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Two new species of the genus *Pseudoliparis* Finet (Orchidaceae, Malaxidinae) from New Guinea

Hanna B. Margońska

Department of Plant Taxonomy and Nature Conservation, Gdańsk University, Al. Legionów 9, 80-441 Gdańsk, Poland, e-mail: dokhbm@univ.gda.pl

Abstract: Two new species of the genus *Psudoliparis* (Orchidaceae, Malaxidinae) from New Guinea are described, illustrated and its taxonomic affinity is briefly discussed. One new combination within the genus is proposed.

Key words: Orchidaceae, Malaxidinae, *Microstylis*, *Psudoliparis*, new species, new nomenclatural combination, New Guinea

1. Introduction

The genus *Psudoliparis* was described by Finet in 1907, but nearly 1/4 of its 44 species have been described relatively recently. The species of this genus are mostly little known and poorly represented in herbaria and rarely preserved in liquid collections. Many species are still known only from few specimens or even just type-collection or protologue (e.g. particularly some Schlechter species). It is the effect of their distribution area, which comprises mostly poorly known, tropical regions of SE Asia as far as Micronesia, particularly New Guinea and the surrounding islands. The knowledge on their ecology, phenology and actual occurrence is scarce as well. However, flower morphology, colouration and records on their olfactory clearly show selective adaptation to pollinators – probably specific and very small Diptera or Hymenoptera. These polinators made the genus rather distinctly different from the other representatives of subtribe Malaxidinae.

Infrageneric arrangement and taxonomic revision of *Pseudoliparis* have been nearly worked out (Margońska 2003a, 2003b, 2005, 2010 in prep.), whereas the taxonomic history, problems and characteristics of the genus were presented in the recently published part of *Malaxidinarum index nominum* (Margońska 2008, 2009).

2. Materials and methods

Studied taxonomic material included: herbarium and preserved in liquid specimens, iconography, bibliography etc. The classic taxonomy methods with obligatory refereeing to the original taxonomic materials like type-specimens and protologues, have been used. The Herbaria acronymus are adopted from Index Herbariorum (Holmgren *et al*. 1990). The taxa authors names abbreviations are followed by Brummitt & Powell (1992).

3. Results

Pseudoliparis are small plants, with creeping rhizomes and erect or ascending stems. Inflorescences are erect, reaching distinctly over the top of leaves. Flowers are spirally arranged, relatively small and somewhat fleshy. Petals may be broad or narrow. Lip epichyle is unlobed or obscurely trilobed only, always with entire margins, basally auriculate. The central part of the lip is flat, without a cavity, ornamented only by parallel calli, lamellae or only an obscure, shallow, oblong convexity. The gynostemium is elongate, dorsiventrally flattened, slightly arched, typically dark-coloured, particularly at the apical part, and often minutely papillose on the surface. The rostellum is erect, narrowly triangular to triangular, acute to apiculate at the apex and adnate apically to the anther apex. The stigma is small, ovate, deeply concave. Staminodes are distinct and distinctly folded back from the anther, ribbon-, horn-, or wing-like. The anther is erect, linear to ovate, with a basally thickened connective. There are 4 pollinia, narrowly to broadly clavate, with tiny, apical caudicles.

Pseudoliparis comprises approximately 44 species. There are two sections: the type-section and section

*Oistochilus***.** Most species of the genus belong to the type-section and may be easily recognized by distinct horn-like appendages or a marked convexity along the dorsal part of the column. Section *Oistochilus* contains only 8 species, is easily distinguishable by a lack of any appendages or distinct convexity along the dorsal part of the gynostemium column.

While researching the Malaxidinae herbarium and liquid preserved specimens kept at K and E I found several specimens without any doubt belonging to the genus *Pseudoliparis*, and representing unknown taxa. In my opinion these specimens deserve to be recognized as two new species.

Pseudoliparis kristiniana Marg., *sp. nov.* (Fig. 1).

Haec planta habitu Pseudoliparis ramosii paulo similis est. Labellum ambitu triangulare, lobis lateralibus utpote auriculis trapezialibus truncatisque. Plicae oblongae obliquae inter labelli margines laterales et nectarii lamellas centrales. Columna infra antherae basem cum appendicem. Appendix distaliter distincte complanata deflexaque, fere pinnaformis. Staminodia late ovata, plana, apice leniter acuta, breviora quam anthera, super antheram valde recurvata. Anthera late ovata.

