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New bee species of the genus *Monoeca* (Hymenoptera, Apidae, Tapinotaspidini) from Brazil

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Abstract

Four new species of the genus *Monoeca* Lepeletier & Serville are described. Two of them, *Monoeca campestris* **sp. nov.** and *Monoeca planaltina* **sp. nov.** are from Cerrado savanna, *Monoeca mourei* **sp. nov.** is from gallery forests and *Monoeca catarina* **sp. nov.** is from the Atlantic rainforest of southern Brazil. A key to Brazilian species of *Monoeca* is provided.

Key words: Taxonomy, oil-collecting bees, Neotropical, Cerrado

Introduction

Species of *Monoeca* Lepeletier & Serville are medium sized solitary bees placed in the Tapinotaspidini tribe of Apidae (Roig-Alsina & Michener 1993). Females are often collected while visiting flowers of Malpighiaceae (Faria-Mucci *et al.* 2003, Rozen *et al.* 2006). The nesting biology of *Monoeca* has been described in detail for *Monoeca xanthopyga* Harter-Marques, Cunha & Moure, 2001 and *Monoeca haemorrhoidalis* (Smith, 1854), while only scattered data is known for *Monoeca schrottky* (Friese 1902) (Schrottky 1901, Cunha & Blochtein 2002, Cunha & Blochtein 2003, Rozen *et al.* 2006, Rocha-Filho & Melo 2011).

The genus was described by Lepeletier & Serville (1828), and the diagnosis was revised by Michener and Moure (1957). The few records suggest that the species of *Monoeca* are oil-collectors restricted to the species of Malpighiaceae and Orchidaceae (Friese 1925, Cunha & Blochtein 2003, Rocha-Filho & Melo 2011). The oil-collecting apparatuses and behavior of *Monoeca* are quite similar to the pattern observed in the apid genera *Centris* and *Epicharis* (Vogel 1974, Neff & Simpson 1981). In spite of this fact, the oil-collecting in *Monoeca* and centridine bees have different origins, since these groups are distantly related (Roig-Alsina & Michener 1993, Cardinal *et al.* 2010).

The genus *Monoeca* is probably monophyletic due to a set of unique characters present in all species, such as the shape of middle tibial spur, hooked setae on the ventral part of the meso- and metasoma of females, and the oil-collecting apparatus on the fore- and mid-basitarsi (Michener & Moure 1957, Roig-Alsina 1997). The taxonomy of the genus is poorly known, with most information related to descriptions of isolated species without comparative notes. A catalog of the described species of *Monoeca* was provided by Aguiar (2007) and a partial key for their species was presented by Rozen *et al.* (2006). The scarce knowledge about the taxonomy of this genus is probably due to the complexity of the species involved and their rarity and wide distribution throughout the Neotropical region. Here, four new species are described, three of them occurring in Cerrado savanna and one in Southern Atlantic rainforest. An updated species key is provided for the Brazilian species. The described species of Central America do not occur in Brazil, while some of the species present in the key can occur in other countries of South America.

Material and methods

Material from the following collections in Brazil were examined: Universidade de Brasília, Departamento de Zoologia (UnB), Universidade Federal de Uberlândia (UFU), Universidade Federal de Santa Catarina (UFSC), and Universidade Federal do Paraná, Curitiba (UFPR).