

Zeuxine hainanensis (Orchidaceae), a new species from Hainan Island, China

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Zeuxine hainanensis Han Xu, H.J. Yang & Y.D. Li (Orchidaceae) is described and illustrated as a new species endemic to Hainan Island, China. It differs from the morphologically similar *Z. membranacea* mainly by having pubescent petals (vs. glabrous) and a Y-shaped and 10–12 mm (vs. cymbiform, 4–5 mm) long lip.

Orchidaceae is a worldwide distributed family, including about 800 genera and 25 000 species. Most species grow in the humid tropics and subtropics; 194 genera (11 endemic, one introduced) and 1388 species (491 endemic, one introduced) were recognized in the *Flora of China* (Chen 1999, Chen *et al.* 2009). Furthermore, after the publication of Orchidaceae in the *Flora of China* in 2009, about 25 new species and new records in this family have been reported from China.

Zeuxine is a medium-sized orchid genus with about 80 species distributed from tropical and South Africa through tropical and subtropical Asia to New Guinea, northeastern Australia and the southwest Pacific islands. Fourteen *Zeuxine* species (two of them endemic) occur in China (Chen 1999, Chen *et al.* 2009, Bhattacharjee & Chowdhery 2010, Bhattacharjee & Sabapathy 2010, Kant & Bhanwra 2010). However, in the Hainan Island, only four species have been reported: *Z. affinis*, *Z. grandis*, *Z. parvifolia* and *Z. strateumatica*. In 2008 a botanical exploration of the Hainan Island by the authors revealed a new species which is described here.

Zeuxine hainanensis Han Xu, H.J. Yang & Y.D. Li, *sp. nova* (Fig. 1)

Species Z. membranacei Lindl. *similis, sed ab ea petalis pubescentibus, labio Y-forma et 10–12 mm longo, praecipue differt.*

HOLOTYPE: China. Hainan Province, Jianfengling National Nature Reserve, 18°48'N, 108°56'E, 980 m, in tropical rainforest, 17 June 2008, *Han Xu JFL01128* (CANT). — PARATYPE: China. Hainan Province, Jianfengling National Nature Reserve, 18°48'N, 108°56'E, 980 m, in tropical rainforest, 17 June 2008, *Han Xu JFL01129* (IBSC).

ETYMOLOGY. The specific epithet is derived from the Chinese pinyin name of the collection locality, Hainan Island.

Plants 12.5–13.5 cm tall, slender. Rhizome short. Stem erect, brown to yellowish green, with several leaves. Leaves cauline, clustered and overlapping, brown to yellowish green, broadly ovate-lanceolate, 9 × 2.5–4 mm, base sheathing, not stalked, apex acuminate, membranous; abaxially densely pubescent, adaxially glabrous. Inflorescence 2–4 cm, densely pubescent, with 3 to 5(7) flowers; floral bracts brown to yellowish

