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New regional record of *Acrotritia ardua* (C. L. Koch, 1841) (Acari: Oribatida: Euphthiracaridae) from Fergana Region, Uzbekistan

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ABSTRACT

Oribatid mites (Acari: Oribatida) are an important component of soil ecosystems; however, their diversity and distribution in some regions of Uzbekistan remain insufficiently studied. During a taxonomic study of oribatid mites in the Fergana Region, Uzbekistan, a specimen of *Acrotritia ardua* (C. L. Koch, 1841) (Euphthiracaridae) was collected and identified based on morphological characters. The species was previously known from several regions of Uzbekistan, but no records from the Fergana Region have been reported. Detailed morphological examination, including body measurements and diagnostic structures, confirmed the identification of the species. This finding represents the first record of *Acrotritia ardua* from the Fergana Region and contributes to the knowledge of the distribution of Euphthiracaridae in Uzbekistan.

Keywords

Acari, Oribatida, *Acrotritia ardua*, Euphthiracaridae, first record, Fergana Region, Uzbekistan

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Introduction

The family Euphthiracaridae Jacot, 1930 currently comprises 5 genera, 1 subgenus, 167 species, and 6 subspecies [6]. The family is distributed worldwide. The genus *Acrotritia* Jacot, 1923 (syn. *Rhysotritia* Märkel & Meyer, 1959) includes 31 species and 5 subspecies [6], with a cosmopolitan distribution. The type species of the genus is *Phthiracarus americanus* Ewing, 1909. *Acrotritia ardua* (C. L. Koch, 1841) is one of the widely distributed species of the genus and has been recorded from various regions worldwide. According to Subías [6], this species has a cosmopolitan distribution. In Uzbekistan, the species was previously reported under the name *Rhysotritia ardua* (C. L. Koch, 1841) from Nukus by Laskova & Koshanova [3] and Koshanova [2], and from Karakalpakstan by Khamraev [1]. Later, it was recorded as *Acrotritia ardua* (C. L. Koch, 1841) from the Tashkent Region by Niedbała [4].

However, no records of *Acrotritia ardua* have been reported from the Fergana Region. Therefore, the present study provides the first record of this species from the Fergana Region of Uzbekistan and contributes to the knowledge of the distribution of Euphthiracaridae and oribatid mite diversity in the country [5].

Material and Methods

The specimen of *Acrotritia ardua* examined in this study was collected from the Sokh District, Fergana Region, Uzbekistan (40.165301° N, 71.061440° E), at an elevation of 878 m above sea level. The sampling locality is shown in Figure 1. The sample (ID: OOF-169-25) was collected on 19 July 2025 from soil and litter accumulated under a poplar tree (*Populus* sp.).



Figure 1. Sampling site.

Oribatid mites were extracted from the samples using Berlese–Tullgren funnels. The extracted specimens were sorted under a Leica EZ4 stereomicroscope. The specimen was temporarily mounted in lactic acid on a cavity slide for detailed morphological examination. Morphological observations, measurements, and illustrations were performed using a Leica DM2500 compound microscope. Body length was measured in lateral view from the tip of the rostrum to the posterior edge of the notogaster. All measurements are presented in micrometers (μm). Species identification was carried out based on diagnostic morphological characters and comparison with available taxonomic literature.

Results

Taxonomic position

Order: Oribatida

Family: Euphthiracaridae Jacot, 1930

Genus: *Acrotritia* Jacot, 1923

Species: *Acrotritia ardua* (C. L. Koch, 1841)

Diagnosis. *Acrotritia ardua* (C. L. Koch, 1841) can be distinguished from other species of the genus by the following combination of characters: lateral carinae of the prodorsum simple and not forked; tarsus I bidactylous, whereas tarsi II–IV heterotridactylous; sensilli with a distinctly swollen head; and prodorsum not abruptly humped near the insertion level of the rostral setae in lateral view (Figs. 2, 3A, B, C).

Measurements. Body length of the examined specimen 743 μm. Length of prodorsum 258 μm, length of notogaster 485 μm; height of prodorsum 108 μm, height of notogaster 403 μm.

Supplementary description. Colour yellowish to brown; prodorsum with one pair of long and strong lateral carinae; sensilla with swollen head covered with small spines; prodorsal setae robust, rigid and densely barbed in distal half, except exobothridial setae; notogastral setae fairly short, similar in shape to lamellar setae; vestigial setae f_1 situated anterior to setae h_1; 9 pairs of minute genital setae present, including 1 pair of setae inserted on progenital area; 2 pairs of aggenital setae located longitudinally; tarsi of legs I bidactylous, tarsi II–IV heterotridactylous. The general habitus of the specimen is shown in Fig. 2, whereas the left lateral view, ventral view, and prodorsum are illustrated in Figs. 3A–C, respectively.

