

DENDROBIUM SW.- SECTION GRASTIDIUM (BL.) J.J.SM. IN INDIA, AND A NEW SUBSPECIES OF DENDROBIUM HAEMOGLOSSUM FROM THE SIMILIPAL FOREST IN ODISHA

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Abstract

Four species of *Dendrobium* Sw. i.e. *D. indragiriense* Schltr., *D. salaccense* (Blume) Lindl., *D. cathcartii* Hook.f., and *D. haemoglossum* Thwaites under its section *Grastidium* (Bl.) J.J.Sm., known in India are enumerated here. A new subspecies under *D. haemoglossum* collected from the Similipal forest in Odisha is also described here.

Introduction

DENDROBIUM SW. is a very large (World: 900, India: 137 species; Misra, 2019) and polymorphic genus exhibiting diverse forms in its habit. Its species commonly have an elongated and jointed cane-like stem, often with swollen internodes. However, there are a few species where the stem is slender, thin but hard, smooth, polished, and the nodes are hardly differentiated. The stems are tufted, erect or drooping; the small-medium-sized flowers are borne in short fascicles, usually in pairs, yellow-coloured with dark purple markings on the lip, and the column foot. These species are accommodated in a separate section.

J. D. Hooker (1888) under the section *Virgate* recorded two species from India- *Dendrobium cathcartii* Hook.f. from Sikkim Himalayas and *D. haemoglossum* Thwaites from Kerala. Seidenfaden (1985) in his revisionary work on the Thailand orchids recorded from the Andaman Islands, India, only one species *D. indragiriense* Schltr. under the section *Grastidium*; Hooker's section *Virgate* is now placed in the section *Grastidium*. Of late, Zote *et al.* (2009) recorded one more species *D. salaccense* (Blume) Lindl. in India from Mizoram. Thus, four species as above under the section *Grastidium* are known to date in India. Often these species are mixed up with one another in view of the scanty morphological difference in their habit. These are enumerated below along with a field key for identification of the species.

***Dendrobium* Sw.- Section *Grastidium* (Bl.) J.J.Sm., Fl. von Buit. 6: 348. 1905.**

Stem elongate, terete, wiry, thin but hard, shiny and smooth, no fleshy, swollen internodes; *leaves* distichous, linear-lanceolate; *flowers* in short, leaf-

opposed fascicles, mostly in pairs, yellow or greenish-yellow, with dark purple markings in the throat of the un-lobed lip, and the column foot.

Key to the Indian species of *Dendrobium* - Section *Grastidium*

- a. Lip without distinct ornaments on the blade
- b. Lip with a fat median keel running from base to about 2/3 the length of the lamina, in front of which 3 raising veins with a few fat hairs; lamina elliptic-lanceolate, acute, distal part triangular, with crispate edges; leaves narrow, ca. 7 mm wide; stem spreading*D. indragiriense*
- bb. Lip with the median vein distally raising as a narrow keel, specially on the proximal half of the blade; lamina oblong, base gently narrowed, apex retuse, distal part much recurved, not crispate; leaves wider, ca. 13 mm broad; stem erect*D. salaccense*
- aa. Lip without distinct ornaments on blade
- c. Lip elliptic-lanceolate, acute; petals linear-lanceolate, acute; stigmatic cavity empty; flowers 18-25 mm long; in bloom between April-September; stem erect*D. cathcartii*
- cc. Lip tongue-shaped, apex truncate undulate; petals oblong-lanceolate, acute; stigmatic cavity with a pair of triangular stelids at base, stem erect or drooping; in bloom at different periods; flowers 8-15 mm long.*D. haemoglossum*

Enumeration of the Species Under Section *Grastidium* of *Dendrobium* in India

Dendrobium indragiriense Schltr., Fed. Repert. Spec. Nov. Regni Veg. 9: 164. 1911; Balakrishnan, N. P.,

Andaman and Nicobar Information: 153-165. 1976. India (Andaman and Nicobar Islands), Indonesia, Malaysia, Thailand.

D. salaccense (Blume) Lindl., Gen. Sp. Orch. Pl.: 86. 1830; Zote, S., H. Lalramnghinglova & C. Deori, *J. Orchid Soc. India*, 23 (1-2): 91-92. 2009. *Grastidium salaccense* Blume, Bijdr. Fl. Ned. Ind.: 333. 1825. India (Mizoram), Myanmar, Thailand, Laos, Vietnam, China, Malaysia, Indonesia.

