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Two Macrochelid Species (Acari: Gamasida: Macrochelidae) New to Turkish Fauna

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Abstract: Two macrochelid species, *Macrocheles (Glyptholaspis) americana* and *M. (G.) fimicola*, which are new to Turkish fauna, are examined. The morphological characters of these species are reviewed and figures are drawn. Moreover, their zoogeographical distributions and habitats are given.

Key Words: Acari, Gamasida, Macrochelidae, New Record, Systematics, Turkey

Türkiye Faunası İçin Yeni İki Makrokelid Türü (Acari: Gamasida: Macrochelidae)

Özet: Bu çalışmada, Türkiye faunası için yeni olan iki makrokelid türü [*Macrocheles (Glyptholaspis) americana* and *M. (G.) fimicola*] verilmektedir. Bu türlerin morfolojik karakterleri gözden geçirilmiş, şekilleri çizilmiş, zoocoğrafik dağılımları ve habitatları verilmiştir.

Anahtar Sözcükler: Acari, Gamasida, Macrochelidae, Yeni Kayıt, Sistemantik, Türkiye

Introduction

The genus *Macrocheles* was described by Latreille (1829) with the type species *Acarus muscae* Scopoli, 1772. The subgenus *Glyptholaspis* was described by Filipponi and Pegazzano, 1960, with the type species *Nothrolaspis fimicola* Sellnick, 1931 (1-3). *Macrocheles* is a widespread genus in Europe, Asia and Africa (1-4). We know very little about the macrochelid mites of Turkey (5-8). Cobanoglu and Bayram (7) have recorded *Macrocheles* (s.str.) *punctatissimus* Berlese, 1918, and Cobanoglu and Kirgiz (8) have recorded *Macrocheles* (s.str.) *glaber* from Turkey. This paper presents two macrochelid species new to Turkish fauna with examinations of their morphological features and figures illustrating them. The morphological and setal nomenclature follows Karg (1).

Materials and Methods

Manure, compost, soil and debris samples were collected from different habitats in Denizli province between March and July 2001. The samples were labeled and taken to the laboratory. Afterwards, these samples were put into combined Berlese funnels for 5-7 days according to their humidity. During this process, the mite specimens were extracted from samples and put into bottles containing 70% ethanol. Later, the contents of the bottles were put into petri dishes and the mites taken out via a micro-pipette under a stereo microscope. The collected mites were put into lactic acid for two days in order to facilitate examination. After this process, the specimens were put into Hoyer's medium. The drawings and examinations of the specimens were performed with an Olympus BX50 microscope.

Results

Family: MACROCHELIDAE VITZTHUM, 1930

Genus: MACROCHELES LATREILLE, 1829

Key to the Known Species of *Macrocheles* from Turkey

1. Ventri-anal and genital shields of female are wider than their length; sternal shield with marked network ornamentation2
- Ventri-anal and genital shields of female are not wider than their length; sternal shield lacks marked network ornamentation3
2. At the caudal side of the dorsal shield between setae Z5-Z5, there are many small teeth between two large tooth-like excrescences; setae j5 located anterior to setae z3, setae J5 longer than Z5
.....*Macrocheles (Glyptholaspis) americana*
- At the caudal side of the dorsal shield between setae Z5-Z5, there are 5 tooth-like excrescences; medialen dorsal setae j5 and z3 situated on a transverse line, setae J5 shorter than Z5
.....*Macrocheles (Glyptholaspis) fimicola*
3. All dorsal setae markedly feathered
.....*Macrocheles (s.str.) punctatissimus*
- Most of the dorsal setae simple, only vertical setae j1 and J5 delicately barbed
.....*Macrocheles (s.str.) glaber*

Subgenus: GLYPHTOLASPIS FILIPPONI and PEGAZZANO, 1960

Chelicerae always oligodont, hypostome narrow and elongate. Tectum tripartite. Dorsal shield holodorsal and distinctly reticulate and without prow-like projection anteriorly. Tritosternum consists of two parts: a rectangular base and a pair of barbed lacinae. Sternal shield arc-shaped posteriorly extending to the level of the posterior of coxa III. Ventri-anal shield with three pairs of pre-anal setae, a pair of para-anal setae and an unpaired post-anal seta.

Macrocheles (Glyptholaspis) americana (Berlese, 1888)

Female

Idiosoma oval, slightly narrowed anteriorly. Length of idiosoma: 1350 µm, width at the level of coxa IV: 938 µm, brown in color. Dorsal shield (Fig.1A) ornamented

with very small, round tubercles forming a network. Lateral margins of the shield with untidy curls. There are 25 pairs of setae on dorsal shield. Of these, j4, j5, J1, J5, z2 and z3 simple. Other setae feathered. j4, j5, J1 and z3 long, j4 three times longer than z2.

