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

DARWINIANA, nueva serie 14(1): 26-35. 2026
Versión de registro, efectivamente publicada el 24 de febrero de 2026
DOI: 10.14522/darwiniana.2026.141.1323

A NEW SPECIES OF *COLUMNEA* (GESNERIACEAE) FROM THE CHOCÓ BIOGEOGRAPHIC REGION OF COLOMBIA

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Abstract. Parra-Lizcano & Solano-C. 2026. A new species of *Columnea* (Gesneriaceae) from the Chocó Biogeographic region of Colombia. *Darwiniana*, nueva serie 14(1): 26-35.

Expeditions conducted in the Colombian Pacific, together with a critical review of herbarium material, led to the discovery of a new species of *Columnea* (Gesneriaceae) endemic to the Chocó Biogeographic Region of Colombia. The new species, *Columnea magentotricha* Parra-Lizc. & Solano-C., is distinguished by its narrowly lanceolate calyx lobes bearing one or two branches per lobe (except for the dorsal lobe), a short tubular corolla 10-14 mm long, and the entire plant densely covered with magenta multicellular trichomes. A detailed morphological comparison with allied species is provided, along with in situ photographs and a botanical illustration. A preliminary conservation assessment is proposed based on the IUCN Red List criteria. The discovery of this endemic species highlights the exceptional floristic singularity of the Chocó region and underscores the urgent need to strengthen taxonomic research and conservation efforts in the Colombian Pacific, one of the most biodiverse yet increasingly threatened regions of the country.

Key words. Colombia; diversity; Gesnerioideae; Pacific region; taxonomy.

Resumen. Parra-Lizcano & Solano-C. 2026. Una nueva especie de *Columnea* (Gesneriaceae) de la región biogeográfica del Chocó en Colombia. *Darwiniana*, nueva serie 14(1): 26-35.

Expediciones realizadas en el Pacífico colombiano, junto con la revisión crítica de material de herbario, permitieron el descubrimiento de una nueva especie de *Columnea* (Gesneriaceae), endémica de la región biogeográfica del Chocó colombiano. La nueva especie, *Columnea magentotricha* Parra-Lizc. & Solano-C., se distingue por presentar lóbulos del cáliz estrechamente lanceolados con una o dos lacinias por lóbulo (excepto el lóbulo dorsal), una corola tubular corta de 10-14 mm de longitud y la planta completamente cubierta por tricomas multicelulares de color magenta. Se incluye una comparación morfológica detallada con especies afines, así como fotografías in situ e ilustración botánica. Además, se propone una evaluación preliminar de su estado de conservación con base en los criterios de la Lista Roja de la UICN. El hallazgo de esta especie endémica evidencia la alta singularidad florística del Chocó biogeográfico y refuerza la necesidad de fortalecer las acciones de exploración, documentación y conservación en el Pacífico colombiano, una de las regiones más diversas y, a la vez, más amenazadas del país.

Palabras clave. Colombia; diversidad; Gesnerioideae; Región Pacífica; taxonomía.

INTRODUCTION

Gesneriaceae Rich. & Juss. belongs to the order Lamiales and currently comprises more than 3,900 species of flowering plants distributed among approximately 150 genera (Weber, 2004; Weber et al., 2013, 2020; GRC, 2025). Based on recent phylogenetic evidence, the family is

Original recibido el 17 de diciembre de 2025, aceptado el 17 de febrero de 2026
Editor Asociado: Fernando Biganzoli

subdivided into three well-supported subfamilies encompassing seven monophyletic tribes (Ogutcen et al., 2021; Weber et al., 2013, 2020). In the Neotropics, the greatest species diversity occurs within the subfamily Gesnerioideae, which includes more than 1,200 species distributed across 78 genera. (Clark et al., 2020). In contrast, the subfamilies Sanangoideae and Didymocarpoideae are each represented in the Americas by a single species (GRC, 2025).

