

Notes on Peruvian *Pterichis* (Orchidaceae) – two new species and an addition to the flora

Marta Kolanowska* & Natalia Olędrzyńska

Department of Plant Taxonomy and Nature Conservation, University of Gdańsk, ul. Wita Stwosza 59, PL-80-308 Gdańsk, Poland (*corresponding author's e-mail: martakolanowska@wp.pl)

Received 3 Apr. 2014, final version received 4 Nov. 2014, accepted 6 Nov. 2014

Kolanowska M. & Olędrzyńska N. 2015: Notes on Peruvian *Pterichis* (Orchidaceae) – two new species and an addition to the flora. — *Ann. Bot. Fennici* 52: 41–45.

Pterichis macbridei Kolan. and *P. cajamarcae* Kolan. (Orchidaceae) are described and illustrated as new species based on Peruvian material. Their taxonomic affinities are discussed and information on their habitat ecology is provided. *Pterichis diuris* is reported for the first time from Peru and the name is lectotypified. An updated identification key to Peruvian species of *Pterichis* is presented.

The neotropical genus *Pterichis* (Orchidaceae) was described by Lindley (1840) based on *P. galeata*, which the author found distinctive in its very broad, fleshy, acuminate lip resembling a bird in a flight when expanded. The unusual lip shape was the basis for the generic name proposed by Lindley (in Greek *pteron* means “wing”).

Species of *Pterichis* are characterized by a caespitose habit. Their rosulate, basal leaves are often withered at anthesis. The upper part of the scape as well as the whole spike are glandular-pubescent and the scape is enclosed by several tubular sheaths. The non-resupinate flowers of *Pterichis* are arranged into a loose or fairly dense (rarely congested) raceme. The lip is usually variously covered by papillate cells and/or knob-like projections. The gynostemium is short and massive, with the column part much shorter than the motile anther. The apical, elongate parts of pollinia form caudiculae. The rostellum is delicate, filiform, and truncate at the apex after the removal of the pollinium. A finger-like hamulus is usually present (Szlachetko & Rutkowski 2000: 295–296). The gynostemium morphol-

ogy renders separation of *Pterichis* from other Cranichidinae easy, but some recent studies have indicated that this character is not useful in species delimitation within *Pterichis* (Kolanowska & Szlachetko 2013a, 2013b, Szlachetko & Kolanowska 2013, Kolanowska 2014).

The tepals of *Pterichis* are nearly similar and the petals may be free or adnate to dorsal sepal. That character prompted Lindley (1845) to describe a new genus, *Acraea*, that includes *Pterichis*-like plants with petals adnate to dorsal sepal, but due to the general uniformity of other floral segments' structure that concept was not accepted by subsequent taxonomists (e.g. Schlechter 1915, Schweinfurth 1958, Garay 1978).

There are about 25 species of *Pterichis*, distributed from Costa Rica and Jamaica to Argentina. They usually grow terrestrially on steep slopes covered with grassy vegetation, as well as in páramo above the altitude of 2800 m (Cribb 2003). Currently the highest diversity of the genus (16 species) is reported from Colombia (Ortiz-Valdivieso & Uribe-Vélez 2007,

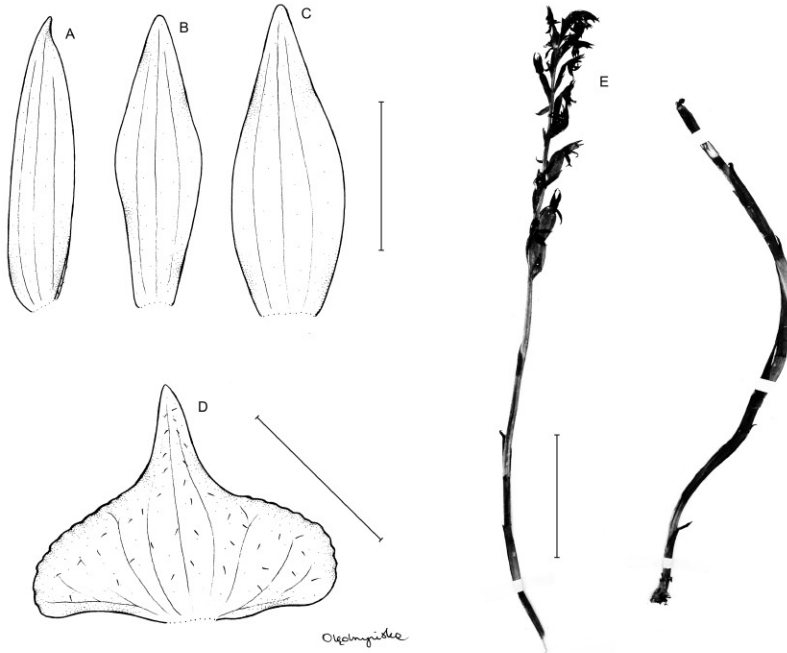


Fig. 1. *Pterichis macbridei*. — A: Lateral sepal. — B: Petal. — C: Dorsal sepal. — D: Lip. Scale bars = 5 mm. Drawn from the holotype. — E: Habit. Scale bar = 6 cm.

