

Psittacanthus corderoi, a new species of Loranthaceae from the colombian Amazonia

Psittacanthus corderoi, una nueva especie de Loranthaceae
de la Amazonia colombiana

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ABSTRACT

Psittacanthus corderoi F. González, F. J. Roldán & Pabón-Mora, a species from the department of Amazonas, Colombia, is here described and illustrated for the first time. The new species is similar to *P. lasianthus* Sandwith, from Guyana and Venezuela, but it differs by various vegetative and floral traits. The most conspicuous diagnostic trait is the presence of numerous laciniae to 2 mm long on the outer surface of the petals, a trait unique in the genus.

Key words. Flora of Colombia, hemiparasitic plants, Loranthaceae, mistletoes, Santalales.

RESUMEN

Psittacanthus corderoi F. González, F. J. Roldán & Pabón-Mora, una especie del departamento del Amazonas, Colombia, es descrita e ilustrada por primera vez. La nueva especie es similar a *P. lasianthus* Sandwith, de Guyana y Venezuela, de la cual se la distingue por varios caracteres vegetativos y florales. El carácter diagnóstico más conspicuo es la presencia de numerosas lacinias hasta de 2 mm largo en la superficie externa de los pétalos, únicas en el género.

Palabras clave. Flora de Colombia, muérdagos, plantas hemiparasíticas, Santalales.

INTRODUCTION

With nearly 120 stem hemiparasitic species, *Psittacanthus* is the most speciose genus of Loranthaceae in the Americas (Kuijt 2009, 2015). The genus is characterized by the following traits: stem hemiparasites rarely with long epicortical roots; bisexual flowers ultimately arranged in dichasia, often with the central flower aborted, and subtended by a main bract and two lateral bracteoles (Suaza-Gaviria *et al.* 2016); distal portion of the pedicel dilated and cup shaped, hereafter called cupular pedicel; calyx often truncate and entirely surrounding the ovary; corolla slender, tubular, to 10+ cm

in length, the tube formed by six free but marginally interlocking petals which are brightly colored (red, orange or yellow); and six epipetalous stamens with dorsifixed anthers that are either tetrasporangiate and longitudinally dehiscent, or each theca secondarily divided by transverse septae and apparently dehiscent through numerous apertures. Flowers of *Psittacanthus* species play an important role as nectar or pollen reward especially for hummingbirds (Rose-ro-Lasprilla & Sazima 2004, Azpeitia & Lara 2006, Wilson & Calvin 2006), although ornithophily appears to be facultative as successful cleistogamy is likely to occur (Suaza-Gaviria *et al.* 2016).

The distribution of the genus ranges from NW Mexico (Baja California) and the Antilles to northern Argentina, although its highest diversification has occurred in the Amazonian region (Kuijt 2009). Fifteen species of *Psittacanthus* were previously reported by Dueñas & Franco-Roselli (2001) for Colombia, although this number appears to be higher. At least 28 species of *Psittacanthus* grow in the Colombian Amazonia or adjacent Amazonian forests from Venezuela and Brazil (Kuijt 2009). These are: *P. acinarius* (Mart.) Mart., *P. baguensis* Kuijt, *P. biternatus* (Hoffmanns.) G. Don, *P. brachynema* Eichler, *P. cinctus* (Mart.) Mart., *P. clusiiifolius* Eichler, *P. crassifolius* (Mart.) Mart., *P. crassinervis* Kuijt, *P. crassipes* Kuijt, *P. cucullaris* (Lam.) G. Don, *P. cyclophyllus* Kuijt, *P. dilatatus* A. C. Sm., *P. eucalyptifolius* (Kunth) G. Don, *P. geniculatus* Kuijt, *P. gentryi* Kuijt, *P. irwinii* Rizzini, *P. lasianthus* Sandwith, *P. montis-neblinae* Rizzini, *P. ophiocephalus* Kuijt, *P. peronopetalus* Eichler, *P. plagiophyllus* Eichler, *P. robustus* (Mart.) Mart., *P. schultesii* Kuijt, *P. stergiosii* Kuijt, *P. sulcatus* Kuijt, *P. truncatus* Kuijt, and *P. tubatus* Kuijt. In addition, the specimen *Zarucchi 1205* (LEA) from Vaupés, was provisionally identified by Kuijt (2009) as *P. bolbocephalus* Kuijt; if this identification is confirmed, this species would be an interesting disjunct between the Atlantic and the Amazonian forests. Cárdenas *et al.* (2009) reported the occurrence of *P. julianus* Rizzini in the Inírida fluvial confluence, but this name is a synonym of *P. irwinii* (Kuijt 2009).

