

A New Species of the Family Unionicolidae Oudemans, 1909 (Acari, Hydrachnidia) for the Turkish Fauna

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(Received: 22.02.2011; Accepted: 26.04.2011)

Abstract

The morphological features, the measurements and drawings of various organs and the geographical distributions of *Neumania* (s.str.) *imitata* Koenike, 1908, *N.* (s.str.) *uncinata* Walter, 1927 and *Unionicola* (*Majumderatax*) *hankoi* (Szalay, 1927) are given. *N.* (s.str.) *imitata* Koenike, 1908 is a new record for the Turkish fauna.

Keywords: Water mite, *Unionicola*, *Majumderatax*, *Neumania*, New record, Turkey.

Türkiye Faunası İçin Yeni Bir Unionicolidae Oudemans, 1909 (Acari, Hydrachnidia) Türü

Özet

Neumania (s.str.) *imitata* Koenike, 1908, *N.* (s.str.) *uncinata* Walter, 1927 ve *Unionicola* (*Majumderatax*) *hankoi* (Szalay, 1927)'nin morfolojik özellikleri, çeşitli organlarının ölçümleri ve çizimleri ile coğrafik dağılımları verilmiştir. *N.* (s.str.) *imitata* Koenike, 1908 Türkiye faunası için yeni kayıttır.

Anahtar Kelimeler: Su kenesi, *Unionicola*, *Majumderatax*, *Neumania*, Yeni kayıt, Türkiye.

1. Introduction

The family Unionicolidae Oudemans, 1909 occurs every continent, except Antarctica. The most common genera *Unionicola* and *Neumania* contain more than 350 species of water mites [1]. At present, six species of Unionicolidae are known from Turkey: *Neumania* (s.str.) *deltoides* Piersig, 1894; *N.* (s.str.) *uncinata* Walter, 1927; *Unionicola* (*Majumderatax*) *hankoi* (Szalay, 1927); *Unionicola* (*Pentatax*) *bonzi* (Claparede, 1869); *U.* (s.str.) *crassipes* (Müller, 1776); *U.* (s.str.) *minor* (Soar, 1900) [2]. *N.* (s.str.) *uncinata* and *U.* (*Majumderatax*) *hankoi* were given as new records from Turkey before [3, 4], but the measurements and drawings of various organs were not given. This paper aims to describe this material and contribute to our knowledge of water mite distribution in Turkey.

2. Material and Methods

Water mites were collected by hand netting, sorted on the spot from other living material,

conserved in Koenike's fluid, and dissected as described elsewhere [5]. All material was collected by the first author from Bingöl Province. The composition of the material is given as: males/females/deutonymphs, and the following abbreviations are used: Cx-1 = first coxae; L = length; dL = dorsal length; P-1 = palp, first segment; W = width, I-Leg-6 = Leg 1, sixth segment (tarsus). All measurements are given in micrometers (μm).

3. Results

Neumania (s.str.) *imitata* Koenike, 1908

Material examined: Bingöl, Sudüğünü, Köprü stream, 39°03'N, 40°25'E, 1575 m asl., 11.07.2008, (1/1/0); ibid., 23.05.2009, (0/17/0); ibid., 19.08.2009, (1/1/1).

Male: Body lightly sclerotized; integument with small chitinous spines, idiosoma L 680, W 630; Cx-1+2 medially close to each other but not fused, Cx-3 and Cx-4 with complete dividing suture (Figure 1C), coxal field L 438; capitulum

L 160; chelicera L 155, basal segment L 95, claw 60; palp: P-1 with one dorsal seta; lateral seta on P-2 in middle of segment; P-3 bearing 2 setae; P-4 with a peg-like seta near the ventrodistal edge of segment; P-5 slender and weakly curved (Figure 1D), palp total L 282, dorsal lengths of palp segments: P-1 25, P-2 95, P-3 50, P-4 70, P-5 42. Genital plates bearing 33-35 acetabula, genital field L 100, W 190. Distribution of swimming setae on the leg segments; II-Leg-4: 2, II-Leg-5: 3, III-Leg-3: 1, III-Leg-4: 4, III-Leg-5: 3, IV-Leg-4: 3, IV-Leg-5: 3; dL of I-Leg-1-6: 65-120-110-150-170-190 = 805; II-Leg-1-6: 65-125-90-150-185-215 = 830; III-Leg-1-6: 70-130-95-200-190-210 = 895; IV-Leg-1-6: 95-130-120-190-220-220 = 975.

