

Correspondence

First report of the family Gehyochthoniidae (Acari: Oribatida) from Iran

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The oribatid mite family Gehyochthoniidae has a cosmopolitan distribution, however, is absent in the Ethiopian and Antarctic regions. This family consists of only one genus, *Gehyochthonius* Jacot, 1936, with eight species: *G. antonii* Lombardini, 1962 ‘sp. inq’ (distributed in Italy), *G. frondifer* Aoki, 1975 (Japan), *G. gracilis* Pankov, 2002 (East Asiatic Russia), *G. mariano* Martínez and Bernava Laborde, 2000 (Argentina), *G. rhadamanthus* Jacot, 1936 (Semicosmopolitan), *G. strenzkei* Lee, 1982 (Australia), *G. urticinus* (Berlese, 1910) (Nearctic) and *G. xarifae* Strenzke, 1963 (Oriental) (Subías 2016). In this paper, we report the first record of the family Gehyochthoniidae and *Gehyochthonius rhadamanthus* from Iran.

Soil mite fauna of the Marand region of East Azerbaijan Province, Iran, was studied during 2014. Mites were extracted using a Berlese funnel, kept in Oudemans' solution, cleared in Nesbitt's fluid, permanently mounted in Hoyer's medium on microscope slides, and examined and identified under a phase contrast Olympus BX53 microscope. Measurements were taken of all four specimens sampled and are given in micrometers (µm). General terminology from Aoki (1975) and Norton & Behan-Pelletier (2009) were used. Specimens are deposited in the Acarology laboratory, Department of Plant Protection, Faculty of Agriculture, Azarbaijan Shahid Madani University, Tabriz, Iran.

Family Gehyochthoniidae Strenzke, 1963

Type species: *Gehyochthonius rhadamanthus* Jacot, 1936

The family belongs to the supercohort Parhyposomatides and is characterized by weakly sclerotized, colorless to pale yellow oribatids with the following characters: two pairs of exobothridial setae; one transverse groove between notogastral setal rows *d* and *e*, row *e* well posterior to the groove; a pair of opisthonotal glands, with absence of protuberance or tube associated with the opisthonotal gland opening; strong rutella, distally broad, toothed; pretarsi with well-developed lateral claws, the empodial claw reduced and hooklike; absence of seta *f*₂ with only an indistinct alveolus present near gland opening; three pairs of adanal and two pairs of anal setae; peranal segment absent;

two pairs of setae on epimere II present (Strenzke 1963; Norton and Behan-Pelletier 2009).

Gehypochthonius rhadamanthus Jacot, 1936 (Fig. 1)

Iranian specimens

Measurements – Length, mean 262 (range 255–271), width, mean 114 (100–126) (measured without chelicerae).

Colour – Entirely white or glassy.

Prodorsum – Rostral tectum with small semi-rounded triangular projection on apex, bearing rostral setae, close together, divergent outwards; sensilli (*ss*) (57–70) spindle-shaped with 20–25 bristles bilaterally; rostral (*ro*) (17–22); lamellar (*le*) (19–27), interlamellar (*in*) (30–44), anterior exobothridial (*exa*) (14–22), posterior exobothridial (*exp*) (6–9).

Notogaster – Anterior section of notogaster with six pairs of setae, posterior section with nine pair, *ps*₃ next to anal plates; relative lengths of notogastral setae: *h*₁, *h*₂, *ps*₁, *ps*₂ (23–44) > *cp*, *f*₁ (20–35) > *c*₁, *c*₂, *e*₁, *d*₁, *d*₂ (13–28) > *ps*₃ (12–18) > *e*₂, *h*₃ (10–15) > *c*₃ (8–12); setae *e*₂, *f*₁, *h*₁, *h*₂ lanceolate.

Ventral region – Epimeral setae from I–IV 3-2-3-4; 9 pairs of genital setae (6 in median row and 3 in lateral row), 2 pairs of aggenital (*ag*), 2 pairs of anal (*an*), 3 pairs of adanal (*ad*) setae.

Legs – Legs similar to that of *G. xarifae* (see Strenzke 1963) except all leg setae of *G. rhadamanthus* are setiform (not widened) and smooth.

Material examined

Three adult specimens from soil horizon I (0–30 cm depth) of wheat field, 38° 23' 55.87" N, 45° 51' 11.75" E, 1,437 m above sea level with a combination of sandy, loam and clay soil (pH: 7.9, clay: 35%, silt: 32.41%, sand: 32.59%, organic carbon: 0.61%); one adult from soil horizon III (58–115 cm depth) of wheat field, 38° 25' 29.19" N, 45° 52' 59.22" E, 1,376 m above sea level, with loam soil (pH: 7.80, clay: 25.33%, silt: 29.72%, sand: 44.95%, organic carbon: 0.30%).