While studying floral development and morphology in Loranthaceae, a specimen collected in the Colombian department of Amazonas was found to be especially notable, as it does not match any of the species recognized so far by the comprehensive local monographs of the genus, especially those by Eichler (1868), Rizzini (1956, 1982) and

Kuijt (1986, 2009). Thus, we proceed here to describe the new species.

***Psittacanthus corderoi* F. González, F.J. Roldán & Pabón-Mora, sp. nov.** TYPE: COLOMBIA. Amazonas: Corregimiento La Pedrera, Resguardo Indígena Curare – Los Ingleses, Comunidad Curare, orillas del quebradón Curare (aguas negras), arriba de la bocana del caño Madroño hasta cerca de las cabeceras del quebradón, ca 1°17'S, 69°44'W, 100 m, 21 May 2004 (fl), Z. Cordero & E. Tanimuka 818 (Holotype COL) (Figs. 1, 2).

Species similar to *Psittacanthus lasianthus*, from which it differs by the sympodial, densely puberulous, three-angled stems, ternate leaves, terminal dichasia, perfoliate bracts, a neck-bearing, not inflated corolla densely lacinate on its outer surface and a triangular, ligule on the inside of each petal, a ring-like nectary, and a micropapillose stigma versus percurrent, glabrous, circular stems, paired leaves, axillary dichasia, not perfoliate bracts, a neck-lacking, inflated corolla without lacinae on its outer surface and a finger-like ligule on the inside of each petal, a 4-lobed nectary, and a smooth stigma in *P. lasianthus*.

Stem hemiparasites with sympodial shoots. Internodes 2.5-5 cm long, densely puberulous, three angled when young; nodes not swollen. Leaves three per node, shortly petioled; petiole 2-3 mm long; lamina widely elliptic, 3.5-6 x 2.3-3.2 cm, fleshy, glabrous on both surfaces, venation obscure especially on the upper surface, formed by a midvein and two pairs of pinnate secondary veins, base decurrent, apex obtuse. Inflorescences formed by one terminal and two subterminal (lateral) double dichasia (triads), rarely with the terminal flower of the dichasium aborted resulting in the atypical formation of dyads; internodes

5-16 mm long. Inflorescence axes, bracts, bracteoles and cupular pedicels red, densely finely puberulous; first order and second order bracts widely ovate, 2-4 x 1.5-3.0 mm, shortly perfoliate. Lateral flowers of each dichasium subtended by

triangular bracteoles to 1.5 x 0.5 mm, finely puberulous, almost completely adnate to the short cupular pedicel that reaches 1 mm long, also finely puberulous. Flowers tubular, straight; calyx of the lateral flowers mostly surrounded by the cupular pedicel,

