



## The *Epimedium wushanense* (Berberidaceae) species complex, with one new species from Sichuan, China

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### Abstract

*Epimedium wushanense* (Berberidaceae) as treated in the Flora of China includes four species similar in leaflet shape: *E. wushanense*, *E. ilicifolium*, *E. jinchengshanense* (sp. nov.), and *E. pseudowushanense*. Its seven type specimens represent three of the four species. In the present paper, *E. wushanense* is identified according to morphological characters of its holotype. Except for four of the seven type specimens belonging to *E. wushanense* and *E. ilicifolium*, the remaining three specimens represent a new species, *E. jinchengshanense*. Furthermore, *E. wushanense* from Guangxi and Guizhou as treated in the Flora of China is recognized as *E. pseudowushanense*. *Epimedium wushanense*, *E. ilicifolium*, *E. jinchengshanense*, and *E. pseudowushanense* differ by their distributions and flowers. Based on the floral characters, *E. jinchengshanense* is grouped into ser. *Dolichocerae*, *E. wushanense* is adjusted from ser. *Dolichocerae* to ser. *Davidianae*, and *E. ilicifolium* is moved from ser. *Davidianae* to ser. *Dolichocerae*.

**Key words:** Berberidaceae, *Epimedium wushanense*, species complex, revision.

### Introduction

*Epimedium* L. (1753: 117) is the largest herbaceous genus of the Berberidaceae and contains approximately 58 species distributed disjunctly and very unevenly in the Mediterranean region and eastern Asia (Stearn 2002; Ying *et al.* 2011). As the diversity center of *Epimedium*, China possesses about 48 species of the genus which are all endemic except *Epimedium koreanum* Nakai (1936: 63). In his revision of *Epimedium*, Stearn (2002) grouped all of China's endemic species into section *Diphyllon* (Kom.) Stearn (2002: 48), which was divided into four series based mainly on floral morphology, particularly petal characteristics.

*Epimedium wushanense* T.S. Ying (1975: 55), of sect. *Diphyllon*, was published based on seven collections from Sichuan (and Chongqing), China. One of the most diagnostic characters of this species is its lanceolate or narrowly lanceolate leaflet. Stearn (2002) proposed *E. wushanense* with long-spurred petals lacking lamina, classifying it into series *Dolichocerae* Stearn (1938: 509). In the Flora of China, Ying *et al.* (2011) listed its distribution as Chongqing, Guangxi, Guizhou, Hubei, and Sichuan; however, *E. wushanense* from Guangxi and Guizhou was recognized as an insufficiently known species, *Epimedium pseudowushanense* B.L. Guo (2007: 814). Based on our extensive studies on plants in herbaria, the field, and cultivation, we found that *E. wushanense* described in the Flora of China actually includes four distinct species, which are similar in leaflet shape, with a new species *Epimedium jinchengshanense* Y.J. Zhang & J.Q. Li. In the present paper, we revise the *E. wushanense* species complex and discuss the differences of these four species in their morphology and distribution.

- E. ilicifolium*—CHINA. **Chongqing:** Wuxi, *B.L. Guo* 8 (IMD), *A09* (IMD), *P.T. Nee* 37 (CDBI). **Shaanxi:** Langao, *Y.J. Zhang* 52 (HIB), 54 (HIB), 123 (HIB); Pingli, *B.L. Guo* A55 (IMD), *Y.J. Zhang* 113 (HIB), *Y.L. Qiao* 1133 (KUN); Zhengping, *B.L. Guo* A53 (IMD), A59 (IMD), A60 (IMD), *P.Y. Li* 1390 (KUN), 2857 (KUN), *Y.J. Zhang* 109 (HIB), 110 (HIB), 111 (HIB), 109 (HIB), 110 (HIB), 111 (HIB), 241 (HIB), 243 (HIB).
- E. pseudowushanense*—CHINA. **Guangxi,** Longsheng, *F.L. Guang* 790 (IBK); Rongshui, *L. Chen* 1973 (HIB), *L.K. Pei* 0518 (IMD). **Guizhou,** Congjiang, *F.Q. Hu s.n.* (HGCM), *J.M. Yuan* 84 (HGAS); Dushan, *G.Z. Fan* 4-4 (HGCM), 4-9 (HGCM); Guiding, *Q.H. Chen* 1687 (HGAS); Leishan, *B.L. Guo* A68 (IMD), A97 (IMD), *Q.H. Chen* 3026 (HGAS), 3325 (HGAS), 3598 (HGAS), *S. Guizhou Exped.* 1389 (PE, HGAS), 1727 (HGAS), *S.Z. He* 98025 (HGCM), *Y.J. Zhang* 50 (HIB), 93 (HIB), 95 (HIB), 262 (HIB), 425 (HIB), *X.B. Yang* 9 (HGCM); Libo, *G.Z. Fan* 5-13 (HGCM), *Q.H. Chen* 2377 (HGAS); Liping, *Anon.* 75-1227 (HGAS), *J.M. Yuan* 174 (HGAS), 726 (HGAS); Longli, *B.L. Guo* A39 (IMD); Rongjiang, *H.A. Deng* 45 (HGCM); Sandu, *Q.L. Lin et al.* 5 (HGCM); Taijiang, *Y.J. Zhang* 150 (HIB), 152 (HIB), *Z.B. Xu* 102 (HGCM).

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