

New taxa in Mesoamerican Cyclopogoninae (Orchidaceae, Spirantheae)

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The following new species of the orchid subtribe Cyclopogoninae are described and illustrated: *Pelexia ghiesbreghtii* Szlach., Mytnik & Rutk., *Potosia kusibabiana* Szlach., Mytnik & Rutk., *P. praetermissa* Szlach., Mytnik & Rutk., and *P. tamayoana* Szlach., Mytnik & Rutk. *Cyclopogon* subgenus *Pseudowarscea* Szlach., Mytnik & Rutk. *subgen. nov.* is established. Keys for determination of the Mesoamerican species of *Potosia* are provided.

Key words: Cyclopogoninae, Orchidaceae, Spirantheae, taxonomy

The subtribe Cyclopogoninae (Orchidaceae, Spirantheae) as defined by Szlachetko (1995) and Mytnik (2003) embraces ten genera: *Cocleorchis*, *Cyclopogon*, *Pachygenium*, *Pelexia*, *Potosia*, *Sarcoglottis*, *Stigmatosema*, *Veyretia*, *Warscea* and *Zhukowskia*. There are about 150 species in total. A distinguishing feature of this subtribe is the viscidium, which is produced on the dorsal surface of the rostellum. However, the delimitations between the largest genera, i.e. *Cyclopogon*, *Pelexia* and *Sarcoglottis*, are not yet clear.

Revising herbarium materials of the tribe Spirantheae (Orchidaceae) for *Flora Mesoamericana* we came to the conclusion that several new combinations on various taxonomic levels in subtribe Cyclopogoninae should be proposed (Mytnik 2003). Additionally, we have found several specimens that did not match the descriptions of any species known so far.

The gynostemium in *Cyclopogon* is char-

acterised by a flat rostellum, widest at the base, with an acute to apiculate remnant. The genus embraces about 60 species distributed throughout tropical and subtropical America. The genus *Beadlea*, established in 1903, was united with *Cyclopogon* in 1982, when the generic revision of the subtribe Spiranthininae by Garay appeared. Garay (1982) made numerous new combinations, transferring to *Beadlea* many species previously placed either in *Cyclopogon* or *Spiranthes*. As a result the genus *Cyclopogon* remains monotypic, including only *C. ovalifolium* from the Andean countries Colombia, Ecuador and Peru, whereas *Beadlea* contains 54 species. According to Garay (1982), *Cyclopogon* differs from *Beadlea* in having “all three sepals connate basally, forming a distinct tube-like nectary”. Burns-Balogh (1986) included *Beadlea* in *Cyclopogon*, whereas Szlachetko (1993) proposed a subgeneric rank for the former. Here we propose a new subgenus within *Cyclopogon*.



Fig. 1. *Pelexia ghiesbreghtii* (from holotype). — A: Flower. — B: Lip.

***Cyclopogon* Presl subg. *Pseudowarscea* Szlach., Mytnik & Rutk., subgen. nov.**

Plantae plerumque aphyllae per anthesis. Pes columnae distinctus nonnumquam ad 1/3 longitudini ovarii attingens. Calcar prominens, plus minusve inflatum cum ovario connexum. Sepala lateraliter inferne usque ad 1/3 longitudini coalita. Rostellum aliquantum breve obtusumque.

TYPE: *Cyclopogon saccatus* (A. Rich. & Gal.) Schltr.

ETYMOLOGY: An allusion to the superficial similarity to some species of the genus *Warscea*.

Plants usually aphyllous at flowering. Column foot prominent, reaching 1/3 or occasionally 1/2 of ovary length. Spur prominent, adnate to ovary, swollen. Lateral sepals connate in lower third (sometimes quarter). Rostellum rather short, stiff, blunt.

The genus *Pelexia* occurs in tropics and subtropics of both Americas — from Argentina in the south to Mexico and Florida in the north. It usually has a long column foot with a more or less free apex, which together with the lateral sepals and lip forms a distinct spur adhering to the ovary. Lateral sepals form with the ovary an externally observable line of adnation, whereas in the closely related *Sarcoglottis* they are fused completely with the ovarian tissue. The gynostemium is erect and rather slender. The rostellum is lamellate, fairly long, with the viscidium rising on its upper surface. The stigma is constructed of two lateral lobes, more or less separated from each other. The viscidium is large and massive. The lip is set on a long claw, adorned at the base with two fleshy thickenings, usually divided into a hypochile and epichile. At the moment *Pelexia* contains 44 species, and we add one here.

