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Rediscovery of *Brachycorythis menglianensis* (Orchidaceae) with additional descriptive notes

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Abstract: *Brachycorythis menglianensis* has not been discovered again since it has been firstly published in 2001. Until now, it has been only known from the illustration and type specimen. However, characteristics of plants and flowers were described not enough in the original description because of shrunk specimen, which led to be treated as the synonym of *B. henryi* by Henrik Æ Pedersen. During our field investigation in the Menglian County, South Yunnan, China, we fortunately found one population of *B. menglianensis*. After comprehensive observation for plant and flower characters using the fresh materials, the results showed that *B. menglianensis* significantly differed from *B. henryi* by having ovate and smaller size ($2.5-4.7 \times 1.7-2.3$ cm) leaf, labellum densely papillate adaxially and apex emarginated or 2-lobed. Therefore, we believe that these morphological features represent significant differences for species delimitation and hence reinstate *B. menglianensis* as a distinct species. Meanwhile, we present more detailed information of morphological characteristics, habitat and survival situation of this species in this paper.

Key words: *Brachycorythis menglianensis*, Orchidaceae, rediscovery, morphological characteristics addition, endangered situation status

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孟连苞叶兰(兰科)的重新发现与形态特征增补

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摘要: 孟连苞叶兰(*Brachycorythis menglianensis*)自2001年发表以来,再也没有被发现和记录过。由于能够用于分类学参考的仅为模式标本和依据标本绘制的素描图,加之原始文献的描述不够细致,以致于Henrik Æ Pedersen将其作为长叶苞叶兰(*B. henryi*)的异名处理。时隔十五年后,我们在该种的模式产地进行野外兰科植物考察时,有幸重新发现了该种。通过对其新鲜带花植株的详细对比之后,发现孟连苞叶兰与长叶苞叶兰在形

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态上具有明显的差异,如孟连苞叶兰叶片卵圆形,叶片大小(2.5–4.7 × 1.7–2.3 cm)、唇瓣密被疣状突起且先端缺刻或2裂等特征,明显有别于长叶苞叶兰。因此,在该研究中支持孟连苞叶兰的分类学地位,同时对该种的形态特征、生境以及生存现状等信息进行了增补。

关键词: 孟连苞叶兰, 兰科, 重新发现, 形态特征增补, 濒危状况评估

Genus *Brachycorythis* was proposed by Lindley in 1838, which was characterized by the structure of the leaf-like bracts, labellum (especially the inflated base or hypochile, with which Lindley compared with similar structure in the genus *Stanhopea*) and the bluntly galeate perianth. It was represented by about 35 species and mainly occurring in South tropical African and Madagascar, with a few species extending to tropical and subtropical Asia (Seidenfaden, 1977; Pridgeon et al., 2001). Only three species were reported from China, of which just one species was believed to be endemic (Qian, 2001, Pridgeon et al., 2001; Chen et al., 2009).

Brachycorythis menglianensis Y. Y. Qian is an interesting species collected from Menglian County. As far as we can tell, there have been no subsequent collections of this species since 2001 (Qian, 2001). Until now, it has been only known from the illustration and type specimen. In addition, the type specimen is poorly preserved and appears to be severely shrunk, the key characteristics are hard to diagnose. The plant figured and described by Qian was not detailed and accurate. Sometimes it was even be considered as the synonym of *B. henryi* (Pedersen, 2010). During recent field work in the Menglian County in South Yunnan in 2014, an unusual species of *Brachycorythis* was discovered. After a comprehensive review of literature and herbarium specimens, we finally confirmed that our collection match the little-known *B. menglianensis*. It was similar with *B. henryi*, but differed by floral bract as long as pedicel and ovary, labellum densely papillate adaxially and apex of labellum emarginated or 2-lobed (Qian, 2001; Chen et al., 2009). Based on the material recently collected, we hereby present an updated description, along with color plates to facilitate its recognition.

