



## NEW MORPHOLOGICAL DATA ON *Eutrombidium sorbasiensis* LARVA (ACARI: MICROTROMBIDIIDAE) FROM SPECIMENS COLLECTED IN IRAN

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### Key words:

*Eutrombidium sorbasiensis*,  
*Calliptamus italicus*,  
ectoparasite,  
larva,  
morphological data.

### Synopsis

New morphological data on larva of *Eutrombidium sorbasiensis* Mayoral and Barranco, 2004 is given. Metric data for ectoparasitic larvae on *Calliptamus italicus* (Linnaeus, 1758) (Orthoptera: Acrididae) from Marand City, East Azerbaijan province, Iran, are provided.

## INTRODUCTION

*Eutrombidium sorbasiensis* was described by Mayoral and Barranco (2004) based on larvae collected in pitfall traps in Spain. In a survey of terrestrial parasitengone mites of Azerbaijan province, the senior author collected a larval *Eutrombidium* ectoparasitic on *Calliptamus italicus*. Comparison with the type of *E. sorbasiensis* from Spain revealed the Iranian specimens to be conspecific.

This is the seventh larval species of *Eutrombidium* reported in Iran. The other six species of *Eutrombidium* in Iran are: *E. aegyptium* Karimi Irvanlou et al., 2000, *E. elborsensis* Karimi Irvanlou et al., 2000, *E. fathipouri* Karimi Irvanlou et al., 2000, *E. mossadeghi* Saboori and Nemati, 2001, *E. sepasgosariani* Saboori et al., 2000 and *E. tehranicum* Karimi Irvanlou et al., 2000 (Karimi Irvanlou et al., 2000; Saboori et al., 2000; Saboori and Nemati, 2001).

## MATERIALS AND METHODS

Grasshoppers were collected using a sweep net and mites were detached from the wings and tympanal organs of the grasshoppers by a needle. The specimens were preserved in 75% ethanol, cleared in lactophenol solution, and mounted on microscopic slides using Hoyer's medium. Slides were sealed by glyptal.

Figures were drawn and measurements (given in micrometers) were made using a BX51 phase-contrast Olympus microscope equipped with a drawing tube.

Type specimens of *E. sorbasiensis* (holotype and five paratypes) were borrowed from the Museo Nacional de Ciencias Naturales de Madrid, Spain. The terminology and abbreviations follow Robaux (1974) and Southcott (1993).

