**CALATHEA GALDAMESIANA (MARANTACEAE), A NEW ENDEMIC PANAMANIAN SPECIES**

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**ABSTRACT**

_Calathea galdamesiana_ H. Kenn. & R. Flores, endemic to Panamá, is described as new for inclusion in the Flora Mesoamericana. It occurs in premontane wet forest and is known only from the type locality in Parque Nacional Santa Fe, Veraguas Province. It is characterized by the 5–8 basal leaves per shoot, in which the petiole is absent and the margins of the leaf sheath are spreading and reflexed; and the 1–4 fusiform inflorescences borne on a separate, leafless shoot directly from the rhizome. _Calathea galdamesiana_ shares a similar vegetative habit and leaf morphology with _C. panamensis_ Standl. but differs in the elliptic vs. obovate to obovate-elliptic leaf blade, the 1–4 inflorescences borne on a separate leafless shoot vs. 1 (rarely 2) borne on the leafy shoot, the red-purple vs. green bracts and chasmogamous vs. cleistogamous flowers. The flower morphology of _C. galdamesiana_ is most similar to that of _C. cleistantha_ Standl. which also has the inflorescences borne on a separate leafless shoot. _Calathea galdamesiana_ differs from _C. cleistantha_ by the absence of a petiole and the margins of the leaf sheath spreading to recurved vs. petiole (0–)3.5–15 cm and the margins of leaf sheath clasping, the usually shorter pulvinus (0.3–1 vs. 0.9–2.3 cm), and the fusiform vs. ovoid inflorescence (length to width ratio 3.2–4.5:1 vs. <2.5:1).

In preparation for the Flora Mesoamericana treatment, the species of Marantaceae from Panama have been a special focus as with increased collecting several undescribed species have been discovered recently. With considerably more collecting since publication of the Woodson & Schery (1945) treatment for Flora of Panama, listing 23 species, the total has tripled. By 1972, Dressler (1972:184) reported a total of 35 species for Panama. Besides field work, recent herbarium studies at Missouri Botanical Garden and University of Panama have uncovered additional new species. Just since 2011, 11 more species of Marantaceae have been described from Panama. Kennedy (2012:49) had reported a total of 63 species whereas, currently, 69 species are recognized (a 200% increase from the original _Flora of Panama_ treatment). Twenty species are recognized as endemic, including the one described herein plus another as yet undescribed taxon.

**TAXONOMIC TREATMENT**

_Calathea galdamesiana_ H. Kenn. & R. Flores, sp. nov. (Figs. 1, 2). _Type:_ PANAMÁ. _Veraguas._ Parque Nacional Santa Fe, alrededores de la parcela ubicada por CBMAP II/ANAM, Alto de Piedra, Guabal, 900 m, 8°31’39”N, 81°08’58”W (UTM 0483553 E, 0942618 N), 18 May 2015, R. Flores & N. Guerra 3655 (holotype: PMA; isotypes: SCZ, UCH, UCR).

_Hae_ species quoad partes vegetativas _Calathea panamensis_ Rowlee ex Standl. similis, sed ab ea lamina foliari elliptica (vs. obovata vel obovato-elliptica), inflorescentis 1 ad 4 (vs. 1 raro 2) surculo aphylo discoeto insidentibus, bracteis rubro-purpureis (vs. viridibus) atque floribus chasmogamis; quoad partes florales _C. cleistantha_ Standl. similis, sed ab ea foliis semper sessilibus, vagina florali marginibus patentibus.
Fig. 1. *Calathea galdamesiana* H. Kenn. & R. Flores. A. Habit. B. Leaf base, pulvinus and apex of alate leaf sheath. C. Inflorescences subtended by cataphyll. D. Face view of untripped flower. E. Flower on adaxial leaf surface. (*Flores & Guerra 3655*, PMA, photos by Rodolfo Flores).
Fig. 2. Calathea goldamesiana H. Kenn. & R. Flores. Holotype. Type scan provided by PMA (Flores & Guerra 3655, PMA).

