Second Record of *Epilohmannia imreorum* (Acari:Oribatida)

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ABSTRACT

During the investigations of oribatid mites of Sakarya province in Turkey, one species and one subspecies of the genus *Epilohmannia*, i.e., *E. imreorum* Bayoumi and Mahunka, 1976 and *E. cylindrica cylindrica* (Berlese, 1904), were found. *Epilohmannia imreorum* is secondly recorded throughout the world. SEM images of the two species are also provided.

Key words: new record, Oribatida, *Epilohmannia*, Turkey

INTRODUCTION

The genus *Epilohmannia* has 44 species and 8 subspecies and shows a cosmopolitan distribution except Antarctica (Subías, 2004). There have been records of species and subspecies of the genus *Epilohmannia* from Turkey up to date as follows (Dik et al., 1995; Ayyıldız and Özkan, 1988): *E. inexpectata* Schuster, 1960, *E. cylindrica minima* Schuster, 1960 and *E. cylindrica cylindrica* (Berlese, 1904).

The genus *Epilohmannia* can be distinguished from the related taxa by the presence of transverse line between genital and anal plates, very large epimeron IV, anal plate with 3-4 pairs of setae, and genital plate with more than seven pairs of setae (Balogh and Balogh, 1992; Woas, 2002; Weigmann, 2006).

The diagnostic characters which distinguish species of *Epilohmannia* are very few. Incomplete original descriptions or redescrptions and illustrations of species makes almost impossible to separate the species from each other. Because of this, some closely related species could have taxonomic confusion (Bayartogtokh, 2000). In order to eliminate this problem, we give the SEM images of our specimens identified as *E. imreorum* and *E. cylindrica cylindrica* from Sakarya. While the second species has a cosmopolitan distribution, the first one has been only recorded from Romania up to date. The identification key for the Turkish *Epilohmannia* species is also included in this paper.

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MATERIALS AND METHODS

The mites in soil and litter samples, taken from the Sakarya University campus, were extracted by a Tullgren funnel apparatus. Then they were fixed and stored in 70% ethanol. The mites were sorted from the samples under a stereomicroscope and temporarily mounted on slides in modified Hoyer's medium (30 g gum Arabic, 50 ml distilled water, 200 g chloral hydrate, and 16 ml glycerol) for microscopic observation. Two of specimens from each species were mounted on aluminum stubs and gold-coated for scanning electron microscopy (SEM) then discarded.

The SEM images were taken by JEOL JSM 6060 LV. The examined specimens are deposited in the Acarological Collection of the first author, Sakarya University, Turkey.

RESULTS

Key to the species of *Epilohmannia* known from Turkey

1. Sensillus uniformly thin and setiform. Body length 650-803 μm
 E. imreorum Bayoumi and Mahunka, 1976
- Distal half of sensillus fusiform..... 2
2. On tarsus of leg IV only one short thorn-like setae present. Furrow between epimera I and II normally narrow.....
 E. inexpectata Schuster, 1960
- On tarsus of leg IV more than one thorn-like setae present. Furrow between epimera I and II wide 3
3. On tarsus of leg IV two thorn-like setae present. Body length more than 450 μm
 E. cylindrica cylindrica (Berlese, 1904)
- On tarsus of leg IV four thorn-like setae present. Body length less than 440 μm
 E. cylindrica minima Schuster, 1960

Epilohmannia imreorum Bayoumi and Mahunka, 1976

(Figs. 1-3)

Measurements. Mean body length 738 μm (n = 7) and width 372 μm (n = 7).

Integument. Colour reddish brown, covered by fine shallow depressions.

Prodorsum (Fig. 1). Prodorsum triangular and elongated. Rostrum entire and broadly rounded. Rostral setae short and similar to anterior exobothridial setae (*exa*). Posterior exobothridial setae (*exp*) minute. Lamellar setae 30 μm , thick and barbed. Interlamellar setae 79 μm , strongly barbed and originated close to bothridium. Sensillus uniformly thin, setiform in the same length of interlamellar setae. Bothridium small, cup-shaped and opened laterally.

Notogaster (Fig. 1). Anterior margin of notogaster strongly arched. Notogastral setae long, thin and barbed. Surface of notogaster finely punctated.

Ventral region (Figs. 2-3). Epimeral fissures I joining medially and forming a triangular area before them. Epimera I and II wide, epimeron III very narrow, and epimeron IV substantially wide. Epimeral setal formula 3-1-3-3. Epimeral setae small and barbed, setae 3c and 4c much stronger than the others. Eight pairs of genital, 3 pairs of aggenital, 3 pairs of anal and 3 pairs of

Fig. 1. *Epilohmannia imreorum*: Scanning electron microscopy image of dorsal view of adult.