***Pelexia ghiesbreghtii* Szlach., Mytnik & Rutk., sp. nova (Fig. 1)**

Species haec P. funckianae propinqua, sed differt hypochilo labelli taeniiformi et epichilo basi callo distinct V-formi praedito.

TYPE: Mexico. Oaxaca. *Sine loc.*, IV.1842 Ghiesbreght 10 (holotype P!).

ETYMOLOGY: Dedicated to Auguste Boniface Ghiesbreght (1810–1893), who collected the type specimen.

Roots numerous, up to 8 cm long, 0.4–0.6 cm in diameter, fasciculate, fusiform, fleshy. Leaves 5, basal, rosulate, petiolate; petiole 8–9 cm long, narrow; blade 5.5–14 cm long, 2–4.7 cm wide, elliptic to elliptic-ovate, shortly acuminate, attenuate gradually towards petiole. Scape 30–45.5 cm long, erect, delicate or relatively stout, rather densely glandular in upper part. Cauline sheaths 5–6, tubular, acute to acuminate, imbricating, shorter than internodes, upper ones sometimes glandular, herbaceous, delicate. Raceme 11–14.5 cm long, rather laxly 18–25-flowered, all-sided. Flowers rather small, suberect, tubular, with arcuately pendent lateral sepals. Floral bracts 23–30 mm long, oblong lanceolate, acute, herbaceous, delicate, sparsely glandular outside.

Pedicel 2–3 mm long, twisted, glabrous. Ovary 13–16 mm long, narrowly cylindrical, arched, densely glandular. Sepals dissimilar, densely glandular outside below apices, lateral sepals connate in lower third. Dorsal sepal 19 mm long, 3.5–4 mm wide, oblong ovate, concave below apex, subacute, 3-nerved. Petals 19 mm long, 3.5 mm wide, linear in lower half or two-thirds, obliquely rhomboid-ovate above, subobtusate, falcate, outer margins ciliate, 3-nerved. Lateral sepals 22–26 mm long in total, free part 13–15 mm long, 2.5–3.2 mm wide, narrowly oblanceolate, strongly canaliculate, falcate, acute, 3-nerved. Lip clawed, canaliculate with a reflexed epichile; claw 1.2–2 mm long; lamina sharply constricted below apex, hypochile 16–18 mm long, 4–5 mm wide, more or less ribbon-like, basal auricles 1.5–2 mm long, ligulate, rounded at apices, with small, subglobose thickenings; epichile 3 mm long, 4.2–4.5 mm wide, transversely elliptic-rhomboid, obtuse, with a prominent Y-shaped callus, margins subentire. Spur 8–10 mm long, half as long as ovary, free part 2 mm long, blunt at apex. Gynostemium 13 mm long. Viscidium 0.8 mm long.

ECOLOGY: Terrestrial in forests. Flowering in April and May.

DISTRIBUTION: Mexico (Oaxaca, Vera Cruz), Guatemala (Dept. Alta Verapaz). Alt. 1550 m.

This species is closely related to *P. funckiana* from which it differs easily in the lip shape. The hypochile of *P. ghiesbreghtii* is more or less ribbon-like, and the epichile has a prominent V-shaped callus at the base. The hypochile of *P. funckiana* is broadly obtriangular at the base, strongly compressed above and expanded gradually towards the ovate apex. The callus at the base of the epichile is small.

Schlechter (1920), proposing an infrageneric classification of *Pelexia*, split it into five sections. Three of them have already changed their taxonomic status: *Cogniauxiocharis* was synonymized with *Pteroglossa* by Garay (1982), and *Pachygenium* and *Potosia* were raised to generic rank (Szlachetko *et al.* 2001, Mytnik 2003). Two species are so far known in *Potosia* and we add here three new ones.

Vera Cruz, Jalapa, *Galeotti 5771* (W-R!). **Guatemala.** Dept. Alta Verapaz, Coban, alt. 1550 m, V.1908 *Türckheim II.1838* (E!).

