A New Subspecies of the Genus *Paralopheremaeus* (Acari: Oribatida: Plateremaeidae) from Turkey

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**ABSTRACT**

Description of a new subspecies *Paralopheremaeus hispanicus arifi* from Turkey is provided. The new subspecies described in this paper is recognized by four pairs of notogastral setae, smaller body size, different number of aggenital and epimeral setae, and distinct pedotecta II with sharply pointed spur. SEM photographs of new subspecies are also available.

**Key words:** Acari, Oribatida, Plateremaeidae, systematics, new subspecies, Turkey.

**INTRODUCTION**

Oribatid mites are one of the major soil living decomposer microarthropods with approximately 10,000 described species (Schatz, 2002). They are primarily terrestrial, but are also found in aquatic habitats (Schatz and Behan-Pelletier, 2008). They play an important role in decomposition, nutrient cycle, soil formation and dispersion of fungal spores (Behan-Pelletier and Eamer 2004). Hitherto 144 species belonging to 75 genera included in 43 family of oribatid mites were recorded from Turkey (Baran et al., 2010).

Plateremaeidae Trägårdh, 1926 is a pantropical and subtropical family with six genera and eighteen known species (Subías, 2009). This family is shortly recognized by lamellar setae close to rostral one, flat notogaster without centrodorsal setae, short interlamellar setae, bothridia close to notogastral edge, smooth or foveolated notogaster, distally flagellated or fusiform sensilli, epimeral neotrichy and anal plates with three to eight setae (Paschoal. 1987; Arillo and Subias, 2006).

The genus *Paralopheremaeus* Paschoal, 1987 is recognized by dorsally and ventrally foveate integument, flagellate and curved sensilli, oval notogaster, five or six pairs of anal setae, conterminous genital and anal plates. Epimeral apodema without apodemic bonds (Paschoal 1987, Balogh and Balogh, 1992, Ruiz et al., 1990). Two species *P. legendrei* (Balogh, 1962) and *P. hispanicus* (Ruiz et al., 1990) are included in this genus.

*Paralopheremaeus legendrei* was described at first under the name of *Plateremaeus legendrei*
from Madagascar by Balogh (1962), afterwards it was included by Paschoal (1987) in the genus Paralopheremaeus as the type species. Paralopheremaeus hispanicus was described at first by Ruiz et al. (1990) from Spain under the name of Plateremaeus hispanicus, then it was included in the genus Paralopheremaeus by Subias (2004).

The new subspecies, Paralopheremaeus hispanicus arifi, described in this paper is recognized by four pairs of notogastral setae, smaller body size, having different number of aggenital and epimeral setae and distinct pedotecta II with sharply pointed spur.

**MATERIALS AND METHODS**

Mites were collected from soil and litter samples in Sakarya provinces and extracted using a Berlese funnel apparatus. They were preserved in 70% ethanol. Mites were sorted from the samples under a stereomicroscope and mounted on slides in modified Hoyer’s medium or 35% lactic acid.

The terminology used in this paper follows Grandjean (1965) (see Travé and Vachon 1975) and Woas (2002). All measurements are given in micrometers (μm). Examined materials are deposited in the Acarological Collection of author, Sakarya University, Sakarya, Turkey.

**DESCRIPTION**

**Genus Paralopheremaeus Paschoal, 1987**

Foveate cuticule, flagellate and curved sensillus, oval notogaster, five or six pairs of anal setae, conterminous genital and anal plates. Leg segments with crests.

**Paralopheremaeus hispanicus arifi ssp. n.**

(Figs. 1-5)

**MEASUREMENTS**

Length of body 396-444 μm, width of body 205-223 μm.

**Prodorsum** (Figs. 1, 3). Rostrum rounded. Lamellar and rostral setae long, close to each other and originated ventrally, their lengths nearly equal. Interlamellar setae minute far from each other and close to bothridia. Sensillus flagellate and apically curved (Fig. 3). Exobothridial setae pointed at the tip. Order in length of prodorsal setae: le > ro > ex > in. Bothridium not covered dorsally. All prodorsal setae and sensilli smooth. Prodorsum with small foveolae. Costula absent.