D. cathcartii Hook.f., Fl. Br. India 5(2): 727. 1890. non Misra severally. India (Sikkim, Darjeeling in West Bengal), Bhutan.

D. haemoglossum Thwaites Enum. Pl. Zeyl.: 429. 1864; Hook f., Fl. Br. India 5: 740. 1890; Fischer in Gamble, Fl. Madras: 1416. 1928; Abraham & Vatsala: 365. 1981; Manilal & Kumar: 178. 2004. India (Kerala, Tamil Nadu, Karnataka), Sri Lanka.

Figure 1 shows the habit, lip, column, anther, and pollinia of *D. haemoglossum*. A set of three figures showing lips of *D. indragiriense*, *D. salaccense*, and *D. cathcartii* is provided in Fig. 3; the lip in these clearly shows the difference in the four species.

Taxonomic Treatment

One species with the sectional characters of *Grastidium* was collected first in April, 1975 and later in 1985 and 1986 from the Similipal forest in the Mayurbhanj district in northern Odisha; it was reported (Misra, 1986) as *Dendrobium cathcartii*. This species was later reported from a number of places in Similipal (Misra, 1989a,b, 1994, 1997, 2000, 2004, 2014; Misra *et al.*, 2004). Critical study revealed that the collected species is closer to *D. haemoglossum* Thwaites, an element found in Sri Lanka and the South Indian states of Kerala, Tamil Nadu, and Karnataka. However, it has some distinct characters not found in the above species. Besides, our species has a different geographic origin in northern Odisha that is located in Eastern India. The plant has therefore, been treated as below, a new subspecies of *D. haemoglossum*.

***Dendrobium haemoglossum* Thwaites subsp. *nayakii* S. Misra subsp. nov.**

Dendrobium cathcartii auct. non Hook. f. 1888; Misra, S. 1986; Misra, S. 1989a; Misra, S. 1989b; Misra, S. 1994; Misra, S. 1997; Misra, S. 2000; Misra, S. 2004; Misra S. 2014; Misra *et al.*, 2004.