Tritosternum (Fig. 1B) well developed with a rectangular base and a pair of pilose lacinae. Ventral side (Fig. 1C) as follows: sternal shield well sclerotized, bearing three pairs of simple setae and ornamented with amorphous, dotted patterns. Each metapodal shield free and carries a simple seta. The ornamentation of epigynal shield resembling that of sternal shield but pattern larger and indistinct. The shield rounded anteriorly and linear posteriorly forming a hemicycle. A pair of simple setae stands on the shield. Ventri-anal shield markedly reticulate, wide as long, forming a pentagon with corners rounded. Three pairs of barbed pre-anal setae, a pair of para-anal setae and an unpaired post-anal seta exist on ventral shield. Para-anal and post-anal setae shorter than pre-anal setae. The edge between interscutal membrane and ventri-anal shield provided with a pair of pilose setae. Three pairs of plumose setae stands on the interscutal membrane posterior to ventri-anal shield. Stigmata located on each side of the idiosoma. Peritreme extends beyond coxa II ventrally and curled posteriorly in the region of stigmata.

Gnathosoma elongate, hypostome (Fig. 1D) ventrally bears four pairs of simple setae. Of these, setae c4 short, other setae relatively long. Hypostomal groove with five transverse rows of denticles. Tectum (Fig. 1E) tridentate with lateral margins serrate. Median process longer than laterals and distally divided into two parts. Chelicerae (Fig. 1F) well developed, digitus mobilis slightly shorter than digitus fixus. Digitus fixus with three large triangular teeth and one minute and one large rounded proximal teeth, dorsal setae serrate, pilus dentilis simple. Digitus mobilis with five triangular teeth. Pedipalps five segmented.

Tarsus of leg I (Fig. 1G) deprived of pulvillus and claws but terminally bears a long sensory setae. Tarsus II (Fig. 1H) with four spur-like structures anteriorly. Tarsus II-IV with a lobate pulvillus and a pair of claws. Length of leg I 1090 µm, II 1070 µm, III 1030 µm, IV 1520 µm.

Material Examined

Denizli, Çal, Akkent village, 830 m, sample from mixture of soil and compost of orange peel from a fruit

