

Original article (Orijinal araştırma)

New records of oribatid mites (Acari, Oribatida) for the Turkish fauna¹

Türkiye faunası için yeni oribatid akarlar (Acari, Oribatida)

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Abstract

The purpose of this paper is to contribute to the Turkish oribatid mite fauna. The material is composed of oribatid mite collected from Artvin province (Turkey) in the years 1992 and 1993. Two oribatid mite species, *Cepheus heterosetosus* (Sitnikova, 1975) (Compactozetidae) and *Chamobates (Xiphobates) voigtsi* (Oudemans, 1902) (Chamobatidae), are recorded for the first time from Turkey. Their morphological characters are reviewed on the basis of Turkish samples. In addition, their zoogeographical distributions are given.

Keywords: *Cepheus*, *Chamobates (Xiphobates)*, new records, oribatida, Turkey

Öz

Bu makalenin amacı Türkiye oribatid akar faunasına katkı sağlamaktır. Materyal, 1992-1993 yıllarında Artvin (Türkiye) ilinden toplanan oribatid akarlardan oluşmaktadır. İki oribatid akar türü *Cepheus heterosetosus* (Sitnikova, 1975) (Compactozetidae) ve *Chamobates (Xiphobates) voigtsi* (Oudemans, 1902) (Chamobatidae) Türkiye’de ilk kez kaydedilmiştir. Bu türlerin morfolojik özellikleri Türkiye örnekleri temel alınarak gözden geçirilmiş ve ilaveten zoocoğrafik dağılışları verilmiştir.

Anahtar sözcükler: *Cepheus*, *Chamobates (Xiphobates)*, yeni kayıtlar, Oribatida, Türkiye

Introduction

Oribatid mites commonly inhabit soil-litter systems and rarely are found in aquatic environments. They feed on the tissues of high plants, decaying plants, living animal tissues, dead animals and feces. Habitat and nutrition variety play a key role in the diversity of oribatid mites (Schneider, 2005; Gergócs & Hufnagel, 2009).

Artvin province selected as the study area is a province on the Black Sea coast in the north-eastern of Turkey. Up to date twenty-two oribatid mite species have been recorded from Artvin province (Toluk & Ayyıldız, 2008, 2009a, b, 2010a, b; Baran et al., 2009; Toluk et al., 2010; Ayyıldız et al., 2011a, b). During examination of soil mites collected from Artvin province (Turkey), we found two new records of oribatid mites for the Turkish fauna belonging to genera *Cepheus* Koch, 1835 (Compactozetidae) and *Chamobates* Hull, 1916 (Chamobatidae). The genus *Cepheus* comprises twenty six species and distributed in the Holarctic, Australian, Oriental and Ethiopian zoogeographic regions (Subias, 2004, updated 2017). Three species of this genus, *Cepheus dentatus* (Michael, 1888), *Cepheus caucasicus* Sitnikova, 1975 and *Cepheus tuberculatus* Strenzke, 1951, have previously been reported from Turkey (Ayyıldız et al., 2011b; Baran & Ayyıldız, 2017; Baran et al., 2017; Per et al., 2017). The main generic characters are as follows: Lamellae broad, marginal, converging, cuspides touching or almost touching;

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interlamellar setae long, originate far from dorsosejugal suture about midway on prodorsum; notogaster with large or small obtuse tubercle; notogaster with 6-7 pairs of submarginal setae originating in an evenly arched row; genital plates with 6 pairs of setae; all legs monodactyle (Balogh & Balogh, 1992; Weigmann, 2006).

The genus *Chamobates* comprises thirty one species and distributed in the Holarctic and Palearctic zoogeographic realms (Subías, 2004, updated 2017). Only one species of this genus, *Chamobates (Xiphobates) interpositus* Pschorn-Walcher, 1953, has previously been recorded from Turkey (Grobler et al., 2004). The main generic characters are as follows: Body round-oval; interlamellar setae originate on prodorsum, near dorsosejugal suture; lamellae with cusps; translamella either medially interrupted or absent; pteromorphae immovable; area porosae developed; notogaster either with 10-11 pairs of setae or alveoli; genital plates with 6 pairs of setae; all legs tridactyle (Balogh & Balogh, 1992; Weigmann, 2006).

