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Zhang ZY, Li DC, Song XQ, Chen ZH, Zhang Z, Zhou K. *Zeuxine glandulosa* King & Pantl (Orchidaceae), a newly recorded species from China[J]. *Plant Science Journal*, 2022, 40(2): 140-144

中国兰科一新记录种——毛瑞线柱兰

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摘要: 报道了在海南热带雨林国家公园毛瑞管理分局发现的兰科线柱兰属一新记录种——毛瑞线柱兰 (*Zeuxine glandulosa* King & Pantl)。该种原记录分布于印度阿萨姆邦、锡金邦, 北孟加拉和泰国。本文对该种形态及生境进行了详尽描述, 并提供高清解剖照及线描图。凭证标本保存于海南大学林学院教学标本馆(HUFB)。

关键词: 线柱兰属; 海南热带雨林国家公园; 植物分类学

中图分类号: Q949.71+8.43

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Zeuxine glandulosa King & Pantl (Orchidaceae), a newly recorded species from China

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Abstract: *Zeuxine glandulosa* King & Pantl, a newly recorded species of Orchidaceae from Hainan, China, was found in the Maorui region of the Hainan Tropical Rainforest National Park. The original distribution records of this species include Assam and Sikkim (India), northern Bengal, and Thailand. This paper provides a detailed description of the morphology and habitat of this species as well as high-definition anatomical photos and line drawings. A voucher specimen was deposited at the Teaching Herbarium (HUFB) of the College of Forestry, Hainan University.

Key words: *Zeuxine*; National park of Hainan tropical rainforest; Taxonomy

The genus *Zeuxine* Lindley (Cranichideae, Orchidoideae; Orchidaceae)^[1] contains approximately 80 species of annual terrestrial or rarely lithophytic herbs, distributed in tropical Africa, Asia, and northeastern Australia, and Madagascar^[2-4]. To date, 11 species have been recorded in Hainan Island, China, two of which are endemic^[5-9]. During our fieldwork in the Tongan Mountain in March 2021, we discovered a little-

known species of *Zeuxine* in sandy soil. Based on detailed morphological examination of pre-existing material, we identified the collected specimens as *Zeuxine glandulosa* King & Pantl^[4, 10-13]. The original distribution records of this species include Assam and Sikkim (India), northern Bengal, and Thailand. Consequently, we confirm it as a newly recorded species in China.