Kolanowska & Szlachetko 2013a, 2013b, Szlachetko & Kolanowska 2013).

Schweinfurth (1958) reported the occurrence of six *Pterichis* species in Peru: *P. galeata*, *P. leucoptera*, *P. macroptera*, *P. silvestris*, *P. triloba*, and *P. weberbaueriana*. He considered *P. acuminata* conspecific with *P. galeata*. In the most recent studies on Peruvian orchids Zelenko and Bermudez (2009) reported a total of nine *Pterichis* species from the country. They treated *P. acuminata* and *P. galeata* as separate taxa and added *P. multiflora* and *P. parvifolia* to the list compiled by Schweinfurth (1958).

Our recent examination of the specimens deposited in the herbarium of the Field Museum of Natural History in Chicago (F) revealed the existence of two undescribed species of *Pterichis* in Peru, as well as the presence of *P. diuris* in the country. After descriptions of the new taxa, we provide an updated identification key to the Peruvian species of *Pterichis*.

***Pterichis macbridei* Kolan., sp. nova (Fig. 1)**

TYPE: Peru. Vilcabamba. Hacienda on Rio Chinchao, 6000 ft (ca. 1830 m), 17–26 July 1923 *MacBride* 5155 (holotype F536198).

ETYMOLOGY: Dedicated to the collector of the type specimen.

Plant 64 cm tall. Leaves apparently absent during flowering. Scape 45 cm long, slender, with eight tubular sheaths, glandular-pilose in upper part. Spike 14 cm long, ciliate, fairly densely 15-flowered. Flowers dull red, sepals externally sparsely ciliate. Floral bracts 8–13 mm long, sparsely ciliate, ovate to lanceolate-ovate acute. Pedicellate ovary 13–16 mm long, ciliate. Dorsal sepal 10–11 mm long, about 4 mm wide, ovate, obtuse, 3-veined. Petals about 10 mm long, 3 mm wide, free from the dorsal sepal, glabrous, oblong-elliptic, obtuse, 3-veined. Lateral sepals 10 mm long, 2 mm wide, lanceolate, nearly obtuse, 3-veined, free to base. Lip 6–7 mm long, 8–9 mm wide, 3-lobed, sessile; middle lobe almost half of lip length, narrowly deltoid, obtuse; lateral lobes obliquely broadly ovate, apex rounded, margins crenate; disc 7-veined, minutely ciliate, without papillae along anterior margin. Gynostemium about 3 mm long. Capsule 17–21 mm long. Flowering in July.

HABITAT: *Pterichis macbridei* was found growing terrestrially on a montane slope at about 1830 m a.s.l.