The aim of this study is to present two new records of the identified taxa from the research area.

Materials and Methods

The examined oribatid mites were collected from the moss and lichens on tree and rocks in Artvin province (Turkey) in the years 1992-1993 and extracted by using a Berlese-Tullgren funnel extractor. They were fixed and stored in 75% ethyl alcohol. Microscopic examination of mite specimens was made in lactic acid in temporary cavity slides. The morphological terminology follows Norton & Behan-Pelletier (2009). Scanning electron microscopy studies were carried out in the Erciyes University Technology Research and Implementation Center.

Results and Discussion

Two oribatid mite species, *Cepheus heterosetosus* (Sitnikova, 1975) (Compactozetidae) and *Chamobates (Xiphobates) voigtsi* (Oudemans, 1902) (Chamobatidae) were determined from the examined materials.

Compactozetidae Luxton, 1988

Cepheus Koch, 1835

Cepheus heterosetosus (Sitnikova, 1975)

Material examined: Turkey: Artvin, Şavşat, Karaköy, 41°14'54.4"N 42°27'51.7"E, 1870 m, 17.10.1992, moss and lichen on tree in a mixed forest (*Abies nordmanniana* (Stev.), *Picea orientalis* (L.) and *Pinus sylvestris* L.), 3 specimens.

Measurements: Length: 715 (712-718) µm, width: 485 (481-490) µm (n= 3).

Diagnostic characters: Surface of body with reticulate pattern; rostrum rounded; Lamellae with large lateral tooth and translamella; interlamellar setae long and sparsely barbed, originate far from dorsosejugal suture about midway on prodorsum; sensilli with short peduncle and slightly fusiform head, directed posteriorly; dorsosejugal suture smooth; notogaster with small obtuse tubercle; 7 pairs of submarginal notogastral setae originate in an evenly arched row; genital plates with 6 pairs of setae; all legs monodactyle (Figures 1, 2).

Comment: This species is a new record for the Turkish fauna. It is distributed in Palearctic region (Sitnikova, 1975; Subías, 2004, updated 2017) and prefers the forest soils. Rarely is found in steppes (Murvanidze & Mumladze, 2016). We found it in moss and lichen on the tree in a mixed forest (*Abies*

nordmanniana (Stev.), *Picea orientalis* (L.) and *Pinus sylvestris* L.). The dimensions of the species are given as 740/550 μm by Sitnikova (1975). According to our data, the dimensions are as follows; 715 (712-718) μm in length and 485 (481-490) μm in width. In this respect dimensions of the Turkey specimens fit within the range of the known dimensions of the species. This species is well characterized by surface of body with reticulate pattern, the shape of sensilli, notogaster with 7 pairs of submarginal setae originating in an evenly arched row.

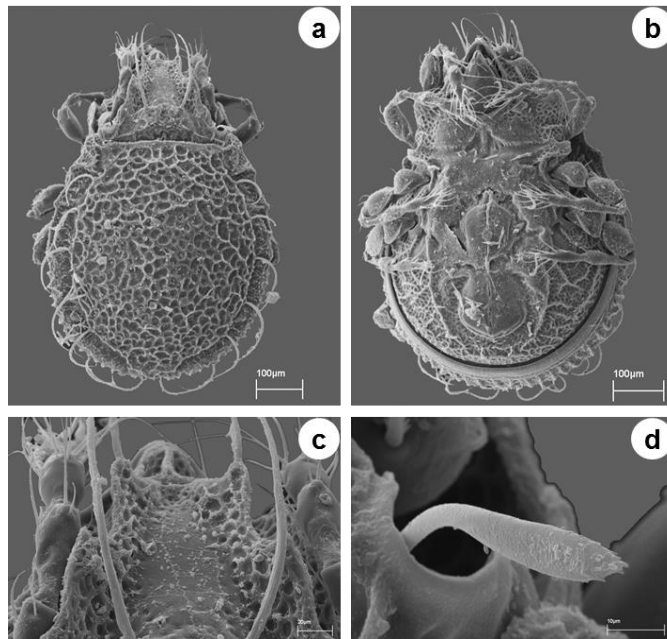


Figure 1. *Cepheus heterosetosus* (Sitnikova, 1975) a) dorsal view, b) ventral view, c) rostrum and lamellar cuspidium, d) sensillus.

