

**A rare new species of *Columnea* (Gesneriaceae) from
“Cordillera Occidental” in the Colombian Andes**

Rev. Acad. Colomb. Cienc. 36: 137-140. fig. 1, 2A, B.

REFNO: 3856

KEYWORDS:

**Colombia, *Columnea*, Flora de Colombia, Gesneriaceae, *Ortholoma*, Taxonomía,
Valle del Cauca**

A RARE NEW SPECIES OF *COLUMNEA* (GESNERIACEAE) FROM “CORDILLERA OCCIDENTAL” IN THE COLOMBIAN ANDES

Marisol Amaya Márquez*, James Foley Smith**

ABSTRACT

Amaya Márquez M., J. Foley Smith: A rare new species of *Columnea* (Gesneriaceae) from “Cordillera Occidental” in the Colombian Andes. *Rev. Acad. Colomb. Cienc.* **36** (139): 145-148, 2012. ISSN 0370-3908.

A new species of *Columnea* belonging to section *Ortholoma* (Gesneriaceae) from La Serranía de los Paraguas in the Valle del Cauca Department in Colombia (Cordillera Occidental) is described and illustrated.

Key words: Colombia, *Columnea*, Flora of Colombia, Gesneriaceae, *Ortholoma*, Taxonomy, Valle del Cauca.

RESUMEN

Se describe e ilustra una nueva especie de *Columnea* perteneciente a la sección *Ortholoma* (Gesneriaceae). La nueva especie se descubrió en La Serranía de los Paraguas, en el departamento del Valle del Cauca (Cordillera Occidental) en Colombia.

Palabras clave: Colombia, *Columnea*, Flora de Colombia, Gesneriaceae, *Ortholoma*, Taxonomía, Valle del Cauca.

Ortholoma Benth. corresponds to the circumscription of the genus *Trichantha* Hook. Validated by Wiehler (1973, 1975), and now recognized as a section within the genus *Columnea* (Kvist & Skog 1993). With nearly 50 species, it is the third largest section after *Collandra* and *Columnea s.s* (Smith in prep.). Ongoing molecular phylogenetic analyses of *Columnea* indicate that it is unlikely that *Ortholoma* will be resolved as monophyletic (Smith *et al.* submitted). However, since these analyses are incomplete and clades have not yet

been named, we here use the older published sectional name *Ortholoma*. The species in this section are herbs, usually with anisophyllous leaves at each node. They can be separated in two groups according to the presence or absence of external appendages located between the corolla lobes. The species reported in this paper is unusual in having a vegetative shoot similar to the one exhibited by the species of sect. *Collandra*, *i.e.*, leaves sessile disposed in close-set arrangement that give the shoots a “fern-frond” appearance (Wiehler 1983),

* Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Apartado 7495, Bogotá, Colombia. Email: mamayam@unal.edu.co

** Department of Biological Science, Boise State University, 1910 University Drive, Boise ID 83725, U.S.A. Email: jfsmith@boisestate.edu

and flowers that have external appendages between the corolla lobes as it occurs in some species of sect. *Ortholoma*.

Columnnea paraguensis M. Amaya & J. F. Smith sp. nov. Figures 1 & 2A, B

TYPE: COLOMBIA: VALLE DEL CAUCA: Municipio El Cairo, Vereda El Brillante, natural reserve, Cerro El Inglés, 4°45'N, 76°17'W, 2450 m, May 30, 2011, *O. H. Marín-Gómez & D. A. Gómez-Hoyos 199* (Holotype, COL; Isotype, CUVIC).

C. paraguensis differs from *C. fuscihirta* L. P. Kvist & L. E. Skog in having corollas with four appendages external to and between the lobes, and the larger leaf without red spots on its abaxial side.

Suffrutescent vine, 3 m long; stem subterete, 0.6-0.9 cm diam., the epidermis green, the indument hirsute, of 9-11 celled translucent trichomes; internodes 1-2 cm long. **Leaves** opposite, strongly anisophyllous papyraceous. Larger leaf petiolate, the petioles 0.4-1 cm long, hirsute with 7-10 celled