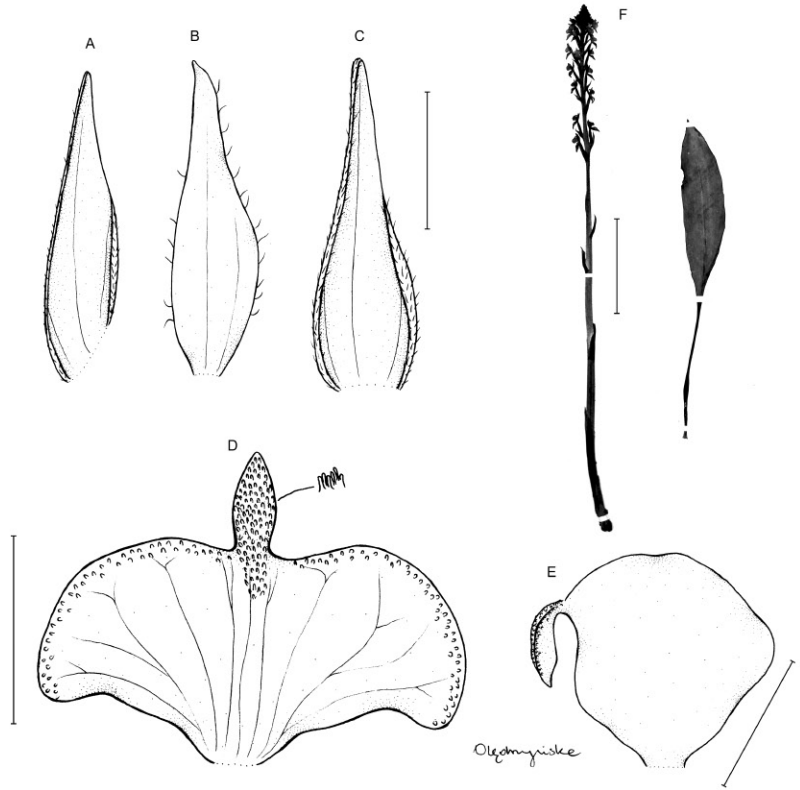


Fig. 2. *Pterichis cajamarcae*. — **A:** Lateral sepal. — **B:** Petal. — **C:** Dorsal sepal. — **D:** Lip. — **E:** Lip, side view. Scale bars = 3 mm. Drawn from the holotype. — **F:** Habit. Scale bar = 6 cm.

Pterichis macbridei resembles *P. galeata* in the red flowers and in petals that are free from dorsal sepal, but they are easily distinguished based on the floral segments' form. Unlike in *P. galeata*, the petals of *P. macbridei* are oblong-elliptic (*vs.* unguiculate, lanceolate-elliptic in *P. galeata*), the lateral sepals are lanceolate and free to the base (*vs.* lanceolate-ovate, basally connate), the lip lacks basal auricles (*vs.* lip base cordate), and the lip disc is not ornamented with papillae along the anterior margin. From another Peruvian species, *P. weberbaueriana*, *P. macbridei* is easily distinguished by the lack of lip auricles, as well as by the lack of a thickened gland along the lip margins. The latter character also distinguishes *P. macbridei* from *P. acuminata*, whose lip is ornamented by irregular, knob-like projections along the margins.

Pterichis cajamarcae* Kolan., *sp. nova
(Fig. 2)

TYPE: Peru. Cajamarca. Prov. Cutervo, entre San Andres y

la Pucarilla. Siguiendo el camino de Herradura, 2200 m, 26 June 1992 L. Sanchez Vega & A. Miranda 6345 (holotype F2118875, the specimen on left side of the sheet; isotype F2118875).

ETYMOLOGY: In reference to the type locality.

Plant 34–36 cm tall. Leaf 15–21 cm long, basal, long-petiolate; blade 9–12 cm long, narrowly elliptic, nearly acute. Scape terete, with 3–5 tubular, ciliate sheaths decreasing in size upwards. Spike 7–10 cm long, ciliate, fairly densely 15–25-flowered. Flowers yellowish-brown, externally densely ciliate. Floral bracts 8–13 mm long, ciliate, ovate-lanceolate, acute. Pedicellate ovary 8–13 mm long, ciliate. Dorsal sepal about 7–8 mm long, 2–2.5 mm wide, externally densely ciliate, ovate-lanceolate, obtuse, 3-veined. Petals adnate to dorsal sepal, 7–8 mm long, 1.5–2 mm wide, sparsely ciliate along margins, obliquely ovate-lanceolate, acuminate, nearly obtuse, 2-veined. Lateral sepals 7–8 mm long, 1.5–2 mm wide, externally densely ciliate, obliquely ovate, obtuse, 3-veined. Lip about 5 mm long, 7 mm wide, 3-lobed, truncate at

