

A new species of *Bulbophyllum* from Northern of Vietnam

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

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

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

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Abstract

A species, new to science, is described from Son La province, Vietnam. The new species is similar to *B. yongtaiense*, *B. layae* and *B. sridithii* in the hairy lip at base but clearly differs by the papillose margin and inner surface of dorsal sepal and petals, lip without mid keel and dense hairs on lateral keels, stelidia 2 times longer than 3 similar species.

Keywords. *Bulbophyllum* section *Ephippium*, Son La province, Orchids, Orchidaceae, Plant taxonomy

Introduction

Based on Vermeulen *et al.* (2014), the newly described species belongs to section *Recurvae* (Garay, Hammer & Siegerist 1994: 617) J.J. Vermeulen (2014: 35). The key characters of this section are inflorescence subumbellate, lateral sepals twisted and upper margins connate to each other, the fimbriate or partly fimbriate petals and the lip less than 5 mm long. Later on, Vermeulen *et al.* (2015) transferred section *Recurvae* to the synonymy of section *Epipphium* (Blume 1825: 308) Schlechter (1913: 700). There are estimated 36 accepted species distributed from India, Bangladesh, China, Taiwan, Myanmar, to Thailand, Laos, Cambodia, Vietnam, Philippines, Malaysia, Sumatra, Java, Borneo, Sulawesi, and Moluccas.

During a botanical survey in Son La province of Vietnam, an interesting orchid belonging to genus *Bulbophyllum*, section *Epipphium* was discovered. After a thorough investigation, the species didn't match with any of the existing members of the section. The species looked similar to looks similar to group of *B. hirundinis* (Gagnepain 1931: 5) Seidenfaden (1973: 76), *B. electrinum* Seidenfaden (1973: 77) and *B. pecten-veneris* (Gagnepain 1931: 6) Seidenfaden (1973: 37), but strictly differs by the hairy lip at base (vs glabrous). Hence, it is described here as a new species, *B. xuandangii*. Among the similar species with hairs at base of lip, *B. xuandangii* is close to *B. layae* Aver. & Vuong (2019: 233), *B. sridithii* Vuong, Aver. & V.S. Dang (2020: 473) and *B. yongtaiense* J.F.Liu, S.R.Lan & Y.C.Liang (2018: 281) but differs by the papillae on inner surface and margin of dorsal sepal and petals (vs glabrous), finely ciliate on 2 lateral keels, without mid keel (vs hairs on margin, one mid keel and without lateral keels), stelidia elongated ca. 1.2 mm long (less than 0.5 mm long).

Description of the new species, included the taxonomy comparison with the similar species are presented, also with the habitat, phenology and conservation status.

Materials and methods

The measurements and species description are based on 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 photographs were taken with Canon 700D body and EF-S 60mm f/2.8 Macro USM lens. The terminology for the morphological description follows Beentje (2016).

Taxonomic treatment

Bulbophyllum section *Epipphium*

Bulbophyllum xuandangii Vuong, Aver. & V.S. Dang *sp. nov.* **Figure 1**

Type:—VIETNAM, Son La province, Thuan Chau district, Bon Phang commune, forest of Nam Tien village, 8 July 2019, *Truong Ba Vuong, Bui Van Huong, BV 363* (VNM 00069937)

Etymology:—The species name after Mr. Bùi Xuân Đáng, the Vietnamese orchid enthusiast.

