

## Article

### ***Hydrodroma persica* sp. nov., a new water mite species (Acari, Hydrachnidia, Hydrodromidae) from Fars Province (Iran)**

Vladimir Pešić<sup>1</sup> & Alireza Saboori<sup>2</sup>

*1 Department of Biology, University of Montenegro, Cetinjski put b.b., 81000 Podgorica, Montenegro; E-mail: pesicv@t-com.me*

*2 Department of Plant Protection, College of Agriculture, University of Tehran, Karaj, Iran; E-mail: saboori@ut.ac.ir*

#### **Abstract**

A new water mite, *Hydrodroma persica* sp. nov. (Hydrodromidae), is described from running waters in Southern Iran.

**Key words:** Acari, water mites, new species, taxonomy, running waters.

#### **Introduction**

The genus *Hydrodroma* Koch, 1837 has been found in all biogeographic regions except for Antarctica. However, the taxonomy and systematics of the genus is difficult. The adult and nymphal stages are characterized primarily by the number and distribution of swimming setae, body colour, morphology and chaetotaxy of the genital field and idiosoma structure (Wiles 1985; Di Sabatino et al. 2010).

At present, five species have been reported from Iran (Pešić & Saboori 2007): *Hydrodroma despiciens* (Müller, 1776), *H. pilosa* Besseling, 1940, *H. reinhardi* Pešić, 2002, *H. rheophila* Cook, 1967 and *H. torrenticola* (Walter, 1908). This paper gives the description of a new species collected from running waters in Southern Iran.

#### **Materials and methods**

Water mites were collected by hand netting, sorted in the field from the living material, preserved in Koenike's fluid, and in the laboratory dissected and slide-mounted in Hoyer's medium. The holotype and some of the paratypes will be deposited in the Museum of the Natural History of Podgorica, Montenegro, the rest of the paratypes in Jala Afshar Zoological Museum, Department of Plant Protection, College of Agriculture, University of Tehran, Karaj, Iran.

All measurements are given in micrometers ( $\mu\text{m}$ ). The following abbreviations are used: Cx-I = first coxae, dL = dorsal length, H = height, L = length, I/II/III/IV-Leg-1-6 = first to sixth segments of leg I/II/III/IV, P-1 to P-5 = palp segments 1 to 5, vL = ventral length, W = width.

## Results

Hydrodromidae K. Viets, 1936

Genus *Hydrodroma* Koch, 1837

### *Hydrodroma persica* sp. nov.

(Figs. 1–2; Tables 1–2)

*Type series.* Holotype, female, dissected and slide-mounted, Iran, Fars Province, Shiraz to Sepidan road (10 km from Sepidan), 1391 m a.s.l., stream, 30°12' N, 52°05' E, 04.viii.2007, leg. Pešić & Saboori. Paratypes: 1 male, 6 females, same data as holotype, one male and two females of them dissected and slide-mounted in Hoyer's fluid.

