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Revision and phylogenetic analysis of *Chilioediscelis* (Hymenoptera: Colletidae) with descriptions of three new species

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Abstract

The southern South American subgenus *Chilioediscelis* Toro and Moldenke is revised. The males and females of three new species, *C. mirzamalae* Willis & Packer, *C. sardonyx* Willis & Packer and *C. penai* Willis & Packer, are described. A key to species, distribution map and results of a phylogenetic analysis of the subgenus are provided. All character states used in phylogenetic analysis are either illustrated or references to figures of them are given.

Key words: *Chilioediscelis*, *Chilicola*, Xeromelissinae, Colletidae, bees, taxonomy, new species, phylogeny, Chile, Argentina

Introduction

The subfamily Xeromelissinae is found in South and Central America as far north as Mexico (Toro and Michener 1975; Michener 1995; 2000; 2002). It consists of five genera including *Chilicola*, the largest genus in the subfamily. *Chilicola* is a genus of small hylaeiform bees which is most species rich in the temperate parts of South America (Michener and Rozen 1999). *Chilicola* females can readily be differentiated from other members of the Xeromelissinae by the sternal corbicula in which posteromedially directed long scopal hairs surround a central bare space that is broader anteriorly than posteriorly (Packer and Genaro 2006). However, the subgenus investigated here is the one exception. Males of the genus can be distinguished from other xeromelissines by the absence of yellow integumental bands on the metasoma and absence of a strongly concave posterior margin to S5.

Chilioediscelis can be separated from all other subgenera of *Chilicola* by their robust and strongly curved hind tibial spurs in conjunction with a hind tarsal claw with a considerably reduced inner tooth in both sexes and by lacking the corbicular structure to the scopa of S2 in the females. In their revision of the Chilean Xeromelissinae, Toro and Moldenke (1979) described the subgenus for three species: *C. andina* Toro and Moldenke, *C. patagonica* Toro and Moldenke and *C. araucana* Toro and Moldenke. *Chilicola araucana* was only known from the male until Packer (2004) described the female. The purpose of this paper is to revise the subgenus *Chilioediscelis* and describe three new species.

Material and methods

Material

Specimens used in this paper were obtained from the following institutions: AMNH, American Museum of Natural History, New York, USA; CASC, California Academy of Sciences, San Francisco, USA; MACN,

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