

Hirstiosoma amfilohije sp. nov. (Trombidiformes: Smarididae) from Montenegro

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Abstract: *Hirstiosoma amfilohije* sp. nov. (Trombidiformes: Smarididae) is described and illustrated from larvae collected from herbaceous plants in Montenegro.

Key words: Prostigmata, Parasitengona, taxonomy, larva, mite, key

The genus *Hirstiosoma* includes 8 species. Four species are known from larvae: *H. ampulligera* (Berlese, 1887), *H. copiolearum* (Southcott, 1948), *H. furtadoi* (Shiba, 1976), and *H. latreillei* (Grandjean, 1947). *H. bolivari* Southcott, 1963, *H. novaehollandiae* Womersley, 1936, *H. scalare* Womersley, 1934, and *H. tasmaniensis* Womersley and Southcott, 1941 are known only from adults (Berlese, 1887; Grandjean, 1947; Southcott, 1948; Shiba, 1976; Beron, 2008; Wohltmann, 2010; Małkol and Wohltmann, 2012). Only *H. ampulligera* and *H. latreillei* are known from Europe. *H. copiolearum* is known from Papua New Guinea and *H. furtadoi* from Malaysia. Hosts for *Hirstiosoma* species are unknown. In this paper, we describe a new species belonging to this genus from Montenegro.

The specimens were collected by sweep net from herbaceous plants. They were preserved in 75% ethanol. Mite specimens were cleared in Nesbitt's solution and mounted in Hoyer's medium. All measurements are given in micrometers (µm). Figures were drawn and measurements were made using a Carl Zeiss Axioscope A1 microscope with Carl Zeiss Imaging System Axio Vision software, Release 4.7. The terminology of the structures and setal notation for Smarididae follows Grandjean (1947) and Wohltmann et al. (2007).

Family Smarididae Vitzthum, 1929

Genus *Hirstiosoma* Womersley, 1934

Type species *Hirstiosoma scalare* Womersley, 1934

Hirstiosoma amfilohije sp. nov.

Material examined. The holotype and 2 paratype larvae were collected by M. Šundić from herbaceous plants, 28 July 2015, in Korita Kučka (1200 m a.s.l.), Montenegro. The

holotype and 2 paratypes are deposited in the Museum of Natural History, Wrocław University (Poland).

Diagnosis. Ti I 3φ, 1κ, 1da, 6tr, 6n, Ge I 4σ, 4tr, 4n, Ti II 2φ, 14(15)n, Ti III 1φ, 14–15n, L 79–86, W 76–84, AW 51–57, PW 62–64, PSE 65–66, Ti I 225–281, Ge I 179–226, κ placed distally to φ₂.

Description. Larvae (n = 3).

Dorsum. Surface of idiosoma with 25 (27 in 1 paratype) barbed setae. One pair of eyes, without ocular plates, located at level of posterior part of scutum (Figure 1). Scutum with slightly concave anterior margin, lateral margins almost straight, and triangular posterior part. Two barbed scutalae, AL scutalae shifted to middle of scutum, PL scutalae in posterior part of scutum. Sensilla ASE located anterior to bases of AL scutalae. Posterior sensilla PSE somewhat below PL scutalae, distinctly anterior of posterior border of scutum. ASE and PSE ciliated in their distal part. At sensillae sockets (ASE, PSE) and in middle part of scutum are cuticular lines (Figure 2).

Ventral side of idiosoma. Intercoxal area with a pair of setae 1a, pair of setae 3a, and 6 setae behind coxae III, all barbed. Coxalae I–III barbed, 1b > 2b > 3b (Figure 3). NDV = 31 (33 in paratypes).

Gnathosoma. Dorsally with nude galeala (cs), ventrally with setae as and bs, both barbed. Palpfemur and palpgenu each with 1 barbed seta, palptibia with 3 setae (2B, 1N) (Figure 4). Palptarsus bearing 6 setae, comprising solenidion, eupathidium, 2 barbed and 2 nude setae (Figure 5). Odontus (OD) bifurcate with process at its base. Supracoxal seta elcp present.

