

## ZEUXINE AFFINIS (LINDL.) BENTH. EX HOOK.F. (ORCHIDACEAE) – FIRST REPORT OF ITS OCCURRENCE IN ARUNACHAL PRADESH

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**Abstract:** *Zeuxine affinis* (Lindl.) Benth. ex Hook.f. (Orchidaceae), hitherto known from other parts of India is reported for the first time from Arunachal Pradesh. The same is described and illustrated in the present paper.

### INTRODUCTION

During the revisionary studies on the sub-tribe Goodyerinae Klotzsch. (Orchidaceae) for the Flora of India, the authors came across some specimens of the genus *Zeuxine* Lindl. from West Kameng district of Arunachal Pradesh. The critical study of the collected specimens as well as the authentic specimens available in the herbaria like CAL and ASSAM, and with the help of pertinent literature these were identified as *Zeuxine affinis* (Lindl.) Benth. ex Hook.f. A perusal of relevant literatures [Chowdhery, 1998; Pearce and Cribb, 2002; Rao and Hegde, 2004; Rao, 2007 (publ. 2009)] revealed that this species, though known from other parts of Eastern Himalaya, N.E. India and Central India, is not recorded from Arunachal Pradesh and the present report forms the first report of its occurrence in Arunachal Pradesh. A detailed description of the species, its phenology and habitat along with illustration is provided for easy identification.

*Zeuxine affinis* (Lindl.) Benth. ex Hook.f., Fl. Brit. India 6: 108. 1890 & in Oliv. (ed.), Icon pl. 22: t. 2177. 1894; King & Pantl. in Ann. Roy. Bot. Gard. Calcutta 8: 290, t. 387. 1898; Haines, Bot. Bihar Orissa, part 6: 1162. 1924; Bruhl, Guide Orchids Sikkim: 169. 1926; Seidenf. in Dansk Bot. Ark. 32(2): 88, t. 55. 1978; Kataki, Orch. Meghalaya: 200. 1986; T.K. Bose *et al.*, Orch. India (ed. 2): 466. 1999; Hynn. *et al.* in Hajra & U. Chatterjee (eds.), Orch. Nagaland: 278, t. 86. 2000; N. Pearce & P.J. Cribb, Orch. Bhutan: 110. 2002; S. Misra, Orch. Orissa: 320. 2004, *p.p.*; Lucksom, Orch. Sikkim N. E. Himalaya: 119, t. 78. 2007; S. Misra, Orch. India: 319. 2007.

*Types:* India, Sikkim, South district, Toang Dong, 1826, Wall. Cat. Numer. List no. 7383 [lectotype: K-LINDL., photo!, designated by: Seidenf. in Dansk. Bot. Ark. 32(2): 88. 1978, (as 'Type'); isolectotype: CAL!; K-W].

*Etaeria affinis* Lindl. in Wall., Numer. List: no. 7383. 1832. *nom. nud.*

*Monochilus affine* Lindl., Gen. sp. orchid. pl.: 487. 1840 (excl. distrib. Courtallum), non Wight 1851; Grant, Orch. Burma: 358. 1895, *p.p.*

*Aetheria mollis* Lindl. in J. Proc. Linn. Soc., Bot. 1: 184. 1857. *Types:* India, 'Khasia, 3000–4000 feet, J.D.H & T.T. 343 (holotype: K-LINDL., photo!); Burma, Griffith *s.n.* (paratype: n.v.).

*Zeuxine gracilis* sensu Santapau in Proc. Natl. Inst. Sci. India, B 24(3): 137. 1958, *p.p.* (tant. quoad. syn. *Monochilus affine* & *Zeuxine affinis*), non (Breda) Blume 1858 (-1859); Santapau & Kapadia, Orch. Bombay: 171. 1966, *p.p.* (tant. quoad. syn. *Monochilus affine* & *Zeuxine affinis*); P.K. Bhattach. & K. Sarkar, Fl. West Champaran Dist. Bihar: 496. 1998.

