



## RESEARCH ARTICLE

# Two new species of *Dendrobium*: additions to Orchid flora of Assam, India

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## Abstract

Two new *Dendrobium* species *Dendrobium khasianum* Deori and *D. regium* Prain are reported for the first time from the state of Assam. The present paper enumerates both species with brief descriptions and colour photos.

Keywords: *Dendrobium khasianum*; *Dendrobium regium*; Assam flora; new record

## 1. Introduction

The intensive field surveys were carried out during 2006 – 2024 covering all seasons of the year in the forested areas of entire Assam and collected Orchid specimens in its vegetative condition. Among them some species could not be determined immediately. Therefore, these orchids were put in cultivation at the Regional Orchids Germplasm Conservation & Propagation Centre (Assam Circle), where two plants were flowered under observation in 2024. Unfortunately, these species could not be matched with any existing species in the region and adjacent areas.

After careful examination and comparison with existing species with the help of available literature (Chen et al., 2009; Chowdhery, 1998; Gogoi, 2017, 2019; Hegde, 2017; King and Pantling, 1898; Pradhan, 1979; Pearce and Cribb, 2002; Lucksom, 2007; Deori et al., 2019; Misra, 2014, 2019; Singh et al., 2019; Barbhuiya et al., 2021) and a critical examination of the flowers, these specimens has been identified as *Dendrobium khasianum* Deori and *D. regium* Prain. Previously within India *D. khasianum* was reported from Manipur, Meghalaya, Nagaland (Deori et al., 2019; Singh et al., 2019) and *D. regium* was reported from Nagaland, Chhattisgarh, Jharkhand, Orissa, Andhra Pradesh (Deb et al., 2015; Prasad et al., 2019). Review on the relevant literature (Gogoi, 2018, 2019; Misra, 2014, 2019; Singh et al., 2019; Barbhuiya et al., 2021) revealed that these species have not been reported from Assam, India. The present collection thus forms the first report of this species from Assam. Hence, we describe the same here along with colour plates.

## 2. Material and method

The measurements and species description were made from living plants. The herbarium is deposited at the TOSEHIM (Herbarium of The Orchid Society of Eastern Himalaya), Regional Orchid Germplasm Conservation and Propagation Centre (ASSAM), Assam. All the photos were taken with a Canon 6D Mark-II fitted with an EF 100 mm f/2.8L Macro USM lens and Redmi 13C Mobile Phone. The terminology for the morphological description follows (Beentje, 2012).

A detailed description, together with information on habitat, and phenology, is provided in the present manuscript to make species determination easy. The two species have been conserved ex-situ

in the orchidarium at the Regional Orchid Germplasm Conservation and Propagation Centre, The Orchid Society of Eastern Himalaya, Assam.

## 3. Taxonomic treatment

**3.1. *Dendrobium khasianum*** Deori in J. Orchid Soc. India 2: 73. 1988. Rao & Singh, Wild Orch. Meghalaya 28. 2015; Odyuo et al. L'Orchidophile, 215: 354. 2017; Mao & Deori, Check-list Orch. Manipur 66. 2018; Deori et al. *Dendrobium* Orch. Northeast India 184. 2019. [Figure 1 (A-N)].

Type: India: Meghalaya, Khasi Hills, Pongtong forest, Deori 71823A (CAL).

