



Habenaria fimbriatiloba (Orchidaceae), a new orchid species from China

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Introduction

Since it was published, *Habenaria* Willdenow (1805: 5) has become one of the largest and the most widespread genera of Orchidaceae. The estimated number of species included in the genus is over 800 (Govaerts *et al.* 2010), but novelties are published frequently (eg. Batista *et al.* 2012, Karthigeyan *et al.* 2014, Murugan *et al.* 2014). The highest specific diversity of *Habenaria* is observed in Brazil, southern and central Africa and East Asia (Kurzweil & Weber 1992), but species are found in most tropical and subtropical regions.

The most recent studies on Habenariinae indicated that the genus is highly polyphyletic and perhaps should be divided into smaller genera (Jin *et al.* 2014). Unfortunately, the only comprehensive morphological study on *Habenaria* was conducted over 100 years ago (Kraenzlin 1892), and in all previous genetic studies on the subtribe the number of samples of various species was insufficient to draw any reliable conclusions. Numerous small genera were separated from *Habenaria* s.l. over the years: *Ate* Lindley (1835: 326), *Fimbrorchis* Szlachetko (2004a: 489), *Kraenzlinorchis* Szlachetko (2004b: 57), *Kryptostoma* (Summerhayes) Geerinck (1982: 149), *Medusorchis* Szlachetko (2004c: 487), *Ochrorchis* Szlachetko (2004d: 52), *Plantaginorchis* Szlachetko (2004d: 61), *Platantheroides* Szlachetko (2004e: 103), *Senghasiella* Szlachetko (2001: 365), and *Smithanthe* Szlachetko & Margońska (2004: 172). Some of these are easily distinguished based on their morphological characters, but other are still difficult to define especially due to the great variation in vegetative and floral structures observed in *Habenaria* s.l.

Two genera *Fimbrorchis* and *Medusorchis* were proposed by Szlachetko (2004a,b), but although *Medusorchis* is well defined morphologically, the characters provided as diagnostic for *Fimbrorchis* are not adequate. According to the diagnosis the genus is characterized by small stigmatophores, elongate antherophores and an unguiculate lip; it was divided into two sections based on form of the lateral lobes of the lip. Species classified in section *Cruciatae* of *Fimbrorchis* are variable in the relative length of stigmatophores and antherophores. On the other hand, the lip of species included in nominal section is not always distinctly unguiculate. *Fimbrorchis* would be probably better defined if representatives of section *Cruciatae* Kraenzlin (1892: 56) were removed; however, additional research should be conducted in order to clarify this concept.

During the studies on Asian Habenariinae, two specimens collected in China labelled as *Habenaria linearifolia* Maximowicz (1859: 269) neither correspond morphologically to this species nor to any other representative of the section *Cruciatae*. I therefore describe this entity as a new species of *Habenaria*.

Taxonomic Treatment

Habenaria fimbriatiloba Kolan., *sp. nov.* (Fig. 1)

Species similar to *H. linearifolia* Maxim., *but distinguished by an oblong-ovate upper petal lobe, an entire petal lower lobe and long-fimbriate lip lateral lobes.*

Type:—CHINA. Jiangxi: Luoxi, Wuning, 1050 m, 2 August 2000, Zhang 1064 (holotype MO!).

Plant 60–90 cm tall. Leaves 5–6, cauline, linear-lanceolate, acute, decreasing in size upwards; 5–20 cm long, less than 0.5 cm wide; the uppermost two leaves bract-like. Raceme 6–11 cm long, laxly to subdensely several to many-flowered. Flowers white. Floral bract 5–12 mm long, shorter than ovary, lanceolate, acute. Ovary 7–15 mm long. Dorsal sepal



FIGURE 1. *Habenaria fimbriatiloba* Kolan. A, Dorsal sepal. B, Petal. C, Lateral sepal. D, Gynostemium. E–F, Lip shapes. Scale bars = 3 mm. Drawn from the holotype. G, Lip and spur. Scale bar = 3 mm. Drawn from *Ye 11446* (MO). H, Plant habit. Scale bar = 3 cm.

