



Description of *Mitogoniella mucuri* sp. nov. (Opiliones: Gonyleptidae) and considerations on polymorphic traits in the genus and Gonyleptidae

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Abstract

Mitogoniella mucuri sp. nov. is described for some caves in Minas Gerais, Brazil. This species differs from other *Mitogoniella* species by large tubercles on the ocularium that have fused bases and free apices (or almost fully fused tubercles with bifurcated apices), and by a large dry-mark between tubercles on the longitudinal groove of area III. *Mitogoniella* species are hard to recognize: their males lack any armature on leg IV (normally an important diagnostic character among gonyleptid species), and they also present many polymorphisms in coloration (dry-mark), male secondary sex characters, the number of dorsal scutal granules, and the shapes of tubercles on the ocularium. The patterns of these polymorphisms are discussed for the genus and for the family. The present work also presents new occurrences for all the species of the genus, and their biogeography is discussed.

Key words: Goniosomatinae, taxonomy, caves, biogeography

Introduction

Gonyleptidae is the largest family of the opilionid suborder Laniatores, with 16 subfamilies and 829 species (Kury & Pinto-da-Rocha 2007; Kury 2013). The subfamily Goniosomatinae is composed of six genera and 36 species, all of them possessing armed and strong pedipalps, large bodies, varied and conspicuous coloration and, usually, very long legs (some more than 20 centimeters) (DaSilva & Gnaspini 2010). Goniosomatinae represents one of the nine subfamilies of Gonyleptidae that are endemic to Brazilian Atlantic Rain Forest, with the species occurring from Southern Bahia to Santa Catarina States, making these species good models for biogeographic studies (DaSilva & Gnaspini 2010).

Mitogoniella occurs in southeast Bahia and south and east of Minas Gerais State (Serra do Espinhaço and Serra da Mantiqueira mountain ranges and adjacent valleys). The latter region (Serra da Mantiqueira) also harbors *Acutisoma* Roewer, 1913, the sister-genus of *Mitogoniella* (DaSilva & Gnaspini 2010). Four species of *Mitogoniella* are known—*M. modesta* (Perty, 1833); *M. unicornis* DaSilva & Gnaspini, 2010; *M. indistincta* Mello-Leitão, 1936 (type species) and *M. taquara* DaSilva & Gnaspini, 2010—and there is great morphological similarity among them but a great variation on an intraspecific level. *Mitogoniella indistincta* and *M. taquara* occurs in Minas Gerais State, and *M. unicornis* and *M. modesta* are hitherto known only from Bahia State.

In this paper, a new species of *Mitogoniella* is described, new geographical occurrences of all species of the genus are listed, and its biogeography is also discussed; furthermore, polymorphisms in Gonyleptidae are discussed.

Methodology

All specimens were collected in granitic caves in the municipalities of Caraí, Novo Oriente de Minas and Padre

reduced to mountain range slopes and coastal areas and probably its biota followed it (e.g., Ab'Saber 1982; Ledru *et al.*, 2005). However, some works have shown asymmetry and asynchrony in these changes, as evidence of moist and cold periods in some areas, as in northeastern region (Oliveira *et al.* 1999). Thus, the present Semideciduous forest was probably substituted by Cerrado savannah in drier periods. With moist periods, species could spread over this “new” interior forest, and could speciate, as would have happened with *M. taquara* and other endemic species of Serra da Mantiqueira area.

Mitogoniella mucuri sp. nov. was recorded in a region poorly known for harvestmen, the northeast region of Minas Gerais State, plus in southern Minas Gerais. This distribution is unexpected, since this southern occurrence is disjunct from others, overlaps two other species of the genus, and a complete allopatry among sister-species is by far the most common pattern in Goniosomatinae (DaSilva & Gnaschini 2010). This unexpected sympatry with *M. taquara* and *M. indistincta* strengthen the hypothesis of unique biogeographical histories of species living in interior forests or other non-allopatric speciation modes.

Taxonomic studies on Opiliones contribute to ecological and behavioral studies, including those in caves, as shown by intensive work in recent years, especially with Goniosomatinae species (e.g., Gnaschini & Cavalheiro 1998; Machado & Oliveira 1998; Machado *et al.* 2000; Machado 2002; Willemart & Gnaschini 2004; Ferreira *et al.* 2005; Buzatto *et al.* 2007; Buzatto & Machado 2009). Harvestmen use caves as refuges during the day, form large aggregates on cave walls and leave them at night to forage in the epigeal environment (Gnaschini 1995; Gnaschini *et al.* 2003; Machado *et al.* 2003; Willemart & Gnaschini 2004; Ferreira *et al.* 2005; Chelini *et al.* 2011). Therefore, Goniosomatine harvestmen are important in subterranean ecosystems, and a new species makes an immense contribution to the justification for conserving the caves in its type locality and, in general, eastern Minas Gerais State.

Acknowledgments

We thank Dr. Eduardo Alves (Microscopy Laboratory - Plant Pathology Department -UFLA) for the use of the scanning electron microscope. Dr. Ricardo Pinto-da-Rocha for sending some material type of *Mitogoniella* for examination. The authors also thank Fundação de Amparo à Pesquisa do Estado de Minas Gerais (FAPEMIG) for the scientific initiation funding. FAPEMIG CRA - PPM-00433-11. We also thank Dr. Júlio Louzada and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) – edital Pró-equipamento 2010 – for the use of the equipment of automontage and the anonymous referees for the valuable comments. We are also grateful to the anonymous referee for their suggestions that improved the manuscript. This study was partially supported by “Conselho Nacional do Desenvolvimento Científico e Tecnológico” (CNPq grant 301061/2011-4 to RLF).

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