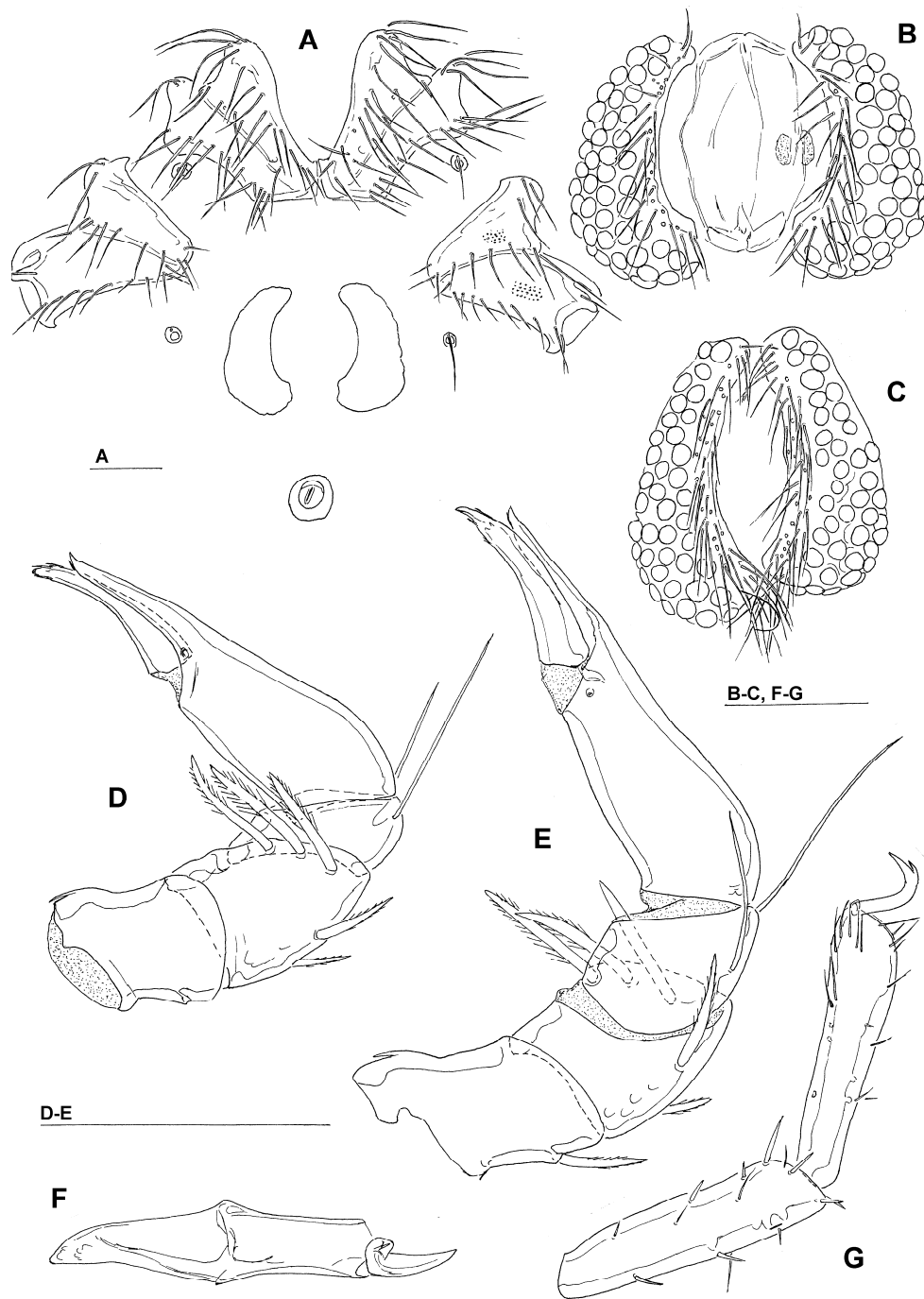
*Diagnosis.* Genital plate with 39-46 acetabula in 4-5 longitudinal rows; palp segments stocky (L/H ratio P-4 3.9-4.1, in both sexes); number of swimming setae: II-Leg-5 posterior 0; IV-Leg-4 anterior 0-2; IV-Leg-4 posterior 2-3; IV-Leg-5 anterior 0; IV-Leg-5 posterior 2-3.

### *Description*

*Female* (holotype; in parentheses measurements of paratypes, if not given otherwise  $n = 2$ ): Idiosoma L/W (1144-1500/941-1250,  $n = 4$ ); integument papillae bluntly pointed. Coxal field: L Cx-I+II, 222 (241–253), Cx-III+IV, 246 (256–257), total number of coxal setae: 23–24 (23–27) on Cx-I, 17 (17–22) on Cx-II, 13–14 (16–18) on Cx-III, 12–13 (11–14) on Cx-IV. Shape of genital plate as in Fig. 1B, for measurements, Ac and setae numbers see Table 1; egg maximum diameter 128–136 ( $n = 6$ ). Capitulum vL 216 (209–219); chelicera (Fig. 1F) total L 289 (294–303), basal segment L 223 (225–232), claw L 65 (64–65). Palp: for chaetotaxy see Figs. 1E, 2A, for measurements see Table 1. Numbers of swimming setae on legs are presented in Table 2.

*Male:* Coxal field: L Cx-I+II, 221, Cx-III+IV, 241; number of coxal setae: 25–28 on Cx-I, 11–22 on Cx-II, 15 on Cx-III, 17 on Cx-IV. Genital plate (Fig. 1C): setae more numerous than in females, for measurements, Ac and setae numbers see Table 1. Capitulum vL 191; chelicera total L 266, basal segment L 205, claw L 60. Palp as in female, for chaetotaxy see Fig. 1D, for measurements see Table 1. Number of swimming setae on legs are presented in Table 2.

*Variability.* We found a variability in the number of swimming setae on the anterior IV-Leg-4. Examination of eight adult specimens shows that six specimens are without swimming setae on the anterior IV-Leg-4, one specimen has 1+1 (number of swimming setae left + right side) and one specimen 1+2.



**FIGURE 1.** *Hydrodroma persica* sp. nov. (A-B, E-G = female, C-D = male): A. Coxal and genital field; B-C. Genital field; D. Palp, medial view; E. Palp, lateral view; F. Chelicera; G. I-Leg-5 and 6. Scale bars = 100  $\mu$ m.

