

FOUR NEW SPECIES OF THE GENUS *PTERICHIS* (ORCHIDACEAE) FROM COLOMBIA

MARTA KOLANOWSKA¹ & DARIUSZ L. SZLACHETKO

Abstract. Four new species of the orchid genus *Pterichis* Lindl. are described and illustrated based on the Colombian material: *P. andreii* Kolan. & Szlach., *P. lehmanniana* Kolan. & Szlach., *P. sagittata* Kolan. & Szlach. and *P. triangularilabia* Kolan. & Szlach. Their taxonomic affinities are briefly discussed. All new entities are placed within a key to identification of the Colombian species of *Pterichis*.

Key words: biodiversity, Colombia, Cranichidinae, Neotropics, *Pterichis*, taxonomy

Marta Kolanowska & Dariusz L. Szlachetko, Department of Plant Taxonomy and Nature Conservation, University of Gdańsk, ul. Wita Stwosza 59, 80-308 Gdańsk, Poland; e-mail: martakolanowska@wp.pl

INTRODUCTION

While the systematic position of the vast majority of Orchidaceae has been discussed for many years, and while incoming data from molecular research has prompted researchers to amend the taxonomic position of many orchid genera, the generic separateness of *Pterichis* Lindl. as a member of Cranichideae has been questioned only by González Tamayo (1996).

The genus was described by John Lindley over 170 years ago (Lindley 1840). Currently *ca* 20 species are included in *Pterichis* (Cribb 2003). The plants are characterized by the presence of tuberous roots, rosulate leaves and a loosely sheathed scape. The leaves are often absent during anthesis. The flowers are nonresupinate, arranged in a usually loose raceme. Both the floral bracts and ovaries are densely ciliate or pubescent. The sessile, concave lip usually is ornamented with a series of knob-like projections along the margins.

Species of *Pterichis* grow terrestrially in paramo, but their occurrence has also been reported from high montane forest. The altitudinal amplitude of the genus extends from 2600 up to *ca* 4000 m a.s.l. Most of the species are found

along the Andes from Bolivia to Colombia and Venezuela, but a few records come from Costa Rica and Jamaica (Cribb 2003; Dueñas Gómez & Fernández Alonso 2009).

About half of the known *Pterichis* representatives occur in Colombia (Morales 1986; Ortiz Valdívieso & Uribe Veléz 2007; Dueñas Gómez & Fernández Alonso 2009). The novelties within a genus are rarely described because the collections from high Andean areas are insufficient and the morphological characters of *Pterichis* make it difficult to study from dried specimens (e.g., usually concave lip, frequent lack of leaves in preserved flowering plants).

Recent studies of Neotropical Cranichideae revealed the existence of four new species in the Colombian flora. They are described and illustrated in this paper. The taxonomic affinities of the new entities are presented and a key for identification of Colombian representatives of *Pterichis* is presented.

DESCRIPTIONS OF THE NEW SPECIES

Pterichis andreii Kolan. & Szlach., *sp. nov.*
Fig. 1.

Species similar to *P. parviflora* (Lindl.) Schltr., distinguished by a long dorsal sepal, glabrous,

¹ Corresponding author

obliquely oblong-ovate petals, 1-veined lateral sepals, the lip apex being longer than wide, with glandular ciliae only in the central part, and basal lip margins slightly enlarged, forming shapes resembling obtuse auricles.

HOLOTYPE: COLOMBIA, Cauca?, 14 Apr. 1876, André 2717 (K).

Plants over 18 cm tall, basal part absent in holotype. Leaf absent in holotype. Scape glandular, enclosed by at least 3 tubular, acute glandular sheaths. Inflorescence glandular-ciliate, 5–6 cm long, laxly few-flowered. Floral bracts glandular-ciliate, 6–8 mm long, subequal in length to ovary, ovate-lanceolate, acute. Ovary glandular-ciliate, 8–10 mm long. Flowers whitish, sepals externally glandular-ciliate, densely at base, sparsely above. Dorsal sepal 7.5 mm long, 3 mm wide, lanceolate-ovate, obtuse, 3-veined. Lateral sepals concave at base, 7.1 mm long, 2.7 mm wide, oblong-ovate, obtuse, 1–2-veined. Petals adnate to dorsal sepal, 6.8 mm long, 2.9 mm wide, obliquely oblong-

ovate, obtuse, 3-veined. Lip concave-cucullate, 5.5 mm long, 8 mm wide, transversely elliptic-triangular in outline, basal part reniform, apex oblong-ovate, papillate in center; disc 9-veined, 3 middle veins thickened, lateral veins branching, margins ornamented with irregular knob-like projections. Gynostemium *ca* 2.5 mm long.