Terrestrial, rhizomatous herbs, 10–38 cm tall. Rhizome to 4.5 cm long, 2–5 mm thick, terete, pale brownish-green, creeping, rooting at nodes. Root 0.5–2.5 cm long, pale brown, fleshy, with minute root-hairs. Stem 4–12 cm long, 2–4 mm thick, brownish green, decumbent at base, erect above, unbranched, glabrous, with several membranous sheaths formed by withered leaf-bases. Leaves 2–9, 1–6.5 cm long, scattered along the stem, sometimes crowded near the apex, withered during flowering, glabrous; petiole 0.4–1 cm long, sheathing at base; lamina 0.8–6 × 0.5–2.6 cm, ovate-lanceolate, base obtuse, apex acute,

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reddish-green, 3–5 or many veined. Inflorescence terminal raceme, laxly or densely 2–many flowered, pubescent; peduncle 3–15 cm long, with 1–3 sheathing bracts; sheathing bracts 0.8–3 cm long, linear-lanceolate, apex acuminate, clasping, pubescent, 3-veined; rachis 2.5–12 cm long. Floral bracts 0.5–1 × 0.15–0.3 cm, ovate-lanceolate, apex long-acuminate, green to pale brown, usually shorter than or sometimes as long as pedicel plus ovary, pubescent, 3-veined. Flowers 0.5–1.2 cm long, resupinate. Sepals free, pale brown to brownish-green to green, pubescent; dorsal sepal 4–7 × 2.2–3 mm, ovate, apex sub-acute to obtuse, adnate to petals to form a hood on column, with 1 complete mid-vein and 2 incomplete lateral veins; lateral sepals 4–6 × 2–3 mm, ovate-lanceolate, apex obtuse, spreading, 1-veined. Petals 4–6.5 × 2–3 mm (at widest portion), obliquely oblong-spathulate to obliquely elliptic, apex obtuse, white with brownish to greenish tinge at base, glabrous, with 2 incomplete veins. Labellum 4–7 (–9) mm long; hypochile saccate, 1–1.5 × 1.5–2.2 mm, white with brownish tinge, with 1 oblong-filiform appendage in each side, appendages sometimes shortly bifid at apex; mesochile 1–1.5 × 1.3–1.5 mm, oblong to sub-rectangular, white, rarely pale yellow, margin incurved; epichile 2-lobbed, lobules 2–3.5 × 1.8–2.5 mm, broadly ovate-oblong to sub-spathulate, divergent, broadening from base, sub-truncate, white, rarely pale yellow, forming acute angle to axis of labellum. Column 2–3 mm long, white without any wings but with a seam with 2 upwards tongues below rostellum, tongues c 0.4 × 0.3 mm; rostellum 1–1.5 mm long, bifid, projecting, apex sub-acute to obtuse. Stigma 2-lobed, elliptic, well separated, lateral. Anther-cap c 3 × 1.5 mm, pinkish-white. Pollinarium c 3.2 mm long; pollinia 2, 1.3–1.5 mm long; obovate to obclavate, sectile, bifid; caudicles c 0.3 mm long; tegula c 1.5 mm long, linear-spathulate, semi-transparent, with in-rolled apex; viscidium c 0.7 × 0.5 mm, elliptic. Ovary including pedicel 5–8 × 1–3 mm, elliptic-fusiform to narrowly obclavate, twisted, green to brownish-green, pubescent. Capsule 5–9 × 1–3.5 mm, elliptic-fusiform, dull brown to brownish-green, twisted (Fig. 1).

*Flowering & fruiting:* September–May.

*Habitat:* The species is found growing on damp places amidst herbs on clayey soil or on decayed

woods, leaf-litters, sometimes in Sal and Pine forests between 305–2000 m elevations.

*Distribution:* INDIA: Arunachal Pradesh, Bihar (fide Haines, l.c.), Meghalaya, Nagaland, Orissa (fide Misra, 2004), Sikkim (fide King & Pantling, l.c.; Lucksom, l.c.), Tamil Nadu (fide Sasidharan *et al.*, 1999; Manickam *et al.*, 2003 a, 2003 b), West Bengal; BANGLADESH; CHINA; JAPAN; LAOS; MYANMAR; MALAYSIA; NEPAL; TAIWAN; THAILAND.