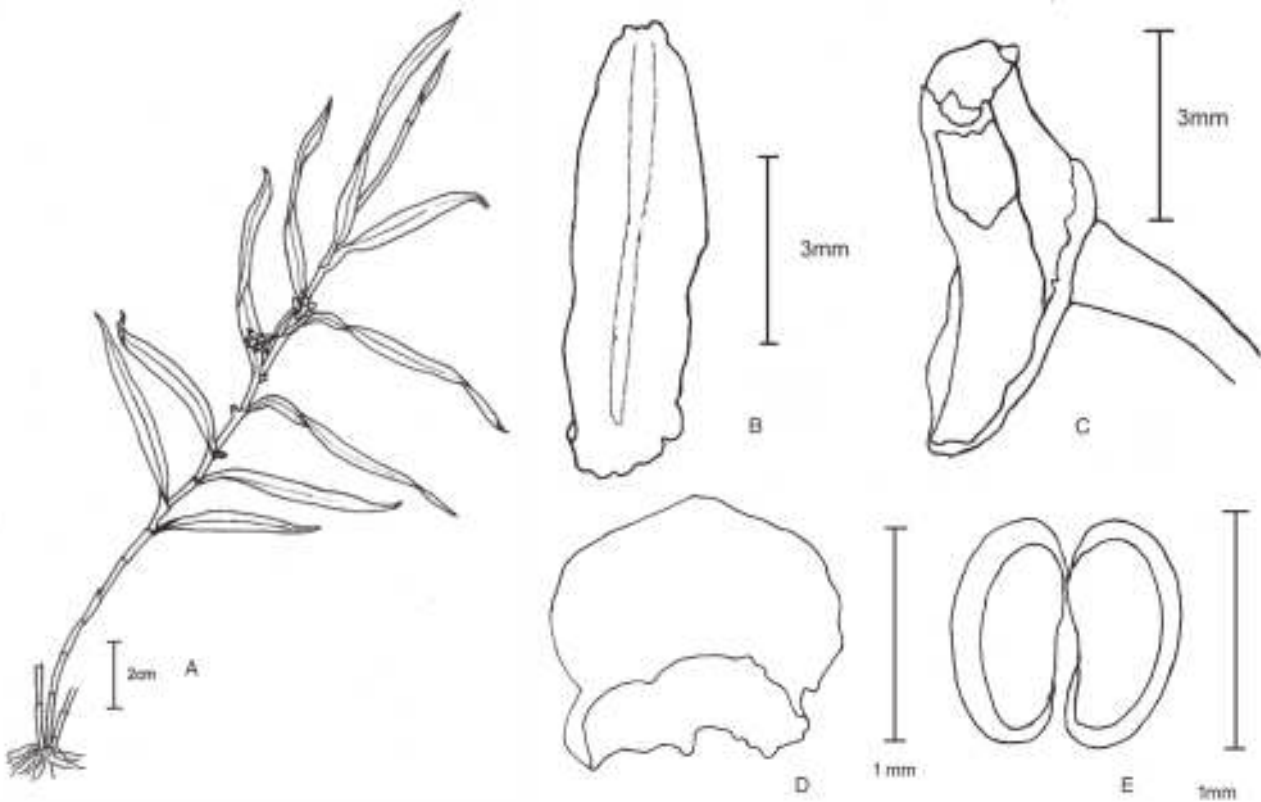


Fig. 1. A-E. *Dendrobium haemoglossum* ssp. *haemoglossum*: A, Habit; B, Lip; C, Column; D, Operculum; E, Pollinia (Redrawn by S. Misra from Abraham and Vatsala).