**Notogaster** (Figs. 1, 2). Oval, elongated, dorsally flat and ornamented with large polygonal chitinous structure medially and small ones laterally. Between these medial and lateral polygonal chitinous structures a marginal fissure running posteriorly. Four (in paratype SUAC-5405 three in the right side) (Fig. 10) pairs of comparatively long, thick and smooth notogastral setae present.

**Venter** (Figs. 5-9). Ventral sculpture similar to dorsal one, whole surface including mentum distinctly foveolate. All ventral setae smooth except for the anterior genital setae. Epimeral setal formula: 7-6-10-4, two pairs of aggenital setae, seven pairs of genital setae, three pairs of adanal
Fig. 1. Paralopheremaeus hispanicus arifi n. ssp., A- dorsal view of adult, B- ventral view of adult (scale: 30 μm).

Fig. 2. Paralopheremaeus hispanicus arifi n. ssp. dorsal view of adult SUAC-5403 (SEM photograph, scale: 30 μm).
Fig. 3. *Paralopheremaeus hispanicus arifi* n. ssp. prodorsum SUAC-5403 (SEM photograph, scale: 10 µm).

Fig. 4. *Paralopheremaeus hispanicus arifi* n. ssp. notogastral setae (SEM photograph, scale: 10 µm).
Fig. 5. *Paralopheremaeus hispanicus arifi* n. ssp. ventral view of adult SUAC-5404 (SEM photograph, scale: 30 μm).

Fig. 6. *Paralopheremaeus hispanicus arifi* n. ssp. subcapitulum SUAC-5404 (SEM photograph, scale: 10 μm).
Fig. 7. *Paralopheremaeus hispanicus arifi* n. ssp. epimeral region SUAC-5404 (SEM photograph, scale: 10 μm).

Fig. 8. *Paralopheremaeus hispanicus arifi* n. ssp. genital plate SUAC-5404 (SEM photograph, scale: 10 μm).
Fig. 9. *Paralopheremaeus hispanicus arifi* n. ssp., anal plate SUAC-5404 (SEM photograph, scale: 10 μm).

Fig. 10. *Paralopheremaeus hispanicus arifi* n. ssp., notogastral setae of adult SUAC-5405 (SEM photograph, scale: 10 μm).
setae, six pairs of anal setae present. Genital and anal plates close together.

**Legs.** Legs are densely covered with fine granules. Typical for the genus, tarsi with three claws, lateral claws very thin.

**MATERIAL EXAMINED**

Holotype (SUAC-5401) and four paratypes (SUAC-5402 to SUAC-5405) collected from Soğuksu village, Hendek, Sakarya, Turkey, 40°.88' N, 30°.61'E, 09 May 2007. Three paratypes (SUAC-5403 to SUAC-5405) mounted on aluminium stubs and gold coated for scanning electron microscopy.

**Etymology.** The name of the new subspecies is derived from the name of my husband Dr. Arif BARAN.

**REMARKS**

The described subspecies *P. hispanicus arifi* differs from *P. legendrei* (=*Plateremaus elongatus* Mahunka, 1987) in: 1) Smaller body size (length of body 396-444 μm / width of body 205-223 μm in our specimens, length of body 639-756 μm / width of body 295-378 μm in *P. legendrei*); 2) number of notogastral setae; 3) prodorsum without chitinous laths; 4) dorsally opened bothridium; 5) ventrally originating rostral setae; 6) having different number of anal, aggenital and epimeral setae; 7) distinct pedotecta II with sharply pointed spur.

The described subspecies *P. hispanicus arifi* resembles *P. hispanicus* described by Ruiz et al. in 1990 from Sevilla province, Spain. However it can be distinguish from *P. hispanicus* by the following features: 1) Smaller body size (562 μm / 275 μm in *P. hispanicus*); 2) prodorsum without medially reticular structure; 3) long rostral setae (lengths of ro and le nearly equal); 4) having different number of aggenital, anal and epimeral setae; 5) distinct pedotecta II with sharply pointed spur.

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**REFERENCES**


