

## SOME ORIBATID MITES (ACARI) FROM THE HARŞIT VALLEY (TURKEY)

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ABSTRACT: Six oribatid mites are reported from the Harşit Valley of Turkey. Of these, *Tricheremaeus serratus* (Michael, 1885), *Zetorchestes flabrarius* Grandjean, 1951 and *Oribatella (O.) nigra* Kulijev, 1967 are new records for the Turkish fauna; *Platynothrus peltifer* (C. L. Koch, 1839), *Gustavia fusifer* (Koch, 1841), *Scutovertex sculptus* Michael, 1879 have been determined as a previously reported from Turkey.

KEY WORDS: Taxonomy, new records, Turkish fauna, ecology, Western Palearctic

Oribatid mites are the dominant group of the soil-inhabiting mites, which play a significant role in maintaining the porosity of soils, in decomposing dead organic materials and in spreading soil biota (Gergócs et al., 2012; Seastedt, 1984; Wallwork, 1983). They comprise 10.923 described species and subspecies worldwide (Subías, 2004). Until now, 240 oribatid species and subspecies are known from Turkey (Ayyıldız & Toluk, 2016; Baran et al., 2018; Erman et al., 2007). There is only very scarce information available about the oribatid mites of Harşit Valley. Until now, 16 taxa have been reported from this region (Ağcakaya, 2015; Gökçe, 2015; Karabörklü, 2018; Zoroğlu & Ayyıldız, 2018).

In this study; in order to contribute to the knowledge of the oribatid mite fauna of Turkey, the mites inhabiting in the Harşit valley were evaluated from the taxonomic point of view, based on samples collected between 2013 and 2015.

### MATERIAL AND METHODS

A total of 700 samples were collected from Harşit Valley located in Eastern Black Sea Region of Turkey in 2013 and 2014. In the extraction of mites from soil, litter, moss and lichen collected from the investigation area was used a Berlese-Tullgren funnel extractor. Extracted mites were killed, fixed and stored in 80% ethanol. The light and scanning electron microscopes (SEM) were used to examine mites. The compound microscopic examinations of specimens were made in lactic acid, mounted in temporary cavity slides. Scanning electron microscope images of all determined taxa were taken. Terminology follows Norton & Behan-Pelletier (2009).

### RESULTS AND DISCUSSION

*Tricheremaeus serratus* (Michael, 1885) (Fig. 1)  
Measurements. Body length, 606 µm and body width, 326 µm (n = 1).

*Diagnostic characters.* Sensilli long, short stalked, thick clavate and finely granulated; notogastral surface with large, rounded, sharply defined pits; 17 pairs of very long notogastral setae present.

*Material examined.* Harşit Valley, Örumcek Forests, 40° 41' 11"K, 39° 02' 47"D, 1046 m, litter and soil under forest; 29.X.2014, 1 ex.

*Distribution.* Palaearctic (Western Europe) (Subías, 2004).

*Remarks.* This species is recorded for the first time in Turkey. The body length for the species is given as 550-595 µm by Weigmann (2006). In this regard, the Turkish specimens (606 x 326 µm) are in the range of the known dimensions of the species. According to some known literature, it has been found in lichens, mosses and liverworts (Grandjean, 1963; Schatz, 2009; Schweizer, 1992; Travé, 1963; Weigmann, 2006). We captured this species in litter and soil under forest. From these data, it is understood that the species lives in the soil and litter in addition to lichens, mosses and liverworts on trees.

### ***Zetorchestes flabrarius* Grandjean, 1951 (Fig. 2)**

*Measurements.* Body length, 454-468 µm and body width, 324-332 µm (n = 3).

*Diagnostic characters.* Rostrum rounded. Rostral setae inserted on very conspicuous tubercles. Sensilli with a leaf-like expanded, densely granulated; the interlamellar setae half as long as the lamellar setae and equal in length to the diameter of the bothridia. 11 pairs of notogaster setae ( $c_i$  and  $p_1$ - $p_3$  available) present. Trochanter IV without bristle.

