

Taxonomical notes on *Pachygenium* (Orchidaceae)

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Three new species of the orchid genus *Pachygenium* are described and illustrated: *Pachygenium schmidtianum* Mytnik, Szlach. & Górniak, *P. triangulare* Mytnik, Szlach. & Górniak and *P. arechavaletae* Mytnik, Szlach. & Górniak. A new combination on the species level, *Pachygenium callosum* (M.N. Correa) Mytnik, Szlach. & Górniak is validated. The taxonomic position of the new taxa is briefly discussed. *Pachygenium* is compared in a table with *Pelexia* on the generic level. A brief taxonomic history of *Pachygenium* is presented.

Key words: Cyclopogoninae, morphology, nomenclature, Orchidaceae, *Pachygenium*, Spirantheae, taxonomy

The name *Pachygenium* was first used by Schlechter (1920), who recognized five sections within *Pelexia*, based mainly on the spur structure. The sections were *Potosia*, *Cogniauxiocharis*, *Eupelexia*, *Centropelixia* and *Pachygenium*. *Pelexia* was a member of one of the four generic complexes of Schlechter (1920), called “*Pelexia* alliance” by Burns-Balogh (1982). As redefined by Burns-Balogh (1982), members of the *Pelexia* alliance have an elongate, broad and laminar rostellum with an apical viscidium portion.

Pelexia and its infrageneric taxa were treated cladistically by Burns-Balogh and Robinson (1983). The sections were based on the nectar spur development. *Pelexia* sect. *Pachygenium* was characterized and, in the cladogram, distinguished as a group by sessile flowers, a globose nectar spur and long, strap-like leaves present at flowering time.

Szlachetko *et al.* (2001) elevated *Pachygenium* to a generic rank due to a set of numer-

ous vegetative and generative characters, which make the genus distinguishable from *Pelexia s. stricto* (Table 1). *Pachygenium* is a strictly South American genus, which embraces about 40 species (Rutkowski *et al.* 2008, Mytnik-Ejsmont *et al.* 2008) distributed in Columbia, Ecuador, Brazil, Paraguay, Peru, Bolivia, and Argentina.

While preparing a revision of Spirantheae we found three new species and realized the necessity to make one new combination.

Pachygenium callosum (M.N. Correa)
Mytnik, Szlach. & Górniak, *comb. nova*

Pelexia callosa M.N. Correa, Darwiniana 10: 165. 1953, non Ames. — TYPE: Argentina. Buenos Aires, Punta Lara, March 1915 *Carette s.n.* (holotype BA!).

Pelexia callosa sensu Correa (1953) is certainly a representative of the genus *Pachygenium*, although it was overlooked by Szlachetko

et al. (2001), when they transferred 38 other taxa into that genus. The species is easily distinguishable by the unique lip structure. There are two oblong, flattened thickenings along the margins of the hypochile. The central part of the lip along the mid-nerve is very delicate, almost transparent. The hypochile is widest at the apex, and the auricles at the base are obscure. The epichile is cordate, acuminate, and as wide as the hypochile. The spur is rounded and rather obscure.

DISTRIBUTION: Argentina.

Pachygenium schmidtianum Mytnik, Szlach. & Górniak, *sp. nova* (Fig. 1)

Species haec Pachygenio oestriifero similis est, sed labelli structura differt: P. schmidtiani labellum infra auriculas profunde constrictum est, auriculae margine carnosae sunt, epichilum cordatum com obscuros spissescentes in isthmo est.

TYPE: Paraguay. *Sine loco*, Jorgensen 3957 (holotype C!; isotypes US!, BA!)

ETYMOLOGY: The epithet honours Wilfried Schmidt, the curator of the living orchid collection in Hannover.