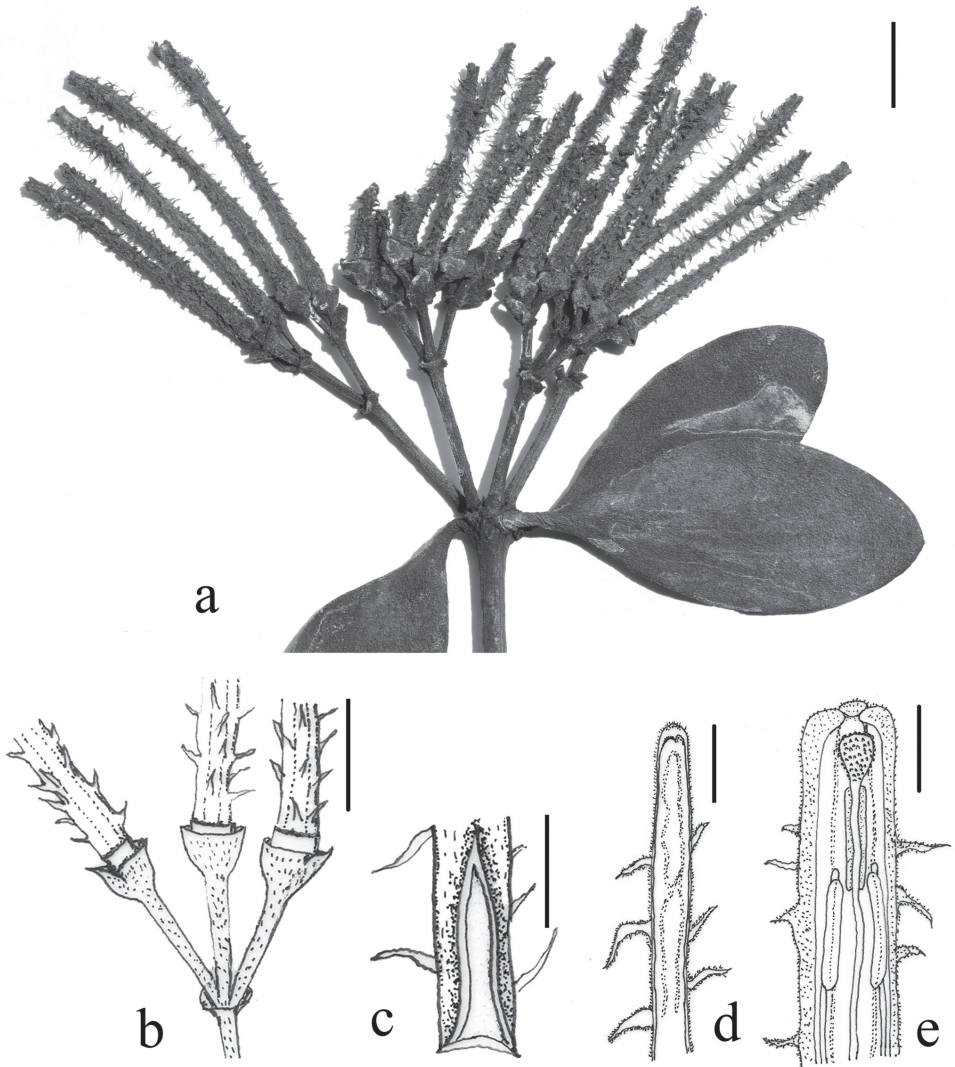


Figure 1. *Psittacanthus corderoi*. **a.** Photograph of the holotype (Cordero & Tanimuka 818). **b.** Detail of a dichasium; note the perfoliate bract at the base and the minute bracteoles at the flanks of the lateral flowers. **c.** Triangular ligule on the base of the inner side of the petal. **d.** Inner surface of the distal portion of the petal; note the prints left by the stigma, the long anther and the short anther. **e.** Cut off corolla apex showing two short stamens, one long stamen (dotted) partially covered by the style, and the micropapillose stigma. Scale bars = 1 cm in **a, b**; 2 mm in **c-e**.