***Potosia tamayoana* Szlach., Mytnik & Rutk., *sp. nova* (Fig. 2)**

A speciebus alliis generis differt forma labelli — hypochilum et epichilum constrictione acuto inter se separata, epichilum ellipticum vel ovale et hypochilum circa 2–2.5-plo longius quam auriculae basales.

TYPE: Mexico. Oaxaca. Cerro de San Felipe, V.1842 *Liebmman 7212* (holotype C!).

ETYMOLOGY: Dedicated to Dr. Roberto Gonzalez Tamayo of Mexico.

Roots 5–15 cm long, 0.4–1 cm in diameter, fasciculate, fusiform, fleshy. Leaves few, withered or absent at flowering, rosulate, basal, produced near scape, petiolate; mature leaves not seen. Scape 35 cm tall, delicate, erect, densely glandular below and within raceme. Cauline sheaths 6–8, tubular, acute to acuminate, lower ones hardly longer than internodes, upper ones remote, glandular outside, thin, delicate, with hyaline margins. Raceme 13 cm long, 15–20-flowered, lax, all-sided. Flowers small, tubular, with reflexed lateral sepals. Floral bracts 11 mm long, oblong ovate-lanceolate, acute, thin, delicate, subscarios, semi-transparent, densely glandular outside in lower half. Pedicel 2 mm long, twisted. Ovary 7 mm long, narrowly cylindrical-obovoid, densely glandular. Sepals dissimilar, glandular outside in lower part, papillate above, lateral ones connate in lower fourth. Dorsal sepal 6.5 mm long, 2 mm wide, ovate, acute, deeply concave just above base, 3- or 5-nerved. Petals 6.3 mm long, 1 mm wide, falcate, narrowly oblanceolate, subacute, 3- or 5-nerved. Lateral sepals 10 mm long in total, free part 6 mm long, 2 mm wide, oblong ovate-lanceolate, acute to subobtusate, falcate, 3-nerved. Lip clawed; claw 2 mm long, adnate to lateral sepals; lamina sharply constricted near apical third, hypochile 6.5 mm long, 3.8 mm wide, ovate, widest at apex, slightly wider than epichile, ca. 2–2.5 times longer than auricles (2.5 mm long), auri-

