Phytotaxa 236 (3): 266–272
www.mapress.com/phytotaxa/

Article

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

http://dx.doi.org/10.11646/phytotaxa.236.3.7

Adiantum × *ailaoshanense* (Pteridaceae), a new natural hybrid from Yunnan, China

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Abstract

Adiantum × *ailaoshanense* Y.H.Yan & Y.Wang, a new natural hybrid that belongs to Pteridaceae, is described and illustrated. Molecular studies show that *A.* × *ailaoshanense* arose from a hybridization between the maternal *A. sinicum* and the paternal *A. menglianense*. In this report, the morphology, palynology, and geographic distribution of *A.* × *ailaoshanense* are documented.

Key words: *Adiantum* × *ailaoshanense, A. sinicum*, *A. menglianense*, natural hybrid

Introduction

Adiantum L. (1753:1094) consists of about 150–200 species with a worldwide distribution, and most species are in South America (Ching 1957; Lin 1990; Lin *et al.* 2013). It is known to have ornamental and medicinal value (Lin 1990). Ching (1957) studied the genus *Adiantum* of China and related neighboring regions and recognized 33 species, 8 varieties, and 2 forms in China. Recent studies reported that *Adiantum* is a monophyletic group that belongs to the family Pteridaceae (Smith *et al.* 2006; Shuettpelz *et al.* 2007; Christenhuzs *et al.* 2011; Lu *et al.* 2012). In China, 8 species of Ser. *Caudata* Ching (1980:101) are recorded in *Flora of China* including *A. meishanianum* F.S.Hsu ex Y.C.Liu & W.L.Chiou (2009:59), which has been proven to be a hybrid of *A. malesianum* and *A. philippense* (Lin *et al.* 2013; Zhang *et al.* 2014). Morphological and molecular data showed that *A. menglianense* Y. Y. Qian (1992: 37) is a natural species that is closely related to *A. philippense*. A key to Ser. *Caudata* was created, and this key included 9 species (Wang *et al.* 2014).

During the fieldwork at Ailao Mountain National Natural Reserve, Yunnan in June 2013, we came across an unidentified *Adiantum* species that is morphologically similar to *A.* × *meishanianum*. This species was identified as new natural hybrid that resulted from hybridization between *A. sinicum* and *A. menglianense* based on molecular evidence, but no nomenclature and description exist for this hybrid (Wang *et al.* 2015). In this paper, we present the taxonomic description (with illustrations), spore morphology, distribution, and a key to related species of the new hybrid.

Materials and Methods

Plants were collected in the field and deposited at Herbarium of Chenshan Botanic Garden, Shanghai (CSH).

Spore morphology of the new hybrid and its parents was examined under a scanning electron microscope. Spores were mounted on double-sided adhesive tape attached to metal stubs, sputter-coated with gold, and viewed with a JSM-6380LV at an accelerating voltage of 10 kv.

Spores of the hybrid were sown in order to assess germination rate and gametophyte development. The spores