



Two new records of the genus *Hydryphantes* (Acari: Hydrachnidia) for the Turkish Fauna

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ABSTRACT: Two species of the genus *Hydryphantes* Koch, 1841 collected from Bayburt and Bingöl Provinces, *Hydryphantes* (s.str.) *armentarius* Gerecke, 1996 and *H.* (s.str.) *fontinalis* Sokolow, 1936 are given as new records for the Turkish fauna.

Keywords: *Hydryphantes*, new record, Turkey, water mite.

The family Hydryphantidae Piersig, 1896 is a large and morphologically diverse group of water mites, with 329 species in 51 genera worldwide (Zhang et al., 2011). The family Hydryphantidae is represented with 38 species in 12 genera from Turkey (Erman et al., 2007, 2010; Özkan et al., 1988, 1994). Adults of the genus *Hydryphantes* live in a wide variety of habitats i.e. primarily in vernal temporary pools, permanent stagnant waters, lakes, pools of streams and riffles of cold streams (Smith, 2010; Di Sabatino et al., 2010).

Only 10 species of the genus *Hydryphantes* from Turkey are known: *Hydryphantes* (*Polyhydryphantes*) *flexuosus* (Koenike, 1895), *H.* (*Polyhydryphantes*) *karsensis* Aşçı and Özkan, 2001, *H.* (*Polyhydryphantes*) *octoporus* (Koenike, 1896), *H.* (s.str.) *baderi* Özkan, 1982, *H.* (s.str.) *crassipalpis* Koenike, 1914, *H.* (s.str.) *dispar* (Schaub, 1888), *H.* (s.str.) *parmulatus* Koenike, 1912, *H.* (s.str.) *ruber* (De Geer, 1778), *H.* (s.str.) *tenuipalpis* (Thon, 1899) and *H.* (s.str.) *yalvacı* Özkan, 1982 (Özkan, 1982; Erman et al., 2007, 2010; Boyacı and Gülle, 2014).

During a survey of the freshwater mite fauna of Bingöl and Bayburt Provinces of Turkey, some specimens of the Hydryphantidae, including two species new for the fauna of Turkey, were collected from the riffles of cold streams. With the two additional species, *Hydryphantes* (s.str.) *armentarius* Gerecke, 1996 and *H.* (s.str.) *fontinalis* Sokolow, 1936, totally 12 species have been reported from Turkey. This paper aims to describe this material and contribute to our knowledge of hydryphantid water mite distribution in Turkey.

During field work, water mites were collected by hand netting, sorted on the spot from the living material, conserved in Koenike's fluid, and dissected as described in literature (Gerecke et al., 2007).

The composition of the material is given as (males/females). All measurements are given in micrometers. The following abbreviations are used: dL = dorsal length; vL = ventral length; H = height; I-L-6 = leg 1, sixth segment (tarsus); L=length; P-3= palp segment 3; a.s.l. = above sea level; W=width.

Family: Hydryphantidae Piersig, 1896

Genus: *Hydryphantes* Koch, 1841

Hydryphantes (s.str.) *armentarius* Gerecke, 1996

Figure 1A-E

Material Examined: Bayburt Province, Kop Mountain, low-order streams, 40°02'19" N, 40°29'15" E, 2345 m a.s.l., 05.07.2017, (0/2). Bingöl Province, Solhan district, Şerafettin Mountains, low-order streams, 39°05'13" N, 40°57'48" E, 2430 m a.s.l., 18.08.2016, (0/4).

Female

Idiosoma L/W 1200/970; dorsal shield anterior margin slightly convex, posterior extensions short and stout, L/W 310/278 (Figs. 1A, B), gnathosoma vL 277, H 70, chelicera total L 293, cheliceral claw short and slightly curved (Fig. 1D), L 103; palp slender, P-1 and P-3 as long as high (Fig. 1C), total L 443, P-1-5 dL/H 60/62-110/76-62/70-175/48-36/20; P-4 L/H 3.6; genital field L/W 246/224.

