

## First species of *Porroglossum* (Orchidaceae) with a trilobed lip

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**Summary:** *Porroglossum leslie-garayi*, a new species of the orchid genus *Porroglossum* is described and illustrated based on Colombian material. The 3-lobed lip which consists of unequal lobes with the middle one being reflexed near the midpoint is unique in the genus and based on this character the novelty can not be assigned to any existing subgenus of *Porroglossum*. For that reason we propose to delineate a new, separated infrageneric taxon to accommodate *P. leslie-garayi*.

**Keywords:** biodiversity, Neotropics, new species, new subgenus

The orchid subtribe Pleurothallidinae is one of the most diverse elements of the Colombian flora and its representatives constitute about 1/3 of the national Orchidaceae (VIVEROS & HIGGINS 2007; BERNAL et al. 2016). Moreover, new pleurothallids are described from the country each year (e.g. WILSON et al. 2017; LUER 2018; THOERLE 2018; WILSON 2018). Only in three Pleurothallidinae genera, the lip is sensitive and spring-like and just in one, *Porroglossum* Schltr., the spring mechanism works by turgor changes (VAN DER CINGEL 2001).

This genus was described by SCHLECHTER (1920) based on Colombian *Masdevallia muscosa* Rchb. f. characterized by mixed traits of *Scaphosepalum* Pfitzer and *Masdevallia* Ruiz & Pavón. By 1987 more than 20 specific epithets were published within *Porroglossum* (e.g. SWEET 1970; ORTIZ VALDIVIESO 1975; LUER 1980). The first revision of the genus was presented by LUER (1987) who divided it into two subgenera named *Eduardia* Luer and *Porroglossum*. Three sections, *Echidnae*, *Porroglossum* and *Tortae*, were recognized within the latter taxon while subgen. *Eduardia* comprises a single species, *P. eduardii* (Rchb. f.) Sweet.

The rhizome of *Porroglossum* representatives is very short to elongate between the ascending to erect ramicauls which are partially or completely enclosed by 2–3 imbricating sheaths above the base. The single leaf is usually erect, coriaceous and petiolate, with elliptic or narrowly elliptic to narrowly obovate blade and cuneate base. The resupinate or non-resupinate flowers are borne on a glabrous to long pubescent peduncle. The sepals are connate to near the middle forming a sepaline cup with apices usually contracted into tails. Small petals are cartilaginous and oblong. The spatulate lip is smooth to pubescent, obtriangular or obovate with a longitudinal callus or a short, transverse callus at the base above a narrow claw bent around the free apex of the column foot and attached to the posterior surface of the column foot. The erect, elongate, rather massive gynostemium of *Porroglossum* is more or less extended laterally, especially near the stigma. The column part is much longer than the anther, usually narrowly winged and the column foot is prominent, sometimes longer than the column part (LUER 1987; SZLACHETKO & MARGOŃSKA 2002).

About 53 *Porroglossum* species (KARREMANS 2016; BAQUERO & ITURRALDE 2017) are distributed from Colombia and Venezuela to Bolivia, with the greatest diversity observed in Ecuador. Genus

representatives grow in cloud forests at altitudes between 1000 m and 3200 m (PRIDGEON 2005; LUER 2011). So far, 12 *Porroglossum* species have been reported from Colombia (KOLANOWSKA et al. 2013; KOLANOWSKA & SZLACHETKO 2013; BERNAL et al. 2016).

During the studies on Colombian orchid flora an extraordinary specimen resembling *Porroglossum* was found in the herbarium of the Harvard University. While not all morphological traits of the studied plant fit morphological characteristics of this genus, we did not find any other possibility to classify this plant within Pleurothallidinae. Perhaps with molecular data, the more accurate taxonomic position of this strange orchid will be established in the future.

## Materials and methods

Herbarium specimens were examined according to the standard procedures. Every studied sheet was photographed and data from the labels were taken. Both vegetative and generative characters of each plant were examined (leaves, inflorescence architecture, shape and size of the floral bracts, flower morphology and gynostemium structure) and were compared with existing type material.

## Taxonomic treatment

*Porroglossum* subgen. *Leslie-garaya* Szlach. & Kolan., subgen. nov.

The subgenus is characterized by a clawed lip, 3-lobed just above the claw, the middle lobe is reflexed in the midpoint.