Description:—Miniature branch or small trunk epiphyte orchid. **Pseudobulb** with one leaf, green to dark green, ovoid to sub-globose, 6 – 8 mm in diam., with many irregular wrinkled, growing close together or separated 5 – 6 mm on woody, stout, creeping rhizome. **Leaves** oblong to broadly elliptic, green to dark green above, greenish below, 28 – 35 mm long, 1 – 1.6 mm wide, slightly curved at apical part, apex acute to sub-acute; petiole sessile or subsessile. **Scape** from base of pseudobulbs, slender, filiform, erect, 30 – 31 mm long, base with 2 to 3 brown overlapping tubular bracts, with or without above tubular bract ca. 3 mm long; rachis ca. 2 mm long, subumbellate, carry 3 – 5 flowers; floral bract pale brown with green line in middle, 2.5 – 3 mm long, apex acute or long acute; pedicel (with ovary) pedicel slender, curved orange, ovary orangish-green. Flowers opening in same time, dorsal sepal, petals and lip red, lateral sepals yellow, orange at base. **Dorsal sepal** ovate to broadly ovate, concave, 4 – 6 mm long, 2 – 3 mm wide, apex acuminate, straight forward or upcurved, margin fimbriate with clavate hairs; **lateral sepals** ovate to narrowly ovate, 17 – 28 mm long, 20 – 25 mm wide (at base), twisted at base, margin entire or with intermittent short papillose hairs, apex obtuse, lower margin turn inward fused from base to over middle part, upper margin free at base then fuse as long as lower margin, both free at apical part. **Petals** broadly ovate, oblique, falcate, 3 – 3.2 mm long, 2.3 – 2.5 mm wide, apex acute, margin involute (out curved), fimbriate with few simple hairs mixed with clavate hairs, margin and apical inner surface papillose. **Lip** simple, slightly outcurved, narrowly ovate in outline shape, apex sub-acute, connected with column foot by thin ligament; abaxial shallowly channeled at base, 2 lateral ridge from base below middle, covered by densely ciliate hairs; abaxial with 2 keels forming a groove. Column ca. 2 mm long, lower margin with unclear triangular wing; foot ca. 3.5 mm long, apical upcurved; steldia slender, subulate, straight forward or slightly falcate ca. 1 mm long, upper margin with triangular tooth; stigma with broadly pyriform opening, lower margin with 2 rounded keel extended to mid of column foot; anther cap helmet shape, with yellow papillose callus in middle, lower margin fimbriate; pollina 4, obovate, concave at base. Fruit not seen.

Habitat and phenology:—The species was found growing as epiphyte on short tree trunks towards the apex and small branches, in primary broad-leaved forest on granite. Flowering in July (BV 363) February (BV 1094)

Proposed conservation status:—The species is spread in the area with eight subpopulations. There is eminent threat of poaching and plants are collected rigorously for trade at the local market. Hence, each subpopulation is considered a unique location, constituting and EOO of 43.7 km² and AOO of 32 km². There is abundance of suitable habitat available for this species and the plants are often observed to set fruits naturally resulting in successful regeneration. Based on given information the species can be assessed as Vulnerable, however, with habitat availability more subpopulations are expected in the area, hence, the species is assessed as Near Threatened NT B1ab(iii)+B2ab(iii).

Studied specimen (paratype):—VIETNAM, Son La province, Thuan Chau district, Chieng Bom commune, forest of Chieng Bom, 21 February 2021, *Truong Ba Vuong, Bui Van Huong, BV 1094* (VNM 00069938)

Taxonomic notes:—Owing to colour of flower, presence of hairs at the base of lip *B. xuandangii* looks similar to *B. yongtaiense*, *B. sridithii* and *B. layae*, the morphological comparison of similar species is presented in the **Table 1**.

