

TWO NEW SPECIES OF *BESLERIA* (GESNERIACEAE)  
FROM THE CORDILLERA OCCIDENTAL IN THE COLOMBIAN ANDES

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ABSTRACT

Exploratory field expeditions and herbarium research have led to the discovery of *Besleria bullata* Clavijo & J.L. Clark, sp. nov. and *Besleria nigra* J.L. Clark & Clavijo, sp. nov. in the flowering plant family Gesneriaceae. The new species are distinguished from morphologically similar congeners and illustrated with field images. Both species are endemic to the western slopes of the Cordillera Occidental in the Colombian Andes.

KEY WORDS: *Besleria*, Colombia, Gesneriaceae, taxonomy

RESUMEN

Expediciones exploratorias en campo e las investigaciones en herbarios han conducido al descubrimiento de *Besleria bullata* Clavijo & J.L. Clark, sp. nov. y *Besleria nigra* J.L. Clark & Clavijo, sp. nov., pertenecientes a la familia de plantas con flores Gesneriaceae. Las nuevas especies se distinguen de congéneres morfológicamente similares y se presentan con imágenes de campo. Ambas especies son endémicas de las laderas occidentales de la Cordillera Occidental en los Andes colombianos.

PALABRAS CLAVE: *Besleria*, Colombia, Gesneriaceae, taxonomía

INTRODUCTION

The genus *Besleria* L. comprises approximately 180 species of Neotropical Gesneriaceae (GRC 2026; Clark et al. 2020) and includes perennial herbs, shrubs, and small trees that occur primarily in rainforest understories from lowland forests to elevations approaching 3500 m. *Besleria* is the type genus of the tribe Beslerieae, a lineage of nine genera and roughly 260 species (GRC 2026). Species of *Besleria* are widely distributed throughout the Neotropics, with the greatest concentrations of diversity centered in the tropical Andes of Colombia and Ecuador, and additional areas of richness in Central America, the Brazilian Atlantic Forest, the Guiana Shield, and the Caribbean (Ferreira et al. 2024).

Most species of *Besleria* are terrestrial understory subshrubs with axillary inflorescences, annular or semi-annular nectaries, and fleshy berry fruits that are functionally indehiscent, although some species have rupturing berries that dehisce irregularly at maturity (Berger et al. 2015). Although vegetative characters and floral morphologies vary widely across the genus, berry fruits are an autapomorphic character of *Besleria* within Beslerieae, a tribe otherwise defined by capsular fruits.

Despite its prominence in Neotropical forests, *Besleria* remains understudied from a taxonomic and phylogenetic perspective. The only comprehensive treatment is the monograph by Morton (1939) that recognized 141 species and organized them into sections and subsections based largely on floral and inflorescence morphology. Additional important contributions to the understanding of *Besleria* include regional treatments for Panama (Skog 1979) and the Guianas (Skog & Feuillet 2008), as well as recent palynological studies focused on Colombian species (Cortés-Ceballos 2019; Cortés-Ceballos et al. 2021).

Recent molecular phylogenetic studies have demonstrated that all of Morton's infrageneric groupings are not monophyletic (Roalson & Clark 2006; Ferreira et al. 2024). Ferreira et al. (2024) further showed that clear morphological synapomorphies for major clades are lacking, and that geographic distribution is often a stronger predictor of phylogenetic affinity than morphology alone. Within that framework, the species described

here are most likely associated with the North Andean lineage corresponding to Clade F in Ferreira et al. (2024; Fig. 4).

Fieldwork in the Cerro El Inglés and Galápagos Natural Reserves, both part of the Serranía de los Paraguas along the border of the departments of Chocó and Valle del Cauca, as well as in the buffer zone of Tatamá National Natural Park, together with the revision of herbarium collections, resulted in the discovery of the two *Besleria* species described here. The Serranía de los Paraguas functions as a biological corridor connecting the national parks Orquídeas and Tatamá with Farrallones de Cali and Munchique along the western slopes of Colombia's Cordillera Occidental within the Chocó Biogeographic Region (CVC 2019), one of the world's most important biodiversity hotspots.

#### TAXONOMIC TREATMENT

***Besleria bullata*** Clavijo & J.L. Clark, **sp. nov.** (Fig. 1). TYPE: COLOMBIA. Chocó: municipio San José del Palmar, Serranía de los Paraguas, western slopes of the Cordillera Occidental, sector San Antonio, road toward San Jose del Palmar, near the departmental border of Valle del Cauca, 4°50'24.7"N, 76°13'1.42"W, 1650–1750 m, 11 Aug 2024 (fl), J.L. Clark, E. Barco, C. Cardona, C. Cavila, C. Delgado, S. Ballesteros, N. Salinas & L. Clavijo 19300 (HOLOTYPE: COL!; ISOTYPES: CAS, CUVC, HUA, JAUM, MO, NY, SEL, US).