Numbers of leg swimming setae: III-L-5, 1; IV-L-4, 2; IV-L-5, 2 (Fig. 1E). Legs dL I-L: 82-70-126-175-184-203 = 840, II-L: 98-90-142-211-238-250 = 1029, III-L: 112-98-140-223-248-282 = 1103, IV-L: 209-141-200-310-308-291 = 1459.

Distribution: Bosnia and Herzegovina, Bulgaria, Corsica, Greece, Italy, Macedonia and (Di Sabatino et al., 2009, 2010; Lyubomirova, 2017), Turkey (this study).

Hydryphantes (s.str.) *fontinalis* Sokolow, 1936

Figure 2A-E

Material Examined: Bingöl Province, Solhan district, Şerafettin Mountains, low-order streams, 39°05'13" N, 40°57'48" E, 2430 m a.s.l., 18.08.2016, (0/1).

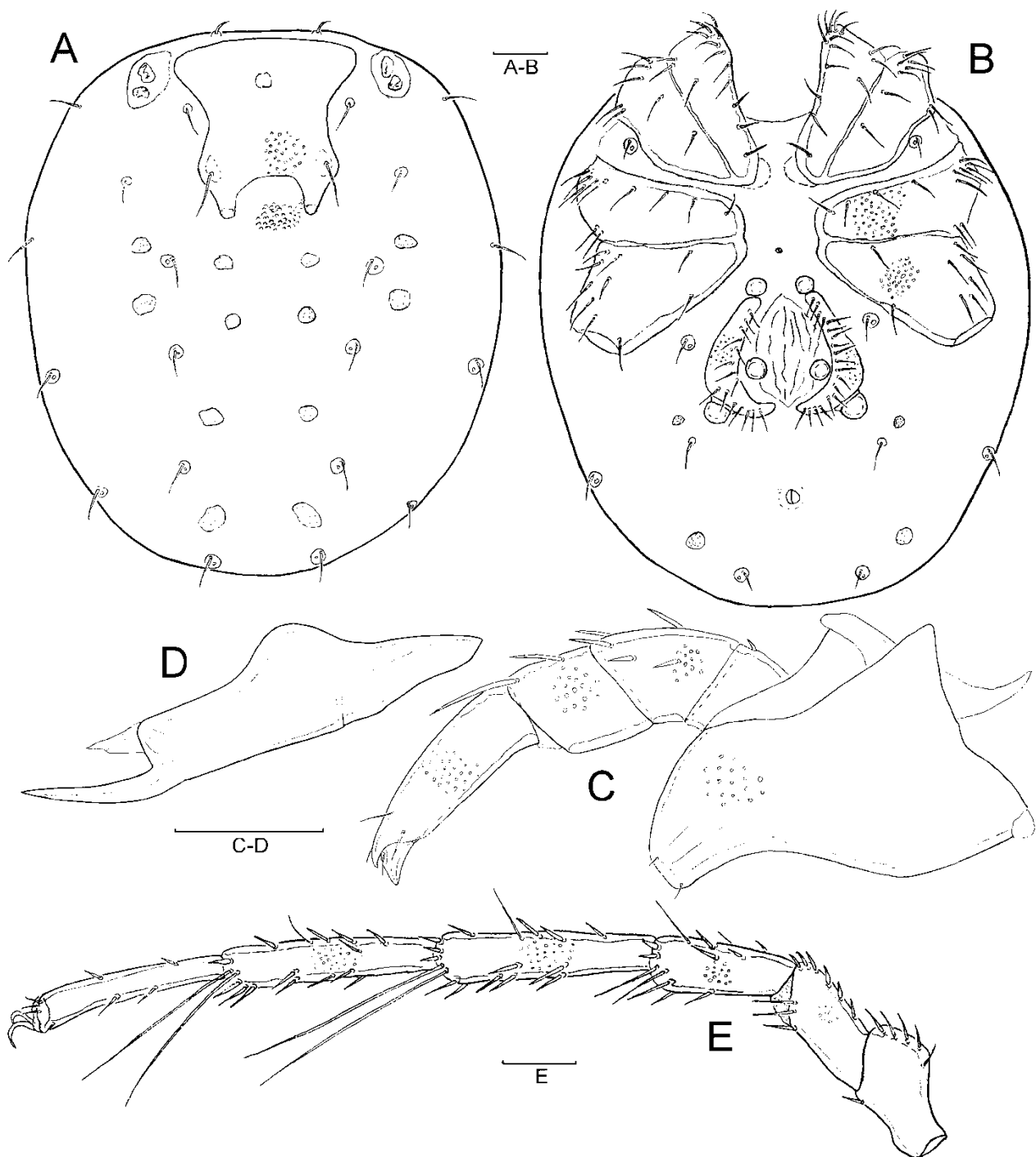


Figure 1. *Hydryphantes* (s.str.) *armentarius* (Female) – A) Idiosoma, dorsal view, B) Idiosoma, ventral view, C) Gnathosoma and palp, D) Chelicera, E = IV-L (Scale bars = 100 μ m).

Female

Idiosoma L/W 1174/998, dorsal shield anterior margin convex, posterior extension short and stout, L/W 375/380 (Figs. 2A, B). Ventral margin of gnathosoma weakly curved, rostrum not distinctly set off, mouth opening small, vL 298. Palp total L 486, P-1-5 dL/H 90/77-126/85-70/89-160/51-40/26 (Fig. 2C). Chelicera claw fine, long and straight (Fig. 2D), total L 490, claw L 238, H 91 (basal segment/claw ratio 1.06); genital field L/W 276/300.

Numbers of leg swimming setae: II-L-5, 5; III-L-4, 4; III-L-5, 7; IV-L-4, 3; IV-L-5, 5 (Fig. 2E). Legs dL I-L: 97-92-140-219-260-304 = 1112, II-L: 113-110-160-266-318-346 = 1313, III-L: 120-118-162-275-330-351 = 1356, IV-L: 235-160-213-351-380-356 = 1685.

Distribution: NE Russia, Italian Alps (Di Sabatino et al., 2010). New record for the Turkish fauna.

