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## OPEN ACCESS

### ***EULOPHIA EPIDENDRAEA* (J. KOENIG EX RETZ.) C.E.C. FISCH. AND *THELASIS PYGMAEA* (GRIFF.) LINDL. (ORCHIDACEAE) - NEW ADDITIONS TO THE FLORA OF KARNATAKA, INDIA**

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Orchidaceae, one of the highly evolved, diverse and successful families of flowering plants, forms a unique group of plants surviving in a chosen ecological niche within a fragile ecosystem and serves as bio-indicators in assessing the extent of damage caused to the ecosystem (Shashidhar & Kumar 2009; Swarts & Dixon 2009). The family Orchidaceae is one of the largest families of flowering plants with over 25,000 wild species in the World (The Plant List 2013). In India it forms the third largest family with about 1,331 species (Misra 2007). In Karnataka about 175 species have been recorded so far (Rao & Sridhar 2007) and the list continues to grow (Punekar 2008; Sringswara & Vishwanath 2011).

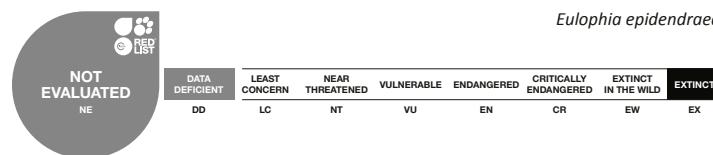
During a recent survey of orchids of Karnataka we came across two interesting species of orchids (Fig. 1) and upon critical examination of the specimens

collected they were identified as *Eulophia epidendraea* and *Thelasis pygmaea*. Review of the literature pertaining to the orchid flora of Karnataka and other relevant literature (Sharma et al. 1984; Kumar & Manilal 1997; Nayar et al. 2006; Rao & Sridhar 2007) revealed that these species have not been reported so far from Karnataka. The present collections are the first report of these species and hence, we are reporting these species as additions to the orchid floral wealth of Karnataka with their nomenclature, detailed description, phenology, specimen examined, illustrations and other relevant notes. Specimens have been deposited at Herbarium 'UASB', Botanical Garden, University of Agricultural Sciences, GKVK Campus, Bengaluru.

#### ***Eulophia epidendraea***

(J.Koenig ex Retz.) C.E.C. Fisch. in Gamble, Fl. Madras 1434. 1928; *Serapias epidendraea* J. Koenig ex Retz., Observ. Bot. 6: 65. 1791 (isotype K!, barcode 000890993); *Limodorum virens* Roxb., Pl. Coromandel 1: 32. 1795; *Eulophia virens* (Roxb.) R Br. ex Lindl., Bot. Reg. 7: sub t. 573. 1821.

Large, terrestrial herbs with medium-sized partially exposed conical-ovoid pseudobulbs and vermiform roots. Pseudobulbs 4.5–10.5 cm long, covered with



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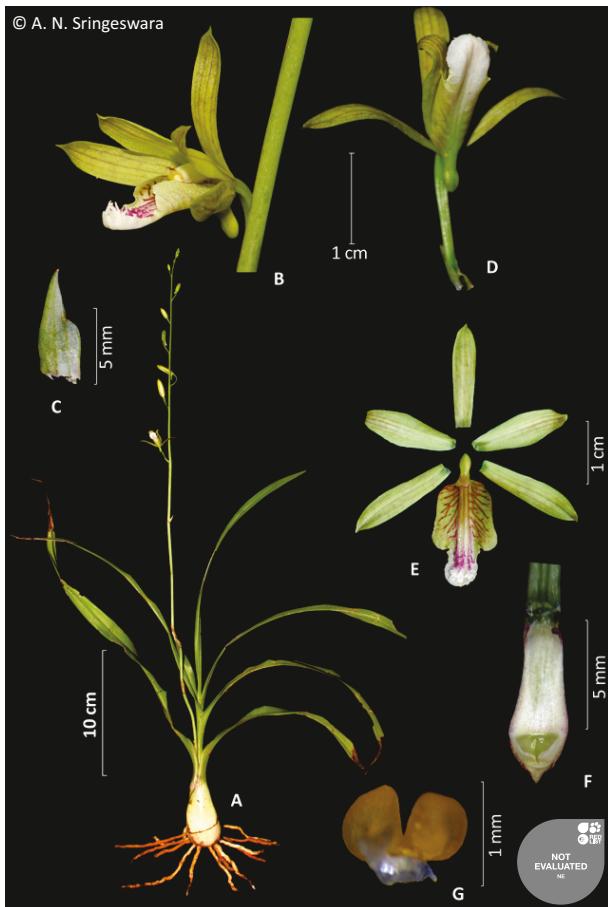
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**Image 1. *Eulophia epidendraea*.**  
**A** - Habit; **B** - Single flower (side view); **C** - Bract; **D** - Flower showing lip; **E** - Dissected floral parts showing sepals, petals and lip; **F** - Column; **G** - Pollinia.

