

## *Dendrobium wangliangii* (Orchidaceae), a new species belonging to section *Dendrobium* from Yunnan, China

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*Dendrobium wangliangii* G. W. Hu, C. L. Long & X. H. Jin, a new species from the north of the Yunnan Province in China is described and illustrated. The morphological differences between the new species and the related species, *Dendrobium flexicaule*, and its endangered status are discussed. © 2008 The Linnean Society of London, *Botanical Journal of the Linnean Society*, 2008, **157**, 217–221.

ADDITIONAL KEYWORDS: conservation – Convention on International Trade in Endangered Species (CITES) – critically endangered, International Union for the Conservation of Nature and Natural Resources (IUCN) Red List category – medicine.

### INTRODUCTION

*Dendrobium* comprises approximately 1000 species and is one of the largest genera in the Orchidaceae. It has a wide distribution from India and Sri Lanka in the west to Tahiti in the east and from subtropical China, Japan and Korea in the north, through New Guinea, New Caledonia to Stewart Island in the south (Wood, 2006). Some 80 species of *Dendrobium* are known from China, most occurring in tropical and subtropical regions of the south. It is surprising, therefore, that one of the world hotspots of biodiversity, the temperate Hengduanshan Mountain, should only have a few species, including *Dendrobium chrysseum* Rolfe, *Dendrobium flexicaule* Z. H. Tsi, S. C. Sun & L. G. Xu and *Dendrobium porphyrochilum* Lindl.

In May 2006, orchid specialist Liang Wang collected an unusual species of *Dendrobium* in Yunnan Province. We were unable to refer this plant to any species hitherto included in the Flora Reipublicae Popularis Sinicae (Tsi, 1999). Several herbarium specimens were prepared and material was preserved in formalin-acetic-alcohol fixative (FAA) for further study. Following morphological studies, a literature search (Seidenfaden, 1985; Wood, 2006; Chen & Cribb, 2008),

and examination of material in KUN and PE, we concluded that it represented a species new to science. In February 2007, accompanied by Liang Wang, we visited the mountainous locality in northern Yunnan to conduct a field survey of the newly identified *Dendrobium*. Investigation and field research on the part of the first author (G-WH) to locate populations of this species revealed a population growing on deciduous *Quercus* on a mountain at one side of a hot, dry canyon. Our field survey suggests that this species is very rare and its limited distribution in the wild is of concern.