Within Gesnerioideae, the genus *Columnea* L. is assigned to the tribe Gesnerieae, subtribe *Columneinae* (Weber et al., 2013, 2020), and represents a well-defined monophyletic lineage, consistently and strongly supported by molecular phylogenetic studies (Clark et al., 2006; Smith et al., 2013; Schulte et al., 2014). In Colombia, *Columnea* is particularly diverse and abundant, with at least 80 species documented in the 1990s (Kvist & Skog, 1993; Kvist et al., 1998). Since then, continued and intensive taxonomic work has revealed a substantial increase in documented diversity, raising the number of species known from the country to about 106 (GRC, 2025), including several newly described taxa, five of which were added within the past year alone (Clark et al., 2025a, 2025b; Solano-C. et al., 2025; Sierra-Ariza et al., 2025). Morphologically, the genus is characterized by the presence of indehiscent berries, in contrast to the fleshy bivalved capsules found in closely related genera. Moreover, most of its species are epiphytic, exhibiting dorsiventral shoots and anisophyllous leaves (Smith & Carroll, 1997; Smith, 2000; Zimmer et al., 2002; Clark et al., 2012, 2020; Smith et al., 2013; Schulte et al., 2014; Weber et al., 2020). According to the study by Ogutcen et al. (2020), Gesnerioideae species have developed biochemical mechanisms that give rise to orange to red flowers. The presence of deoxyanthocyanins has restricted floral color diversification to these shades, which are suited to the visual perception of hummingbirds, the main pollinators of many species in the group. This type of coloration has evolved convergently in several lineages within the Gesnerioideae subfamily.

This study describes and illustrates a new species of *Columnea* from the lowland forests of the Chocó biogeographic region of Colombia, occurring in the departments of Cauca and Valle del Cauca. The Chocó region is recognized as one of the most biodiverse areas worldwide, characterized by high levels of endemism and a flora that remains incompletely documented. In this context, the discovery of new species highlights the need for continued taxonomic research in the region. The differences between the new species and morphologically similar taxa are discussed, and a preliminary conservation status is provided according to IUCN criteria and standards.

MATERIALS AND METHODS

The type material was collected during expeditions in 2025 in the Bajo Calima district, municipality of Buenaventura, in the Department of Valle del Cauca, western Colombia. In addition to field collections, we examined specimens from several international and national herbaria, including K, AMES, NY, MO, US, COL, FMB, JBB, TOLI, and UDBC (Thiers, 2025), accessed through institutional collections and digital platforms such as Global Plants (JSTOR, https://plants.jstor.org/). To identify additional records potentially assignable to the new species, we also reviewed data from online biodiversity repositories, including iNaturalist (www.inaturalist.org), the Global Biodiversity Information Facility (GBIF, www.gbif.org), Plants of the World Online (POWO, http://powo.science.kew.org), and Tropicos (www.tropicos.org).

A detailed examination of vegetative and floral morphology was performed using a Motic SMZ-168 LED stereomicroscope. Digital images were processed in ImageJ (Schneider et al., 2012). Observations were based on live material, herbarium specimens, and reproductive structures preserved in alcohol. The descriptive terminology follows the most recent taxonomic treatment of a *Columnea* species from Colombia (Sierra-Ariza et al., 2025). General terminology and morphological standards, including definitions for leaf and indument characters and the use of a standardized color reference, follow Beentje (2010), Ellis et al. (2009), and Hewson (2019).

The extinction risk was evaluated according to the IUCN Red List Categories and Criteria and the most recent IUCN guidelines (2024). The preliminary conservation assessment was based on field observations, collection data, and estimated population sizes. The extent of occurrence (EOO) and area of occupancy (AOO) were calculated in GeoCAT (Bachman et al., 2011) using a 4 km² grid, and the distribution map was generated in ArcGIS Pro 3.2 using coordinates from herbarium specimen labels and the iNaturalist database.