**Type.** *Porroglossum leslie-garayi* Szlach. & Kolan.

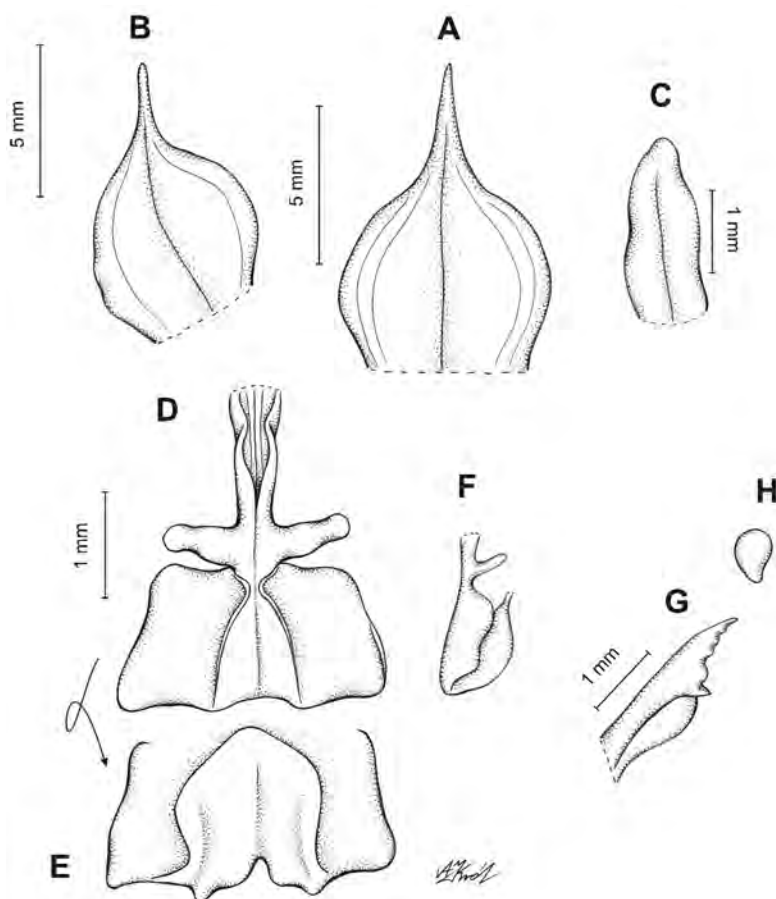
The new subgenus differs from subgenera *Porroglossum* and *Eduardia* by a unique lip form, which is deeply 3-lobed above the base, with very unequal lobes with the middle one reflexed near the midpoint.

*Porroglossum leslie-garayi* Szlach. & Kolan. sp. nov. (Fig. 1)

**Diagnosis.** Species distinguished from all other genus representatives by the presence of oblong-ligulate, apically rounded lip lateral lobes and lip middle lobe reflexed near the middle in natural position, trapeziform in outline while not spread and shortly bifid at the apex. The 3-lobed lip is observed in the closely related genus *Scaphosepalum*, but representatives of this taxon have a short lip claw and their lateral sepals are connate into concave lamina with a pair of fleshy calli ('cushion').

**Type.** Colombia. Dept. Cundinamarca. San Miguel, El Divino Niño, alt. 9000–9800 ft., 20 July 1961, L.A. Garay & al. 262 [Holotype: AMES!].

**Description.** Plant about 12 cm tall. Ramicaul 1.5 cm long, with 3 papyraceous sheaths, unifoliate. Leaf petiolate; petiole 3 cm long; blade up to 6 cm long, 0.5 cm wide, narrowly oblong-elliptic, acute. Peduncle ca 15 mm long, glabrous. Pedicel and ovary ca 5 mm long, glabrous. Sepals verruculose on inner side, pitted on both surfaces. Dorsal sepal 10 mm long, 4.6 mm wide, ovate-suborbicular with short, acuminate, obtuse tail, 5-veined. Lateral sepals 8.6 mm long, 4.6 mm wide, obliquely ovate with short, acuminate, obtuse tail, 3-veined. Petals 2.3 mm long, 0.9 mm wide, oblong-ligulate, subfalcate, apex rounded, 1-veined. Lip clawed, 3-lobed in the basal third; claw 1.6 mm long, narrow, canaliculated in the basal part, terete above; lateral lobes 0.7 mm long, oblong-ligulate, apically rounded, widely spread; middle lobe 2.7 mm wide in the widest point, ca



**Figure 1.** *Porroglossum leslie-garayi*. A – dorsal sepal; B – lateral sepal; C – petal; D – lip, front view; E – lip middle lobe details; F – lip, side view; G – gynostemium; H – pollinium. Drawn by A. Król from the holotype.

3 mm long in total, reflexed near the middle, trapeziform in outline when not spread, apex bifid with a pair of small knobs, upper part 1.5 mm long, underside 0.8 mm wide, ligulate-pentagonal in outline, rounded at the apex; disc concave. Gynostemium 2.8 mm long, column foot shorter.

**Etymology.** Dedicated to Leslie A. Garay (1924–2016), an eminent orchidologist and former curator of the Oakes Ames Orchid Herbarium at Harvard University.

**Habitat and ecology.** The new species was found growing on steep slopes in dense overgrown ravine at the altitude of 2745–2990 m. Flowering occurs in July.

**Taxonomic notes.** The new species is distinguished from all other *Porroglossum* representatives by the presence of oblong-ligulate, apically rounded lip lateral lobes and form of the lip middle lobe which is trapeziform in outline and shortly bifid at the apex. Moreover, unlike in most *Porroglossum* species, the lateral sepals of the new species are very shortly connate. The 3-lobed lip is observed in the closely related genus *Scaphosepalum*, but representatives of this taxon have a short lip claw and their lateral sepals are connate into concave lamina ornamented with a pair of fleshy calli ('cushion').

Another pleurothallid with a 3-lobed lip and a prominent lip claw is Cuban endemic, *Atopoglossum ekmanii* (Schltr.) Luer. This species, however, is a minute plant up to 8 cm tall including the

inflorescence up to 7 cm long with obovate or elliptic leaves, spatulate, denticulate petals, and a suborbicular-ovate lip middle lobe which is much narrower than lateral lobes. In *Kraenzlinella gigantea* (Lindl.) Luer, the lip is clawed and the lip lateral lobes are present, but these are small and horn-like, the middle lobe is ovate, rounded, the ovary is pubescent, and the petals have small, rounded lobules at the base.

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