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Micromoina arboricola n. gen., n. spec. (Crustacea: Cladocera), a new moinid living in a forest tree-hole in Minas Gerais, Brazil

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Abstract

With a maximum size of ca 0.5 mm, *Micromoina arboricola* is among the smallest moinids known to date. It was discovered in a flooded treehole in a forest in the Medio Rio Doce Valley, Minas Gerais, Brazil, where it mainly feeds on particulate organic matter derived from the vinhatico tree . However, it is easily cultured in the lab on a diet of green algae plus yeast and pelleted fish food. Structurally, it is a miniature version of a moinid, distinguished by characters on the antennules (both sexes) and the postabdomen. The latter is peculiar in shape, in lacking a basal spine, and in having only three lateral plumose setae. A comparative investigation of the barcoding fragment of the COI gene in a number of moinids confirms the family Moinidae as composed of several genera, as well as the status of the new taxon.

Key words: Cladocera, taxonomy, Moinidae, microaquaria

Introduction

The Moinidae, sister family of the Daphniidae, are small to medium-sized (ca 0.5–2 mm) anomopod cladocerans with a quasi worldwide distribution. Two monographs (Goulden, 1968 and Smirnov, 1976) provide accounts of the ca 20 species (out of over 50 species names scattered in the literature) in the two genera, *Moina* and *Moinodaphnia*, known at that time. Additional species have been discovered and described in later decades, currently bringing the total species-level taxa to more than 25. Two outstanding volumes dealing with regional faunas (Alonso, 1996 and Hudec, 2010) should also be mentioned, because they provide progress in the level of morphological analysis applied, and in our insights into the taxonomic structure of the family (still sometimes considered a subfamily of the Daphniidae). Hudec (2010) initiated the subdivision of the large genus *Moina* in subgenera: *Moina* s.s., and *Exomoina*. The distinction between both is so clear-cut that, in our opinion, both deserve full generic status.

Moinidae occur in a wide variety or water-types, but are distinctly more common in warm and nutrient-rich environments, often with algal blooms. They are found in lakes and reservoirs, but are particularly abundant in turbid water. Quite a few species are specialists of ephemeral pools, in which they may appear in enormous numbers, to disappear at pool drying and remain elusive for many years thereafter. Unlike many daphniids, *Moina* populations usually contain sizeable numbers of males at all times, and hence, of most species both sexes are known. Moinids are also noted for the fact that the floor of the brood pouch is modified into a sort of placenta that provides nourishment to developing embryos.

As far as known, all moinids are swimming, and thus they are not found in the semi-terrestrial environments such as wet mosses that have yielded various chydorids in recent decades (Frey, 1980; Chiambeng & Dumont, 1999). However, one exotic type of environment that has been found to contain endemic *Moina* in recent times is crab burrows on the semi-arid island of Socotra (Van Damme & Dumont, 2008). *Moina diksamensis* lives in the narrow, arm-deep cavities that constitute the home of an endemic semi-terrestrial crab. These have some muddy water at their bottom for part of the year.

Here, we add another marginal biotope to this repertoire: periodically flooded tree holes. Such micro-aquaria

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