TAXONOMIC TREATMENT

Columnea magentotricha Parra-Lizc. & Solano-C., sp.nov. TYPE: COLOMBIA. Valle del Cauca: Municipio de Buenaventura. Bajo Calima, Comunidad de Bajo Calima, cerca al vivero comunitario, 3°56’29” N, 76°59’10” W, 55 m a.s.l., 25-VIII-2025 (fl, fr), *N. Parra-Lizcano & Florencio Advíncula 624* (holotype, TOLI 32813!; isotypes, COL!, JBB!). Figures 1-3.

Diagnosis. *Columnea magentotricha* is distinguished from its congeners by its narrowly lanceolate calyx lobes bearing one or two branches per lobe, except for the dorsal lobe, which has an entire margin; a shorter tubular corolla (10-14 mm long), entirely orange to bright yellow; a gynoecium with a deltoid stigma; and the whole plant covered with magenta multicellular indumentum.

Facultative epiphytic herb with dorsiventral shoots 14-20 cm long. Stems terete, subwoody, cross section up to 0.5 cm (when dry), light green, densely hirsute with magenta multicellular erect trichomes up to 4 mm long, later becoming brown and densely pilose with a transparent trichomes; internodes 0.8-3.5 cm long. Petioles 2.1-6 mm long in larger leaf, light green, densely hirsute with magenta multicellular erect trichomes, the smaller leaf is sessile; leaves opposite, pairs strongly anisophyllous; larger leaf blade 7.5-11.5 × 1.5-2.8 cm, oblanceolate, apex acuminate 7.8-11.4 mm, base oblique, venation pinnate, 5-8 veins per side, major secondary veins brochidodromous to eucamptodromous, irregular spaced, smoothly decreasing proximally, excurrent with the midvein, 1-3 intersecondary veins, perpendicular with the midvein, intercostal tertiary veins transversely freely ramified; adaxial surface dark green and glossy (when fresh), with magenta multicellular erect trichomes; abaxial surface uniformly-magenta or with irregular magenta spots, magenta multicellular erect trichomes, pubescence denser on the midvein and with longer trichomes ranging from 2.9-4.1 mm; margin serrate on the distal half of the lamina, teeth irregular spaced; smaller leaf sessile, 4.6-11 × 0.8-1.3 mm, lanceolate, base acute, margin entire, adaxial surface dark green and glossy (when fresh), with magenta multicellular erect trichomes; abaxial surface uniformly magenta, with magenta multicellular erect trichomes. Inflorescence reduced to axillary fascicles of 2-4 flowers; peduncles absent; bracts magenta, linear, 6.8-10 mm, densely hirsute. Flowers subtended by pedicels 4.4-9 mm long, densely pilose; calyx lobes 5, narrowly lanceolate, 17-27 × 1-2 mm, pectinate, with multicellular hispid trichomes, basally fused; dorsal lobe with entire margin, lateral and ventral lobes with one branch on each side, the lateral lobes occasionally with only one branch per lobe; corolla yellow to light orange, tubular, 10-14 mm long, base dorsally gibbous, gibbosity 3.5-4.4 mm wide; constricted towards the base and at the throat, 2.5-3 mm wide near the base, 2.4-2.8 mm wide at the throat; apically inflated and slightly ventricose; outer surface pilose with magenta multicellular trichomes, some forming stripes near the throat; inner surface ventrally pubescent with glandular and 1-2-celled trichomes; limb subactinomorphic, ca. 3 mm wide; lobes 5, equal to subequal, 0.8-1.3 × 1.4-1.5 mm, semi-orbicular, margin entire, apex rounded, inner surface glabrous, outer surface pilose. Androecium of 4 stamens, filaments connate at the base, forming a filament curtain 1.7-2.5 mm long, glabrous, free portion of filaments 2.6-4 mm long, with scattered glandular trichomes; anthers 1.2-1.3 × 1.0-1.2 mm, quadrangular, basifixed, glabrous, dehiscing by longitudinal slits; included within the corolla tube. Gynoecium with a nectary consisting of a bilobed to trilobed dorsal gland, ca. 1.7 × 1.5 mm; ovary 3.1-3.6 mm long, ovate, pilose with multicellular trichomes; style 3.2-3.5 mm long, glabrous; stigma deltoid, papillate, included within the corolla tube. Fruit a dark-red, elliptic to rounded berry, ca. 9.8 × 7.7 mm, hirsute with multicellular trichomes, and with glandular trichomes present toward the apex.