TYPE: Papua New Guinea, A-mieng (A-mien), on the Janeng (Yanem) River, a tributary of the Buso River, above the mouth of the Tosapik, 5000-6000 ft, 3.04.1941., *Mary Strong Clemens 12095A* (Holo-E)

Plants 10-13 cm tall, erect. Rhizome abbreviated. Pseudobulbs 1-1.5 cm long, 0.4-0.6 cm wide, with 2-3 scales at the base. Leaves 2-3, the younger larger than the others, 3.5-6 cm long, 1.8-3 cm wide, ovate to oblong ovate, attenuate, usually 3-5-nerved, margins partly slightly undulate. Inflorescence 9-11 cm long, subdensely ca. 20-flowered. Sterile bract sole, recurved. Floral bracts up to 7 mm long, recurved. Flower ca. 7 mm in diameter. Sepals 3-nerved. Dorsal sepal 4-4.3 mm long, 1.6-2 mm wide, oblong ovate to oblong, obtuse to subapiculate, basally nearly cordate. Lateral sepals 2.7-2.9 mm long, 2-2.3 mm wide, oblique, ovate, obtuse to subapiculate, basally cordate. Petals 3.8-4 mm long, 1.2-1.3 mm wide, lanceolate to oblong ovate, apically and basally attenuate, 3-nerved. Lip 2.9-3.2 mm long and wide, triangular in outline, the widest about its base; mid-lobe triangular, obtuse at the top, not separate from lateral lobes, oblique fold spread between lateral lip margins and its central lamellae; lateral lobe auricles slightly reaching over the lip base, distally trapezoid; lip lamina along 2 external of the 3 main nerves with thick, flattened, oblong, dark and intense coloured lamellae, connate together and vanishing about the lamina top, basally higher and connate together into a basal callus. Gynostemium ca. 1.7 mm long, elongate, erect, minutely papillae; appendage ca. 0.4 mm long, just below of anther base, swimfin-shaped, distally curved down; staminodia shorter than the anther, broadly

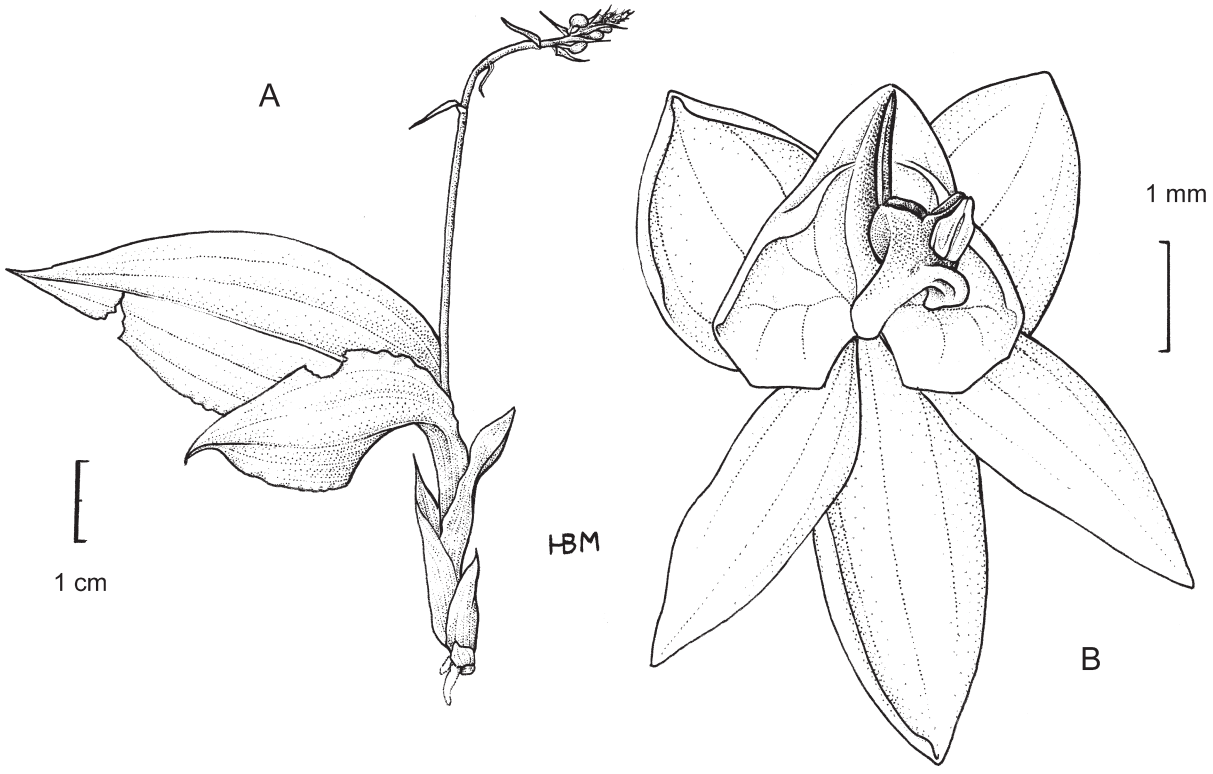

Fig. 1. *Pseudoliparis kristiniana* Marg.
Explanations: A – plant, B – flower (drawing from type, *Clemens 12095A*, E!)

ovate, strongly curved back over the anther; rostellum subequel to the anther; anther ovate.