Leg setal formula: Leg I: Ta 1 ω, 1 ε, 1 ta, 1 z, 1 x, 2 tr, 13 n; Ti 3 φ, 1 κ, 1 da, 6 tr, 6 n (left leg), Ti 3 φ, 1 κ, 1 da, 5 tr,

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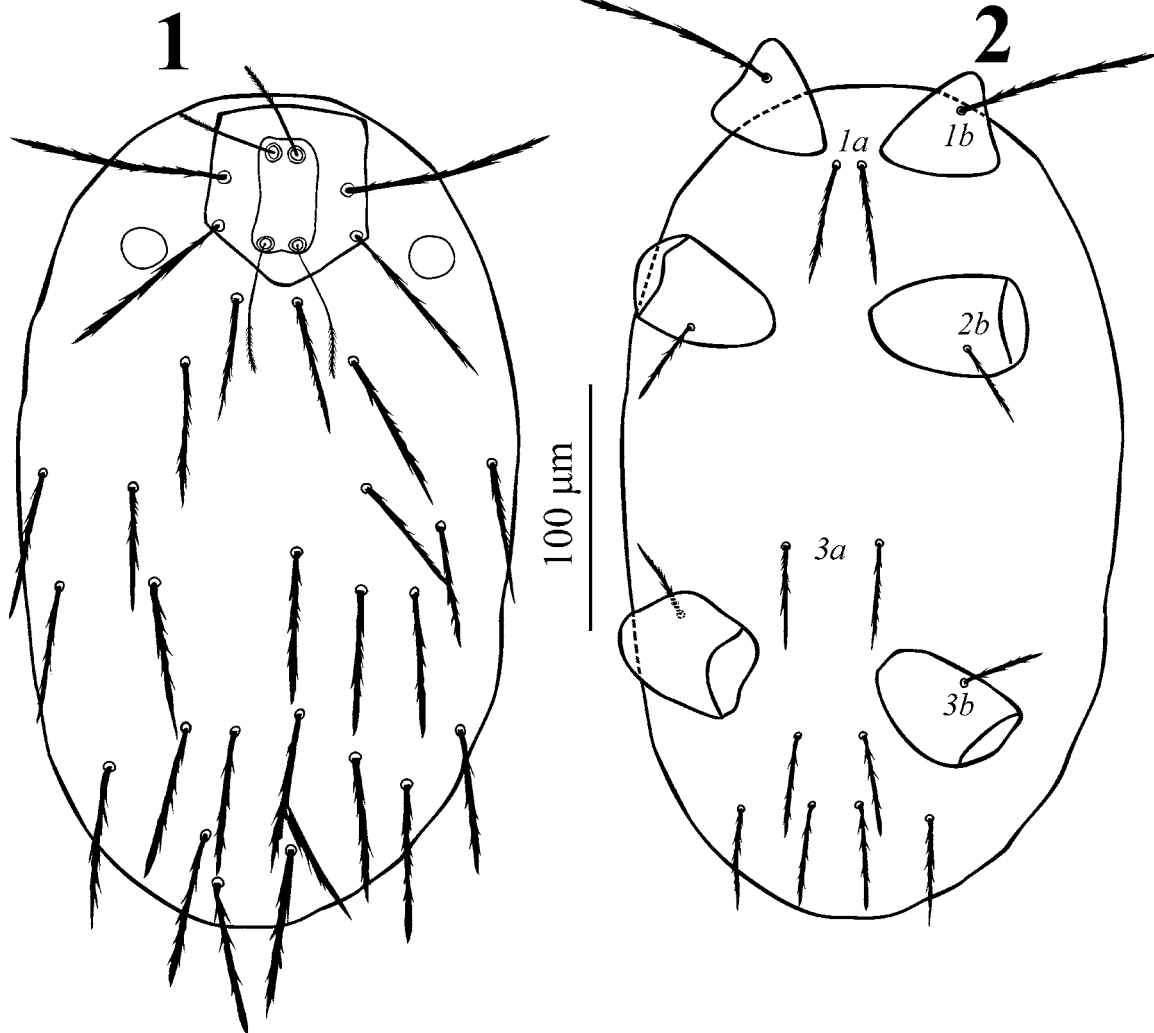


Figure 1. *Hirstiosoma amfilohije* sp. nov. (larva). Idiosoma, dorsal view.

Figure 2. *Hirstiosoma amfilohije* sp. nov. (larva). Scutum.