Etymology. The name *magentotricha* is derived from *magenta* (referring to the magenta color) and the Greek *trichos* (hair) and alludes to the conspicuous magenta trichomes that cover the entire plant, including leaves, stems, and calyx.

Distribution and habitat. *Columnea magentotricha* is an endemic species of western Colombia, within the Chocó Biogeographic region. It is known only from two areas: the Bajo Calima District in the municipality of Buenaventura (Valle del Cauca), and the border zones of López de Micay and Timbiquí in the department of Cauca (Fig. 3). It inhabits the Very wet lowland tropical rain forests (sensu Holdridge), occurring below 300 m elevation on moderate slopes, under extreme pluvial conditions with annual precipitation exceeding 7,000 mm. It is a locally scarce species, difficult to identify when sterile, and consistently grows as an epiphyte on canopy trees.

Phenology. *Columnea magentotricha* has been recorded in flower during January, February, August, and December, and in fruit in August. This information is based on herbarium specimen label data and online observations (https://www.inaturalist.org/observations/260468251).

Preliminary conservation status. Its estimated Extent of Occurrence (EOO) is 147.374 km², and its Area of Occupancy (AOO) is 12 km², both of which fall well below the thresholds for the Endangered (EN) category under IUCN Criterion B (EOO < 5,000 km²; AOO < 500 km²). *Columnea magentotricha* is endemic to the lowland rainforests of the Colombian Pacific region, where it is known from a small number of geographically close populations occurring in the Buenaventura–Timbiquí region.

Fig. 1. *Columnea magentotricha*. **A,** ventral view. **B,** leaf, abaxial surface. **C,** leaf, adaxial surface. **D,** ventral view of inflorescence. **E,** detail of inflorescence. **F,** flower, front view. Photographs by Diego Gomez Hoyos.