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Plants rhizomatous, rostrate herbs, 50–80 cm; the inflorescences are borne on a leafless shoot directly from the rhizome; roots bearing swollen “root tubers” 4.3–6.5 × 2–3 cm; cataphylls narrowly ovate, apiculate, green. Leaves 5–8 basal; leaf sheath abaxial, the wings spreading, recurved, the abaxial surface, both wings and central back portion, light green, adaxial portion of wings deep green, central portion of leaf sheath lighter, 18–48 cm; petiole absent; pulvinus light yellow-green to cream-colored, minutely tomentose adaxially, 0.5–1 cm; leaf blade herbaceous, with pleated appearance (tissue between two adjacent veins planar), elliptic, apex obtuse to rounded with acumen, base obtuse to rounded, 23.5–46.2 × 19–25.5 cm (length:width ratios [1.34–]1.81–2.16:1) lateral veins 11 to 14 per 3 cm (measured at midpoint of each side of blade), vein angles from midrib 35°–42°, measured at midpoint of blade, adaxial surface grass-green, midrib yellow-green, noticeably lighter than blade, abaxial surface pale grey-green, midrib cream-colored. Inflorescences 1–4 per shoot, the first terminal, subsequent ones in the axil of the subterminal cataphyll, imbricate, fusiform, 5.8–10.8 × 1.3–2.5 cm; peduncle red-purple, white if covered by cataphyll, 2.4–6.5 cm, the basal portion, ca. 2 cm, swollen, tissue growth more on one side, causing the inflorescence to be deflexed onto the ground. Bracts 6–12, spirally arranged, ovate, apical ones proportionally longer and narrower, apex acuminate, 4–5.9 cm long, abaxial surface of bracts red-purple to brownish purple, darker at margins and apex, becoming very dark, almost blackish purple, in age. Flowers open spontaneously. Sepals red-purple apically, basal half white, ca. 19 mm long. Corolla tube cream-colored to white, ca. 35 mm; corolla lobes subequal, elliptic, apex obtuse, red-purple abaxially, white adaxially with the veins seen as fine purple lines, 17–19 × 5–6 mm. Staminodes 3; outer staminode obovate, apex emarginate, yellow, ca. 14–17 × 8 mm; callose staminode totally callose, apex reflexed, obtuse with minute acumen to rounded or somewhat irregular, yellow basally, apical ½ dark red-purple, ca. 7 mm wide; cucullate staminode yellow, ca. 10 mm; stamen pale yellow with lateral petaloid appendage 1–3 mm wide; ovary pink, ca. 3 mm. Fruits and seeds unknown.

Distribution and habitat.—Calathea galdamesiana is endemic to Panamá. It is known only from the type locality in Parque Nacional Santa Fe, Veraguas Province. It occurs in premontane wet forest habitat. The only collections of it were at 900 m elevation.

Discussion.—Calathea galdamesiana belongs to Calathea section Breviscapae Benth. It is characterized by the 5–8 basal leaves per shoot, the elliptic leaf blades, the absence of a petiole proper, the margins of the leaf sheath are spreading and reflexed, the 1–4 fusiform inflorescences borne on a separate, leafless shoot directly from the rhizome, the petals red-purple abaxially, the outer and cucullate staminodes yellow and callose staminode yellow basally, apical ½ red-purple. Calathea galdamesiana shares a similar vegetative habit and leaf morphology with C. panamensis Standl. but differs in the elliptic vs. obovate staminode leaf blade, the 1–4 inflorescences borne on a separate leafless shoot vs. 1 (rarely 2) borne on the leafy shoot, the red-purple vs. green bracts and chasmogamous vs. cleistogamous flowers. The uncommon leaf morphology, shared with C. panamensis (alate, spreading, marginally recurved leaf sheath and lack of petiole) together with the inflorescences borne on a separate, leafless, shoot distinguish C. galdamesiana not only from other Panamanian species but from all Central American species and probably South American as well. The Brazilian species, C. albovaginata K. Schum., also has an alate leaf sheath, but there, the inflorescence is borne on the leafy shoot. The flower morphology of C. galdamesiana is most similar to that of C. cleistantha Standl. which also has the inflorescences borne on a separate leafless shoot. Calathea galdamesiana differs from C. cleistantha by the absence of a petiole and the margins of the leaf sheath spreading to recurved vs. petiole (0–)3.5–15 cm and the margins of leaf sheath clasping, the usually shorter pulvinus (0.5–1 vs. 0.9–2.3 cm), and the fusiform vs. ovoid inflorescence (length to width ratio 3.2–4.5:1 vs. <2.5:1).

The presence of the swollen “root tubers” in C. galdamesiana together with the thin textured, plicate leaf,
are commonly found in deciduous species such as *C. panamensis*, *C. latifolia* (Willd. ex Link) Klotzsch and *C. macrosepala* K. Schum. Whether this new species is possibly deciduous is not yet known.

*Calathea micans* (L. Mathieu) Körn., *C. microcephala* (Poepp. & Endl.) Körn. and *C. fucata* H. Kenn., in *Calathea* section *Microcephalum* Benth. also exhibit the swollen, and subsequent unequal-sided growth, of the base of the peduncles observed in *C. galdamesiana*. The growth of the base of the peduncle acts to deflex the inflorescence to the ground, usually when in fruit, in the case of *C. micans* and the related species, which are dispersed by ants (Horvitz & Beattie 1980). It is possible this is also the case in *C. galdamesiana* and merits further observation in the field.

**Etymology.**—The specific epithet, *galdamesiana*, is in honor botanist Carmen Galdames, research assistant at SCZ herbarium, Smithsonian Tropical Research Institute, Ancon, Panamá. It is a pleasure to thus recognize her contribution to our knowledge of the Panamanian flora through her collections, photographs, co-authorship of the Catálogo de las Plantas Vasculares de Panamá, her ethnobotanical studies and her generous assistance to the authors in the SCZ herbarium, including sharing her botanical knowledge.

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**REFERENCES**


