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Bulbophyllum sridithii (Orchidaceae), new species from Vietnam

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ABSTRACT: *Bulbophyllum sridithii* a new species to science is described and illustrated from Kon Ka Kinh National Park of Vietnam. The new species belongs to the section *Cirrhopetaloides* and resembles *B. layae*, *B. hirundinis, B. electrinum, B. pecten-veneris* and *B. tingabarinum* but differs in the size and shape of pseudobulbs, the shape of the leaf blade, and flower size. Morphological description, illustrations, data on habitat, phenology, and conservation status are provided.

KEY WORDS: *Cirrhopetaloides*, endemism, Kon Ka Kinh National Park, new orchid species, plant diversity, plant taxonomy.

INTRODUCTION

The genus *Bulbophyllum* Thouars (1822) is one of the largest plant genera, with over 2200 species distributed in tropics and subtropics of the world (Vermeulen *et al.*, 2014). Currently, more than 145 species from 15 sections have been recorded in Vietnam (Seidenfaden, 1992; Averyanov, 1994; Averyanov and Averyanova, 2003; Averyanov *et al.*, 2015, 2016, 2018, 2019a,b; Nong and Averyanov, 2015; Nguyen and Averyanov, 2017; Truong *et al.*, 2019a-c).

The new species according to its morphology belongs to *Bulbophyllum* section *Cirrhopetaloides* Garay, Hamer & Sigerist (Vermeulen *et al.*, 2014), and is characterized by creeping rhizome; 1-leaved pseudobulbs; subumbellate raceme arising from the base of pseudobulbs; free dorsal sepal, entire, erose, fimbriate, ciliate, or paleate along the margin; lateral sepals twisted at the base and adnate (entirely or in part) along one or both margins. Petals are denticulate or fimbriate along the margin, lip simple, entire; stelidia usually shorter about half of the column length. Pollinia 4, without stipe.

During the botanical survey in Kon Ka Kinh National Park, an unknown miniature *Bulbophyllum* species belonging to the section *Cirrhopetaloides*, was found. After careful examination of available taxonomic literature, herbarium specimens from VNM, HN, VNMN, as well as herbaria images presented in JSTOR website, LE, K and P databases, we concluded that this species is new for science. It is described and illustrated below.

MATERIALS AND METHODS

The measurements and species description made from living plants. Type herbarium and additional liquid fixed material (preserved in 70% ethanol) are stored at VNM herbarium (ITB - Ho Chi Minh City). All the photos were taken with a Canon 600D fitted with an EF–S 60mm f/2.8 Macro USM lens. The terminology for the morphological description follows Beentje (2012).

TAXONOMIC TREATMENT

Bulbophyllum sridithii Vuong, Aver., H. Tran & V.S. Dang, ***sp. nov.***

Fig. 1–3

(*B.* sect. *Cirrhopetaloides* Garay, Hamer & Sigerist)

Type: VIETNAM, Gia Lai Province, K'Bang District, Son Lang Commune, Ha Lam Village, Kon Ka Kinh National Park, 11 December 2019, *Truong Ba Vuong, Dang Van Son, BV 459* (holotype: *VNM00023643*!, photo - LE, http://en.herbariumle.ru/?t=occ&id=17658, analytical photo-plate - LE, http://en.herbariumle.ru/?t=occ&id=17630).

Description: *Herb* epiphytic, perennial, rhizomatous. *Rhizome* creeping, stout, ca. 1.5 mm in diameter, brownish-grey, with single-leafed pseudobulbs. *Pseudobulbs* close to each other or distant ca. 2 mm, glossy green, broadly ovoid to globose, 6–7 mm tall, ca. 7 mm in diameter. *Leaves* sessile or subsessile, elliptic, 2.4–3 cm long, 1–1.5 cm wide, apex obtuse, leaf blade narrowing at base into short petiole ca. 2 mm long, twisted, with distinct articulation at base. *Inflorescence* arising from the base of pseudobulb, umbel-like raceme, with (1)3–4 flowers; scape suberect, slender, 2–2.5 cm long, at base covered by 2 to 3 brownish, tubular, papyraceous sheaths, 1–4 mm long; floral bracts triangular, 2.8–3 mm long, apex acuminate; pedicel with ovary 7–8 mm long; ovary with 6 longitudinal grooves. *Flowers* red, opening simultaneously. *Dorsal sepal* broadly ovate, 3–3.5 mm long, ca. 2 mm wide, concave,