***Eutrombidium sorbasiensis* Mayoral and Barranco, 2004  
(Figs. 1–6)**

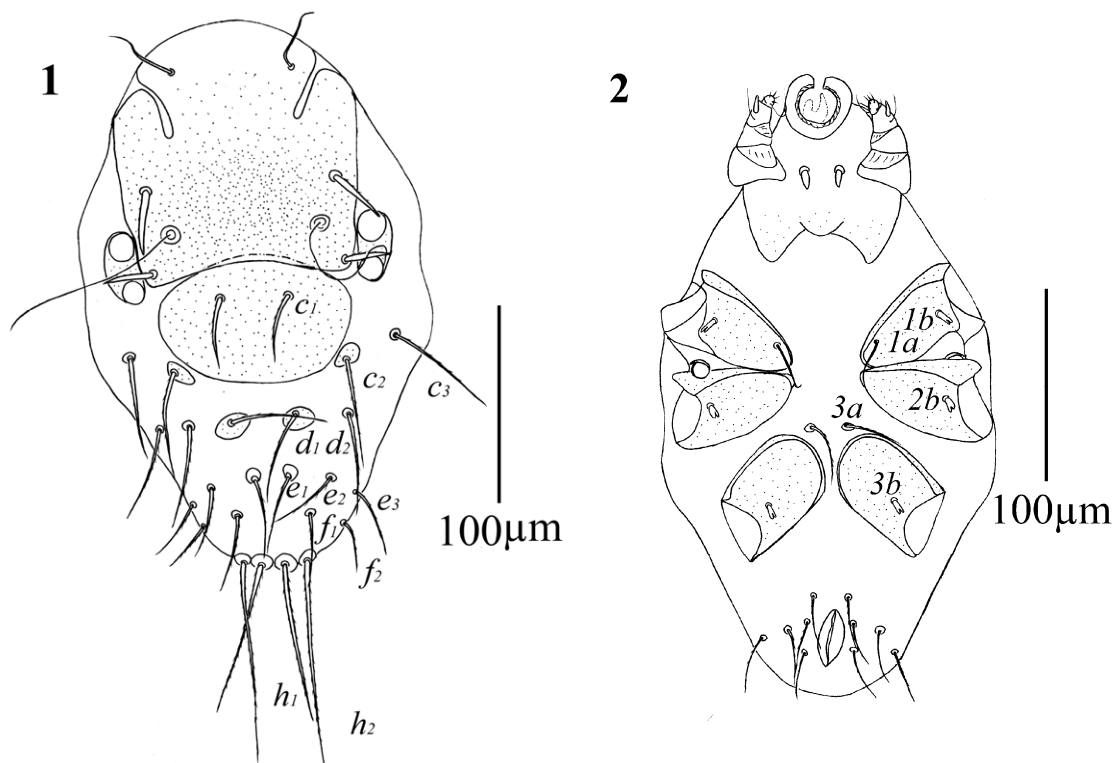


Figure 1. *Eutrombidium sorbasiensis* (larva).  
Dorsal view of idiosoma. (orig.)

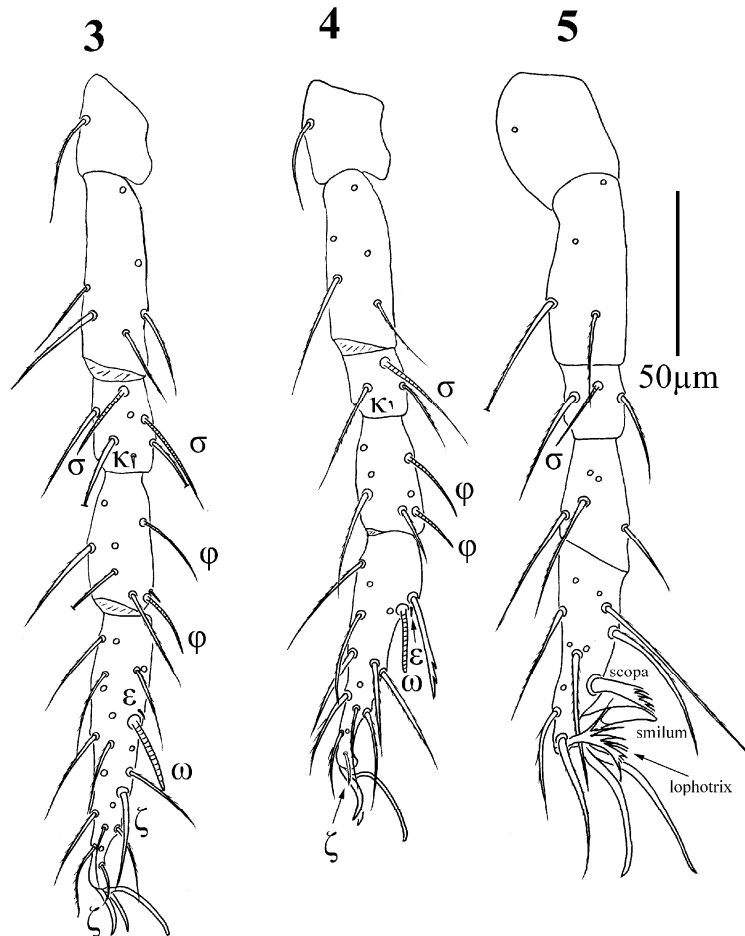
Figure 2. *Eutrombidium sorbasiensis*  
(larva). Ventral view of idiosoma. (orig.)

**Diagnosis:** Lateral coxalae I and coxalae II & III normal, scutum with tear-like chitinous bars, Ge II with 1 solenidiala, AL tapering, LPS < 80, LSS < 120.

**Description (based on type material of *E. sorbasiensis* from Museo Nacional de Ciencias Naturales de Madrid, Spain with additional data from Iranian specimens) – LARVA** – Idiosoma oval, length 298, width 173. Scutum pentagonal and punctate behind AM (anteromedian setae) bases and smooth before them, between AM and chitinous tear-like bars (Fig. 1), sparsely punctate, posterior part of scutum with faint reticular patterns; anterolateral parts of scutum slightly deflexed and two anterolateral angles directed ventrally, anterior end rounded,

posterolateral borders straight except near eyes which has an incision, posterior border concave; posterolateral angles rounded, AM setae slender, nude; Anterolateral (AL) and posterolateral (PL) scutalae thicker, tapering, pointed and weakly barbed. Sensillary setae filiform, nude (Fig. 1).

