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New records of Tardigrada from Bulgaria with the description of *Macrobiotus binieki* sp. nov. (Eutardigrada: Macrobiotidae) and a key to the species of the *harmsworthi* group

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Abstract

Fifteen moss samples collected in the Sophia Province (Bulgaria) were examined. In these samples six eutardigrade species were found: *Hypsibius convergens, Isohypsibius prosostomus, Macrobiotus binieki* **sp. nov.**, *M. hufelandi*, *M. pallarii* and *Ramazzottius oberhaeuseri*. The new species belongs to the *Macrobiotus harmsworthi* group and differs from the most similar *M. australis, M. coronatus, M. patiens, M. pseudocoronatus, M. radiatus, M. rigidus* and *M. simulans* mainly by: egg processes covered by small bubbles (not smooth or reticulated), egg shell between processes covered by wrinkles not dots or stripes forming a large radiate crown, a higher number of processes on egg circumference and some morphometric characters of adults. In this paper a key to all species of the *harmsworthi* group is also given.

Key words: Tardigrades, Europe, taxonomy, fauna

Introduction

So far only about thirty four tardigrade species (eleven Heterotardigrada and twenty three Eutardigrada) have been recorded from Bulgaria (McInnes 1994), the majority reported by Iharos (1961; 1973b; 1982) with most being considered cosmopolitan. This limited literature for the Bulgarian limno-terrestrial tardigrades indicates the need for further research. We were able to collect samples from the Sofia City Province in western Bulgaria. Situated in the central Balkans, Sofia city is the capital of Bulgaria and is surrounded on all sides by mountains. The city nestles at the northern base of Vitosha, a mountain massif well known for hiking and skiing, and home to the oldest national park in the Balkans. This region, Vitosha Mountains, was sampled by Iharos (1961; 1982) where he reported 19 taxa but none belonging to the *Macrobiotus harmsworthi* group.

The new species described in this paper, *Macrobiotus binieki* **sp. nov.**, belongs to the *Macrobiotus harmsworthi* group, which is characterised by having three macroplacoids in the shape of short, rounded rods and a microplacoid situated very close to them, and conical or hemispherical egg processes. Up to now thirty nine species and one subspecies were described in this group (Ramazzotti & Maucci 1983; Pilato & Binda 2001; Michalczyk & Kaczmarek 2003; Pilato *et al.* 2004, 2006, Tumanov 2005; Pilato & Lisi 2006a,b, 2009a; Kaczmarek *et al.* 2007; Rossi *et al.* 2009). In this paper, we present the results of our study with the description of *M. binieki* **sp. nov.**, and provide a key to all known species of the group.

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