DARWINIANA
NUEVA SERIE
www.ojs.darwin.edu.ar
ISSN 0011-6793 impresa - ISSN 1850-1699 en línea

DARWINIANA, nueva serie 11(2): 507-520. 2023
Versión de registro, efectivamente publicada el 9 de octubre de 2023
DOI: 10.14522/darwiniana.2023.112.1134

THREE NEW SPECIES OF STENOSPERMATION (ARACEAE) FROM CENTRAL ANDES IN COLOMBIA

Natalia Castaño-Rubiano[1,2,3,5], Luna Ibañez[2,3], Julio A. Sierra-Giraldo[3,4] & Alejandro Zuluaga[1,5]

[1] *Departamento de Biología, Universidad del Valle, Calle 13 No 100-00, 76001 Cali, Colombia; natalia.castano@hotmail.com* (author for correspondence).
[2] *Semillero de Investigación en Plantas y Afines PHYTOS, Grupo de Investigación en Biodiversidad y Recursos Naturales BIONAT, Departamento de Ciencias Biológicas, Facultad de Ciencias Exactas y Naturales, Universidad de Caldas, Calle 65 #26-10, Bloque B, Oficina 405, 170004 Manizales, Colombia.*
[3] *Herbario de la Universidad de Caldas - FAUC, Grupo de investigación Biodiversidad y Recursos Fitogenéticos, A.A. 275, 170004 Manizales, Colombia.*
[4] *Fundación Conservación de la Selva Colombiana. Carrera 24 #46-72 Apto 302, 170004 Manizales, Colombia.*
[5] *Herbario Luis Sigifredo Espinal Tascón, Universidad del Valle, Edificio B1, Calle 13, #100-00, 76001 Cali, Colombia.*

Abstract. Castaño-Rubiano, N.; L. Ibañez, J. A. Sierra-Giraldo & A. Zuluaga. 2023. Three new species of *Stenospermation* (Araceae) from Central Andes in Colombia. *Darwiniana*, nueva serie 11(2): 507-520.

Three new species of *Stenospermation* from Central Andes in Colombia are described: *Stenospermation albifolium* Castaño-Rubiano, *S. melidae* Castaño-Rubiano & Sierra-Giraldo and *S. selvaflorensis* Castaño-Rubiano, L. Ibañez & A. Zuluaga. The species are distributed in the eastern zone of Caldas and Antioquia departments, in Natural National Park Selva de Florencia, and in forest near to corregimiento de Berlin (Samaná-Caldas), at elevations between 653 and 1700 m a.s.l., as well as in Carmen del Vivoral (Antioquia) at 1087 m a.s.l. The new species are compared with the morphologically closest taxa and comments are made on their phenology.

Keywords. Magdalena Caldense, post-armed conflict area, Selva de Florencia.

Resumen. Castaño-Rubiano, N.; L. Ibañez, J. A. Sierra-Giraldo & A. Zuluaga. 2023. Tres nuevas especies de *Stenospermation* (Araceae) para los Andes Centrales de Colombia. *Darwiniana*, nueva serie 11(2): 507-520.

Se describen tres nuevas especies de *Stenospermation* para los Andes Centrales de Colombia: *Stenospermation albifolium* Castaño-Rubiano, *S. melidae* Castaño-Rubiano & Sierra-Giraldo y *S. selvaflorensis* Castaño-Rubiano, L. Ibañez & A. Zuluaga. Las especies se distribuyen en el oriente de los departamentos de Caldas y Antioquia, en el Parque Nacional Natural (PNN) Selva de Florencia, y bosques cercanos al corregimiento de Berlín (Samaná-Caldas), a una elevación entre 653-1700 m., así como en el municipio de Carmen del Vivoral (Antioquia) a 1087 m s.m. Las nuevas especies se comparan con los taxones más cercanos morfológicamente y se realizan comentarios sobre su fenología.

Palabras clave. Magdalena Caldense, Selva de Florencia, zona de postconflicto armado.

INTRODUCTION

The Araceae family comprises around 3645 species, of which 2113 are found in the Neotropics (Boyce & Croat, 2018), and Colombia, with more than 818 species, is one of the most diverse countries per unit area in this family (Galeano et al., 2015). The genera with more species in Colombia are *Anthurium* Schott with 358, *Philodendron* Schott with 205, *Xanthosoma* Schott with 60,

Original recibido el 26 de marzo de 2023, aceptado el 24 de agosto de 2023
Editor Asociado: Fernando Biganzoli

Chlorospatha Engl. with 48 and *Stenospermation* Schott, with 42 (Galeano et al., 2015, Croat et al., 2107). Despite the efforts to understand the Araceae flora in Colombia, there are still information gaps in various regions of the country. According to Boyce & Croat (2018) *Stenospermation* has ca. 62 published names and 50 accepted species, but 250 species are estimated to exist (100 to 150 in Colombia), making Colombia home to about 84% of the accepted species and between 40 and 60% of the estimated species for the genus. Since the first species of *Stenospermation* were published (Poeppig, 1845), several species have been described, but it was not until 1908 that Engler & Krause published the first taxonomic key for 21 species of the genus. Later, Gómez (1983) made a taxonomic revision of *Stenospermation* for Central America, including nine species, and Castaño-Rubiano (2011) made a taxonomic revision of *Stenospermation* for Colombia, including 42 species. Furthermore, although several molecular phylogenetic studies have focused on the family level, few have included Neotropical taxa, and of those studies, few species of *Stenospermation* have been studied. Zuluaga et al. (2019) in a molecular study of the subfamily Monsteroideae included nine *Stenospermation* species, but many of them were unidentified. This is partly due to the lack of a taxonomic revision for the genus that includes all the species. *Stenospermation* is a neotropical genus growing from 0 to 2900 m a.s.l., being more diverse at 1500 m a.s.l. in primary mountain forests of Colombia, Ecuador and Perú (Castaño-Rubiano, 2011). The genus *Stenospermation*, is one of the most poorly known and most difficult to identify taxonomically within the Araceae family (Bunting, 1979; Gómez, 1983). Several species have few characters traditionally used for their taxonomy (i.e. proportion of petioles/blades, proportion long/wide of the blades, color of spathe and seed shape, etc.) which makes them difficult to characterize. Likewise, the slight interspecific variation and the deficient collections are also common within the Monsteroideae subfamily, which has caused a long history of taxonomic changes (Henriquez et al., 2020; Zuluaga et al., 2019). According to Castaño-Rubiano (2011, 2015), in the case of *Stenospermation,* the low number of reported species in most regions of Colombia are not due to environmental factors but the lack of botanical explorations, and for this reason, it is probable that a significant number of species will be reported as new to science. This was the case with the National Natural Park Selva de Florencia, where following the signing of peace agreements in 2016, areas previously restricted due to the presence of illegal armed groups and anti-personnel mines were opened up for scientific exploration. In a similar way, in the corregimiento de Berlín in Samaná Municipality, hydroelectric projects have facilitated ongoing monitoring of the impacted areas, allowing us to observe the flora over time. By undertaking projects within the study area and examining herbarium specimens as part of a taxonomic revision of *Stenospermation* in Colombia, the authors found three distinct species that do not correspond to any previously documented *Stenospermation* species.

