



Gastrochilus dresslerii (Orchidaceae), a new species from northern Vietnam

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Abstract

The new species, *Gastrochilus dresslerii* (*G.* sect. *Microphyllae*) discovered in northern Vietnam (Ha Giang Province) is described and illustrated, and data on its phenology, ecology, and distribution is provided. Morphological resemblance of discovered plant with allied species are also discussed.

Keywords: *Gastrochilus* sect. *Microphyllae*, Ha Giang Province, new species, plant diversity, plant taxonomy, endemism

Introduction

Gastrochilus Don (1825: 32) comprises 69 accepted species (Govaerts *et al.* 2021) identified by the small flowers, free sepals and petals, the lip divided into sac like hypochile attached to the column, broad epichile usually with callus at the center, and 2 subglobose entire pollinia, attached to slender, filiform stipe (Pridgeon *et al.* 2014).

In the flora of Vietnam 14 accepted species of *Gastrochilus* are recorded until now, namely, *Gastrochilus bellinus* (Rchb.f. (Reichenbach 1884: 174)) Kuntze (1891: 661), *G. calceolaris* (Smith 1819: n. 11) D. Don (1825: 32), *G. distichus* (Lindley 1858: 36) Kuntze (1891: 661), *G. fuscopunctatus* (Hayata 1911: 336) Hayata (1917: 78), *G. hainanensis* Z.H.Tsi (1989: 21), *G. intermedius* (Lindley: 1858: 33) Kuntze (1891: 661), *G. kadooriei* Kumar *et al.* (2014: 92), *G. minutiflorus* Averyanov (1997: 146), *G. obliquus* (Lindley 1833: 223) Kuntze (1891: 661), *G. pseudodistichus* (King & Pantling 1895: 341) Schlechter (1913: 315), *G. setosus* Averyanov & Vuong (2018: 128), *G. simplicilabius* Averyanov (1997: 147), *G. yunnanensis* Schlechter (1919: 76), and *G. acutifolius* (Lindley 1833: 223) Kuntze (1891: 661). With the newly described plant, the total species number of this genus increases in Vietnam to 15.

Gastrochilus dresslerii described here as the species new for science is morphologically close to *G. setosus*, *G. hoi* T.P.Lin (1987: 103), and *G. matsudae* Hayata (1920: 116). All these species belong to *G.* section *Microphyllae* Bentham & Hooker (1883: 579) recognized by the elongated stem with distinctly distichous leaves.

Materials and methods

The measurements and description of *Gastrochilus dresslerii* were based on the living plants. Studied voucher specimens and additional alcohol-preserved material are stored at VNM Herbarium. The terminology for the morphological description follows Beentje (2012).

Taxonomic treatment

Gastrochilus sect. *Microphyllae* Bentham & Hooker (1883: 579)

Gastrochilus dresslerii Vuong, Aver. & V.S.Dang, *sp. nov.* (Fig 1)

Type:—VIETNAM, described from northern Vietnam: Ha Giang Province, Quang Ba District, Thai An Commune, forest near Thai An Village, 1 January 2020, *Truong Ba Vuong, Dang Van Son, Bui Van Huong, Vang Di Thao, BV 471* (holotype VNM VNM00024327, analytical photos LE LE01089446 <http://en.herbariumle.ru/?t=occ&id=74194>).

Paratype:—VIETNAM, Ha Giang Province, Quang Ba District, Thai An Commune, forest near Thai An Village, 3 January 2020, *Truong Ba Vuong, Dang Van Son, Bui Van Huong, Vang Di Thao, BV 472* (VNM VNM00024328).

Etymology:—The species epithet honors Robert L. Dressler for his outstanding contribution to the global orchidology.