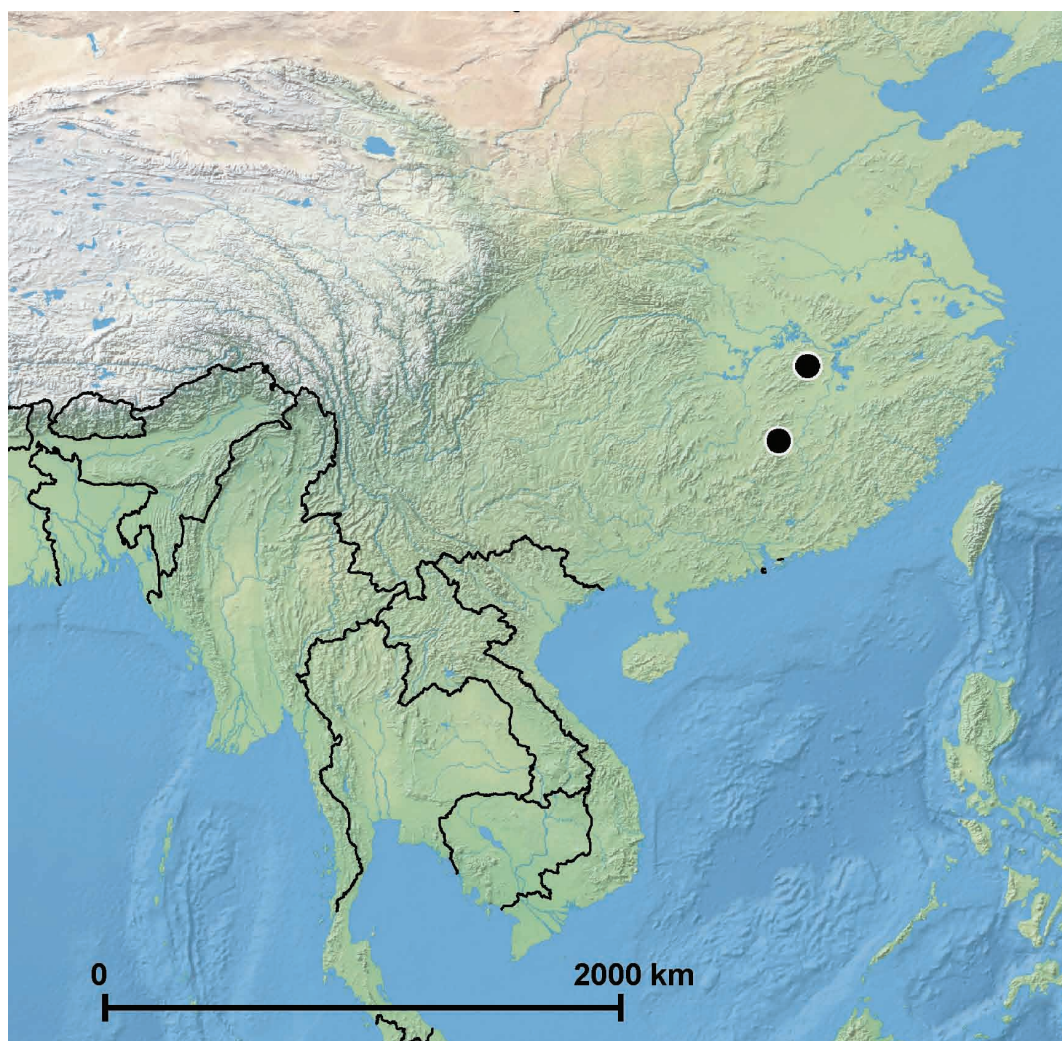


FIGURE 2. Distribution of *Habenaria fimbriatiloba*.

6.0–6.5 mm long, 4.5–5.5 mm wide, ovate when spread, obtuse, concave in the natural position, 5-veined. Lateral sepals 5.9–7.5 mm long, 3.8–6.0 mm wide, obliquely elliptic, obtuse, 5–7-veined. Petal bilobed, 6.1–6.8 mm long, 4.8–5.5 mm wide, primarily 3-veined, upper lobe oblong-ovate, with an obtuse apiculate apex, lower lobe triangular, oblique, acute. Lip trilobed above the prominent claw; claw 3–5 mm long; middle lobe 5.5–12.0 mm long, linear-ligulate, obtuse; lateral lobes linear, 9–13 mm long, with several fimbriae above basal third or fourth. Spur 9–30 mm long, conical, narrowed at the apex, often incurved. Gynostemium 3.5–4.5 mm long, stigmatophores about twice as long as antherophores.

Etymology:—In reference to the shape of lateral lobes of the lip.

Distribution and Ecology:—So far this species is known from southeastern China where it was found growing in the valleys at 500–1050 m (Fig. 2). Flowering occurs in August.

Additional specimen examined:—CHINA. Jiangxi: Ben An, Bailu, Ning Gang, 500–700 m, 10 August 1998, Ye 11446 (MO!).