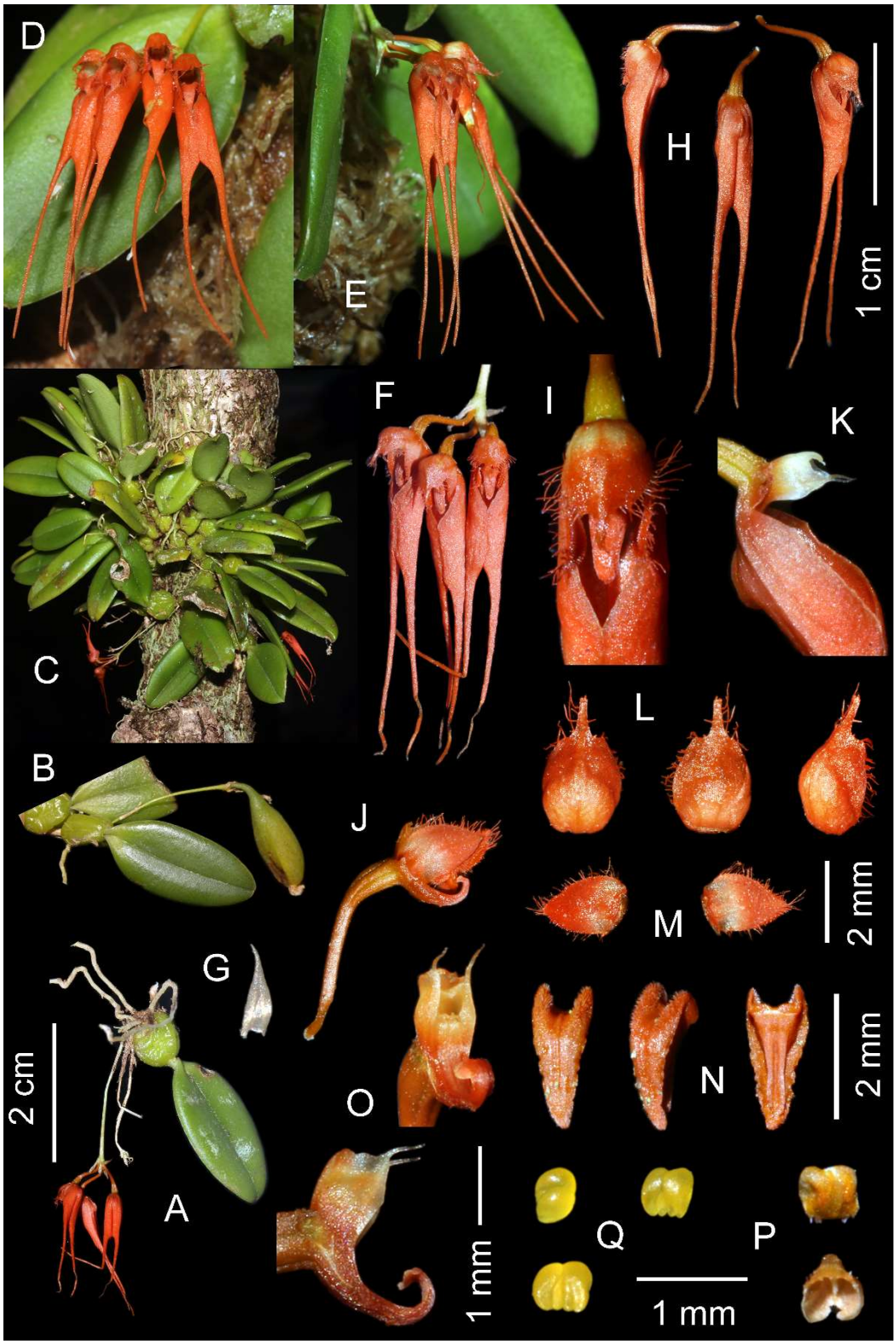


Fig. 1. ***Bulbophyllum sridithii***. **A & B:** Flattened flowering and fruiting plants. **C:** Intact flowering plant. **D & E:** Intact inflorescences, frontal and half-side views. **F:** flattened inflorescence. **G:** Floral bract. **H:** Flowers, views from different sides. **I:** Flower with intact median sepal, base of lateral sepals, petals and lip, frontal view. **J:** Flower with sepals removed, side view. **L:** Median sepal, frontal view, side view, and view from behind. **M:** Flattened petals. **N:** Lip, frontal fief, half-side view, and view from below. **O:** Column, side, and half-side views. **P:** Anther cap, view from above and from below. **Q:** Pollinia from different views. All photos taken by Truong Ba Vuong (made from specimen used for the holotype preparation, *BV 459*), correction, and design by L. Averyanov and T. Maisak.