Female: Idiosoma L 910, W 890; coxal field L 452 (Figure 1A); capitulum L 195, chelicera L 185, basal segment L 125, claw 60; palp (Figure 1B) total L 304, dorsal lengths of palp segments: P-1 30, P-2 105, P-3 55 P-4 70, P-5 44. Genital field with 42-44 acetabula, L 200, W 270. Distribution of swimming setae on the leg segments; II-Leg-4: 2, II-Leg-5: 3, III-Leg-3: 1, III-Leg-4: 5, III-Leg-5: 4; IV-Leg-3: 1, IV-Leg-4: 4, IV-Leg-5: 3; dL of I-Leg-1-6: 70-150-110-170-185-210=895; II-Leg-1-6: 75-160-110-170-205-225=945; III-Leg-1-6: 75-190-105-175-215-220=980; IV-Leg-1-6: 105-165-130-220-265-240=1125.

Remarks: *Neumania imitata* is similar to *N. callosa* in the integument with numerous small chitinous spines; and P-4 with well developed protrusion ventro-distally with a chitinous tip, but differs in smaller dimensions (larger in *N. callosa*) and P-2 distinctly longer than P-4 (P-2 slightly longer than P-4 in *N. callosa*). In general, the measurements provided here are in good agreement with the specimens *N. imitata* from Europe [6, 7].

Habitat: Pools of streams.

Distribution: France, Germany, The Netherlands, Italy, Montenegro [8]. New for Turkey.

***Neumania (s.str.) uncinata* Walter, 1927**

Material examined: Bingöl, Genç, Kale Stream, 38°31'N 40°32'E, 920 m asl., 22.05.2009, (1/0/0); Kupar Stream, 38°44'N 40°32'E, 1000 m asl., 04.08.2010, (2/3/1).

Male: Body lightly sclerotized; integument with small chitinous spines, idiosoma L 488, W

452 (Figure 2A); Cx-3 and Cx-4 with complete dividing suture, coxal field L 337; capitulum L 110, chelicera L 118; P-1 with one dorsal seta; P-2 with 3 setae; P-3 bearing 2 long setae; P-4 with a projection near the ventrodistal edge of segment; P-5 slender and weakly curved; palp total L 222, dorsal lengths of palp segments: P-1 20, P-2 76, P-3 32, P-4 64, P-5 30. Genital plates bearing 17-20 acetabula, genital field L 136, W 209. Dorsal L of I-Leg-1-6: 42-89-78-127-130-172 = 638; II-Leg-1-6: 55-92-80-128-135-183 = 673; III-Leg-1-6: 56-70-80-111-134-156 = 607; IV-Leg-1-6: 64-80-96-133-160-158 = 691.

Female: Idiosoma L 583, W 529; coxal field L 410; capitulum L 140, chelicera L 146; palp total L 280, dorsal lengths of palp segments: P-1 22, P-2 96, P-3 41, P-4 85, P-5 36. Genital field with 19-23 acetabula, L 140, W 241. Dorsal L of I-Leg-1-6: 50-97-110-166-158-190 = 771; II-Leg-1-6: 55-102-105-169-167-190 = 788; III-Leg-1-6: 67-80-90-143-161-178 = 719; IV-Leg-1-6: 80-96-124-177-200-198 = 875

Habitat: Pool areas with sand or gravel substrata in rivers.

Distribution: France, Portugal, Canary Islands, Spain, Bosnia and Herzegovina, Greece, Israel, Montenegro and Turkey [3, 5].

***Unionicola (Majumderatax) hankoi* (Szalay, 1927)**

Material examined: Bingöl, Balıklıçay, Büyük Stream, 39°02'N, 40°22'E, 1538 m asl., 19.08.2009, (1/2/1); ibid., 17.07.2010, (0/2/0).