ADDITIONAL SPECIMENS EXAMINED (paratypes). — **Mexico.**

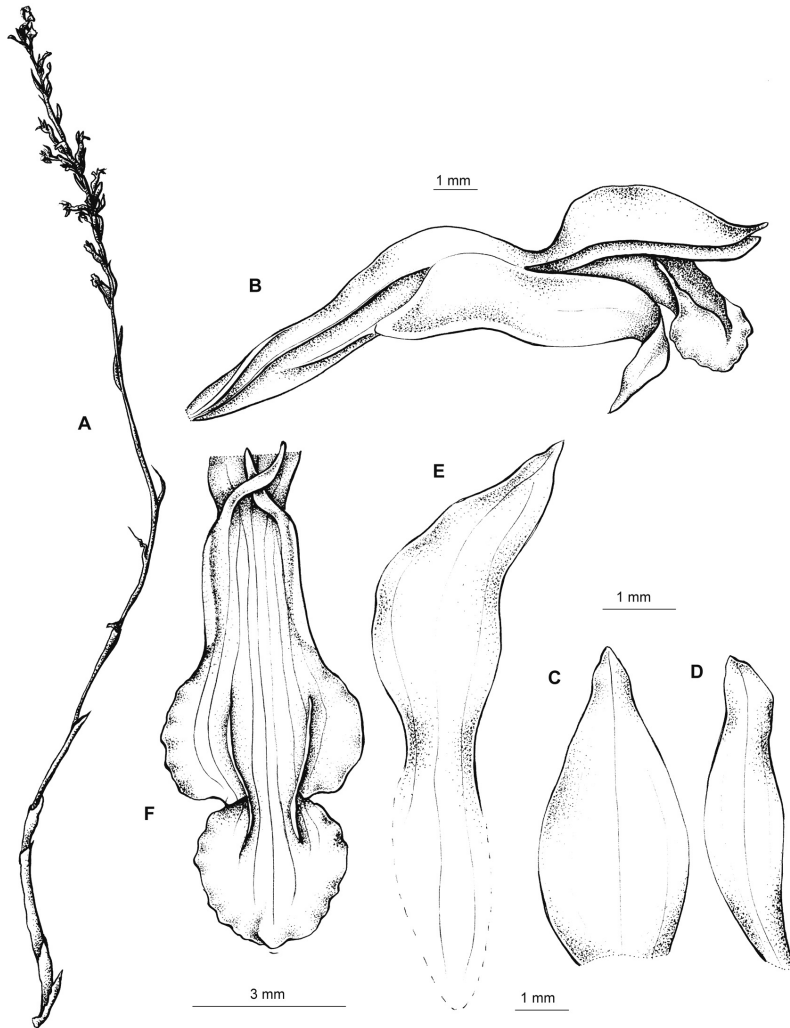


Fig. 2. *Potosia tamayoana* (from holotype). — A: Plant. — B: Flower. — C: Dorsal sepal. — D: Petal. — E: Lateral sepal. — F: Lip.

cles touching or crossing each other; epichile 2.5 mm long, 3 mm wide, elliptic or rounded, blunt at apex. Gynostemium column part 4 mm long, column foot 4 mm long. Rostellum subquadrate. Viscidium 0.3 mm long.

ECOLOGY: Terrestrial. Flowering in May.

DISTRIBUTION: Mexico (Jalisco, Oaxaca).

The new species differs from its congeners in the lip form. The hypochile and epichile of *P. tamayoana* are separated by a sharp constriction. The epichile is elliptic or rounded, and the hypochile ca. 2–2.5 times longer than the basal auricles.

ADDITIONAL SPECIMEN EXAMINED (paratype). — Mexico. Jalisco, Mascota, El Pantano, R. Gonzalez T 1210 (IEB, DLSz-spirit).

Potosia praetermissa Szlach., Mytnik & Rutk., *sp. nova* (Fig. 3)

Species haec P. zamororae et P. schaffneri vergens, sed labellum circa triplo longius quam latius et epichilum gradatim basin apicemque versus descrecens.

TYPE. Mexico. San Luis Potosi, *sine loc.*, VIII.1891 Virlet 1194 (holotype P!).

Roots unknown, probably fasciculate, fusi-form, fleshy. Leaves not seen. Scape 21–28 cm tall, delicate, erect, just above base densely glandular. Cauline sheaths 5–9, tubular, acute to acuminate, lower and middle ones longer than internodes, glabrous, upper ones glandular out-