MATERIALS AND METHODS

To confirm the identity of the species, specialized bibliography was consulted (Engler & Krause, 1908; Gómez, 1983; Castaño-Rubiano, 2011; 2015), as well as the type specimens and other collections from Colombian herbaria (ANDES, CAUP, COAH, COL, CUVC, FAUC, FMB, PSO, HUA, HUAZ, HUQ, JAUM, JBB, MEDEL, UDBC) and foreign herbaria (AAU, AHUC, B, C, CSB, DAV, ECON, F, GH, GB, IBE, K, MO, NY, QCA, QCNE, US, USM, WIS; acronyms following Thiers, 2023). The species concept used was morphological (Crisci, 1994; McDade, 1995). The terminology used in the descriptions was based on Beentje (2010), Castaño-Rubiano (2011), and Croat & Bunting (1979) with modifications, in order to include the term "marginal band" proposed by Korn (2003) which seems to be informative for the species of *Stenospermation*. For *Stenospermation albifolium* all measurements in the descriptions are from dry material unless otherwise specified. In *S. melidae* and *S. selvaflorensis* all measurements and colors in the descriptions are from dry and fresh material and it is specified in the text. For the definition of the life form, we follow Zotz et al. (2021).

TAXONOMIC TREATMENT

Stenospermation albifolium Castaño-Rubiano, **sp. nov.** TYPE: COLOMBIA. Depto. Caldas**.** Munic. Samaná, corregimiento de Florencia, PNN Selva de Florencia, vereda San Lucas, Río San Lucas, cascada cerca de la casa de Evangelista, 5° 30' 02.3'' N, 75° 03' 06.7'' W, 1203 m s.m., 4-VII-2021 (fl.), *N. Castaño-Rubiano 2354* (holotype FAUC-39055!; isotype COL!). Figs. 1, 2, 3.

Diagnosis. *Similar to S. glaucophyllum* Croat & D.C. Bay *by its whitish leaves beneath, but differs in lacking an evident layer of white wax, sheath truncate on one side, semiacute on the other and entire margin (vs. rounded on one side, acute on the other and scarious margin), spathe meeting on the peduncle at an obtuse angle (vs. spathe meeting on the peduncle at an acute angle), and spadix slightly tapered toward the apex (vs. cylindric and rounded at the apex).*

Description. Terrestrial herb, 1.5 m tall. Stem with internodes 30-60 mm long × 16-20 mm diam., glossy when fresh, 11-44 mm long, 8-11 mm diam.; cataphylls not observed. Leaves erect; petioles 16-20 × 0.4-0.6 cm diam. when fresh, 11-19 cm long × 0.25-0.40 mm; geniculum concolorous, 15-40 mm long, 2.4-3.6 mm diam; sheath 10-15 × 0.5-0.8 cm, covering (58-)75-87% of the petiole in regular blades, 100% on those subtending the spadix, apex truncate on one side, semiacute on the other, entire margin; blades 18-26 × 8-13 cm, elliptic, one side broader than the other, obtuse at base, acuminate at apex, coriaceous; upper surface glossy, dark green, drying olive-green; lower surface somewhat glossy, pale green to white, drying light green to whitish; midrib sunken, paler than blade above, U-shaped below; primary lateral veins slightly conspicuous on the upper surface, conspicuous on the lower surface, about 30-40 per side, slightly arched, starting from an angle of 45-50°; tertiary veins less prominent than primary lateral veins, on both surface marginal band narrow 1.0-1.5 mm, bent towards the underside.

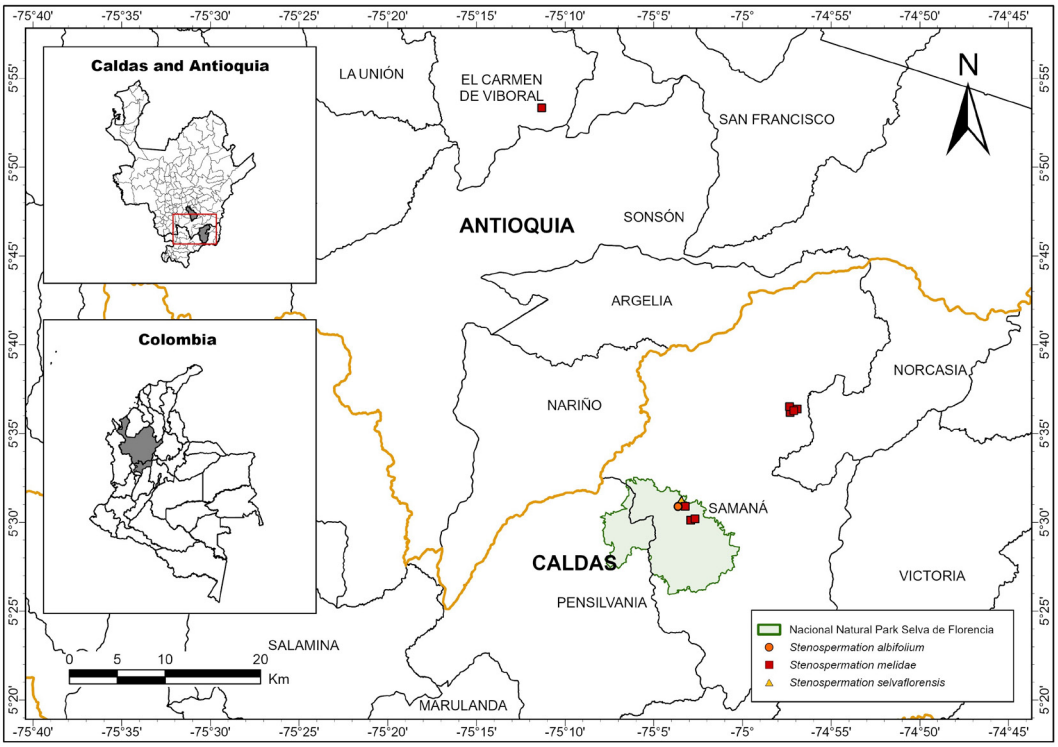

Fig 1. Distribution map of *S. albifolium*, *S. melidae* and *S. selvaflorensis*. Color version at https://www.ojs.darwin.edu.ar/index.php/darwiniana/article/view/1134/1316