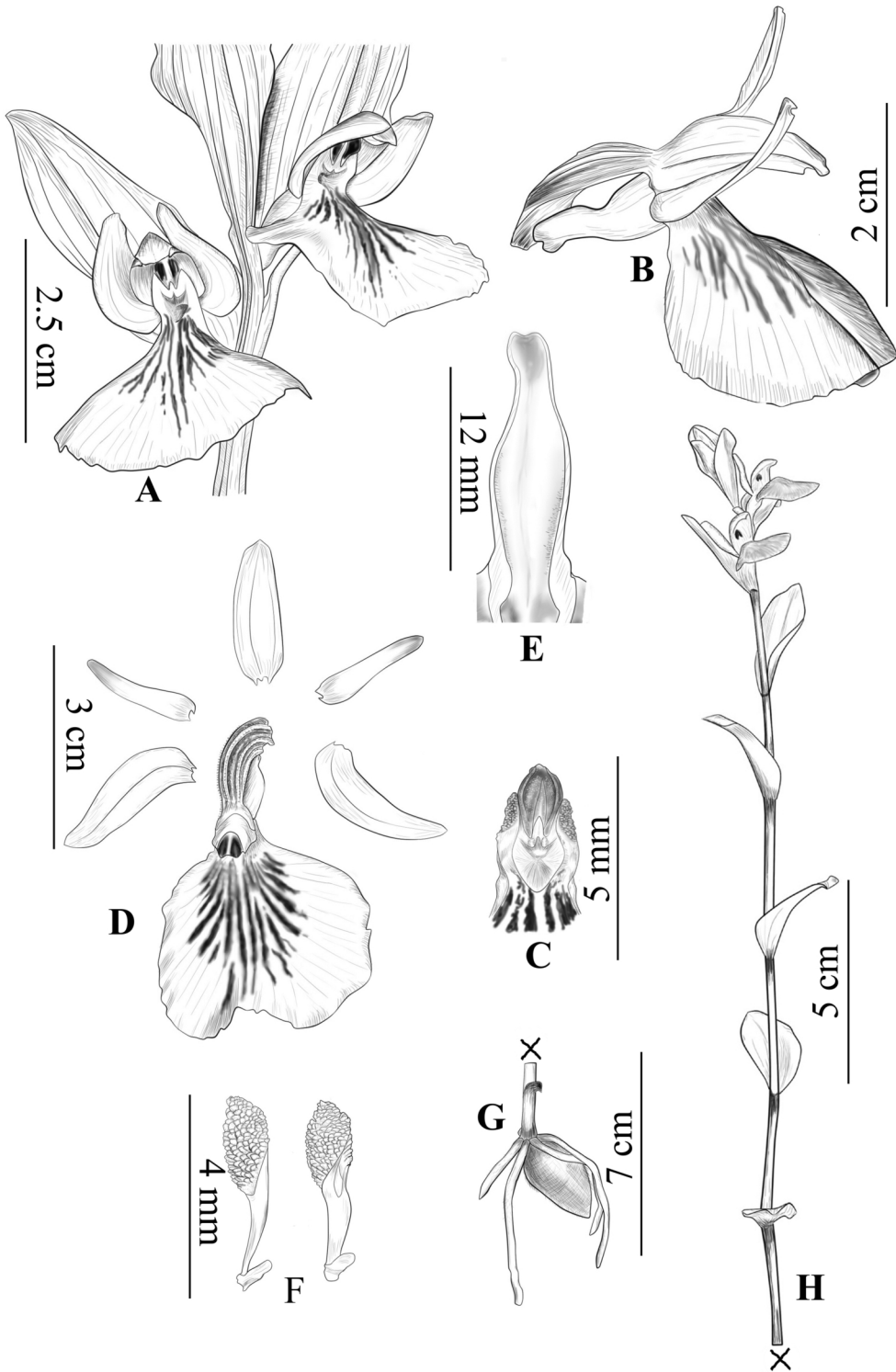
Taxonomy

Brachycorythis menglianensis Y. Y. Qian in Acta Phytotax. Sin. 39: 278. 2001. 孟连苞叶兰 (Fig. 1,2)

Type: CHINA. Yunnan Province, Menglian County, in grassland, 1 600 m, 3 July 1993, Y. Y. Qian 2902 (Holotype, PE!)