*Material examined.* Harşit Valley, Araköy, 40° 35' 54"K, 39° 06' 53"D, 986 m, mixed forest (*Populus* sp. and *Rosa canina*) litter; 10.X.2014, 3 exs.

*Distribution.* Palaearctic (Mediterranean) (Ghilarov & Krivoluckij, 1975; Grandjean, 1951; Subías, 2004; Weigmann, 2006).

*Remarks.* This species is recorded for the first time in Turkey. The known body length for the species is between 428-480 µm (Grandjean, 1951; Pérez-Iñigo, 1997; Weigmann, 2006). In this regard, the Turkish specimens (454-468 x 324-332 µm) are in the range of the known dimensions of the species. Schatz (2016) considered this species as silvicolous, muscicolous, xerophilous. According to Pérez-Iñigo (1997), it is a jumping species and lives in the forest litter and mediterranean type shrub. This species also lives deciduous forest soils and moss (Weigmann, 2006). We found it in forest litter. From these data, it is understood that the habitat information of the Turkish samples is consistent with the previous data.

### ***Oribatella (Oribatella) nigra* Kulijev, 1967 (Fig. 3)**

*Measurements.* Body length, 660-670 µm and body width, 422-435 µm (n = 2).

*Diagnostic characters.* The interlamellar setae long, projecting beyond margin of rostrum, covered with small spines; lamellae broad, with two long dens, inner and lateral dens nearly equal in length, sensillus seta like, surface of lamellae at outer margin covered with fine longitudinal sclerotized carinae, notogastral surface smooth; notogaster with 13 pairs setae, tarsi with 3 claws.

*Material examined.* Harşit Valley, Çatalağaç village, 40° 46' 11"K, 38° 59' 09"D, 850 m, litter under *Corylus avellana*; 21.V.2015, 2 exs.

*Distribution.* Palaearctic (Caucasia) (Ghilarov & Krivoluckij, 1975; Subías, 2004).

*Remarks.* This species is recorded for the first time in Turkey. The body length for the species is given as 740-750 X 450-600 by Shtanchaeva & Subías (2009). The Turkish specimens (660-670 X 422-435 µm) are smaller than the known specimens. Arabuli et al. (2007) found this species in alder woodland with boxwood. We found it in litter under *Corylus avellana*.

***Platynothrus peltifer* (Koch, 1839)** (Fig. 4)

*Material examined.* Harşit Valley, Çatalağaç village, 40° 46' 33"K, 38° 59' 32"D, 1035 m, roadside grassy soil; 21.V.2015, 2 exs.

*Distribution.* Semicosmopolitan (Holarctic, Oriental, Australian, Neotropical) (Subías, 2004).

*Remarks:* This species was previously recorded in Turkey (Bayram & Çobanoğlu, 2009).

***Gustavia fusifer* (Koch, 1841)** (Fig. 5)

*Material examined.* Cehennem Valley, Yaylalar crossroad, 40° 33' 13"K, 39° 28' 49"D, 1385 m, litter and soil under *Salix* tree; 14.V.2015, 2 exs.

*Distribution.* Palaearctic (Subías, 2004).

*Remarks.* This species was previously recorded in Turkey (Urhan & Özmen, 2006).

***Scutovertex sculptus* Michael, 1879** (Fig. 6)

*Material examined.* Harşit Valley, Çatalağaç village, 40° 46' 33"K, 38° 59' 32"D, 1035 m, roadside grassy soil; 21.V.2015, 3 exs.

*Distribution.* Palaearctic and Australian (New Zealand) (Subías, 2004).

*Remarks.* This species was previously recorded in Turkey (Ayyıldız et al. 2013).

**CONCLUSION**

Harşit Valley has a transition climate between the moist-temperate sea climate of the coastal zone and the continental climatic conditions of the transgression zone. When the valley is examined in terms of vegetation, it is seen that it carries the characteristics of transition climate. Therefore, the research region is expected to be rich in species diversity. In addition to the 6 taxa given in this study, 22 taxa were recorded from the research area previously. Considering the results of this study, further detailed researches are needed, with a view to explain the oribatid fauna of Harşit Valley.