**Table 1.** Morphometric data for the genital plate, palp and leg (2-6) segments for *H. persica* **sp. nov.**

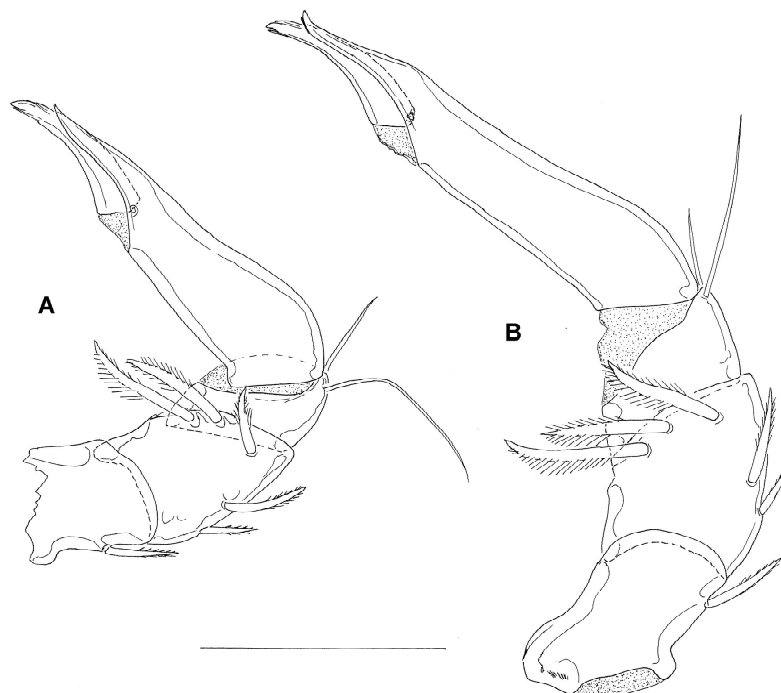
Character	FEMALE		MALE
	holotype	paratype (n =2)	paratype
genital acetabula, n	45-46	43-48	39
genital setae, n	31-33	25-37	45-50
genital plate, L	177-180	197-206	186-202
dL P-1	49	45-49	40
dL P-2	69	70-71	63
dL P-3	37	38-41	31
dL P-4	155	155-159	142
dL P-5	66	62-68	62
Palp, total L	376	370-388	338
H P-4	37.7	38-39	36.2
dL I-Leg-2	83	80-84	75
dL I-Leg-3	103	105-109	92
dL I-Leg-4	161	159-167	134
dL I-Leg-5	197	196-200	172
dL I-Leg-6	179	195-198	173
dL II-Leg-2	100	100-105	88
dL II-Leg-3	120	125-139	103
dL II-Leg-4	197	196-198	178
dL II-Leg-5	231	231-234	195
dL II-Leg-6	209	209-225	194
dL III-Leg-2	103	107-109	91
dL III-Leg-3	127	132-136	109
dL III-Leg-4	200	203-209	175
dL III-Leg-5	244	250-253	210
dL III-Leg-6	216	222-228	197
dL IV-Leg-2	144	144-146	125
dL IV-Leg-3	189	191-199	163
dL IV-Leg-4	284	278-288	247
dL IV-Leg-5	300	297-305	263
dL IV-Leg-6	253	250-266	233

*Remarks*

*Hydrodroma persica* **sp. nov.** is most similar to *H. tonapii* Cook, 1967 (India, 1967) and *H. reinhardi* Pešić, 2002 (Mediterranean, Pešić 2002), in the presence of relatively few (less than eight) swimming setae on IV-Leg-4 and 5, the absence of swimming setae from anterior IV-Leg-5 and the presence of relatively large-sized leg claws.

The main difference between *Hydrodroma persica* **sp. nov.** and the two aforementioned species lies in the proportions of the palp. *Hydrodroma reinhardi* and *H.*

*tonapii* possess distinctly more slender palp segments (see: Pešić 2002 and Cook 1967, respectively), especially P-4 (compare Fig. 2A with Fig. 2B).



**FIGURE 2.** A. *Hydrodroma persica* sp. nov., female: palp, medial view. B. *Hydrodroma reinhardi* Pešić, 2002, female (paratype; River Cijevna, Montenegro): palp, medial view. Scale bar = 100  $\mu$ m.

**Table 2.** Number of swimming setae of *H. persica* sp. nov.

	<i>H. persica</i>	
	FEMALE holotype (paratypes, n = 6)	MALE
II-Leg-5 posterior	0 (0)	0
III-Leg-4 posterior	2 (1-3)	1
III-Leg-5 posterior	3 (3-6)	3
IV-Leg-4 anterior	0 (0-2)	0
IV-Leg-4 posterior	2-3 (2-4)	1-2
IV-Leg-5 anterior	0 (0)	0
IV-Leg-5 posterior	3 (2-3)	3

Furthermore, *Hydrodroma persica* **sp. nov.** differs in a reduced number of swimming setae on the anterior IV-Leg-4 (at most absent, rarely 1-2 vs. 2-7 in *H. reinhardi*, 2 in *H. tonapii*).

*Etymology*

The species is named after the country where it was collected.

*Habitat*

The specimens were taken in running waters (Fig. 3). Like *H. reinhardi*, the new species is obviously rheophilous.

*Distribution*

Iran; known only from the type locality in Fars Province.



**FIGURE 3.** Type locality of *Hydrodroma persica* **sp. nov.** (Fars Province, stream along Shiraz to Sepidan road). Photo. V. Pešić.

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## چکیده

کنه آبی جدید به نام *Hydrodroma persica* sp. nov. (Hydrodromidae) جمع‌آوری شده از آب‌های جاری جنوب ایران توصیف می‌شود.