

First Record of Subgenus *Mesoplophora* (*Mesoplophora*) Berlese, 1904 (Acari, Oribatida) From Turkey

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Abstract

The subgenus *Mesoplophora* (*Mesoplophora*) Berlese, 1904 was not previously recorded in Turkey. In this study a short redescription and SEM investigations of the firstly recorded species *Mesoplophora* (*Mesoplophora*) *michaeliana* Berlese, 1904 is provided. Morphological features and distribution of the species are also given.

Key words: Acari, Oribatida, *Mesoplophora*, first record, Turkey

INTRODUCTION

Although Oribatid mites may occur in considerable numbers in the above ground parts of vegetation, among aquatic plants, in the marine littoral zone, in stored food, and in house dust, they are mainly soil living microarthropods and consist of about 11,000 described species worldwide [9]. Organic layers of temperate forests with predominance of fungal over bacterial decomposition accommodates the highest diversities of oribatids. Oribatid mites have an important role in mineralization and decomposition of plant residues in soils and they can also be used as bioindicator. They show a high degree of diversity in morphology, habit and habitat [3, 4, 5, 6].

Studies concerning the oribatid mite fauna of Turkey are so restricted and approximately 250 oribatid mite species recorded from Turkey up to date [2]. There is need for much more work to clarify the diversity and distribution of oribatid mites in Turkey.

The subgenus *Mesoplophora* (*Mesoplophora*) Berlese, 1904 contains twenty five species and firstly recorded from Turkey by this study. Previously only one species belonging to the genus *Mesoplophora*; *Mesoplophora* (*Parplophora*) *pulchra* Sellnick, 1928 was recorded from Turkey by Niedbala (1985) [7, 8].

In this study redescription and Scanning electron microscopy investigations of the firstly recorded species *Mesoplophora* (*Mesoplophora*) *michaeliana* Berlese, 1904 is provided. Morphological features of our specimens are in accordance with those of previously studied specimens.

MATERIAL AND METHODS

Mites were extracted by a Tullgren funnel apparatus from the soil samples collected from Sakarya province. 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.

The terminology used in this paper follows Balogh and Balogh (1992) [1]. Examined materials are deposited in the Acarological Collection of the second author, Sakarya University, Sakarya, Turkey.

RESULTS

Mesoplophora (*Mesoplophora*) *michaeliana* Berlese, 1904

Material Examined. The examined material collected from grassy soil, Sakarya province, 31.08.2013 (2 specimens). Color light Brown.

Prodorsum - Prodorsum without lateral carinae. Sensilla long, setiform with 8–10 cilia (Figure 1-2). Rostral, lamellar and interlamellar setae similar in shape, rough and flagelliform (Figure 1). Exobothridial setae very short

Notogaster - Notogastral setae flagellate. Setae e1, e2 and d1 shorter than the other ones.

Ventral side - Ventral plate with nine pairs of thin and short setae (Figure 3). Genital plates each with 7 setae (Figures 3-4). Anal plates each with 2 setae (Figure 3).

Distribution - This is the first record of this species from Turkey. This species is known from Spain, Italy, Greece, Georgia, Iran and Northeast India [9].



Figure 1. *Mesoplophora* (*Mesoplophora*) *michaeliana* SEM image of dorsal view of adult.

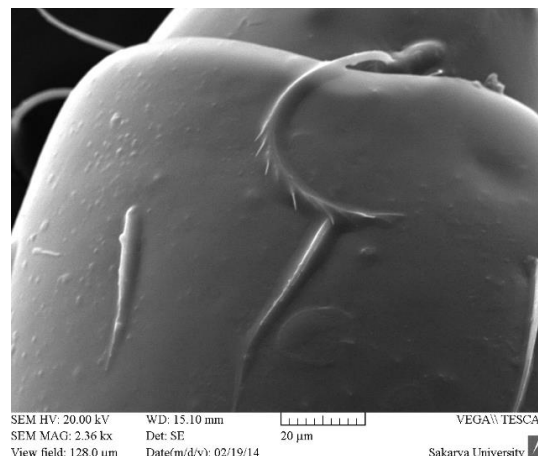


Figure 2. *Mesoplophora* (*Mesoplophora*) *michaeliana* SEM image of sensillus and notogastral setae.