**Diagnosis.**—Similar to *Besleria tuberculata* C.V. Morton in the presence of bullate leaves and a dense reddish pilose indumentum, but differing by the dark-purple to black pigmentation on the abaxial leaf surface (vs. uniformly light green in *B. tuberculata*) and lanceolate calyx lobes (vs. ovate calyx lobes in *B. tuberculata*).

**Description.**—**Terrestrial subshrub** with erect shoots to 1.5 m tall. **Stems** elongate and subwoody, terete in cross section, 3–6 mm in diameter, indumentum red, uniformly densely pilose. **Leaves** opposite, equal in size; petioles 6–12 mm long, terete in cross-section, densely pilose; blades fleshy and bullate, ovate to elliptic, 4–10 × 1.5–4.0 cm, adaxially uniformly dark green, abaxially dark-purple to black; apex acute, base rounded to slightly oblique, margins entire; secondary veins 7–10 pairs; adaxial surface uniformly pilose, with each bulla often bearing a single multicellular elongate trichome; abaxial surface densely pilose, especially along the veins. **Inflorescences** reduced to a cluster of 2–5 axillary flowers, flowers obliquely oriented relative to calyx, pedicels 2.1–3.2 cm long, densely pilose. Calyx lobes light green to red, but always appearing red from dense pilose indumentum, margins entire, pilose on the outside and glabrous on the inside, lobes 5, equal in size, nearly free, fused at the base for 1–2 mm, valvate to separate, 1.5–1.9 × 0.2–0.4 cm, lanceolate, apex narrowly acute. Corolla mostly bright orange, lighter orange towards the base, tubular, ampliate and slightly ventricose on lower surface, 1.4–1.7 cm long, gibbous on the upper side at base, 5–6 mm wide, outer and inner surfaces glabrous, throat oval in cross section, lobes 5, subequal, margins entire, lobes reflexed, 2.5 × 2.5–4.3 mm, uniformly orange. **Androecium** of 4 included didynamous stamens; filaments broad and flat, 8–13 mm long, adnate to the corolla tube base for 3–5 mm, glabrous to slightly pilose; anthers oblong, coherent by the lateral walls, dehiscing longitudinally, 1.2–1.5 × 0.8–1.2 mm; **staminode well developed, apex triangular**. **Nectary** an annular disc surrounding the ovary. **Gynoeceum** comprised of a superior ovary, 2.6–3.0 × 2.0–2.8 mm, globose; style stout, included, 4.5–5.2 mm long; stigma stomatomorphic. **Fruit** a white berry with numerous brown seeds.

**Distribution and habitat.**—*Besleria bullata* is endemic to the western slopes of the Cordillera Occidental in the Colombian departments of Antioquia, Chocó, and Risaralda. These forests fall within the Chocó Biogeographic Region, an area characterized by high precipitation and exceptional epiphytic diversity (Gentry 1986; Pérez-Escobar et al. 2019).

**Discussion.**—*Besleria bullata* is readily distinguished from other congeners by its light green calyx lobes that appear red from the dense pilose indumentum (Fig. 1A), black pigmentation on the abaxial leaf surface (Fig. 1C), bullate leaf surfaces (Fig. 1D), and uniformly dense pilose indumentum on vegetative and reproductive structures. Another morphologically similar species is *Besleria tuberculata*, but that differs by the green calyx lobes and lack of black pigmentation on the abaxial leaf surfaces. These two species are geographically isolated with *B. tuberculata* within the Magdalena Central Valley of Colombia and *B. bullata* in the Cordillera Occidental.