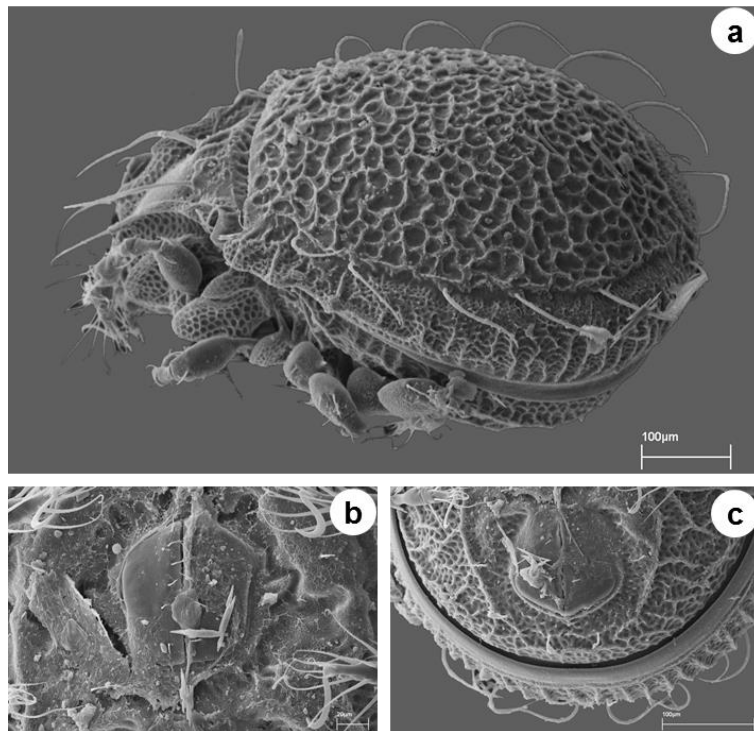


Figure 2. *Cepheus heterosetosus* (Sitnikova, 1975) a) lateral view, b) genital plate, c) anal plate.

Chamobatidae Thor, 1937

Chamobates Hull, 1916

Chamobates (*Xiphobates*) Paulitschenko, 1993

Chamobates (*Xiphobates*) *voigtsi* (Oudemans, 1902)

Material examined: Turkey: Artvin, Borçka and Hopa road, 41°21'45.5"N 41°38'47.1"E, 400 m, 27.07.1993, moss on rocks in forests of *Castanea sativa* (Mill.), 3 specimens.

Measurements: Length: 307 (305-310) μm , width: 212 (200-220) μm (n= 3).

Diagnostic characters: Rostrum nasiform in the middle, with a lateral tooth on each side; lamellae short, their apex sharply pointed laterally; sensilli clavate, rarely barbed; tutorium with 1-2 teeth distally; Notogaster and ventral site has granulated pattern; notogaster with 10 pairs of alveoli and four pairs of area porosae; epimeral setae *1a*, *1c*, *3a* and aggenital setae thickened; genital plates with 6 pairs of setae; all legs tridactyle (Figures 3, 4).

Comment: This species is a new record for Turkish fauna. It is distributed in Palaearctic region (Subías, 2004, 2017) and is normally found in all types of habitats (Murvanidze & Mumladze, 2016). It has the arboricol, epilithic, epiphytic and soil life forms (Fischer & Schatz, 2013, Weigmann et al., 2015). The dimensions of this species are given as 320 -380 μm by Weigmann (2006) and 340-345 by Gheblealivand & Haddad Irani-Nejad (2014). The dimensions of the specimens found in Turkey (305-310) are smaller than the previously given dimensions. These differences in dimensions are considered within the variation limits. This species is well characterized by only 3 pairs of epimeral setae thickened (*1a*, *1c*, *2d*); 1 pair of thickened aggenital setae and the shape of sensilli.