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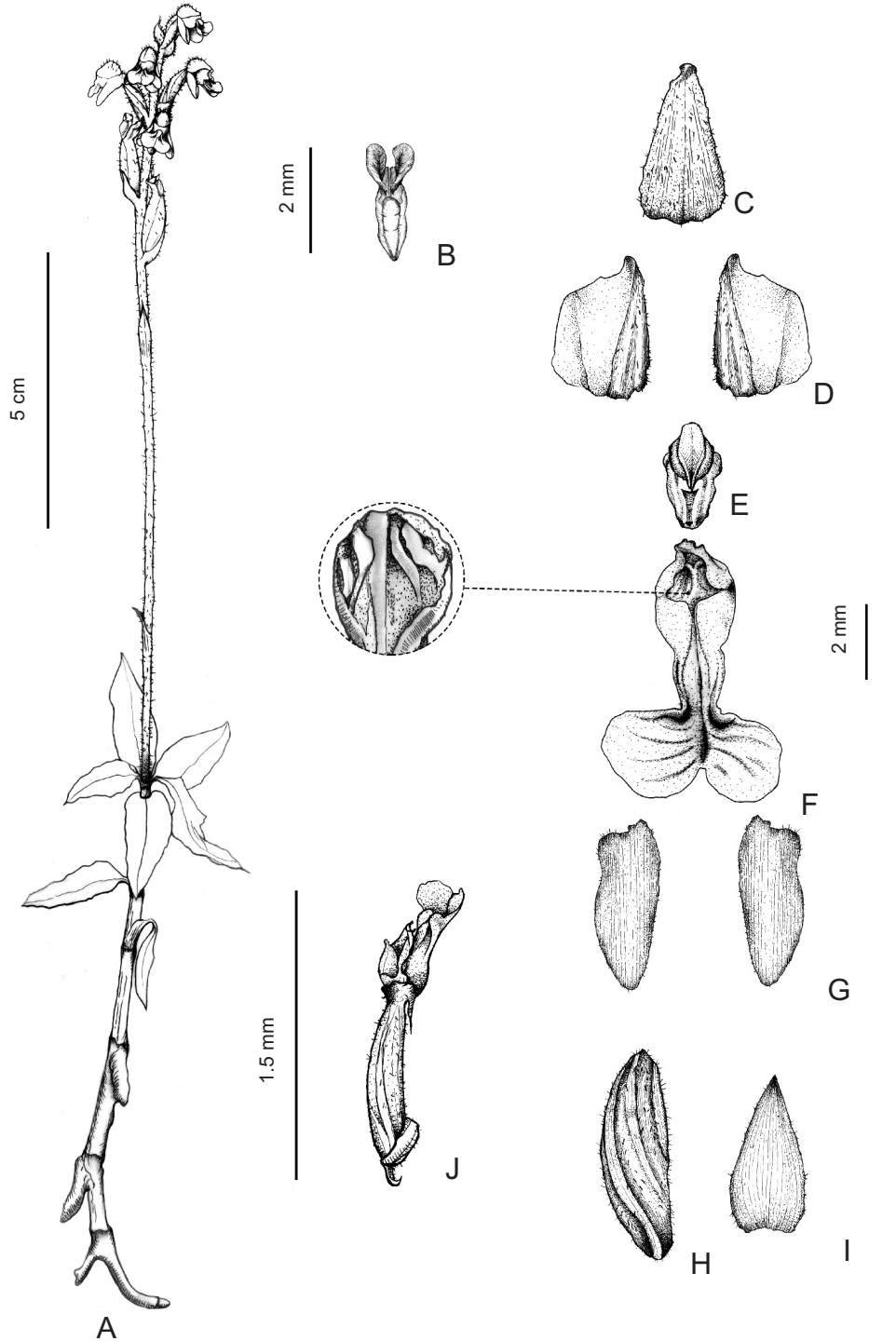
毛瑞线柱兰 (新拟, Fig.1, Fig.2)

Zeuxine glandulosa King & Pantl., Ann. Roy. Bot. Gard. (Calcutta) 8: 289.

≡ *Heterozeuxine glandulosa* (King & Pantl.)