Stem 59–75 cm high, erect, delicate to stout, glabrous, glandular just below inflorescence, denser towards apex. Leaves 4, on basal part of stem, petiolate; petiole up to 13 cm long, narrow; blade 13–18 cm long and 27–38 mm wide, lanceolate, acute. Cauline bracts 7–10, acute, her-

baceous, thin, adnate to stem, longer than internodes, upper sparsely glandular. Inflorescence 9–18 cm long, 20–60-flowered, multilateral, lax. Flowers relatively small, pedicellate, densely glandular, form with inflorescence axis an angle of 30°–45°. Line of adnation between lateral sepals and ovary well seen. Spur sac-like, 3.8–6 mm long, 2.5–4 mm wide. Pedicel 2–2.5 mm long, twisted, glabrous. Ovary 8.5–15 mm long, densely glandular. Dorsal sepal 10–16 mm long, 4.1–5.5 mm wide, elliptic-lanceolate, subacute, 5-nerved, concave in basal half. Lateral sepals 9–12 mm long, 3.2–3.5 mm wide, fused with ovary in concave basal one-third, free part ovate-lanceolate, subacute, with enrolled margins, 5-nerved. Petals 9–16 mm long, 2.5 mm wide, falcate-spatulate, acuminate, 2-nerved, glandular outside. Lip firmly connate with column, fleshy along nerves, thin on margins, divided into epichile and hypochile; claw short and broad, lip auricles prominent and fleshy, fused with claw margins; hypochile 8.5–17 mm long, 3–6.5 mm wide, widest in apical third, pandurate, strongly constricted below auricles; epichile 4–4.2 mm long, 3.2–6.5 mm wide, cordate, acuminate, fleshy, sometimes with two small callosities at base of epichile. Gynostemium 8.5 mm long, slightly arcuate. Column foot 7 mm long; rostellum 2.8 mm long, anther 4 mm long.

DISTRIBUTION: Paraguay.

The lip in *P. schmidtianum* is deeply constricted below the auricles, which are prominent and fleshy on the margins. The hypochile is

Table 1. Comparison of the genera *Pelexia* and *Pachygenium*.

	<i>Pelexia</i>	<i>Pachygenium</i>
Leaf position	forming a basal rosette	gathered in the lower part of the stem
Leaves	petioles very narrow, blade wide	leaf blade transforms gradually into an indistinct petiole
Spur	narrowly cylindrical, acute to subacute, often of the same length or even longer than the ovary and pedicel	saccate and usually reaching half length of the ovary
Lateral sepals	not saccate	saccate at the base
Lip	lip base and auricles parallel to the ovary	lip base strongly incurved making the auricles perpendicular to the ovary axis and arching the lip claw
Stigma apex	obtuse to rounded	truncate
Rostellum	thin and delicate	massive, ribbon-like, with a narrow base
Rostellum remnant	acute	truncate
Viscidium	small and delicate	usually very solid and transversely elliptic