Male: Integument finely lineated, idiosoma L 670, W 490; dorsum with two pairs of small muscle attachment platelets, anterior plates bigger than the posterior one (Figure 3A); coxal plates slightly elongate, Cx-3 and Cx-4 with incomplete dividing suture (Figure 3B), coxal field L (distance between anterior end of first and posterior end of fourth coxae) 391; capitulum L 180, chelicera L 162, basal segment L 112, claw 50; palp total L 355, dorsal lengths of palp segments: P-1 20, P-2 125, P-3 36, P-4 110, P-5 64. Male genital field with a pair of plates bearing 5 pairs of acetabula, genital field L 86, W 180. Legs: male and female walking legs not apparently sexually dimorphic, on the distal end of the tibia of the first walking legs with a large dentate setae (Figure 3D). Distribution of

swimming setae on the leg segments; II-Leg-4: 1, II-Leg-5: 2, III-Leg-4: 3, III-Leg-5: 3, IV-Leg-3: 1, IV-Leg-4: 3, IV-Leg-5: 3. dL of I-Leg-1-6: 55-120-125-135-120-115 = 670; II-Leg-1-6:

60-120-115-160-190-185 = 830; III-Leg-1-6: 5-125-115-160-180-180 = 825; IV-Leg-1-6: 90-130-130-175-210-210 = 945.

