

## **PORPAX CHAPRAMARIENSIS (ORCHIDACEAE), A NEW SPECIES FROM INDIA**

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### **ABSTRACT**

*Porpax chapramariensis* (Orchidaceae), is described as a new species from Chapramari Wildlife Sanctuary of West Bengal, India. The species have a close affinity with *Porpax fibuliformis* and *Porpax seidenfadenii*, but differs on certain characteristics like pseudobulb morphology, glabrous shiny leaves, sepal-petal orientation, pubescent flowers, and smooth lacinated red lip.

**Keywords:** *Orchidaceae, Genus Porpax, New species, Chapramari Wildlife Sanctuary*

### **INTRODUCTION**

The Orchidaceae Juss. is the second-largest family of flowering plants with 703 accepted species worldwide (Mabberly, 2008; POWO 2024) with diverse beautiful floral character. In India, the Eastern Himalayas, Western Himalayas, Western Ghats, and Andaman & Nicobar Islands are most preferred habitats for orchid species (Nyorak 2023). The Indian Orchidaceae is represented by 177 genera (Singh *et al.* 2004). Whereas, in West Bengal, it is represented by 111 genera with 468 species according to Mitra, 2016. From the Terai and Dooars region of Eastern Himalaya 466 species are recorded of which 321 species are epiphytic (Mitra *et al.* 2020). The genus *Porpax* Lindl. (1845:62) had native range to Africa, Asia, and the Southwest Pacific, with a specific affinity to tropical and subtropical habitats. In India, there are 8 species have been recorded. *Porpax exilis* Schuit. & Pedersen (2018:199) was first reported from the Silent Valley with prominent characters of sepals joined into a tube with wide pseudobulb; *Porpax jerdoniana* Rolfe (1908:8) reported from Southern India and the Andaman Islands, the species has opposite leaves, 2 – 4 cm long with beautifully variegated patterned; *Porpax elwesii* Rolfe (1908: 8) reported from the Assam, Eastern Himalaya, Nepal, and the Andaman Islands, the species with small red flowers 1–2, flowering after leaf shedding. This species is also reported from the territory of West Bengal; *Porpax grandiflora* Seidenf. (1977:5) reported only from the Northeast region of Assam and Nagaland, with distinguishable characters like big red flowers with small crowded pseudobulb; and *Porpax meirax* King & Pantl. (1898:114) reported from the Andaman Islands; with red flower, sparsely hairy, and funnel-shaped tubular flower. *Porpax seidenfadenii* Rao (2004:24) reported only from Arunachal Pradesh, the species differentiated on the character of its broad apical lacinated lip with lateral ridges; *Porpax fibuliformis* King & Pantl. (1898:114) reported from South Sikkim differentiated based on sessile leaves, smaller leaves, and petals smaller than calyx; *Porpax gigantea* Deori (1978: 174) reported from Assam, with gigantic leaves and flowers as compared to other species under this genus.

During the exploration of epiphytic flora of sub-Himalayan West Bengal, we came across *Porpax* species with large small red flowers that are 5.0 – 7.0 long, and overlapping distribution with that of *P. seidenfadenii* Rao (2004:24) and *P. fibuliformis* King & Pantl. (1898:114). This species was found at Chapramari Wildlife Sanctuary, West Bengal (India) as epiphytic on the trees of *Lagerstroemia speciosa*. On critical study and comparing with other *Porpax* species we conclude and described as a new species based on morphological variations.

## MATERIALS AND METHODS

During epiphytic expedition in the monsoon season of 2023, this plant specimen was collected from the transition region of Chapramari Wildlife Sanctuary in sterile form. Later on, during 2024, revisited the collection site and flowering specimens have been collected from the road side lowland areas of Chapramari Wildlife Sanctuary. Voucher specimens prepared following the methodology Jain & Rao, 1976; Paul et.al 2022 and have been deposited in NBU Herbaria, University of North Bengal. The morphological characteristics were analysed using a light microscope (Magnus MLX-B Plus) and a stereo zoom microscope (LEICA MZ75 Germany). Relevant Indian floras were followed (Prain 1903; Ohashi 1975; Pearce *et al.* 2002) and revisions of all types of digital images [K001085616; K001085610 (Kew); HFP545 (Centre for Taxonomic studies); CAL0000082374, CAL0000082384 (BSI, Calcutta)], published manuscripts and scientific taxonomic websites (POWO 2024; <https://indianbiodiversity.org>; <https://bsi.gov.in>) was examined. A habitat and distributional range map have been made using QGIS 3.30.3 (2020) software (Fig. 1) based collection sites.