ETYMOLOGY. Dedicated to Edouard François André (1840–1911), the collector of the type specimen.

DISTRIBUTION: Known only from the type locality.

NOTES. Similar to *P. parviflora* but with the dorsal sepal longer than the petals (vs. petals longer than dorsal sepal), glabrous, obliquely oblong-ovate petals (vs. petals narrowly oblong, ciliate on margins) and 1-veined lateral sepals (vs. lateral sepals 3- or 5-veined). While the lip apex of *P. parviflora* is more or less equally long and wide, papillate on the whole upper surface, the apex of *P. andreii* is longer than wide, with glandular ciliae only in the central part. The basal lip margins of *P. andreii* are slightly enlarged, forming shapes resembling obtuse auricles, which are not observed in *P. parviflora*. Another similar species is *P. silvestris* Schltr., but petal shape (obliquely oblong-ovate vs. ligulate or linear-ligulate) easily distinguishes those species.

Pterichis lehmanniana Kolan. & Szlach., *sp. nov.*
Fig. 2

Species similar to *P. mandonii* Rehb. fil., distinguished by the long middle lobe of the lip, the lateral sepal shorter than the dorsal sepal and petals, and 3-veined petals.

HOLOTYPE: [COLOMBIA]. Lehmann 1234 (K).

Plant over 12.5 cm tall, lower part absent in holotype. Leaves absent in holotype. Scape glandular, enclosed by 2 tubular sheaths. Inflorescence glandular-ciliate, 9 cm long, subdensely many-flowered. Floral bracts glandular-ciliate, up to 10 mm ovate, acute. Ovary glandular-ciliate, up to 10 mm. Sepals externally glandular-ciliate. Dorsal sepal 10.5 mm long, 3 mm wide, lanceolate, ob-

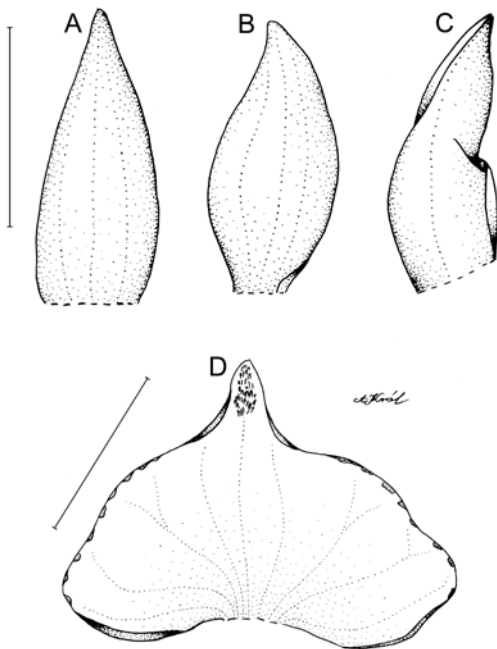


Fig. 1. *Pterichis andreii* Kolan. & Szlach., *sp. nov.* A – dorsal sepal, B – petal, C – lateral sepal, D – lip. Scale bars = 5 mm. Drawn by A. Król from the holotype.

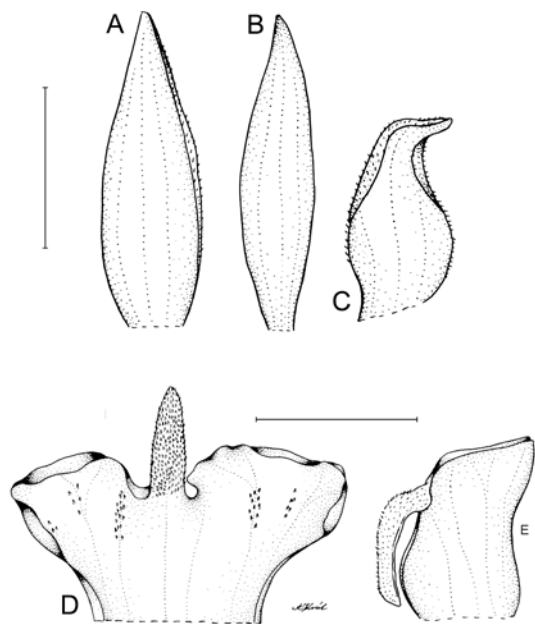


Fig. 2. *Pterichis lehmanniana* Kolan. & Szlach., *sp. nov.* A – dorsal sepal, B – petal, C – lateral sepal, D – lip, E – lip (side view). Scale bars = 5 mm. Drawn by A. Król from the holotype.

