



Chiloschista pulchella (Orchidaceae: Aeridinae) new orchid species from Lao PDR

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ABSTRACT: The new species, *Chiloschista pulchella* (Orchidaceae: Aeridinae) was discovered in Hin Nam No Nature Protected Area, Khammoune Province of the central Laos. The paper provides detailed description and illustration of this species, which is identified as a local endemic of karstic rocky limestone of the northern part of the protected area. It differs from all known congeners in the thin lip, median lip lobe dissected into two small subulate lobules, as well as in large purple blotches on the lip side-lobes never found in other species of this genus. The newly discovered plant represents interest for cultivation as an ornamental plant and needs protection in its natural habitats.

KEY WORDS: Laos, Orchids, Plant diversity, Plant taxonomy, Limestone endemism, Hin Nam No Nature Protected Area.

INTRODUCTION

The genus *Chiloschista* Lindl. (Lindley, 1832) comprises 20 known species, distributed from the Indian Subcontinent and Himalaya eastward to China and Taiwan and southeastwards through Thailand to Indonesia, Australia, New Guinea, Fiji and Micronesia (Seidenfaden, 1988, 1992; Comber, 1990, 2001; Averyanov, 1994; Seidenfaden and Wood, 1992; Chen *et al.*, 2009). Highest species diversity of the genus is observed so far from Indochinese Peninsula with nine species in Thailand, three in Vietnam, three in China and two in Laos (Seidenfaden, 1988, 1992; Averyanov and Averyanova, 2003; Newman *et al.*, 2007; Schuiteman *et al.*, 2008; Chen, 2009). Hitherto available collections in Laos belong to *C. exuperei* (Guillaumin) Garay and *C. lunifera* (Rchb.f.) J.J. Sm. reported from Champassak and Vientiane Provinces respectively (Schuiteman *et al.*, 2008). The species described here was discovered from the central part of Laos (Khammoune Province, Boualapha District) in Hin Nam No Nature Protected Area during our botanical survey, as a part of Integrated Nature Conservation and Sustainable Resource Management in the Hin Nam No Region, Laos supported by Deutsche Gesellschaft für Internationale Zusammenarbeit. This endemic species, like its other congeners are remarkable leafless miniature epiphyte, with attractive, colorful flowers. It represents a significant addition to the flora of Laos. It can also be exploited for cultivation as an ornamental plant and needs protection in its natural habitats. Detailed description, photo plates and illustration are provided for easy identification of this remarkable new species.

TAXANOMIC TREATMENT

Chiloschista pulchella Aver. & K.S. Nguyen, *sp. nov.*

Fig. 1 & 2.

Described from central Laos ("Laos, Khammoune Province, Boualapha District, Vang Maner village, within the territory of Hin Nam No Nature Protected Area, primary dry evergreen and semi deciduous broad-leaved forest on very steep rocky slope near karstic hill top composed with solid, marble-like highly eroded limestone at 350–430 m a.s.l., epiphyte on tall tree, rare) **Type** ("9 May 2018, L. Averyanov, K. S. Nguyen, T. Maisak, L. Xaiyavongsa, S. Keovankham, AL 889" – LE (holotype).

Description. Perennial miniature monopodial leafless epiphytic herb. Stem very short, erect, simple, (2)4–12(14) mm long, 1.5–2 mm in diameter, throughout densely covered with many radially directed silvery-green flattened flexuose roots (1.5)1.8–2(2.4) mm wide, densely adpressed to the host tree bark. Inflorescence axillary, pendulous raceme (4)6–8(10) cm long, arising near the stem apex; scape and rachis dull pale green, densely tomentose with short hairs; scape (3)3.5–4.5(5) cm long, terete, with (2)3–4(5) distant lanceolate to narrowly triangular whitish scarious sterile bracts (2)2.5–3(3.5) mm long, (0.5)0.8–1(1.2) mm wide; rachis slightly zigzag, curved to almost straight (3.5)4–5(6) cm long, with (3)5–8(10) lax, spirally arranged flowers. Floral bracts very small, insignificant, whitish, scarious, lanceolate to narrowly triangular, acute, 1.2–1.5 mm long. Pedicel and ovary terete, dull olive-green, straight or slightly curved, (4.8)5–5.2(5.4) mm long, (0.9)1(1.1) mm in diameter, densely tomentose with short hairs. Flowers widely opening, (1)1.1–1.2(1.3) cm across; sepals and petals orange-brown with entire white ciliate margin, abaxially sparsely hairy; lip white with yellowish base; side lobes of the lip with dark purple apex (outside) and base (inside); lobules of median lobe yellow; column pale yellow, column foot with dark purple base; anther cap bright yellow; pollinia dull yellowish. Median sepal broadly