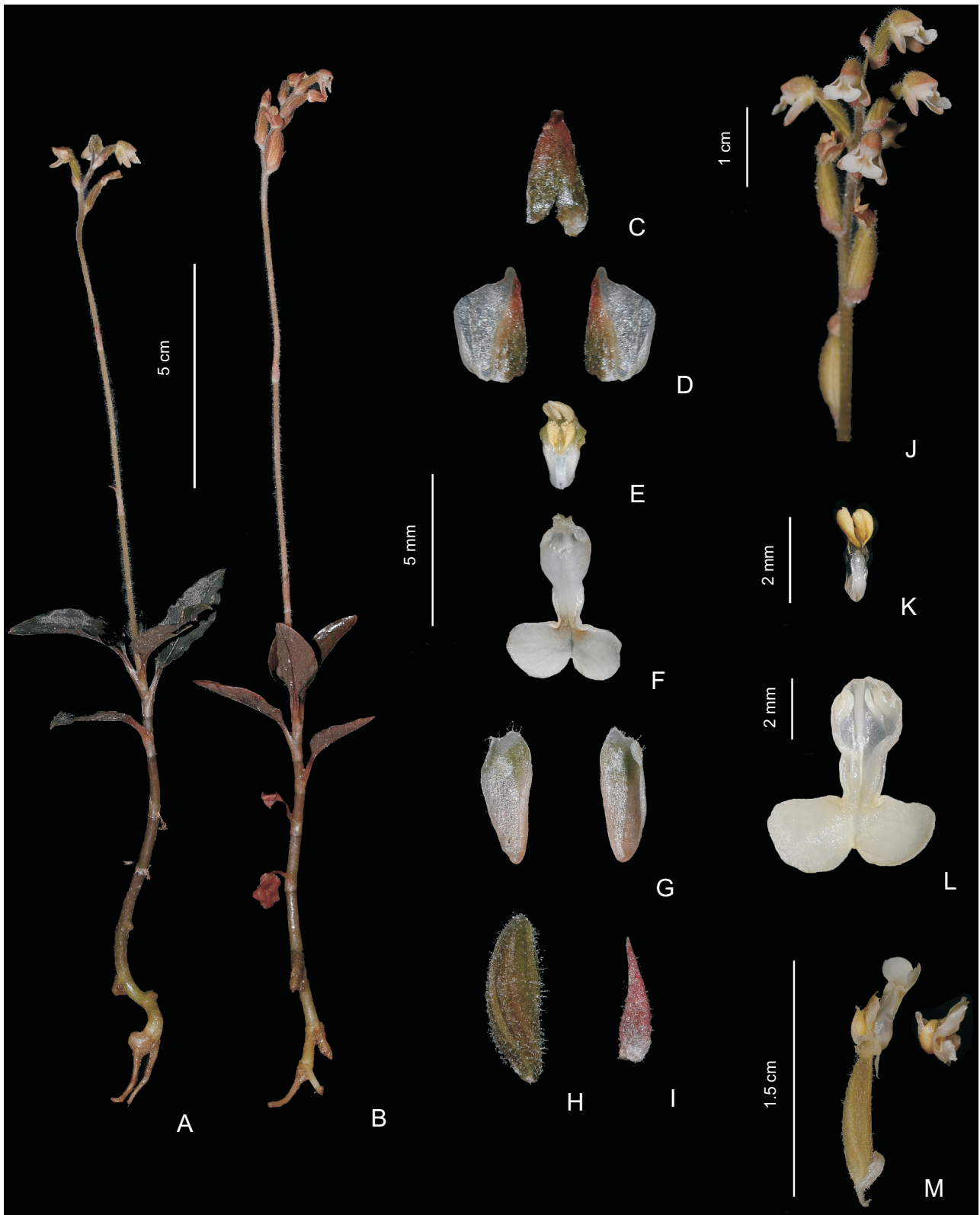
T. Hashim., in Proc. 12th World Orchid Conf., 1987 (eds. K. Saito & R. Tanaka) 125 (1987); (1987).

Type: India, Duars, Pantling 434 (Holo. CAL). Fl. Bhutan 3(3): 111. 2002.



A: Plant; B: Pollinarium; C: Dorsal sepal; D: Petal; E: Column; F: Lip; G: Lateral sepal; H: Pedicel and ovary; I: Floral bract; J: Lip and column with ovary plus pedicel.

Fig. 1 Line drawings of *Zeuxine glandulosa*



A: Plant (from population A); B: Plant (from population B); C: Dorsal sepal; D: Petal; E: Column; F: Lip; G: Lateral sepal; H: Pedicel and ovary; I: Floral bract; J: Inflorescence; K: Pollinarium with viscidium; L: Lip after dissection, feature of longitudinal ridge in middle and two falcate aduncus calli on each side; M: Lateral view of column and lip with ovary plus pedicel.

Fig. 2 *Zeuxine glandulosa*

Description: Terrestrial herb, 18 – 23 cm tall. Rhizome short, several nodes, rooted at bottom nodes. Stem 3 – 4 cm tall, erect, glabrous, dark red to yellowish green. Leaves 4 – 5, elliptic-lanceolate, acute, 1.5 – 3.0 cm long, 0.8 – 1.5 cm wide, dark red or dark purple; petiole 0.5 – 0.7 cm long, expanding into wide carnation sheath. Inflorescence with 3 – 8 flowered terminal racemes, densely glandular-pubescent; peduncle 8 – 10 cm long; two pinkish bracts, 0.6 – 0.9 cm long, acute at apex; rachis 2 – 4 cm long. Floral bracts densely pubescent, ca. 0.6 cm long, shorter than ovary, carnation, apex acuminate. Pedicel and ovary fusiform, ca. 0.8 cm long, olive green to dark red, densely pubescent, twisted, with longitudinal white stripe. Flowers 0.4 – 0.6 cm long. Sepals connivent, ovate; dorsal sepal densely pubescent, 0.4 – 0.5 cm long, olive green, dark red near apex; lateral sepal pubescent only at base, olive green to white to carnation. Petals glabrous, 0.3 – 0.4 cm long, asymmetrically suborbicular, closely joined to dorsal sepal forming forward hood over column, apiculate. Lip 0.5 – 0.6 cm long, T-shaped, slightly olive green to carnation at center, widely saccate at base, with prominent ridge in center, inside bearing two falcate aduncus calli on each side. Column 0.20 – 0.25 cm long, with very large lamellar projections, incurved and touching at tip. Rostellum ligulate, short. Pollinia 2, ca. 0.1 cm long, pyriform, deeply grooved, attached to hyaline oblong gland.