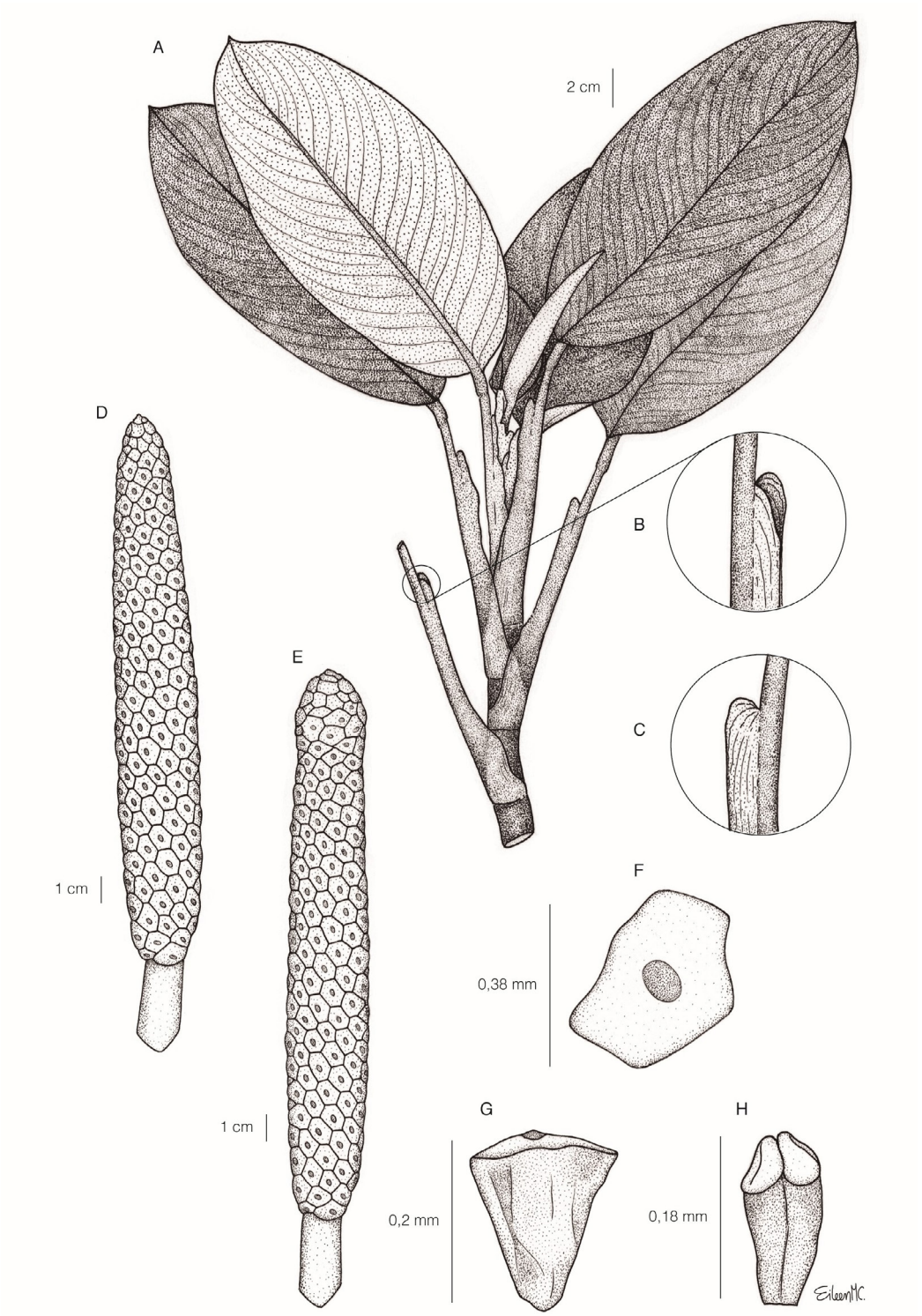

Fig 2. *Stenospermation albifolium*. **A,** branch with inmature inflorescence. **B, C,** apex of the sheet. **D,** spadix. **E,** immature infructescence. **F,** stylar zone an stigma. **G,** lateral view of the flower. **H,** stamens. Drawn by Eileen Muñoz, based in: *N. Castaño-Rubiano 2209*, *2354*.

