



***Youngia zhengyiana* (Asteraceae, Crepidinae), a new species from south China, with notes on the systematics of *Youngia* inferred from morphology and nrITS phylogeny**

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Abstract

Youngia zhengyiana, a new species of *Youngia* sect. *Mesomeris* (Asteraceae: Crepidinae) from Guizhou province of south China is described and illustrated. The placement of this species within *Youngia* is assessed based on a molecular phylogenetic analysis of the nuclear ribosomal ITS and on morphological comparisons with related species. The new species can be easily distinguished by morphology from the only species known to possess 5 florets, *Y. szechuanica*. The infrageneric classification and the recently debated circumscription of *Youngia* are discussed in the light of the nrITS phylogeny, which includes several species for the first time. *Pseudoyoungia* is confirmed as a congener of *Youngia*. The redefined *Youngia* is still non-monophyletic with *Lapsanastrum* nested within it.

Key words: Cichorieae, Compositae, *Lapsanastrum*, molecular phylogeny, morphology, *Pseudoyoungia*

Introduction

Youngia Cass. is an East Asian genus with approximately 30 species, most of which are found in China (Babcock & Stebbins 1937, Shih 1997, Hand *et al.* 2009+, Shih & Kilian 2011). *Youngia* has been treated either as a member of the subtribe Ixeridinae Sennikov (Sennikov & Illarionova 2008), or of the more inclusive subtribe Crepidinae Cass. ex Dumort. which also received molecular phylogenetic support (Kilian *et al.* 2009, Zhang *et al.* 2011, Tremetsberger *et al.* 2012). The delimitation and systematic position of *Youngia* have been debated recently. Sennikov in Tzvelev (2007) and Sennikov & Illarionova (2008) tried to resolve the generic delimitation of *Youngia* and proposed three new genera based on the sections recognized by Babcock & Stebbins (1937), viz. *Tibetoseris* Sennikov, *Crepidifolium* Sennikov, and *Sonchella* Sennikov. Subsequently the new genus *Pseudoyoungia* D. Maity & Maiti, hitherto part of *Tibetoseris*, was proposed by Maity & Maiti (2010) based on morphological characters. Only *Sonchella* was accepted by Shih & Kilian (2011) as a separate genus, while they treated *Crepidifolium* as part of *Crepidiastrum*, *Tibetoseris* s.str. as part of *Sorosseris*, and reunited *Pseudoyoungia* with *Youngia*. Molecular phylogenetic studies so far have addressed only some of the open questions (Nakamura *et al.* 2012, 2013, Peng *et al.* 2013, Urbatsch *et al.* 2013). They place *Youngia* near to the closely related genera *Ixeris* (Cass.) Cass. and *Ixeridium* (A. Gray) Tzvelev, as well as to *Crepidiastrum* Nakai (inclusion of *Crepidifolium* being corroborated), and *Askellia* W.A. Weber (= *Crepis* sect. *Ixeridopsis* Babcock). However, since including only a selection of genera of the Crepidinae, these studies are not designed to determine the systematic position of *Youngia*. Pollen morphology also does not support that *Youngia* sect. *Desiphylum* sensu Babcock and Stebbins can be separated at the generic level either as *Tibetoseris* or *Pseudoyoungia* (Peng *et al.* 2013), nor do molecular results indicate that (Peng *et al.* 2014, Zhang *et al.* unpublished data).

In the monograph of *Youngia* by Babcock & Stebbins (1937) and in FRPS (Shih 1997) six sections were delineated but none of their names was validly published. Sennikov & Illarionova (2008) circumscribed *Youngia* as to include the type section *Youngia* and the three new sections as *Cineripappae* Sennikov, *Paleaceae* Sennikov, *Pinnatifidae* Sennikov according to the sculpture of the fruit surface of *Youngia*, and the morphological structure of achenes in the

Additional Specimens Examined (Paratypes).—CHINA. SE Guizhou, Libo County, Yongkang, humid hillside, ca. 700 m, 29 June 2010, *Z.L. Nie et al.* 2232 (KUN); Yongkang, humid hillside, ca. 650 m, 5 June 2010, *D.G. Zhang et al.* 259 (JIU).

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