Fig. 2. *Epilohmannia imreorum*: Scanning electron microscopy image of ventral view of adult.

Fig. 3. *Epilohmannia imreorum*: Scanning electron microscopy image of anogenital region.

adanal setae present. Adanal setae *ad2* and *ad3* are stronger than the others.

Studied Material. All materials were collected by the last author from soil and litter under the plane tree (*Platanus orientalis*), in the Sakarya University campus, Turkey, 12.10.2010. Geographic co-ordinates of the locality: 40° 74' N, 30° 32' E (GoogleMap WGS 84 system).

***Epilohmannia cylindrica cylindrica* (Berlese, 1904)**

(Figs. 4-6)

Measurements. Mean body length 456 µm (n = 5) and width 172 µm (n = 5). *Integument.* Colour reddish brown, covered by fine shallow depressions.

Prodorsum (Fig. 4). Prodorsum triangular and elongated. Rostrum entire and broadly rounded. Rostral setae short and similar to *exa*. Interlamellar setae (49 µm) originated close to bothridium and two times longer than lamellar one. Distal half of sensillus fusiform and as long as interlamellar setae. Bothridium small, cup-shaped and opened laterally.

Notogaster (Fig. 4). Anterior margin of notogaster slightly arched. Notogastral setae short, thin and curved. Surface of notogaster finely punctated.

Ventral region (Figs. 5-6). Surface covered by fine shallow depressions. Epimeral fissures I not medially joined. Epimera I and II wide, epimeron III very narrow and epimeron IV wider than the others. Epimeral setal formula 3-1-3-3. Epimeral setae small and barbed; setae *3b*, *3c* and *4b* stronger than the others. Eight pairs of genital, 3 pairs of aggenital, 3 pairs of anal and 3 pairs of adanal setae present. Adanal setae *ad2* and *ad3* are stronger than *ad1*.

Studied Material. All materials were collected by the last author from Prof. Dr. Nedim Tuna

Fig. 4. *Epilohmannia cylindrica cylindrica*: Scanning electron microscopy image of dorsal view of adult.

Fig. 5. *Epilohmannia cylindrica cylindrica*: Scanning electron microscopy image of ventral view of adult.

Fig. 6. *Epilohmannia cylindrica cylindrica*: Scanning electron microscopy image of aggenital region.

commemorative forest, grassy soil under the pine tree (*Pinus nigra*) in the Sakarya University campus, Turkey, 09.11.2010. Geographic co-ordinates of the locality: 40° 73' N, 30° 32' E (GoogleMap WGS 84 system).

DISCUSSION

Epilohmannia imreorum had been known only from Romania since 1976. In this study the species is recorded for the second time from Turkey far apart from its type locality. *E. imreorum* is closely related to *E. insignipes* Balogh, 1964, *E. ornata* Mahunka, 1993, *E. neotricha* Wallwork, 1962, *E. lenkoi* Balogh and Mahunka, 1977 by having uniformly thin, setiform sensillus. However, *E. insignipes* differs from *E. imreorum* by markedly long interlamellar setae longer than sensillus. *E. ornata* differs from *E. imreorum* by smaller body dimensions (433-472 µm). *E. neotricha* differs from *E. imreorum* by shape of notogastral setae and semicircularly curved apodemata IV. *E. lenkoi* differs from *E. imreorum* by long lamellar setae.

The range of body size of *E. imreorum* was previously given as 650 – 853 / 320 - 344 µm (Bayoumi and Mahunka, 1976). According to our data, the mean value of the body length is 738 µm and the mean value of the body width is 372 µm. In this respect, while the body length of the specimens found in Turkey is in accordance with those of previously given, the mean body width seems bigger than the previously given interval.

The rest of the characteristics of species are compatible with the previously given.

Body dimensions of *E. cylindrica* were given as 516/197 μm by Bayartogtokh (2000), as 562/168 μm by Ayyıldız and Özkan (1988) and as 453-573 μm by Balogh and Mahunka (1983). The mean body dimension of specimens investigated in this study is 456/172 μm . While our specimens are a little smaller than the ones investigated by Bayartogtokh (2000) and Ayyıldız and Özkan (1988), body dimensions of our samples agree with those given as 453-573 μm by Balogh and Mahunka (1983).

Other characteristics of the specimens found in Turkey are in accordance with the previously given data (Aoki, 1965; Ayyıldız and Özkan, 1988; Balogh and Mahunka, 1983; Bayartogtokh, 2000; Bayoumi and Mahunka, 1976).

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