Terrestrial. Plants ca. 41 cm tall. Tuber ellipsoid, 3.6 cm long, 2.4 cm in diam. Stem erect, with 2–3 sheaths at base, sparsely 5 or 6-leaved above. Leaves ovate, (25.38–46.79) mm long, (17.46–22.63) mm wide, apex acute, without petiole, base amplexicaul. Inflorescence with 4–5 well-spaced flowers; floral bracts leaf-like, slightly smaller than leaves. Flowers white, marked with purple-red, lip purple; pedicel and ovary slightly arching toward apex, twisted, cylindrical, slightly pubescent along ridges, ca. (18.74 ± 1.21) mm long; dorsal sepal narrowly ovate, (16.06 ± 0.35) mm long, (5.68 ± 0.45) mm wide, 3-veined, apex obtuse; lateral sepals oblique-ovate, (17.06 ± 0.66) mm long, (5.40 ± 0.25) mm wide, 3-veined, apex obtuse. Petals lanceolate, (14.07 ± 0.64) mm long, (3.16 ± 0.13) mm wide, 1-veined, apex obtuse; lip much larger than sepals and petals, suborbicular, (23.39 ± 2.04) mm long, (28.56 ± 0.35) mm wide, densely with deeply purple stripes on the center of lip; spur white, sub-cylindrical, slightly wider towards the obtuse apex, densely pubescent at the entrance of spur, (12.94 ± 0.83) mm long, (3.67 ± 0.25) mm wide, bifid at apex; column short, (4.14 ± 0.43) mm. Pollinia 2, granular-farinaceous, (3.98 ± 0.13) mm long. Flowering: June to July.

Distribution and habitat: Until now, *Brachycorythis menglianensis* had only been found in a single population

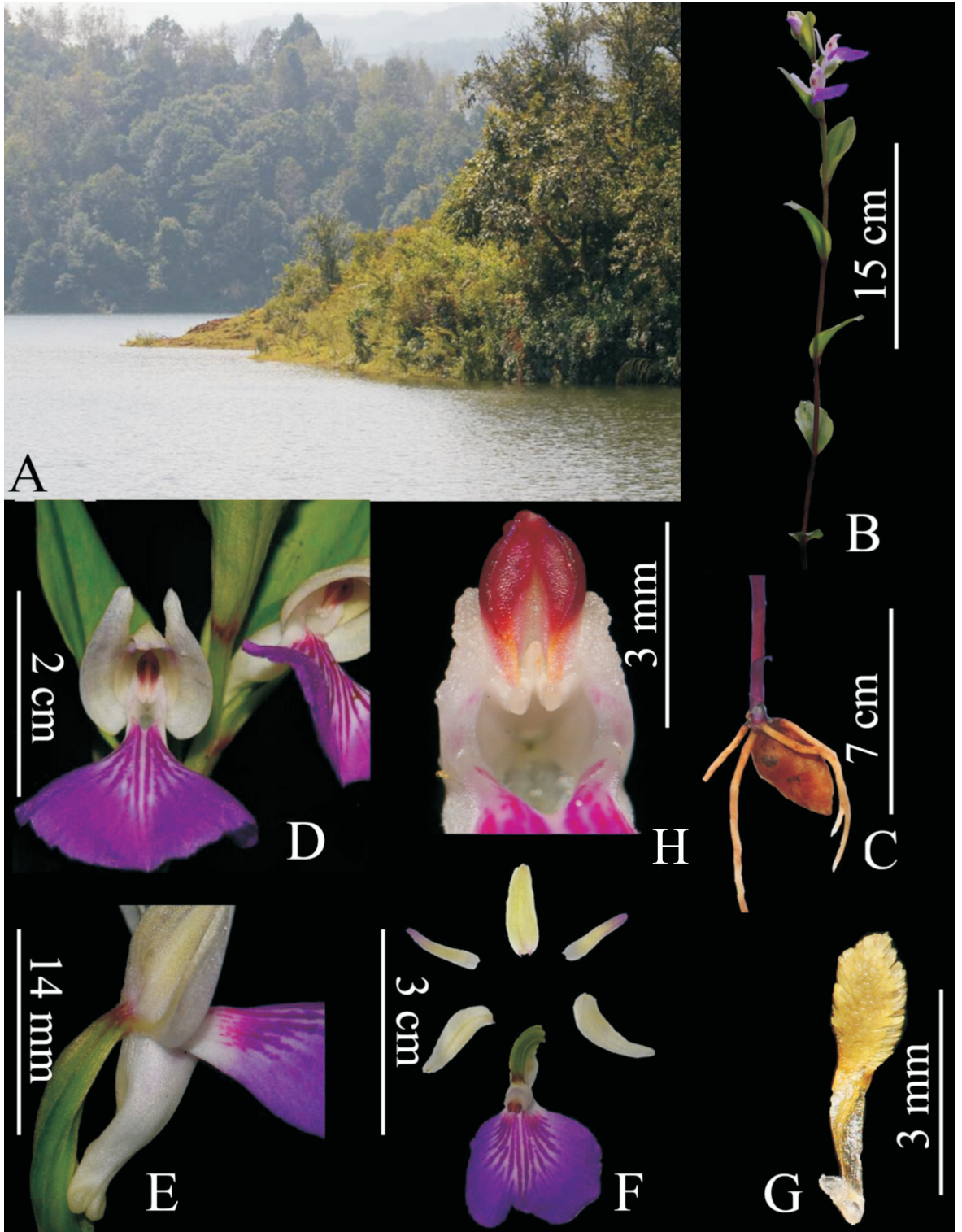


A. Front view of flower; B. Lateral view of flower; C. Front view of column; D. Each part of flower; E. Vertical section of spur; F. Front and lateral view of Pollinia; G. Tuber and roots; H. Plant. All drawn by B. Pan from the Qiang Liu 203 (holotype, HITBC).