Etymology – Dedicated to Mrs. Krystyna Łagoda-Zaleska, amongst other things an excellent gardener.

Ecology – in mountain forests, near creeks.

Distribution – New Guinea. Alt.: 1500-1830 m.

Notes – The "Clemens 12095" collection, distributed by the Botanical Garden, Michigan University is mixed and so far only "12095A" at E, may be treated as type-specimens of the new species.

The habit of the new species is superficially similar to Philippine *Pseudoliparis ramosii* (Ames) Marg. & Szlach. Philippine *Pseudoliparis bataanensis* (Ames) Marg. & Szlach. flowers are in the general outline, the gynostemium is also slightly similar to that of the new species. However, the form and position of lip lamellae, distal sections of lip auricles and the gynostemium appendage are definitely different.

In *Pseudoliparis kristiniana* the most distinguishing features are e.g. lip auricles distally trapezoid, an oblique fold between lateral lip margins and its central lamellae, the gynostemium flat, swimfin-shaped appendages just below the anther base.

Pseudoliparis georgeana Marg., *sp. nov.* (Fig. 2).

Haec planta Pseudoliparis stenophylla paulo similis est. Labellum ambitu ellipticum. Columna apice anticeque cum appendicem rectam, erectam, magnam. Appendix verticale divergente profundeque apice bifurcata.

Type: Papua New Guinea, Southern Highland Prov., Kagua Distr., Erave River, just upstream of the Erave Gou't station, Yagowe, 1050 m, 16.05.1983., *T.M. Reeve 6392* (holo-K, iso-LAE)

Plants (10)18-24 cm tall, erect. Rhizome creeping. Pseudobulbs 1.5-3.5 cm long, 0.2-0.4 cm wide, with 2-3 scales at the base. Leaves 3-5(8), 2.5-7 cm long, 0.6-1.5 cm wide, falcate to obliquely lanceolate, distinctly attenuate at the apex, basally cuneate, usually 3-nerved. Inflorescence 15-21 cm long, reaching markedly over leaf tops; densely 10-40-flowered. Sterile bract usually single, erect. Floral bracts up to 2 mm long, erect. Flower 3-4.5 mm in diameter, greenish brown to yellow brown, becoming orange when adult. Sepals 3-nerved. Dorsal sepal 2.2-2.5 mm long, 1.4-1.6 mm wide, ovate, obtuse to subacute, basally nearly cordate. Lateral sepals 2-2.3 mm long, 1.6-1.8 mm wide, oblique, broadly ovate to ovate, obtuse to subapiculate, basally cordate. Petals 2.1-2.4 mm long, 1.2-1.3 mm wide, elliptic to rhombic, obtuse to subacute at apices, basally cuneate, 1-nerved. Lip 2-2.2 mm long, 1.5-1.7 mm wide, elliptic nearly horseshoe-shaped in outline, the widest about its base; mid-lobe semi-ovate, subapiculate at the top, not separate from lateral lobes; lateral lobe auricles embracing