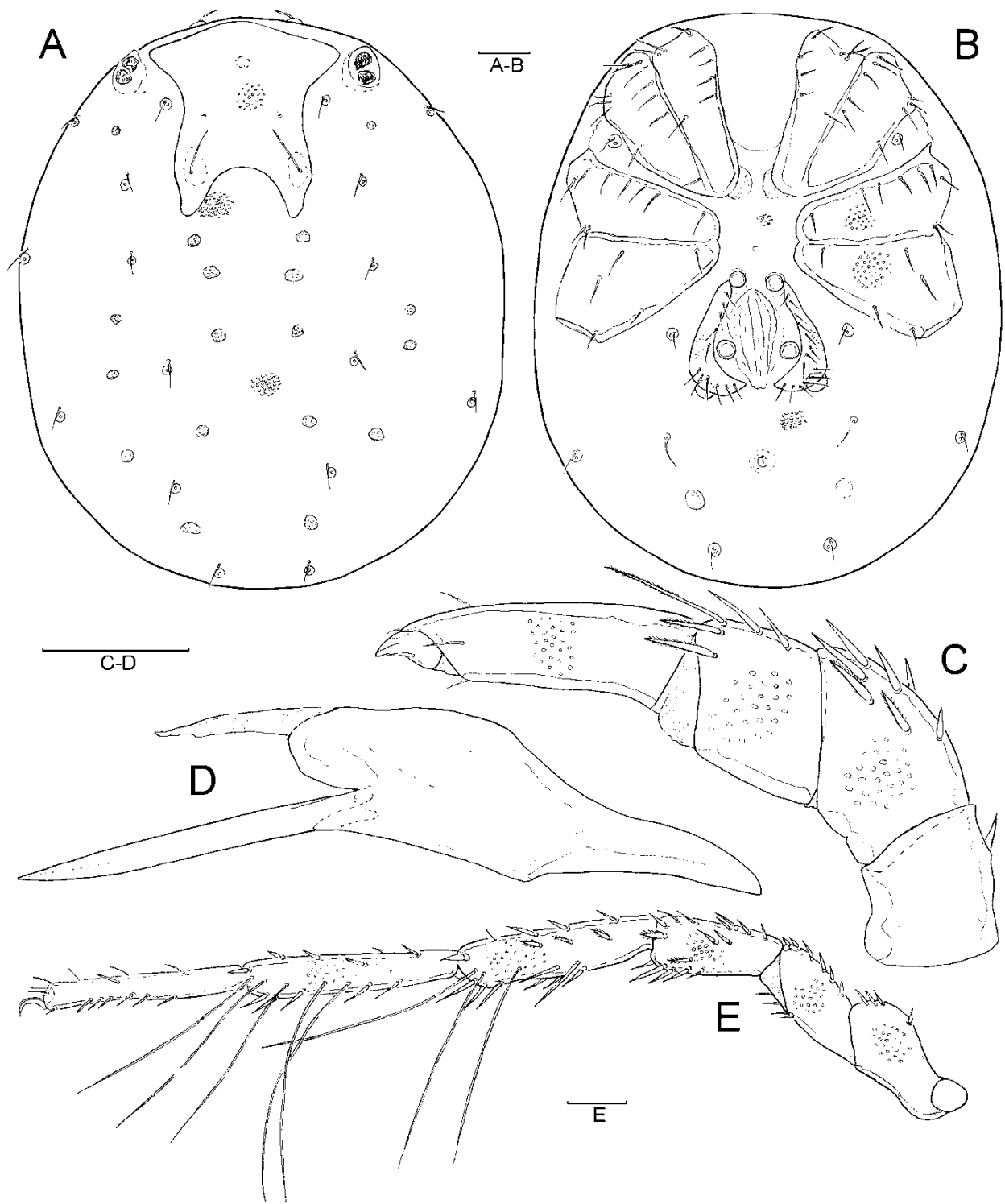


Figure 2. *Hydryphantes* (s.str.) *fontinalis* (Female) – A) Idiosoma, dorsal view, B) Idiosoma, ventral view, C) Palp, medial view, D) Chelicera, E) IV-L (Scale bars = 100 μ m).

The specimens collected from Bayburt and Bingöl Provinces of Turkey, agree with *Hydryphantes* (s.str.) *armenarius* Gerecke, 1996 by the presence of a rather slender palp, reduced swimming setae, slightly convex anterior margin, short posterior extensions, short and curved cheliceral claw. Similar species *H.* (s.str.) *baderi* Özkan, 1982 and *H.* (s.str.) *yalvacı* Özkan, 1982 differs from *Hydryphantes* (s.str.) *armenarius* by having reduced swimming setae and characteristic blade-like claw (Özkan, 1982; Di Sabatino et al., 2010).

The other firstly recorded species *H.* (s.str.) *fontinalis* Sokolow, 1936 can be easily distinguished from *H.* (s.str.) *baderi* by the presence of a shorter blade-like cheliceral claw and a few more swimming seta numbers (in *H. baderi* basal segment/claw ratio 0.8, swimming seta numbers IV-L-3, 1; IV-L-4, 3; IV-L-5, 6). *H.* (s.str.) *yalvacı* Özkan, 1982 differs from *H.* (s.str.) *fontinalis* in complete reduction of swimming setae (Di Sabatino et al., 2010). One female specimen collected from Bingöl province completely agrees with *H.* (s.str.) *fontinalis*, a species known

from Russia and Italy, due to the blade-like cheliceral claw and reduced swimming setae.

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