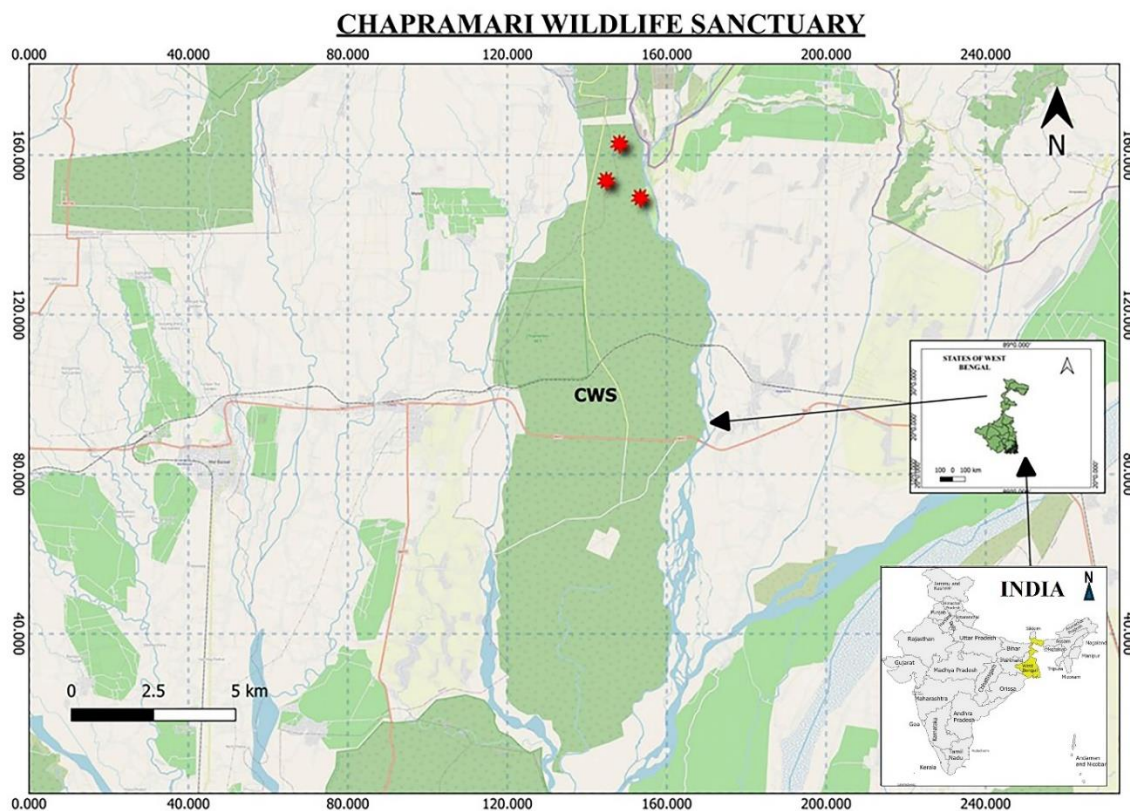


Figure 1: Map of Chapramari Wildlife Sanctuary showing habitat distribution, Jalpaiguri district, West Bengal

## RESULTS AND DISCUSSION

*Porpax chapramariensis* Roshni Chowdhury & Monoranjan Chowdhury *sp. nov.* (Fig 2 – 3)

**Type:** — India, West Bengal, Jalpaiguri District, Chapramari Wildlife Sanctuary, road side areas 26.933758° N, 88.868847° E; 26.926943° N, 88.871819° E, 114 ± 50 m a.s.l., 08 March 2023 Chowdhury and Chowdhury 0342, 0343 (Holotype- NBU; Isotype-NBU).