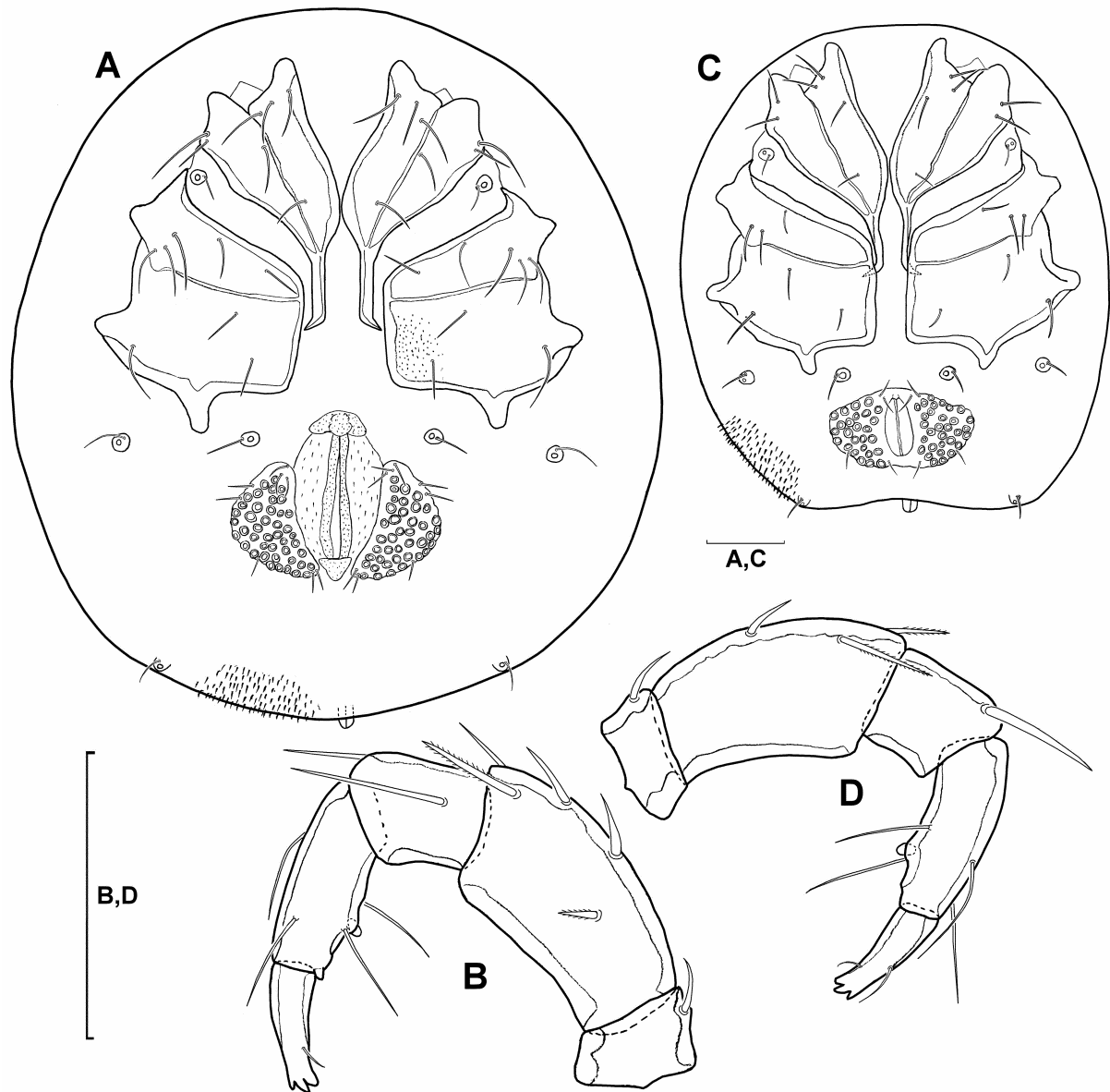


Fig. 1A-D. *Neumania* (s.str.) *imitata*: (A-B = female, C-D = male); A, C = idiosoma, ventral view; B = palp, lateral view; D = palp, medial view. Scale bars = 100 μ m

