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New troglomorphic Arrhopalitidae (Collembola: Symphypleona) from the Western Caucasus

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Abstract

Two highly troglomorphic species of the family Arrhopalitidae Stach, 1956 are described from the caves of the Western Caucasus: *Arrhopalites macronyx* **sp. nov.** and *Troglopalites stygios* **gen. nov. sp. nov.** They inhabit epineustonic and hygropetric zones of subterranean realm and are characterized by much elongated claws, long antennae with annulations between subsegments of the fourth antennal segment, absence of strongly spine-like setae on dens, presence of accreted teeth on posterior lamellae and well-developed anterior lamella of mucro. Together with some diagnostic characters of the genus *Arrhopalites* Börner, 1906, *Troglopalites* **gen. nov.** shows reduced chaetotaxy of the sixth abdominal segment, almost linear trichobothrial pattern on great abdomen, and plurichaetosis on the forth antennal segment. Remarks on re-examination of trichobothrial complex chaetotaxy of *Arrhopalites karabiensis* Vargovitsh, 2009 and *A. peculiaris* Vargovitsh, 2009 from the Crimean caves are also included.

Key words: springtails, taxonomy, *Arrhopalites*, *Troglopalites*, new genus, new species, troglomorphic, trichobothrial complex, caves, epineustonic, hygropetric, Caucasus Mountains

Introduction

Data on cave springtails taxonomy of the Western Caucasus are presented in works of Djanaschvili (1970, 1971), Martynova (1969), Babenko (1987), Kniss and Thibaud (1999), Djanashvili and Barjadze (2011). The most impressive troglobiont species of the region is highly troglomorphic *Typhlogastrura morozovi* Babenko, 1987 from deep Snezhnaya Cave. 31 species collected mainly by R. Djanashvili and S. Ljovuschkin at the end of 1960th and beginning of 1970th were reported from the caves of Georgia and Abkhazia (Barjadze & Djanashvili 2008). Three of them belong to the family Arrhopalitidae: *Arrhopalites caecus* (Tullberg, 1871), *Pygmarrhopalites pygmaeus* (Wankel, 1860) and *P. principalis* (Stach, 1945).

During our biospeleological investigation of Abkhazia in 2006–2010 several other species of Arrhopalitidae were found. Two of them, highly troglomorphic and adapted to the life on the surface of subterranean waters, are described below. One species fits the genus *Arrhopalites* and a new genus is proposed for another.

Chaetotaxy of trichobothrial complex of *A. karabiensis* and *A. peculiaris* described from Crimean caves was re-examined and some notes on it are included in present paper.

Methods

Colour pattern was observed on alcohol material and documented on microphotographs. 15 specimens of each species were mounted on slides. Specimens where exposed in lactophenol for 3–5 hours. Then two specimens of each species were dissected as proposed by Bretfeld (1991) with separation of head, furca, legs, antennae and small abdomen and further mounting of dissected parts on separate slides. Remain specimens were mounted in lateral position which is optimal for observation of great abdomen chaetotaxy. De Faure–Berlese medium was used for preparing permanent slides. Microphotographs on slides were obtained in the Schmalhausen Institute of Zoology

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