

Two new species of *Pleurothallis* (Pleurothallidinae, Orchidaceae) in subgenus *Ancipitia* from Colombia

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Abstract: Two new species of *Pleurothallis* are described in subgenus *Ancipitia* from northern Colombia: *P. gustavoi* from the Department of Santander, allied to species of the *P. arietina*-*P. nelsonii* complex; and *P. eduardoi* from the Department of Antioquia, allied to *P. tetragona*. The species are described and illustrated and features distingui-

shing them from the other members of subgenera *Ancipitia* and the related *Scopula* are presented. Interesting morphological features of both species are discussed, including the minute, pubescent, tri-lobed, 'horned' lip with apical orifice in *P. gustavoi*; and leaf base decurrence, ramicaul shape and column protrusions in *P. eduardoi*.

Keywords: *Pleurothallis gustavoi*, *Pleurothallis eduardoi*, systematics, taxonomy

Introduction:

In his reorganization of *Pleurothallis*, Luer (1986) created subgenus *Ancipitia* for a group of species characterized by ancipitous ramicauls and solitary flowers produced from the apex of the ramicaul in a fascicle of peduncles. The subgenus as currently circumscribed contains up to 38 species, depending on synonymy. Of these, 12 species have been recorded for Colombia: *P. anceps* Luer, *P. andreae* Mark Wilson, B.T.Larsen & J.Portilla, *P. anthrax* Luer & R.Escobar, *P. caprina* Luer & R.Escobar, *P. crocodiliceps* Rchb.f., *P. dunstervillei* Foldats, *P. duplex* Luer & R.Escobar, *P. jimii* Luer, *P. membracidoides* Luer, *P. odobeniceps* Luer, *P. spatulipetala* Luer and *P. tetragona* Luer & R.Escobar. However, in the last few years multiple new species have been recognized in Colombia and these will be described in due course. Herein we describe two, *P. gustavoi* and *P. eduardoi*.

Of the new species to be described in this subgenus, several possess a minute, pubescent, tri-lobed lip in which the lateral lobes are elevated and project forward resembling 'horns'. Previously, all such

plants were assigned to *P. crocodiliceps*, which was believed to be a widely distributed, variable species. It is now clear, however, that rather than a highly variable single species, there exists a previously unrecognized species complex (Wilson *et al.* 2017). Following close examination of the holotype of *P. crocodiliceps* it is now apparent that the type does not in fact possess this characteristic lip. Therefore, we are now referring to this group of related species as the *P. arietina*-*P. nelsonii* species complex after the first two species described with this unique lip morphology (Wilson *et al.* 2017). *P. gustavoi* described in this article is a member of this species complex.

Methods:

These two species were compared to all described species in subgenus *Ancipitia* to confirm novelty (Luer 1989, 1992, 2011; Rodríguez-Martínez *et al.* 2015; Wilson *et al.* 2017). Lankester composite digital plates (LCDPs) were prepared as described by Wilson *et al.* (2016). Flowers for scanning electron microscopy were prepared and examined according to methods described by Wilson *et al.* (2016).

Taxonomy

Pleurothallis gustavoi Mark Wilson, Orquideología 34(1): xx. 2017. (Figs. 1-3)

Diagnosis: *P. gustavoi* can be distinguished from the similar white and rose-flowered species *P. nelsonii* Ames by the shape of the sepals (ovate versus linear-ovate); wider dorsal sepal (5.3-5.5 mm versus <5 mm); the wider synsepal (5.3-6.5 mm versus <5 mm); and the shape of the lip (sub-pandurate vs. triangular).

Type: Colombia, Department of Santander. Collected in 2003, flowered in cultivation at Orquídeas Katía, El Retiro, Antioquia, Colombia. *M. Wilson & G.A. Aguirre PL1002* (holotype: JAUM!).

Plant to ~ 20 cm tall, epiphytic, caespitose; **Roots** slender; **Ramicauls** erect, slender, sharply ancipitous, 12-15 cm