Distribution and ecology: Maorui region of the Hainan Tropical Rainforest National Park,

China, altitudes from 500 to 540 m. A total of three populations were found, marked as A, B, and C, respectively. Populations A and B were found in damp shade along a stream, while population C was found in the shade under a bamboo forest. We established sample plots around the specimens (5 m × 5 m). Environmental and companion species information of the sample plots are shown in Table 1.

Phenology: Flowering and fruiting March to April.

Conservation status: Three populations were found, with the largest one consisting of 11 individuals. Only seven individuals were found in the other two populations. Two populations were located near streams and were vulnerable to flooding.

Table 1 Quadrat data of each distribution point

Population	Altitude /m	Canopy closure /%	Associated species
A	507	40	<i>Selaginella rolandi-principis</i> Alston
			<i>Calanthe speciosa</i> (Blume) Lindl.
			<i>Phrynium rheedei</i> Suresh & Nicolson
			<i>Schizostachyum hainanense</i> Merr. ex McClure
			<i>Cathayanthe biflora</i> Chun
B	521	30	<i>Pseudocyclosorus ciliatus</i> (Benth.) Ching
			<i>S. hainanense</i> Merr. ex McClure
			<i>Begonia longifolia</i> Blume
			<i>Goodyera procera</i> (Ker. -Gawl.) Hook
			<i>P. ciliatus</i> (Benth.) Ching
C	547	60	<i>Pronephrum simplex</i> (Hook.) Holtt
			<i>S. hainanense</i> Merr. ex McClure
			<i>Robiquetia spatulata</i> (Bl.) J. J. Sm
			<i>Ania ruybarrettoii</i> (S. Y. Hu et Barretto) Z. H. Tsi
			<i>Lygodium merrillii</i> Copeland
			<i>Calamus rhabdocladus</i> Burret

Key to species of *Zeuxine* from Hainan

- 1. Leaves not stalked, base directly sheathing stem 2
- Leaves stalked, base contracted into petiole-like stalk sheathing stem 3
- 2. Lip cymbiform, faint yellow. Leaves linear to linear-lanceolate *Z. strateumatica*
- Lip Y-shaped, white. Leaves cauline, clustered and overlapping *Z. hainanensis*
- 3. Leaves green to dark green 4

- Leaves dark red to purplish black, floral bracts with densely glandular hair *Z. glandulosa*
- 4. Lip smaller, rhombus or cymbiform 5
 - Lip distinct, Y-shaped, or T-shaped 7
- 5. Lip cymbiform 6
 - Lip rhombus, entire, base contracted and lacking calli *Z. integrilabella*
- 6. Lip cymbiform, ovate-oblong, bract entire, white hypochile containing two subulate calli *Z. agyokuana*
 - Lip cymbiform. Leaves ovate, bract ciliate, yellow hypochile containing 2–3 digitate calli *Z. ovalifolia*
- 7. Lip Y-shaped 8
 - Lip T-shaped 10
- 8. Flower white or pale green, scented; hypochile containing narrowly lamellate calli *Z. nervosa*
 - Flower without fragrance, white or yellowish white 9
- 9. Flower white, larger, sepal 5 – 7 mm long; hypochile containing two lamellate calli; column wings lacking *Z. grandis*
 - Flower yellowish white, smaller, sepal 4 – 5 mm long; hypochile containing one falcate callus *Z. affinis*
- 10. Flower white, hypochile containing one falcate callus *Z. parvifolia*
 - Flower yellow 11
- 11. Lateral sepals not conjoined with labellum, opening; flower larger, lip 3 mm long; hypochile containing two calli *Z. flava*
 - Lateral sepals conjoined with labellum, flower smaller, lip 2 mm long *Z. sakagutii*

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