broad, membranous, basal sheaths. Leaves many, 70–80 x 0.9–1.7 cm, linear, acuminate, grass-like with one stout midrib, base sheathing the pseudobulb. Scape slender, up to 1.5m long, often branched. Flowers greenish-yellow with a white purple-streaked lip, 2cm long; peduncle terete, about 47cm long, erect, bearing about nine membranous sterile bracts; floral bracts 8–10 x 4–5 mm, ovate, acuminate; dorsal sepals 1.8–2.2 x 0.5–0.6 cm, lanceolate-oblong, acuminate, apiculate; lateral sepals 1.8–2.1 x 0.5–0.8 cm, obovate-lanceolate, apiculate; petals 1.4–1.8 x 0.5–0.7 cm, broadly lanceolate; lip (ca. 1.9x1.3 cm), obovate-oblong with pink veins, margins wrinkled, disc with five crested nerves; lateral lobes of lip small, erect, embracing the column; mid-lobe broadly oblong, rounded, crenulate, recurved; spur short, cylindrical; column 8mm high, 3.6mm broad; ovary with pedicel 1.7–1.8 cm long.

**Specimens examined:** UASB! 269, 13.xi.2013, 12°55'10.8"N & 77°18'14.1"E, Savanadurga MPCA,



**Image 2. Herbarium specimen of *Eulophia epidendraea***

Bengaluru Rural District, coll. A.N. Sringeswara & Sahana (Images 1 & 2).

**Distribution:** Asia tropical (India, Sri Lanka and Bangladesh). In India it is distributed in Kerala, Tamil Nadu and Maharashtra.

**Habitat:** Growing in the rocky crevices of scrub forests along with *Ficus mollis* Vahl, *Anisochilus carnosus* (L.f.) Wall., *Acacia chundra* (Rottler) Willd., *Sarcostemma acidum* (Roxb.) Voigt and *Decalepis hamiltonii* Wight & Arn.

**Flowering & Fruiting:** October–November

**Notes:** Originally this species was described by Koenig as *Serapias epidendraea* based on collections from Tranquebar (Tharangambadi) in Tamil Nadu. Fischer (in Gamble 1928) made a new combination by transferring it to the genus *Eulophia*. It is related to *Eulophia graminea* Lindl. but larger in all aspects. This species can be clearly differentiated from *E. graminea* with larger leaves of 70–80 cm having stout and prominent midrib. In contrast, leaves of *E. graminea* are much smaller in length (8–16 cm) with a not very stout midrib. Fischer (in Gamble 1928) used these as

key identification characters to differentiate these two species.

***Thelasis pygmaea***

(Griff.) Lindl. in J. Proc. Linn. Soc., Bot. 3: 63. 1858; Hook.f., Fl. Brit. India 6: 86. 1890; C.E.C. Fisch. in Gamble, Fl. Madras 3: 1450. 1928; Yoganarasimhan et al. in Curr. Sci. 50 (6): 284. 1981; *Euproboscis pygmaea* Griff. in Calc. J. Nat. Hist. 5: 171. t. 26. 1845; Wight, Icon. Pl. Ind. Orient. 5(1): 17. t. 1732. (K! barcode 000891238)

Epiphytes, pseudobulbs tufted, flattened sub-globose, 1–1.5 × 1 cm, apex often with one large leaf and one (or two) smaller leaves. Larger leaf blade narrowly oblong-ob lanceolate to nearly narrowly oblong, 4–8 × 0.6–1.3 cm, slightly fleshy, base contracted into a short, conduplicate petiole, apex unequally bilobed; small leaf blade oblong, 0.7×1.5 cm, sometimes absent. Inflorescence a compact spike arising from the base of the pseudobulb, 10–20 cm long, with 2 or 3 basal sheaths; rachis often thickened, densely many-flowered

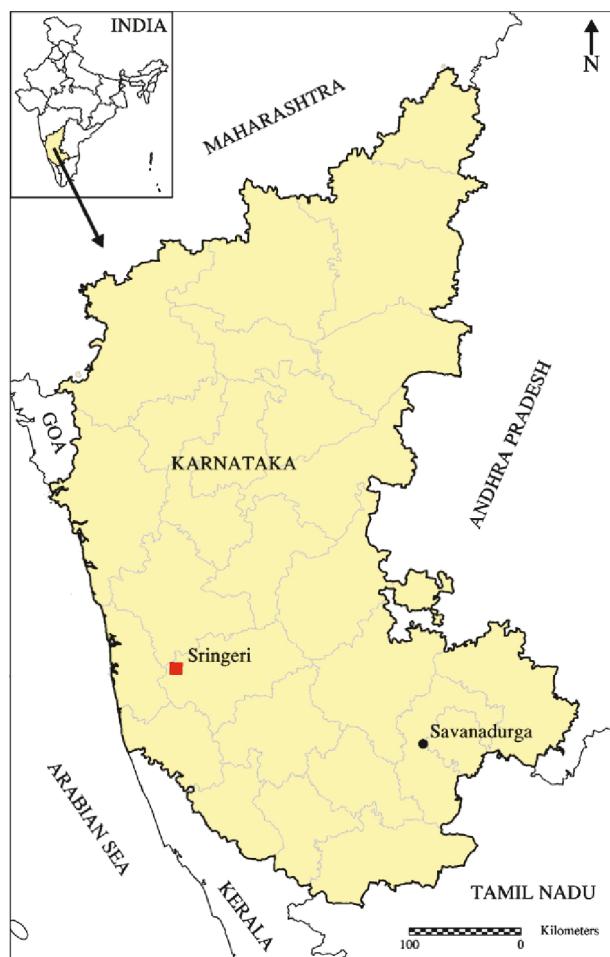


Figure 1. The collection location of *Eulophia epidendraea* (black round spot) and *Thelasis pygmaea* (red square spot).