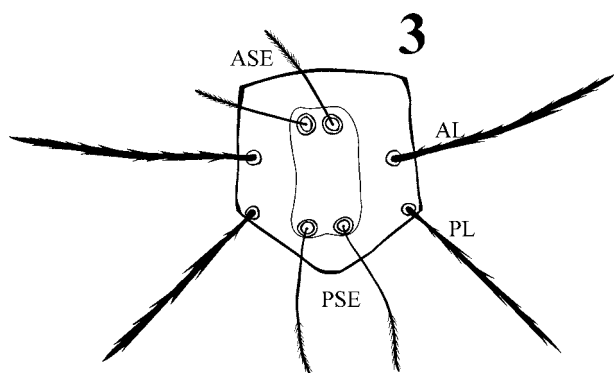
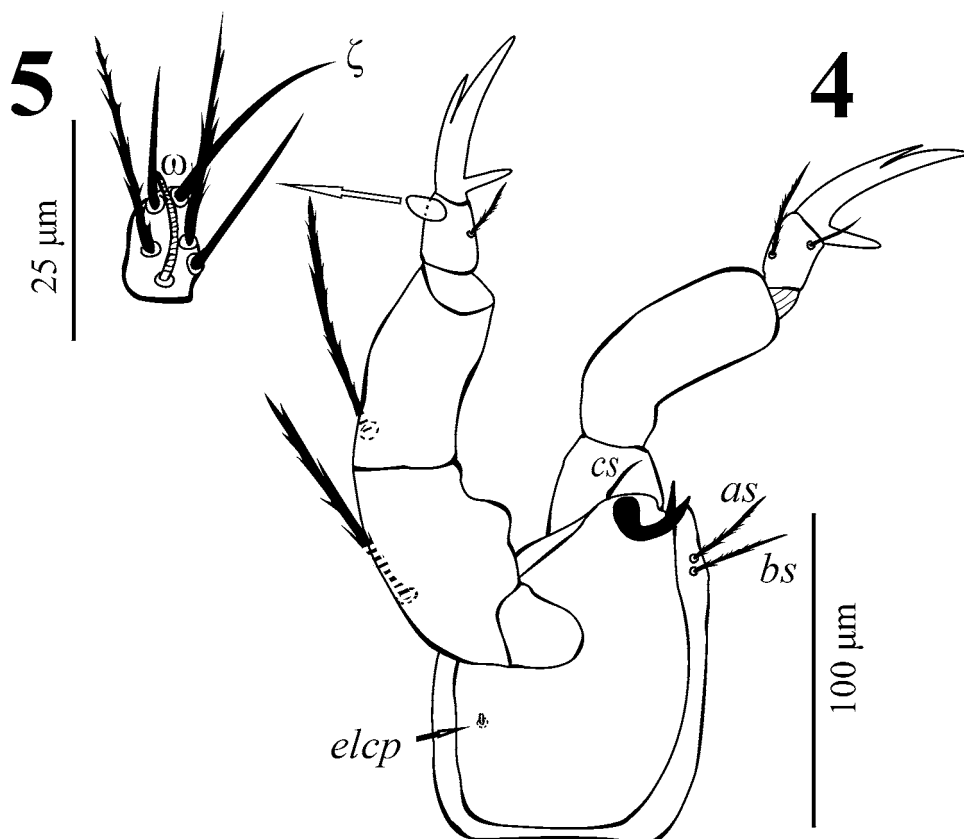


Figure 3. *Hirstiosoma amfilohije* sp. nov. (larva). Idiosoma, ventral view.

8 n (right leg); Ge 4 σ, 4 tr, 4 n; Tf 5 n; Bf 2 n, Tr 1 n, Cx 1 n (Figure 6). Paratype I: Ta 15 n, Ti 3φ, 1 κ, 1 da, 6 tr, 6 n (left leg), 2 φ (right leg); paratype II Ta 15 n, Ti 7 tr, 5 n (left leg), Ta 2 φ, 6 tr, 6 n (right leg). Leg II: Ta 1ω, 1 ζ, 19 n; Ti 2 φ, 14 n (right leg), 15 n (left leg); Ge 8 n; Tf 5 n; Bf 2 n; Tr 1 n; Cx 1 n (Figure 7), paratype I Ta 20 n, Ti 2 φ, 14 n; paratype II Ti 2 φ, 14 n (left leg), Ti 2 φ, 15 n (right leg). Leg III: Ta 19 n; Ti 1 φ, 15 n; Ge 9 n; Tf 5 n; Bf 2 n; Tr 1 n; Cx 1 n (Figure 8). Medial empodia of tarsi I–III nude with terminal hook; lateral claws with small barbs and terminal hooks.

Measurements are given in the Table.

Etymology: This species is named in honor of Metropolitan Dr. Amfilohije Radović for his great contributions in establishing the Ecological state of Montenegro.