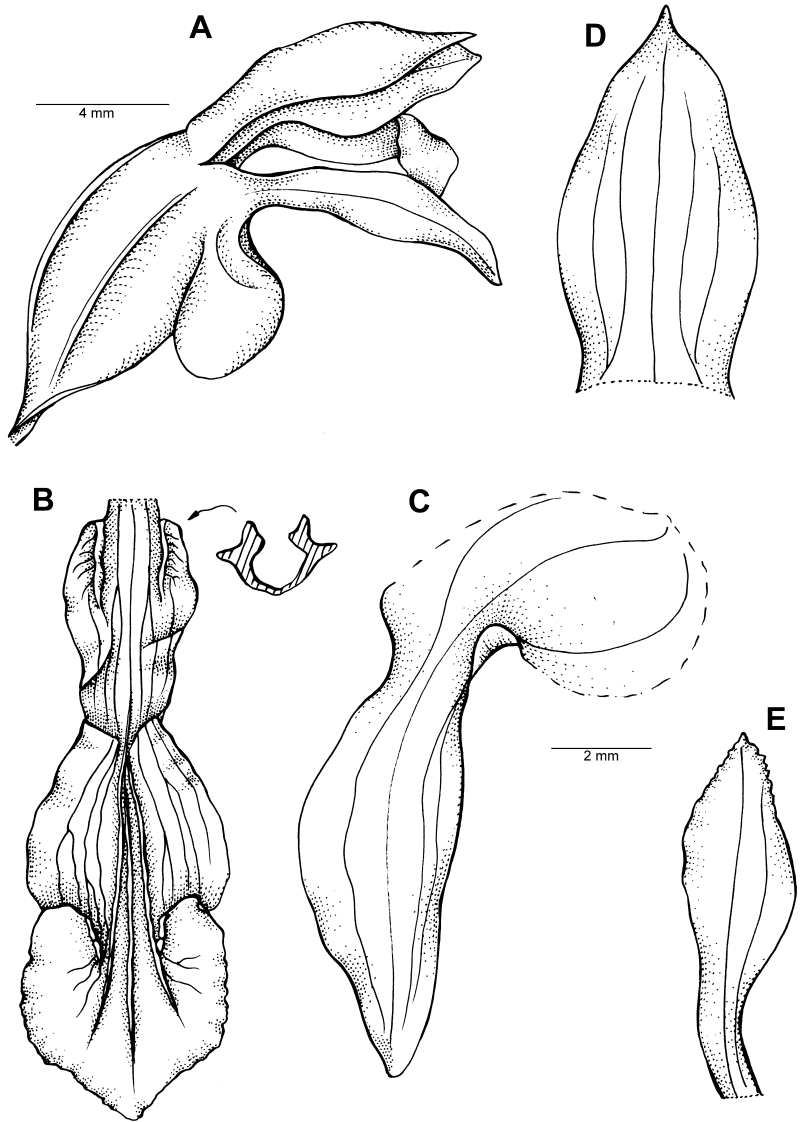


Fig. 1. *Pachygenium schmidtianum* (from the holotype). — **A:** Flower. — **B:** Lip. — **C:** Lateral sepal. — **D:** Dorsal sepal. — **E:** Petal.

widest in the apical half, pandurate in outline. The epichile is cordate, acute, sometimes with small thickenings at the base, and slightly wider than the hypochile. The spur is swollen, perpendicular to the ovary.

Pachygenium triangulare Mytnik, Szlach. & Górnjak, *sp. nova* (Fig. 2)

Species haec Pachygenio tenuiore similis est, sed ovato ecallosoque epichilo hypochilo valde angustiore et hypochili apice truncato differt.

TYPE: Ecuador. Morocho, Municipio de Cotacachi, *Sheviak 1499* (holotype NYS!). — PARATYPE: Ecuador. *Sine loco*, *Warming s.n.* (C!).

ETYMOLOGY: The epithet refers to the hypochile shape.

Stem 39–68 cm high, erect, delicate to stout, glandular below inflorescence. Leaves 2 on basal part of stem, petiolate; petiole 8–9 cm long, narrow; blade 13–18 cm long, 25–37 mm wide, lanceolate, acute. Cauline bracts 5–7, acute, herbaceous, thin, glabrous, adnate to stem, longer than internodes or slightly shorter, sparsely glandular at base. Inflorescence 7–12 cm long, 1–30-flowered, multilateral, lax to dense. Flow-