Description:—*Miniature twig epiphyte. Stems* spreading horizontally or pendulous, simple, 3.5–5 cm long, leafy on apical half, covered by leaf sheaths, dull brownish purple or green with sparse purple blotches, glabrous, stout and semi-woody at base, somewhat fleshy toward the apex, rooting from nodes; roots vermiform, glossy, ca. 1 mm in diameter, white or greenish. *Leaves distichous*, glabrous, broadly lanceolate to narrowly ovate, 8–13 mm long, 4–6 mm wide, adaxially green or dark green with irregular dull purple spots, abaxially greenish, glossy with less dull purple blotches; leaf apex with 2 lateral acute teeth and 1 median seta. *Inflorescence* lateral, arising from node of apical half of stem, racemose, ca. 9 mm long, with 3–4 simultaneously opening flowers; peduncle slender, ca. 2 mm long, green with small purple dots, with 1–2 brownish bracts at base; rachis fleshier than peduncle, ca. 7 mm long, green with purple blotches, base with 1 acute tubular bract, ca. 1 mm long; floral bracts triangular, acute, ca. 2 mm long, 0.5 mm wide, green with purple blotches; pedicel and ovary green with purple dots, ca. 6.5 mm long. *Flowers* not widely opening, sepals and petals green with few purple dots abaxially, sepals with purple mid vein, abaxially rugose; lip white with greenish tint, epichile central callus dull yellowish-green with purple-brownish dots, margin of hypochile pinkish, inside with few purple dots. *Dorsal sepals* obovate, ca. 4 mm long, 2 mm wide, concave, apex rounded. *Lateral sepals* narrowly ovate, oblique, concave, ca. 4 mm long, 2 mm wide, acute. *Petals* broadly elliptic, ca. 4 mm long, 3 mm wide, slightly concave, obtuse. *Lip* spurred, divided into hypochile and epichile; hypochile saccate to almost globular, outside glossy, at right angle to epichile, ca. 4.3 mm long, 3.5–4 mm wide, apex rounded, slightly retuse, densely hairy on front-wall, with low median keel inside, epichile reniform to half-circular, ca. 2.5 mm long, 6 mm wide, margin somewhat upcurved, central callus with sparse short hairs, side lobes glabrous. *Column* short, rectangular at front, ca. 2 mm long, 2.5 mm wide, with shortly cylindrical down directed fleshy lateral wings, without column foot; rostellum prominent, down directed, furcate, hanging above stigma; stigma cordate, concave; anther cap helmet shaped, ca. 2 mm long, with elongate triangular beak ca. 0.8 mm long; pollinia subglobose, entire, attached to a slender, filiform, stipe ca. 2 mm long, viscidium narrowly elliptic ca. 1.5 mm long. Fruits not seen.

Habitat and Phenology:—The plant grows on mosses twigs in marginal canopy zone of large trees. Flowers in December – January.

Proposed conservation status:—According to present observations the species is locally very rare and can be overlooked easily due to its miniature habit the character of habitat. More field studies are needed for acceptable identification of its current conservation status. According to the IUCN criteria (IUCN, 2019) it may be tentatively assessed at present as “Data Deficient” (DD).

Distribution:—Vietnam (Ha Giang Province). Endemic.

Additional specimens studied:—*Gastrochilus matsudae*: TAIWAN, Pingtung, Peitawushan (Daibuzan), 20 November 1918, *E. Matsuda s.n.* (isotype TAI TAI032825, photo!), *E. Matuda s.n.* (holotype, TAI T01205, photo!). *Gastrochilus hoi*: TAIWAN, Hualien County, Yunlong, 19 January 2001, Ching-Kuoh Liou 1460 (TAIF TAI126532, photo!).