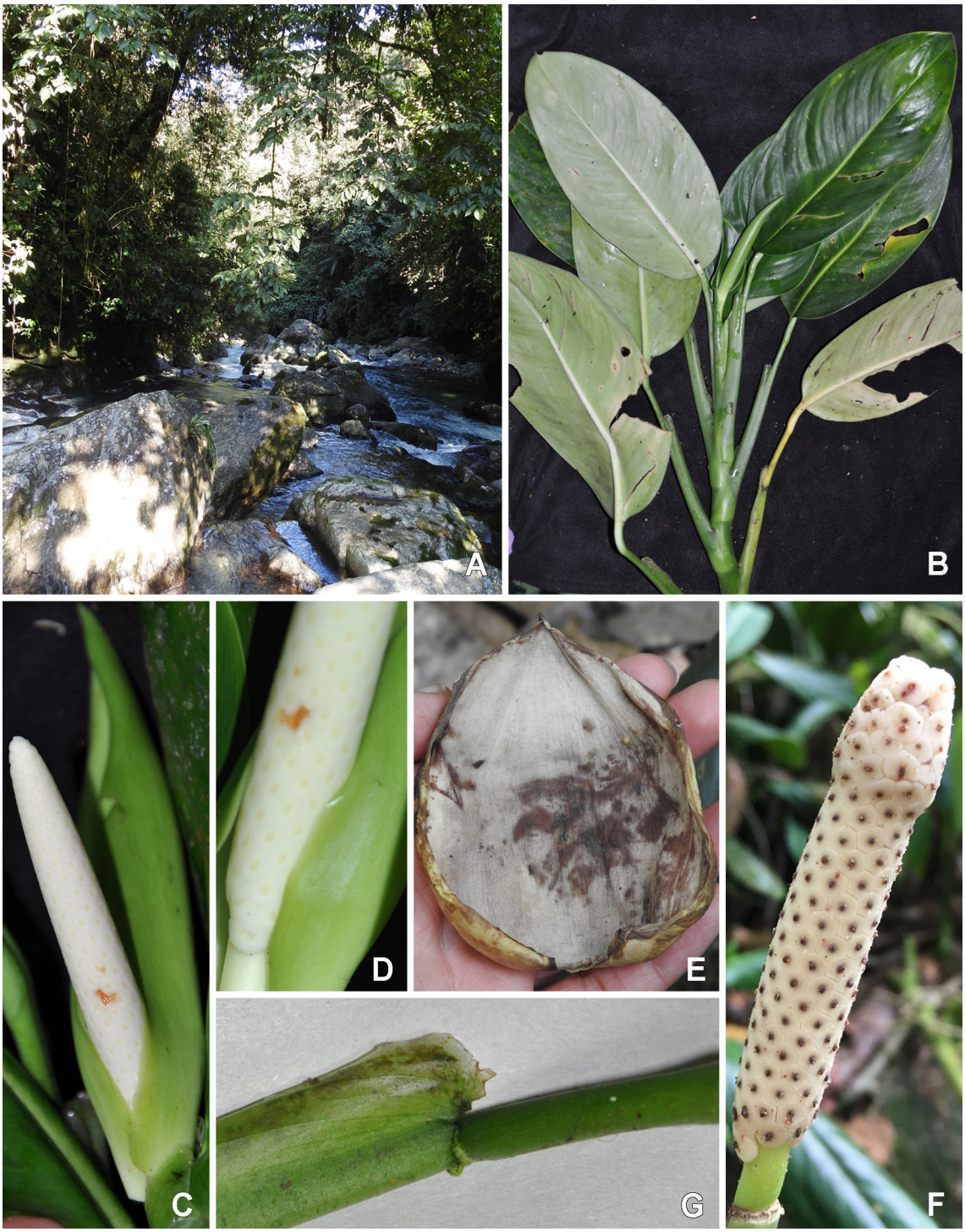

Fig 3. *Stenospermation albifolium*. **A,** habitat. **B,** immature inflorescence and leaves. **C,** immature spathe and spadix. **D,** stipe of the spadix.. **E,** Spathe. **F,** capitate inflorescence before fruit formation. **G,** apex of the sheet. Color version at https://www.ojs.darwin.edu.ar/index.php/darwiniana/article/view/1134/1316

Inflorescences erect; peduncles 23-24 cm long × 0.5 cm diam. when fresh, (11-)19-20 cm long × 0.22-0.33 cm diam; spathes 11 cm long × 3.2 cm width., papyraceus, naviculiform, meeting on the peduncle at an obtuse angle, immature spathe green, mature white, shiny, long attenuated at the apex, deciduous; stipe 2.0 cm long, 0.5 cm diam. when fresh, 1.0-1.5 cm long, 0.2-0.21 cm diam.; spadix 5 cm long, 0.13 cm diam. when fresh, 5-5.1 cm long, 0.90-0.91 mm diam. white, slightly tapered toward the apex when flowering, becoming capitate before fruit development. Flowers 0.18-0.21(-0.4) cm long × 0.1-0.16(-0.26) cm broad × 0.3-0.38 cm wide, four flowers visible in the primary spiral and 5-8 in the alternate spiral, one locule evident, hexagonal; stigma 1-1.5(-1.8) mm in the major diam.; stamens 1.1-1.8 mm long × 0.5-0.8 mm wide, hyaline, no divaricated, basifixed. Berries not observed.

Etymology. The epithet refers to the whitish color on the adaxial blade surface.

Distribution and habitat. This species is only known from the Central Andes in the Department of Caldas, in the National Natural Park Selva de Florencia in corregimiento de Florencia (Samaná), on forest edges close to vereda San Lucas. The elevational range of the species is between 1200 and 1400 m a.s.l.

Phenology. Specimens were found flowering in July and August.

Additional specimens examined.

Stenospermation albifolium. COLOMBIA. Depto. **Caldas**. Samaná, municipio de Florencia, PNN Selva de Florencia, camino entre Coleaderos y San Lucas, 1400 m s.m., 6-VII-2017 (fl), *N. Castaño-Rubiano* 2209 (paratype CUVC).

Discussion. *Stenospermation albifolium* is a species with a terrestrial habit, elliptic blades whitish abaxially, conspicuous primary lateral veins, angle of the insertion of the spate at the peduncle obtuse, long stipitate inflorescences, white and naviculiform spathe, and slightly tapered toward the apex spadix, which become capitated or expanded before male anthesis; spathe with 4 visible flowers in the principal spiral and 5-8 in the alternate spiral. Due to its whitish leaves beneath, this species could be confused with *S. glaucophyllum* (Croat et al., 2007: 301) (see diagnosis).

Stenospermation melidae Castaño-Rubiano & Sierra-Giraldo, **sp. nov**. TYPE: COLOMBIA. Depto. Caldas. Munic. Samaná, corregimiento de Florencia, PNN Selva de Florencia, camino hacia la vereda San Lucas, cerca de Coleaderos, 5° 31' 16.0'' N, 75° 03' 25.1'' W, 1400 m a.s.l., 24-IV-2018 (fl.), *N. Castaño-Rubiano 2208* (holotype: FAUC-37710!; isotypes: HUA!, CUVC!, COL!). Figs. 1, 4, 5.

Diagnosis. *Similar to S. amomifolium (Poepp.) Schott due to its pink infructescence, but differs in having lanceolate leaves drying olive-green (vs. obovate leaves drying black), and long pendent inflorescences 12-15.8 cm long, 0.62-0.77 cm diam. with a portion of the apex of the inflorescence lacking some flowers (vs. almost erect and shorter inflorescences, 3.6-5.5 cm long, 0.69-1.5 cm diam. with all spadix covered by flowers).*

Description. Epiphyte. Stem with internodes 7-19 mm long, 7-25 mm diam.; cataphylls persistent, intact, with two ribs, 12.8-29.7 × 11.5-30.8 mm; petioles 12-34.6 cm long × 0.17-0.61 cm diam.; geniculum concolorous, 6.2-28.3 mm long, 2.2-6 mm diam.; sheath 11.5-23 × 0.41-1.25 cm, covering (70-)90-100% of the petiole, apex auriculate on one side, acute on the other, entire margin. Leaves erect; blades 9-36.7 × 5-12.4 cm, lanceolate, one side broader than the other, cuneate at the base, acuminate at apex, coriaceous; upper surface glossy, light green when fresh, drying olive-green; lower surface somewhat gloss, greenish-white when alive, drying light brown; midrib sunken above, U-shaped below, paler than surface; primary lateral veins inconspicuous on both surface, ca. 35-40 pairs, slightly arched, starting from an angle of 45-50°; tertiary veins less prominent than primary lateral veins, slightly raised on both surfaces surface; marginal band narrow (0.63-1.5 mm), bent towards the underside.