Fig. 1. *Chiloschista pulchella* Aver. & K.S. Nguyen. Flowering plant, inflorescence, flowers and floral details (fresh living plant prior to preparation of the holotype herbarium specimen, AL 889). Photos by Khang Sinh Nguyen and Leonid V. Averyanov, correction and design by L. Averyanov.

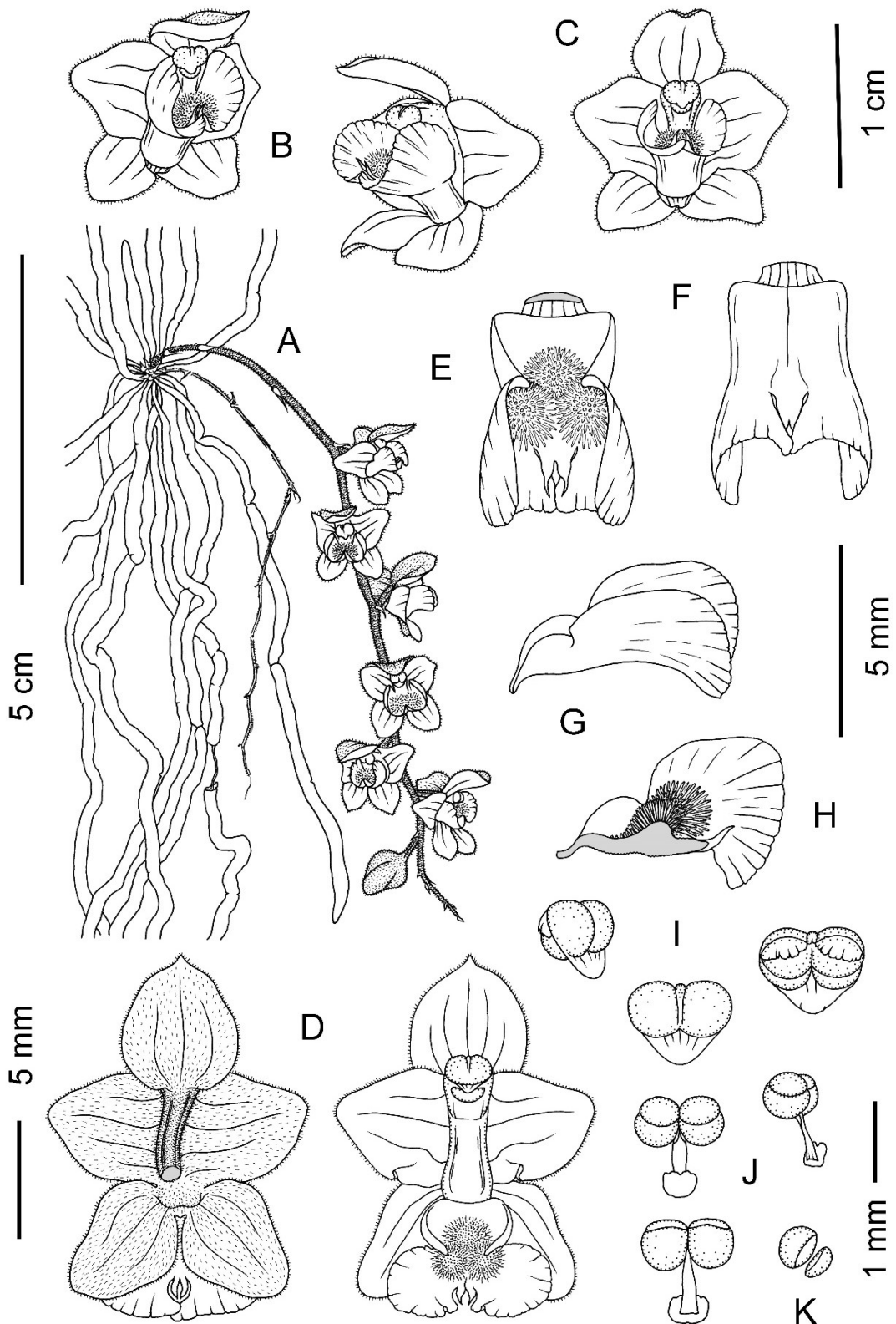


Fig. 2. *Chiloschista pulchella* Aver. & K.S. Nguyen. **A.** Flowering plant. **B.** Intact flowers, side views. **C.** Intact flowers, frontal view. **D.** Flattened flowers, view from behind and frontal view. **E.** Intact lip, view from above. **F.** Intact lip, view from below. **G.** Intact lip, side view. **H.** Sagittal section of the lip. **I.** Anther cap, side view, frontal view and view from below. **J.** Pollinarium, frontal view, view from behind and side view. **K.** Halves of pollinium. All drawn from the type, AL 889 by L. Averyanov and T. Maisak.



ovate to almost round, (4.6)4.8–5(5.2) mm long and wide, forward directed, more or less straight, with slightly recurved, shortly apiculate apex. Lateral sepals ovate, slightly oblique, (4)4.2–4.4(4.6) mm long, (3)3.2–3.4(3.6) mm wide, spreading, rounded at apex. Petals broadly triangular, (4.6)4.8–5(5.2) mm long and wide, spreading, later recurved, blunt to rounded at apex. Lip without spur, erect, of half-tubular shape, (3.6)3.8–4.2(4.6) mm long, obscurely divided into hypochile and epichile, movably attached to the column foot apex by thin, short and wide white plate. Hypochile concave, (1.8)2–2.2(2.4) mm long and wide. Epichile 3-lobed; side lobes obscurely half-circular, flabellate, (3.2)3.4–3.6 (3.8) mm long and wide, erect, finely crenulate or incised at margin, slightly rugose or wrinkled longitudinally; median lobe very small, dissected into 2 triangular-subulate, acuminate, straight, forward directed lobules (0.5)0.6–0.8(1) mm long, 0.3–0.4 mm wide. Disc of the lip adaxially with 3 large calli covered by dense, white, long, erect, stiff papillae (one callus is placed on the center of the disc and the other two between side lobes). Column