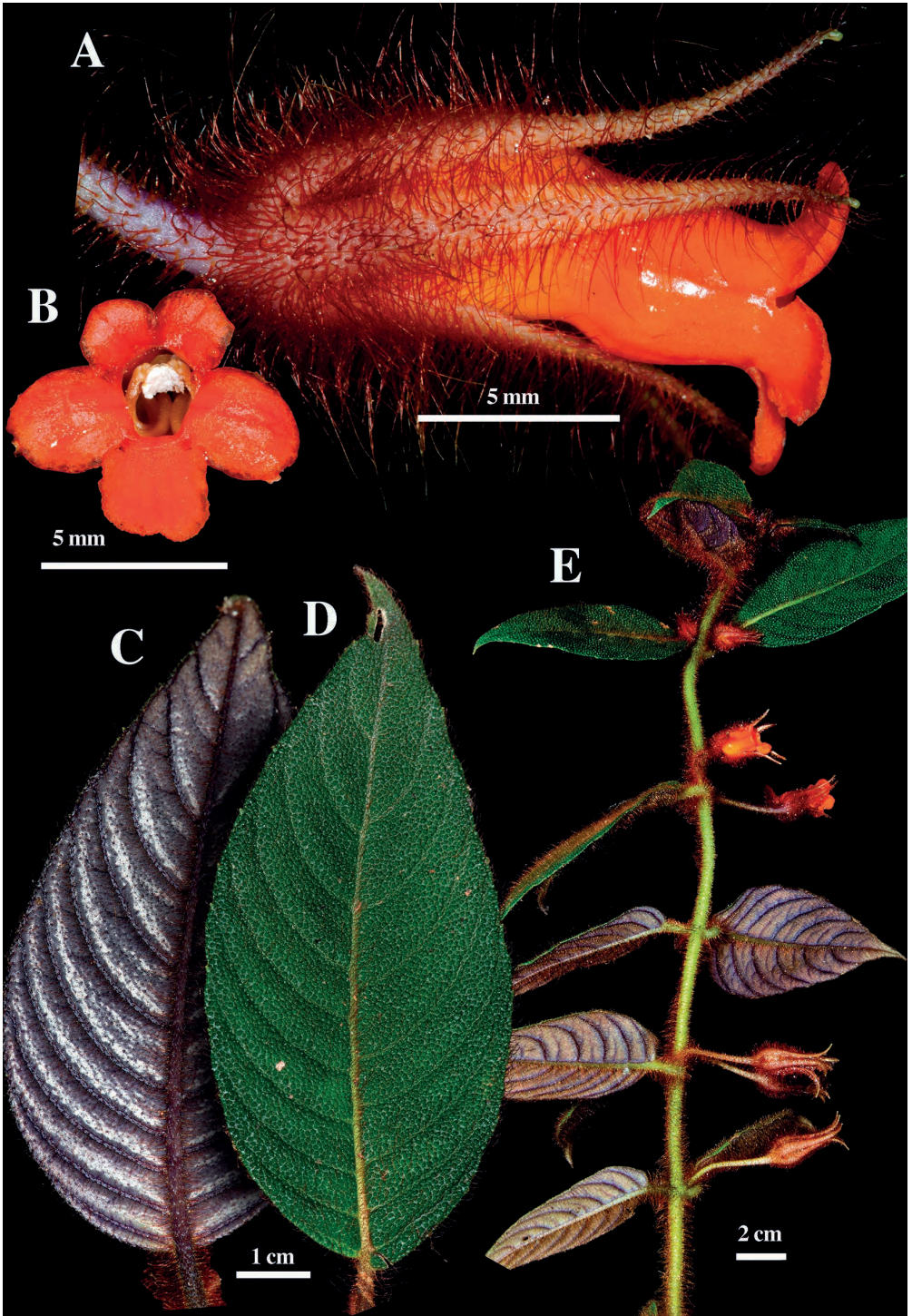


FIG. 1. *Besleria bullata* Clavijo & J.L. Clark. A. Lateral view of flower. B. Front view of corolla. C. Abaxial leaf surface. D. Adaxial leaf surface. E. Habit (A, B, E from J.L. Clark et al. 13253; C & D from J.L. Clark et al. 19300. Photos by John L. Clark).

**Etymology.**—The specific epithet *bullata* is derived from the Latin *bullatus*, meaning “blistered” or “bearing swellings,” and refers to the conspicuously bullate leaf surfaces that characterize this species.

