



Gastrodia huapingensis (Orchidaceae: Epidendroideae: Gastrodieae): a remarkable new mycoheterotrophic orchid with dimorphic columns from China

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Introduction

The orchid genus *Gastrodia* Brown (1810: 330) comprises approximately 50 species with a broad Old World distribution (Pridgeon *et al.* 2005, Cribb *et al.* 2010, Kenji 2014). Currently, there are at least 20 accepted species of *Gastrodia* recorded from China (Chung & Hsu 2006, Chen *et al.* 2009, Hsu & Kuo 2010, 2011, Yeh *et al.* 2011, Hsu *et al.* 2012, Tan *et al.* 2012, Hu *et al.* 2014). During our field surveys of Chinese traditional medicine in Huaping National Nature Reserve, Guangxi Zhuangzu Autonomous Region, China, a *Gastrodia* was spotted setting fruit in the past few years. Finally, we were able to observe it flowering in August 2014. After careful comparison morphological study with its close relatives (Averyanov & Efimov 2006) and three other species of *Gastrodia* recorded in Guangxi, namely *Gastrodia damingshanensis* A.Q.Hu & T.C.Hsu (2014: 256), *Gastrodia elata* Blume (1856: 174) and *Gastrodia menghaiensis* Z.H.Tsi & S.C.Chen (1994: 559), we confirmed this *Gastrodia* as a new species and thereby a new member to the flora of Guangxi. A detailed description, illustration and ecological information are presented below. We also discuss the remarkable dimorphic columns of this new species, which are documented in *Gastrodia* for the first time.

Gastrodia huapingensis X.Y.Huang, A.Q.Hu & Yan Liu, *sp. nov.* (Figs. 1, 2)

Type:—CHINA. Guangxi: Guilin City, Huaping National Nature Reserve, in the bamboo forest, elevation ca. 1,650 m, 26 August 2014, Longsheng expedition team of Chinese traditional medicine 450328140826139 (holotype: IBK!; isotypes: IBK! and PE!).

Diagnosis:—*Gastrodia huapingensis* is similar to *G. major* Averyanov and *G. punctata* Averyanov (both in Averyanov & Efimov 2006), but it is distinct from these two in its ovate lip with truncate apex, undulate to erose epichile and dimorphic (extended or incurved) columns.

Terrestrial mycoheterotrophic leafless herbs. Roots few, up to 20 cm long, ca. 1 mm in diameter, at the apex of rhizome, branched. Rhizome tuberous, fusiform, subterete, 10–35 mm long, 5–10 mm in diameter, grayish brown, covered with dense unicellular hairs. Inflorescence erect, terminal, 1–10-flowered, glabrous, peduncle 10–40 cm long, 0.02–0.03 cm in diameter, with 4–6 sterile bracts; sterile bracts ovate, yellowish brown, ca. 5 mm long. Pedicel and ovary ca. 10 mm long, pedicel slightly curved, ovary ca. 2.5 mm in diameter. Flowers pointing slightly downwards, widely opening, bell-shaped, resupinate, grayish brown. Sepals and petals forming a perianth tube, 10–15 mm long, 6–7 mm in diameter, pale brown; sepals 10–15 mm long, connate for 3/4 length and adnate for 4/5 their length with the petals, grayish brown, glabrous, free portion of dorsal sepal ovate, margin slightly undulate, ca. 5 mm long, 3 mm wide, free portions of lateral sepals spreading, triangular, margin slightly undulate, ca. 5 × 5 mm, free portions of petals ovate, ca. 3.0 × 2.5 mm, margin slightly erose, apex obtuse, base contracted, slightly clawed. Lip adnate to column foot, ovate with truncate apex, 5 × 3 mm, pale yellowish brown, hypochile grayish brown, with two reddish brown, globular calli, epichile ovate, margin undulate to erose and finely undulate in apical portion, disc with 5 longitudinal ridges, the central two much longer and more prominent. Column extended or incurved, the former 4.5 × 2.0 mm, straight, slightly bending in the middle, flat, apex broader, stigma located at the base; the incurved column ca. 1.5 mm