long, 3.6-4.1 mm wide below the leaf, enclosed by a middle sheath 3.2-3.8 cm long and basal sheath 3.0 cm long; **Leaves** suberect to spreading, ovate, acute, cordate, basal lobes somewhat inflexed, 7.7-8.1 cm × 2.4-3.1 cm, sessile, entire, coriaceous; **Inflorescence** successive, single-flowered inflorescences borne from reclining spathaceous bract at base of leaf, 5 mm long; **Peduncle and pedicel** 25 mm long; **Ovary** rugulose, 4.8-5.0 mm long; **Dorsal sepal** pale rose, heavily suffused and spotted with burgundy, ovate, acute 11.4-12.0 × 5.3-5.5 mm, minutely papillose internally; **Lateral sepals** white, connate into ovate, concave synsepal, acute, 11.1-12.0 × 5.3-6.5 mm, minutely papillose internally; **Petals** white, linear, subfalcate, acute, 9.0-9.6 × 1.5-2.0 mm, minutely denticulate; **Lip** white at apex, heavily mottled with brown at base, three-lobed, 1.38 × 1.0 mm (unexpanded), mid-lobe sub-pandurate, obtuse, thick, heavily pubescent around periphery, sulcate medially, small orifice near apex, basal lobes triangular, erect, tips folded forward, heavily pubescent; **Column** white, lightly suffused and spotted with burgundy at base, minutely papillose, 2.8 × 0.8 mm, anther and stigma subapical.

Etymology: Named to honor Gustavo Adolfo Aguirre, owner of Orquídeas Katía, who cultivated this species and brought it to the attention of the first author.

Distribution and conservation status: To our knowledge this species has been collected only once from an unknown locality in Santander. It currently exists as a single plant in the collection of Orquídeas Katía. Until further information on distribution and abundance can be obtained it should be considered data deficient (DD) according to IUCN criteria.

Discussion: The presence of the very distinctive minute, pubescent, tri-lobed, 'horned' lip with an apical orifice places *P. gustavo* in the *P. arietina*-*P. nelsonii* species complex. This complex includes the following: *P. arietina* Ames, *P. gustavo*, *P. microchila* L.O.Williams, *P. nelsonii* Ames, *P. onagriceps* Luer & Hirtz and *P. renieana* (Luer & Sijm) J.M.H.Shaw. It has been hypothesized that this lip is indicative of pollination via pseudocopulation by a male dipteran and further that each of these *Pleurothallis* species may have a unique pollinator (Wilson *et al.* 2017).

Pleurothallis eduardoi Mark Wilson, Orquideología 34(1): xx. 2017. (Figs. 4-6)

Diagnosis: *P. eduardoi* can be distinguished from the similar species *P. tetragona* Luer & R.Escobar by the leaf tip (acute, mucronate versus acute); the shape of the lip (narrowly triangular versus pandurate); the callus at the base of the lip (large, domed, triangular in side view versus callus absent); and the basal lobes of lip (approximately half the length of the central lobe versus approximately one-fifth the length).

Type: Colombia, Department of Antioquia, municipality of San Luis. Collected in 2008 by Luis Eduardo Mejía, M. Wilson & L.E. Mejía PL1003 (holotype: JAUM!).

Plant to ~ 19 cm tall, epiphytic, caespitose; **Roots** slender; **Ramicauls** erect, slen-

der, 10.8-14.0 cm long, terete at base, ~1.0 mm diameter, tetragonal or quadrangular below the leaf, ~1.8 mm diameter, enclosed by middle sheath 1.6-3.0 cm long and inconspicuous basal sheath ~1.0 cm long; **Leaves** suberect to spreading, ovate, coriaceous, entire, apex acute, mucronate, 5.3-6.1 cm × 3.2-3.7 cm, base cordate, sessile, decurrent on ramicaul ~ 9 mm; **Inflorescence** successive, single-flowered inflorescences borne from reclining spathaceous bract arising approximately one-third of the distance from the base of the leaf; **Peduncle** ~ 13 mm long; **Pedicel** ~ 24 mm long; **Ovary** rugulose, 3.0 mm long; **Dorsal sepal** white spotted with burgundy, ovate and concave in lower quarter, narrowly linear above, acute, 9.5 × 2 mm, minutely pa-

pubescent internally; **Lateral sepals** white spotted with burgundy, connate into a synsepal, ovate and concave in lower quarter, narrowly linear above, acute, 9.8 × 1.8 mm, minutely papillose internally; **Petals** white spotted with burgundy, ovate and concave in lower quarter, narrowly linear above, acute, 8.5 × 2.0 mm, minutely papillose internally; **Lip** white very lightly spotted with rose, three-lobed, 2.2 mm long, mid-lobe triangular, narrow, acuminate, base of mid-lobe with large, domed callus, lateral lobes triangular, narrow, acuminate, ~1.0 mm long; **Column** white, stout, ~1.0 mm long, minutely papillose, anther and stigma subapical, occasional flowers with narrow protrusions flanking the apical third of column immediately behind the stigma, ~0.3 mm long.

Etymology: Named to honor Luis Eduardo Mejía, collector of this species, who brought the species to the attention of the first author.