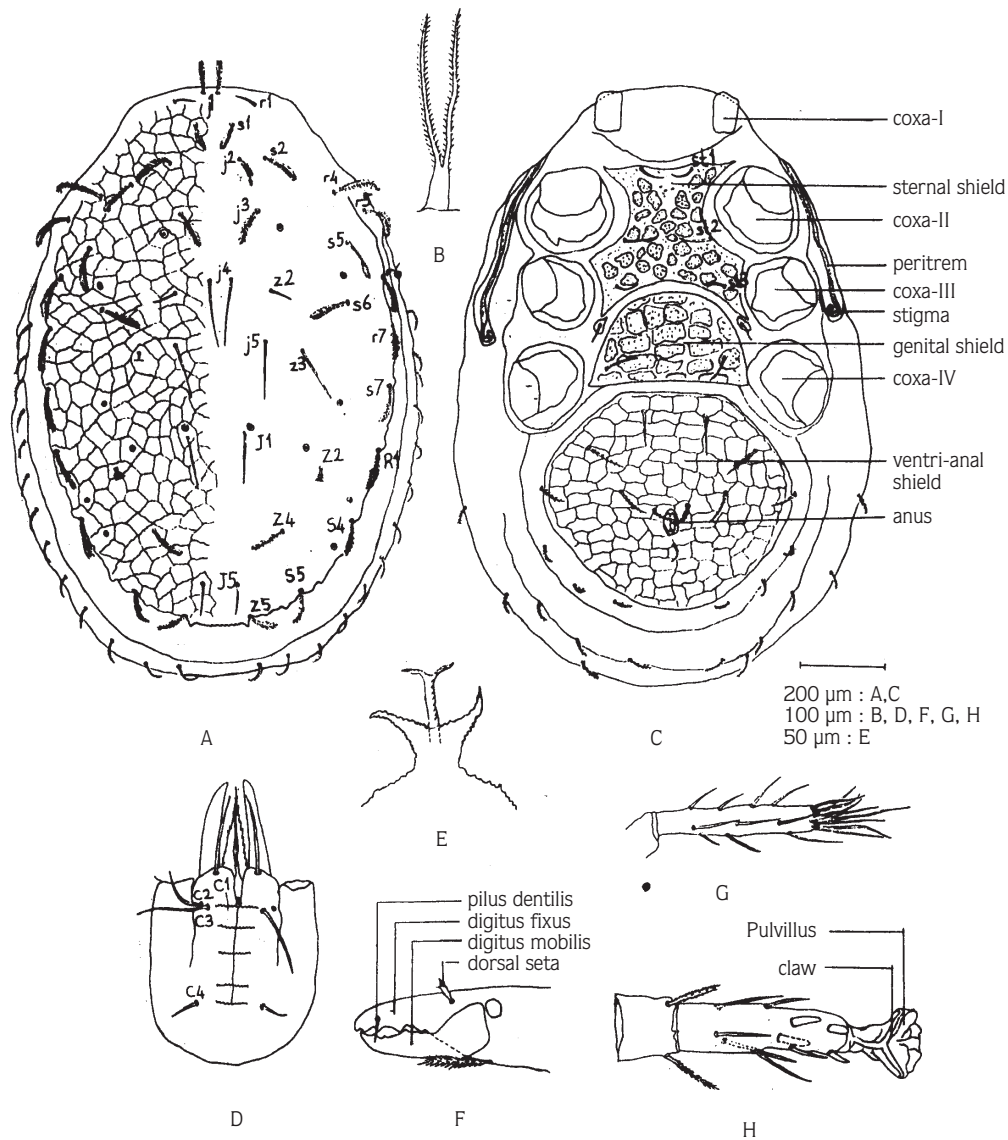


Figure 1. *Macrocheles (Glyphtholaspis) americana*: Female: (A) dorsal idiosoma; (B) tritosternum; (C) ventral idiosoma; (D) hypostome; (E) tectum; (F) chelicerae; (G) tarsus I; (H) tarsus II.

juice factory, 15. 03. 2001, 2 ♀♀; 07.04. 2001, 1 ♀; 12. 05. 2001, 3 ♀♀.

Macrocheles (Glyphtholaspis) fimicola (Sellnick, 1931)

Female

Length of idiosoma: 1430 µm; width at the level of coxa IV: 1000 µm, brownish in color. Dorsal shield (Fig. 2A) presents a network ornamentation resembling a honeycomb with the cell margins serrate. Lateral margins

of dorsal shield smooth but at the caudal region between setae Z5-Z5 with five denticles. There are 26 pairs of setae on dorsal shield and an unpaired central seta posterior to the line connecting setae j5-j5. The setae j5, J5, z2, z3, r1 and the unpaired seta delicately barbed. Remaining setae plumose. Setae j4 two times longer than setae z2 and J5. Marginal setae as long as the plumose setae of dorsal shield.

Tritosternum (Fig. 2B) well grown consisting of a rectangular base and a pair of pilose lacinae. Ventral (Fig.