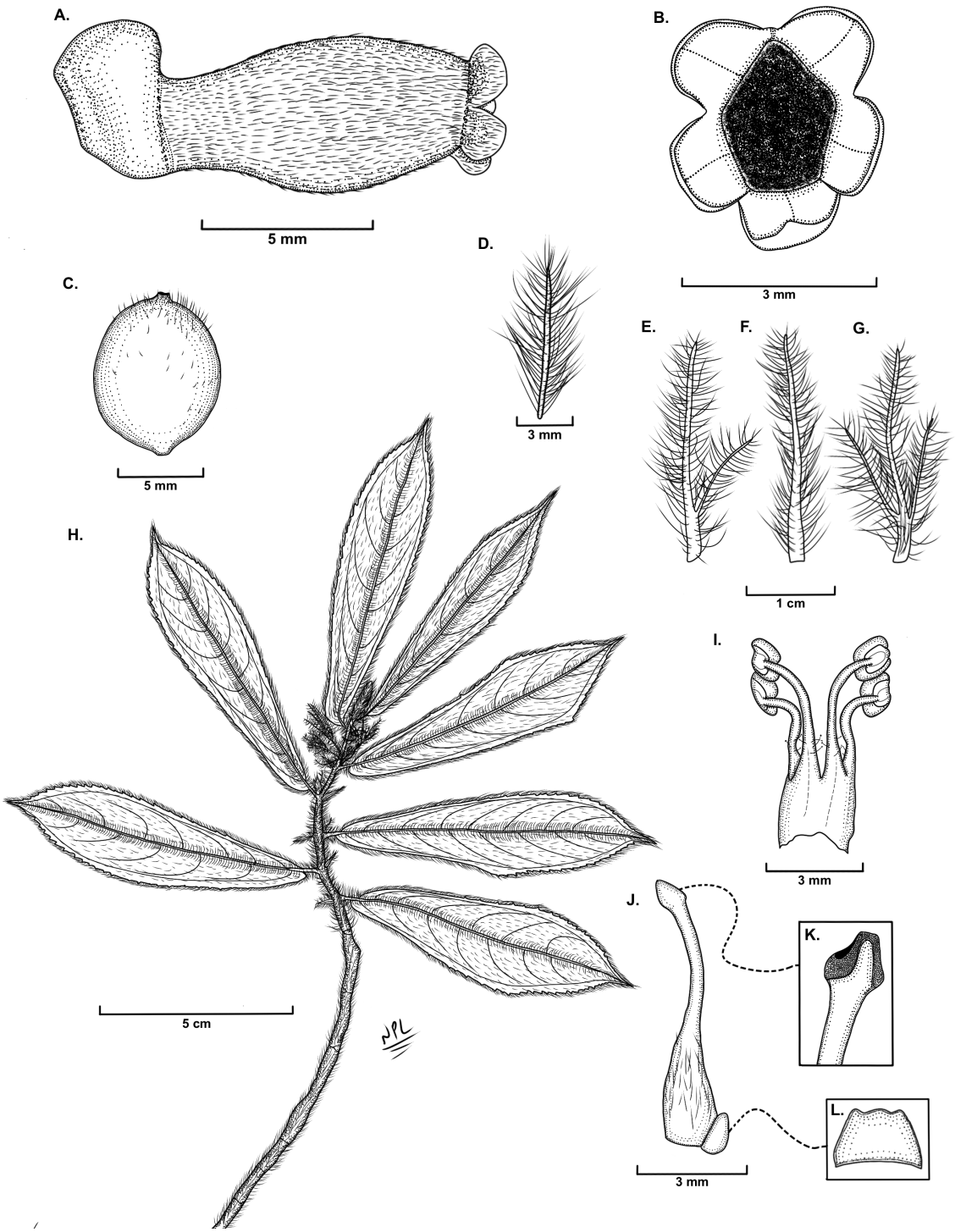

Fig. 2. Illustration of *Columnea magentotricha*. **A,** flower, lateral view. **B,** flower, front view. **C,** fruit. **D,** bract. **E,** calyx, lateral lobe. **F,** calyx, dorsal lobe. **G,** calyx, ventral lobe. **H,** habit. **I,** opened androecium. **J,** gynoecium. **K,** stigma. **L,** nectary gland. Drawn by N. Parra-Lizcano based on the holotype.