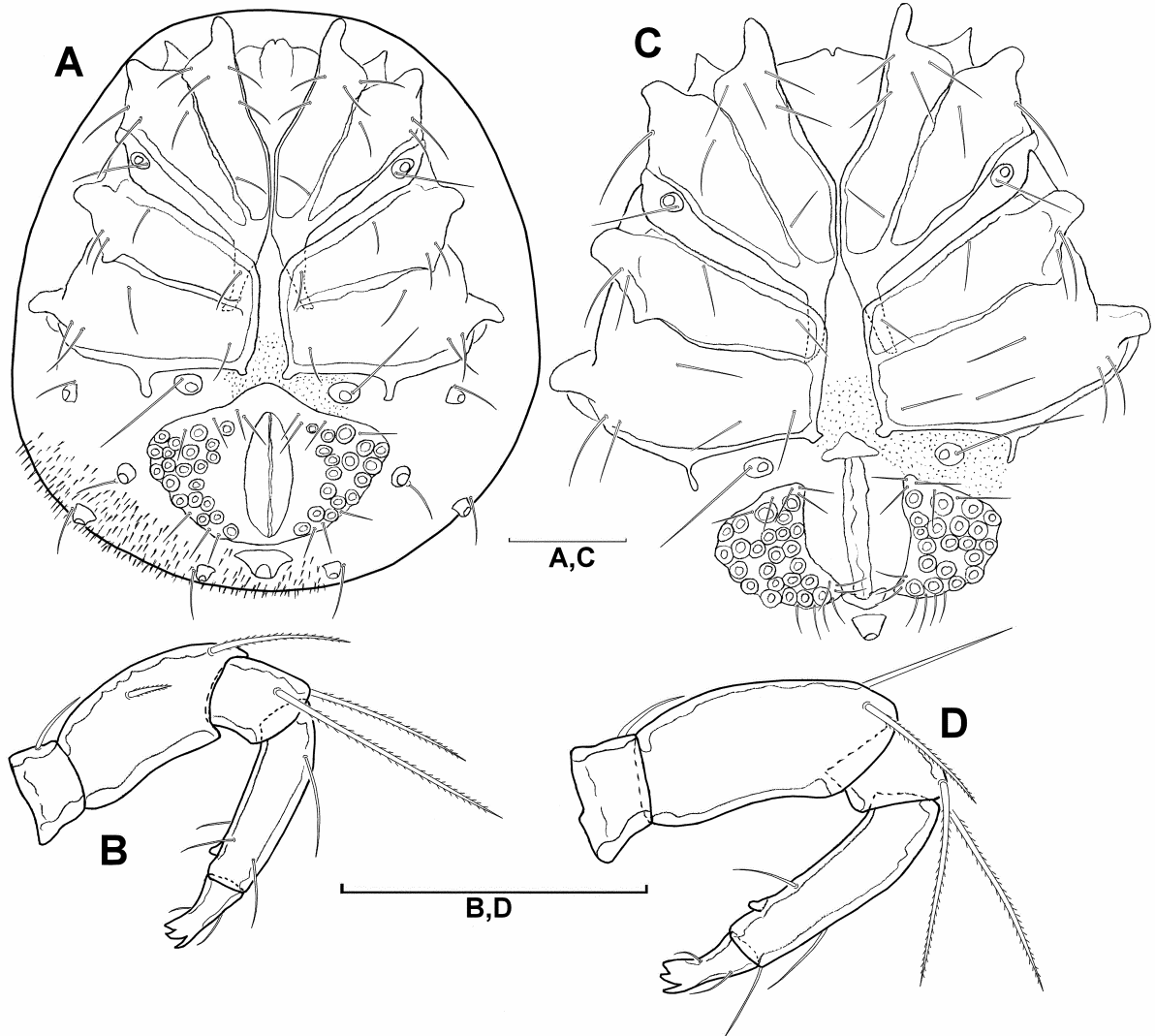


Fig. 2A-D. *Neumania* (s.str.) *uncinata*: (A-B = male, C-D = female); A, C = idiosoma, ventral view; B = palp, lateral view; D = palp, medial view. Scale bars = 100 μ m

