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A new genus of speleophriid copepod (Copepoda: Misophrioida) from a cenote in the Yucatan, Mexico with a phylogenetic analysis at the species level

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Abstract

A new genus and species of speleophriid copepod, *Mexicophria cenoticola* **gen. et sp. nov.**, is described based on material collected from a cenote in the Yucatan Peninsula of Mexico. It is characterised by relatively reduced fifth legs that are located adjacent to the ventral midline in both sexes, by the possession of a bulbous swelling on the first antennulary segment in both sexes, and by the reduced setation of the swimming legs. The presence of just one inner margin seta on the second endopodal segment of legs 2 to 4 is a unique feature for the family. A phylogenetic analysis places the new genus on a basal lineage of the family together with its sister taxon, *Boxshallia* Huys, 1988, from Lanzarote in the Canary Islands, and recovers the existing genera as monophyletic units. The zoogeography is discussed at local, regional, ocean basin and global scales.

Key words: descriptive taxonomy, new species, Speleophriidae, phylogeny, anchialine fauna

Introduction

The family Speleophriidae currently comprises eight genera and 19 species: *Speleophria* Boxshall & Iliffe, 1986 (5 species), *Expansophria* Boxshall & Iliffe, 1987 (4 species), *Dimisophria* Boxshall & Iliffe, 1987 (1 species), *Boxshallia* Huys, 1988 (1 species), *Speleophriopsis* Jaume & Boxshall, 1996 (4 species), *Huysia* Jaume, Boxshall & Iliffe, 1998 (1 species), *Protospeleophria* Jaume, Boxshall & Iliffe, 1998 (1 species) and *Archimisophria* Boxshall, 1983 (2 species) (Boxshall & Halsey 2004). Almost all speleophriid species occur in anchialine coastal habitats, the only exceptions being the two species of *Archimisophria*, both of which occur in the deep hyperbenthic community in the tropical Atlantic (Boxshall 1983, Alvarez 1985).

The first cave-dwelling misophrioid to be described, *Speleophria bivexilla* Boxshall & Iliffe, 1986, was reported from Bermuda by Boxshall & Iliffe (1986) and since then new taxa have been found in many anchialine habitats in tropical and subtropical latitudes. As well as Bermuda, *Speleophria* species have been described from the Balearic Islands (Spain), northern Western Australia, Croatia and the Nullarbor region of southern Western Australia (Jaume & Boxshall 1996a, Jaume *et al*. 2001, Kršinić 2008, Karanovic & Eberhard 2009), *Expansophria* species are known from the Galapagos (Ecuador), Sardinia (Italy), Palau, and the Canary Islands (Spain) (Boxshall & Iliffe 1987, 1990, Jaume & Boxshall 1996b), the sole species of both *Dimisophria* and *Boxshallia* are from Lanzarote in the Canary islands (Boxshall & Iliffe 1987, Huys 1988), *Speleophriopsis* species are known from the Balearic and Canary islands, from Palau and from Bermuda (Boxshall & Iliffe 1987, Jaume & Boxshall 1996a), while the sole species of both *Huysia* and *Protospeleophria* are recorded only from the Exuma Cays in the Bahamas (Jaume *et al*. 1998). The three richest genera, comprising four or five species, each display an extreme disjunct distribution with species known from anchialine habitats in at least two ocean basins.

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