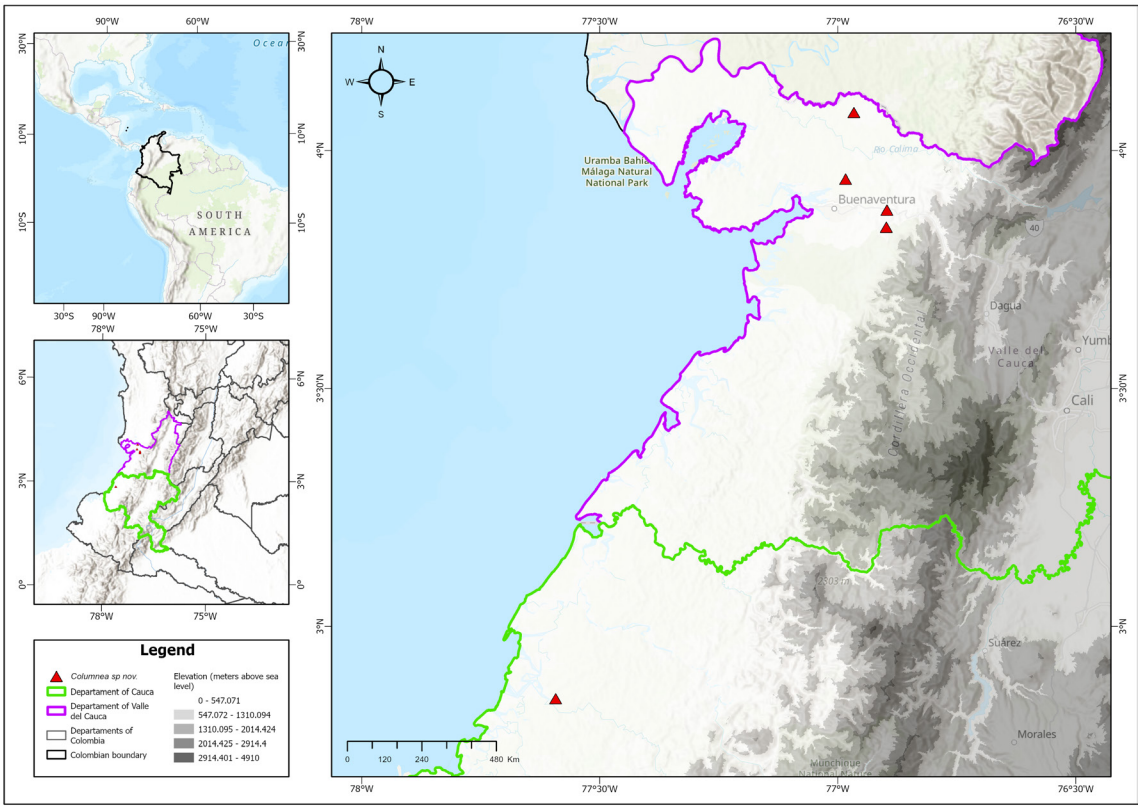

Fig. 3. Geographic distribution of *Columnea magentotricha in* the Choco biogeographic region of Colombia.

Following IUCN guidelines, the species is interpreted as occurring in a single threat-defined location, as all known populations are affected by the same overarching pressures that result in a continuing decline in habitat quality. These populations are distributed in isolated forest remnants within a highly transformed landscape, reflecting a fragmented distribution driven by extensive habitat modification across the region. Although the currently known distribution of *C. magentotricha* is geographically restricted and based on a limited number of herbarium collections, this pattern likely reflects, at least in part, the historically low botanical sampling effort in the Colombian Pacific. Large areas of lowland rainforest in this region remain poorly explored due to difficult access and longstanding socio-political constraints. Therefore, while additional populations may yet be discovered, the available evidence supports a narrow distribution concentrated within a single area of occupancy subject to the same dominant threats.

Forests inhabited by *C. magentotricha* in the Buenaventura–Timbiquí region are subject to intense anthropogenic pressure. According to the Centro Nacional de Memoria Histórica (CNMH, 2015), major threats include selective logging of commercially valuable timber species, expansion of port infrastructure (e.g., the Buenaventura Container Terminal), illegal gold mining, with reports of more than 220 dredges and 276 exca-vators operating in the Zaragoza area, and the continued expansion of illicit coca cultivation for cocaine production. These activities collectively result in an ongoing decline in the extent and quality of suitable habitat. In the municipality of Timbiquí, known populations occur within the Kõkõi Eujã Natural Traditional Reserve, which covers approximately 11,641 ha (≈115 km²). Although this area is legally protected, forest ecosystems within and around the reserve remain under pressure due to deforestation and the expansion of illegal crops. Paz et al. (2019) reported an average forest loss rate of 7.8 ha per year between 2001 and 2018 within the reserve, indicating a continuing decline in habitat quality.

