



Revised taxonomy and redescription of two species of the Peripatidae (Onychophora) from Brazil: a step towards consistent terminology of morphological characters

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Abstract

Based on the supposed quadrangular shape of the basal pieces of dorsal primary papillae, several species of the “Caribbean group” of the neotropical Peripatidae, including *Macroperipatus acacioi* and *M. machadoi*, were assigned to *Macroperipatus*. So far, the quadrangular shape of dermal papillae was confirmed only for *M. torquatus*, the type species of the genus. Previous observations revealed that the putatively quadrangular shape reported from other species of the “Caribbean group” might be a fixation artefact. Hence, detailed reinvestigations of all putative *Macroperipatus* species are required to clarify their taxonomy. In the present study, two species of the “Caribbean group”, *M. acacioi* and *M. machadoi*, are analyzed and redescribed, based on type material and topotype specimens collected at the corresponding type localities. The original descriptions of both species are complemented with data obtained from scanning electron microscopy, in addition to conventional morphological methods. The quadrangular bases of primary papillae are shown to be absent from *M. acacioi* and *M. machadoi*, thus suggesting that these two species are not closely related to *M. torquatus*. The new data instead suggest that these two species are representatives of *Epiperipatus*: *E. acacioi* **comb. nov.** and *E. machadoi* **comb. nov.**. The present study highlights the use of scanning electron microscopy for clarifying the taxonomy and phylogeny of the neotropical Peripatidae. It also reveals gaps in taxon sampling and problems regarding the ambiguous terminology of morphological characters used for describing the anatomy of peripatids. An attempt is made towards a consistent terminology for species (re)descriptions and studies of onychophoran anatomy and phylogeny.

Key words: Brazil, Caribbean group, *Epiperipatus*, *Macroperipatus*

Introduction

Among the nearly 200 described species of the Onychophora, only twelve species have been reported from Brazil, all of which belong to the neotropical Peripatidae (Sampaio-Costa *et al.* 2009). According to their geographic distribution, the neotropical peripatids have been assigned to either the “Andean” or the “Caribbean group” (Bouvier 1905; Clark 1913; Read 1988a). In Brazil, the “Andean group” comprises two species of *Oroperipatus* Cockerell, 1908 whereas the “Caribbean group” includes ten species, which have been assigned to *Epiperipatus* Clark, 1913, *Macroperipatus* Clark, 1913, and *Peripatus* sensu stricto Guilding, 1826. However, a survey through the available museum specimens revealed that the diversity of the Brazilian species might be much higher and numerous additional species await description (Sampaio-Costa *et al.* 2009).

In general, the taxonomy and phylogeny of the neotropical Peripatidae is poorly understood. One of the reasons might be the low number of morphological traits and the intra-specific variation of characters (e.g.,