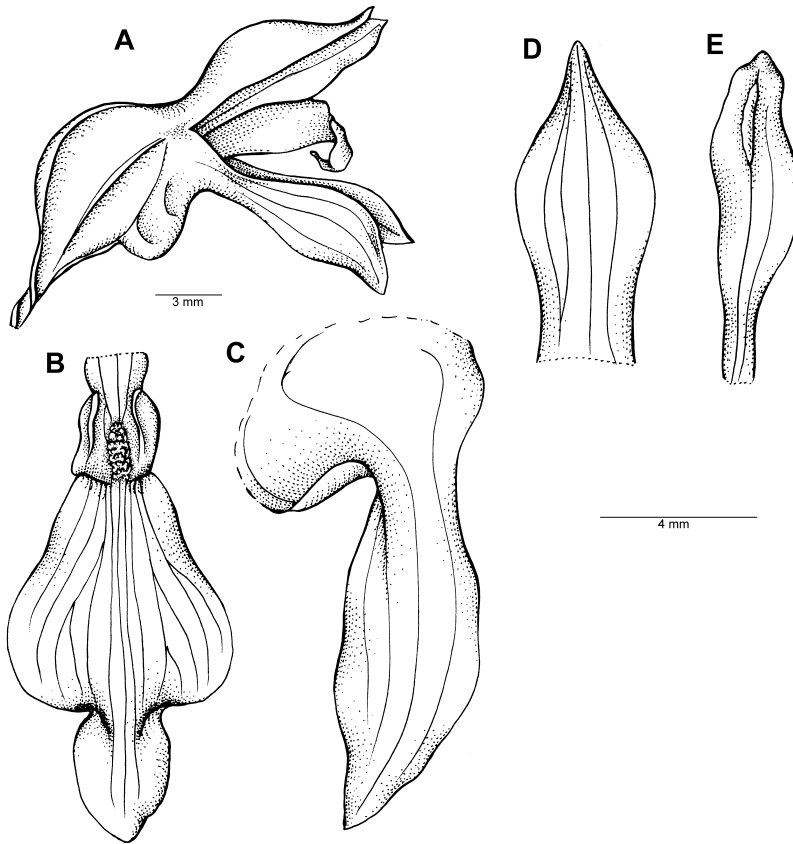


Fig. 2. *Pachygenium triangulare* (from the holotype). — **A:** Flower. — **B:** Lip. — **C:** Lateral sepal. — **D:** Dorsal sepal. — **E:** Petal.

ers pedicellate, densely glandular, forming with inflorescence axis an angle of 45° . Line of adnation between lateral sepals and ovary visible. Spur sac-like, ca. 4 mm long, 2.5–3 mm wide. Floral bracts up to 27 mm long, lanceolate, acute. Pedicel 2.5–3 mm long, twisted. Ovary 11–12 mm long, densely glandular. Dorsal sepal 11–13 mm long, 3.7–4.5 mm wide, elliptic-lanceolate, subacute, 5-nerved, concave in basal half. Lateral sepals 10 mm long, 3–4 mm wide, fused with ovary in concave basal one-third, free part ovate-lanceolate, subacute, with enrolled margins, 5-nerved. Petals 11–13 mm long, 2.5 mm wide, falcate-spatulate, obtuse, 2-nerved, thin, sometimes with linear callus along midnerve in upper part. Lip connate firmly with column, thin, constricted near apex, just below auricles; auricles fleshy, fused with claw margins, 2.5 mm long; hypochile 9.5–10 mm long, 6–8.2 mm wide, widest at apex, almost triangular, truncate, deeply constricted below auricles, sometimes with fleshy callus along mid-

nerve between auricles; epichile 3.8–4 mm long, 3.5 mm wide, oblong-elliptic, obtuse, fleshy, much narrower than hypochile. Gynostemium 9 mm long, slightly arcuate. Column foot 5–7 mm long. Rostellum 2.3 mm long. Anther 3.6–4.5 mm long. Viscidium 1.1 mm long.

DISTRIBUTION: Ecuador.

The species is characterized by a small, almost orbicular spur adnate to the ovary, and by the lip structure. The hypochile is triangular in outline, narrow at the base and gradually broadened towards the truncate apex. In the type specimen there is a small, elliptic, fleshy callus between the auricles. The epichile is oblong-elliptic, obtuse at the apex, much narrower than the hypochile, and free from callus.

Pachygenium arechavaletae Mytnik, Szlach. & Górniak, *sp. nova* (Fig. 3)

