



On the identity of *Pternopetalum botrychioides* (Apiaceae), introducing *P. latipinnulatum* comb. & stat. nov.

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Abstract

Based on fieldwork, literature study and herbarium investigations, the long-term misapplied *Pternopetalum botrychioides* is clarified and re-illustrated. *Pternopetalum latipinnulatum* comb. et stat. nov. is proposed based on *P. botrychioides* var. *latipinnulatum*, with an amplified and detailed description. On the basis of stereomicroscope, OM and SEM observations, as well as field investigations, a morphological comparison of these two taxa is provided.

Introduction

The misapplication of the plant's scientific name is a universal phenomenon in China and other countries (e.g. Sennikov 2005, Wang 2008a, Peruzzi *et al.* 2011, Ma *et al.* 2013), as a result of inadequate communication of protologue and type specimens, as well as insufficient consultation of herbarium specimens and fieldwork (Ma 2011).

Pternopetalum Franchet (1885: 246), regarded as one of the few monophyletic genera of Apioidae (Apiaceae), is endemic to East Asian and semi-endemic to China, with its distribution and diversity center in southwest China, particularly in Sichuan and northwest Yunnan (Shan & Pu 1978, Pu 1985, 1993, Pan 1997, Shu & She 2001, Valiejo-Roman *et al.* 2002, Pimenov & Leonov 2004, Pu & Phillippe 2005, Wang 2008a, 2008b, 2012, Zhou *et al.* 2009, Wu *et al.* 2010). The diagnostic morphological traits of the genus include petals saccate at base, umbellules with only 2–4(–5) flowers, styles and rays reflexed in frutescence (Pu 1985, Pu & Phillippe 2005, Wang 2012). In spite of a series of recent revisions by Wang (2008a, 2008b, 2012), there is still some confusion in this genus.

During examining specimens of *Pternopetalum* in the Herbarium of Sichuan University (SZ) in 2011, we found some extremely confounded identities of *P. botrychioides* (Dunn) Hand.-Mazz. (1933: 718). After examining relevant specimens, consulting related literature, as well as conducting fieldwork, we are convinced that the name *P. botrychioides* has been widely misapplied in China over the long term, and *P. botrychioides* var. *latipinnulatum* Shan (1940: 158) indubitably represents a disparate species. The aim of the present study is to clarify this long-standing misapplication and raise the variety to species level.

Material and methods

Specimens (alternative digital images of specimens) of relevant taxa from CDBI, GACP, KEW, KUN, NAS, P, PE, SZ, WU and WUK were examined and compared. Herbarium abbreviations follow Index Herbariorum (2014). Protologue, literature and related floras were also carefully consulted. Field investigations were principally carried out by the authors in 2011–2014, in Chongqing, Guangxi, Guizhou, Shaanxi, Sichuan and Yunnan.

Morphological observations were based on herbarium specimens, fresh materials and alcohol-marinated tissues. The measurements of the morphological features were conducted using a micrometer and stereomicroscope. Conventional optical light microscope (OM) was used to observe both of the upper and lower epidermis cells of leaves. After dehydration using graded ethanol, alcohol-marinated seeds were directly mounted on aluminum stubs using conducting carbon adhesive tab, sputter-coated with gold, and observed using the JSM-7500F scanning electron microscope (SEM, Japan).