Begonia intermedia, a new species of Begoniaceae from Hainan, China

DAI-KE TIAN*, CHUN LI**, YUE-HONG YAN, XIANG-PENG LI & JING MENG

Shanghai Chenshan Plant Science Research Center, Chinese Academy of Sciences / Shanghai Chenshan Botanical Garden, 3888 Chenshua Road, Songjiang, Shanghai 201602, China; *Corresponding author; e-mail: dktian@sibs.ac.cn, **Co-first author

Abstract

Begonia intermedia D.K. Tian & Y. H. Yan, a new species in Begonia sect. Diplolclinium (Wright) A. DC (Begoniaceae) from Hainan, China, is described and illustrated. It differs from the morphologically similar B. fimbristipula by its orchid-root-like rhizomes, later flowering and distinctive hairy bracts. Also, based on a molecular phylogenetic analysis, B. intermedia is distinct from B. fimbristipula.

Key words: China, Hainan, Begonia, new species

Introduction

Begonia is one of the most diverse plant taxa and is considered the sixth largest genus of vascular plants in the world (Hoover et al. 2004). Nearly 1600 species have been named so far (Sands 2001, Aitawade et al. 2012). China, after Brazil, has the second largest number of Begonia species, with 173 species recorded in Flora of China and 141 endemic in China (Gu et al. 2007). After publication of Flora of China, 14 new Begonia species, all endemic in China, are described and illustrated (Ku et al. 2008, Li et al. 2008, Liu et al. 2007, Ma et al. 2006, Peng et al. 2008a, 2008b, 2009, 2010, 2012, 2013, Shui 2007, Wei et al. 2007). There are still many potential new taxa under investigation, therefore, the total number of Begonia species in China could easily reach over 200.

During fieldwork on Yinggeling National Natural Reserve, Qiongzhou, Hainan, in June 2012, we collected several specimens and living plants from an interesting species of Begonia. This species is very similar to Begonia fimbristipula but it has orchid-root-like rhizome without nodes and distinctive hairy bracts, and blooms late. After a further field investigation in September 2012 when the plants were in full bloom, we confirmed that this species should be recognized as a new taxon. In order to obtain more evidence for its taxonomic placement in distinctiveness, a molecular phylogenetic analysis based on the chloroplast ndhA intron region was conducted with 48 terminals representing a total of 44 species and eight sections of Begonia delimited in China based on Shui’s treatment (Shui et al. 2007).

Begonia intermedia D.K. Tian & Y.H. Yan was mistreated as B. fimbristipula by the author of The Coloured Illustrative Plates of Wild Plants in Diaoluoshan Hainan China (Qin 2013).

Materials and methods

Taxonomic sampling

To position new species within the phylogeny of the Begonia, the sequence data of all sections except sect. Leprosae (T.C. Ku) Y.M. Shui delimited in Chinese Begonia were used for analysis. Partial data were sequenced by us including all species except B. howii distributed in Hainan and three morphologically similar species outside Hainan (B. fimbristipula, B. labordei (1904: 323), B. augustinei (1900: 286)). The others were downloaded from NCBI to ensure at least three species from each section of Chinese Begonia, except one species for sect. Alicida C.B. Clarke. Three species from Africa were chosen as outgroup based on molecular phylogenetic studies. The related information of all species used in phylogenetic analysis is listed in Table 1.
Acknowledgements

We would like to thank Shanghai Administration Bureau of Landscape and City Appearance for funding this study (funded project code: F112416). Yihui Lu from East China Normal University is acknowledged for illustration of this new species. Jingxiu Li and Airong Liu from Kunming Institute of Botany, Chinese Academy of Sciences are acknowledged for providing partial plant material for phylogenetic analysis.

References

http://dx.doi.org/10.1111/j.1096-3642.1791.tb00396.x
http://dx.doi.org/10.2307/2408678
Irmscher, E. (1939) B. alicia (Begoniaceae), a new species from limestone areas in Guangxi, China. Botanical Studies 49: 167–175.
http://dx.doi.org/10.1111/j.1095-8339.2008.00771.x
http://dx.doi.org/10.1111/j.1095-8339.2008.00771.x
http://dx.doi.org/10.1016/j.ympev.2011.05.006