Kenn. foliis adaxialiter trichomatibus adpressis velutinis dense tomentosis (vs. glabris praeter apicem basemque), bracteis albis (vs. viridibus vel purpureo-suffultis) in quaque inflorescentia 8 ad 10 (vs. 4 ad 7), sepalis 14.5–15.5 (vs. 22–24) mm longis atque bracteis secundariis nullis distinguitur.

Plants rhizomatous, perennial herbs, 30–50 cm; roots, stiff, wiry; stem internodes sericeous, the hairs colorless, 4.5 mm; cataphylls narrowly ovate, red-purple, subglabrous, a few sparse hairs 0.2–0.3 mm along the margins; innermost cataphyll ca. 15 cm. **Leaves** 4–15 basal; leaf sheath not auriculate, tinged red-purple, glabrous, 8.2–13.5 cm; petiole glabrous except for a few hairs just above the sheath, (0.5–)5.3–20.5 cm; pulvinus round in cross-section, red-purple, glabrous, articulate, thicker than petiole with slight swelling at basal junction to petiole, (0.5–)1.6–3.3 cm; leaf blade chartaceous, ovate, apex acuminate, base rounded; 10–26 × 4.7–12.2 cm (length:width ratios 2.02–2.26:1), vein angle from midrib (measured at midpoint of blade) 40°–50°, 12–19 veins per 3 cm, 25–33 veinlets per 5 mm (measured at midpoint of each side of the blade), adaxial surface dark green, velvety tomentose, the hairs appressed to matted, pale straw-colored, 1–1.5 mm, midrib green, velvety tomentose, abaxial leaf surface red-purple, glabrous except for few hairs along margin in apical 1 cm and at apex, midrib red-purple, glabrous. **Inflorescence** terminal, 1 per shoot, borne below the leaves, complanate, laterally flattened, elliptic, 8–9.5 × 3.1–4 cm; peduncle glabrous except tuft of hairs at junction to bract, hairs pale straw-colored, 4–6 cm. **Bracts** 8–10, distichous, coriaceous, lowermost bract ovate-elliptic, apex obtuse with acumen, second and third bracts broadly elliptic, apex rounded with acumen, upper most ones obovate-elliptic, the outer margin and apex spreading, 4–6.1 × 3.2–5.2 cm; each bract subtending 3 or more flower pairs, abaxial surface white, glabrous, adaxial surface glabrous or pilose apically with the hairs 0.7–1 mm; bicarinate prophyll membranous, ovate, apex acute, glabrous, 2.1–2.6 × 0.8–1.1 cm, 0.6–0.7 cm wide, carina to carina, a ring of 1–1.5 mm hairs present just below the attachment of the bicarinate prophyll to the floral axis; secondary bract apparently absent; bracteoles 2 per flower pair, membranous, medial, both carinate, narrowly elliptic, glabrous, ca. 2 × 0.3 cm. **Sepals** membranous, narrowly elliptic, obtuse, apical margins inrolled, glabrous, 14.5–15.5 mm. **Corolla** and staminodes unknown, due to condition of the specimen. **Capsule** unknown.

Additional specimens examined: **COLOMBIA. Valle del Cauca:** Region of Bajo Calima, along road between Buenaventura and Málaga, at km 50.5, virgin forest along road, 04°09'N, 077°11'W, 7 Feb 1990, T.B. Croat & J. Watt 70323 (MO 3821438); Munic. Buenaventura, Corregimiento Bajo Calima, Vía a Malaga, km 65, región Fitogeográfica del Chocó, 20 m, 28 Feb 1990, W. Devia 3048 (MO).

Distribution and habitat.—*Calathea velutinifolia* is endemic to Colombia. It occurs in Municipio Buenaventura of the Department Valle del Cauca from sea level to 20 m in lowland tropical wet forest. *Calathea velutinifolia* has been collected in flower in November and February.

Discussion.—*Calathea velutinifolia* is readily distinguished from nearly all other species of *Calathea* by virtue of the densely appressed velvety tomentose adaxial surface of the leaf blade. While the majority of species of *Calathea* have a glabrous or subglabrous adaxial leaf surface or just with hairs along the major veins, having an overall pubescence adaxially is not that uncommon. Clearly this is desired feature for many horticultural introductions such as *C. leucostachys* Hooker f., *C. sciuroides* Peters. and *C. rufibarba* Fenzl. However, in these species the hairs are not appressed nor densely matted. I've only seen one other species with similar pubescence to that of *C. velutinifolia* but its bracts were not distichous. In general aspect, *Calathea striata* H. Kenn., from Colombia and Ecuador, is similar with its habit of several, strictly basal, leaves and distichously-bracted inflorescences. *Calathea velutinifolia* is readily distinguished from *C. striata* by the densely appressed velvety tomentose vs. the glabrous, except at apex and base, adaxial leaf surface, the 8–10 vs. 4–7 bracts per inflorescence, the white vs. green or tinged purple bracts, the shorter sepals (14.5–15.5 vs. 22–24 mm) and with the secondary bracts lacking vs. present.