Fig 4. *Stenospermation melidae*. **A,** habit. **B,** sheet. **C,** apex of the sheet. **D,** spadix. **E,** sterile flowers and naked portion of the spadix. **F,** transversal view of flower. **G,** longitudinal view of stamens and flower. **H,** stamen. **I,** longitudinal view of ovary. **J,** seed. Drawn by Eileen Muñoz, based in: *N. Castaño-Rubiano 2208*, *J. A. Sierra Giraldo & J. A. Orozco Agudelo 2047* and pictures.

Fig. 5. *Stenospermation melidae*. **A,** habitat. **B,** infructescence and blade. **C,** inflorescence and blade. **D,** apex of the sheet. **E,** infructescence and sterile flowers. **F,** seeds. Color version at https://www.ojs.darwin.edu.ar/index.php/darwiniana/article/view/1134/1316

Inflorescences erect, eventually cernuous; peduncles 33.5-57 cm long, 0.22-0.41 cm diam., 100% sheathed by the preceding sheath; spathes (14-)16-21 × 1.2-5.92 cm, papyraceous, ensiform-linear, meeting on the peduncle in at an acute angle (45°), white, glossy, long attenuated at the apex, with a long portion of the spathe free from the spadix, deciduous; stipe (1.0-)1.3-2.0 cm long, 0.2-0.4 cm diam.; spadix 12-15.8 cm long., 0.62-0.77 cm diam., white, slightly tapered toward the apex, with a sterile portion of flowers, some portions of the rachis lacking flowers; flowers 0.3-0.4 cm long × 0.2-0.36 cm broad × 0.2-0.3 cm wide, 3-4 visible in the principal spiral and 5-8 in the alternate spiral, two locule evident, hexagonal, those near to the apex non-functional; stigma 0.1-0.5 mm in the major diam.; stamens 2-3 × 0.5-1 mm, hyaline, no divaricated, basifixed, inserted after male anthesis. Berries 4-6 mm long × 2-5 mm broad × 4-5 mm wide, pink in the stylar zone when fresh; seeds 1.8-2 × 0.8-1 mm, 6-8 per locule, cylindrical, green, with white aril when alive.

Etymology. The epithet honors the memory of Mélida Restrepo de Fraume (1935-2010), who was a forerunner of the study of botany in the Caldas Department.

Distribution and habitat. This species is endemic to Colombia, known from three localities in the Central Andes in the Departments of Caldas and Antioquia. The first locality, on the edge of Río San Lucas (Florencia, Samaná), the second locality on the edge of Río Manso (Berlin, Samaná) and the third in Vereda El Porvenir (Carmen del Viboral, Antioquia). The elevational range of the species is between 653 and 1523 m a.s.l, at river borders.

Phenology. Specimens with flowers and fruits were found in April, July, August, October, and December.

Additional specimens examined.

Stenospermation melidae. COLOMBIA. **Antioquia**. Carmen del Vivoral, Vereda El Porvenir, alrededores de la escuela a lo largo de quebrada Melcocha 1087 m s.m., 1-XII-2016 (fl), *H. Mendoza & J. Aguirre 19444* (FMB). **Caldas**. Samaná, corregimiento de Florencia, camino a la cuenca Las Mercedes, 1523 m s.m., 6-X-2017 (fl, fr), *N. Castaño-Rubiano 2104* (paratype CUVC, HUQ); Vereda San Lucas, bosques aledaños al río San Lucas, 1204 m s.m., 4-VIII-2021 (fl), *N. Castaño-Rubiano et al. 2356* (paratype HUAZ); corregimiento de Berlín, localidad de Piedras verdes, a orillas del río Manso, 778 m s.m., 26-VII-2019 (fl, fr), *N. Castaño Rubiano et al. 2271* (paratype FAUC, UIS); Vegetación secundaria alta, cerca de la Parcela 13 Isagen-Ucaldas (CV-VSA1), 812 m s.m., 15-VIII-2022 (fl) *J. A. Sierra Giraldo & J. A. Orozco Agudelo 2047* (paratype FAUC).

Discussion. *Stenospermation melidae* has an epiphytic habit, long distichous leaves, elongated, pendent and stipitate inflorescences, having a 45° angle in the insertion of the spate at the peduncle, a slender white spathe, and slightly tapered toward the apex spadix, with 3-4 flowers visible in the principal spiral and 5-8 flowers in the alternate spiral. Additionally, the spadix has an apical portion of sterile flowers and even a portion of the axis lacking flowers, the infructescence is pink, and the berries contain six cylindrical seeds. Due to its pink infructescence, this species might be confused with *S. amomifolium* (see diagnosis).

Stenospermation selvaflorensis Castaño-Rubiano, L. Ibañez & Zuluaga **sp. nov**. TYPE: COLOMBIA. Depto. Caldas. Munic Samaná, corregimiento de Florencia, PNN Selva de Florencia, microcuenca La Selva, 05° 31' 16" N, 75° 3' 25.1" W, 1400 m s.m., 22-II-2018 (fl.), *N. Castaño-Rubiano 2193* (holotype: FAUC-37711!; isotypes: COL!, CUVC!, HUA!). Figs. 1, 6, 7.

Diagnosis. *Similar to S. gentryi Croat, S. longifolium Engl., S. longispadix Croat, S. multiovulatum (Engl.) N. E. Br. and S. popayanense Schott, due to its large size (50-100 cm tall) and the almost erect inflorescences. All similar species have cylindrical inflorescences rounded at the apex and epiphytic habit, meanwhile, S. selvaflorensis has cylindrical, tapered at apex inflorescences and terrestrial habit. It is also similar to S. weberbaueri Engl., because of the cylindrical and tapered at apex spadices, but differs by the terrestrial (vs. terrestrial to epiphyte habit), the bigger size in general, and the erect inflorescence with exserted stamens during male phase of anthesis (vs. pendent inflorescences with inserted stamens at male phase of anthesis).*