### MATERIAL AND METHODS

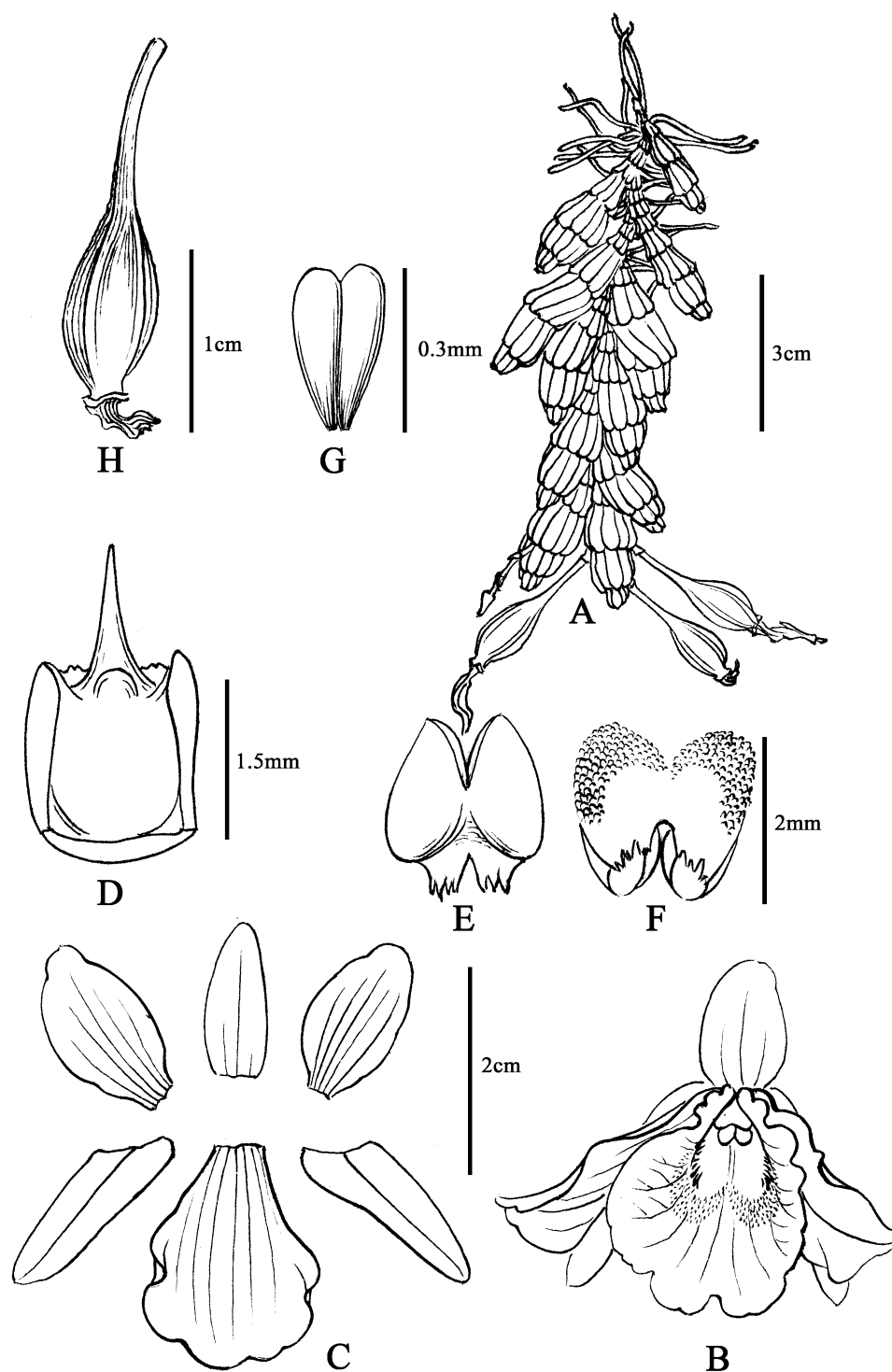
The measurements, colours and other details given in the description and discussion are based on the living material or the material conserved in FAA. The illustrations shown in Figure 1 were drawn from the material conserved in FAA, from living material and from specimens.