trichomes; blade asymmetrical, oblanceolate, 15.3-19 x 5-5.5 cm, basally oblique, apically acuminate, marginally irregularly dentate, adaxially green, pilose with 8 celled trichomes, abaxially pale green, pilose with 5-7 celled trichomes, 9-10 veined on the larger side of the blade. Smaller leaf sessile, the blade asymmetrical, lanceolate, 1.3-1.7 x 0.2-0.3 cm, basally oblique, apically long attenuate, marginally dentate, adaxially green, pilose with 9-10 celled trichomes, abaxially pale green, pilose with 9-10 celled trichomes. **Inflorescence** fasciculate, 2 flowered in the larger leaf axil; bibracteolate, the bracts lanceolate, 1.8-2.4 x 0.2-0.3 cm, pale green, adaxially glandular, abaxially pilose, marginally dentate. **Flowers** pedicellate, the pedicel 0.5-0.6 cm long, pilose with 10 celled trichomes. **Calyx** pale green, the sepals free, subequal, lanceolate, 1.2-1.8 x 0.2-0.3 cm, adaxially glandular with short headed trichomes, abaxially pilose with 10 celled trichomes; marginally lacinate. **Corolla** erect, yellow, the tube straight, slightly constricted at base and throat, curved downwards at the limb; 2.4 cm long, 0.6 cm wide at the middle, 0.3 cm wide at the constricted base, 0.4 cm at the throat; base dorsally gibbous, gibbosity 0.3 x 0.5 cm; limb bilabiate, the lobes patent, the two dorsal oblong, the others acute, 0.7 x 0.3 cm; corolla red outside and pilose at the middle of the tube, translucent at the limb; inside glandular with 2 celled trichomes, along the tube, whereas at the limb glandular only on the two dorsal lobes, with the two lateral and the ventral lobes glabrous. **Androecium** of 4 stamens, the filaments 2 cm long, pilose with unicellular trichomes, basally connate by 0.5 cm forming a folded and dorsally open staminal blade; anther sagittate, 1.5 x 1.5 mm, the connective subquadrate, 1.3 x 1.3 mm. **Gynoeceum** conoidal, 0.5 x 0.3 cm, pilose with 8-10 celled trichomes; style 1.8 cm long, glandular with uniseriate, 3-celled trichomes and a glandular head; stigma bilobed, recurved. **Nectary** consisting of 2 dorsal connate glands, 1.5 x 1.5 mm. **Fruit** a green but apically purple berry, 1.3 x 0.8 cm. **Seeds** not seen.

Etymology. The species is named after La Serranía de los Paraguas to acknowledge the geographical area where the species was recently collected.

Phenology. Flowers and fruits recorded in May. This information may not reflect the full phenology of the species due to the limited specimens known.

Distribution. *Columnnea paraguensis* is known only from the type locality in the western slopes of the Cordillera Occidental in the Colombian Andes at the limit between the Valle del Cauca and Chocó Departments at 2450 m alt. The Natural Reserve of Cerro El Inglés with 355 hectares is a place with the highest records of endemism and biodiversity recorded for the Serranía de los Paraguas (Silverstone-Sopkin &

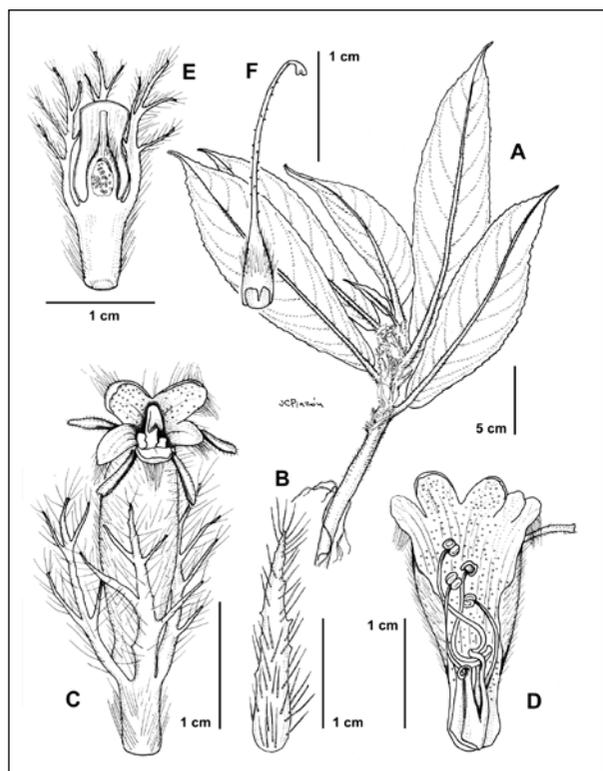


Figure 1. *Columnnea paraguensis* M. Amaya & J. F. Smith. A. Habit. B. Bract. C. Flower showing the four external appendages between the corolla lobes and the lacinate calyx. D. Corolla dissected to show the androecium and the location of the glandular trichomes on the inside. E. Ovary.

Ramos-Pérez 1995, Corporación Serraniagua 2006 (ined.). The Serranía de Los Paraguas is an important ecosystem with high relevance for the conservation of the biodiversity in Colombia.

Representative specimens. No additional collections have been seen.

Distinctive features The species is recognized vegetatively by having a translucent indument on the whole plant, although it changes to brownish on the older part of the stem and is red at the middle part of the corolla tube (Figure 2B). The leaves do not have red or purple maculae and instead are homogeneously green on the abaxial face. The inflorescences are located at a ventral position, with two flowers per inflorescence, but only one opens at a time (Figure 2B). The corolla tube has four appendages external to and between the lobes, which are typical of some species of sect. *Ortholoma* (Figure 2B), but are distinct from the corolla appendages reported for some species in sect. *Collandra*, where five appendages located inside the corolla tube form a corona

(Amaya *et al.* 2004). Although *Columnea paraguensis* has yet to be sampled in molecular phylogenetic analyses, the *Collandra*-like leaf arrangement and presence of long coarse hairs on the stem imply a relationship to *Columnea ciliata* (Wiehler) L. P. Kvist & L. E. Skog/ *C. illepida* Moore clade (Smith in prep.).

