

A new species of *Hydryphantes* C.L.Koch, 1841 (Hydryphantidae, Hydrachnellae, Acari) for the Turkish Fauna

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Abstract: In this study, the morphological characteristics and zoogeographical distributions of the male and female *Hydryphantes parmulus* Koenike, 1912, which is a new record for the Turkish fauna, are described. The morphological features of the species are compared with those present in close species

Key Words: *Hydryphantes parmulus*, Hydrachnellae, Acari, Systematics, Turkey.

Türkiye Faunası İçin Yeni Bir *Hydryphantes* C.L.Koch, 1841 (Hydryphantidae, Hydrachnellae, Acari) Türü

Özet: Bu çalışmada Türkiye faunası için yeni olan *Hydryphantes parmulus* Koenike 1912' nin dişi ve erkeklerinin yapısal özellikleri ve zoocoğrafik yayılışları verilerek türün özellikleri yakın türler ile karşılaştırılmıştır.

Anahtar Sözcükler: *Hydryphantes parmulus*, Hydrachnellae, Acari, Sistematik, Türkiye.

Introduction

The genus *Hydryphantes* is reported from standing waters in widely scattered areas of the world. To date, ten species of *Hydryphantes* have been recorded and identification keys were prepared for these species. The biology and structural features of some of the species in this genus have been reviewed elsewhere (1-4). The aim of this paper is to attract attention to the morphological characteristics, zoogeographical distribution, and problems in the systematic of *Hydryphantes parmulus* Koenike, 1912, which is a new record for the Turkish fauna.

Materials and Methods

The specimens were collected, preserved and examined by methods given before (5).

Results

Family: Hydryphantidae Thor, 1900

Genus: *Hydryphantes* Koch, 1841

The morphological characters of the genus were given by Özkan (3).

Species: *Hydryphantes* (s.str.) *parmulus* Koenike, 1912

Female: Body is oval, 1720 (1610-1850)/1500 (1380-1608) µm in size, flattened dorsaventrally; and unsclerited surfaces of body with a blunted papillae. Distances between two eye capsules and preantenniformae setae are 460 (418-482) µm, and 200 (210-238) µm, respectively. Front border of dorsal plate is lightly concave, part of preoculars 410 (390-430) µm in width and posterior tips are short and close to each other. Median eye is small and pigmentless; dorsocentralia IV are far greater than other plates and exist very close to each other (Figure 1A); among

dorsolateral I, II, III important size differences are not observed. Capitulum with a short rostrum, bent downward and 420 (405-429) μm in size; size of chelicerae is 460 (448-472) μm ; tip of cheliceral claw is lightly inclined upward and long. Palp with delicate and abundant setae on P-I, P-II, P-III are important features (Figure 1B,C). Distribution to the palpal segments of setae are; 6-10-10-2-1. Lengths of dorsal and ventral and heights of palpal segments: 95 (90-102)-130 (122-138)-100 (98-102)-200 (188-211)-50 (48-51)=575 (562-566) μm , 75 (71-80)-60 (55-64)-95 (90-101)-165 (158-171)-40 (38-41)=435 (428-442) μm , 75 (72-80)-95 (91-100)-100 (97-103)-70 (67-73)-20 (19-21) μm , respectively. Ratios to heights of dorsal lengths of each palpal segments as follows: 1.266 (16.52 %)-1.368 (22.6 %)-1 (17.39 %)-2.857 (34.78 %)-2.5 (8.69 %). First coxal groups 410 (400-428) μm , second coxal group 550 (538-562) μm in size and coxae with many setae (Figure 1D); legs bear a large number of thick-long and slender-short setae in addition to swimming hairs. Distribution to the leg segments of swimming hairs: II.B/5: 8, III.B/3: 4, III.B/4: 14, III.B/5: 14, IV.B/3: 6, IV.B/4: 17, IV.B/5: 18 and swimming hairs is absent on the first leg. Lengths of leg segments as follow; I. Leg: 60 (57-64)-75 (70-80)-80 (73-87)-125 (120-132)-155 (147-161)-165 (157-172)=660 (648-680) μm , II. Leg: 60 (56-64)-90 (82-97)-100 (89-108)-175 (168-183)-220 (204-230)-212 (198-221)=855 (832-864) μm , III. Leg: 65 (60-68)-90 (83-98)-105 (96-112)-190 (180-198)-225 (218-237)-225 (219-240)= 900 (883-921) μm , IV. leg: 100 (94-103)-105 (100-110)-150 (138-161)-240 (229-254)-250 (242-261)-225 (218-231)=1070 (1000-1135) μm . Genital area 150 (140-158)/35 (30-39) μm and genital acetabulum 170 (164-176) μm in size; distance of excretory pore to genital area is 40 (38-43) μm ; posterior part and inside of genital flap with a lot of setae. There is a pair of small plates on the ventrolateral side and a pair of large ventral plates on posterior of acetabular plate (Figure 1D).

