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, lateralis sepalis ½ 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, achorophyllous 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 2. 

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

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