

A CONTRIBUTION TO THE FAUNA OF PRIMITIVE ORIBATID MITES OF TURKEY (ACARI: ORIBATIDA)

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ABSTRACT: In the present study primitive oribatid mites (Acari: Oribatida: Macropylina) collected from the province of Sakarya were examined. Redescription and SEM images of two species *Poecilochthonius italicus* (Berlese, 1910) (Acari: Oribatida: Brachychthoniidae) and *Hypochthonius luteus* Oudemans, 1937 (Acari: Oribatida: Hypochthoniidae Berlese, 1910) were given. While *H. luteus* was previously known from Turkey, *P. italicus* (Berlese, 1910) and thereby family Brachychthoniidae Thor, 1934 are recorded for the first time in Turkey.

KEY WORDS: Acari, Oribatida, Brachychthoniidae, Hypochthoniidae, new records, Turkey

Oribatida are divided in two supercohorts: lower oribatid mites (Macropylina) and higher oribatid mites (Brachypylina). Lower oribatid mites include five cohorts; Palaeosomata, Enarthronota, Parhyposomata, Mixonomata and Desmonomata (Grandjean, 1954, 1969; Woas, 2002; Skubala, 2004). Lower oribatids differentiated from higher oribatids by contiguous genital and anal shields occupying the entire length of the anogenital region, and with genua and tibiae of legs at uniform length and shape (Krantz, 1978; Woas, 2002; Skubala, 2004).

The family Brachychthoniidae Thor, 1934 represented by 11 genera and 161 species (Subías, 2004, updated 2015). This family firstly recorded from Turkey with the species *Poecilochthonius italicus* (Berlese, 1910) redescribed in this study.

The family Hypochthoniidae Berlese, 1910 comprises 4 genera and 27 species. Previously the species *Hypochthonius luteus* Oudemans, 1937 and *H. rufulus* Koch, 1836 were recorded from Turkey (Ayyıldız, 1986; Ozkan et al., 1988; Ozkan et al., 1994; Erman et al., 2007). In this study *H. luteus* redescribed with SEM investigation.

The aims of the present paper are to identify the primitive oribatid mite species collected from Sakarya University campus and to redescribe and illustrate these species.

MATERIALS AND METHODS

Mites were extracted by a Tullgren funnel apparatus from the soil and litter samples collected from Sakarya University campus. They were fixed and stored in 70% ethanol. Mites were sorted from the samples under a stereomicroscope (Olympus SZX51) and mounted on slides in modified Hoyer's medium or 35% lactic acid. All measurements are given in micrometers (µm).

The terminology used in this paper follows Weigmann (2006). Examined materials are deposited in the Acarological Collection of the last author, Sakarya University, Sakarya, Turkey.

RESULTS

Family Hypochthoniidae Berlese, 1910 *Hypochthonius luteus* Oudemans, 1937

Material Examined: The examined material collected from campus of Sakarya University, Turkey, 40°74' N, 30°33' E, 07.10.2014, 3 specimens.

Measurements and color. Body length 573 µm, width 310 µm and yellowish brown.

Prodorsum (Figs. 1, 2). Prodorsum triangular, rostrum widely rounded. Prodorsal surface with minute fields of polygonal sculpture. Sensillus with 13- 15 lateral branches. Lamellar setae approximately 66 µm, interlamellar setae approximately 50 µm in length.

Notogaster (Fig. 1). Notogastral surface with minute fields of polygonal sculpture. Anterior border of notogaster nearly straight, anterior corners of notogaster protruding slightly forward. Posterior border of notogaster oval, transverse furrow curved upwards laterally. Setae *c* and *d* arising on shield *Na*. Setae *f*, *h* and *p* on shield *Py*, setae *p1*, and *p2* shifted to ventral side. Notogastral setae ciliate, seta *c1* approximately 89 µm and extending at most to insertion point of *d1*, setae *d1* approximately 81 µm. Distance between *c1* - *c1* approximately 52 µm and *c1* - *d1* approximately 97 µm.

Venter. Genital plates without transverse furrow, eight pairs of genital setae. Anal plate and anal setae reduced, aggenital setae absent, entire anal region occupied by adanal plates, three pairs of adanal setae. Epimeral setation as 3:1:3:4.

Distribution: Holarctic, North-East Oriental and New Zealand.

Remarks: The species *H. luteus* very similar to *H. rufulus* but differs from it by smaller body dimensions, blunt notogastral setae in medium length and medially widening notogaster (Weigmann, 2006).

Body dimensions of *H. luteus* were given as 580-650 µm by Balogh and Mahunka (1983) and Weigmann (2006). In the previous record from Turkey it was given as 540-600 µm (Ayyıldız, 1986). The average body dimension of our specimens is 573 µm and in accordance with previously given dimensions.

