



A new species of *Rhododendron* (Ericaceae) from the Gaoligong Mountains, Yunnan, China, supported by morphological and DNA barcoding data

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Abstract

Rhododendron baihuaense sp. nov. is described as a new species endemic to Yunnan, China, that has, to date, only been found in Baihualing on the eastern side of the Gaoligong Mountains. Morphologically, *R. baihuaense* can be readily distinguished from *R. hanceanum* and *R. genestierianum*, by its absent scales on mature leaves, only 2–5 flowers per inflorescence, the funnel-shaped flower and white corolla, and its slender and erect style. A molecular analysis based on the four standard DNA barcodes (*rbcL*, *matK*, *trnH-psbA* and ITS) indicates that *R. baihuaense* is genetically distinct from *R. hanceanum* and *R. genestierianum*, and, together with the morphological differences, is described here as a new species.

Key words: DNA barcoding, Ericaceae, Himalayas, *Rhododendron*, taxonomy

Introduction

Rhododendron Linnaeus (1753: 392) is one of the largest genera in Ericaceae with about 1,025 species, distributed from the northern temperate zone, throughout tropical Southeast Asia, to northeastern Australia (Chamberlain *et al.* 1996). There are 571 species classified in 6 subgenera in China, 405 of them endemic (Fang *et al.* 2005). The global biodiversity hotspot of the Hengduan Mountains spanning southwest Sichuan, northwest Yunnan, and part of eastern Tibet (Myers *et al.* 2000, Ge *et al.* 2005, Weckerle *et al.* 2006), is one of the centers of diversification and differentiation of *Rhododendron*. A total of 320 species of *Rhododendron* occur in this region (Fang *et al.* 2005). In addition, *Rhododendron* has a long and rich horticultural history, and numerous plant hunters from all over the world have been drawn to Southwest China on their account (Gibbs *et al.* 2011).

The Gaoligong Mountains are part of the Hengduan Mountain chain, and lie in the border area between southwestern China and northern Myanmar (24°56' to 29°09'N and 98°34' to 98°50'E) (Sun *et al.* 2007); there are about 3990 species of seed plants in the Gaoligong Mountains (Li *et al.* 2000). In October 2011, during field work at Baihualing on the eastern side of the Gaoligong Mountains by one of the authors, a *Rhododendron* species with distinct leaves was noticed and collected. In March 2012, another survey, focusing specifically on this interesting species was carried out and flowered specimens were collected. The species had exerted stamens from the corolla tube and scales in the flowers, fruits and young leaves placed this *Rhododendron* as a species of subgenus *Rhododendron* section *Rhododendron* (Wu *et al.* 2005). In addition, the pale glaucous green abaxial leaf surface, slender and straight styles, as well as small (ca. 2 cm) and white corollas indicated that the new species was similar to those in *R.* subsection *Tephropepla* (Cowan et Davidian) Sleumer (1949: 532) (Wu *et al.* 2005). Despite of different flower characters, this species was also close to *R. genestierianum* Forrest (1920: 122) in leaf characters of *R.* subsection *Genestieriana* (Cowan et