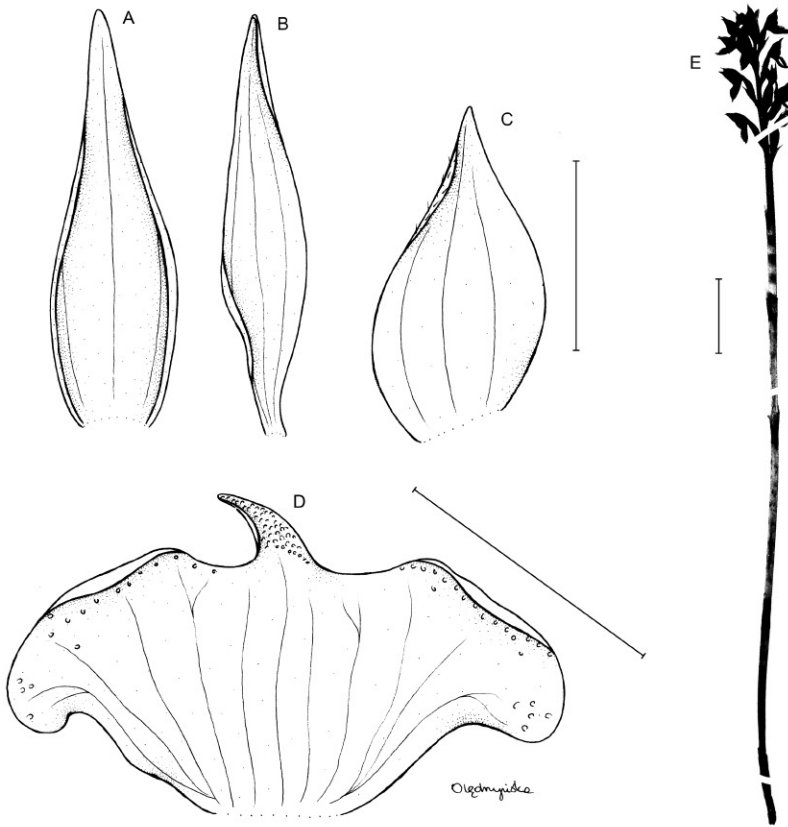


Fig. 3. *Pterichis diuris*. — A: Dorsal sepal. — B: Petal. — C: Lateral sepal. — D: Lip. Scale bars = 5 mm. Drawn from *Smith et al.* 12570 (F). — E: Habit. Scale bar = 3 cm.

base; middle lobe papillose, about 1/3 of lip length, narrowly elliptic, apex obtuse; lateral lobes obliquely ovate, rounded; disc 7-veined, glabrous in most part, ornamented with two rows of papillae along the anterior lip margin. Gynostemium 2.5 mm long. Flowering in June.

HABITAT: *Pterichis cajamarcae* was found growing at about 2200 m a.s.l. in secondary vegetation with *Pteridium*, *Loposoria* and *Gaultheria*.

This species similar to *P. isabeliana*, but with ciliate, obliquely ovate-lanceolate, 2-veined petals (*vs.* petals glabrous, falcate in the lower half, oblong-ligulate), a truncate lip base (*vs.* lip sessile), and a 7-veined lip disc ornamented with numerous papillae along the margins (*vs.* disc 9-veined, margin sparsely ornamented with swollen cells). From the Peruvian *P. multiflora*, *P. cajamarcae* is distinguished by the relatively smaller middle lobe of lip, lip ornamentation, and 2-veined petals (*vs.* 3-veined petals).

New record for Peru

Pterichis diuris Rchb. f. (Fig. 3)

Bonplandia 2: 10. 1854. — **LECTOTYPE** (designated here): Venezuela. Mérida, 1816 *N. Funck* & *L. J. Schlim* 1218 (W-R377!; AMES! drawing of lectotype).

Plants up to 25 cm long. Leaf absent during flowering. Scape up to 28 cm long, with 4–5 tubular, ciliate sheaths. Spike up to 8 cm long, ciliate, fairly densely several-flowered. Floral bracts up to 2 mm long, ciliate, ovate-lanceolate, acute. Pedicellate ovary up to 14 mm long, ciliate. Flowers olive-green, lip yellowish, sparsely ciliate externally. Dorsal sepal 11.5 mm long, 3 mm wide, externally sparsely ciliate, ovate-lanceolate, obtuse, 3-veined. Petals 11.5 mm long, 2.1 mm wide, free from dorsal sepal, glabrous, lanceolate from unguiculate base, obtuse, 3-veined. Lateral sepals 9 mm long, 4.5 mm wide, externally sparsely ciliate, ovate,

nearly acute, 3-veined. Lip 5.5 mm long, 10 mm wide, 3-lobed, base truncate; middle lobe about 1/4 of the total lip length, narrowly triangular-lanceolate, nearly acute, papillate; lateral lobes obliquely ovate, rounded; disc 7-veined, lateral veins branching, ornamented with papillae along the anterior margin. Gynostemium 3 mm long.

DISTRIBUTION AND ECOLOGY: Until now this species was known from Colombia, Ecuador and Venezuela. In Peru it was found growing terrestrially on a dry hill crest covered with dense bush with some grassy and boggy areas, at the altitude of over 3700 m. Flowering occurs in June.

REPRESENTATIVE SPECIMEN EXAMINED: Peru. Ancash, Huari Prov., Huascrán National Park, Quebrada Pachachaca, a lateral valley of Quebrada Rurichinchay, 3700–3860 m, 12 June 1986 D. N. Smith, A. Gonzalez, & D. Maldonado 12570 (F1972731).

In the protologue there was no indication of a holotype. A lectotype for this name is hereby designated. The single plant from which this species was most probably described is currently deposited in W (Reichenbach Herb. Orchid. no. 377) and a drawing of the whole plant and a dissected flower is stored in AMES (barcode 00103705).