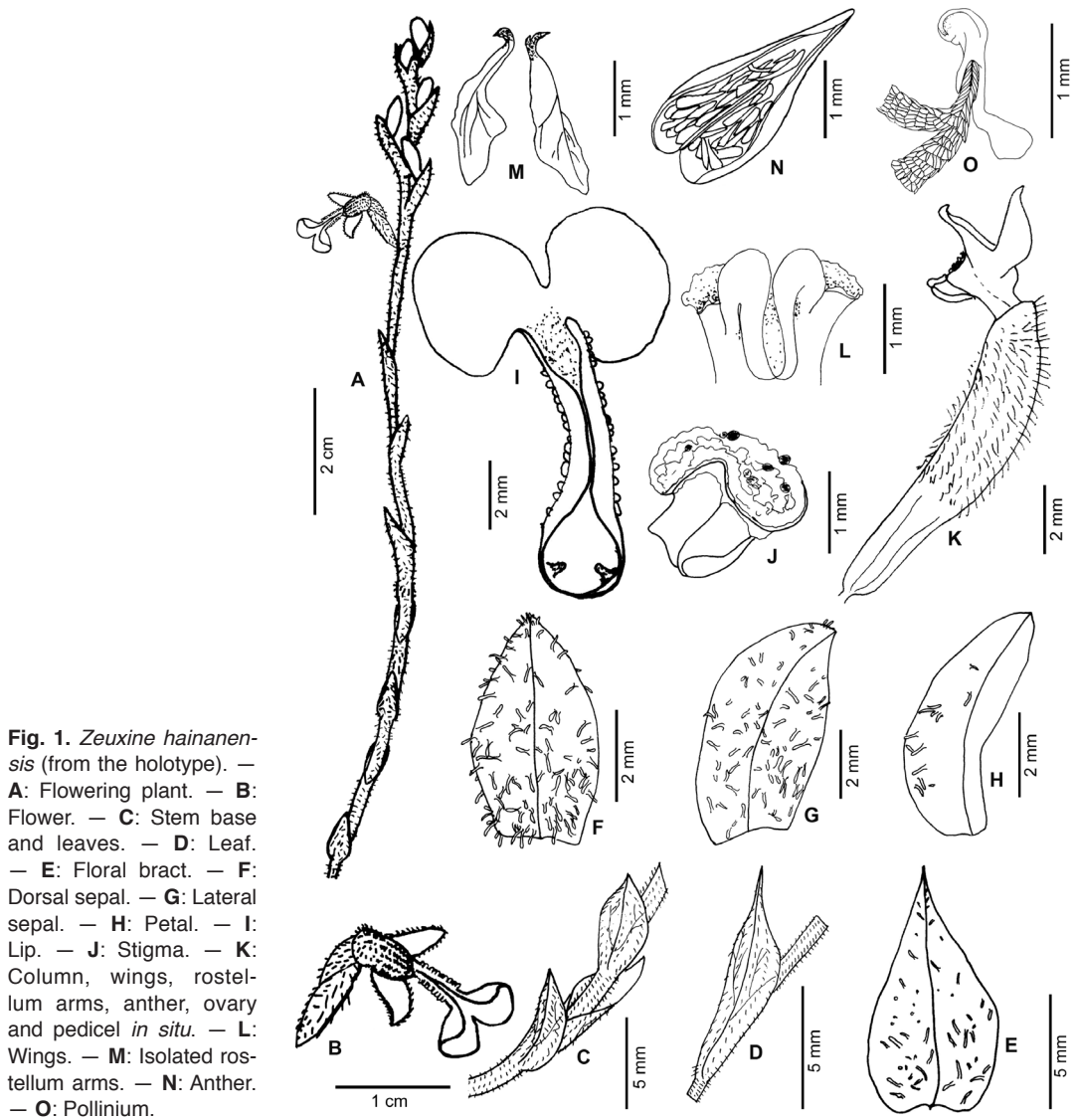


Fig. 1. *Zeuxine hainanensis* (from the holotype). — **A:** Flowering plant. — **B:** Flower. — **C:** Stem base and leaves. — **D:** Leaf. — **E:** Floral bract. — **F:** Dorsal sepal. — **G:** Lateral sepal. — **H:** Petal. — **I:** Lip. — **J:** Stigma. — **K:** Column, wings, rostellum arms, anther, ovary and pedicel *in situ*. — **L:** Wings. — **M:** Isolated rostellum arms. — **N:** Anther. — **O:** Pollinium.

green, ovate-lanceolate, 11.5×5.7 mm, abaxially pubescent, adaxially glabrous, 1-veined, apex acuminate. Flowers white, small; ovary and pedicel elliptic-cylindric, 10 mm long, densely pubescent. Sepals brown to yellowish green, abaxially sparsely pubescent; dorsal sepal ovate-elliptic, 5.3×3.2 mm, 1-veined, apex obtuse; lateral sepals obliquely oblong, 6.2×3.3 mm, 1-veined, apex obtuse. Petals light brown to yellowish green, falcate, 5.3×1.8 mm, 1-veined, apex obtuse, abaxially sparsely pubescent; lip white, Y-shaped, 10–12 mm long, 3-partite; hypochile saccate, containing 2 ellipsoid lamel-

late calli, $0.65\text{--}0.84 \times 0.4\text{--}0.55$ mm; mesochile 4–6 mm long, exterior surface minutely papillate, involute; epichile dilated, ca. 7.5×4.2 mm, 2-lobed; lobes not diverging widely, suborbicular, $3\text{--}3.9 \times 4\text{--}4.5$ mm. Column 2 mm long; stigma densely papillate; wings prominent, laterally duckbilled, 1 mm long; rostellum arms 2.2–2.4 mm long, triangular-lanceolate, membranous; anther cordate, 3 mm long, 2-locular. Capsule not seen.