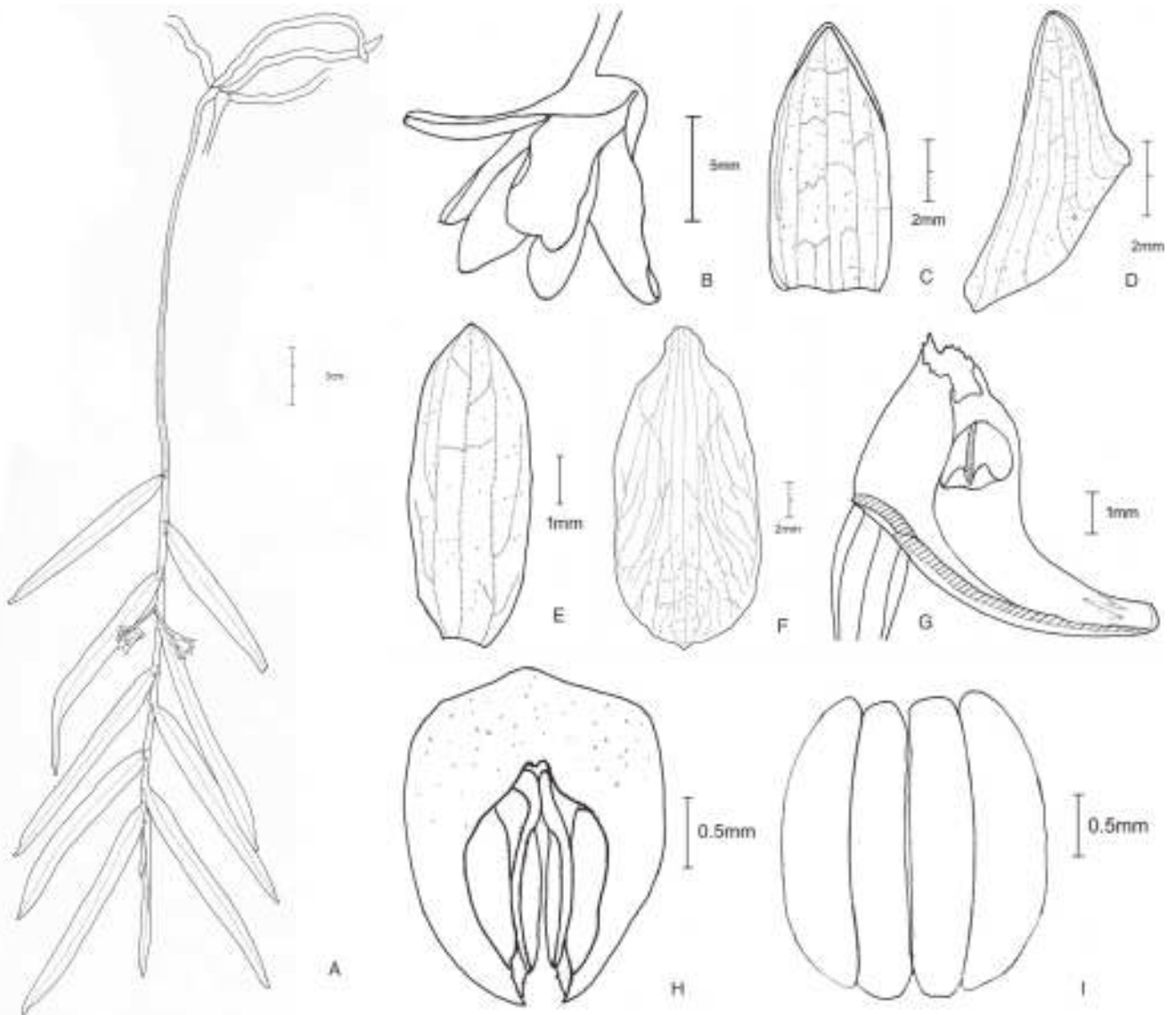


Fig. 2. A-I. *Dendrobium haemoglossum* ssp. *nayakii*: A, Habit; B, Flower; C, Dorsal sepal; D, Lateral sepal; E, Petal; F, Lip; G, Column with foot; H, anther; I, Pollinia (S. Misra 948; drawn by S. Misra).

Type

India, Odisha state, Mayurbhanj district, Similipal forest, Meghasani, 24.10.1986 (Flowered in April 1987 under cultivation), *Sarat Misra* 948 (Holotype CAL); Similipal forest, Dhanaguji, 19.06.1985, *Sarat Misra* 858 (Paratype CAL).

Etymology

This orchid commemerate Bittanath Nayak, former Deputy Conservator of Forests, Government of Odisha, for whom Similipal was his second home.

Diagnostic Characters

Dendrobium haemoglossum subsp. *nayakii* is differentiated from subsp. *haemoglossum* by its oblong,

lip with a rounded apex, bearing a minute obtuse mucro; base abruptly contracted to a narrow claw; an incurved longer column foot; an anther with an ovate outline;

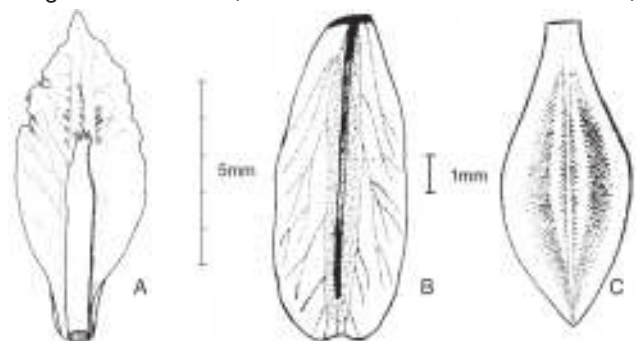


Fig. 3. A-C. Lips of the three species: A, *Dendrobium indragiriense* (after Seidenfaden Fig. 164 e); B, *D. salaccense* (after Zote *et al.*, Fig. 2 c); C, *D. cathcartii* (after Pearce and Cribb Fig. 96 g).

Table 1. Distribution, flowering period, and characteristics of *Dendrobium haemoglossum* subsp. *haemoglossum* and *D. haemoglossum* subsp. *nayakii*.

Distribution, flowering period, and plant parts	subsp. <i>haemoglossum</i>	subsp. <i>nayakii</i>
Distribution	India (Kerala, Tamil Nadu, and Karnataka), Sri Lanka	India (Odisha, in Similipal forest)
Flowering period	Appears periodically	March-April, and early June; in bloom for just one day
Stem	Erect, leafy on distal two-third, 15-40 cm long, narrow at base	Drooping, leafy in distal half, 35-120 cm long, narrowed below, swollen at base
Leaves	Linear-lanceolate, acuminate, leathery, coriaceous; 5-6 cm long, 10 mm wide	Linear-lanceolate, strongly unequally bifid at apex, not leathery; 10-15 cm long, 10-15 mm wide
Inflorescence	Strictly leaf-opposed, flowers in pairs	Leaf-opposed or slightly above leaf base, 1-3 flowered
Flower	15 mm across, greenish-yellow, with deep purple markings on throat of lip	10-15 mm across, yellow-ochre, two lateral large, oblong deep purple blotches on lip within
Lip	Tongue-shaped, ca. 7.5 × 2 mm; apex truncate, undulate, base gradually narrowed to base	Oblong, ca. 11 × 5 mm, apex rounded, with a minute obtuse mucro; base abruptly narrowed to a short claw
Column	Straight, ca. 2 mm high	Straight, ca. 4 mm high
Column foot	Straight, ca. 3 mm long	Slightly curved in, ca. 6 mm long
Stigma	Oblong, ca. 1.4 mm long	Ovate-lunar, ca. 1.7 × 1.7 mm
Anther	Squarish in outline, ca. 1.2 × 1 mm	Ovate in outline, ca. 2.1 × 1.75 mm
Pollinia	Elliptic-oblong, ca. 1 × 0.5 mm	Narrow, obliquely-oblong, ca. 1.5 × 1.3 mm

