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Water mites from caves of the Ha Giang province, northern Vietnam (Acari: Hydrachnidia)

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Abstract

Four species of water mites (Acari, Hydrachnidia) were collected in 2010 during an Italian speleological expedition to caves of the Ha Giang region in northern Vietnam from rimstone pools or other tiny accumulations of percolating water. Four taxa new to science are described, representing the families Torrenticolidae (*Torrenticola anophthalma* **nov. sp.**, *Stygotorrenticola coniseta* **nov. gen., nov. sp.**), Limnesiidae (Raptorhydracarinae **subfam. nov.**, *Raptorhydracarus tomasini* **nov. gen., nov sp.**) and Athienemanniidae (*Africasia vietnamitica* **sp. nov.**). Most of these taxa show striking morphological adaptations to subterranean life.

Key words: Acari, new subfamily, new genus, new species, taxonomy, subterranean water, caves, Vietnam

Introduction

The water mite fauna of Vietnam is still poorly documented and from groundwater only one species is known so far, *Nilotonia sketi* Pešić, 2013 from the famous Ha Long Bay in northern Vietnam (Pešić 2013). The latter species was described from a pool of percolated water in the epikarstic zone (typically occurring in carbonate rocks such as limestone), a microhabitat previously neglected during faunistic work on water mites (Pešić 2013).

In the course of a recent speleological expedition in the Ha Giang region in northern Vietnam, Gianfranco Tomasin (Udine) collected a large material of several taxonomic groups living in subterranean habitats. This paper aims to present the highly interesting acarological results of the investigations.

Material and methods

The material was collected with a 0.2 mm mesh hand net from subterranean lake water and rimstone pools, as well as in hypogean brooks and springs. Very small rimstone pools or other tiny collections of percolating water in the unsaturated karst were sampled using a rubber hand pump, or emptying the small water bodies using a PVC tube; the water collected by these devices was filtered through a plankton net.

Samples were fixed using buffered formaldehyde (4%) and stored in plastic vials. Water mites were sorted in the laboratory with the aid of a stereo microscope, preserved in 75% alcohol and later on transferred in Koenike's fluid and treated as described by Gerecke et al. (2007).

All material will be deposited in Senckenberg Museum Frankfurt (SMF). Measurements are given in µm. The following abbreviations are used: Cx-I = first coxae, Cxgl–4 = coxoglandularia of fourth coxae, dL = dorsal length, H = height, L = length, mL = medial length, n = number of specimens examined, %L = relative length, I/II/III/IV-L-1–6 = first to sixth segments of leg I/II/III/IV, P-1 to P-5 = palp segments 1 to 5, vL = ventral length, W = width.

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