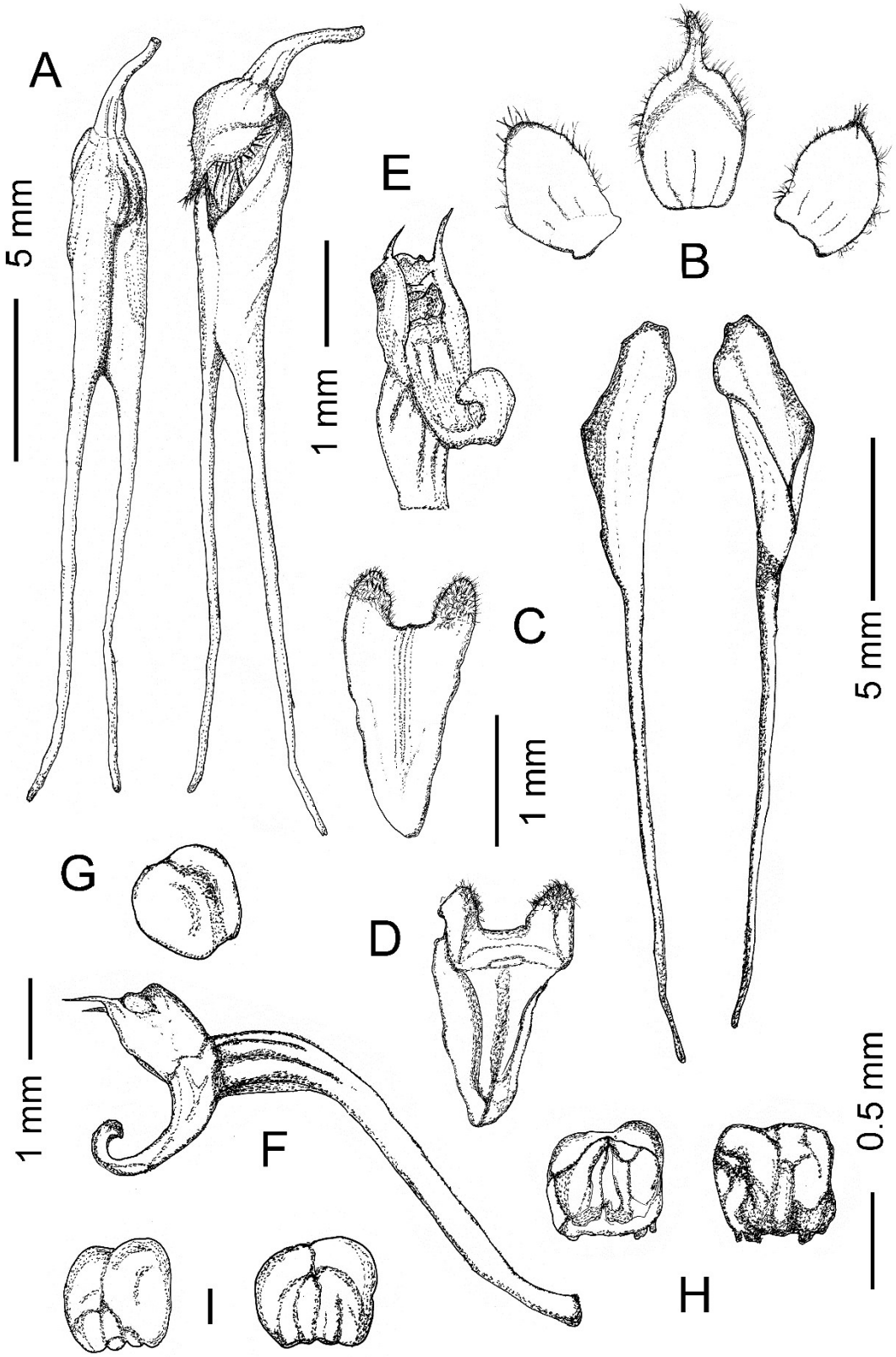


Fig. 2. ***Bulbophyllum sridithii***. **A:** Flower, half-side view and view from behind. **B:** Flattened sepals and petals. **C:** Lip, frontal view. **D:** Lip, view from behind. **E:** Column, half-side view. **F:** Column, ovary and pedicel, side view. **G:** Anther cap, half-side view. **H:** Anther cap, abaxial and adaxial surface. **I:** Pollinia, frontal view and view from behind. Drawing by Truong Ba Vuong from the holotype specimen, *BV 459*, graphic correction by L. Averyanov.