Specimens examined: **COLOMBIA. Antioquia:** Urrao: corregimiento La Encarnación, vereda Calles, Parque Nacional Natural Las Orquídeas, camino Calles-La Encarnación, después de la confluencia del río Polo y el río Calle y antes del río San Pedro, Sitio La Quiebra, 6°30'31.0"N, 76°13'60.0"W, 1600–1850 m, 31 Jan 2011 (fl, fr), *P. Pedraza-Peñalosa et al.* 2123 (COL, NY). **Chocó:** San José del Palmar, carretera Ansermanuevo a San José del Palmar, desde Alto Galápagos a la Escuela de la vereda San Antonio, 44°50'32.0"N, 76°11'10.6"W, 1710–2000 m, 8 Aug 2011 (fl), *L. Clavijo et al.* 1744 (COL); San José del Palmar, Cerro Torrá, vertiente nordeste, vecindad pista de aterrizaje de helicópteros, 4°46'55.5"N, 76°29'59.3"W, 1940 m, 5 Aug 1982, *P.A. Silverstone-Sopkin* 1248 (COL). **Risaralda:** municipio Pueblo Rico, vereda Montebello, Parque Nacional Tatamá. Montezuma Rainforest Reserve and Ecolodge, western slopes of the Cordillera Occidental, cuenca Río Taibá, camino Montezuma (road toward military base), 5°15'18"N, 76°6'39"W, 1500–2335 m, 6 May 2013 (fl), *J.L. Clark, L. Clavijo & L. Tapasco* 13253 (COL, CUV, E, G, HUA, JAUM, MO, NY, SEL, US).

**Besleria nigra** J.L. Clark & Clavijo, **sp. nov.** (**Fig. 2**). TYPE: COLOMBIA. Chocó: municipio San José del Palmar, Serranía de los Paraguas, western slopes of the Cordillera Occidental, sector San Antonio, the road towards San Jose del Palmar, near the departmental border of Valle del Cauca, 4°50'24.7"N, 76°13'1.42"W, 1650–1750 m, 11 Aug 2024 (fl, fr), *J.L. Clark, E. Barco, C. Cardona, C. Cavila, C. Delgado, S. Ballesteros, N. Salinas & L. Clavijo* 19328 (HOLOTYPE: COL!; ISOTYPE: SEL).

**Diagnosis.**—Distinguished from all other congeners by its black adaxial leaf surfaces.

**Description.**—**Terrestrial subshrub** with erect shoots to 2.5 m tall. **Stems** elongate, slender, and subwoody, terete in cross section, 2–3.5 mm in diameter, dark purple to black, glabrous. **Leaves** opposite, equal in size; petiole 3–4 mm long, terete in cross-section, glabrous; blade ovate, 2–3 × 1–2 cm, adaxially green or uniformly black, abaxially green suffused with black, especially on the veins, apex acute, base rounded, margin entire to obscurely denticulate, 7–9 pairs of secondary veins, glabrous on abaxial and adaxial surfaces. **Inflorescences** reduced to a cluster of 1–2 axillary flowers, flowers obliquely oriented relative to calyx, pedicels 1.5–1.9 cm long, glabrous. Calyx lobes with a prominent central vein, light red, margins entire, glabrous on inner and outer surfaces, lobes 5, equal in size, nearly free, fused at the base for 1–2 mm, valvate to separate, ca. 1.2 × 0.2 cm, broadly oblong to lanceolate, apex acute. Corolla uniformly bright orange, tubular, amplified and slightly ventricose on lower surface, 1.3–1.5 cm long, gibbous on the upper surface near base, 4–5 mm wide, outer and inner surfaces glabrous, throat oval in cross section, lobes 5, subequal, margins entire, lobes reflexed, ca. 2 × 3 mm, uniformly orange, glabrous. **Androecium** of 4 included didynamous stamens; filaments broad and flat, ca. 8 mm long, adnate to the corolla tube base for 5 mm, glabrous; anthers oblong, coherent by the lateral walls, dehiscing longitudinally, ca. 1.2 × 1.2 mm; **staminode well developed, apex triangular**. **Nectary** an annular disc surrounding the ovary. **Gynoecium** comprised of a superior ovary, ca. 3 × 3 mm, globose, glabrous to sparsely pilose; style stout, included, glabrous, ca. 4.5 mm long; stigma bilabiate. **Fruit** a white suffused with red globose berry: ca. 4–6 mm in diameter.

**Distribution and habitat.**—*Besleria nigra* is endemic to the western slopes of the Cordillera Occidental in the limits between the Colombian departments of Chocó and Valle del Cauca. These forests fall within the Chocó Biogeographic Region, an area characterized by high precipitation and exceptional epiphytic diversity (Gentry 1986; Pérez-Escobar et al. 2019). The type locality corresponds to Serranía de los Paraguas, a biodiversity corridor that protects remnant cloud forests along the crest of the Cordillera Occidental and is recognized for exceptionally high levels of plant endemism and species richness (CVC, 2019).