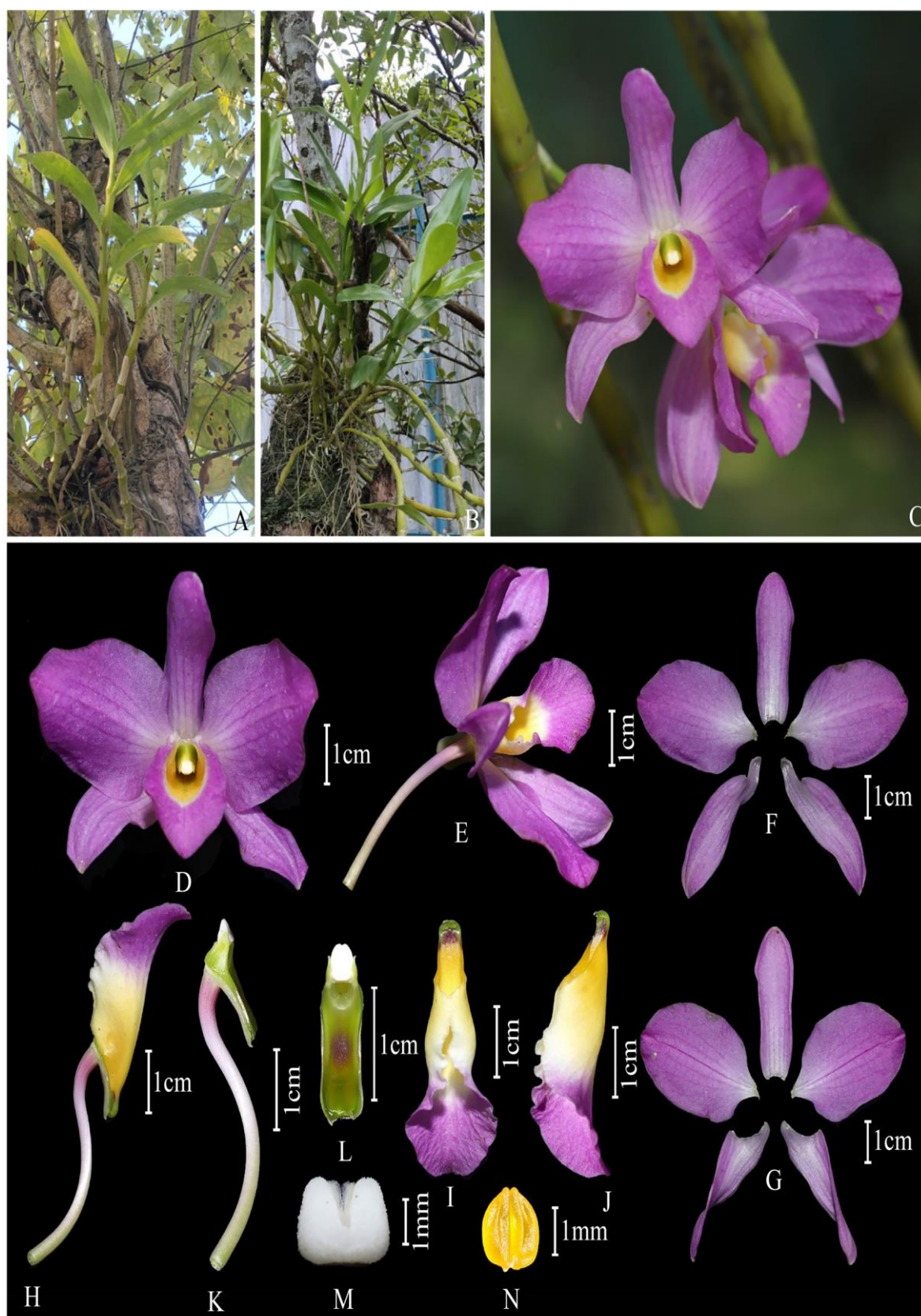
Plant epiphytic, erect or sub erect herbs. Stems 30–100 cm long, slender, with striated sheaths, farticflex towered the growing end, unbranched, with many nodes; internodes 1.5–4.8 cm. Leaves lanceolate, acuminate, 4.5–12.5 × 0.9–1.6 cm, obliquely notched at apex, 5–8 veins; sheaths 1–4 cm long. Inflorescences axillary, 5–15 cm, laxly 2–3-flowered, arising from the upper nodes of leaf less stem. Pedicel and ovary 1.9–2.3 cm long, slender, ovary gently curved. Flowers 4.5–6 cm across, sepals and petals golden yellow with a maroon triangular blotch at the centre of the lip. Dorsal sepal oblong, retuse, 2.3–2.6 × 0.8–1 cm, 7-veined, apex obtuse; lateral sepals lanceolate oblong, 2.2–3.8 × 1.1–1.2 cm, acuminate, keeled, 7 nerved; mentum rotund, obtuse. Petals oblong-elliptic, 2.8–2.9 × 1.5–2 cm, base narrow, 3–4 prominent veined, margin erose denticulate, broader than the sepals. Lip 3–4 × 3–4 cm, obscurely 3-lobed, obovate from a very short claw, margin equally fimbriate along dichotomously branched towards the apical portion, maroon streaks are given away from the lateral side of the disc. Column and foot 0.8–0.9 × 0.2–0.3 cm, broad with a cavity at the foot; rostellum rectangular wide. Anther 0.3 × 0.2 cm, glabrous, 3 lobed, operculum erose to dentate. Pollinia 0.2 cm long, 4 in 2 pairs, pale yellow.

Exsiccate: India, Assam, Karbi Anglong, Hawang, Gogoi 001167 (TOSEHIM!), dated 16/04/2024; fl. in the Regional Orchids Germplasm Conservation and Propagation Centre. Flowering: April – May.