tuse, 3-veined. Lateral sepals 7.5 mm long, 2.2 mm wide, ovate-lanceolate, obtuse, 3-veined. Petals adnate to dorsal sepal, glabrous, 10.5 mm long, 2.2 mm wide, linear-elliptic, subobtuse, 3-veined. Lip concave-conduplicate, 7 mm long, 9 mm wide, 3-lobed; middle lobe papillate, 3.2 mm long, 1 mm wide, oblong-lanceolate, obtuse, recurved in natural position; lateral lobes 5.3 mm long, 4.2 mm wide, obliquely subrhombic, margins incurved; disc 7-veined, sparsely and irregularly glandular-ciliate along apical part of veins. Gynostemium *ca* 3 mm long.

ETYMOLOGY. Dedicated to Friedrich Carl Lehmann (1850–1903), the collector of the type specimen.

DISTRIBUTION: Known only from the type locality.

NOTES. Species similar to *P. mandonii* but the lip middle lobe is much longer (3.2 vs. 1.5 mm long), the disc is ornamented only with somewhat thickened veins (vs. disc with knob-like projec-

tions), the lateral sepals are shorter than the dorsal sepal and petals (vs. all tepals subequal in length), and the petals are 3-veined (vs. 1-veined).

The holotype was originally labelled ‘Herbarium Lehmannianum Colombianum’ but the last word of this name is pencilled-out and ‘Chimbo Puente?’ is hand-written above the label. The Ecuadorian Puente Chimbo is located at *ca* 200–300 m a.s.l., far below the altitudinal range of *Pterichis* species. As Lehmann’s next plant (#1235) was collected in Colombia (Páramo de Guanacas) we believe that the specimen that serves as the holotype of *P. lehmanniana* was also growing there.

Pterichis sagittata* Kolan. & Szlach., *sp. nov.

Fig. 3

Species similar to *P. galeata* Lindl. and *P. acuminata* Schltr., distinguished by the sagittate lip with an almost glabrous disc, and the elongate, oblong-lanceolate lip apex ornamented with glandular ciliae only along its central part.

HOLOTYPE: COLOMBIA, Santa Rosa, Alt. 2000–2500 m, Mar 1891, *Lehmann 1241* (K).

Plant *ca* 60 cm tall, basal part absent in holotype. Leaf absent in holotype. Scape glandular in upper half, enclosed by 5 tubular, acute sheaths, the upper ones glandular. Inflorescence glandular-ciliate, *ca* 11 cm long, laxly several-flowered. Floral bracts glandular-ciliate, *ca* 15 mm long, lanceolate, acute. Ovary glandular-ciliate, *ca* 15 mm long. Sepals externally ciliate densely in basal part, sparsely above. Dorsal sepal 7 mm long, 2.3 mm wide, oblong-ovate, obtuse, 3-veined. Lateral sepals 7.5 mm long, 2.3 mm wide, obliquely ovate, obtuse, 3-veined. Petals free from dorsal sepal, glabrous, 8 mm long, 2.3 mm wide, obliquely oblong-elliptic, subacute, 3-veined. Lip concave-cucullate, 6 mm long, 7 mm wide, triangular-cordate in outline, somewhat sagittate, basal part somewhat crescent-like, apex oblong-lanceolate, obtuse, densely glandular ciliate along apical part; disc 11-veined, lateral veins branching, ornamented with patch of ciliae in upper part of middle vein and with irregular knob-like projections on margins of basal part. Gynostemium *ca* 2.5 mm long.

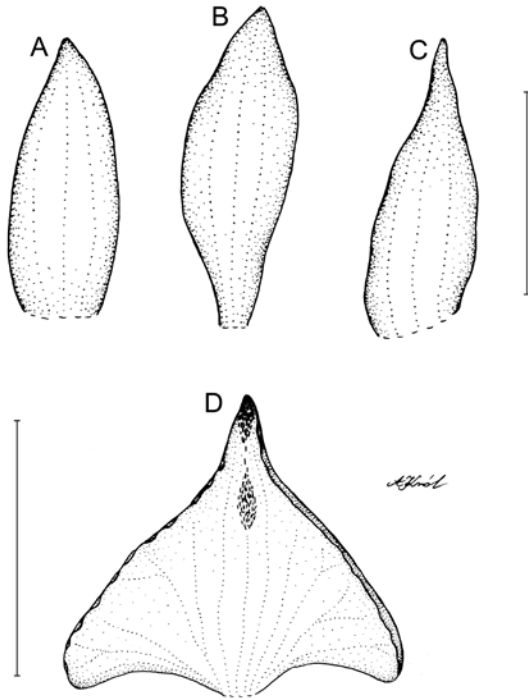


Fig. 3. *Pterichis sagittata* Kolan. & Szlach., *sp. nov.* A – dorsal sepal, B – petal, C – lateral sepal, D – lip. Scale bars = 5 mm. Drawn by A. Król from the holotype.

