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Ternatus, a new spider genus from China with a cladistic analysis and comments on its phylogenetic placement (Araneae: Linyphiidae)

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Abstract

A new spider genus, ***Ternatus* n. gen.,** is erected to accommodate two new erigonine species from China, ***Ternatus malleatus* n. sp.** and ***Ternatus siculus* n. sp.** Descriptions and illustrations of the new genus and new species are provided. To test the phylogenetic placement within Linyphiidae, morphological data of the two new species were added to the matrices of two previous studies addressing the higher level phylogeny of erigonine spiders. The results of the cladistic analyses support the monophyly of the new genus and its sister group relationship to the genus *Gonatium* Menge, 1868.

Key words: cladistics, Erigoninae, genitalia, morphology, phylogeny, taxonomy

Introduction

Two new linyphiid species were found among the spider material collected in Huaping National Nature Reserve, Guangxi Province and Zhangjiajie Nature Reserve, Hunan Province, China. Their somatic features and genital characters indicate that they belong to the "Distal Erigonines" clade (Hormiga, 2000; Miller & Hormiga, 2004). The exaggerated genital characters shared by the two species suggest a close relationship between them, and distinguish them from all other known erigonine genera. A new genus, ***Ternatus* n. gen.,** is erected to accommodate the two new species, ***Ternatus malleatus* n. sp.** and ***Ternatus siculus* n. sp.** In the present paper, we describe and illustrate the new species; both somatic and genital characters are depicted in detail by SEM and light microscopy. To test the monophyly of the new genus and its relationships with other erigonines we carried out a cladistic analysis based on morphological data. Genital and somatic characters were coded for the two new species and added to the cladistic matrices of Hormiga (2000) and Miller and Hormiga (2004), both of which address the higher level phylogenetic relationships of Erigoninae.

Materials and methods

Morphological study

Specimens were examined and measured using a Leica M205A stereomicroscope. Further details were studied under a Leica DM5500B compound microscope. All illustrations were made using a drawing tube. Male palps and epigyna were examined and illustrated after they were dissected from the body. Left structures (e.g. palps, legs, *etc*.) are depicted unless otherwise stated. Embolic divisions were excised by breaking the membranous column that connects the suprategulum to the radix in *Ternatus siculus*, and by breaking the suprategulum in *Ternatus malleatus* to show the connection (column) between the distal suprategular apophysis and the embolic division. The tracheal system and epigyna were studied after boiling in NaOH to dissolve non-chitinous tissue. For examination of the genital structures under a compound microscope, male palps and epigyna were immersed in methyl salicylate. Scanning electron microscopy (SEM) images were taken with a S-3400N scanning electron microscope at China Agricultural University. For SEM examination the specimens were prepared as described in Álvarez-Padilla

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