Male: Size of body is 1420/1150 μm . Shapes of body, plates, palp and capitulum similar to those illustrated for the female; distances between two preantenniformae setae and eye capsules are 225 μm , 240 μm , respectively. Median eye does not have pigment. Dorsocentralia IV 280/300 μm in size; capitulum 225 μm and cheliser 470 μm in length; lengths of dorsal, ventral

and heights of palpal segments: 80-140-105-215-45=585 μm , 60-70-100-165-140=435 μm , 85-100-105-63-20 μm , respectively. Ratios to heights of dorsal lengths of each palpal segment and percentage in total size as follows: 0.941 (13.67 %)-1.4 (23.93 %)-1 (17.94 %)-3.412 (36.75 %)-2.25 (7.69 %). First coxal group 400 μm and second coxal group 500 μm in size and coxae with many setae; legs bear many of two types of setae. Lengths of legs as follows; I. Leg: 50-65-90-145-155-160= 665 μm , II. Leg: 50-85-1000-195-200-215=945 μm , III. Leg: 60-85- 105-200-225-255=900 μm , IV. Leg: 105-100-150-250-250-225=180 μm (Figure 2A-D). Acetabular plate 165/55 μm and genital area 130 μm in size; distance to genital area of excretory pore 135 μm ; posterior part and inside of genital flap possess a lot of setae (Figure 1E).

Habitat: Isparta, stagnant waters supported by spring waters, altitude 1050 m., 24. 4. 1998, 1 ♂, 1 ♀. Aksaray, the pools in Eşmekaya National Park, altitude 1240 m., 18.5.1997, 4 ♀ Turkey.

Distribution: In Europe, known in Germany, Denmark, Sicily, Macedonia and Spain, (6-8).

It is a new record for the Turkish fauna.

Discussion

In previous studies, this species was reported to be widely distributed in central and northern Europe (9, 6). Schwoerbel (7) described this species from Macedonia but it was argued that the collecting site in this study was not completely defined. In recent years (8) it has been shown that this species is found in Spain and Sicily. This data confirms that the zoogeographical distribution area of this species towards Mediterranean countries can be extended. Due to insufficient investigations, *Hydryphantes* (*s.str.*) *parmulatus* became a centre for controversy again with newly collected specimens. Also, the presence of this species as far as the eastern Mediterranean has brought new dimensions to the controversy.

Hydryphantes (*s.str.*) *peltatus* Walter, 1926 described from Congo and Algeria, and *Hydryphantes* (*s.str.*) *algeriensis* Walter, 1925 from Algeria in Africa have been been made synonyms of *Hydryphantes parmulatus* by Gerecke (8). In distribution tables after synonymization, the specimens recorded from Congo

