



Article

Gastrodia albidoides (Orchidaceae: Epidendroideae), a new species from Yunnan, China

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Abstract

A new species, *Gastrodia albidoides* (Orchidaceae: Epidendroideae, Gastrodieae) from Yunnan, China, is described and illustrated. It is closely related to *G. theana* and *G. albida* but can be distinguished by an almost smooth perianth tube, lateral sepals fused to ½ their length, whitish and unthickened petals, a well-developed rostellum and distinct column foot.

Key words: Chinese Orchidaceae, Epidendroideae, Gastrodieae, holomycotrophic orchids

Introduction

Gastrodia Brown (1810: 330; Gastrodieae, Epidendroideae, Orchidaceae) comprises more than 50 species ranging from northeastern India through the eastern Himalayas, across southern China to Japan and eastern Siberia, throughout Southeast Asia to eastern Australia and the southwestern Pacific islands; it occurs also in Madagascar, the Mascarene Islands and tropical Africa (Pridgeon *et al.* 2005, Bosser 2006, and Cribb *et al.* 2010). Diagnostic generic characters include holomycotrophic habit, a perianth tube formed by united sepals and petals, basally positioned stigma and two pollinia (Pridgeon *et al.* 2005).

Nineteen *Gastrodia* species have so far been recorded in China, of which 13 are endemic (Chen *et al.* 2009, Hsu & Kuo 2011, Yeh *et al.* 2011, Hsu *et al.* 2012). During a botanical expedition to the Xishuangbanna Tropical Rainforest Dynamics Plot in May 2011 and May 2012, we found a new species, described below.

Gastrodia albidoides Y. H.Tan & T. C.Hsu, *sp. nov.* (Fig. 1–2)

Species *G. theanae* et *G. albidae* affinis, sed perianthii tubo non manifestum longitudinaliter striato et verrucoso, lateralibus sepalis 1/2 longitudine connatis e basi, petalis aequalis non verruculoso, columnae pede et rostello conspicuo differt.

Type:—CHINA. Yunnan: Mengla, Xishuangbanna National Nature Reserve, in tropical rainforest, 700–800 m, 12 May 2012, Tan 6809 (holotype: HITBC!).

Terrestrial, leafless, achlorophyllous herbs. Roots few, slender, 1–13 cm long, ca. 0.5–0.7 mm in diameter. Rhizome fleshy, tuberous, fusiform, 20–50 mm long, 5–12 mm in diameter, grayish brown, finely irregularly verrucose, scaly. Scales verticillate, oblong-lanceolate, brownish black, ca. 2 mm long. Inflorescence erect, terminal, 1.0–8.5 cm long, ca. 3 mm in diameter, white to pale whitish, peduncle 1–4 noded; sheath membranous, ovate to broadly ovate, 3–5 × 2–3 mm; rachis often less than 5 mm long. Bracts membranous,



FIGURE 1. *Gastrodia albidoides* (from the type locality). **A.** Longitudinal section of flower. **B, C.** Column. **D.** Lip, column, and ovary. **E–G.** Flowering individual. **F.** Fruiting individual. Photographs by Yun-Hong Tan.