**Discussion.**—*Besleria nigra* is readily distinguished from other congeners by its smooth green to black adaxial leaf surfaces, and black venation abaxially (Fig. 2E). Dark pigmentation is unusual on adaxial leaf surfaces in *Besleria*, although some species exhibit green leaves suffused with dark purple to black, such as *B. bullata* (Fig. 1C). Another feature that characterizes *B. nigra* is the presence of glabrescent stems and leaves.

**Etymology.**—The specific epithet *nigra* is derived from the Latin *niger*, meaning “black” or “dark-colored,” and refers to the distinctive black pigmentation on the adaxial leaf surfaces, a diagnostic feature of this species.

Specimens examined: **COLOMBIA. Chocó:** San Jose del Palmar, vía a Cartago, km 5–15, 4°52'21.2"N, 76°13'36.8"W, 1450–2090 m, 02 Jan 2008, *L. Clavijo et al.* 1182 (COL, CUV).

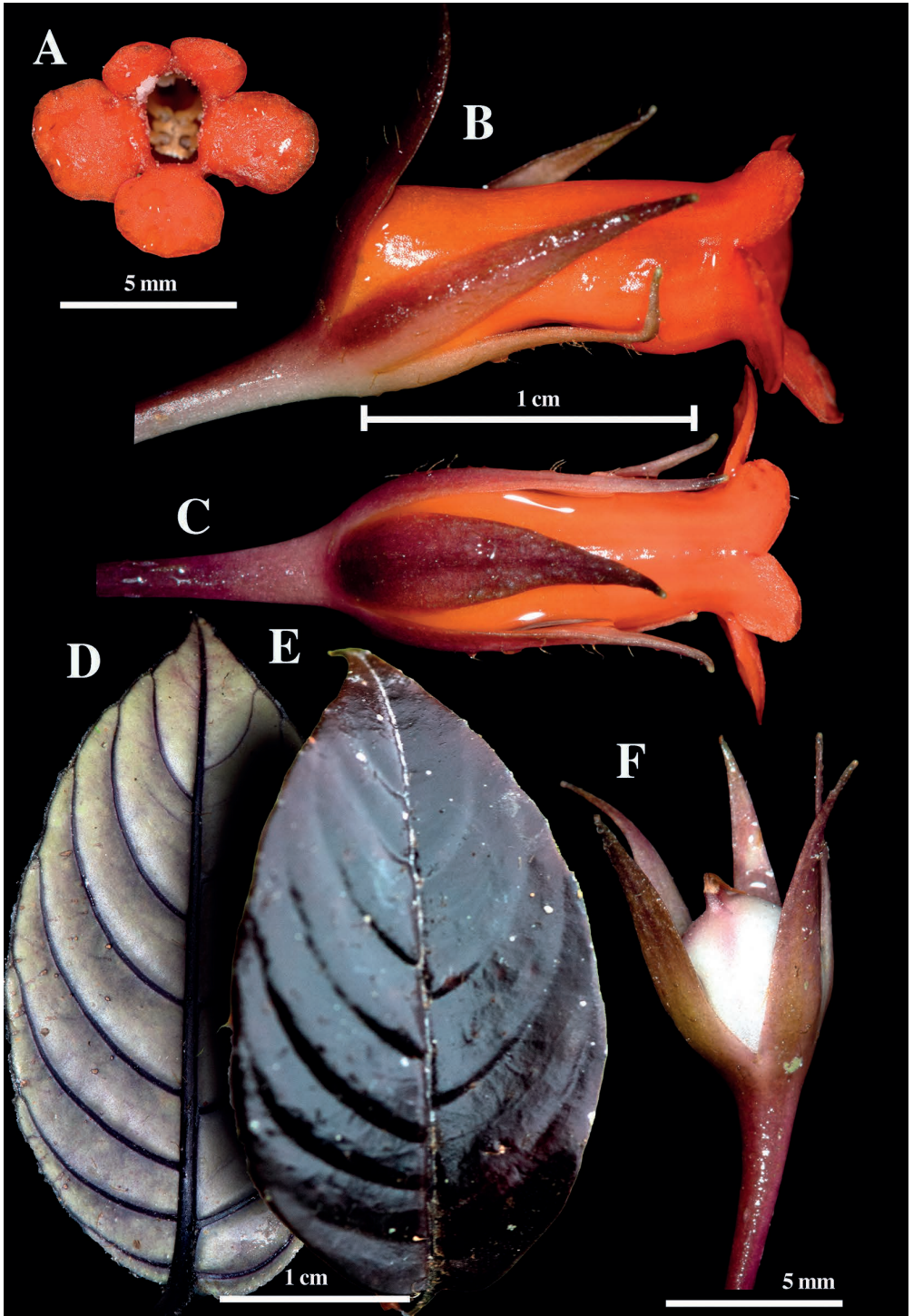


FIG. 2. *Besleria nigra* J.L. Clark & Clavijo. A. Front view of corolla. B. Lateral view of flower. C. Dorsal view of flower. D. Abaxial leaf surface. E. Adaxial leaf surface. F. Fruit (A–F from J.L. Clark *et al.* 19328. Photos by John L. Clark).