Given its very restricted geographic range (Fig.

3), occurrence at a single threat-defined location (B1a, B2a), and the continuing decline in the extent and quality of habitat (ab(iii)), *Columnea magentotricha* is provisionally assessed as Endangered [EN B1ab(iii)+B2ab(iii)].

Vernacular names. *"Víbora"* in Buenaventura Valle del Cauca **(***E. P. Killip & Hernando Garcia* 33244 (US)).

Discussion. Being an epiphytic herb with dorsiventral shoots, reduced inflorescences in axillary cymes of fewer than four flowers, minute linear bracts, red-magenta lateral and ventral calyx lobes that are narrowly lanceolate and pectinate, densely hispid, and a tubular corolla, *Columnea magentotricha* is morphologically similar to *Columnea ampliata* (Wiehler) L.E. Skog. However, *C. magentotricha* differs by having a smaller larger leaf blade (7.5-11.5 × 1.5-2.8 cm vs. 15-20 × 8 cm), calyx lobes pectinate with one or two branched and the dorsal lobe entire (vs. 6-8 branched on each side), a corolla 1-1.4 cm long, completely yellow to light orange (vs. 3.4-4.2 cm long, pale yellow with orange-red longitudinal stripes), and an ovary with a trilobed dorsal nectary gland (vs. bilobed dorsal gland). *Columnea magentotricha* is also morphologically similar to *Columnea fimbricalyx* L.P. Kvist & L.E. Skog but differs by having densely hirsute stems (vs. glabrous to villous near the apex), inflorescences with 2-4 flowers (vs. inflorescences reduced to solitary flowers), longer pedicels (4.4-9 mm vs. 1-3 mm), calyx lobes pectinate only at the base with 1-2 branched (vs. completely pectinate from the base with no evident apex and up to 6 branched per side), and a pilose corolla 1-1.4 cm long with bright yellow lobes on both surfaces (vs. a densely villous corolla 2.5-2.8 cm long with red outer and white inner lobes). Finally, *Columnea magentotricha* is also morphologically similar to *Columnea minor* (Hook.) Hanst, but it is easily distinguished by having blades oblanceolate (vs. elliptic to oblong), shorter pedicels (0.4-0.9 cm vs. 1.9-2.8 cm), orange-yellow corollas 1-1.4 cm long (vs. predominantly reddish-purple corollas 3.5-4 cm long), and corolla lobes without appendages (vs. corolla lobes bearing appendages 2-4 mm long). Additional characters differentiating this species from its morphologically similar congeners are listed in Table 1.

Columnea magentotricha adds to the list of Gesneriaceae species described from the Colombian Chocó Biogeographic Region. In recent years, this region has experienced a remarkable increase in the discovery and description of new species, largely driven by recent botanical expeditions. Notably, Clark (2025) reports that these forests harbor numerous species that may be new to science, as well as many others that are rarely collected.

As examples of Gesneriaceae species described in this region during 2025 *Trichodrymonia glutinosa* J.L.Clark & Clavijo, *Columnea congestiflora* J.L.Clark, Solano-C. & Parra-Lizc., and *Columnea rubromarginata* J.L.Clark & Clavijo were published (Clark & Clavijo, 2025; Solano-C. et al., 2025; Clark et al., 2025c). Among the Gesneriaceae genera occurring in the Colombian Chocó, *Columnea* stands out as the most diverse genus and as the one in which the greatest number of new species has been recently described. Collectively, these findings emphasize the importance of continued botanical exploration and taxonomic research in the flora of the Colombian Chocó, particularly within the family Gesneriaceae.

Additional specimens examined. COLOMBIA. **Valle del Cauca**. About 18 kilometers east to Buenaventura, 50 m a.s.l., 14-II-1939 (fl., fl bud.), *E. P. Killip & Hernando Garcia* 33244 (US [virtual image]!); Buenaventura, vía Buenaventura-Loboguerrero, Vereda Santa Elena, Reserva Ecológica Venado Verde, 3°52'35.1" N, 76°53'48.4" W, 139 m a.s.l., 26-I-2025 (fl), *L. M. Caicedo-Campos & Florencio Advíncula* 310 (TOLI!).