Scutellum oval, punctate with two setae ( $c_1$ ), similar to those of scutum, arising nearer to anterior margin than posterior margin (Fig. 1).



Figures 3-5. *Eutrombidium sorbasiensis* (larva). 3, Leg I; 4, Leg II; 5, Leg III. (orig.)

Each pair of eyes on small ocular shield, about  $17 \times 37$ . Eyes circular, anterior eye 10, posterior 9 in diameter. Dorsal idiosomal setae arranged 6 (C row), 6 (D row), 6 (E row), 6 (F row), 4 (H row), total 28 setae ( $fD = 28$ ) tapering, pointed, with faint barbs (Fig. 1). Setae  $c_2$  and  $d_1$  and posterior pygosomals ( $h_1$  &  $h_2$ ) arise from small expanded basal plates,  $11 \times 10$ ,  $17 \times 12$ , and  $11 \times 10$ , respectively; other setae with small basal platelets. Lateral pygosomals ( $h_2$ ) long, tapering, and barbed, similar to the medial pair ( $h_1$ ) but longer; all platelets punctate.

Ventral surface of idiosoma with two weakly barbed setae anterior to coxae III (3a) (Fig. 2), 25 long. Well behind coxae III, ventral hysterosomal setae arranged in 2, 4, 4, anus oval 32 × 10.

Medial coxala I (1a) slender, nude, 17 long; lateral coxalae I (1b) and coxalae II (2b) and III (3b) small, bilobed, 8–10 long, with equal lobes. Coxal fields punctate; urstigma oval, 12 × 9.

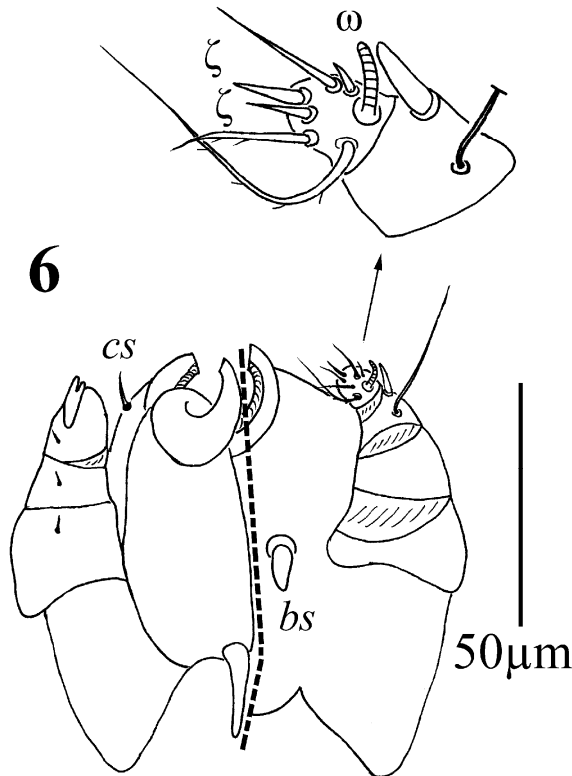


Figure 6. *Eutrombidium sorbasiensis* (larva). Dorsal view (left) and ventral view (right) of gnathosoma.

Leg setal formulae as follows. Leg I: Ta- 1 $\omega$ , 1 $\epsilon$ , 2 $\zeta$ , 18B; Ti- 2 $\phi$ , 1 $\kappa$ , 6B; Ge- 2 $\sigma$ , 1 $\kappa$ , 4B; Fe- 6B; Tr- 1B (Fig. 3). Leg II: Ta- 1 $\omega$ , 1 $\epsilon$ , 1 $\zeta$ , 14B; Ti- 2 $\phi$ , 5B; Ge- 1 $\sigma$ , 1 $\kappa$ , 2B; Fe- 5B; Tr- 1B (Fig. 4). Leg III: Ta- 13B; Ti- 5B; Ge- 1 $\sigma$ , 2B; Fe- 4B; Tr- 1B (Fig. 5). Tarsal claws I and II normal, falciform and smooth. Pretarsus III with outer claw thickened, empodium slender, long and inner claw modified into smilum and directed outwards. Lophotrix and scope present on Ta III. Leg surfaces punctate.