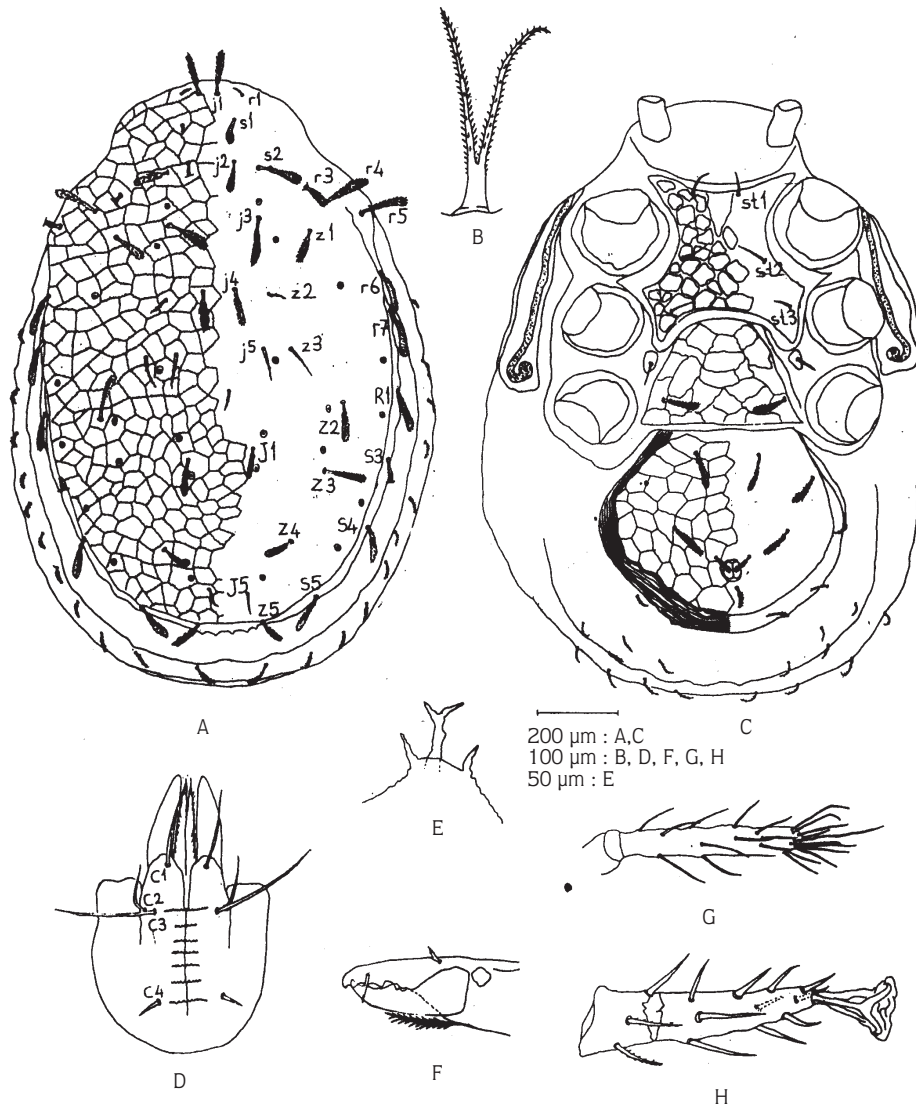


Figure 2. *Macrocheles (Glypholaspis) fimicola*: Female: (A) dorsal idiosoma; (B) tritosternum; (C) ventral idiosoma; (D) hypostome; (E) tectum; (F) chelicerae; (G) tarsus I; (H) tarsus II.

2C) as follows: sternal shield sclerotized strongly showing a network ornamentation of amorphous polygons. The shield with three pairs of simple setae. Each metapodal shield free, bearing a simple seta. Epigynal shield rounded anteriorly and linear posteriorly with a network ornamentation and with a pair of plumose setae. Ventri-anal shield wide as long forming a pentagon with anterior margin and corners linear and pointed respectively. Lateral and caudal margins and corners rounded. The shield carries three pairs of pre-anal setae, a pair of para-

anal setae and one post-anal seta. All setae of the shield feathered, pre-anal setae two times longer than the remainders. Interscutal membrane provided with three pairs of short, pilose setae near the lateral and posterior margin of ventri-anal shield. Peritrem extends to the anterior margin of coxa II ventrally and forms U-shape looped in the region of stigma.

Hypostome (Fig. 2D) with four pairs of simple setae ventrally. Setae c4 shorter and setae c3 longer than setae c1 and c2. Seven transverse rows of denticles exist at the

hypostomal groove. Tectum (Fig. 2E) tridentate. Lateral processes shorter, median process longer and divided into two parts distally. Lateral margins of the base of tectum serrate. Chelicerae (Fig. 2F) well developed. The fixed digit of chelicerae with five rounded teeth and the movable digit with five triangular teeth. Dorsal setae serrate, pilus dentilus needle-shaped and longer than dorsal setae. Pedipalps five segmented.

Tarsus of leg I (Fig. 2G) lacking pulvillus and claws and bears a long sensory seta terminally. Tarsus II (Fig. 2H) bears no spur-like structure. Tarsus II-IV carries a lobate pulvillus and a pair of claws terminally. Length of leg I 1130 µm, II 1110 µm, III 1200 mm and IV 1700 µm.

Material Examined

Denizli, Çal, Akkent village, 850 m., sample from manure of a mule, 21. 4. 2001, 3 ♀♀. Denizli, Tavas, Sariabad village, 1100 m, sample from manure of cattle, 16. 6. 2001, 2 ♀♀. Denizli, Güney, north of Güney waterfall, sample from mixture of organic manure and soil, 15. 7. 2001, 1 ♀.

Discussion

Macrocheles (Glyptolaspis) americana (Berlese, 1888) is known from Europe and Asia to date. This paper presents the first record of the above-mentioned species from Turkey. The species is recorded rarely from agricultural areas and grasslands, often from mixtures of compost and soil, mixtures of straw and soil, and

decomposing masses of leaves and manure. *M. (G.) americana* is also recorded from the nests of rodents. The species is known to be a predator of nematodes and the larva of flies (1). The habitat in which we collected the species is the same as those in which the species had been collected previously. Confirming the known diet, we examined a large number of nematodes in the sample from which the specimens were collected. The morphological and setal features are also similar to those of previously collected specimens. The known idiosoma length of females of this species varies between 1170 and 1750 µm. The length of our samples is between 1330 and 1370 µm.

Macrocheles (Glyptolaspis) fimicola (Sellnick, 1931) is known from Europe and Africa (1-3). This is the first record of this species from Turkey. This paper makes clear that the distribution of this species is wider. To date, *M. (G.) fimicola* has been recorded from organic manure, and as phoretic on the family Scarabaeidae (1-2). We also collected this species from the manure of mules, cattle and sheep. Our specimens have morphological features similar to those of previously collected ones. Idiosomal length varies between 1150 and 1570 µm. Our specimens have an idiosomal length varying between 1405 and 1455 µm.

Acknowledgments

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