Zeuxine hainanensis was discovered in tropical rainforest dominated by Lauraceae, Rubiaceae, Fagaceae, Palmaceae and Myrtaceae.

The type population is small and is protected in the Jianfengling National Nature Reserve. The new species is endemic to Hainan and is considered rare.

Zeuxine hainanensis is most similar to *Z. membranacea* in having sessile leaves, pubescent bracts, sepals, ovary and pedicel, and a white lip. The new taxon differs from *Z. membranacea* mainly by having pubescent petals (vs. glabrous), and a Y-shaped (vs. cymbiform) and 10–12 mm (vs. 4–5 mm) long lip.

The following key to seven species of *Zeuxine* serves to identify *Z. hainanensis* from the morphologically similar species that occur in Hainan and the adjacent areas.

1. Leaves stalked, base contracted into a petiole-like stalk sheathing the stem 2
1. Leaves not stalked, base directly sheathing the stem ... 5
2. Lip T-shaped; epichile lobes diverging at right angle to axis of lip *Z. parvifolia*
2. Lip Y-shaped; epichile lobes diverging at acute angle to axis of lip 3
3. Lip hypochile containing 2 lamellate calli, each often with a linear extension; column wings lacking *Z. grandis*
3. Lip hypochile containing 2 subulate, hooked calli; column with wings 4
4. Lip epichile lobes obovate-flabellate, 2–2.5 × 2–2.2 mm *Z. affinis*
4. Lip epichile lobes oblong to irregularly rhombic, 2.5–3 × 1.2–1.8 mm *Z. reflexa*
5. Bracts, sepals, ovary and pedicel glabrous; lip pale yellow to yellow *Z. strateumatica*
5. Bracts, sepals, ovary and pedicel pubescent; lip white .. 6
6. Petals abaxially glabrous; lip cymbiform and 4–5 mm long *Z. membranacea*
6. Petals abaxially pubescent; lip Y-shaped and 10–12 mm long *Z. hainanensis*

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References

- Bhattacharjee, A. & Chowdhery, H. J. 2010: *Zeuxine grandis* Seidenf. (Orchidaceae) — an addition to the orchid Flora of India. — *Taiwania* 55: 315–317.
- Bhattacharjee, A. & Sabapathy, C. M. 2010: A new species of *Zeuxine* Lindl. (Orchidaceae) from India. — *Taiwania* 55: 342–345.
- Chen, X. Q., Liu, Z. J., Zhu, G. H., Lang, K. Y., Ji, Z. H., Luo, Y. B., Jin, X. H., Cribb, P. J., Wood, J. J., Gale, S. W., Ormerod, P., Vermeulen, J. J., Wood, H. P., Clayton, D. & Bell, A. 2009: Orchidaceae. — In: Wu, Z. Y., Raven, P. H. & Hong, D. Y. (eds.), *Flora of China*, vol. 25: 1–506. Science Press, Beijing & Missouri Botanical Garden Press, St. Louis.
- Chen, X. Q. 1999: Orchidaceae. — In: Chen, X. Q., Ji, Z. H., Lang, K. Y. & Zhu, G. H. (eds.), *Flora Reipublicae Popularis Sinicae*, vol. 18: 14–17. Science Press, Beijing.
- Kant, R. & Bhanwra, R. K. 2010: Development of anther in relation to sectile *Pollinium* in *Zeuxine strateumatica* (L.) Schltr. — *Journal of Biology & Life Sciences* 1: 5–12.