**Description:** Small epiphytic orchids, mainly growing on host tree trunks. *Pseudobulb* round, non-overlapping 3.0 – 6.0 × 5.0 – 7.0 cm, covered with sheath-like reticulate venation, green. *Leaves* sub opposite, ovate to lanceolate, apex acutely bend, glabrous, green, 1.5 – 3.5 cm × 0.5 – 2 cm, leaf sheath 2,

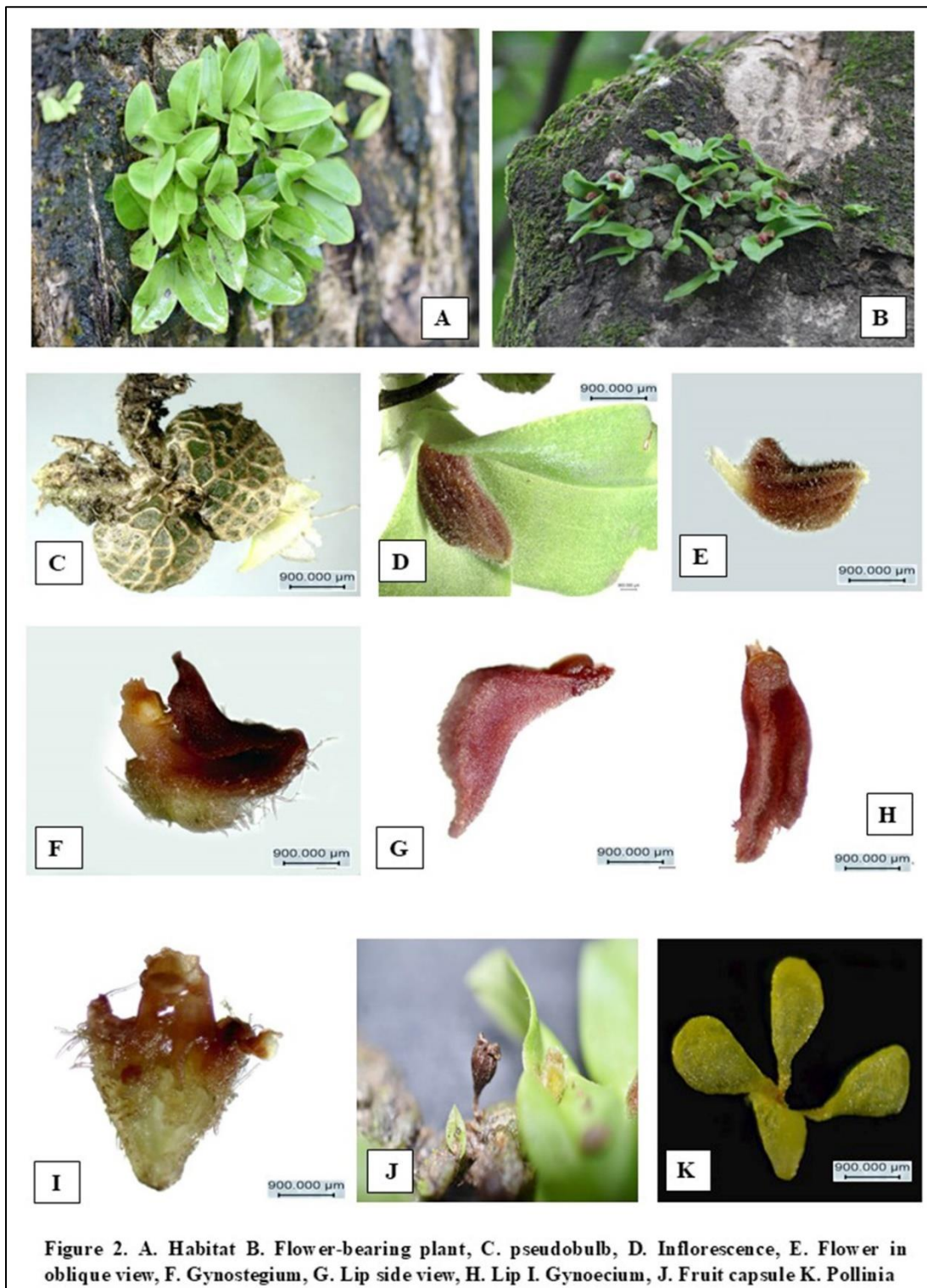
surface with glandular glands; unicellular hairs at leaf apex margin. **Flowers** – 2, parrot beak shaped, bracteate, 5 –7 mm, small, red, hairy, pedicellate ca. 3 mm, hairy; sepal 3, Sepaline tube long, tri lipped, lateral sepal free, 6 mm, red, pubescent, dorsal sepal fused, blipped at the apex; petal 2, free, 6 × 2 mm, linear, pubescent, red; lip red, glabrous, broad at the base acute at the margin, 4.2 × 2.0 mm, apical lip margin lacinate, the base has swollen bulbous; column 2 mm long, anther cap 0.5 × 1.0 mm, with furrow and ridges, yellow; gynostegium pubescent, 4 × 2 mm; pollinia 8, two grouped (4+4), yellow, free above, joined from the basal stalk, inserted into anther cap; Capsule 8 × 3 mm, brown on maturity, dehiscence through the apical pore (Fig. 2 and 3).