Remarks

The Iranian specimens of *G. rhadamanthus* are well within the size range (255–271) compared to reports from Japan (262–275), New South Wales in Australia (250) and Carolina in the U.S.A. (225). Notogastral setae *cp* being longer than *d*₂ in the Iranian specimens is similar to Australian specimens, but differs from the Japanese specimens where *cp* is shorter than *d*₂, and the U.S.A specimens where *cp* and *d*₂ are similar in length. Furthermore, notogastral setae *e*₂, *f*₁, *h*₁ and *h*₂ are lanceolate in the Iranian specimens, setae *h*₁ and *h*₂ especially are lanceolate in Japanese specimens, whereas in the U.S.A. and Australian specimens all the setae seem to be thin. Nine pairs of genital setae in the Iranian specimens are in accordance with those from Japan and the U.S.A., but differ from the Australian specimens which have eight pairs (Aoki 1975; Lee 1981; Martínez & Bernava Laborde 2000).

According to Norton and Behan-Pelletier (2009), *G. rhadamanthus* is abundant in sandy soils, because they seem to be adapted to moving among sand grains. However, this study showed that *G. rhadamanthus* are able to live in a combination of sandy, loam and clay soils. One adult was found in deep soil (58–115 cm depth), probably for

protection against hot and dry weather of harvested wheat fields in September. The setae of this specimen were noticeably shorter than that of the other three specimens.

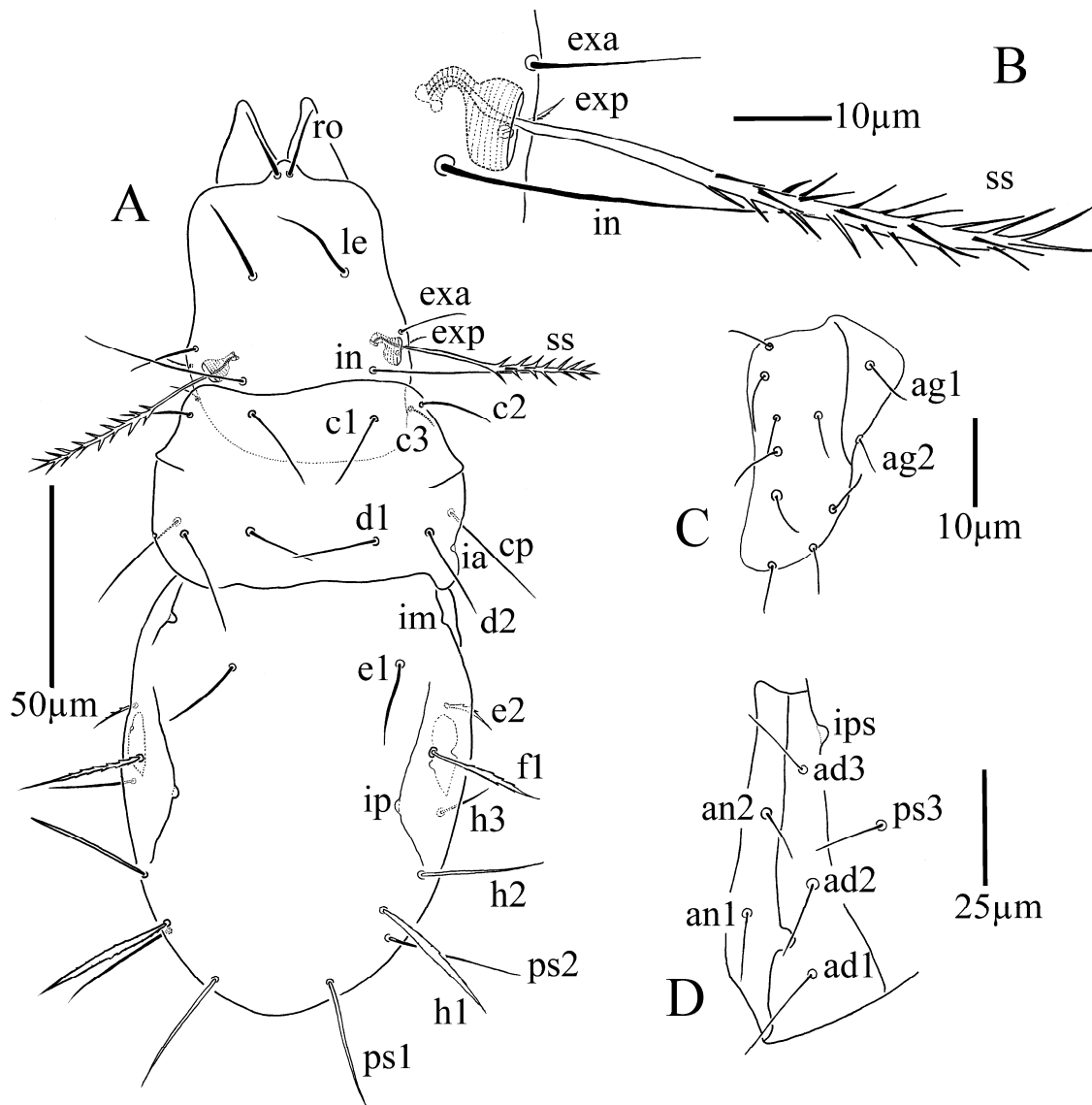


Figure 1. *Gehyochthonius rhadamanthus* Jacot, 1936 – A. Dorsal view of body; B. Bothridium and sensillus, with setae in their vicinity; C. right genital-agenital region; D. right anal-adanal region.

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