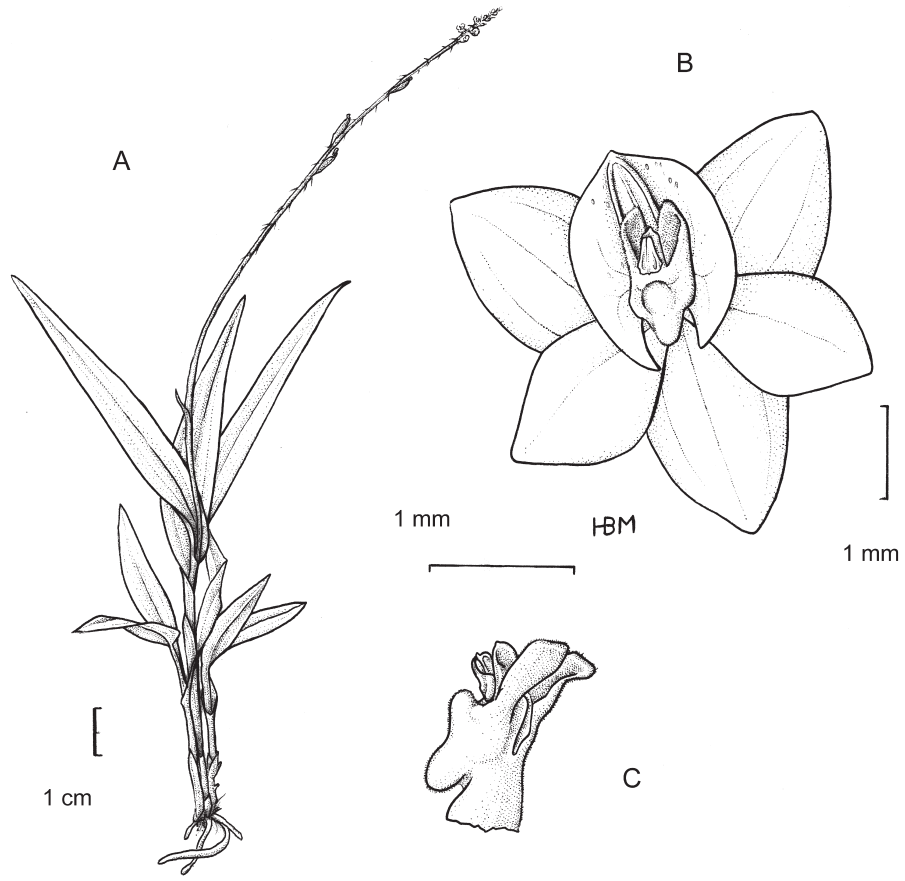

Fig. 2. *Pseudoliparis georgeana* Marg.
Explanations: A – plant, B – flower, C – gynostemium (drawing from type, *Reeve 6392*, K!)

1/4-1/3 of the lip length, falcate, convergent, apically acute; lip lamina ornamented along 2 external of the 3 main nerves by flat, oblong, dark and intense green-blue lamellae, connate together and vanishing just before the lamina top, basally connate together into an erect, truncate basal callus. Gynostemium 1.3-1.5 mm long, elongate, erect, minute papillae, dark green-blue towards the apex; appendage 0.30-0.35 mm in height, at the apical half of the column length, large, distally vertically widely disjuncted, obtuse at each apex; staminodia longer then the anther, oblong, apically truncate and strongly curved back over the anther; rostellum subequel to the anther; anther oblongly ovate.

Etymology – Dedicated to Mr. e. Jerzy (George) Kortylewski.

Ecology – terrestrial; in wet forests, near watercourses.

Distribution – New Guinea. Alt. 1000-1700 m.

Representative specimens seen – Papua New Guinea: Southern Highland Prov., Nipa Distr., Pimaga area, Pimaga-Gesege Road, Mount Teragabu, 1000 m, 18.09.1982., *T.M. Reeve 5668* (K!,); Enga Prov., Porgera Distr., Paiela Census Div., Teyenango, 1700 m, 19.07.1982., *T.M. Reeve 4696* (K!, LAE, NSW).

Notes – *Pseudoliparis georgeana* seems to be similar to *Pseudoliparis stenophylla* (Schltr.) Szlach. & Marg. These both species have e.g. petals elliptic to rhombic, 1-nerved; the lip in the central part ornamented with simple oblong lamellae; similar staminodia size, shape and situation; the rostellum and the anther oblongly ovate.

Pseudoliparis georgeana is very easily distinguished by e.g. leaves falcate to obliquely lanceolate; flowers greenish brown to yellow brown, becoming orange when adult; the lip elliptic, nearly horseshoe-shaped in outline, with flattened lamellae; unusual appendages at the apical half of the column length – large, distally vertically widely disjuncted, obtuse at each apex. Similar appendages are found only in *Pseudoliparis diploceras* (Schltr.) Szlach. & Marg. However, the latter species differs by e.g. leaves oblanceolate-elliptic; tepals 1-nerved; petals linear; the lip sagittate, with lyriform lamellae; gynostemium appendages distally parallel.

Studding the protologue of *Microstylis palawensis* Schlechter I found that the species without any doubt should be transferred to genus *Pseudoliparis*. Schlechter correctly placed it within section *Oistochilus* (at that time at genus *Microstylis*, at present at genus *Pseudoliparis*). The species have e.g. broadly ovate lips, glabrous (without any cavity), apically triangular, obtuse at the top, with basal, falcately ovate auricles; the gynostemium slightly arched; staminodes parallel, reaching distinctly over the anther, distinctly blue-green.

Pseudoliparis palawensis (Schltr.) Marg., *comb. nov.*
Basionym: *Microstylis palawensis* Schltr., Die Orchidaceen von Mikronesien. In Diels, Beitrage zur Flora von Mikronesien und Polynesien. II. *Engl. Bot. Jahrb.* 56: 459. 1921.

Type: Palau Inseln, in dichten Mittelwald bei Ngarsul, auf Babelthaob, 200-300 m, 02.1914., *C. Ledermann 14416* (holo – B+)

Synonyms: *Malaxis palawensis* (Schltr) C. Schweinf. *Bull. Bishop Mus., Honolulu,* 141: 23. 1936, in obs. *Crepidium palawense* (Schltr) Szlach., Systema Orchidalium. *Fragm. Flor. Geobot., Suppl.* 3: 130. 1995.

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