**ACKNOWLEDGEMENTS**

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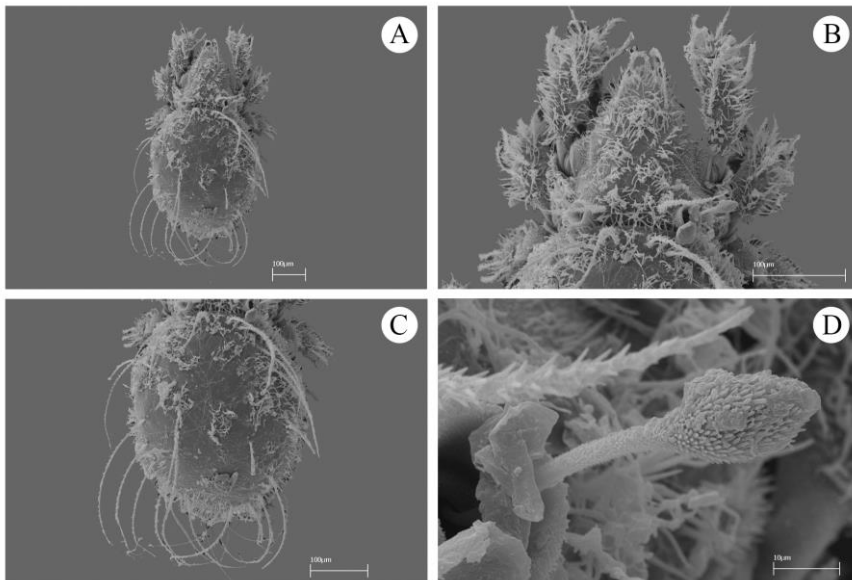


Figure 1. *Tricheremaeus serratus* (Michael, 1885) A: Dorsal view, B: Prodorsum, C: Notogaster, D: Sensillus.