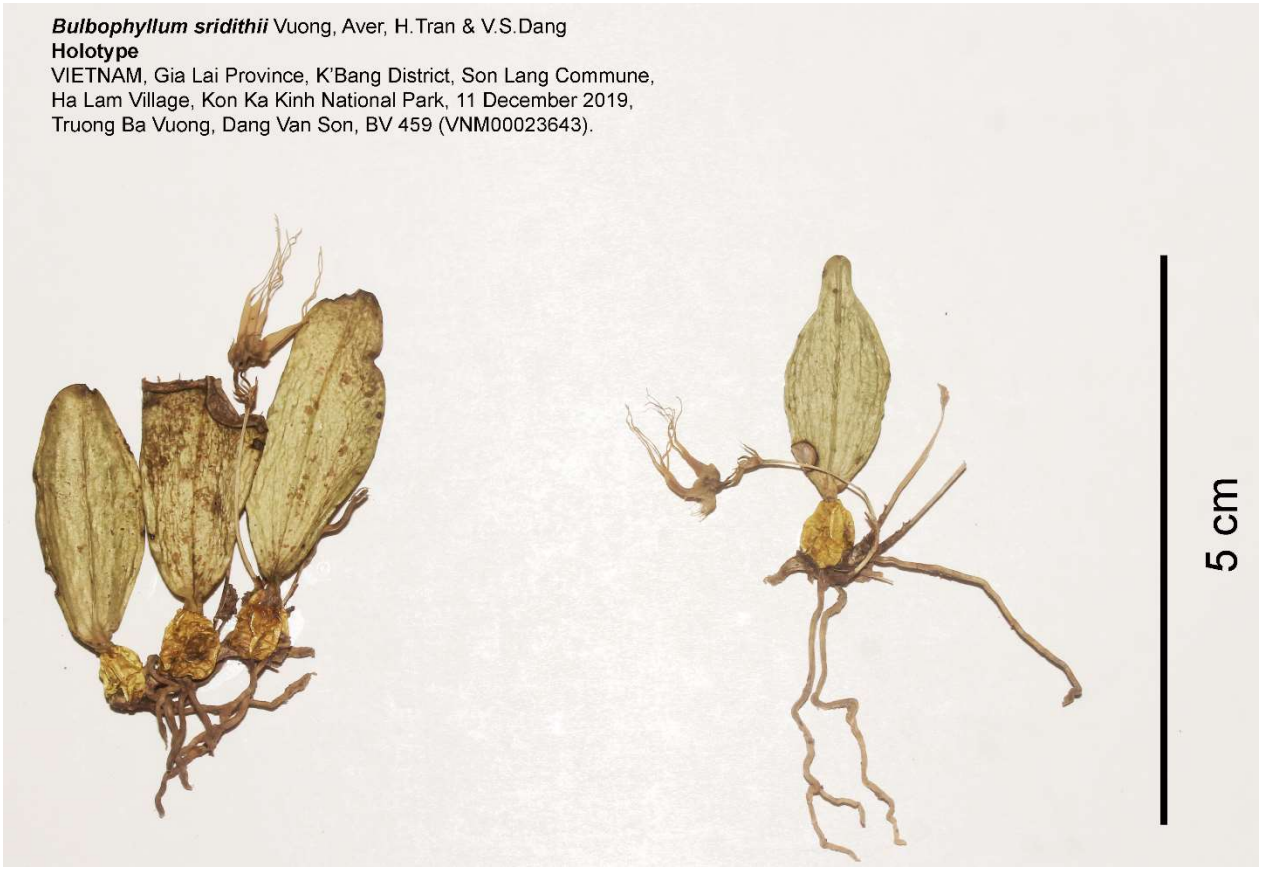


Fig. 3. *Bulbophyllum sridithii*. Holotype specimen, BV 459 housed at VNM (VNM00023643).

