

## *Zeuxine grandis* and *Z. chowdheryi* (Orchidaceae): New records to Eastern Ghats, peninsular India

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### Abstract

*Zeuxine grandis* Seidenf. and *Z. chowdheryi* Av.Bhattacharjee & Sabap. (Orchidaceae) are reported here for the first time for Eastern Ghats from Tamil Nadu. Brief descriptions along with photographs are provided to facilitate easy recognition of these species.

**Keywords:** Eastern Ghats, Orchids, Tamil Nadu, *Zeuxine grandis*, *Zeuxine chowdheryi*

### Introduction

The genus *Zeuxine* Lindl. was established by John Lindley (1826) in the appendix to his 'Collectanea Botanica'. It is represented by c. 80 species (Chen *et al.*, 2009), and distributed from tropical Africa, Madagascar through India, Pacific Islands and Sri Lanka (Bose & Bhattacharjee, 1999; Govaerts *et al.*, 2012). In India, it is represented by 19 species, of which 7 are reported from peninsular India (Misra, 2007).

During the floristic exploration in the Sanyasimalai Reserve Forest, Yercaud, Salem district of Tamil Nadu, we have collected two interesting terrestrial species of *Zeuxine*. After critical examination of the specimens with pertinent literature (Chen *et al.*, 2009; Bhattacharjee & Chowdhery, 2010; Bhattacharjee *et al.*, 2011; Das & Gogoi, 2013), these were identified as *Z. grandis* Seidenf. and *Z. chowdheryi* Av.Bhattacharjee & Sabap. (Bhattacharjee & Sabapathy, 2010). Though these two species of *Zeuxine* are reported from Western Ghats (Sasidharan *et al.*, 1999; Manickam *et al.*, 2003; Bhattacharjee & Sabapathy, 2010), but hitherto not reported from the Eastern Ghats (Matthew, 1983; Ansari & Dwarakan, 1995; Dwarakan & Ansari, 2001; Krishna Swamy *et al.*, 2004; Rao & Sridhar, 2007; Reddy *et al.*, 2008; Karuppusamy *et al.*, 2009; Rajarajeswari & Nandakumar, 2015). Therefore, the present collections from Sanyasimalai Reserve Forest constitute new distributional records of *Z. grandis* and *Z. chowdheryi* for Eastern Ghats of peninsular India.

*Zeuxine grandis* Seidenf., Dansk Bot. Ark. 32(2): 90, t. 56. 1978; Aver., Turczaninowia 11(1): 154. 2008; Av.Bhattacharjee & H.J. Chowdhery, Taiwania 55(3): 315. 2010; Av.Bhattacharjee *et al.*,

Richardiana 11(2): 98. 2011; R. Das & K. Gogoi, McAllen Int. Orchid Soc. J. 14(1): 9. 2013. **Fig. 1**

Herb, terrestrial, rhizomatous, 18.7–20.3 cm long, slender. Rhizomes creeping, rooting at nodes, c. 3.5 × 1.8 cm, glabrous, greenish brown. Stems erect, terete, 6.5–8.9 × 1.5–2.3 cm, glabrous, greenish brown. Leaves 4 or 5, subrosulate, greenish brown; petioles c. 0.2 cm long, sheathing at base, sheaths membranous; lamina ovate-lanceolate, margins entire, apex acute, c. 2.7 × 1.3 cm, pendulous and withered during flowering, often reddish. Inflorescence lax spike, 4 or 5-flowered; spikes terminal, erect; peduncles terete, 7.5–9.8 cm long with 1 or 2 sterile bracts, pubescent; sterile bracts ovate-lanceolate, c. 0.9 × 0.3 cm, apex acuminate, pubescent, reddish brown, 3-veined; rachis 3.5–5.2 cm long. Flowers resupinate, 1.2–1.4 cm long; floral bracts ovate-lanceolate, c. 0.7 × 0.2 cm, apex acuminate, pubescent on margins and lower half of abaxial surface, reddish brown, 1-veined, as long as the ovary. Sepals free, pubescent, brownish green, white towards apex, dorsal sepal broadly ovate, c. 0.6 × 0.3 cm, concave, apex obtuse, forming a hood with petals, 1-veined; lateral sepals ovate-lanceolate, c. 0.4 × 0.2 cm, apex obtuse, 1-veined. Petals slightly oblique, subrectangular-falcate to narrowly ovate, c. 0.6 × 0.2 cm, apex obtuse, glabrous, white with brownish green, 2-veined. Lip white, connate to the column base, c. 1.1 cm long, Y-shaped, 3-partite; hypochile concave-saccate, c. 0.2 × 0.15 cm, white with yellowish tinge, 1 filiform to oblong appendage in each side; mesochile oblong, c. 0.3 × 0.15 cm, margins incurved, white; epichile 2-lobed, lobules orbicular-obovate, c. 0.7 × 0.3 cm, white with yellow tinge at base, broadening from base, the angle between two lobules usually more acute, margins undulate. Column c. 0.2



Fig. 1. *Zeuxine grandis* Seidenf.: a. Habit; b. Inflorescence; c. Perianth parts.

cm, wings triangular; stigma with 2-glandular protuberances at the sides. Pollinarium c. 0.2 cm, bifid; anthers ovoid-lanceolate, 0.1–0.2 cm long; pollinia 2, pyriform, yellow; rostellum oblanceolate,

c. 0.06 cm long, slightly curved; tegula linear, semi-transparent, greenish yellow; viscidium oblong, thick, transparent, white. Ovary including pedicel fusiform, c. 0.6 cm long, ridged, pubescent. Capsules ellipsoid, c. 0.6 cm long, green.