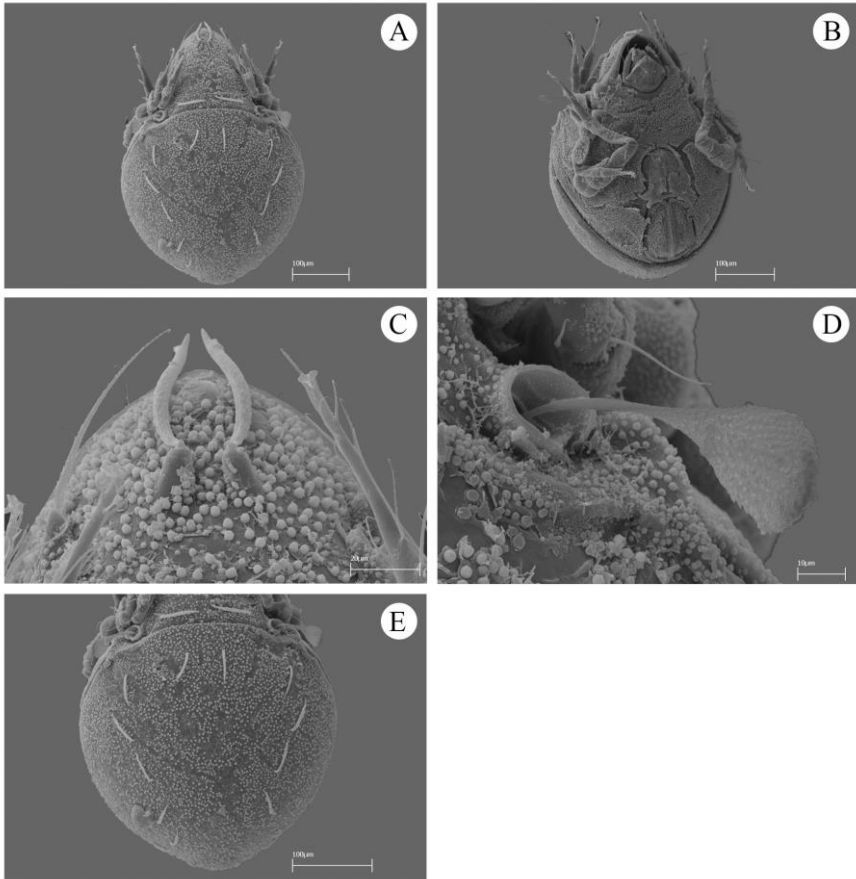


Figure 2. *Zetorchestes flabrarius* Grandjean, 1951 A: Dorsal view, B: Ventral view, C: Rostral setae, D: Sensillus, E: Notogaster.

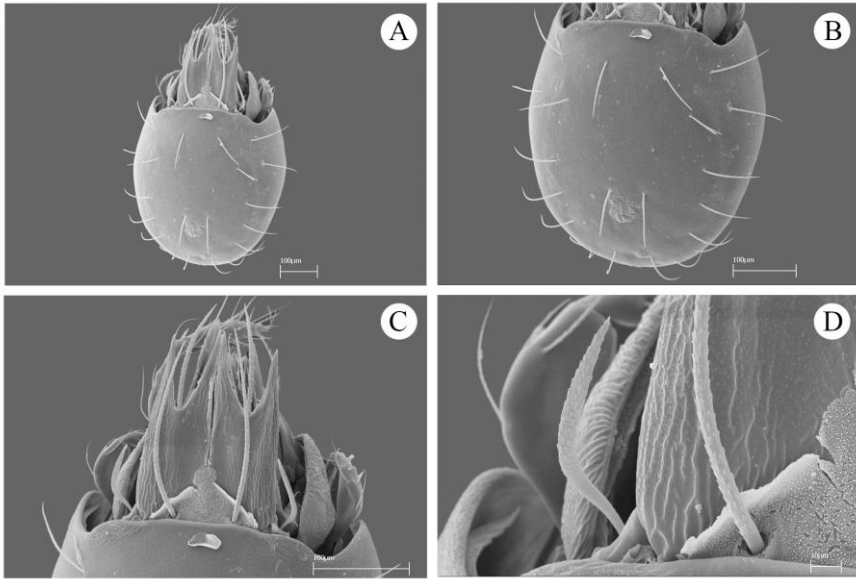


Figure 3. *Oribatella (Oribatella) nigra* Kulijev, 1967 A: Dorsal view, B: Notogaster, C: Prodorsum, D: Sensillus and setae *in*.

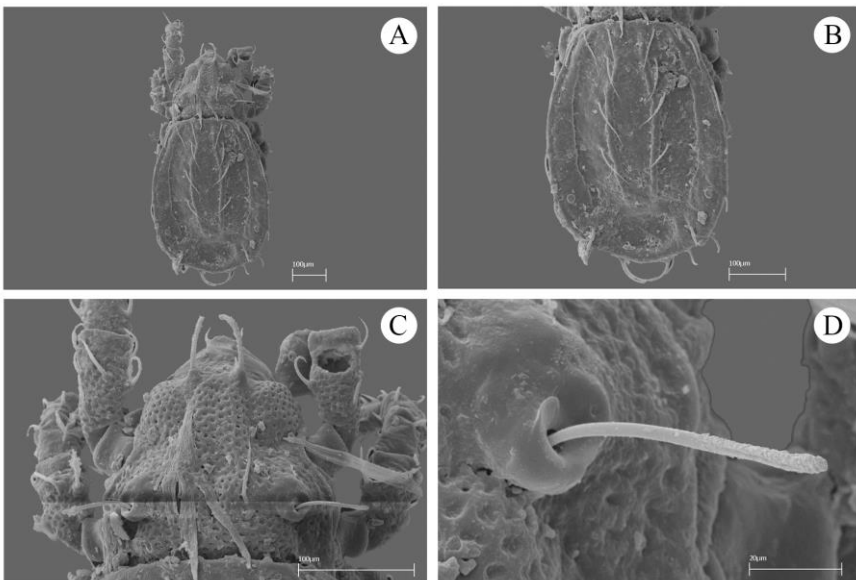


Figure 4. *Platynothrus peltifer* (Koch, 1839) A: Dorsal view, B: Notogaster, C: Prodorsum, D: Sensillus.