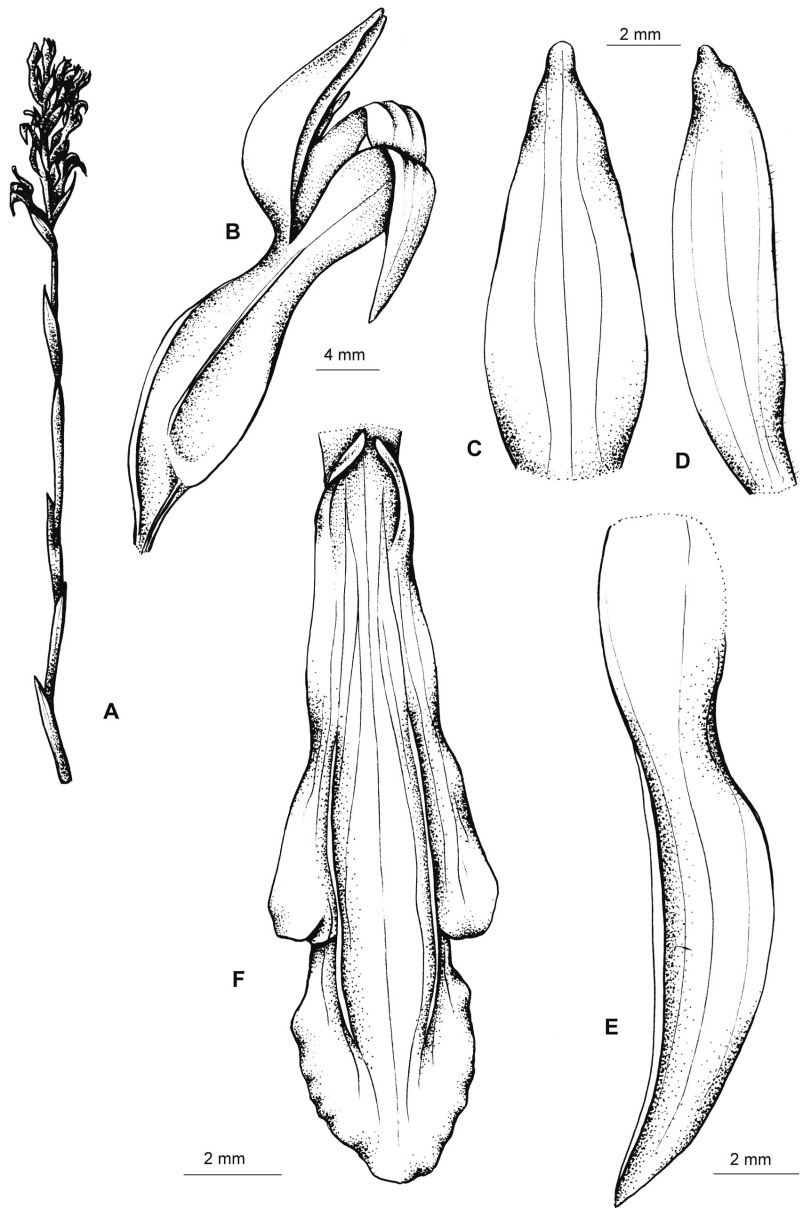


Fig. 3. *Potosia praetermissa* (from holotype). — **A:** Plant. — **B:** Flower. — **C:** Dorsal sepal. — **D:** Petal. — **E:** Lateral sepal. — **F:** Lip.

side and on margins, thin, delicate. Raceme 5–7 cm long, 8–12-flowered, rather dense, all-sided. Flowers medium-sized, tubular, with reflexed lateral sepals. Floral bracts 17–20 mm long, ovate-lanceolate, acuminate, thin, delicate, herbaceous with hyaline, semi-transparent margins, sparsely glandular outside in lower half. Pedicel 1.2–2.5 mm long, twisted. Ovary 12 mm long, narrowly cylindrical-obovoid, densely glandular. Sepals dissimilar, glandular outside, both lateral ones connate together in lower third. Dorsal sepal

12–12.5 mm long, 3.2–4.2 mm wide, ovate to oblong ovate, acute, deeply concave just above base, 5-nerved. Petals 12–12.5 mm long, 1.6–1.8 mm wide, falcate, oblong, subacute, ciliate on outer margin, 3-nerved. Lateral sepals 20–21 mm long in total, free part 12–13 mm long, 2.7–3.5 mm wide, oblong ovate-lanceolate, acute, falcate, 3-nerved. Lip clawed; claw 2.5 mm long, adnate to lateral sepals; lamina sharply constricted near apical third, hypochile 12–12.6 mm long, 5.3 mm wide, oblong-triangular, widest at

apex, auricles touching or crossing each other, 2.5 mm long; epichile 6–6.4 mm long, 4.4–5 mm wide, elliptic-ovate to ligulate, blunt to subacute at apex. Gynostemium column part 7 mm long, column foot 8.5 mm long. Rostellum subquadrate. Viscidium 1 mm long.

ECOLOGY: No data. Flowering in August.

DISTRIBUTION: Mexico (San Luis Potosi; known only from type).

This species is similar to *P. zamororae* and *P. schaffneri*, but its lip is three times longer than wide, with the epichile gradually attenuate towards the base and apex.

***Potosia kusibabiana* Szlach., Mytnik & Rutk., sp. nova (Fig. 4)**

Hypochilum sensum apicem versus in epichilo quadrato distincto transiens. Ambae partes labelli sine constrictione secedentes.

TYPE: Mexico. Nuevo Leon, Sierra Madre Oriental, canyon above Alamar, 2.VI.1934 C. H. & M. T. Müller 702 (holotype P!).

ETYMOLOGY: Named in honour of Mr. Tadeusz Kusibab, an eminent Polish orchid grower, who supported Dariusz L. Szlachetko's work by providing ample material for his *Gynostemia Orchidarium*.