ACKNOWLEDGMENTS

We thank the Universidad del Tolima for supporting this research under the collection permit granted by the National Authority of Environmental Licenses (ANLA, Resolution No. 000009, 2024). Our thanks also go to the herbaria TOLI, JBB and COL for accepting the deposition of reference specimens in their biological col-lections. We also thank the University of Tolima's Tropical Forestry Centre of the Faculty of Forestry Engineering, and the community of Bajo Calima for providing facilities and support to conduct fieldwork and document several of the recent specimens cited in this study. We also thank Diego Gomez Hoyos for sharing his photographs. Finally, we are grateful to PhD. James F. Smith and the anonymous reviewers for their helpful comments on the earlier version of the manuscript.

Table 1. Comparison among *C. magentotricha* with morphologically similar species.

Character	*C. magentotricha*	*C. ampliata*	*C. fimbricalyx*	*C. minor*
Habit	Facultative epiphytic herb	Epiphytic herb	Epiphytic herb	Epiphytic herb
Petiole length (cm)	0.2-0.6	0.5-1.5	0.4-0.7	0.4-1.2
Larger blade size (cm)	7.5-11.5 × 1.5-2.8	15-20 × 6-8	6-10 × 1-3	4.4-7.8 × 1.4-2.8
Smaller blade size (mm)	4.6-11 × 0.8-1.3	30 × 10	8-15	6.4-25.2 × 2.6-7.3
Blade consistency	Membranaceous	Leathery	Membranaceous	Chartaceous
Blade indument	Hirsute	Pilose	Glabrous	Pilose
Margin	Serrate on the distal half of the lamina	Denticulate	Weakly serrate	Weakly serrate
Base	Oblique	Oblique	Cuneate	Acute to oblique
Veins per side	5-8	7-8	5-6	4-5
Bracts shape	Linear	Lanceolate	Scale-like	Linear
Flowers per inflorescence	2-4	1-4	1	1-4
Pedicel length (cm)	0.4-0.9	0.7-1	0.1-0.3	1-3
Calyx lobes shape	Narrowly lanceolate	Narrowly lanceolate	Rounded to lanceolate	Narrowly lanceolate
Calyx lobes margin	with 1-2 lacinia	with 5-6 lacinia	Fimbriate	with >5
Corolla shape	Tubular	Tubular	Cylindric	Tubular
Corolla length (mm)	10-14	34-42	25-28	35-40
Corolla tube color	Yellow to light orange	Orange-red and pale yellow stripes	Yellow	Reddish-purple
Filaments length and indument	2.6-4 mm, scattered glandular trichomes	25-35 mm, glabrous	20-25 mm, glabrous	Unknown
Number and shape of glandular nectaries	1, a bilobed to trilobed dorsal gland	1, a double-connate dorsal gland	1, a bilobed dorsal gland	1, a slightly bilobed dorsal gland
Ovary indument	Pilose	Glabrous from the base to the middle, pilose apically	Sericeous	Pilose
Style length (mm)	3.2-3.5	20-30	20-22	Unknow
Style indument	Glabrous	Glabrous	Glabrous	Pilose
Stigma	Deltoid	Stomatomorphic	Bilobed	Stomatomorphic to slightly bilobed
Fruit shape	Elliptic to rounden berry	Unknown	Unknown	Ovoid
Fruit color	Dark-red	Unknown	Unknown	Light purple
Fruit indument	Hirsute	Unknown	Unknown	Unknown
Geographic range	Pacific region, Colombia	Panamá	Western Andean slopes in northern Ecuador and Colombia	Colombia and Ecuador

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