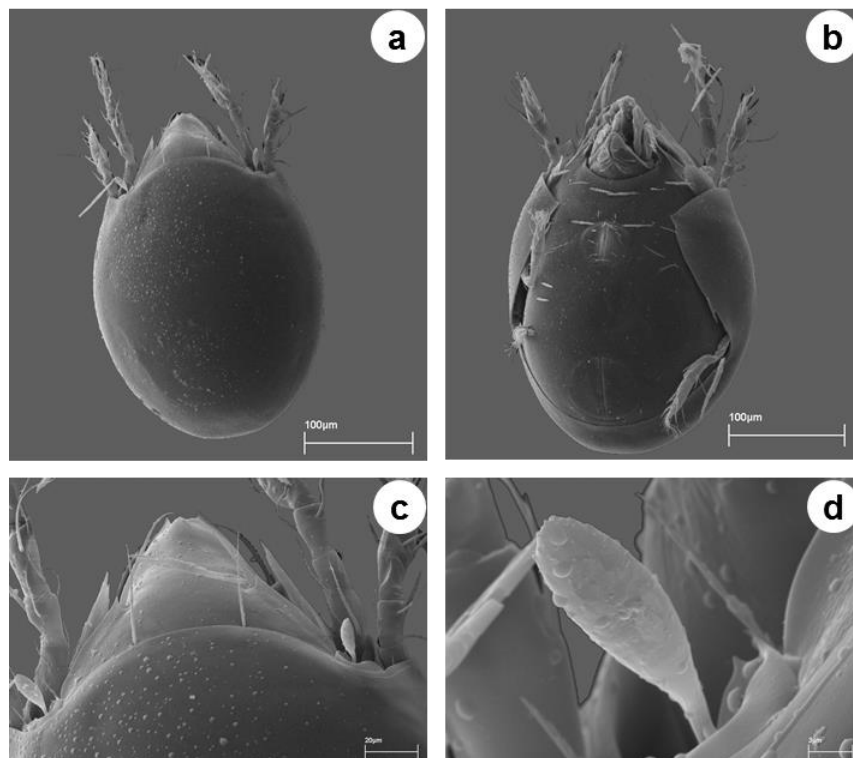


Figure 3. *Chamobates* (*Xiphobates*) *voigtsi* (Oudemans, 1902) a) dorsal view, b) ventral view, c) prodorsum, d) sensillus.

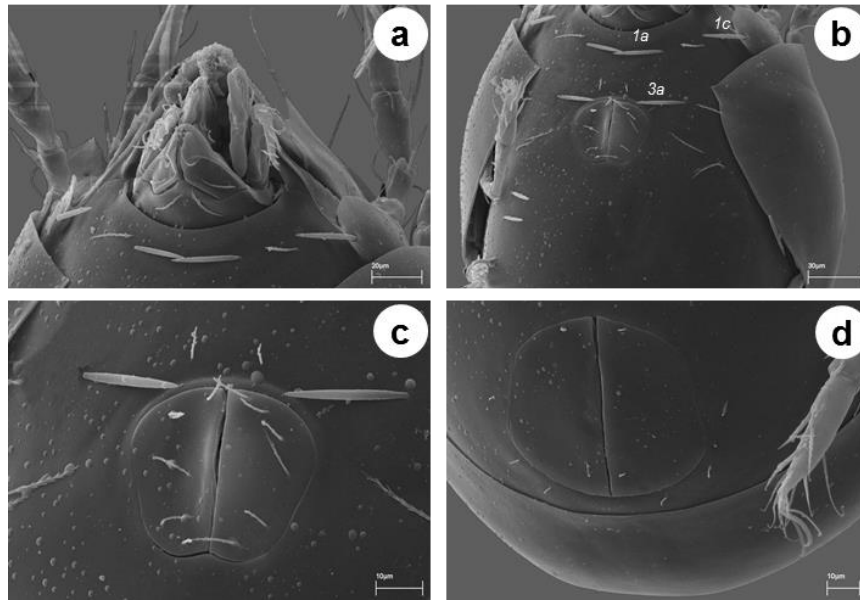


Figure 4. *Chamobates (Xiphobates) voigtsi* (Oudemans, 1902) a) ventral view of subcapitulum, b) epimeral region, c) genital plate, d) anal plate.

In conclusion, both species were determined as new records for the Turkish fauna. All species share well recognizable characters provided in descriptions and appropriate identification keys (Balogh & Balogh, 1992; Sitnikova, 1975; Pérez-Iñigo, 1993; Weigmann, 2006).

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