Figures 4–5. *Hirstiosoma amfilohijei* sp. nov. (larva). 4. Gnathosoma, left side dorsal view; right side ventral view; 5. Palptarsus.

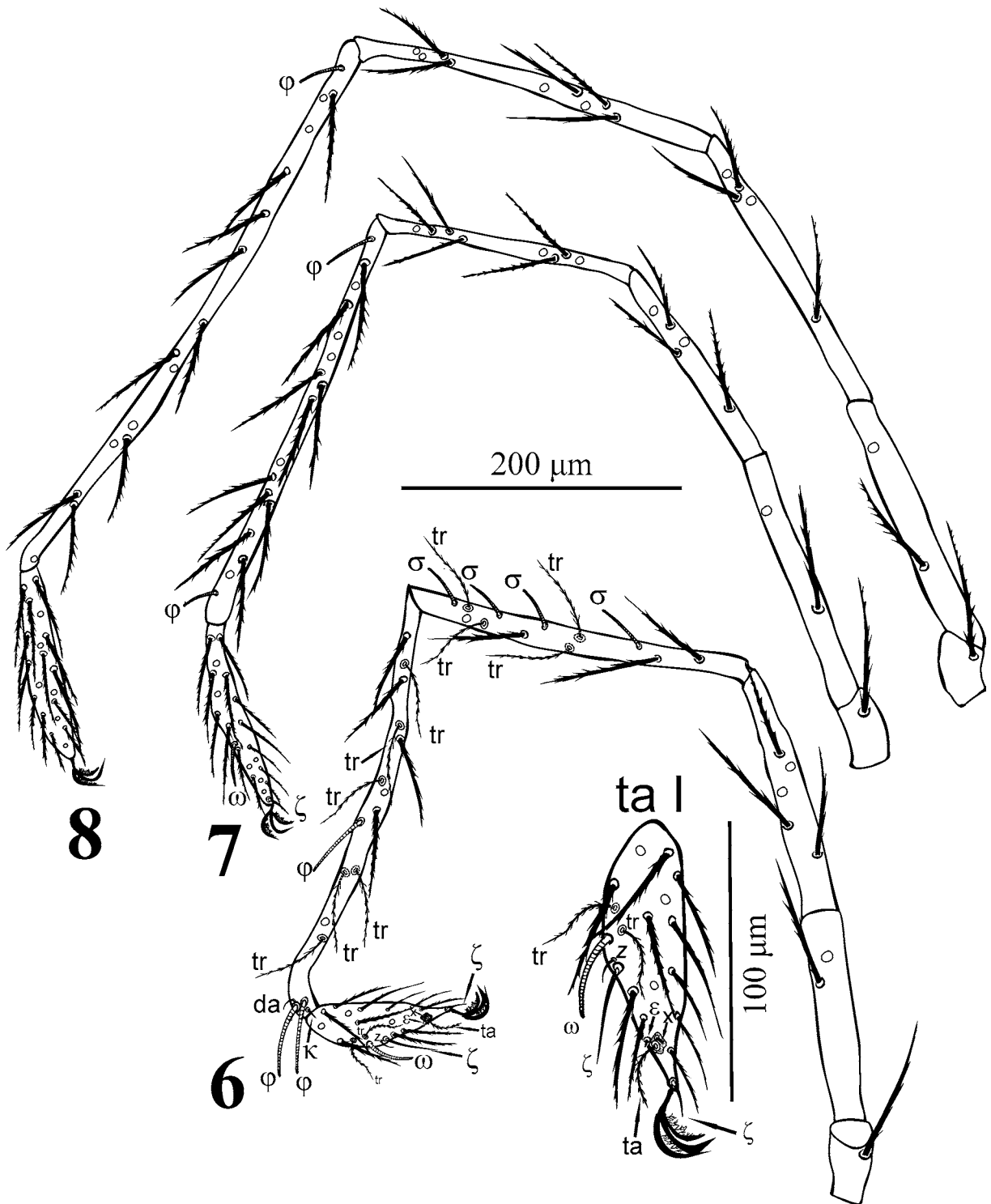
Remarks. *Hirstiosoma amfilohijei* sp. nov. differs from *H. latreillei* in microseta κ on Ti I placed distally to proximal φ_2 vs. microseta κ placed proximally to φ_2 , Ta I with normal setae (13–15 vs. 18–19), Ge I (3–4 σ , 4 tr, 4 n vs. 4 σ , 2 tr, 6 n), shorter PSE (65–66 vs. 72–80), PW (62–64 vs. 69–75), PaFe (L) (54–58 vs. 80–85), and PaGe (L) (57–63 vs. 70–72); from *H. ampulligera* in Ta I (13–15 n vs. 17–19 n), Ge I (3–4 σ , 4 tr vs. 11 σ , 2 tr), the longer Ti I (225–281 vs. 195–220), Ge I (179–226 vs. 145–160), shorter than longest dorsal setae (72–73 vs. 115) and PaFe (L) (54–58 vs. 70–78), and straight anterior margin of scutum vs. anterior margin of scutum concave in its median part; from *H. furtadoi* in shape of scutum (in *H. furtadoi* trapezoidal), the longer W (76–84 vs 63), PSE (65–66 vs. 50), AL (96–104 vs. 86), Ta I (80–101 vs. 73), Ti I (225–281 vs. 172) and Ge I (179–225 vs. 132), and from *H. copioiarum* in the longer L (78–86 vs. 54), W (76–84 vs. 52), ASE (34–48 vs. 26), PSE (65–66 vs. 40), AL (96–104 vs. 49), PL (90–92 vs. 52), DS (54–73 vs. 22–38), fD (25–27