*Specimens examined:* INDIA: Arunachal Pradesh: West Kameng District: near Nechephu, 1550 m, 31.03.2004, D. K. Agrawala & C. M. Sabapathy 32630 (CAL); near Sessa, 12.04.2006, A. Bhattacharjee 34813 (CAL). Meghalaya: East Khasi Hills District: Shillong, 1524 m, 18.10.1886, C. B. Clarke 45314 J (CAL); Shillong, 1524 m, September 1890, G. Mann s.n. (CAL); Sadow Forest, 19.10.1930, P. C. Kanjilal 8734 (ASSAM); Elephant Falls, 24.09.1956, G. Panigrahi 3744 (ASSAM); Shillong, 29.10.1942, G. K. Deka 21617 (ASSAM); Shillong, Mahadevkhola Forest, 21.11.1962, Choudhury 25181 (ASSAM); Jaintia Hills District: A forest to the east of I. B. Jowai, 29.10.1956, G. Panigrahi 4159 (ASSAM). Nagaland: Jafu Hills, T. M. Hynniewta 56015 (ASSAM). West Bengal: Jalpaiguri District: Dooars, East of Jaldhaka River, February 1896, Pantling 309 (CAL); Western Dooars, Sal Forest, February 1896, Haines 603 (CAL).

*Notes:* *Z. affinis* shows close affinity with *Z. grandis* Seidenf., but can be easily distinguished in having relatively larger flowers and smaller as well as narrower epichile lobules. The epichile lobules of *Z. affinis* are 2–3.5 × 1.8–2.5 mm (4–8 × 3–5 mm in *Z. grandis*) and the angle between the two lobules is more acute in *Z. grandis* than *Z. affinis*.