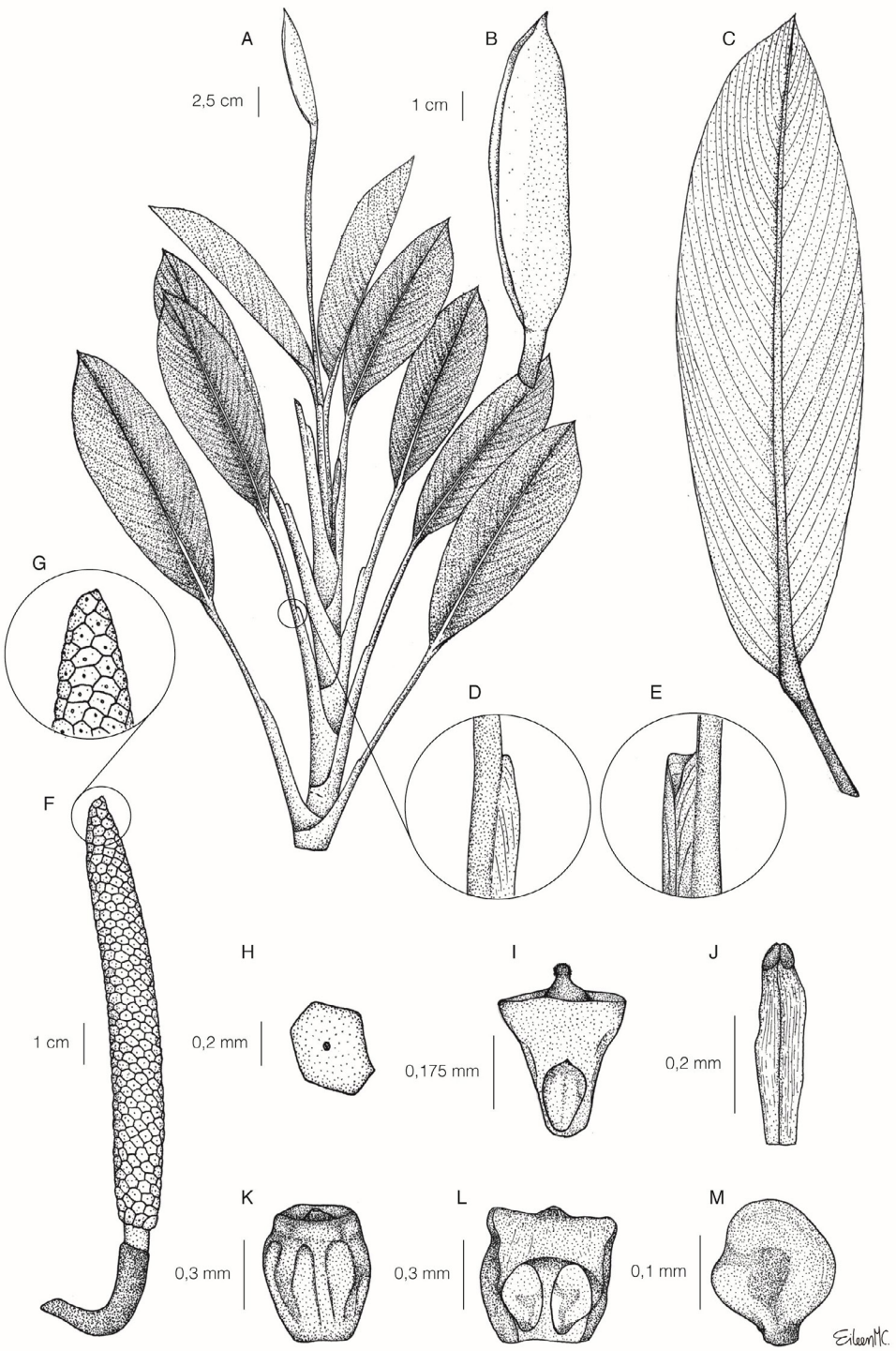

Fig. 6. *Stenospermation selvaflorensis*. **A,** habit. **B,** spathe. **C,** blade. **D-E,** sheet apex. **F,** spadix. **G,** close up spadix apex: note its acute shape. **H,** transversal view of the flower. **I,** longitudinal view of the flower. **J,** stamen. **K,** longitudinal view of the fruit. **L,** longitudinal cross section of the fruit. **M,** seed. Drawn by Eileen Muñoz, based in: *N. Castaño-Rubiano 2193* and pictures.