vs. 31), *lb* (78–91 vs. 49), leg I (809–1023 without claws vs. 505 with claws), and leg III (1003–1285 vs. 655).

Key to larval *Hirstiosoma* of the world:

1. Leg I (excluding coxa and claws) <700, IP <2200 2
- Leg I >700, IP >2260 3.
2. fD 26, DS 50–83, L 79, W 63, IP >1800
 *H. furtadoi*
 — fD 31, DS. 23–36, L 54, W 52, IP < 1800
 *H. copioiarum*
3. Ge I with 11 σ *H. ampulligera*
 — Ge I with 3–4 σ 4.
4. Ge I 3–4 σ , 4 tr, 4 n, PaFe (L) <70
 *H. amfilohijei* sp. nov.
 — Ge I 4 σ , 2 tr, 6 n, 1 κ , PaFe (L) >75
 *H. latreillei*

Nomenclatural acts: This work and the nomenclatural acts it contains have been registered in ZooBank. Zoobank Life Science Identifier (LSID) for this publication is: <http://zoobank.org/urn:lsid:zoobank.org:pub:18B127E5-A8F3-47F4-A3AF-5D943F4E6D97>.



Figures 6–8. *Hirstiosoma amfilohijeji* sp. nov. (larva). 6. Leg I, trochanter-tarsus; 7. Leg II, trochanter-tarsus; 8. Leg III, trochanter-tarsus.

Table. Metric data of *Hirstiosoma amfilohijei* sp. nov. (larvae).

Character	Holotype	Paratype I	Paratype II	Character	Holotype	Paratype I	Paratype II
IL	349	372	317	<i>cs</i>	17	12	14
IW	232	243	231	<i>as</i>	32	21	25
L	86	79	78	<i>bs</i>	30	27	23
W	76	84		<i>elcp</i>	5		
AW	57	53	51	Ta I	101	80	82
PW	64	64	62	Ti I	281	230	225
ISD	41	31	32	Ge I	226	185	179
AP	23	19	19	Tf I	166	131	120
AL	101	104	96	Bf I	153	116	121
PL	91	92	90	Tr I	45	50	39
ASE	48	48	34	Cx I	51	49	43
PSE	65	66	65	Ta II	120	108	95
AA	10	10	7	Ti II	283	227	228
SB	15	13	12	Ge II	168	136	127
GL	108	100	94	Tf II	141	122	109
DS	54–72	54–73	59–72	Bf II	175	139	121
LX	35	27	26	Tr II	58	59	41
<i>1a</i>	68	67		Cx II	64	63	59
<i>3a</i>	59	53	58	Ta III	143	129	119
<i>1b</i>	91	84	78	Ti III	395	313	308
<i>2b</i>	55	57	50	Ge III	240	190	184
<i>3b</i>	45	43	42	Tf III	201	163	160
PsFd	82	73	69	Bf III	182	148	138
PsGd	76	75	69	Tr III	57	54	41
PaFe (L)	58	54	46	Cx III	67	58	53
PaFe (W)	41	33	30	Leg I	1023	841	809
PaGe (L)	63	57	62	Leg II	1009	854	780
PaGe (W)	32	24	22	Leg III	1285	1055	1003
OD	57	46	50	IP	3317	2750	25 92
ω on Ta I	35	30	33				

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