3-veined, margin fimbriate, apex shortly abruptly acuminate. *Lateral sepals* somewhat fleshy, ca. 20 mm long, 3 mm wide (at base) adnate to column foot, lower margins joined in basal third, upper margin twisted and free at base, then fuse together (ca. 3.5 mm long), toward the apex attenuate into filiform caudate free part. *Petals* ovate, slightly oblique, 2.5–2.8 mm long, 1.5–1.8 mm wide, 3-veined, apex obtuse, margin fimbriate. *Lip* simple, fleshy, ca. 2 mm long, 1 mm wide, narrowly triangular, recurved at middle, at base channeled, adaxially with low median keel from base to the apex, median ridge on abaxial surface runs from the labellum base to the apex, margin revolute, finely hairy at the lip base. *Column* ca. 1 mm tall, column foot ca. 4 mm long, upcurved; stelidia slender, subulate, straight or somewhat falcate, ca. 0.5 mm long; anther cap rectangular in outline, ca. 0.7 cm long, 0.6 cm wide, laterally somewhat concave, with yellowish brown callus at front. *Pollinia* 4. Capsule fusiform, ca. 1.6 cm long.

Etymology: The species epithet refers to the name of Professor Kitichate Sridith, famous researcher of Indochinese flora.

Habitat and phenology: Clustering miniature branch epiphyte growing in evergreen broad-leaved submontane seasonal forests. Rare. Flowers in December to January.

Distribution: VIETNAM, Gia Lai Province (Kon Ka Kinh National Park). Endemic of southern Vietnam in limits of Central Highlands (Tay Nguyen Plateau).

Taxonomic notes: The new species resembles *Bulbophyllum layae* Aver. & Vuong described in 2019 from northern Vietnam (Averyanov *et al.*, 2019a) but differs in dorsal sepal broadly ovate suddenly narrowing into shortly acuminate apex (vs. narrowly ovate, gradually tapering into attenuate apex), the lower margin of lateral sepals adnate from the base to nearly one third of their length (vs. the lower margin almost free from the base), petals ovate (vs. petals narrowly ovate); stelidia porrect, falcate, slightly downward (vs. stelidia erect, slender, straight forward directed). Moreover, the new species is additionally separated from above species in broadly ovoid or globular pseudobulbs (vs. pseudobulbs ovoid to narrowly ovoid), leaves elliptic 2.4–3 cm long, 1–1.5 cm wide (vs. leaves lanceolate or oblong lanceolate, 3.5–6 cm long, 4.5–7 mm wide), small flowers less than 2.5 cm long (vs. flowers 2.5–3 cm long),

The new described species resembles to *B. electrinum* Seidenf. but can be distinguished by the short inflorescence 2–2.5 cm, with up to 4 flowers (vs. inflorescence up to 13 cm long, with up to 11 flowers), lip finely ciliate along the margin at the base (vs. lip glabrous), stelidia porrect, falcate, slightly downward

(vs. stelidia very slender, filiform, erect), anther cap glabrous with brown callus at front (vs. anther cap papillose, without callus at front).

In addition, *B. sridithii* resembles to *B. hirundinis* (Gagnep.) Seidenf. but clearly differs by pseudobulbs placed close together or distant on less than 2 mm (vs. pseudobulbs distant on about 15 mm), inflorescence 2–2.5 cm, with up to 4 flowers (vs. inflorescence 3–4 cm long, with up to 11 flowers), lip at base ciliate along the margin (vs. lip glabrous).

Furthermore, the new species resembles to the *B. pecten-veneris* (Gagnep.) Seidenf. and *B. tingabarinum* Garay, Hamer & Siegerist but recognized by inflorescence 2–2.5 cm long (vs. inflorescence up to 15 cm long), lateral sepals ca. 2 cm long, lower margin fused at basal third (vs. lateral sepals up to 7.5 cm long, lower margin free at base), lip at base densely hairy along the margin (vs. lip glabrous).

Studied specimen (paratype): VIETNAM, herbarium specimen prepared in 11 January 2020, *Truong Ba Vuong, Dang Van Son, BV 483* (VNM VNM00023648!) from cultivated plant, originated from Gia Lai Province, K'Bang District, Son Lang Commune, Ha Lam Village, Kon Ka Kinh National Park).

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