Key to Peruvian species of *Pterichis*

1. Petals free from dorsal sepal 2
1. Petals adnate to dorsal sepal 6
2. Lip with a pair of auricles in edges of basal part 3
2. Basal lip auricles absent 5
3. Petals not unguiculate *P. weberbaueriana* Kraenzl.
3. Petals unguiculate 4
4. Claw of petal prominent, about as long as blade, petals much longer than sepals *P. galeata* Lindl.
4. Claw of petal inconspicuous, about 1/5 of total petal length, all tepals nearly equal in length *P. diuris* Rehb. f.
5. Lip disc ornamented with knob-like projections along the margins *P. acuminata* Schltr.
5. Lip disc lacking swollen cells or papillae along the margin *P. macbridei* Kolan.
6. Petals ligulate, equally wide along entire length
..... *P. silvestris* Schltr.
6. Petals lanceolate or oblanceolate, spatulate or widened near middle 7
7. Petals not spatulate 8
7. Petals spatulate 11
8. Dorsal sepal oblong-lanceolate 9
8. Dorsal sepal elliptic-ovate 10
9. Lip disc with one row of papillae along anterior margin
..... *P. multiflora* (Lindl.) Schltr.
9. Lip disc with two rows of papillae along anterior margin

- *P. cajamarcae* Kolan.
10. Lip base truncate *P. triloba* (Lindl.) Schltr.
10. Lip base sessile *P. parvifolia* (Lindl.) Schltr.
11. Petals distinctly longer than sepals
..... *P. macroptera* Schltr.
11. Petals nearly equal in length to sepals
..... *P. leucoptera* Schltr.

Acknowledgments

The Curators and staff of the cited herbaria are thanked for providing access to their collections. We are grateful to Christine Niezgodá for her kind assistance during our visit to the Field Museum of Natural History, Chicago. The research was financed by the Faculty of Biology, University of Gdańsk (538-L150-B065-13).

References

- Cribb P. 2003: *Pterichis*. — In: Pridgeon A.M., Cribb P.J., Chase M.W. & Rasmussen F.N. (eds.), *Genera Orchidacearum*, vol. 3: *Orchidoideae* (part 2), *Vanilloideae*: 53–56. University Press, Oxford, Oxford.
- Garay L.A. 1978: Orchidaceae (Cypripedioideae, Orchidoideae, Neottoideae). — In: Harling G.W. & Sparre B.B. (eds.), *Flora of Ecuador*, vol. 9: 1–305. University of Göteborg & Swedish Museum of Natural History, Göteborg & Stockholm.
- Kolanowska M. 2014: Notes on Costa Rican *Pterichis* (Orchidaceae) — new taxa and additions to national orchid flora. — *Lankesteriana* 14: 99–108.
- Kolanowska M. & Szlachetko D.L. 2013a: *Pterichis moralesii* (Cranichidinae, Orchidaceae), a new species from Colombia. — *Ann. Bot. Fennici* 50: 111–114.
- Kolanowska M. & Szlachetko D.L. 2013b: Four new species of the genus *Pterichis* (Orchidaceae) from Colombia. — *Polish Bot. J.* 58: 353–358.
- Lindley J. 1840: *Pterichis*. — In: Lindley J. (ed.), *The genera and species of orchidaceous plants*, part 7(1): 441–528. Ridgways, London.
- Lindley J. 1845: Orchidaceae Loxenses. — In: Bentham G. (ed.), *Plantas Hartwegianas imprimis Mexicanas adjectis nunnullis Grahamianis enumerat novasque describit*, part 2: 149–156. Georg Benthams, London.
- Ortiz-Valdivieso P. & Uribe-Vélez C. 2007: *Galería de Orquídeas de Colombia* (CD edition). — Asociación de Orquideología, Bogotá.
- Schlechter R. 1915: *Die Orchideen. Ihre Beschreibung, Kultur und Züchtung. Handbuch für Orchideenliebhaber, Züchter und Botaniker*. — Paul Parey, Berlin.
- Schweinfurth C. 1958: Orchids of Peru, part 1. — *Fieldiana Botany* 30: 1–260.
- Szlachetko D. L. & Rutkowski P. 2000: Gynostemium *Orchididium* 1. — *Acta Bot. Fennica* 169: 1–350.
- Szlachetko D.L. & Kolanowska M. 2013: A new species of *Pterichis* (Orchidaceae–Cranichidinae) from Norte de Santander, Colombia. — *Phyton* 53: 7–14.
- Zelenko H. & Bermúdez P. 2009: *Orchids: species of Peru*. — ZAI Publications, Quito.