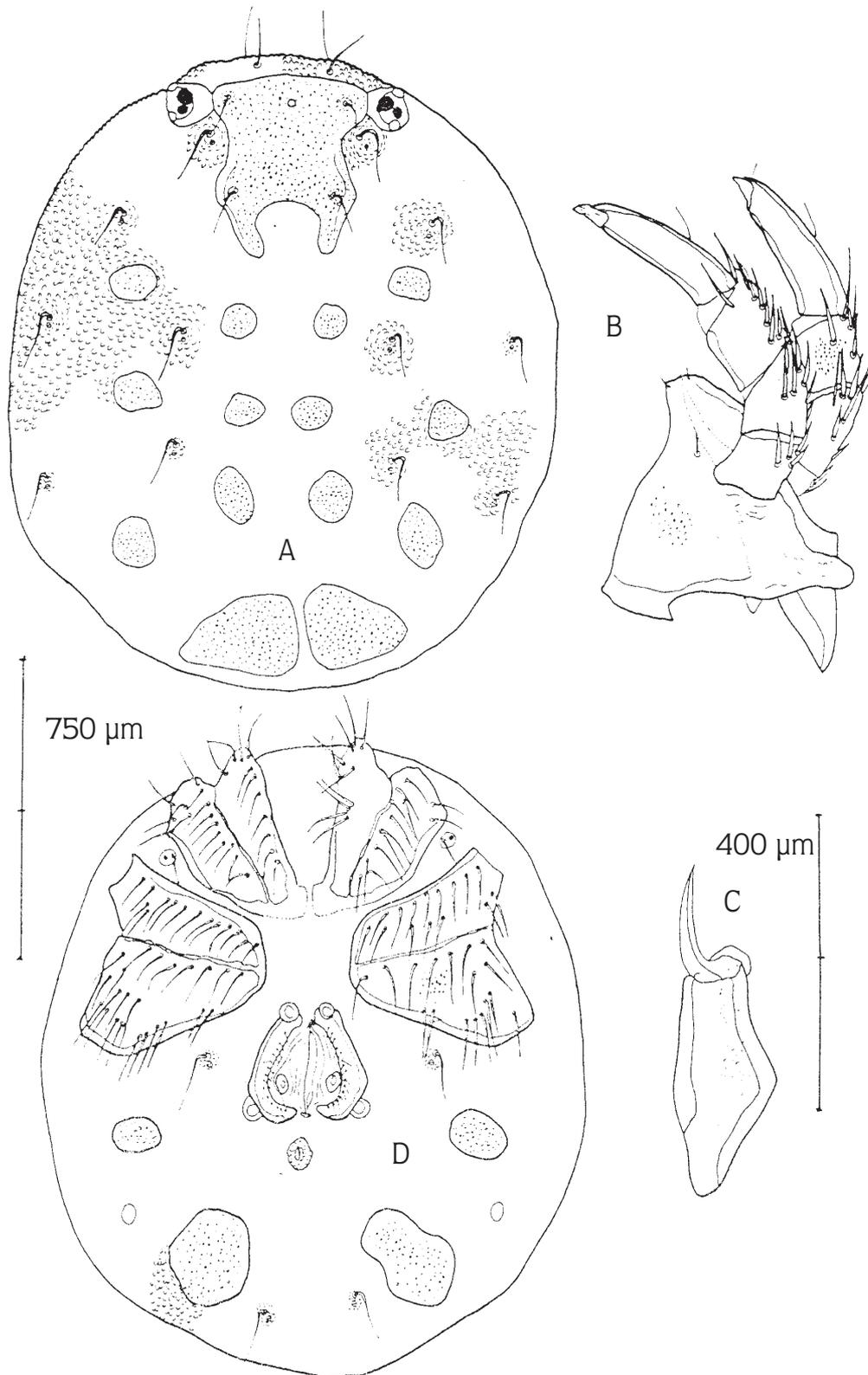


Figure 1. *Hydryphantes parmulatus*; Female: A) Dorsal view, B) Gnathosoma, C) Chelicer, D) Ventral view.