Taxonomic notes:—In the flora of China, two species are similar to *Habenaria fimbriatiloba*: *H. linearifolia* and *H. schindleri* Schlechter (1920: 354). However, in both those orchids the lower lobe of the petals is bifid (Fig. 3). In *H. linearifolia* the lateral lobes of the lip are linear, slightly fringed in their apical half or third (Fig. 3), and in *H. schindleri* they are obovate-oblancheolate and deeply and densely fimbriate. An additional difference is observed in the form of the lip middle lobe apex between *H. schindleri* and *H. fimbriatiloba*; in the former it is abruptly narrowed in the apical third or fourth.

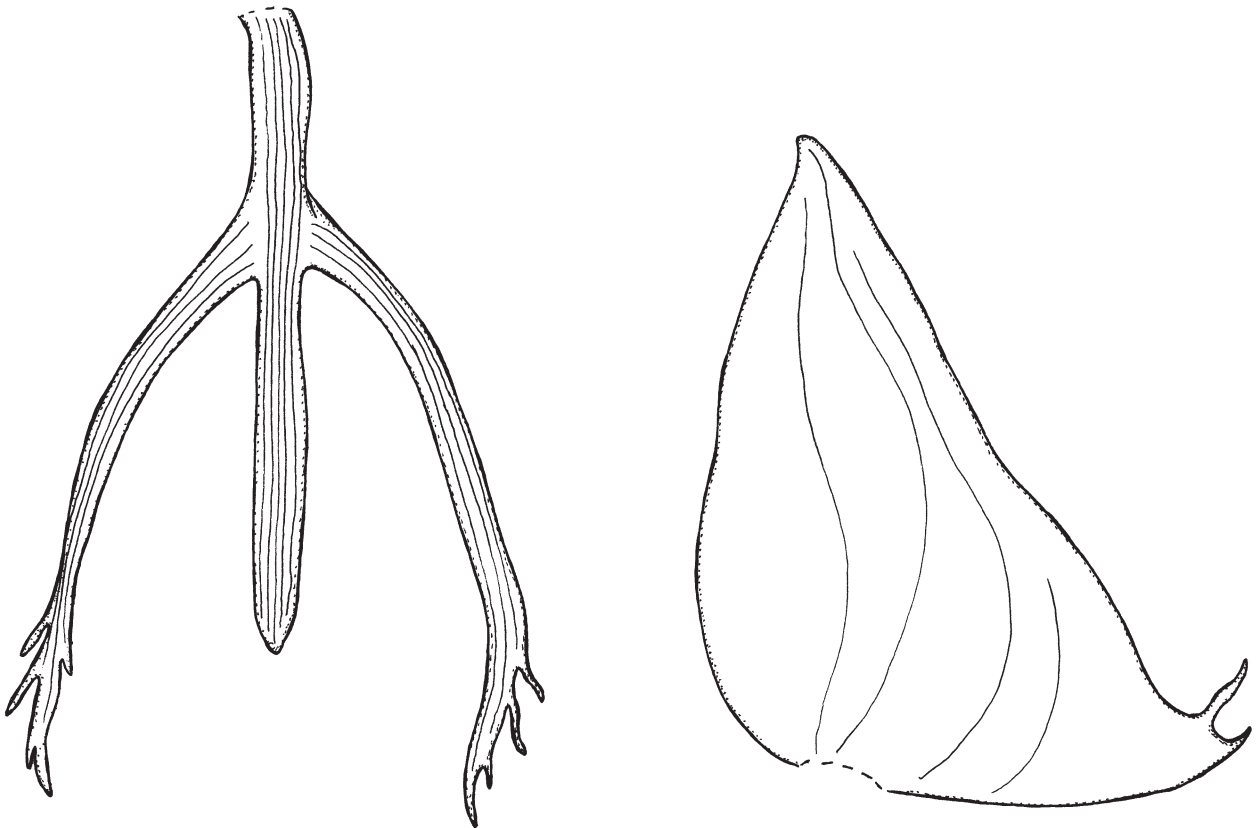


FIGURE 3. *Habenaria linearifolia* Maxim.: shape of lip and petal.

The new species somewhat resembles Japanese *H. sagittifera* Reichenbach (1845: 334), but in this species lower lobe of the petals is uncinata, and the lip lateral lobes are not fimbriate. It is worthwhile mentioning that Kraenzlin (1892, 1897) in his treatment of *Habenaria* cited *H. sagittifera* Rchb. f., but the characteristics of this species provided by Kraenzlin were those of *H. linearifolia*. In this treatment, Kraenzlin described a new species, *H. oldhamii* Kraenzlin (1892: 205), which is probably conspecific with *H. sagittifera* Rchb. f., which is characterized by the entire lateral lobes of the lip and triangular and ovate-lunate petals (Schlechter 1919).

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