Family Brachychthoniidae Thor, 1934 *Poecilochthonius italicus* (Berlese, 1910)

Material Examined: The examined material collected from campus of Sakarya University, Turkey, 40°74' N, 30°33' E, 07.10.2014, 1 specimen.

Measurements and color. Body length 185 µm, orange.

Prodorsum (Fig. 3). Conical, narrower than notogaster (notogaster width 118 µm; prodorsum width 92 µm). Rostral setae (*ro*) setiform and 14 µm, distance between *ro-ro* 16 µm. Lamellar setae closer to rostral setae than interlamellar setae (*in-le*=31 µm; *le-ro*=23 µm). Setae *le* 14 µm, thin and setiform, distance between *le-le*= 28 µm. Setae *in* 15 µm, thin and setiform. Sensillus 35 µm, apically thickened with short spines. Exobothridial setae (*ex*) strong and curved to each other.

Notogaster (Fig. 3). Anterior border of notogaster straight. Median notogastral setae long, setae *e1*, *f1*, *h1* reach insertion points of each other. Average lengths of

setae *ci* 19 μm , *ei* 20 μm , *fi* 18 μm and *hi* 15 μm . Cuticular ring on notogastral plate *Na* closed, setae *ps2* and *ps2* at the same level.

Venter. Adanal plates not fused posteriorly. Epimeral setation as 3:1:2:4. Seven pairs of genital setae, setae *ad2* and *ad3* widened.

Distribution: Cosmopolite.

Remarks: The species *P. italicus* is firstly recorded from Turkey by this study.

Body length of this species was given as 175–188 μm by Weigmann (2006), average body length of our specimen is 185 μm and in accordance with previously given dimensions. The species *P. italicus* very similar to *P. spiciger* (Berlese, 1910), the differences of this species were previously mentioned by Weigmann (2006).

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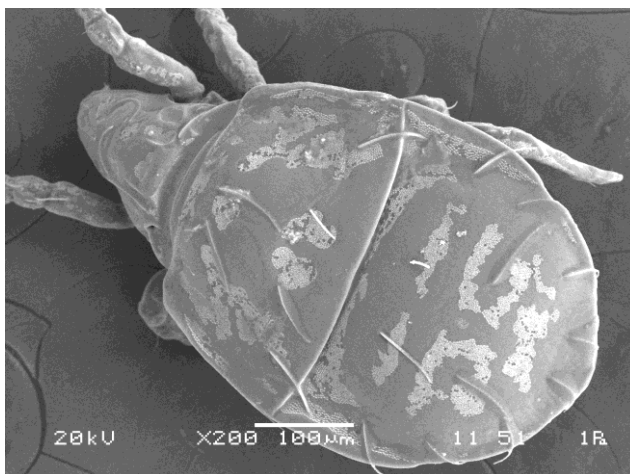


Figure 1. SEM image of dorsal view of adult of *Hypochthonius luteus*.

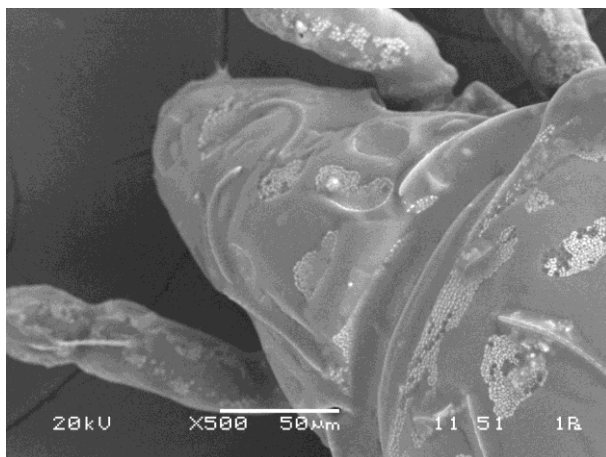


Figure 2. SEM image of prosorsum of *Hypochthonius luteus*.

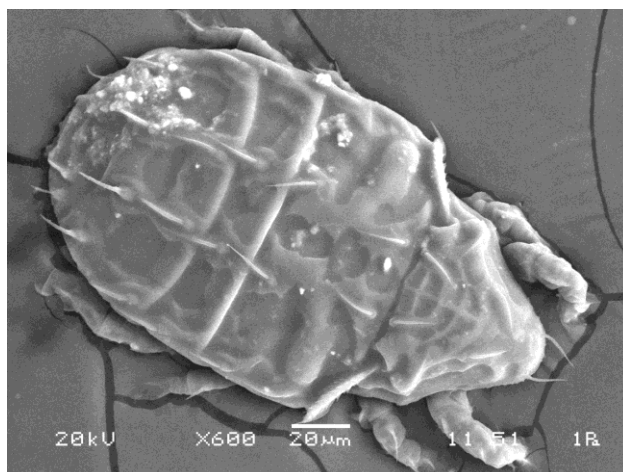


Figure 3. SEM image of dorsal view of adult of *Poecilochthonius italicus*.