simple, erect, short and broad, (1.7)1.8–2(2.1) mm high and wide, extended into large, bent at almost straight angle column foot, (4)4.2–4.4(4.6) mm long, (1.8)2–2.1 (2.2) mm wide; stigma concave, transversely lunate. Anther cap simple, with no appendages, helmet-shaped, (0.8)0.9–1.1(1.2) mm tall and broad, at front with broadly triangular, obtuse, forward directed beak 0.6–0.7 mm wide, 0.25–0.3 mm long. Pollinia 2, globular, 0.45–0.55 mm in diameter, each almost completely split into 2 unequal hemispheric halves. Stipe (tegula) in the form of simple, oblong-lanceolate, stalk (0.6)0.7–0.8(0.9), mm long, conduplicate folded proximally (at place of attachment to pollinia); viscidium attached distally, simple, in form of circular of subquadrate thin plate, 0.5–0.6 mm across. Fruits unknown.

Distribution: Central Laos: Khammoune province (Boulapha district, the territory of Hin Nam No Nature Protected Area). Endemic.

Habitat, ecology and conservation status: Miniature aphyllous epiphytes growing in primary dry evergreen and semideciduous, broad-leaved forests on karstic rocky limestone, at an elevation of 350–430 m. Rare. Currently, the IUCN Red List status should be ascertained as Data Deficient (DD).

Phenology: Flowers from April to May.

Etymology: The specific epithet refers to the attractive, colorful flowers having purple lip side lobes.

Notes. *Chiloschista pulchella* strikingly differs from all its congeners by the flat lip apex (not fleshy), the median lip lobe dissected into two small subulate lobules, and by the presence of large purple blotches on the side-lobes of the lip which is never found in any other species of the genus. This new species belongs to the group of species with a simple operculum (not having any

appendages), but has no certain similarity with any other species of this group. Formally, it can be compared with *C. exuperei* (Guillaumin) Garay, which also has a bilobulate median lip lobe. However, both these species are obviously different in their floral morphology.

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