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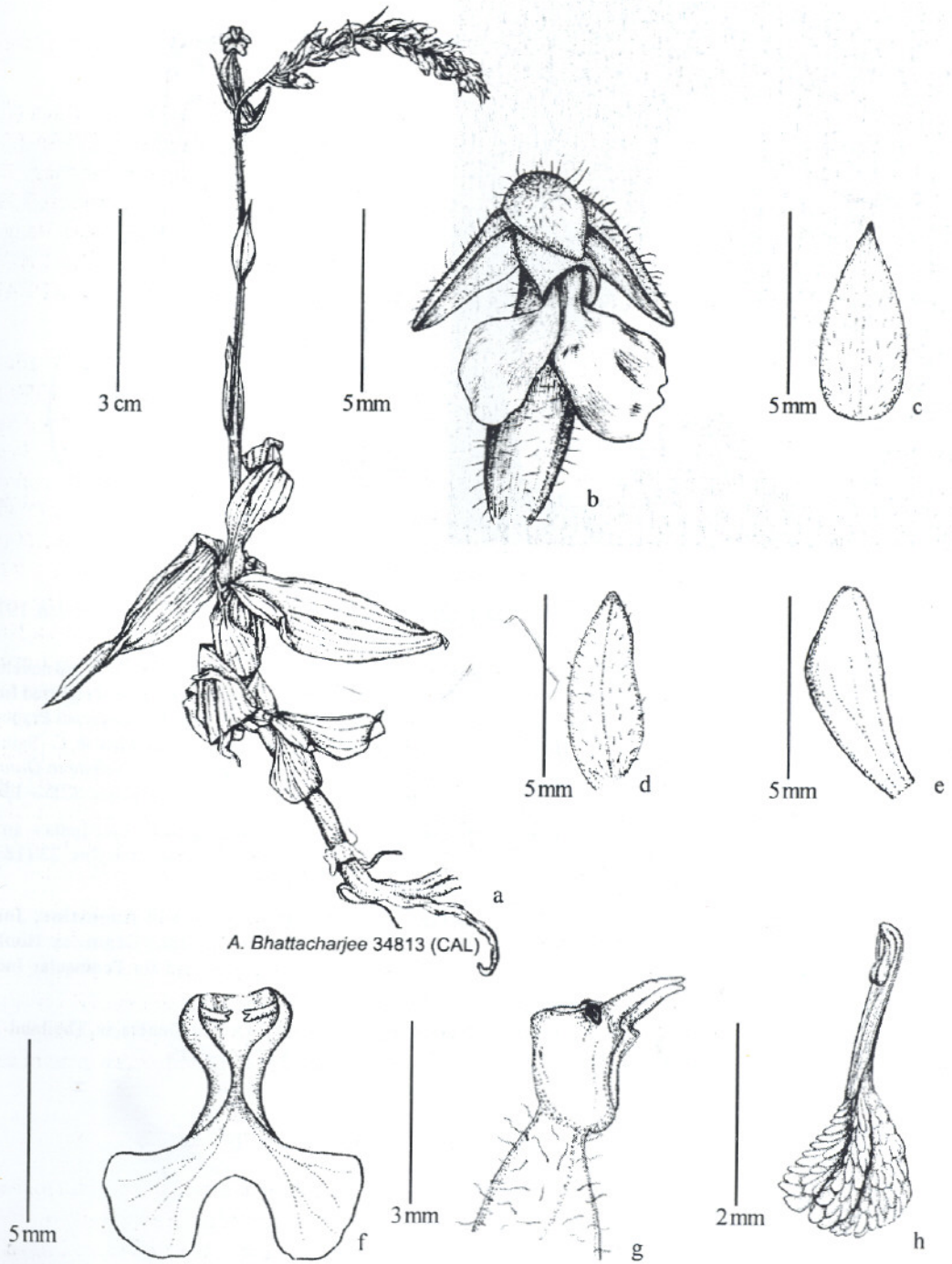
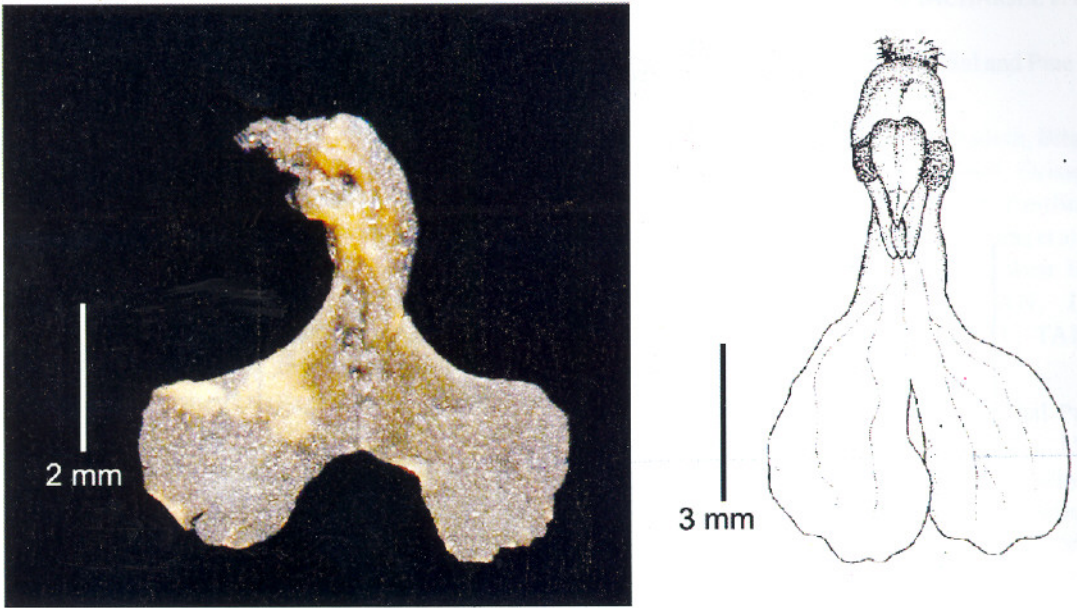


Fig. 1. *Zeuxine affinis* (Lindl.) Benth. ex Hook.f.: a. plant, b. flower, c. dorsal sepal, d. lateral sepal, e. petal, f. labellum, g. column, h. pollinarium.



**Fig. 2.** *Zeuxine affinis* (Lindl.) Benth. ex Hook. f. (Pantling 309, CAL) *Zeuxine garndis* Seidenf. (fide Seidenfaden, 1978)

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