

# *Spathoglottis affinis* (Orchidaceae): A new addition for the flora of India

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## स्पेथोग्लोटिस एफिनिज (ऑर्किडेसी): भारत के फ्लोरा के लिए एक नवीन संकलन

जीवन सिंह जलाल, छाया देओरी, सी. मुरुगन, एन. ओडियो, बी.एस. खोलिया,  
डेविड लालसमा बियते, एस.आर. तालुकदार एवं वाई. महेश

### सारांश

भारत से पहली बार स्पेथोग्लोटिस एफिनिज डी व्रीसे का पता मेघालय से प्राप्त संग्रह के आधार पर किया गया है। इसके सहज पहचान हेतु पुष्पन, आवास एवं वितरण-क्षेत्र संबंधी सूचनाओं के साथ-साथ संक्षिप्त विवरण, छायाचित्र सहित व्याख्या प्रस्तुत है। इसे आईयूसीएन द्वारा निर्धारित मानदंडों के आधार पर रेड लिस्ट के अंतर्गत 'संवेदनशील' के रूप में मूल्यांकित किया गया है।

### ABSTRACT

*Spathoglottis affinis* de Vriese is reported for the first time from India based on specimens collected from Meghalaya. A brief description, photographic illustration, along with information on flowering, habitat and distribution have been provided to facilitate its identification. Its Red list status has been assessed as 'Vulnerable' as per IUCN guidelines.

**Keywords:** Jaintia Hills, Meghalaya, Orchidaceae, Taxonomy, Distribution

## INTRODUCTION

The orchid genus *Spathoglottis* Blume, composed of 46 species (Govaerts & al., 2021) is globally distributed from Sri Lanka, India and the Andaman Islands through Indochina to Southern China, Malaysia and Indonesia east to the Philippines, New Guinea, Australia and the Pacific islands as far as Samoa. In India, four species have been recorded (Singh & al., 2019; Tsering & Prasad, 2020). Recently a team of Botanical Survey of India had conducted a field survey to explore the plant diversity in and around the Living Root Bridge Cultural Landscapes of Meghalaya. This visit was organised by Meghalaya Community-Led Landscape Management Project, Meghalaya Basin Management Agency, Government of Meghalaya. The Government of Meghalaya is planning

to nominate these Living Root Bridges under UNESCO World Heritage Site. Our team visited seven living root bridges in East Khasi hills district and one bridge in West Jaintia Hills district. While approaching to the Sui Synkew Living Root Bridge, Kudenthymmai Village, West Jaintia Hills on 19<sup>th</sup> December, 2021, one of us (JSJ) noticed yellow coloured flowers growing on sand stone rocks (Map 1). At the first glance it looked like a *Spathoglottis* species. We collected few specimens for further investigation and preparation of voucher specimens. Digital images were taken with a Nikon D3400 camera and geographic location with Garmin eTrax GPS. The flowers were dissected under an Olympus SZ51 stereo microscope for morphological characterization. After critical examination and with help of literature (Holtum, 1957; Seidenfaden, 1986; Seidenfaden & Wood, 1992) it was

identified as *Spathoglottis affinis* de Vriese. Descriptions were prepared from living specimens. The specimen has been deposited in herbarium Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM). The threat status has been accessed by applying the IUCN guidelines (IUCN, 2012; 2019).

## TAXONOMIC TREATMENT

***Spathoglottis affinis*** de Vriese, Ill. Orchid. Ind. Orient. 3: t. 15. 1855; Holttum, Fl. Malaya, 1: 162, F.27a. 1964; Seidenf., Opera Bot. 89: 58, f.28. 1986. *Spathoglottis lobbii* Rchb.f., Ann. Bot. Syst. 6: 455. 1862; Hook.f., Fl. Brit. India 5: 814. 1890.