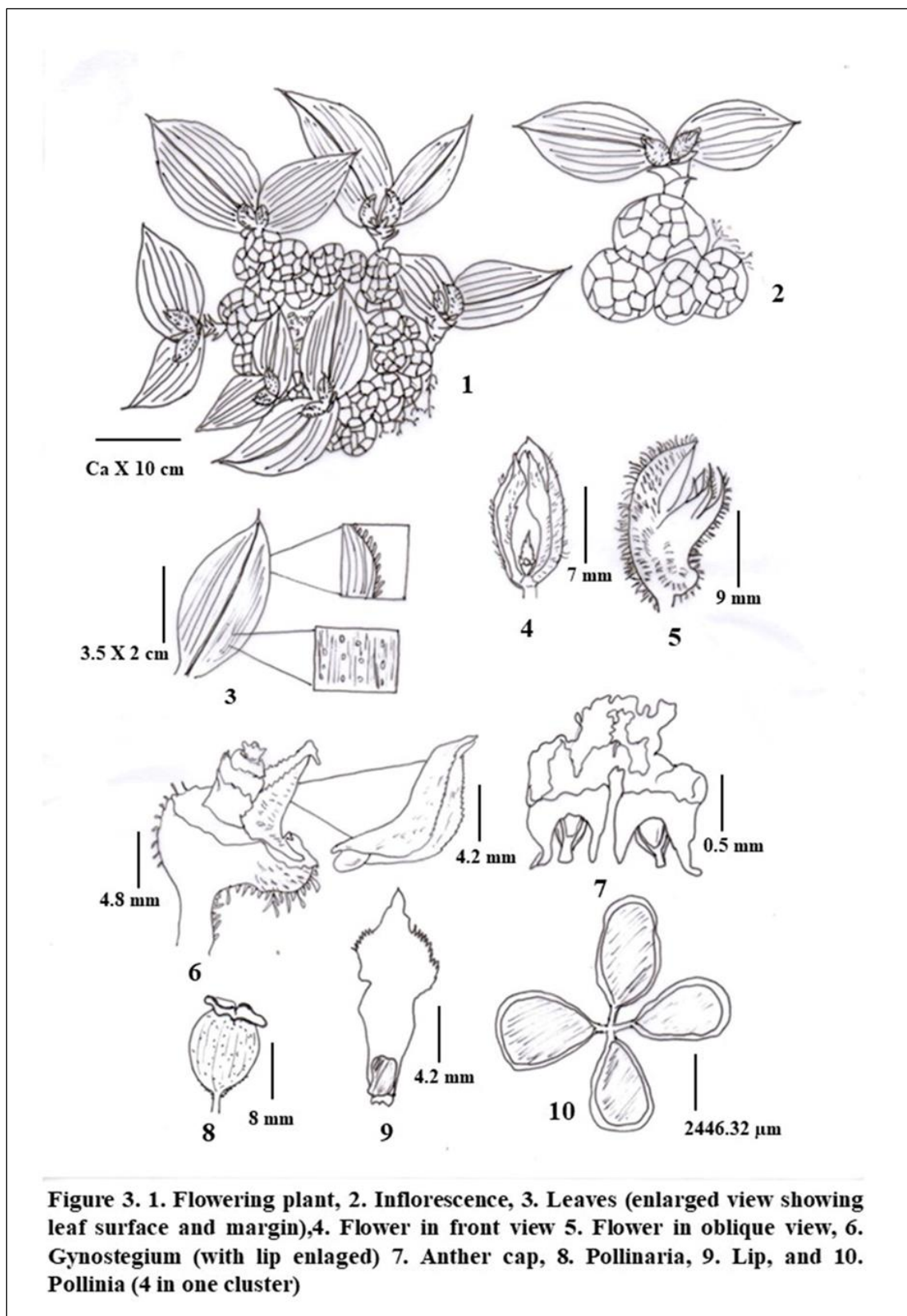
**Key to the species**

- 1a. Flowering after leaf shedding ..... *P. elwesii*
- 1b. Flowering with leaf ..... 2
- 2a. Variegated leaves present ..... *P. jerdoniana*
- 2b. Variegated leaves absent ..... 3
- 3a. Lip ornamentation absent..... *P. fibuliformis*
- 3b. Lip ornamentation present ..... 4
- 4a. Lip with 2 parallel ridges ..... *P. seidenfadenii*
- 4b. Lip with bulbous swollen structure at the base ..... *P. chapramariensis*

**Table 1. Comparison of morphological characters of *P. chapramariensis* in comparison with two other allied taxa from India, *P. seidenfadenii* and *P. fibuliformis***

Characters	<i>Porpax seidenfadenii</i>	<i>Porpax chapramariensis</i>	<i>Porpax fibuliformis</i>
<b>Pseudobulb (diameter)</b>	1.5 cm	3.0 – 6.0 × 5.0 – 7.0 cm	3.4 cm
<b>Leaves</b>	Elliptic oblong, pubescent both sides throughout, 6.0 × 2.0 cm	Ovate lanceolate, apical part hairy, adaxial glabrous, 1.5 – 3 × 0.5 – 2.0 cm	Oblanceolate, hairy throughout densely or sparsely, 4.0 × 3.2 cm
<b>Flower</b>	Flower bract absent, flower 10mm long, campanulate	Flower bract present, flower 7 mm long, curved closed campanulate (like Parrot’s beak)	Flower bract absent, flower 6.5 mm long, sub-campanulate
<b>Petal</b>	Glabrous, lanceolate, 7.0 × 2.0 cm, hair absent	Pubescent, Linear lanceolate, 6.0 × 2.0 cm, hair present	Glabrous, Oblong lanceolate, 4.0 × 1.5 cm, hair absent
<b>Lip</b>	Short elliptic acute, minutely glandular, 3.0 × 1.0 mm, 2 parallel ridges on the disc	Broad lanceolate, glabrous, 4.2 × 2.0 mm, bulbous at the base	Erose, glabrous, 3.2 × 1.0 mm, ornamentation not present
<b>Anther</b>	Minutely tuberculated, 1.0 mm long	Furrow and ridged, 0.5 mm long	Crested and tuberculate, 1.2 mm long