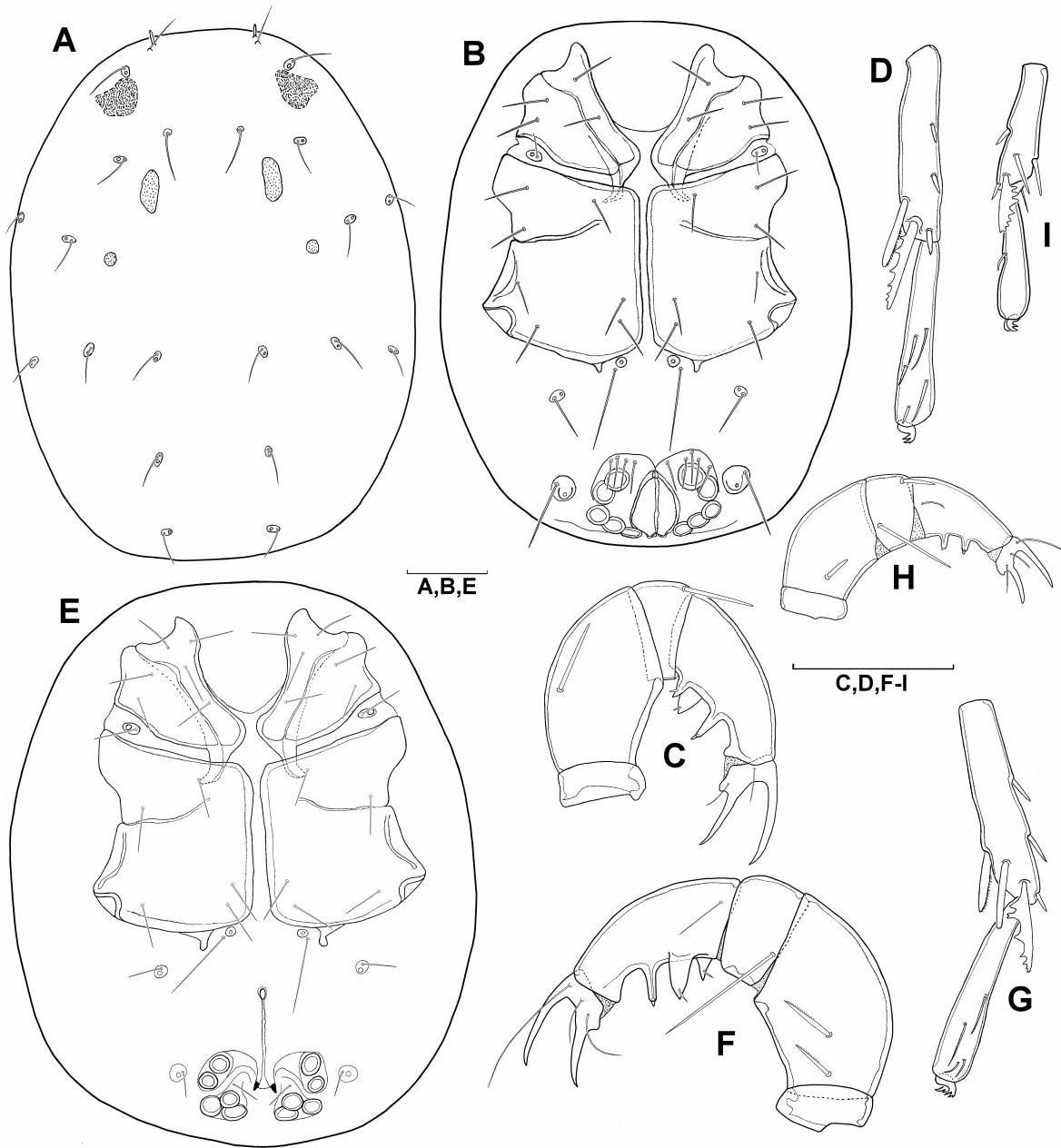


Fig. 3A-I. *Unionicola (Majumderatax) hankoi*: (A-D = male, E-G = female, H-I = deutonymph); A = idiosoma, dorsal view; B = idiosoma, ventral view; C = palp, medial view; D, G, I = I-Leg-5-6; E = idiosoma, ventral view. Scale bars = 100 μ m

Female: Idiosoma L 740, W 590; coxal field L 414; capitulum L 200, chelicera L 168, basal segment L 113, claw 55; palp total L 388, dorsal lengths of palp segments: P-1 21, P-2 139, P-3 40, P-4 120, P-5 68. Genital field; width between most lateral pair of acetabula 210. Distribution of swimming setae on the leg segments; II-Leg-4: 1, II-Leg-5: 2, III-Leg-4: 3, III-Leg-5: 3, IV-Leg-3: 1, IV-Leg-4: 3, IV-Leg-5: 3. dL of I-Leg-1-6: 60-120-135-140-130-130 = 715; II-Leg-1-6: 60-130-115-170-200-195 = 870 = 830; III-Leg-1-6: 60-130-120-165-210-195 = 880; IV-Leg-1-6: 110-130-145-190-220-220 = 1015.

Deutonymph: Idiosoma L 540, W 420; capitulum L 110, chelicera L 100, basal segment L 62, claw 38; palp (Figure 3H) total L 236, dorsal lengths of palp segments: P-1 16, P-2 80, P-3 26, P-4 74, P-5 40. Genital field with 2 pairs of acetabula. Legs: distribution of swimming setae on the leg segments; II-Leg-4: 1, II-Leg-5: 1, III-Leg-4: 1, III-Leg-5: 1, IV-Leg-3: 1, IV-Leg-4: 2, IV-Leg-5: 2. dL of I-Leg-1-6: 40-70-

80-85-85-80 = 440; IV-Leg-1-6: 70-55-80-115-140-140 = 600.

Remarks: *Unionicola (Majumderatax) hankoi* (Szalay, 1927) can be easily distinguished from the other species of *Unionicola* by the large dentate setae on the distal end of the tibia of first walking legs and distal end of palp tarsus with two very large clawlets. The specimens from Turkey shows general conformity with the specimens of *U. hankoi* from Europe and Iran [9-11].

Habitat: Pools of running waters.

Distribution: Hungary, Iran, Italy, Iberian Peninsula, Poland and Turkey [4, 11].

4. Acknowledgements

This study has been supported by FUBAP-1823 project, Firat University, Elazığ and is part of a PhD thesis of Yunus Esen supervised by Dr Orhan Erman. *Unionicola (Majumderatax) hankoi* was presented orally in National Biology Congress, 21-25 June in Denizli, Turkey.

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