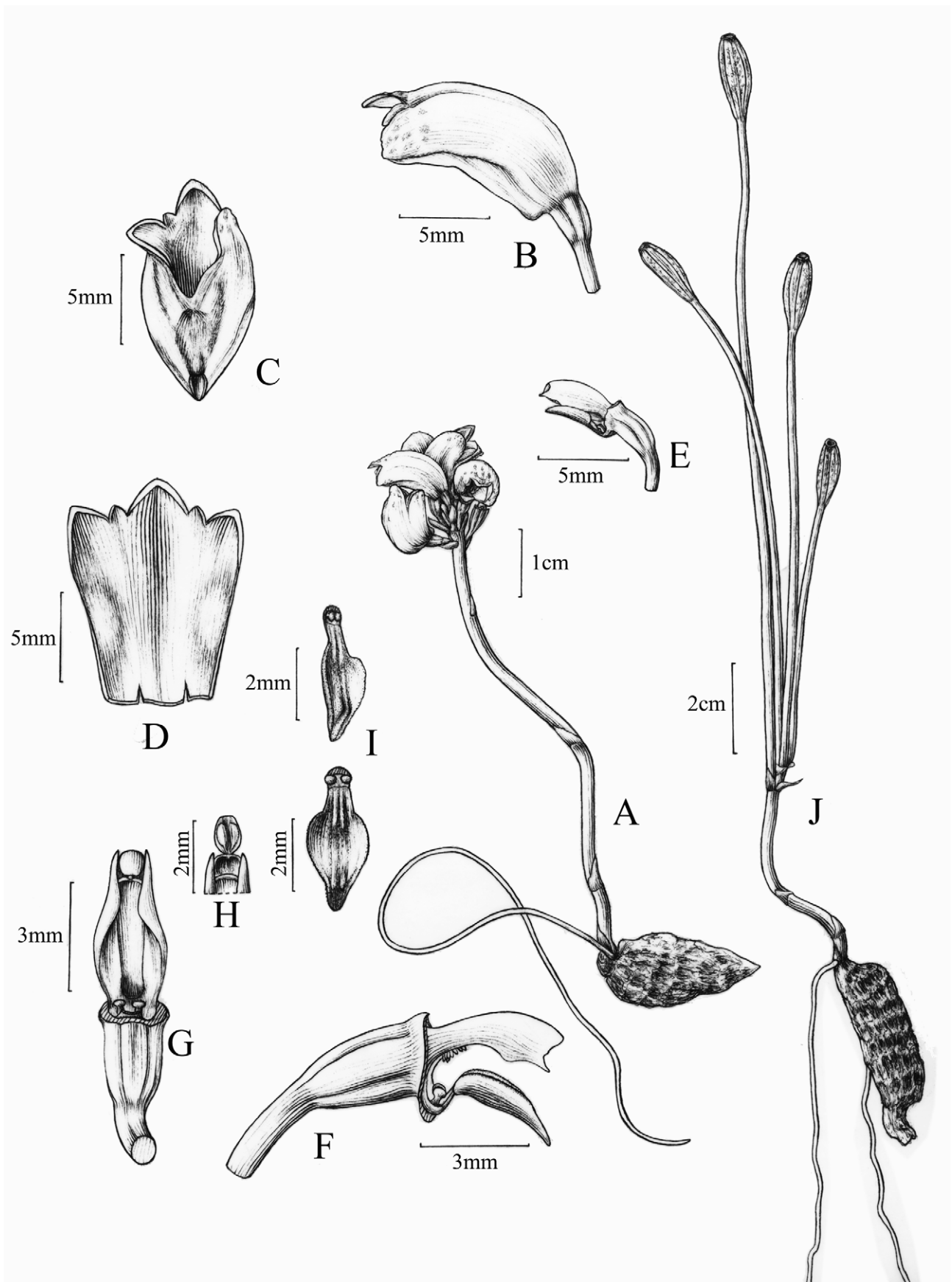


FIGURE 2. *Gastrodia albidoides*. **A.** Habit. **B.** Lateral view of flower. **C.** Ventral view of flower. **D.** Flattened perianth tube. **E, F.** Lip, column and ovary. **G.** Column. **H.** Anther cap and rostellum. **I.** Lip. **J.** Fruiting specimen. Illustration by Yun-Xi Zhu, based on the holotype.