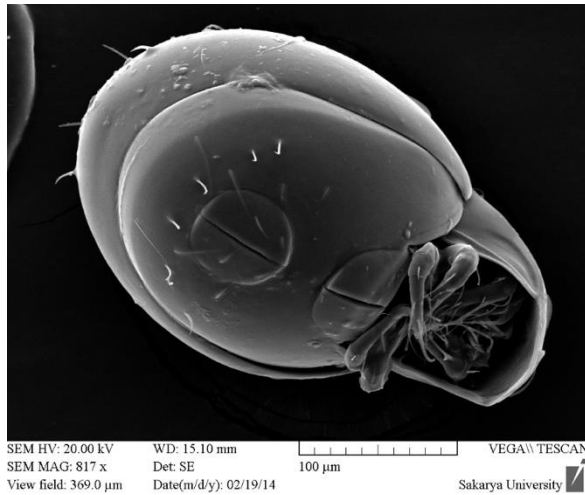


Figure 3. *Mesoplophora (Mesoplophora) michaeliana* SEM image of ventral view of adult.

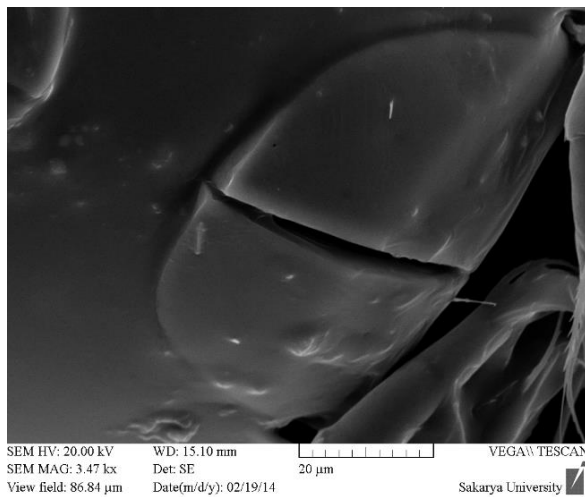


Figure 4. *Mesoplophora (Mesoplophora) michaeliana* SEM image of genital plate.

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REFERENCES

- [1] Balogh J and Balogh P. (1992). The oribatid mites genera of the world. - The Hungarian National Museum Press, Budapest, vol. 1: 263 pp.
- [2] Baran Ş, Bezci T & Ayyıldız N. (2018). Supplementary checklist of oribatid mites (Acari) from Turkey. *Munis Entomology & Zoology*, 13 (1): 91-97
- [3] Caballero A. R., (2011). Oribatid mites in a changing World (PhD thesis), Bergen, Norway
- [4] Georgocs V, Homorodi R & Hufnagel L. (2012). Genus lists of oribatid mites—A unique perspective of climate change indication in research. In *Biodiversity Conservation and Utilization in a Diverse World*. LAMEED, S.G.A., ed., InTech, online publication, doi:10.5772/48545.
- [5] Georgocs V & Hufnagel L. (2009). Application of oribatid mites as indicators. *Applied Ecology and Environmental Research* 7, 79–98.
- [6] Maribie C.W, Nyamasyo GHN, Ndegwa PN, Lagerlof J, Gikungu M. (2011). "Abundance and Diversity of

Soil Mites (acari) along a gradient of land-use types in Taita-Taveta, Kenya" *Tropical & Sub-Tropical Agroecosystems*. 13:11-27.

- [7] Niedbala (1985). Essai critique sur Mesoplophora (Acari, Oribatida, Mesoplophoridae). *Annales Zoologici* 39(4): 93-117
- [8] Özkan M, Ayyıldız N & Erman O. (1994). Check list of the Acari of Turkey. First supplement. *Euraac News Letter*, 7(1), 4–12.
- [9] Subías, L.S. (2004) Listado sistemático, sinonímico y biogeográfico de los ácaros oribátidos (Acariformes: Oribatida) del mundo (excepto fósiles). *Graellsia*, 60(número extraordinario), 3–305. Online version accessed in January 2018, 605 pp.