<b>Gynostegium</b>	1.0 mm long	4.0 mm long	1.5 mm long
<b>Elevation (m a.s.l)</b>	1000 m	250 m	1650 m
<b>Distribution</b>	Arunachal Pradesh (India)	West Bengal (India)	Sikkim (India)





**Distribution and Habitat:** The population of *P. chapramariensis* occurs in the road side lowland areas of Chapramari Wildlife Sanctuary of Jalpaiguri district, West Bengal, India (Fig. 1). The population was found in the transition region of the forest as they prefer moist wet forest areas. The habitats are most vulnerable due to extension of roads.

**Phenology:** Flowering and fruiting period is June – September.

**Specific Host:** *Lagerstroemia speciosa* (L.) Pers. (Lythraceae). This species is only growing on the specific host species.

**Diagnosis:** The species can be recognized by its prominent small round non crowded pseudobulb with reticulate sheath, flowers 2, blooms with leaves, red, pubescent, tri-lipped, lips with oval bulbous swelling at the base. The lateral and dorsal sepals are equal, with petals longer than sepals.

**Etymology:** The specific epithet of the new species, “*chapramariensis*”, is derived from its type locality, i.e., the Chapramari Wildlife Sanctuary, West Bengal, India.

**Ecology and associate epiphytes:** *Porpax chapramariensis* was explored from the transition areas of Chapramari Wildlife Sanctuary, with elevation between 250 – 280 m. The species prefers to grow on moist rough textured host bark exclusively occupying the tree trunk. The associate epiphytes are *Asplenium nidus* L., *Rhynchostylis retusa* Blume., *Podochilus cultratus* Lindl. *Pyrossia lanceolata* (L.) Farw., *Davallia trichomanoides* Blume and *Drynaria quercifolia* (L.) J.

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