Roots several, 6–8 cm long, 0.4–0.8 cm in diameter, fasciculate, fusiform, fleshy. Leaves 4, withered or absent at flowering, rosulate, basal, produced near scape, petiolate; petiole ca. 2–3 cm long; blade 11 cm long, 2.5–3 cm wide, narrowly ovate-lanceolate, acute. Scape 35–61 cm tall, delicate or rather stout, erect, densely glandular just above base. Cauline sheaths 7–10, tubular, acute to acuminate, glandular outside, thin, delicate, with hyaline margins. Raceme 8–16 cm long, 20–35-flowered, lax in lower part, denser above, all-sided. Flowers small, tubular, with reflexed lateral sepals. Floral bracts 14 mm long, oblong ovate-lanceolate, acute, thin, delicate, subscarious, semi-transparent, glandular outside in lower half. Pedicel 2.5–3 mm long, twisted. Ovary 9–11 mm long, narrowly cylindrical-obovoid, densely glandular. Sepals dissimilar, glandular outside, lateral ones connate in lower fourth. Dorsal sepal 7–8.5 mm long, 2.8–3.2 mm wide, oblong-ovate, subacute, concave just above base, 3-nerved.

Petals 7–8.5 mm long, 0.8–2 mm wide, falcate, narrowly ovate-lanceolate, subacute, 3-nerved. Lateral sepals 10–12 mm long in total, free part 7–8.5 mm long, 1.7–3 mm wide, lanceolate, acute to subobtusate, falcate, 3-nerved. Lip clawed; claw 1.8–2 mm long, adnate to lateral sepals; lamina not sharply constricted, hypochile transforming gradually towards apex into epichile, hypochile 6–7.5 mm long, 3.8–6 mm wide, ovate to broadly ovate, widest below apex, much wider than epichile, ca. 3–3.5 times longer than auricles (1.8–2 mm long), auricles parallel; epichile 2.2–3.3 mm long, 2–3 mm wide, elliptic to ovate, acute to subacute. Gynostemium column part 3.5 mm long, column foot 2 mm long. Rostellum linear-triangular.

ECOLOGY: Terrestrial in open and dense moist woods, in deep moulds. Flowering from April to June.

DISTRIBUTION: Mexico (District Federal, Nuevo Leon), Guatemala (Dept. Alta Verapaz). Alt. 1500 m.

This species is characterised by having the hypochile and epichile not separated by a sharp constriction, rather the hypochile is gradually towards the apex transforming into the epichile, which is longer than wide.

ADDITIONAL SPECIMENS EXAMINED (paratypes). — **Mexico.** District Federal, Pedregal pres San Angel, 1861 *Bourgeau s.n.* (P!). **Guatemala.** Dept. Alta Verapaz, near Coban, alt. 1500 m, 1879 *Türkheim* 427 (W-R!).

Key to the species of *Potosia*

1. Hypochile and epichile not separated by a sharp constriction, hypochile gradually towards apex transforming into epichile; epichile longer than wide .. *P. kusibabiana*
1. Hypochile and epichile separated by a sharp constriction 2.
2. Epichile elliptic or rounded; hypochile ca. 2–2.5 times longer than auricles *P. tamayoana*
2. Epichile transversely elliptic; Hypochile 4–6 times longer than auricles 3.
3. Whole lip ca. 3 times longer than wide; epichile gradually attenuate towards constriction *P. praetermissa*
3. Whole lip ca. 1.5–3 times longer than wide; epichile widened towards constriction 4.
4. Hypochile elliptic-ovate, widest above middle, ca. twice wider than epichile; lip auricles divergent .. *P. zamororae*
4. Hypochile oblong-deltoid, widest at apex, slightly wider than epichile; lip auricles touching each other *P. schaffneri*



Fig. 4. *Potosia kusibabiana* (A–F and I–J from *Türkheim* 427, G from holotype, H from *Bourgeau s.n.*). — A: Plant — B: Flower. — C: Dorsal sepal. — D: Petal. — E: Lateral sepal. — F–H: Lip. — I: Gynostemium, side view. — J: Receptive surface and rostellum remnant.

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