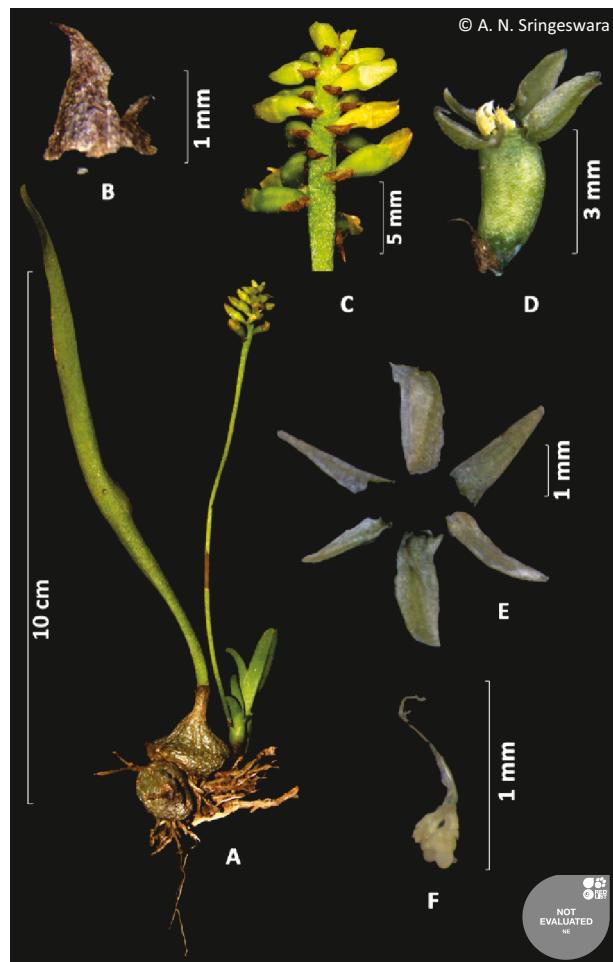


Image 3. *Thelasis pygmaea*.

A - Habit; B - Bract, C - Enlarged view of Inflorescence; D - Single flower; E - Dissected floral parts showing sepals, petals and lip; F - Pollinia.

at the end; floral bracts persistent, often slightly tinged with purple, ovate-triangular or ovate-lanceolate, 2mm long. Flowers yellowish-green, not opening widely with 3mm long pedicel; dorsal sepal ovate-lanceolate or oblong-lanceolate, 2–2.5×1 mm, gland-dotted; lateral sepals similar to dorsal sepal, cymbiform, abaxially keeled or sometimes narrowly winged; petals sub-oblong or narrowly oblong, 2×0.7 mm; lip ovate-triangular, fleshy, gland-dotted in the middle, 1.8×1.2 mm, margin incurved, apex acuminate; column short, deeply forked at apex.

Specimens examined: UASB! 282, 17.iv.2014, 12°27'23.8"N & 75°13'54.1"E, Sringeri, Chikmagalur District, coll. A.N. Sringeswara & Sahana Vishwanath (Images 3 & 4).

Distribution: India to Southeast Asia. In India it is distributed in northeastern region (Arunachal Pradesh and Darjeeling in West Bengal), Kerala, Tamil Nadu and



Image 4. Herbarium specimen of *Thelasis pygmaea*

#### Andaman & Nicobar Islands.

**Habitat:** Epiphytic on tree trunks (*Memecylon umbellatum* Burm. f., *Hopea ponga* (Dennst.) Mabb. and also noted on *Coffea arabica* L. in areca plantations) or lithophytic with discoid bulbs in the evergreen forests.

**Flowering & Fruiting:** April–June

**Notes:** Griffith described this species based on the collection from Nepal that flowered in Calcutta Botanic Garden. Lindley (1858) transferred this into the genus *Thelasis*. *Thelasis* is an Indo-Malesian genus with about 26 species of epiphytic orchids (The Plant List 2013). In India, it is represented by four species of which only one occurs in southern India (Hooker 1890). So far *T. pygmaea* has been reported in southern India only from

the states of Kerala and Tamil Nadu (Fischer 1928; Nayar et al. 2006). This species resembles *T. longifolia* Hook.f., but can be differentiated based on its smaller habit being less than 10–12 cm in height with flattened sub-globose pseudobulbs of diameter 1.25–1.75 cm. The scape is slender and curved bearing spike of the length 2.5–5 mm. However, in *T. longifolia* they are much longer. Lateral sepals are strongly keeled in *T. pygmaea* and not in *T. longifolia*. Hooker (1890) differentiated these two species based on the keeled nature of the lateral sepal.

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