ETYMOLOGY. In reference to the lip shape.

DISTRIBUTION: Known only from the type locality.

NOTES. Species resembling *P. galeata* and *P. acuminata*, from which it differs by the sagittate lip with a long oblong-lanceolate lip apex (vs. apex triangular or triangular-lanceolate) which is ornamented with glandular ciliae only along its central part (vs. apex papillate on whole upper surface) and almost glabrous disc (vs. disc puberulent).

Pterichis triangularilabia* Kolan. & Szlach., *sp. nov. Fig. 4

Species similar to *P. galeata* Lindl. and *P. acuminata* Schltr., distinguished by the short, densely flowered raceme, glandular-ciliate, oblong, 2-veined petals and triangular lip.

HOLOTYPE: COLOMBIA, DEPT. CUNDINAMARCA, Mun. Choachi. Páramo de Choachi, 18 Aug. 2007, *J. Farfan, E. Buitrago & D. Amaral 1074* (FMB).

Plant over 26 cm tall, lower part absent in holotype. Leaf absent in holotype. Scape glabrous near base, glandular above, enclosed by 5 tubular sheaths, upper ones glandular. Inflorescence glandular-ciliate, ca 4.5 cm long, densely several-flowered. Floral bracts glandular-ciliate, ca 11 mm long, ovate, acute. Ovary glandular-ciliate, ca 12 mm long. Flowers yellow with dark violet spots, sepals externally glandular-ciliate. Dorsal sepal 6 mm long, 2.7 mm wide, oblong-ovate, obtuse, minutely apiculate, 3-veined. Lateral sepals 6.2 mm long, 2.2 mm wide, ovate, obtuse, 3-veined. Petals adnate to dorsal sepal, glandular-ciliate along margins, 6.5 mm long, 1.7 mm wide, oblong, somewhat oblique in apical part, subacute, 3-veined. Lip deeply concave at base, cucullate,

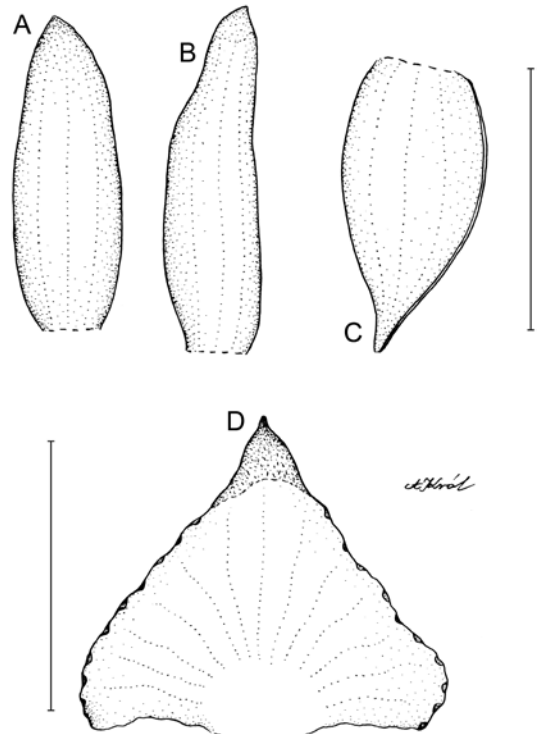


Fig. 4. *Pterichis triangularilabia* Kolan. & Szlach., *sp. nov.* A – dorsal sepal, B – petal, C – lateral sepal, D – lip. Scale bar = 5 mm. Drawn by A. Król from the holotype.

6 mm long, 7 mm wide, triangular, apex shortly apiculate, obtuse; disc 10–12-veined, veins not branching, margins ornamented with irregular knob-like projections; apical part of lip papillate. Gynostemium 2.5–3.0 mm long.

ETYMOLOGY. In reference to the lip shape.

HABITAT: Open paramo, among *Calamagrostis*.

DISTRIBUTION: Known only from the type locality.