**Figure 1.** *Dendrobium khasianum*, A. Flower in cultivation, B. Inflorescence, C & D. Different view of flower, E & F. Perigone; G. Lip with ovary & column, H & I. Lip (front and back view), J. Longitudinal section of lip, K. Ovary and column with the foot, L. Front view of Column with foot, M. Anther cap, N. Pollinarium. [Photos by K. Gogoi]





**Figure 2.** *Dendrobium regium*, A. Plants in cultivation at Digboi, B. Plants in cultivation at Duliajan, C. Flower in cultivation at **TOSEHIM**, D & E. Different view of flower, F & G. Perigone; H. Lip with ovary & column, I & J. Lip (front and side view), K. Ovary and column with the foot, L. Front view of Column with foot, M. Anther cap, N. Pollinarium. [Photos A & B by D. Deka, C-N by K. Gogoi]

Habitat: Epiphytic on trees in sunny tropical and subtropical open forests at an altitude of 800-1200 m.

Status in Assam: Rare.

Distribution in Assam: Karbi- Anglong (Hawang) only.

General distribution: India (Manipur, Meghalaya, Nagaland) (Deori et al., 2019) and now in Assam.

Note: *Dendrobium khasianum* was originally collected from Karbi Anglong in 2012, but due to its resemblance with *Dendrobium fimbriatum* Hook.f. it was misidentified as *D. fimbriatum*. This species has not been reported from Assam till now. This present collection of this species is reported here as a new addition to Assam.

**3.2. *Dendrobium regium*** Prain in J. Asiat. Soc. Bengal, pt. 2, Nat. Hist. 71: 80. 1902; Haines, Bot. Bihar & Orissa, 1174. 1924; Mooney, Suppl. Bot. Bihar & Orissa 213. 1956; Misra et al., Bull. Bot. Surv. India 50: 136. 2008; Misra, Orchids of Odisha, 286. 2014; Deb et al., Pleione 9(1): 258. 2015; Prasad et al., Orch. Eastern Ghats India 103. 2019. [Figure 2 (A-N)]

Type: India: Jharkhand or Chhattisgarh, *Prain s.n.* (K).

Habit epiphytic herb. Stem tufted, 29–42 × 1.4–1.9 cm, compressed, narrowed at the base; internodes 2.3–33.3 cm apart; roots 0.3 cm in dm, greenish-white. Leaves on the upper half of the stem, alternate, linear-oblong, sub-obtuse, apex obliquely notched. Racemes 1 – 2, subterminal, on a short peduncle from leafy or leafless stems, 2–3 flowered. Floral bracts 0.5–0.7 × 4.3 cm, 5-nerved, transparent, oblong, retuse, gland-dotted. Pedicel and ovary 1.7–2.1 cm, sub erect; ovary white, ridged and furrowed. Flowers 7.2–7.7 × 5.2 cm, sepals and petals fleshy, petals magenta, with darker lines and transverse markings. Sepals linear-oblong obtuse with red-purple veins, 7-nerved; dorsal sepal 2.7 × 1.1 cm; laterals 3.7 × 1.0 cm. Petals much broader, ovate obtuse 4.3 × 3.2 cm, base shortly clawed, 3-4 nerved, laterals branched. Lip 3.2 × 2.1 cm, obscurely 3-lobed, broadly ovate obtuse, shortly clawed, 5-6-veined, laterals branched, basal one-third convolute, dilated above, margins serrate, recurved; lower half-light yellow, deeper towards the base, upper half magenta. Column and foot 1.2 cm long, light green; foot long, green in colour with a dark purple blotch at the base; stelidia 2, recurved. Anther 0.3 × 0.2 cm, oblong, slightly emarginate at apex; frontage toothed. Pollinia 0.14 cm long, 4 in 2 pairs, yellow.

Exsiccate: India, Assam, Tinsukia district, Digboi, *Gogoi & Deka 0002 (TOSEHIM!)*, dated 08/05/2024; Dibrugarh district, Duliajan, *Gogoi & Deka 0003 (TOSEHIM!)*, dated 10/05/2024; fl. in the Regional Orchids Germplasm Conservation and Propagation Centre.

Flowering: April – June.

Habitat: Epiphyte on a tree trunk in the semi-evergreen and moist deciduous forest at an altitude of 118–800 m.

Status in Assam: Rare.

Distribution in Assam: Tinsukia (Digboi) and Dibrugarh (Duliajan) only.

General distribution: India (Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Nagaland, Odisha) (Deb et al., 2015; Misra, 2014; Prasad et al., 2019) and now in Assam.

Note: *Dendrobium regium* morphologically closely resembles with *D. nobile* Lindl. It is not easy to differentiate both species without flowers. This species was collected from the nearby forest areas of Digboi and Duliajan in 1962 and cultivated by local people in their household gardens. These forested areas already we lost due to developmental activities. The present author has not recognized this species in the wild but there is a chance of occurrence of this species nearby forest areas. This species was collected from Digboi and Duliajan area from the cultivated stage, hence reported as a new addition to Assam.

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## Author's contributions

KG & DD contributed in data collection, KG preparation of the manuscript. KG was responsible for photo plate, communication & research design.

## Conflict of interest

The authors declare that there is no conflict of interest.

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