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## REFERENCES

- BERGER, A., J.L. CLARK, & A. WEBER. 2015. *Besleria macropoda* (Gesneriaceae): lectotypification, distribution, functional epiphyllly and discordant fruit morphology of a rare Costa Rican endemic. *Phytotaxa* 233(2):139–152. <https://doi.org/10.11646/phytotaxa.233.2.2>
- CORPORACIÓN AUTÓNOMA REGIONAL DEL VALLE DEL CAUTA-CVD. 2019. Acuerdo CD. No 059 de 2019. Santiago de Cali, 28 pp.
- CLARK, J.L., L.E. SKOG, J.K. BOGGAN, & S. GINZBARG. 2020. Index to names of New World members of the Gesneriaceae (subfamilies Sanangoideae and Gesnerioideae). *Rheedea* 30:190–256. doi:<https://dx.doi.org/10.22244/rheedea.2020.30.01.14>
- CORTÉS-CEBALLOS, O.L. 2019. Palinología y morfología de *Besleria* (Gesneriaceae) de Colombia. PhD Thesis, Universidad del Valle, Colombia, 152 pp.
- CORTÉS-CEBALLOS, O.L., A. GIRALDO-RODRÍGUEZ, A.M. TORRES-GONZÁLEZ, J.E. MORENO, & E.C. GASPARINO. 2021. A new species and palinotaxonomy of *Besleria* (Gesneriaceae) from the cloud forest of Valle del Cauca, Colombia. *Phytotaxa* 518(3):179–195. <https://doi.org/10.11646/phytotaxa.518.3.1>
- FERREIRA, G.E., J.L. CLARK, L. CLAVIJO, A. ZULUAGA, A. CHAUTEEMS, M.J.G. HOPKINS, A.O. ARAÚJO, & M. PERRET. 2024. Phylogenetics, character evolution and historical biogeography of the Neotropical genus *Besleria* (Gesneriaceae). *Bot. J. Linnean Soc.* <https://doi.org/10.1093/botlinnean/boae007>
- GENTRY, A.H. 1986. Species richness and floristic composition of Chocó region plant communities. *Caldasia* 15:71–91.
- GRC. 2026 [continuously updated] Gesneriaceae Resource Centre. Royal Botanic Garden Edinburgh, UK. Downloadable from: website: <https://padme.rbge.org.uk/> GRC. Accessed: 5 May 2026.
- MORTON, C.V. 1939. A revision of *Besleria*. *Contr. U.S. Natl. Herb.* 26(9):395–474.
- PÉREZ-ESCOBAR, O.A., E. LUCAS, C. JARAMILLO, A. MONRO, S.K. MORRIS, D. BOGARÍN, D. GREER, S. DODSWORTH, J. AGUILAR-CANO, A. SANCHEZ MESEGUER, & A. ANTONELLI. 2019. The origin and diversification of the hyperdiverse flora in the Chocó Biogeographic Region. *Frontiers Pl. Sci.* 10:1328. doi:<https://doi.org/10.3389/fpls.2019.01328>
- ROALSON, E.H. & J.L. CLARK. 2006. Phylogenetic patterns of diversification in the Beslerieae (Gesneriaceae). Pp. 251–268. In: A.K. Sharma and A. Sharma, eds. *Plant genome: Biodiversity and evolution, Phanerogams 1C*. Science Publishers, Inc., Enfield, New Hampshire, U.S.A.
- SKOG, L.E. 1979 [1978]. Family 175. Gesneriaceae. In: R.E. Woodson Jr. & R.W. Schery and Collaborators, eds. *Flora of Panama, Part IX*. *Ann. Missouri Bot. Gard.* 65(3):783–996.
- SKOG, L.E. & C. FEUILLET. 2008. Gesneriaceae (Fascicle 26). In: M.J. Jansen-Jacobs, ed. *Flora of the Guianas, series A: Phanerogams*. Kew Publishing, Kew, UK. Pp. 1–136.