*Flowering & fruiting*: January–February.

*Habitat*: Very rarely found in the shade of trees, rich in humus with leaf litters in dry deciduous to semi evergreen forest, in association with *Cheirostylis flabellata* (A. Rich.) Wight and *Zeuxine longilabris* (Lindl.) Trimen, at elevations between 800 and 1480 m.

*Distribution*: China, India (Andaman and Nicobar Islands, Assam, Odisha, Sikkim, Tamil Nadu and Uttarakhand), Thailand and Vietnam.

*Specimen examined*: INDIA, **Tamil Nadu**, Salem district, Sanyasimalai Reserve Forest, Yercaud, 11°47'59" N, 78°12'52" E, ± 1440 m, 10.1.2017, T.S. Saravanan & S. Kaliamoorthy 109602 (spirit collection).

***Zeuxine chowdheryi*** Av.Bhattacharjee & Sabap., Taiwania 55(4): 342. 2010. **Fig. 2**

Herb, terrestrial, 17–18.5 cm high. Rhizomes c. 6.4 × 1.5 cm, dull pinkish brown, creeping, rooting at nodes on lower side; roots c. 1.1 × 0.3 cm, fleshy with distinct root hairs, yellowish brown. Stems erect, c. 9.8 × 1.7 cm, decumbent at base, unbranched with several membranous sheaths formed by withered leaf bases, glabrous, greenish pink. Leaves 3 or 4, withered during flowering, glabrous; petioles 0.3–0.7 cm long, sheathing at base; lamina ovate to ovate-lanceolate, c. 4.8 × 1.6 cm, base obtuse, apex acute, 3-veined. Inflorescences terminal racemes, laxly 4–6-flowered, pubescent, pale yellowish brown; peduncles 6.5–7.6 cm long with 2 or 3 sheathing bracts; sheathing bracts lanceolate, c. 1.3 × 0.3 cm, apex acuminate, pubescent, pinkish red, 3-veined; rachis c. 4.4 cm long; floral bracts narrowly lanceolate, c. 0.7 × 0.2 cm, apex acuminate, pubescent, pinkish red, usually shorter or as long as ovary, 3-veined. Flowers 1.5–1.8 cm long, resupinate. Sepals free, pubescent, pinkish red whitish-tinged at apex, 1-veined; dorsal sepal broadly ovate, c. 0.6 × 0.3 cm, concave, apex obtuse; lateral sepals ovate-lanceolate, c. 0.6 × 0.2 cm, apex subacute. Petals broadly elliptic, c. 0.5 × 0.2 cm, oblique, apex round, glabrous, green, white-tinged at apex with 1-complete and 2-incomplete veins. Lip c. 1.4 cm long, white, 3-lobed; hypochile c. 0.1 × 0.1 cm, shortly saccate at base with 1 entire, curved appendage in each side, brownish; mesochile oblong, c. 0.4 × 0.1 cm, margins incurved, whitish green; epichile white, 2-lobuled; lobules falcate, c. 0.9 × 0.4 cm, more or less parallel to mesochile, margins entire, apex obtuse to rounded. Column c. 0.2 cm long with 1 frontal rectangular appendage



Fig. 2. *Zeuxine chowdheryi* Av.Bhattacharjee & Sabap.: a. Habit; b. Inflorescence; c. Perianth parts.

on each side near the base of the rostellum; rostellum 0.11–0.14 cm long, bifid, apex obtuse, slightly curved, dull white. Pollinarium 0.02–0.03 cm long; pollinia 2, c. 0.1 cm long, sectile, bifid, light yellow to dull white; caudicles 0.03–0.04 cm long; tegula 0.1–0.2 cm long, transparent with yellow tinge; viscidium oblong-elliptic, thick, dull white, viscidial end cup-shaped; stigma 2-lobed, suborbicular, well-separated, mustered yellow, laterally placed on column above base of the rostellum. Ovary including pedicel fusiform, c. 0.8 × 0.2 cm, pale green, ridged, pubescent. Capsules ellipsoid, c. 1.2 cm long, green.

*Flowering & fruiting:* February–March.

*Habitat:* Growing under the shade of trees rich in humus with leaf litters in dry deciduous and semi-evergreen forests, in association with *Cheirostylis flabellata* (A. Rich.) Wight, *Zeuxine grandis* Seidenf. and *Z. longilabris* (Lindl.) Trimen, at elevations between 750 and 1450 m.

*Distribution:* India: Tamil Nadu (Velliangiri hills, Coimbatore district, Western Ghats; Sanyasimalai Reserve Forest, Yercaud, Salem district, Eastern Ghats). **Endemic.**

*Specimen examined:* INDIA, **Tamil Nadu:** Salem district, Sanyasimalai Reserve Forest, Yercaud, 11°47'59" N, 78°12'52" E, ± 1447 m, 8.2.2017, T.S. Saravanan & S. Kaliamoorthy 109603 (spirit collection).

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