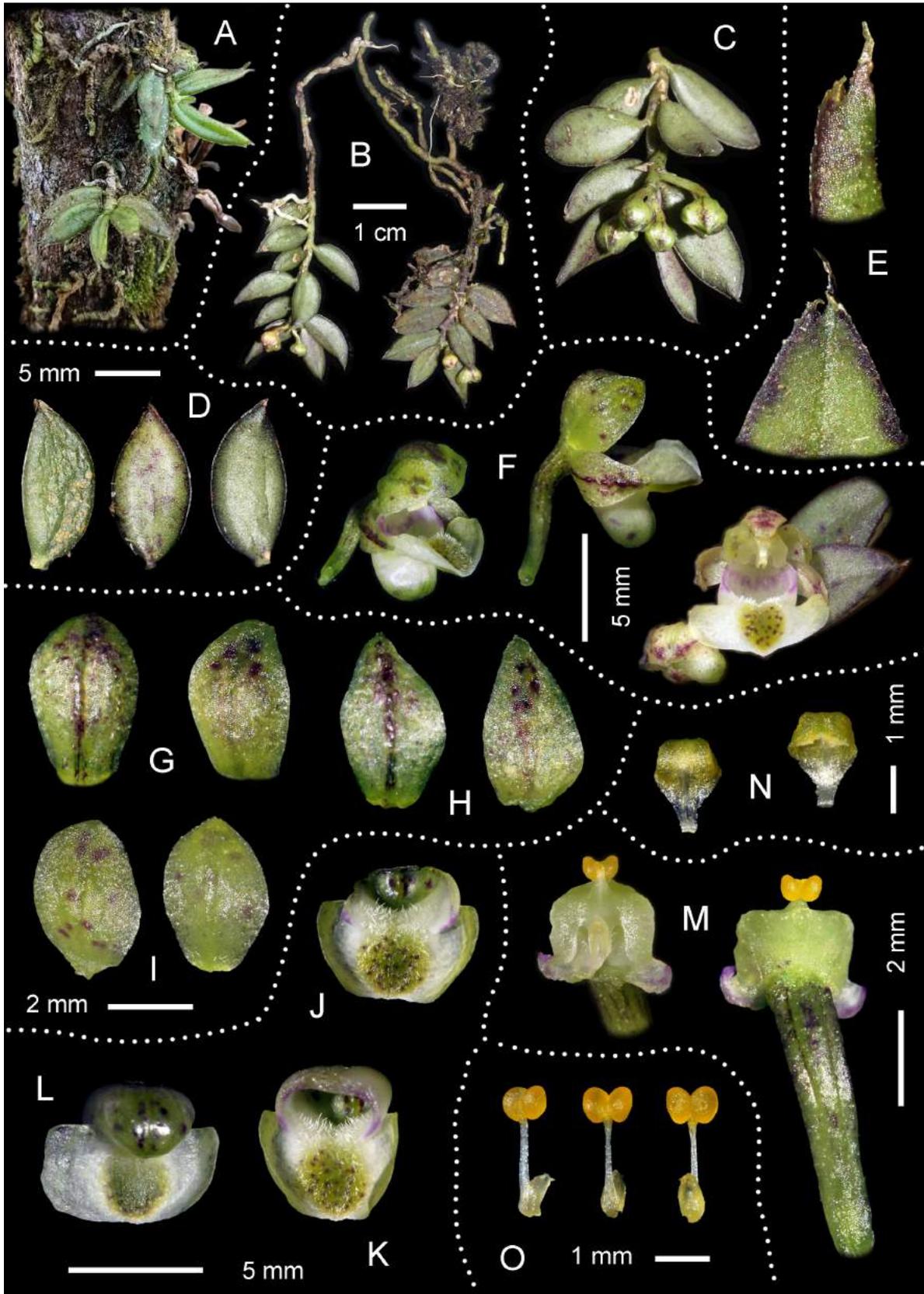


FIGURE 1. *Gastrochilus dresslerii*. A. Plant in natural habitat. B. Flattened flowering plants. C. Apical portion of stem with inflorescence. D. Leaves, adaxial and abaxial surfaces. E. Leaves apex, frontal and side views. F. Flower, side, half-side and frontal views. G. Dorsal sepal. H. Lateral sepals. I. Petals. J, K. Lip, frontal views. L. Lip, view from below. M. Column, frontal view and view from behind. N. Anther cap, frontal view and view from behind. O. Pollinaria. Photos by Truong Ba Vuong from holotype BV 471. Images correction and design by L. Averyanov and T. Maisak.

Notes:—The newly described species resembles *Gastrochilus setosus* morphologically, but differs in lax 2–4 flowered inflorescence (vs. inflorescence dense, with 10 or more flowers), glabrous side lobes of epichile (vs. side lobes of epichile with sparse hairs), and saccate to subglobular hypochile placed at right angle to the epichile (vs. hypochile shortly cylindrical at obtuse angle to epichile). Our plant also somewhat similar to *G. hoi* and *G. matsudae*, but can be easily recognized by the morphological characters presented in **Table 1**.

TABLE 1. The comparison of morphological features of *Gastrochilus dresslerii*, *G. setosus*, *G. hoi* and *G. matsudae*.

	<i>G. dresslerii</i>	<i>G. setosus</i>	<i>G. hoi</i>	<i>G. matsudae</i>
Stems length in cm	3.5–5	ca. 5	to 12	to 25
Leaf shape	Narrowly ovate to broadly lanceolate	Narrowly ovate to broadly lanceolate	Oblong-lanceolate	Linear-lanceolate, oblong
Number of flowers in inflorescence	2–4	to 10	3–5	3–11
Dorsal sepal shape	Narrowly obovate	Narrowly ovate	Elliptic	Obovate oblong
Lateral sepals shape	Narrowly ovate, obtuse	Narrowly ovate, rounded	Ovate, obtuse	Obovate oblong, rounded
Petal shape	Broadly elliptic	Narrowly ovate	Elliptic	Obovate oblong
Epichile characters	Reniform to half-circular, apex rounded shortly apiculate, central callus green with small brown dots and sparse stiff white hairs, side lobes almost glabrous	Reniform to half-circular, apex rounded shortly apiculate, central callus pure green, with sparse stiff white hairs, side lobes with sparse hairs	Reniform, apex emarginate, pubescent with white hairs, central callus uniformly greenish	Flabellate or half-circular, apex retuse, pubescent with dense white hairs, central callus uniformly yellowish green
Hypochile characters	Saccate to almost subglobular, at right angle to the epichile, inside with many dense hairs on front-wall	Shortly cylindrical, at broad angle to the epichile, inside with many dense hairs on front-wall	Saccate conoid, slightly curved forward, slightly hairy on front-wall	Saccate, slightly curved forward, sparsely hairy on front-wall

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