ovate to ovate-oblong, apex pointed, pale yellowish-brown, 3.0–5.0 × 2.0–2.5 mm. *Ovary* 3–7 mm long, 1.5–3.5 mm in diameter. Flowers (1–)2–5(–8), erect, bell-shaped, slightly curved, not opening widely, 9–11 mm long, 5–7 mm in diameter. *Tepals* united, forming a 5-lobed tube, 9–11 mm long, slightly verrucose apically, otherwise smooth. *Sepals* similar, fleshy, thickened, lateral sepals fused to ½ their length, whitish, apex with sparse pale yellowish spots; free lobe of dorsal sepal broadly ovate, ca. 1.5–2.0 × 3.0–3.5 mm; free lobes of lateral sepals ovate, ca. 1.5 × 2.0 mm, each bearing a pale yellowish thickened callus inside. *Petals* whitish on both sides, unthickened, fleshy, thin, triangular-ovate, 0.8–1.0 × 0.6–0.8 mm. *Lip* free from perianth tube, adnate to column foot, pale-green tinged yellow at base and reddish-brown apically and marginally, 3.5–4.5 × 2.0–2.5 mm; hypochile with two whitish, globose, sessile, nectarless calli, ca. 1 mm in diameter; epichile rhombate-ovate, 6–7 nerved, rounded at base, entire, disc thickened and distinctly 2-ridged in the middle, ridges much raised and tinged yellowish near apex. *Column* white, straight, 4.0–4.5 × 1.5–1.8 mm, base with short foot, apex with a pair of lateral wings; lateral wings with acuminate tips superior to anther; rostellum well developed, 0.2 × 1.5 mm; stigma located near base. *Anther* hemispherical, 0.6–0.7 mm in diameter; pollinia 2. *Capsule* ellipsoid, 1.5–2.0 cm long, 0.5–0.8 cm in diameter; pedicel elongating to 8–20 cm long in fruit. Seeds fusiform, 1.6–2.2 mm long.

Distribution and habitat:—*Gastrodia albidoides* is currently found in southern Yunnan, China. The only population found so far occurs in a tropical rainforest in the Xishuangbanna National Nature Reserve, Mengla County.

Phenology:—Flowering mainly in May and fruiting from May to early June.

Relationships:—*Gastrodia albidoides* is most similar to *G. theana* Averyanov (2005: 90) from Vietnam and *G. albida* Hsu & Kuo (2011: 272) from Taiwan. They share dwarf habits, whitish and scarcely opening flowers, curved and fleshy perianth tubes and similar columns and lips. After comparison of available literature and specimens, we are concluded that *G. albidoides* could be clearly differentiated from *G. theana* and *G. albida* by several floral characters (Table 1).

TABLE 1. Differences between *G. albidoides*, *G. theana* and *G. albida*.

Character	<i>G. albidoides</i>	<i>G. theana</i>	<i>G. albida</i>
Perianth tube	slightly verrucose toward apex, otherwise smooth	distinctly striate and verrucose throughout	distinctly verrucose throughout
Lateral sepals	adnate, to 1/2 their length	adnate, 1/3–1/4 their length	adnate, 1/5–1/6 their length
Petals	whitish, thin in texture, triangular-ovate, 0.8–1.0 × 0.6–0.8 mm	salmon-pink, thin in texture, narrowly triangular, 0.4–0.8 × 0.2–0.3 mm	whitish outside, orange inside, fleshy, oblong-ovate, ca. 1.5 mm × 1.0 mm
Lip	pale green, epichile rhombic-ovate, 6–7-nerved, rounded at base	green, epichile ovate, 5-nerved, cordate at base	white, epichile triangular, truncate at base
Column foot	1.5–1.8 mm	1.5–1.8 mm	either absent or obscure
Rostellum	0.2 × 1.5 mm	0.2 × 1.5 mm	absent

Acknowledgements

This study was financially supported by the National Science and Technology Infrastructure Program (08ZK121B02). We thank Yun-Xi Zhu for the illustration. We are also grateful to Hua Lin and Xiao-Jing Wang for their assistance with fieldwork and Xin Yao for editing the photos; we also thank Caroline Pannell (Oxford University) for her suggestions.

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