Terrestrial or epilithic herbs, 10–20 cm high (when flowering). Pseudobulbs 2.5–3.5 cm across, flattened, irregularly shaped, covered by dry leaf sheaths, brownish-green, wrinkled. Leaves (not seen), absent during flowering. Inflorescence arising from base of pseudobulbs, erect or sub-erect, 10–20 cm long, pubescent, purplish-maroon, with 1-sterile, tubular bract, 1-2-flowered. Floral bracts 6–6.5 × 2–2.5 mm, persistent, triangular-lanceolate, acute, pubescent, purplish-brown, much shorter than pedicel and ovary, 5-veined, densely white-pubescent. Ovary and pedicel 3–3.4 cm long, pubescent, light greenish, ovary ridged. Flowers 3–3.7 cm across, yellow, lateral sepals with two red lines, labellum with reddish-brown markings at base. Sepals sub similar, lanceolate-ovate or elliptic, acute, glabrous; dorsal sepal 2 – 2.2 × 0.6–0.7 cm, 7-8-veined; lateral veins branching; lateral sepals 2–2.3 × 0.8–0.9 cm, concave (broader towards base), 6-7-veined; petals 2–2.3 × 0.7 – 0.8 cm, elliptic, obtuse, 7-8-veined. Labellum 1.5–1.8 × 2–2.2 cm (when flattened), 3-lobed, immovably attached to the base of column, shortly clawed at base, spurless, glabrous except for calli; side-lobes 1– 1.2 × 0.4 – 0.5 cm, rectangular, oblong, apically slightly widening, broadly obtuse, erect; mid-lobe 1.4–1.5 × 0.4–0.5 cm, fan-shaped, apex emarginate; neck with small triangular auricle on either side near base; disc with 2 triangular-obovoid, fleshy calli touching each other, joined at their base, vertically raising; calli mottled purple. Column 1.2–1.5 cm long, curved, slender below, winged above, yellow, glabrous, foot absent; anther c. 3 × 2 mm, terminal, obovate, yellow; pollinia 8, in 2 groups of 4 each, 3 mm long, pear-shaped, connected by their caudicles to a solitary, translucent viscidium. Fruits not seen. (Fig.1)

**Flowering:** December; **Fruiting:** Not observed.

**Habitat:** *Spathoglottis affinis* grows on sandstone under the tropical evergreen forest at 470 m elevation.

**Distribution:** INDIA (Meghalaya, Present report); ?BANGLADESH, CAMBODIA, LAOS, MALAYSIA, MYANMAR, THAILAND AND VIETNAM. (Fig.2)

**Specimen examined:** INDIA: Meghalaya, Sui Synkew Living Root Bridge, near Kudengthymmai Village, West Jaintia Hills, 19.12.2021, JSJ & party 143849 (ASSAM).

**Conservation Status:** The global geo-coordinate information data were taken from Global Biodiversity Information Facility (GBIF, 2021) portal. The extent of occurrence (EOO) and area of occupancy (AOO) were calculated as 1,406,219 km<sup>2</sup> and 64 km<sup>2</sup> respectively by using GeoCAT based on a cell width of 2 km. While the EOO exceeds the threshold value for a threatened category under Criterion B, the AOO qualifies for Endangered under Criterion B2. (Fig. 2). The species is known from 16 localities in 09 subpopulation, meeting the threshold of Vulnerable under sub criterion B2a. Its presence in Bangladesh is doubtful as there is no herbarium record of its collection from Bangladesh. In Cambodia and Laos it is reported as very rare and badly need protection to prevent its extinction in nature (Averyanov & al., 2016) because it is very attractive in flowering and commercial collection is common even from protected areas also. In Thailand it is quite common in protected areas but the population is highly affected by habitat changes and wild fires on the plateau top every year (Jongsirikankha & al., 2017). It is also exploited from wild for its medicinal uses. The pseudobulbs are used for the treatment of abscess (Teoh, 2016). In Malaysia it has only been found on Gunung Jerai (Seidenfaden & Wood, 1992) and presumed to be rare. The Indian sub-population is also threatened by habitat destruction, tourism impact and other anthropogenic threats. We could observe 15 mature individuals from Indian subpopulation. Data on its population size and decline in other countries is not available. Based on the present observations its threat status can be evaluated as 'Vulnerable' [VU B2ab(iii)] as per the IUCN Red listing guidelines (IUCN, 2012; 2019).