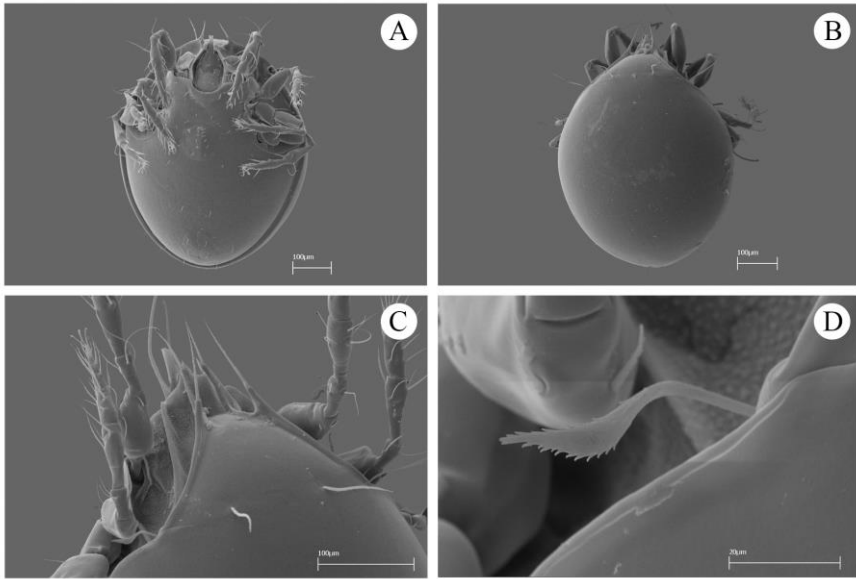


Figure 5. *Gustavia fusifer* (Koch, 1841) A: Ventral view, B: Dorsal view, C: Prodorsum, D: Sensillus.

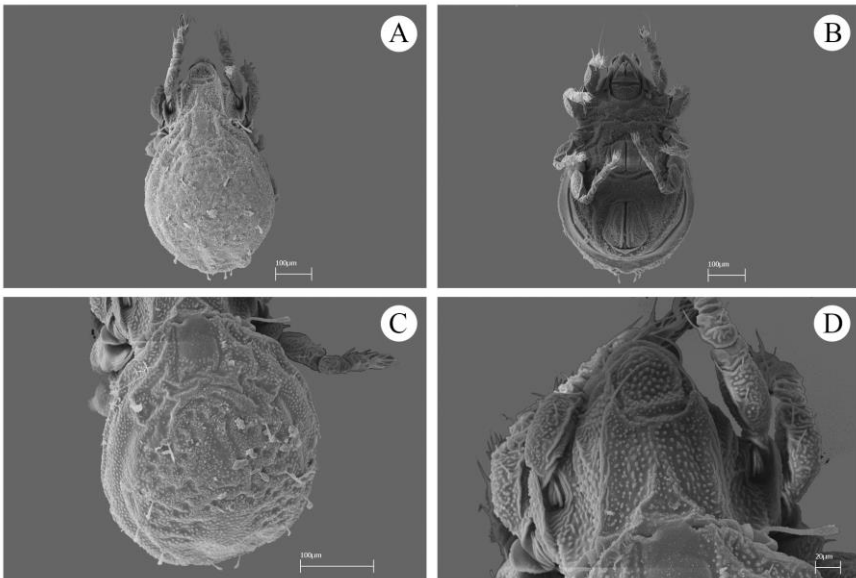


Figure 6. *Scutovertex sculptus* Michael, 1879 A: Dorsal view, B: Ventral view, C: Notogaster, D: Prodorsum.