### DESCRIPTION OF THE NEW SPECIES

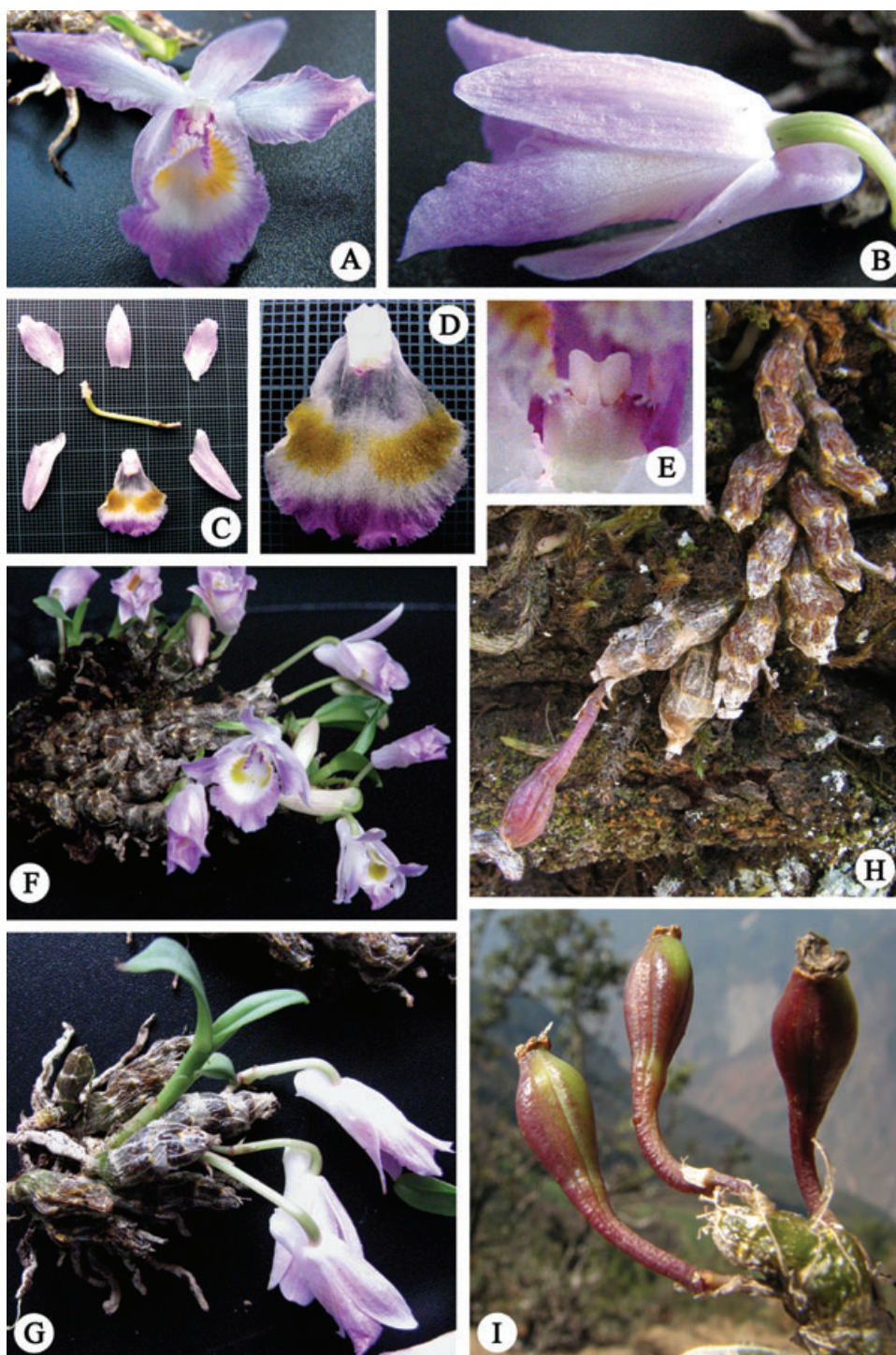
*DENDROBIUM WANGLIANGII* G. W. HU, C. L. LONG & X. H. JIN **SP. NOV.** (SECT. *DENDROBIUM*)  
(FIGS 1, 2)

*Type:* China, Northern Yunnan Province, 2200 m, epiphytic on tree, 29.v.2006, *L. Wang & G. W. Hu* 24460

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**Figure 1.** *Dendrobium wangliangii*. A, habit. B, front view of flower. C, perianth. D, upper part of column. E, top view of anther-cap. F, front view of anther-cap. G, pollinia. H, capsule. A, H, based on G.-W. Hu 24479 (KUN); B–G, based on: L. Wang & G.-W. Hu 24460 (KUN).



**Figure 2.** *Dendrobium wangliangii*. A, front view of flower. B, lateral view of flower. C, perianth. D, lip. E, dorsal view of anther-cap. F, G, habitat with flowers. H, habitat with capsule. I, capsules. A–G, photographed on 30 May 2006. H, I, photographed on 25 February 2007.



(Holotype: KUN; Isotypes: KUN, HNU); *ibid.*, 25.ii.2007, G. W. Hu 24479 (Paratypes: KUN, HNU).

**Diagnosis:** Haec species affinis *D. flexicauli*, sed caulibus brevibus, 1.5–3 cm longis, pronis, obovato-fusiformibus, distichis supra rhizome. Floribus rubro-lilacinis, labio late ovato vel flabellato. Operculo bilobo supra dorsum et apex, apice dense verruculoso manifeste differt.