### Artificial key for identification of all taxa of *Spathoglottis* known from India

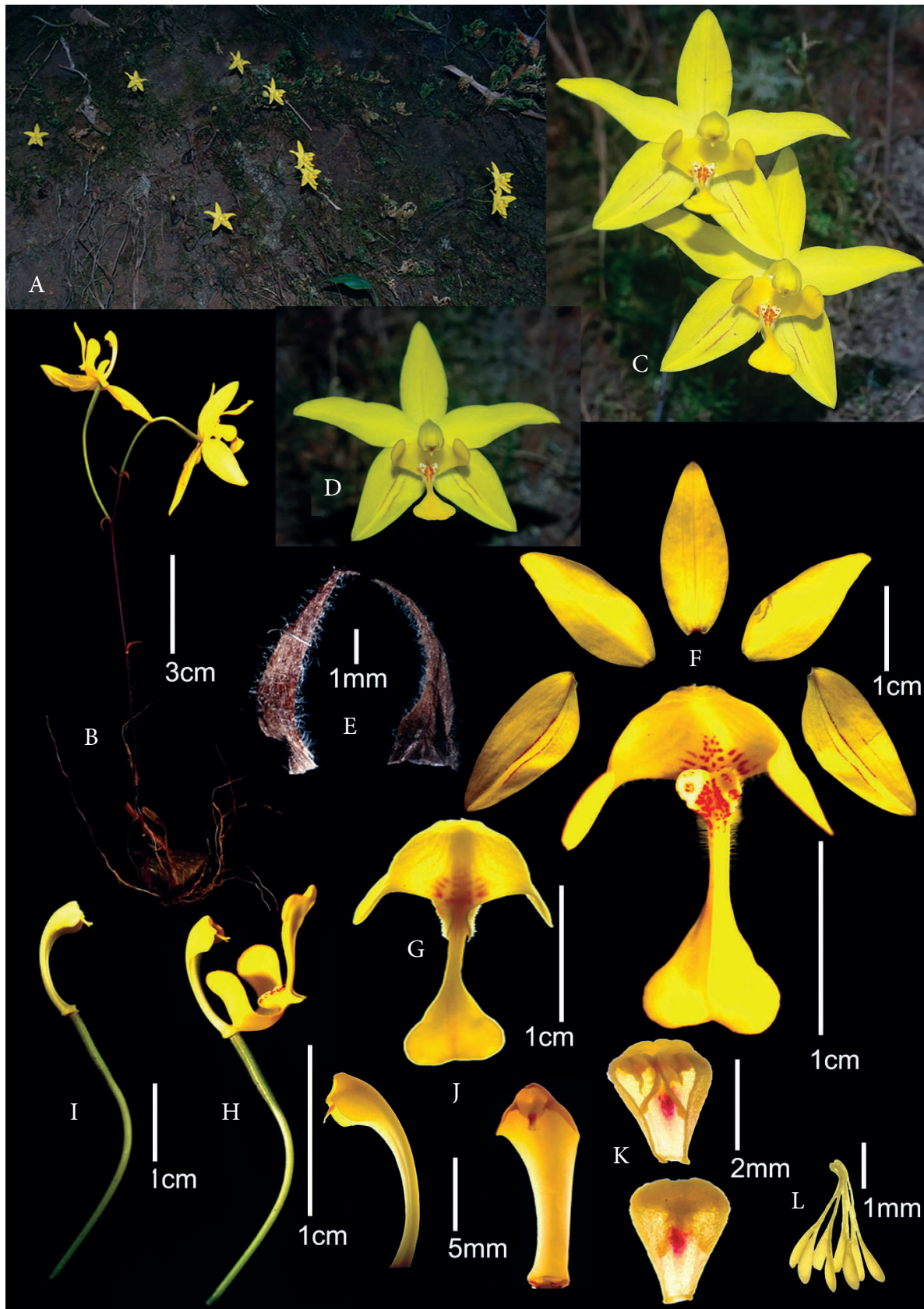
- 1a. Flowers purple or dark pink; petals much broader than sepals ...*S. plicata*
- 1b. Flowers yellow; petals equal or narrower than the sepals ...2
- 2a. Plant leafless during flowering ...*S. affinis*
- 2b. Plant with leaves during flowering ...3
- 3a. Margins of mid-lobe undulate, ridges of disc narrowly long rectangular, upper surface verrucose ...*S. arunachalensis*
- 3b. Margins of mid-lobe entire, ridges of disc not as above ... 4
- 4a. Inflorescence densely pubescent; rachis laxly 2 to 8-flowered; mid-lobe of lip distinctly clawed ...*S. pubescens*