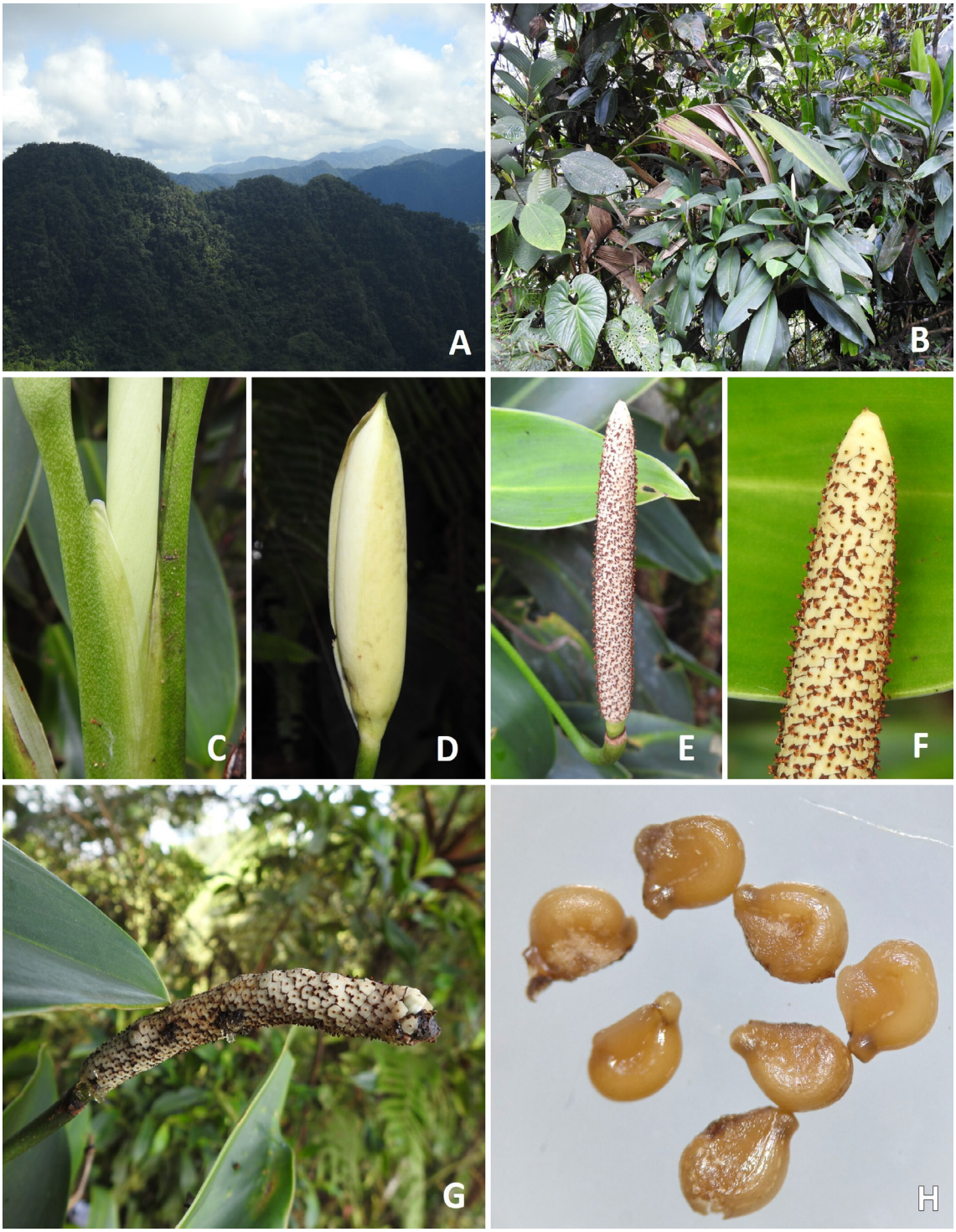

Fig. 7. *Stenospermation selvaflorensis*. **A,** habitat. **B,** habit. **C,** sheet apex. **D,** inflorescence with spate. **E,** spadix in male anthesis. **F,** detail of spadix apex and stamens. **G,** infructescence. **H,** seeds. Color version at https://www.ojs.darwin.edu.ar/index.php/darwiniana/article/view/1134/1316

Description. Terrestrial 50-100 cm tall. Stem with internodes 20-52 mm long, 3.5-11 mm diam. when fresh, 12-32 mm long, 4.7-10 mm diam. when dry; cataphylls persistent, intact, 3.03-5.05(-7.07) × 0.6-0.81 cm when dry; petioles 13-28.1 cm long, 0.2-0.32 cm diam. when fresh, 14.9-25.8 cm long, 0.18-0.32 cm diam. when dry; geniculum concolorous, 7-21.2 mm long, 1.8-3.3 mm diam. when dry; sheath 12.1-20.3 × 0.3-0.5 cm, covering (70%-)80% of the petiole (up to 90% in those preceding inflorescence), apex rounded on one side, acute on the other, entire margin. Blades 15-32 × 4.7-8.6 cm when fresh, 13.7-30.2 × 4.0-7.74(-2.5) cm when dry, lanceolate, attenuate at base, acuminate at apex, coriaceous; upper surface glossy, somewhat cover with pale lineations, dark green when alive, drying olive-green; lower surface somewhat glossy, greenish-white when fresh, drying brown; midrib flat above, prominent and U-shaped bellow; primary lateral veins inconspicuous on both surfaces, ca. 31-49 pairs, arched, starting from an angle of 50°; tertiary veins less prominent than primary lateral veins; marginal band narrow (1 mm), bent towards the underside. Inflorescences erect, eventually a little cernuous; peduncles 17-39 cm long, 0.3-0.52 cm diam. when fresh, up to 50% sheathed by the preceding sheath; spathe 6.2-9.7 cm long × 4.0-5.9 cm wide. when fresh, papyraceous, naviculiform, meeting on the peduncle in a obtuse angle, white to pale withe-yellowish, matte, cuspidate at the apex, deciduous; stipe 0.4-0.7 cm long, 0.4-0.97 cm diam. when fresh, 0.6-0.13 cm long, 0.18-0.3 cm diam. when dry; spadix 5.5-9.7 cm long, (0.4-)0.8-1.5(-0.23) cm diam. when fresh, 4.36-8.1 cm long, 0.6-0.8 cm diam. when dry, white to cream, cylindrical and tapered at the apex, apical flowers sterile. Flowers 0.21-0.35 cm long × 0.19-0.31 cm broad × 0.3-0.4 cm wide, 6 visible in the principal spiral and 4 in the alternate spiral, one locule evident, hexagonal, those near to the apex non-functional; stigma 0.22-0.43 mm in the major diam. when fresh; stamens 3-4 × 0.8-1 mm, hyaline, divaricated, exerted and persistent after male anthesis. Berries 4-6 mm long × 4-5 mm broad, 4-6 mm wide, white, when fresh, 1.18-4.1 mm long × 2.37-4.23 mm broad × 3-3.5 mm wide when dry; seeds 1.7-2.32 × 1-1.71 mm, (1-)6-8 per locule, ellipsoid, flattened towards the raphe, beige with white aril when fresh.

Etymology. The epithet *selvaflorensis* is in honor of Parque Nacional Natural Selva de Florencia, one of the most important protected areas in the Central Andes, an important relict of biodiversity around a coffee zone in Colombia.

Distribution and habitat. This species is endemic to Colombia and is only known from the Central Andes in the Department of Caldas, in the PNN Selva de Florencia in the corregimiento de Florencia (Samaná), at an elevation of 1700 m. a.s.l., in clearings and forest edges.

Phenology. We found specimens flowering throughout the year, but with a peak of productivity in May and January, with a low number of inflorescences/infructescences, and a low rate of fruit productivity.

Additional specimens examined

Stenospermation selvaflorensis. COLOMBIA. **Caldas**. Samaná, Florencia, PNN Selva de Florencia, microcuenca La Selva, 1700 m s.m., 22-II-2018 (fl), *N. Castaño-Rubiano 2192* (paratype FAUC, HUAZ, HUQ).

Discussions. *Stenospermation selvaflorensis* is a large terrestrial plant with erect stems, with sclerenchyma fibers in the cataphylls that causes itchiness on contact. Mainly erect inflorescences (eventually cernuous at apex), stipitate spadices, and a white to pale white-yellowish spathe, very fitted to the spathe even in anthesis, but no persistent. The inflorescence is cylindrical and tapered at the apex, has 6 flowers in the principal spiral and 4 in the alternate spiral, and sterile apical flowers. The stamens are white hyaline and emerge from the surface of the flowers during the male phase of anthesis. The berries are white and contain six to eight reniform seeds. This species can be confused with *S. gentryi, S. longifolium, S. longispadix, S. multiovulatum* and *S. popayanense* (see diagnosis).