Additional material studied: Colombia, Department of Antioquia, municipality of Mesopotamia, 1998 *M. Wilson & J.F. Posada PL1004* (Paratype: JAUM!). Colombia, without specific locality, imported from Colomborquideas (via Colombian Orchid Imports) as *P. tetragona* and flowered in cultivation at Colorado College *M. Wilson & J.F. Posada PLo401* (paratype: COCO!); same information, *M. Wilson & J.F. Posada PLo894* (paratype: COCO!); same information, *PLo895* (paratype: COCO!); same information, *M. Wilson & J.F. Posada PLo535* (COCO!).

Distribution: This species has been collected twice in the Cordillera Central, once in the vicinity of the municipality of Mesopotamia and once near San Luis, southeast of Medellín, Department of Antioquia, Colombia.

Conservation status: The montane forests of the Cordillera Central southeast of Medellín are not currently part of a protected area. Indeed, the type locality has since been destroyed by a hydroelectric project. To our knowledge, the species has not been collected outsi-

de of this area, hence the species is at risk from deforestation. However, until more data on distribution and abundance can be obtained it should be considered data deficient (DD) according to IUCN criteria.

Discussion: Apart from *P. tetragona* (Fig. 7, 8), the only other species with which *P. eduardoi* might be confused is *P. cosmetron* Luer (Fig. 8), currently in subgenus *Scopula* (genus *Colombiana*). While *P. cosmetron* also has a narrowly triangular, acuminate lip with a callus at the base, the lateral lobes of the lip are extremely short and indistinct (Fig. 9). Additionally, in *P. cosmetron* the leaf base is long-decurrent on the ramicaul, the ramicaul emerges mid-way up the leaf, the ramicaul is free for a significant distance and then at the tip gives rise to a cluster or 'fascicle' of inflorescences.

P. eduardoi is morphologically interesting due to the tetragonal or quadrangular ramicaul; decurrence of the leaf base along the ramicaul; and the presence of column protrusions on some flowers. Prior to the description of *P. eduardoi*, only one species in subgenus *Ancipitia* had been reported with a tetragonal or quadrangular stem, *P. tetragona*. The majority of species in this subgenus have ancipitous or occasionally terete ramicauls. In addition to these two species, a third Colombian species with a tetragonal stem is in the process of being described (Rodríguez-Martínez & Karremans, pers. comm.). Despite this, the presence of an ancipitous or tetragonal ramicaul in *Pleurothallis* is still unique to subgenus *Ancipitia* at this time.

P. eduardoi is also somewhat unusual in subgenus *Ancipitia* for the decurrence of the leaf bases on the ramicaul, a feature observed only in *P. anceps* Luer, *P. membracidoides* Luer, *P. tetragona* and *P. viduata* Luer. Because of this decurrence in *P. eduardoi* and in *P. tetragona* it appears as though the peduncle emerges from the spathaceous bract about one-third of the way up the leaf, rather than at its base as in most of the species in the subgenus. This phenomenon is even more

pronounced in subgenus *Scopula*, such as in *P. aspergillum* Luer & Hirtz, where the peduncles may arise from a spathe at or near the leaf tip. Rodríguez-Martínez *et al.* (2015) have suggested that based on morphology the species of *Ancipitia* and *Scopula* should be considered to be a single taxonomic group. Assuming species of the two subgenera to be closely related, the short-decurrence of the leaf base on the ramicaul in *P. eduardoi* and *P. tetragona* may represent an earlier state in the evolution toward the long-decurren leaf in species like *P. aspergillum*.

The most unique morphological attribute of *P. eduardoi* is the presence on occasional flowers of short, narrow protrusions from either side of the column, immediately behind the stigmatic surface. These may be stelidia, thought to be sterile anthers, as observed in some myophilous *Bulbophyllum* species. Why these occur on only occasional flowers on a given plant is as yet unknown and the environmental or temporal factors triggering their production remains to be determined.

Acknowledgements: The authors acknowledge Luis Eduardo Mejía for bringing *P. eduardoi* to the attention of MW and preparation of the holotype; Carolina Rivera for the excellent botanical artwork; Sociedad Colombiana de Orquideología for financial support for the botanical artwork; and the staff of Jardín Botánico Joaquín Antonio Uribe, Medellín (JAUM). MW and KD thank Colorado College and the Department of Organismal Biology and Ecology for research funding, laboratory space and greenhouse facilities, and Ron Hathaway for assistance with scanning electron microscopy. The authors sincerely thank the reviewer for significantly improving the manuscript and pointing out the tetragonal stems of *P. eduardoi*. ■



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