



Reinstatement of *Polygonatum yunnanense* (Asparagaceae)

AARON J. FLODEN

TENN Herbarium, Department of Ecology and Evolutionary Biology, University of Tennessee, Knoxville, TN 37996, USA,
afloden@utk.edu

Abstract

Polygonatum yunnanense is reinstated to specific status based on morphology which differs strongly in key diagnostic characters from *P. nodosum*. The limited original diagnosis is expanded based on examination of the holotype, exsiccata, and three cultivated accessions. Its hypothesized relationship to *P. adnatum* and *P. omeiense* is discussed and a key to these three taxa is provided.

Introduction

Three morphologically similar collections of an unidentifiable *Polygonatum* Miller (1754) from various locations in western Sichuan, China have been cultivated by the author. The *Polygonatum* treatment in Flora of China (FOC) (Chen and Tamura, 2000) does not allow a satisfactory placement with either species its morphology suggests an affinity with; *P. adnatum* S.Y. Liang (1987: 65) and *P. omeiense* Z.Y. Zhu (1992: 267). Certain salient features are outside the ranges listed, bract types differ, and there are notable filament vestiture discrepancies. The only relevant literature aiding in a tentative identification was Jeffrey (1980) in which these plants key to *P. yunnanense* H. Léveillé (1916: 168).

Filament shape, position of attachment within the perianth tube, and filament vestiture are vital in *Polygonatum* species identification. Filament structure is similar among taxa with the same basic chromosome numbers and in combination with phyllotaxy delimitation of subgeneric groups is possible (Abramova, 1975, Tamura, 1990, 1991, 1993, Tamura et al., 1997, Jang and Kim, 1998). But, monophyly of these morphological and cytological alliances has not been shown by molecular analyses (Tamura et al., 1997, Wu et al., 2000).

Polygonatum is a circumboreal genus of approx. 60 species in the Asparagaceae (Reveal and Chase, 2011) with its center of diversification in SW China and the eastern Himalaya's with smaller centers in NE China and Japan. The most recent revision of the East Asian taxa (China, Japan, Korea, Mongolia) recognized 39 species (Jeffrey, 1980). The accounts of Jeffrey (1980) and Tang (1978) differ greatly in the recognition of *P. yunnanense* and *P. nodosum* Hua (1892: 394). *Polygonatum yunnanense* is considered a synonym of *P. nodosum* by Tang (1978), whereas Jeffrey (1980) recognized *P. yunnanense* at specific status while treating *P. nodosum* as a synonym of *P. cyrtonema* Hua (1892: 393). Jeffrey (1982) later concurred with the conclusion of Tang (1978) that *P. nodosum* was the valid name for *P. yunnanense* even though distinct differences between the two species exist. FOC (Chen and Tamura, 2000) follows the circumscription of Tang (1978).

The synonymy of *Polygonatum yunnanense* under *P. nodosum* is perplexing. Superficially the types of *Polygonatum nodosum* could mistakenly be seen to represent juvenile *P. cyrtonema* specimens or as *P. yunnanense* if the internal perianth morphology is not examined. To further complicate the issue *P. nodosum* and *P. cyrtonema* were described *sans numero* (Hua, 1892), but types at P share the same collection number (Farges 586). This likely led Jeffrey (1980) to consider the two taxa as synonymous. *Polygonatum cyrtonema* and *P. nodosum* differ in their rhizome shape and plant size; *P. nodosum* is a smaller plant with slender