Key to *Stenospermation* morphologically close to the new species in Colombia

1. Inflorescences cylindrical with rounded or truncate apex 2
1. Inflorescences slightly tapered or cylindrical with tapered apex 8
2(1). Leaf glaucus beneath, with a waxy appearance ..... *S. glaucophyllum*
2. Leaf paler beneath but not glaucus 3
3(2). Primary lateral veins prominent 4
3. Primary lateral veins not prominent or inconspicuous 5
4(3). Blade oblong-elliptic to narrowly oblong-elliptic, acute at base, Inflorescence stipitate ..... *S. longifolium*
4. Blade oblong-elliptic, cuneate to attenuated at base, Inflorescence subsessile ..... *S. longispadix*
5(3). Spathe persistent ..... *S. gentryi*
5. Spathe deciduous 6
6(5). Thick inflorescences, 12-17 cm long x 1.1-1.5 cm diameter ..... *S. multiovulatum*
6. Slender inflorescences, 4,5-11 cm long x 0.4-0.6 cm diameter 7
7(6). Leaf sheath with scarious margin, truncated by one side, acute for the other ..... *S. popayanense*
7. Leaf sheath with entire margin, shortly free at apex, rounded by one side, acute for the other ..... *S. angustifolium*
8(1). Pink Infructescences 9
8. Orange, yellow or white Infructescences 10
9(8). Pendent inflorescence, slightly tapered toward apex, with a portion of the axis without flowers, apical flower truncated or flat ..... *S. melidae*
9. Erect inflorescence, cylindrical at base and medial zone, tapered at apex, axis covered completely by flowers, apical flower conical ..... *S. amomifolium*
10(8). Epiphytic habit ..... *S. weberbaueri*
10. Terrestrial habit 11
11(10). Leaf glaucous beneath, blades two times longer than broad ..... *S. albifolium*
11. Leaf paler beneath but not white, blades three to four times longer than broad ..... *S. selvaflorensis*

ACKNOWLEDGMENTS

We thank to the Universidad de Caldas and ISAGEN and their project "Implementación y seguimiento del plan de restauración ecológica de ecosistemas terrestres y acuáticos y del plan de conservación para la especie *Gustavia romeroi* S.A Mori & García-Barr." agreement 33/75, for promoting botanical explorations in the Magdalena Caldense, which allowed the discovery and recognition of this new species. To the projects"Caldas Expedición siglo XXI. Fase I: Levantamiento de la biota y geología de una subcuenca del Parque Nacional Natural Selva de Florencia" code 1421717 and "Análisis de compuestos orgánicos volátiles en un ensamblaje de aráceas en el Parque Nacional Natural Selva de Florencia (Samaná, Caldas) mediante DHS-GC/MS" code 0277420 from the Universidad de Caldas and Parque Nacional Natural Selva de Florencia for allowing the exploration of the localities of the Park and the registry of the species. To the directors of the projects to allow us to participate in the research projects. To the directors of the consulted herbaria, for allowing the consultation of the collections. To Shane Saddison-Bradford for revising the English text.

BIBLIOGRAPHY

Beentje, H. 2010. *The Kew Plant Glossary. Royal Botanic Gardens* Inglaterra, Kew, Richmond.

Boyce, P. & T. B. Croat. 2018. [accessed 1 April 2022]. *The Überlist of Araceae, totals for published and estimated number of species in aroid genera*. https://www.aroid.org/genera/180211uberlist.pdf

Brown, N. E. 1894. *The Gardeners' Chronicle: a weekly illustrated journal of horticulture and allied subjects. ser*. 3 15: 684.

Bunting, G. S. 1979. Sinopsis de las Araceae de Venezuela. *Agronomía Tropical* 10: 139-290.

Castaño-Rubiano, N. 2011. Revisión taxonómica de *Stenospermation* Schott (Araceae) para Colombia. Master diss., Universidad Nacional de Colombia.

Castaño-Rubiano, N. 2015. *Stenospermation*, In R. Bernal, S. R Gradstein. & M. Celis (eds.), *Catálogo de plantas y líquenes de Colombia*, volume I, Pp. 696-752. Bogotá. Instituto de Ciencias Naturales, Universidad Nacional de Colombia.

Croat, T. B.; X. Delannay & L. P. Hannon. 2017. A Revision of *Xanthosoma* (Araceae). Part 1: Western South America. *Aroideana*, 40: 4-503.

Crisci, J. 1994. La especie: realidad y conceptos. In: J. Llorente, J. Boisquets & I. Luna (eds.) *Taxonomía biológica*, pp. 21-32. México D.F. Universidad Autónoma de México-Fondo de Cultura Económica.

Croat, T. B. & G. S. Bunting. 1979. Standardization of *Anthurium* descriptions. *Aroideana* 2: 15-25. DOI: https://doi.org/10.1590/2175-78602005568802

Croat, T. B.; D. Bay & E. D. Yates. 2007. New Species of *Stenospermation* and *Xanthosoma* (Araceae) from Bajo Calima, Valle Department, Colombia. *Novon* 17: 298-305.

Croat, T. B.; P. Huang, J. Lake & C. V. Kostelac. 2010. Araceae of the Flora of La Planada, Nariño Department, Colombia (Part 2). *Aroideana* 33: 75-142.

Engler, A. & K. Krause. 1908. Araceae-Monsteroidae. Das Pflanzenreich. IV. 23B: 81-90.

Galeano, M. P.; M. M. Mora, A. Zuluaga, J. Jácome , T. B. Croat, F. Cardona, N. Castaño-Rubiano, E. Landolt & U. Schmidt-Mumm. 2015. In R. Bernal, S. R. Gradstein & M. Celis (eds.). *Catálogo de plantas y líquenes de Colombia*. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. https://catalogoplantasdecolombia.unal.edu.co

Gómez, A. P. 1983. A revision of *Stenospermation* (Araceae) in Central America. Master diss. University. Saint Louis.

Henriquez, C. L.; Abdulla, I. Ahmed, M. M. Carlsen, A. Zuluaga, T. B. Croat & M. R. McKain. 2020. Molecular evolution of chloroplast genomes in Monsteroideae (Araceae). *Planta* 251: 72.

Korn, R. W. 2003. The marginal band, a new structural component of the developing angiosperm leaf. *Botanical Journal of the Linnean Society*, 143: 21-28. DOI: https://doi.org/10.1007/s00425-020-03365-7

McDade, L. A. 1995. Species concepts and problems in practice: insight from botanical monographs. *Systematic Botany* 20: 606-622. DOI: https://doi.org/10.2307/2419813

Poeppig, E. 1845. Nova Genera ac Species Plantarum, quas in regno Chilensi Peruviano et in terra Amazonica vol 3.

Thiers, B. [accessed 1 April 2022] Index Herbariorum: a global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium. Available in https://sweetgum.nybg.org/ih

Zotz, G.; F. Almeda, A. P. Bautista-Bello, A. Eskov, D. Giraldo-Cañas, B. Hammel, R. Harrison, N. Koster, T. Kromer, P. P. Lowry II, R. C. Moran, G. M. Plunkett & L. Weichgrebe. 2021. Hemiepiphytes revisited. *Perspectives in Plant Ecology, Evolution and Systematics* 51: 125620. DOI: https://doi.org/10.1016/j.ppees.2021.125620

Zuluaga, A.; M. Llano & K. Cameron. 2019. Systematics, Biogeography, and Morphological Character Evolution of the Hemiepiphytic Subfamily Monsteroideae (Araceae). *Annals of the Missouri Botanical Garden* 104: 33-48.