



***Echiniscus ganczareki*, a new species of Tardigrada (Heterotardigrada: Echiniscidae, *bigranulatus* group) from Costa Rica**

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Abstract

A new species, *Echiniscus ganczareki* **sp. nov.**, is described from a liverwort sample collected in Costa Rica. It is the fifth known species of the *Echiniscus bigranulatus* group and the only one that has pores on ventral cuticle and on legs. It is also the first *bigranulatus* group species within which males were observed. We also provide an updated key to the *Echiniscus bigranulatus* group in this paper.

Key words: Tardigrada, *Echiniscus bigranulatus* group, *E. ganczareki* **sp. nov.**, *E. madonnae*, *E. ollantaytamboensis*, *E. ranzii*, Central America

Introduction

The Costa Rican tardigrade fauna is extremely poorly known. So far, only 19 species were reported from that Central American country (Herrera Vásquez 2003, Kaczmarek 2003, Kaczmarek & Michalczyk 2004, Michalczyk & Kaczmarek 2006a, b). In this paper we describe a new species of the *Echiniscus bigranulatus* group, *Echiniscus ganczareki* **sp. nov.** from the Costa Rican rain forest. The *bigranulatus* group has consisted until now of four species: *Echiniscus bigranulatus* Richters, 1908, *Echiniscus madonnae* Michalczyk & Kaczmarek, 2006, *Echiniscus ollantaytamboensis* Nickel, Miller & Marley, 2001 and *Echiniscus ranzii* Ramazzotti, 1964 (Michalczyk & Kaczmarek 2006c). None of the *bigranulatus* group species have so far been found outside of South and Central America.

Materials and methods

All species have been observed with Light Microscopes (LM): Phase Contrast Microscope (PCM) and Nomarski Differential Interference Contrast Microscope (DIC). All species except for *E. ranzii* have been analysed using Scanning Electron Microscope (SEM) (ethanol/acetone series; CO₂ critical point drying; coated with Pt). After the first SEM session some specimens were delicately torn using a fine needle and then coated with platinum once again. This technique enabled a three-dimensional observation of cuticle internal structure. Schemes of the cuticle sections were based on SEM photomicrographs made using this technique. Specimens for LM were mounted on microscope slides in Hoyer's medium.

In addition to the type material of the new species (holotype and 24 paratypes (14 mounted in Hoyer's medium and 10 prepared for SEM)), we have examined type material of *E. madonnae* (holotype and 45