Columnea paraguensis is also closely morphologically similar to *C. fuscihirta* (Fig. 2C). Both species are suffrutescent climbers, have a larger leaf that is asymmetrical and oblanceolate of similar size to the leaves of *C. fuscihirta*, with the base oblique, the apex acuminate and the margin irregularly dentate; pedicel short; calyx pale green or green-yellow with margin lacinate; corolla cylindrical, yellow; four stamens with filaments pilose, and stigma bilabiate and recurved at maturity. On the other hand, the main difference between the two species is the presence of the four external corolla appendages in *C. paraguensis* which are absent in *C. fuscihirta*. More characters that help to distinguish between these species are presented in Table 1.

A



B



C



Figure 2. *Columnea paraguensis* **A.** Vegetative shoot with subsessile leaves disposed in close-set arrangement giving the plant a fern like appearance (*sensu* Wiehler 1983). **B.** Inflorescence showing only one flower open at the time. The corolla shows the four external yellow appendages, a bilabiate limb, and a red external indument at the middle of the tube; basally a pale green fruit covered by a pale green, lacinate calyx is observed. **C** *Columnea fuscihirta* L. P. Kvist & L. E. Skog. Vegetative shoot dorsiventral with subsessile leaves in a close-set arrangement; flowers showing an architecture defined by the following traits limb tubular, yellow, subactinomorphic, absence of corolla appendages, and a pale green fimbriate calyx.

Table 1. Comparison of morphological characters between *C. paraguensis* and *C. fuscihirta*.

Character	<i>C. paraguensis</i> M. Amaya & J. F. Smith	<i>C. fuscihirta</i> L. P. Kvist & L. E. Skog
Larger leaf petiole length	0.4-1 cm	1.5-2.3 cm
Larger leaf abaxial face color	Green	Green with red macula apically
Number of veins on the larger leaf	9-10	7-10
Shorter leaf shape	Asymmetrical, lanceolate	Asymmetrical, narrow ovate
Shorter leaf size	1.3-1.7 X 0.2-0.3 cm	2-6 X 0.8-2.5 cm
Bract size	1.8-2.4 X 0.2-0.3 cm	0.6-0.8 X 0.1-0.2 cm
Sepal adaxial indument	Glandular headed (2-3 celled trichomes)	Hirsute (8-10 celled trichomes)
Corolla shape	Subventricose, slightly constricted at the base and throat, curved down at the limb level; four external appendages among the lobes	Subventricose, slightly constricted at the base and throat, curved down at the limb level; external appendages absent
Corolla length	2.4-3 cm	3.1-3.9 cm
Corolla limb	Bilabiate	Subactinomorphic
Stamen filament's length	2 cm	3.5 cm
Ovary indument	Pilose	Glabrous, except apically near the style
Style length	1.8 cm	3.3 cm
Nectary	Two dorsal connate glands	One trilobed dorsal gland

Acknowledgments

MAM wishes to express her appreciation to the National University of Colombia for the opportunity to carry out the research leading to the identification of the new species. The authors are indebted to Oscar Humberto Marín for collecting the plant and for permission to publish the pictures of *C. paraguensis* and *C. fuscihirta*; to Juan Carlos Pinzón for the elaboration of the drawing, to Diego Giraldo-Cañas and two anonymous evaluators for making valuable observations to the manuscript. JFS acknowledges support from US National Science Foundation (grant DEB0949270).

Literature cited

- Amaya, M.; L. E. Skog & L. P. Kvist. 2004. Novae Gesneriaceae Neotropiarum XII: Four new species of *Columnea* (Gesneriaceae) section *Collandra* from Colombia. *Edinburgh Journal of Botany* 60 (3): 415-424.
- Corporación Serraniagua. 2006. Development and Implementation of Private Nature Reserves in Serranía de los Paraguas. Final Report. January 2006. 14 p.
- Kvist, L. P. & L. E. Skog. 1993. The genus *Columnea* (Gesneriaceae) in Ecuador. *Allertonia* 6 (5): 327-400.
- Silverstone-Sopkin P. A. & J. E. Ramos-Pérez 1995. Floristic Exploration and Phytogeography of the Cerro del Torrá, Chocó, Colombia. In: Biodiversity and Conservation of Neotropical Montane Forest. Churchill, S. P, H. Balslev, E. Forero & J. L. Luteyn. (Eds.) The New York Botanical Garden. New York. 169-186 pp.
- Wiehler, H. 1973. One hundred transfers from *Alloplectus* and *Columnea*. *Phytologia* 27 (5): 309-329.
- _____. 1975. Name changes in Neotropical Gesneriaceae. *Selbyana* 1: 32-35.
- _____. 1983. A synopsis of the Neotropical Gesneriaceae. *Selbyana* 6: 1-219.

Recibido: 1 de febrero de 2012

Aceptado para publicación: 22 de mayo de 2012