Etymology.—The specific epithet, *velutinifolia*, refers to the densely appressed, velvety tomentose, adaxial surface of the leaf blade.



Fig. 3. *Calathea velutinifolia* H. Kenn. Holotype. Photo of Field Museum specimen (Cuatrecasas 19747, F).

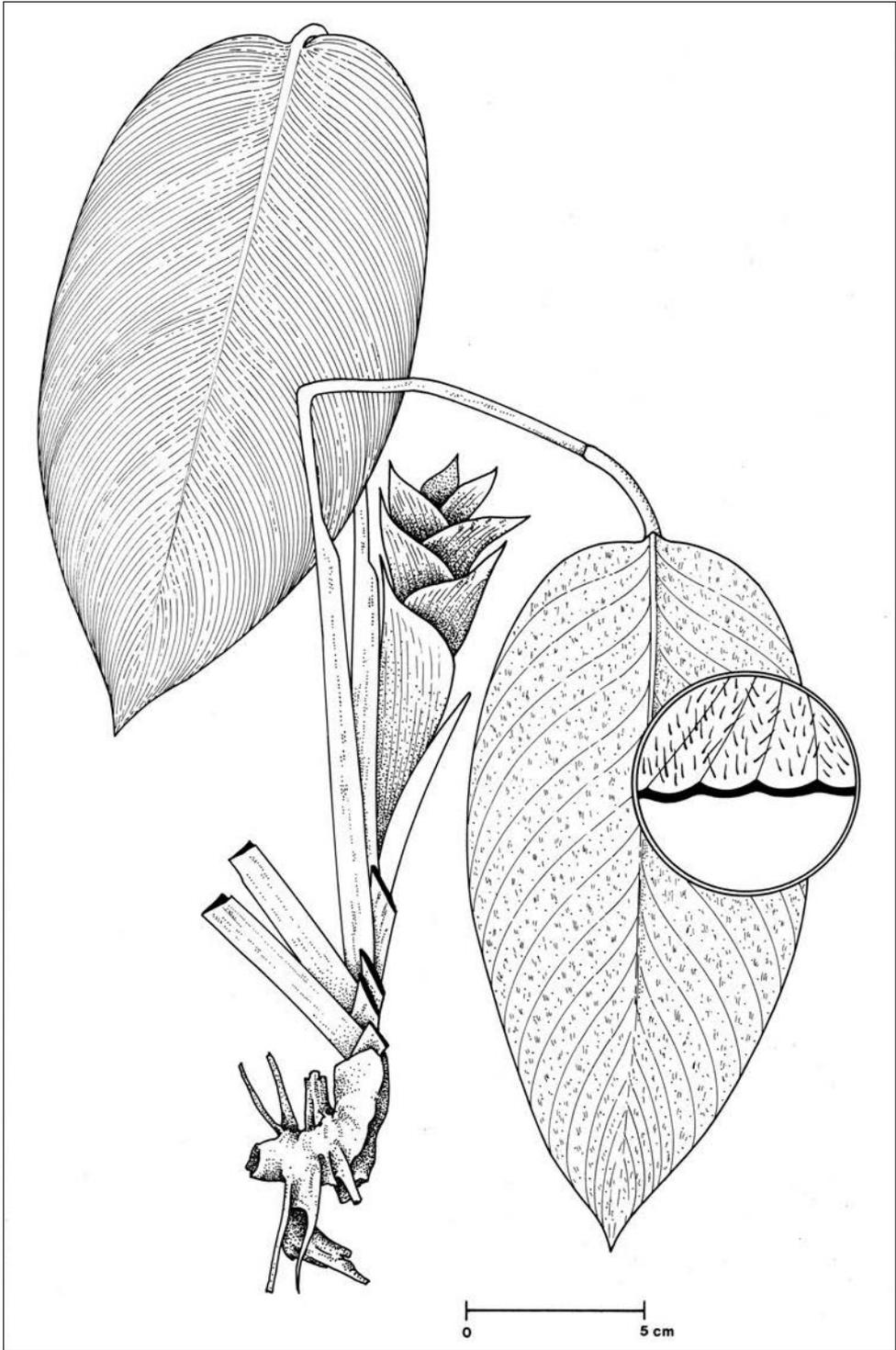


FIG. 4. *Calathea velutinifolia* H. Kenn. Holotype. Drawing of Field Museum specimen (Cuatrecasas 19747, F) by Z. Jastremski.

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