NOTES: This species resembles *P. habenarioides* (F. Lehm. & Kraenzl.) Schltr., from which it differs by the lip form (triangular vs transversely triangular-elliptic) with a shortly apiculate, obtuse apex (vs. apex triangular to ligulate, obtuse, prominent) and almost glabrous disc (vs. disc minutely papillose). In its floral characters the new species is similar to *P. galeata* and *P. acuminata*, but differs from them by having petals adnate to the dorsal sepal, and glandular-ciliate, oblong petals (vs. petals glabrous, obliquely oblong-ovate). The inflorescences of both *P. galeata* and *P. acuminata* are usually much longer (up to ca 30 cm), subaxly or loosely flowered (vs. inflorescence 4.5 cm long, densely flowered). In lip form *P. triangularilabia* somewhat resembles *P. pauciflora*, but the petals of the latter species are 2-veined (vs. petals 3-veined).

KEY TO THE COLOMBIAN SPECIES OF *PTERICHIS*

- 1. Petals free from dorsal sepal. 2
- 1* Petals adnate to dorsal sepal 4
- 2. Lip with long, oblong-lanceolate apex *P. sagittata*
- 2* Lip with triangular or triangular-lanceolate apex 3
- 3. Petals obliquely lanceolate-elliptic, unguiculate or narrowed below, lip with pair of auricles at edges of basal part *P. galeata*
- 3* Petals obliquely oblong-lanceolate to lanceolate-sagittate, basal lip auricles absent *P. acuminata*
- 4. Lip distinctly 3-lobed, apices of lateral lobes extend above base of middle lobe 5
- 4* Lip indistinctly 3-lobed, elliptic-triangular to triangular or cordate in outline, lateral lobes gradually terminate in triangular to ligulate apex 7

- 5. Lip without knob-like projections on margins, middle lobe over 3 mm long *P. lehmanniana*
- 5* Lip with knob-like projections on margins, middle lobe 1.5 mm long 6
- 6. Petals linear-lanceolate to narrowly lanceolate, 1-veined *P. mandonii*
- 6* Petals linear-oblong, 3-veined *P. triloba*
- 7. Petals glabrous 8
- 7* Petals externally glandular-pilose 11
- 8. Petals spatulate, sepals glabrous *P. fernandezii*
- 8* Petals not spatulate, sepals externally glandular-pilose 9
- 9. Scape densely brown-glandular-tomentose *P. tomentosula*
- 9* Scape glabrous below, densely glandular-puberulent above 10
- 10. Petals obliquely ligulate *P. silvestris*
- 10. Petals obliquely oblong-ovate *P. andreii*
- 11. Floral bracts elliptic *P. colombiana*
- 11* Floral bracts ovate-lanceolate 12
- 12. Sepals glabrous *P. parvifolia*
- 12* Sepals glandular-pubescent 13
- 13. Petals 3-veined 14
- 13* Petals 2-veined *P. pauciflora*
- 14. Petals 3–4 times longer than wide 15
- 14* Petals 5–6 times longer than wide *P. multiflora*
- 15. Lip triangular, apex shortly apiculate, obtuse *P. triangularilabia*
- 15* Lip transversely triangular-elliptic, terminating in triangular to ligulate apex *P. habenarioides*

ACKNOWLEDGEMENTS. The Curator and staff of Royal Botanic Gardens, Kew are thanked for their kind hospitality and assistance during visits. We are grateful to Anna Król for preparing the illustrations and to the anonymous reviewers for valuable remarks on the manuscript. The research described was supported by a SYNTHESYS grant (GB-TAF-2445).

REFERENCES

CRIBB P. 2003. *Pterichis*. In: A. M. PRIDGEON, P. J. CRIBB, M. W. CHASE & F. N. RASMUSSEN (eds), *Genera Orchidacearum*. 3: 53–56. Oxford University Press, Oxford.

DUEÑAS GÓMEZ H. C. & FERNÁNDEZ ALONSO J. L. 2009. Sinopsis de la Subfamilia Spiranthoideae (Orchidaceae)

- en Colombia, Parte II. *Revista Acad. Colomb. Ci. Exact.* **33**: 157–181.
- GONZÁLEZ TAMAYO R. 1996. *Nezahualcoyotlia* (Cranichidinae, Orchidaceae), nuevo género del occidente de México. *Bol. Inst. Bot. Univ. Guadalajara* **4**: 65–71.
- LINDLEY J. 1840. *The Genera and Species of Orchidaceous Plants*. Ridgeway, London.
- MORALES G. 1986. El Género *Pterichis* en Colombia. *Orquideología* **16**: 53–79.
- ORTIZ VALDIVIESO P. & URIBE VELÉZ. C. 2007. *Galería de Orquídeas de Colombia* (CD edition). Asociación Bogotana de Orquideología, Bogotá.

Received 9 April 2013