Fig. 1 *Brachycorythis menglianensis*

of about 20 plants in the Menglian County, South Yunnan, China. It occurs in the subtropical monsoon

evergreen broad-leaved forest at an elevation of ca. 1 560 m. The dominant species are *Trigonobalanus*



A. Habitat; B. Plant; C. Tuber and roots; D. Front view of flower; E. Spur; F. Each part of flower; G. Pollinia; H. Front view of column (Photographed by Qing Liu).

Fig. 2 *Brachycorythis menglianensis*

doichangensis (A. Camus) Farman, *Schima wallichii* Choisy, *Castanopsis delavayi* Franchet, *Castanopsis*

fleuryi Hickel & A. Camus, *Betula alnoides* Buchanan-Hamilton ex D. Don. Some other orchids

are also found in the area, such as *Habenaria malintana* (Blanco) Merrill, *Pecteilis susannae* (Linnaeus) Rafinesque, *Anthogonium gracile* Lindley, *Habenaria reniformis* (D. Don) J. D. Hooker and *Nervilia crociformis* (Zollinger & Moritzi) Seidenfaden.

Conservation status: *Brachycorythis menglianensis* is endemic to China and just one population with about 20 plants had been found until now. The habitat was outside the natural reserve and frequently disturbed by the flocks and herds. Additionally, it is also collected as *Habenaria* spp. for medicine by local people. Therefore, it is considered as critically endangered (CR) according to IUCN red list criteria (IUCN, 2017).

Specimen examined: China. Yunnan Province. Menglian County, Mengma Town, under the open monsoon evergreen broad-leaved forest, 1 560 m, 20 June 2015, Qiang Liu 203 (HITBC!)

Taxonomic notes: Only the specimen and illustration of this species previously existed on which the protologue was based (Qian, 2001). Plant and flowers characteristics were not described in enough details in the original description, and led to be treated as the synonym of *B. henryi* by Pedersen (2010). After the comprehensive observe plant and flower characters using the fresh materials, we found that *B. menglianensis* significantly differed from *B. henryi* by having smaller size leaf ($2.5\text{--}4.7 \times 1.7\text{--}2.3$ cm), floral bract as long as pedicel and ovary, labellum densely papillate adaxially and apex emarginated or 2-lobed, and apex of spur obviously 2-lobed (Chen et al., 2009). So, we still believe that *B. menglianensis* should be supported as distinct from *B. henryi*. Additionally, *B. menglianensis* is similar to *B. galeandra*, but the latter has the small size of flowers and short, undivided spur (Chen et al., 2009) (more detail information see Table 1).

Table 1 Morphological comparison of *Brachycorythis menglianensis* and related species

Character	<i>Brachycorythis menglianensis</i>	<i>B. henryi</i>	<i>B. galeandra</i>
Plant height	25–40 cm	54 cm	30 cm
Stem	2–3 sheaths at base and glabrous	5–7 sheaths at base and glabrous	2–3 sheaths at base and glabrous
Leaves	$2.5\text{--}4.7 \times 1.7\text{--}2.3$ cm	$6.0\text{--}15.0 \times 2.0\text{--}4.0$ cm	$2.0\text{--}4.5 \times 0.7\text{--}2.0$ cm
Inflorescence	4–5 flowers	4–10 flowers	3–10 flowers
Floral bract	As large as flowers	Much longer than flowers	Much longer than flowers
Flower color	white, margin with purple	White or pale purple	Pink or bluish purple
Labellum	Suborbicular, densely papillate adaxially, apex emarginated or 2-lobed	Suborbicular, glabrous adaxially, apex entire	Orbicular-obovate, glabrous adaxially, apex emarginate
Spur	11–14 mm, apex 2-lobed and no-hooked	6–15 mm, apex shallowly 2-lobed and hooked	3–6 mm, apex undivided

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