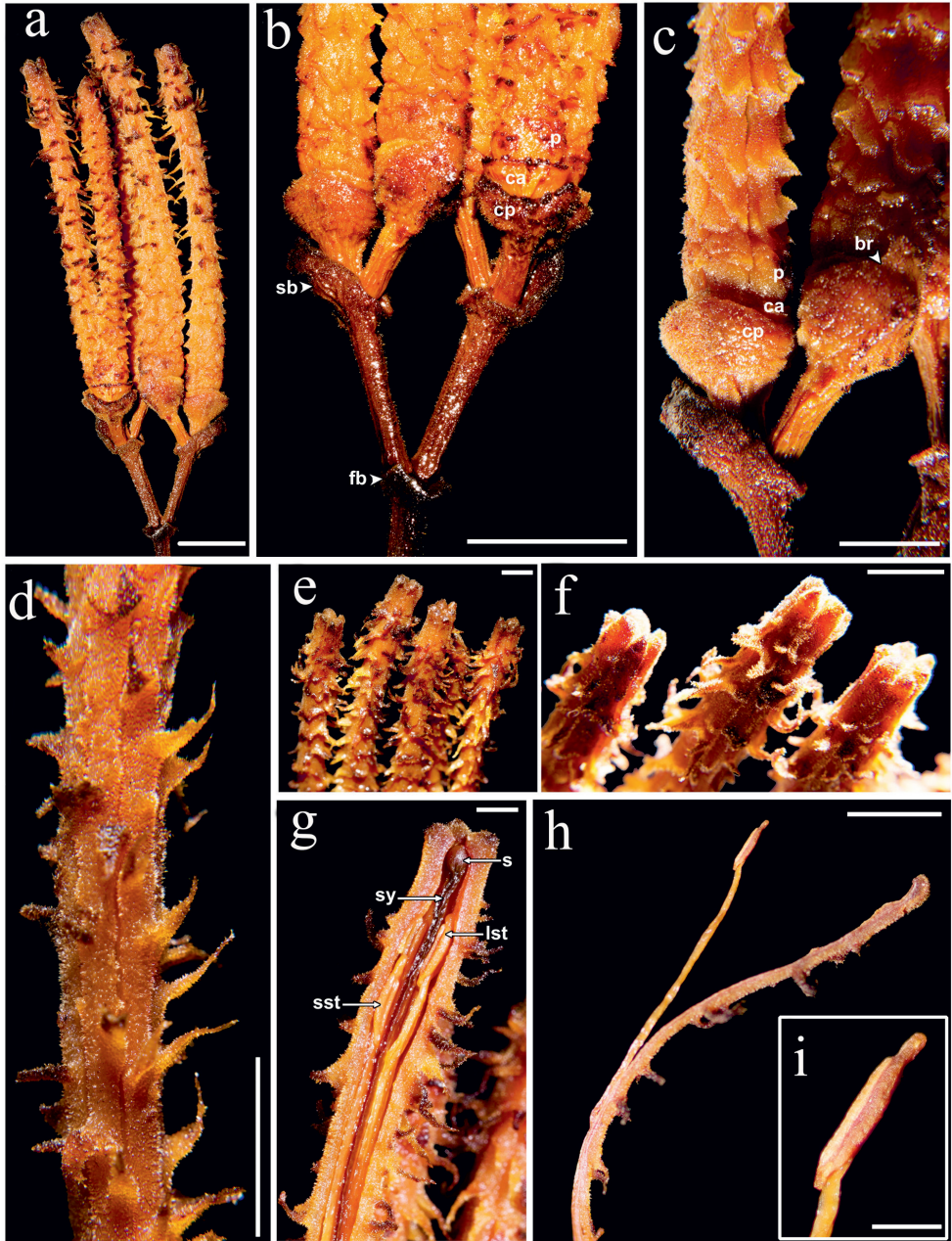


Figure 2. *Psittacanthus corderoi* (Cordero & Tanimuka 818; Holotype COL). **a.** Double dichasial inflorescence. **b.** Detail of base of the double dichasium. **c.** Detail of the base of a single dichasium. **d.** Laciniae and puberulous trichomes on the outer surface of the petals. **e.** Distal portion of hexamerous corollas. **f.** Detail of the corolla necks. **g.** Dissected apex of flower showing long and short stamens, style and stigma. **h.** Petal and stamen. **i.** Anther. **br**, bracteole; **ca**, calyx; **cp**, cupular pedicel; **fb**, first order bract, **lst**, long stamen; **p**, petal; **s**, stigma; **sb**, second order bract; **sst**, short stamen; **sy**, style; Scale bars = 5 mm in **a, b, d, h**; 2 mm in **c, e, f**; 1 mm in **g, i**.

visible only the nearly truncate 1-2 mm border; corolla not inflated and with a conspicuous neck to 3 mm long; petals six, narrowly oblong, 2-4 x 0.1-0.12 cm, apex obtuse, clavate, slightly separated only along the neck during anthesis, outer surface densely laciniate, the laciniae to 2 mm long, membranous, patent or pointing backwards, the entire outer surface (including the laciniae) puberulous, the proximal half bright red, the distal half yellow, the inner surface finely puberulous and with a narrowly triangular ligule to 4 mm long at the base of each petal; androecium formed by two alternating series of long and short stamens halfway attached to the petals, anthers oblong, tetralocular, 2-2.5 mm long with an apical horn to 0.7 mm long, laterally dehiscent; ovary barrel-shaped, completely surrounded by the calyx, nectary ring-like, surrounding the base of the straight, glabrous style to 3.6 cm long, stigma clavate, micropapillose. Fruits unknown.