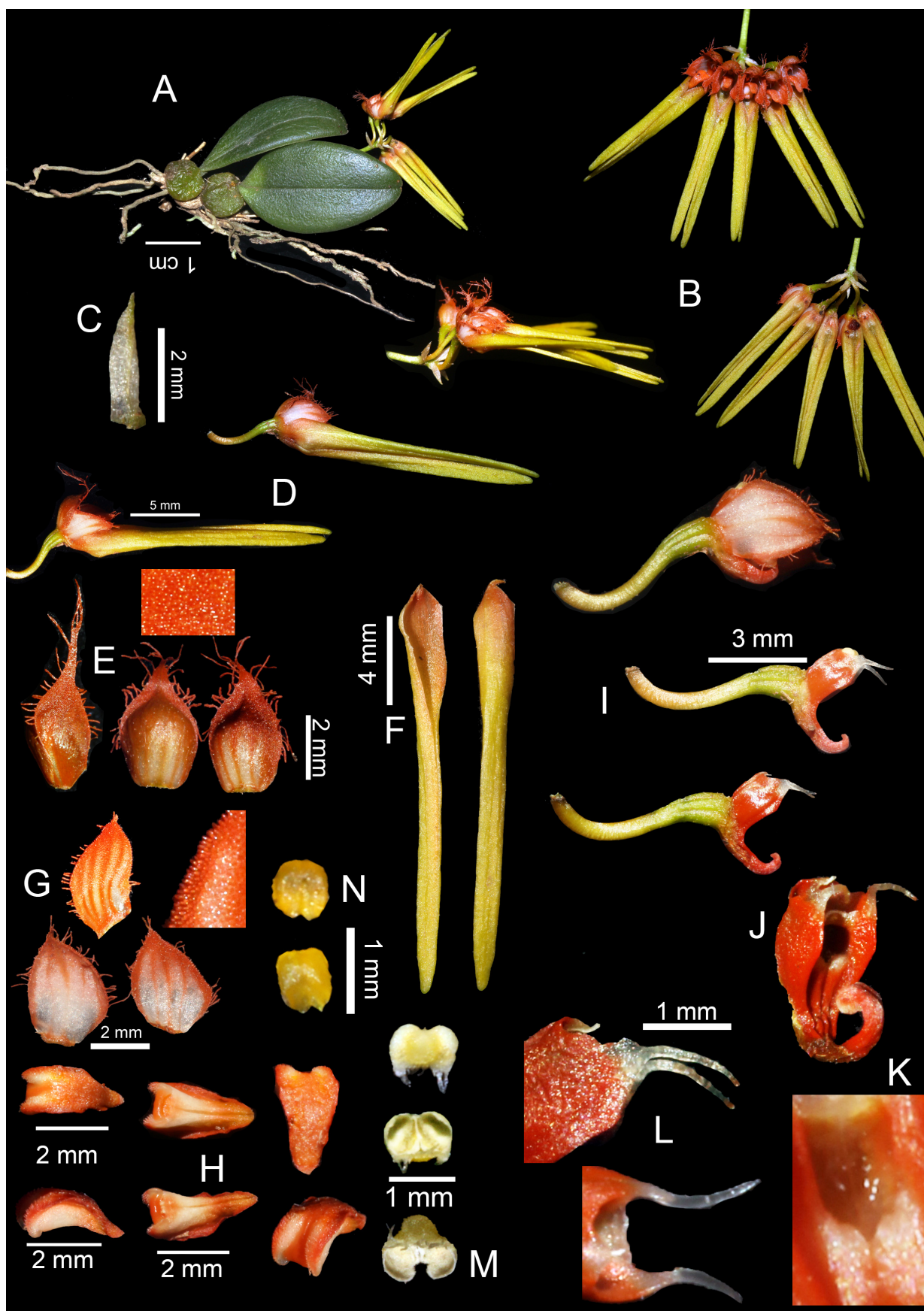


FIGURE 1. *Bulbophyllum xuandangii*. A, Flowering plant; B, Inflorescence; C, Floral bract; D, Flower; E, Dorsal sepal and papillose surface; F, Lateral sepals; G, Petals and margin; H, Lip; I, Column; J, Keels on column; K, Stigma; L, Stelidia. (Photo by Truong Ba Vuong)

TABLE 1. Morphological comparison between *B. xuandangii*, *B. yongtaiense*, *B. srithidii*, *B. layae*.

	<i>B. xuandangii</i>	<i>B. yongtaiense</i>	<i>B. srithidii</i>	<i>B. layae</i>
Pseudobulbs	broadly ovoid to sub-globose	narrowly ovoid	broadly ovoid to globose	narrowly ovoid to ovoid
Scape	30 – 31 mm long	52 – 61 mm long	20 – 25 mm long	8 – 12 mm long
Dorsal sepal	Ovate to broadly ovate, margin clavate hairs, apex caudate, inner surface densely papillose.	Ovate, margin fimbriate-ciliate, apex acute to subcaudate, surface glabrous	Broadly ovate, margin fimbriate, apex shortly abruptly acuminate, surface glabrous	Narrowly ovate, margin fimbriate, apex attenuate into prominent caudate, surface glabrous
Lateral sepals	ca. 28 mm long, lower margin fused from base to over middle, upper margin free at base then fuse as long as lower margin, apex obtuse	ca. 14 mm long, upper and lower edges often loosely adhering, apex obtuse, not elongated.	ca. 20 mm long, lower margins joined in basal third, upper margin free at base, then fuse together, apex attenuate into filiform caudate free part	17 – 22 mm long, upper and lower margin connate at the middle, in basal and apical part free filiform caudate in apical half
Petals	Ovate, margin few fimbriate hairs, densely papillose on margin and apical half on inner surface	Ovate, margin fimbriate-ciliate, surface glabrous	Ovate, margin fimbriate, surface glabrous	Narrowly ovate, margin fimbriate, surface glabrous
Lip	Without mid keel, 2 erect side keels finely ciliate	With mid keel, base finely papillose	With mid keel, and margin finely ciliate	With mid keel, base with setose hairs
Stelidia	ca. 1.2 mm long, subulate, filiform, slightly falcate, upper margin with triangular tooth	ca. 0.5 mm long, Triangular, slender, pointing forward, upper margin without tooth	ca. 0.5 mm long, slender, subulate, straight or somewhat falcate, upper margin without tooth	Small, insignificant, triangular, erect, upper margin without tooth

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