narrow, obliquely oblong pollinia; and a longer drooping stem (Figs. 1-2).

Description

Stem drooping, 35-120 cm long, 4-5 mm thick, slender below, slightly swollen at the base; leafy on distal half; internodes 20-30 mm long. *Roots* copious, vermiform, white, 5-6 mm thick. *Leaves* distichous, linear-lanceolate, acute, 10-15 × 1-1.5 cm, strongly and unequally bifid at apex, deep green. *Inflorescence* 1-few, leaf-opposed or slightly above the leaf base, fascicles of 2-3 flowers. Pedicel ca. 10 mm long, 1.2 mm thick; ovary ca. 4 × 2 mm, pale green. *Flowers* yellow-ochre, 10-15 mm across, inodorous. Dorsal sepal oblong-lanceolate, acute, ca. 8 × 4 mm, distal margin rolled in, 5-veined; lateral sepals obliquely lanceolate, acute, 7-veined, ca. 12 × 5 mm. Petals erect, oblong-lanceolate, acute, ca. 9.2 × 3.5 mm, 3-veined. Lip entire, oblong, ca. 11 × 5 mm, 5-veined, apex rounded with a short obtuse mucro, base abruptly narrowed to a short claw; margin in basal half rolled in; epichile deflexed, with two large oblong maroon blotches on the lateral edges within and extending beyond the middle. *Column* pale yellow, erect, ca. 4 mm high, irregularly dentate at apex; foot bent inside, ca. 6 mm long, concave, yellow, tip flushed with maroon. Stigma ovate-lunar, ca. 1.7 × 1.7 mm, with a pair of stelids at the base. Anther ovate in outline ca. 2.1 × 1.75 mm, cream-coloured; pollinia 4 in collateral pairs, narrow, obliquely oblong, ca. 1.5 ×

1.3 mm. Capsules clavate to ellipsoid, ca. 12 × 5 mm (Fig. 2).

Flowering

March-May (sometimes again in early June; in bloom for just one day).

Habitat

In tropical evergreen to semi-evergreen montane forests, under moist and densely shaded localities, epiphytic at medium heights.

Occurrence

Similipal forest at Baniapada, Bhanjabassa, Dhanaguji, Meghasani, Nekadanecha, Sarua, Tarinibila, Upper Barhakamada; Scarce.

Distribution

India, known only from the type locality.

Taxonomic Note

The new plant has several features similar to *Dendrobium haemoglossum* Thwaites, a species known from peninsular India and Sri Lanka. Abraham and Vatsala (1981) collected it from near Munnar in Kerala state. They have provided its brief morphological description and elaborate scientific diagrams. We have for diagnosis of *D. haemoglossum* relied on these data

and treated it as the type subspecies. Table 1 provides data to distinguish the new subspecies, from the type subspecies.

Jayaweera (1981), in his work Flora of Ceylon (Sri Lanka) has provided very good description as well as figures for one *Dendrobium bambusaefolia* Par. & Rchb.f. based on the type materials. He has erroneously named *D. haemoglossum* as a synonym of *D. bambusaefolia*. The Sri Lankan species differs slightly from the South Indian species- like its stem is pendulous; leaves rigidly papery, striate, mentum short rounded at the tip, unlike in the later the stem erect; leaves leathery, coriaceous, mentum porrect, not rounded at the tip. The Sri Lankan species are no doubt *Dendrobium haemoglossum* ssp. *haemoglossum*.

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