Distribution: Cosmopolitan. Uzbekistan (Fergana Region, Karakalpakstan (Nukus), Tashkent Region).



Figure 2. General appearance of *Acrotritia ardua* (C. L. Koch, 1841) in right lateral view, showing the body shape and main morphological structures (scale bar = 200 µm).

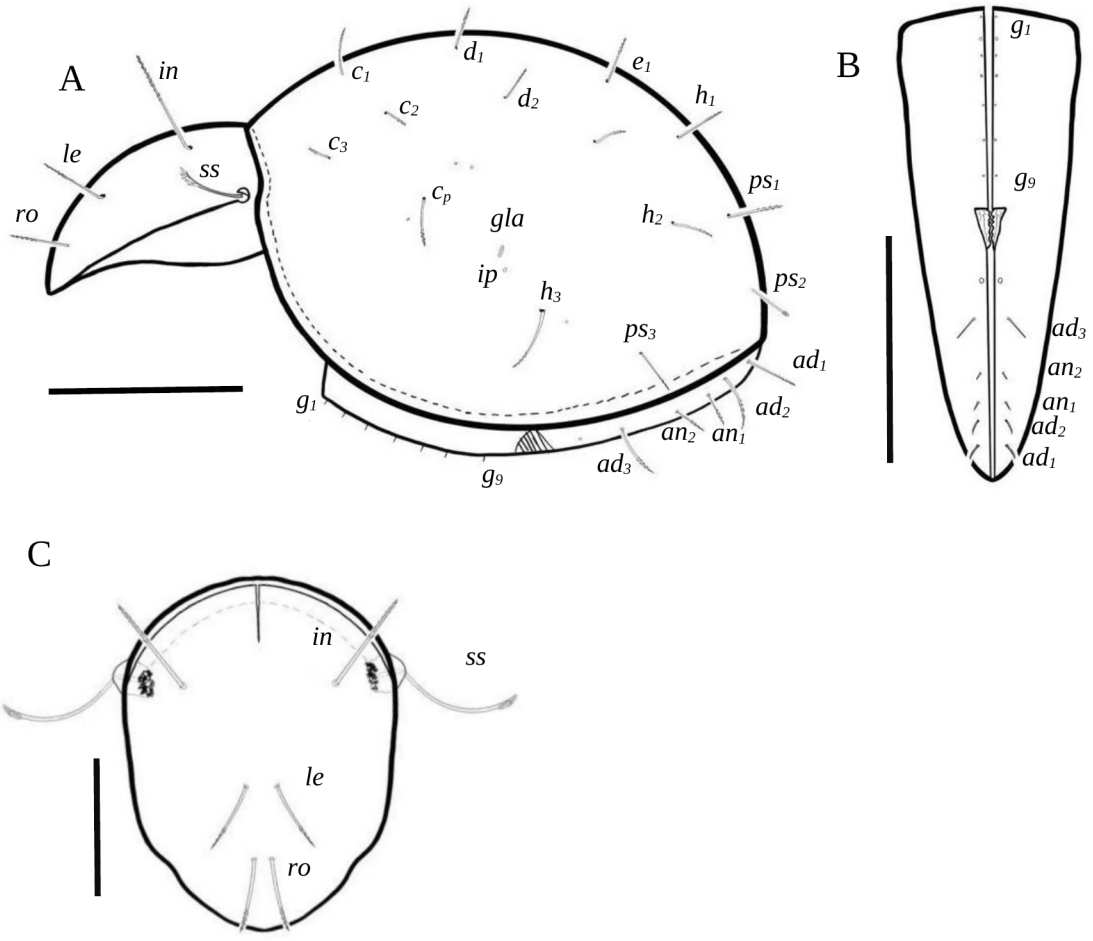


Figure 3. Morphological structures of *Acrotritia ardua* (C. L. Koch, 1841): (A) left lateral view (scale bar = 200 µm); (B) ventral view (scale bar = 200 µm); (C) prodorsum (scale bar = 100 µm).

Discussion

The present study represents the first record of *Acrotritia ardua* from the Fergana Region of Uzbekistan. Previously, the species was known only from Karakalpakstan (Nukus) and the Tashkent Region [5]. The new record extends the known distribution of the species within Uzbekistan and indicates that *A. ardua* is more widely distributed than previously recognized. Additional faunistic surveys are needed to improve our understanding of the diversity and distribution of oribatid mites in the Fergana Valley.

Conclusion

The present study provides the first record of *Acrotritia ardua* (C. L. Koch, 1841) from the Fergana Region of Uzbekistan. The species was confirmed based on diagnostic morphological characters, expanding the known distribution of Euphthiracaridae in Uzbekistan. This finding contributes to the knowledge of oribatid mite diversity in the Fergana Valley.

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