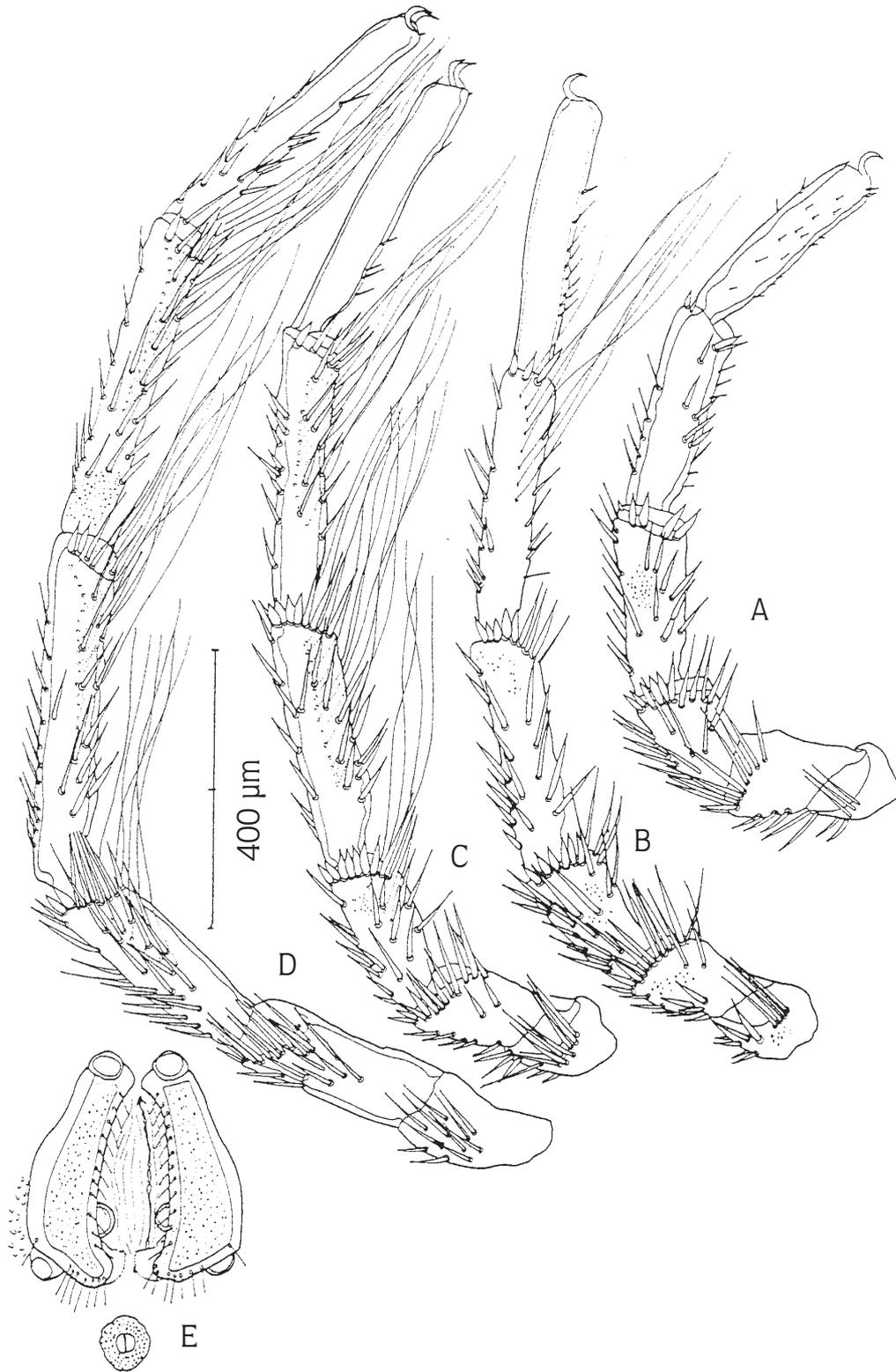


Figure 2. *Hydryphantes parmulatus*; Male: A) I. leg, B) II. Leg, C) III. leg, D) IV.leg, E) Genital acetabulum.

could be considered zoogeographically problematic in respect to stagnant inland waters. In addition to this problem, limited numbers of *H. parmulatus*, as specimen, absence of palps, disappearance of fourth leg parts of the type specimen and difficulties in measuring the bodies damaged due to collection also create extra difficulties in its systematics. It is understood that the phenomena of synonymy is a difficult issue at present and these disputes may be continued for a long time. Therefore, with collection and evaluation of new specimens from Congo and Algeria, it is expected that a permanent solution to this problem will be found.

Generally, the measurements given for males by Gerecke (8) are in agreement with our specimens. However, our specimens differ significantly in number of seta (53) on first coxal group, distributions of swimming hairs on legs (0-18-30-29), body size (1200/860 µm) and ratios (0.8) to height of dorsal length of PI and percentage (13.9%) in total palp size.

It is also doubtful that the specimen given by Besseling (10) is *H. parmulatus* especially because of size, morphology and arrangement of dorsal shield. Features of our specimens are similar to the ones given for *H.*

peltatus (11) by greater fourth dorsocentralia than both lateral and other plates. However, our specimen is different from specimens given for this species by the existence of similar size of lateral plates with dorsocentralia I, II, III. Moreover, our specimens closely resemble the type specimen of Koenike with delicate palp, position of setae on P_I, P_{II}, P_{III}; shape of dorsal shield; size and shape of genital acetabula (8). Palpal segments of both species described from Algeria are thicker and contain fewer hairs than other species (12). The specimens given as *H. peltatus* exhibit important differences in the shape of their dorsal plates and their dorsolateraliae are significantly greater than dorsocentraliae I, II, III. Moreover, it is easily understood that this species differs from our specimen in having shorter palpal segments and bearing fewer setae on the first three palpal segments.

Because our specimens could easily be separated from the species of *Hydryphantes* described from Turkey by large size dorsal and ventral plates, delicate palp and numbers of setae in first three parts of palp, we do not propose the arrangement of a new identification key for this species at this moment.

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