Species haec Pachygenio oestriifero similis

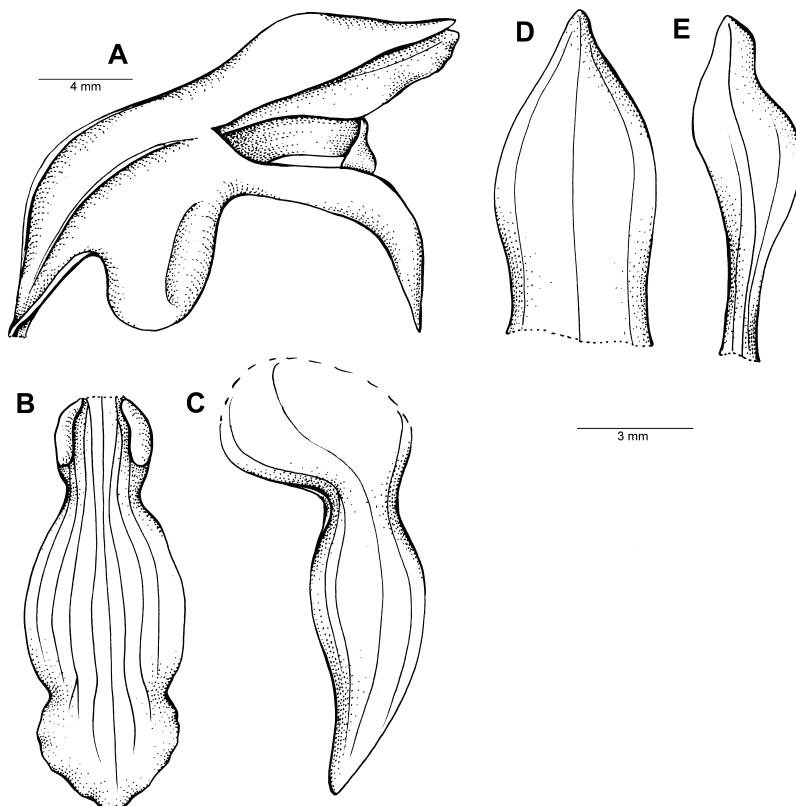


Fig. 3. *Pachygenium arechavaletae* (from the holotype). — **A:** Flower. — **B:** Lip. — **C:** Lateral sepal. — **D:** Dorsal sepal. — **E:** Petal.

est, sed auriculis onguiculo articulatis differt. Pachygenio bonariense similis est, sed labello ecalloso differt. Duabus speciebus foliis magnis differt.

TYPE: Uruguay. Dept. Montevideo, Barra de Santa Lucia, *Arechavaleta s.n.* (holotype P!).

ETYMOLOGY: Named to honour Mr. José Arechavaleta, the first collector of the plant.

Stem 67 cm high, erect, stout, glandular just below inflorescence, denser towards apex. Leaves 3(4), in basal part of stem, petiolate; petiole up to 9 cm long; blade 16–19 cm long and 3.5–5 mm wide, lanceolate, acute. Cauline bracts 4, acute, herbaceous, thin, adnate to stem, longer than internodes. Inflorescence ca. 20 cm long, ca. 45-flowered, multilateral, dense. Flowers pedicellate, densely glandular. Spur sac-like, swollen, 4 mm in diameter. Floral bracts up to 17 mm long, lanceolate, acute, thin, herbaceous. Pedicel 2 mm long, twisted. Ovary 11.5 mm long, densely glandular. Dorsal sepal 12 mm

long, 5 mm wide, elliptic-lanceolate, subacute, 5-nerved, concave in basal half. Lateral sepals 15.7 mm long, 3 mm wide, fused with ovary in concave basal one-third, free part ovate-lanceolate, subacute, 5-nerved. Petals 12 mm long, 3 mm wide, falcate-spatulate, acute, 3-nerved. Lip slightly constricted near apex; claw short and broad; lip auricles fused to claw margins, fleshy; hypochile 10.5 mm long, 5.3 mm wide, oblong-ovate, widest in middle; epichile 3.5 mm wide and long, transversely elliptic, obtuse, fleshy. Gynostemium 7.3 mm long, erect, massive. Anther 5 mm long. Rostellum 2 mm long. Viscidium 1.3 mm long.

DISTRIBUTION: Uruguay.

Pachygenium arechavaletae is a plant with large leaves and a stout stem. The spur is large and swollen. The lip is weakly divided into an epichile and a hypochile, narrowest at the base and widest in the middle, furnished with fleshy, relatively broad auricles. The epichile is transversely elliptic, obtuse, and as long as wide.

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