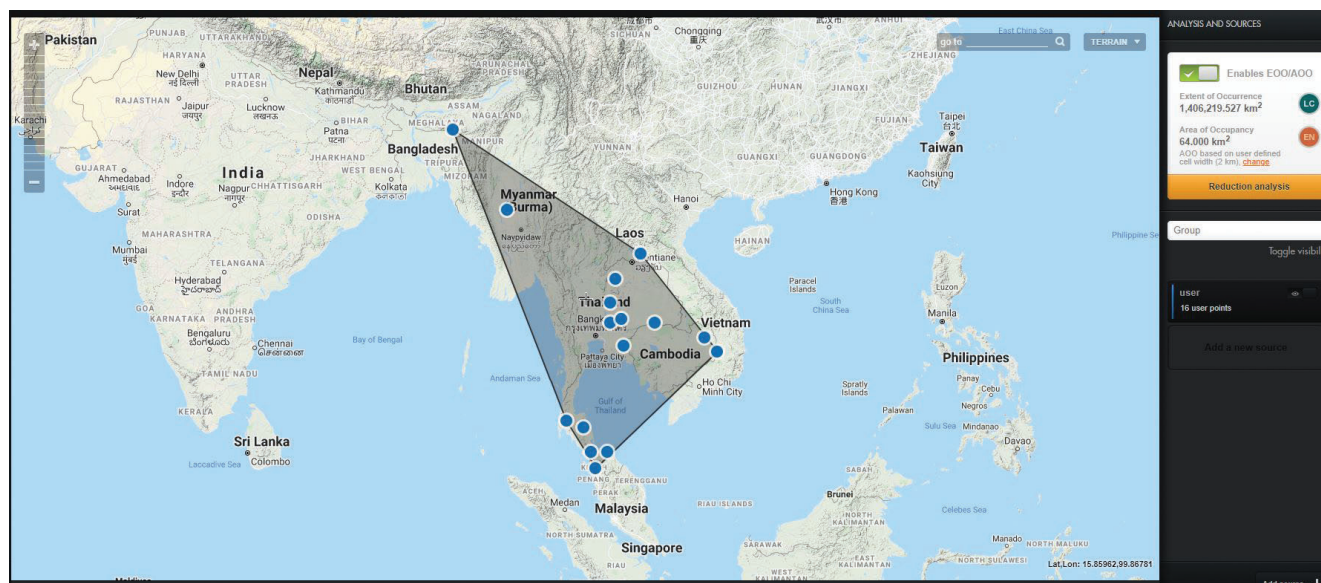


**Map.1.** Location map of *Spathoglottis affinis* de Vriese in Meghalaya and photo of Sui Synkw Living Root Bridge





**Fig.1.** *Spathoglottis affinis* de Vriese A. In natural habitat; B. Habit; C & D. Flower close up views; E. Floral bract, dorsal & ventral views; F. Perianth parts; G. Lip, dorsal view; H. Column, pedicel & ovary with lip; I. Pedicel, ovary & column; J. Column, side & front views; K. Anther, ventral & dorsal views; L. Pollinia.



**Fig.2.** Global distribution map of *Spathoglottis affinis* with Extent of Occurrence (EOO) and Area of Occupancy (AOO) [Map created in GeoCAT platform <http://geocat.kew.org>.]

- 4b. Inflorescence sparsely pubescent; rachis 1-3-flowered; mid-lobe of lip without or with short claw ...*S. ixioides*

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