Etymology. The new species is named in honor of Zaleth Cordero, an outstanding field botanist whose work in the Colombian Amazonia led to the collection of the new species.

Distribution and phenology. *Psittacanthus corderoi* is known only from the type collection made in La Pedrera, Amazonas, Colombia. It was collected with numerous inflorescences in May. Fruits remain to be collected.

Taxonomic notes. The presence of numerous laciniae to 2 mm long in the petal outer surface of *Psittacanthus corderoi* is unique in the genus. The new species is similar to *Psittacanthus lasianthus*, from Guyana and Venezuela, in the overall shape of the leaves and the puberulous outer surface of the petals (e-images of the type collection and additional specimens of *P. lasianthus* are available in https://plants.jstor.org/search?filter=name&so=ps_group_by_genus_species+asc&Query=Psittacanthus+lasianthus; see also illustrations in Hollowell *et al.* 2004, and Kuijt 2009). The presence of *P. lasianthus* in Colombia reported by Rosero-Lasprilla & Sazima (2004) was not confirmed in the monograph by Kuijt (2009). Table I summarizes the vegetative and the floral traits that clearly distinguish *P. corderoi* from its similar *P. lasianthus*.

Ecological notes. The ecological role of *Psittacanthus* species, like those of the

Table 1. Comparative traits between the newly described *Psittacanthus corderoi* and its closest relative *P. lasianthus*.

Trait	<i>Psittacanthus corderoi</i>	<i>Psittacanthus lasianthus</i>
Growth	Sympodial due to the terminal inflorescences	percurrent
Internodes	densely puberulous, to 5 cm long, three-angled when young	glabrous, 1.5-3 cm long, circular in contour when young
Number of leaves per node	three	two
Length of the petiole	2-3 mm long	to 1 cm long
Shape of the leaf lamina	widely elliptic	ovate to orbicular
Size of the leaf lamina	to 6 x 3.2 cm	to 8 x 5 cm
Position and architecture of the inflorescence	terminal, formed by five double dichasia	axillary, solitary, single dichasia

(Continia)

(Continuación Tabla 1)

Trait	<i>Psittacanthus corderoi</i>	<i>Psittacanthus lasianthus</i>
Length of the inflorescence internodes	5-16 mm	≤ 5 mm
Indument of the inflorescence internodes	puberulous	glabrous
Base of the bracts	perfoliate	slightly cordate, not perfoliate
Shape of the corolla	not inflated and with a conspicuous neck to 3 mm long	basally inflated to 5 mm, neck obscure
Margins of the petals	entire	toothed
Outer surface of the petals	densely lacinate (lacinae to 2.5 mm long) and puberulous	puberulous but not lacinate
Inner surface of the petals	finely puberulous throughout	glabrous except around the basal ligule
Ligule	narrowly triangular, to 4 mm long	finger-like, to 2 mm long
Anthers	2-2.5 mm long, with an apical horn to 0.7 mm long	4.5-6 mm long, with an apical horn 1-1.5 mm long
Nectary	ring-like	4-lobed
Stigma	micropapillose	smooth
Geographic distribution	Amazonas (Colombia)	Ayangana and Kaieteur plateaus, Pakaraima Mountains, Cuyuni-Mazaruni-Potaro Regions (Guyana); Amazonas (Venezuela).

genera *Aetanthus* and *Tristerix*, relies in the large, tubular flowered species, with copious nectar and pollen rewards for birds, especially hummingbirds. In fact, Rosero-Lasprilla & Sazima (2004) found that flowers of *Psittacanthus* are by far the most used ornithophilous flowers in *terra firme* Amazonian forests in Chiribiquete.

AUTHORS PARTICIPATION

FG and NLP detected the new species, and prepared the preliminary texts and illustrations. FG, FJR and NLP examined the type specimen and literature, wrote the final version of the manuscript, agreed in the final content of the text, and responded to the reviewers comments and suggestions. FG made dissections and illustrations that accompany the photographs of the type specimen.

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