**Description:** Epiphytic herb. Rhizome c. 1.5 mm in diameter, abbreviated, prostrate, slightly fractiflex, white to grey, fibres on ventral surface fairly dense, white. Stems 1.5–3 cm long, up to 0.8 cm wide, 3- to 6-noded, decumbent, arranged alternately in two rows on the rhizome, fusiform or somewhat obovate, short and thick, not compressed; internodes 0.2–0.8 cm long, somewhat swollen, each covered with a membranous white sheath; young stems sheathed at the basal nodes, 2- to 4-leaved, tender; old stems leafless. Leaves 1–2 × 0.5–0.8 cm, elliptic, acute, slightly revolute, distichous, sheaths amplexicaul. Inflorescences one-flowered, borne from the upper nodes of older leafless stems; peduncle 0.4–0.7 cm long, 2-noded, with a broadly ovate, acuminate bract at each node; floral bracts c. 0.1 cm long. Flowers red–lilac, lip white, red–lilac distally, disc with two greenish yellow patches on either side, column and anther-cap white. Pedicel-with-ovary 1.5–2 cm long, 0.15 cm in diameter, green. Dorsal sepal c. 1.6 cm long, c. 0.4 mm wide at base, 0.6 cm wide above, ovate–elliptic, acute, 5-nerved. Lateral sepals c. 2 × 0.6 cm, obliquely triangular–oblong, acute and slightly revolute, usually with a tiny tip, 5-nerved, midnerve slightly carinate abaxially. Petals c. 1.7 × 0.9 cm, elliptic, obtuse, slightly revolute, sometimes with a tiny tip, margin slightly undulate, with very small irregular teeth in the upper part, 5-nerved, lateral nerves branching. Mentum c. 0.5 × 0.4 cm, saccate, slightly compressed, apex rounded. Lip 2–2.2 × 1.5–1.8 cm, broadly obovate to flabellate, shortly clawed and cuneate at base, margin undulate, regularly dentate, lower margins clasping column, disc densely pubescent. Column 0.2–0.3 cm long; stelia very short, obtusely deltoid; connective c. 0.15 cm long, subulate; foot c. 0.5 cm long; anther-cap c. 0.2 cm high, conical, basal front margin 2-lobed, lobes obtusely triangular and irregularly toothed, apex and back 2-lobed, lobes rounded, finely verruculose; pollinia 4, in two adpressed pairs, c. 0.3 mm long, long–elliptic. Capsule 1–1.5 × 0.5–0.8 cm, gradually narrowed at the base, 3-keeled.

**Phenology:** Based on material collected and cultivated by Liang Wang in 2006 and data from the field

survey by Guang-Wan Hu in February 2007, we conclude that, in the wild, *Dendrobium wangliangii* flowers between May and June and fruiting occurs from August to the following March.

**Habitat and distribution:** Mixed broad-leaved deciduous and evergreen forest, composed mainly of *Quercus* species, especially *Quercus variabilis* Blume, *Quercus spinosa* David ex Franch., and *Quercus yunnanensis* Franch., *Photinia* spp., *Rhododendron* spp., etc.; epiphytic on the deciduous *Q. yunnanensis* Franch.; alt. c. 2200 m.

**Conservation status:** *Dendrobium wangleangii* is currently known only from one plot of about 200 *Q. yunnanensis* trees within an area less than one hectare. We suggest that *D. wangliangii* should be placed under the International Union for the Conservation of Nature and Natural Resources (IUCN) category critically endangered (CR). This assessment is based upon its 'area occupancy' being less than 10 km<sup>2</sup> (criterion B2) and existence at only a single location (criterion B2a). See 2001 Categories and Criteria, version 3.1 ([http://www.iucnredlist.org/info/categories\\_criteria](http://www.iucnredlist.org/info/categories_criteria) 2001). We have not given the precise locality of *D. wangliangii* as we are concerned that the beautiful species may be the target of illegal collection.

## DISCUSSION

*Dendrobium wangliangii* belongs to section *Dendrobium* and is most closely allied to *D. flexicaule* Z. H. Tsi, S. C. Sun & L. G. Xu. Both species have short, unbranched stems. The inflorescences are borne on old leafless stems, have a short peduncle and are usually only one-flowered. The flowers are purple in colour and have an anthercap that is deeply two-lobed at the apex.

*Dendrobium wangliangii* is distinguished from *D. flexicaule* by the obovate–fusiform stems, which are shorter, only measuring between 1.5 and 3 cm in length. These are borne in two rows on a very short rhizome. The flowers are red–lilac with a broadly obovate to flabellate lip and conical, 2-lobed anthercap, which is rounded and finely verruculose at the apex. Whereas the stems of the latter are cylindrical, measuring 6–11 cm in length. Its flowers are mainly yellowish green with purple colour at the apical margin of each part. Its lip is broadly ovate and inconspicuously 3-lobed, acute at the apex. Its anthercap is subrhombic in shape, the deeply 2-lobed apex sharply toothed.

## ACKNOWLEDGEMENTS

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