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New species and new records of freshwater *Heterolepidoderma* (Gastrotricha: Chaetonotidae) from Brazil with an identification key to the genus

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Abstract

A new species of freshwater *Heterolepidoderma* (Gastrotricha) was found in Brazil. *Heterolepidoderma mariae* **sp. nov.** is unique in possessing a three-lobed head, three types of dorsal keeled scales, a thin band of cilia on the head, connecting the two bands of ventral cilia, and an interciliary area with elliptical keeled scales with short spines. *Heterolepidoderma famailense* Grosso & Drahg, 1991 is reported for the first time outside the type locality in Argentina, and we make some initial remarks on *H. aff. majus* Remane, 1927, a possible undescribed species. A dichotomous key for all freshwater species of *Heterolepidoderma*, with distributional data, is also provided.

Key words: *Heterolepidoderma mariae* **sp. nov.**, Chaetonotida, systematics, biodiversity, meiofauna, Neotropical region

Introduction

Gastrotricha are aquatic acoelomate free-living microinvertebrates, with a worldwide distribution in both freshwater and marine benthic habitats (Kisielewski 1991; Kånneby & Hochberg 2015). The taxon consists of 813 named species (Balsamo *et al.* 2015) grouped into two orders, Macrodasyida and Chaetonotida (but see Kieneke *et al.* 2008). Macrodasyida is comprised of worm-like species, all but two interstitial in marine and estuarine habitats (but see Kisielewski 1987; Garraffoni *et al.* 2010; Todaro *et al.* 2012; Araujo *et al.* 2013; Kånneby & Wicksten 2014). Species of Chaetonotida are smaller and tenpin-shaped, colonizing marine, brackish and especially freshwater habitats, where two thirds of these species can be found (Balsamo *et al.* 2008).

The order Chaetonotida includes the widely distributed families Dasydytidae (freshwater), Neogosseidae (freshwater), Xenotrichulidae (marine) and especially Chaetonotidae (freshwater, marine), as well as the families Dichaeturidae (freshwater) and Proichthyidiidae (freshwater), whose distributions are very limited (Balsamo *et al.* 2008). Chaetonotidae currently includes nearly 380 species, in 12 genera, five of which (*Aspidiophorus*, *Chaetonotus*, *Heterolepidoderma*, *Ichthydium*, *Lepidodermella*) inhabit both freshwater and marine habitats (Balsamo *et al.* 2009, 2013; Hummon & Todaro 2010). The genus *Heterolepidoderma* Remane, 1927 contains 36 valid species, 22 of which are freshwater¹ (Balsamo *et al.* 2009; Kånneby 2011; Kånneby *et al.* 2012) and 14 marine or brackish (Hummon & Todaro 2010; Kånneby 2011; Kolicka *et al.* 2015). *Heterolepidoderma* is characterized by having keeled scales, i.e., scales equipped with strong median longitudinal keels (Schwank 1990; Kisielewski 1991), although keeled scales have also been reported in freshwater species for the genera *Aspidiophorus*, *Chaetonotus* and *Ichthydium* (e.g. Kisielewski 1991; Kånneby *et al.* 2009).

In the present study, we describe a new freshwater species of *Heterolepidoderma* found during a meiofaunal survey in the State of São Paulo, Brazil. We also report *Heterolepidoderma famailensis* for the first time outside Argentina and provide new data using light microscopy with differential interference contrast (DIC) and scanning

1. Balsamo *et al.* (2009) listed 21 freshwater *Heterolepidoderma* species, two of which (*H. fallax* and *H. loripes*) were considered *species inquirenda*, Kånneby (2011) described two new species, and Kånneby *et al.* (2012) described additional one new species.