Gnathosoma small, projecting under anterior dorsal scutum. Cuticular oral ring not closed dorsally and ensheathed by a membranous, folded cuticle (Fig. 6). Chelicera robust; cheliceral blade sickled-shaped with one tooth subterminally (Fig. 6). Palpal trochanter without seta. Palpal femur and genu each with one short spine-like seta. Palptibia with two nude setae (one short, one long) and a conical spine-like seta adjacent to the palp tibial claw (paradont). Palpal tibial claw with two small,

**Table 1: Metric data of *Eutrombidium sorbasiensis* larvae collected from Iran (this research) and Spain (Mayoral and Barranco, 2004).**

Character	Iran								Spain	
	1a	1b	1c	1d	1e	1f	1g	1h	Range	Range
IL	277	372	792	268	495	792	643	653	268–792	258–313
IW	166	211	347	169	218	420	346	356	166–420	150–180
LN	22	23	22	20	25	20	17	27	17–27	22–33
MA	57	52	67	59	57	62	67	64	52–67	50–65
AW	92	87	94	99	94	94	97	99	87–99	80–103
PW	97	99	99	104	104	101	99	104	97–104	88–105
SB	74	75	74	77	74	74	74	74	74–77	60–80
MSA	47	50	52	50	59	64	57	55	47–64	48–63
ASB	92	90	94	106	119	106	94	104	90–119	88–108
PSB	25	23	20	25	23	27	25	25	20–27	23–30
L	122	106	114	129	124	132	116	131	106–132	113–138
W	123	104	112	112	119	109	114	114	104–123	98–123
AP	42	42	40	42	42	42	40	40	40–42	33–40
SA	23	25	22	27	25	25	22	27	22–27	18–23
SP	23	20	22	27	17	25	22	23	17–27	20–25
AM	30	35	32	37	25	37	25	25	25–37	15–35
AL	32	35	35	30	32	30	37	37	30–37	28–35
PL	25	35	27	27	25	25	25	25	25–35	20–28
AMB	58	57	62	62	57	62	54	60	57–62	50–65
S	72	87	87	75	77	74	87	70	70–87	73–80
PLN	22	13	20	20	20	22	18	17	13–22	13–20
HS	64	54	62	62	64	67	55	64	54–67	55–75
LSS	87	99	99	106	89	99	99	94	87–106	105–115
SS	35	47	37	30	37	37	37	37	30–47	28–40
SL ( $c_1$ )	37	37	40	49	32	40	40	40	32–49	28–35
DS	45	44	40	40	34	30	35	42	30–45	15–23, 35–48
MDS	42	52	52	47	47	50	50	40	40–52	40–53
$h_2$	94	109	102	114	104	99	94	104	94–114	85–100
$h_1$	74	87	79	89	82	92	87	80	74–92	60–85

Table 1 continued.

Character	Iran								Spain	
	1a	1b	1c	1d	1e	1f	1g	1h	Range	Range
Ta I (L)	82	87	87	89	87	87	82	87	82–89	73–83
Ta I (H)	18	18	20	15	17	15	17	18	15–20	15
Ti I	44	40	37	47	45	42	44	42	37–47	33–43
Ge I	28	27	25	30	30	25	27	30	25–30	23–30
Fe I	60	62	55	52	57	54	57	57	52–60	43–58
Tr I	30	30	30	32	30	30	37	35	30–37	25–33
Cx I	55	57	60	62	62	62	60	57	55–62	55–65
Leg I	299	303	294	312	311	300	307	308	294–312	247–304
Ta II (L)	70	70	60	69	62	74	74	74	60–74	53–73
Ta II (H)	17	20	20	18	20	17	15	17	15–20	15–18
Ti II	35	35	32	37	47	35	40	35	32–47	30–35
Ge II	23	18	20	25	32	20	22	23	18–32	18–20
Fe II	52	52	50	55	55	57	52	57	50–57	43–50
Tr II	30	30	30	35	35	30	33	32	30–35	28–33
Cx II	57	62	50	62	69	62	62	55	50–69	55–68
Leg II	267	267	242	283	300	278	283	276	242–300	229–277
Ta III (L)	54	50	50	55	62	57	52	54	50–62	45–68
Ta III (H)	20	18	18	18	17	20	18	20	17–20	15–23
Ti III	40	42	32	37	37	40	42	42	32–42	23–38
Ge III	23	22	25	20	25	20	20	25	20–25	13–20
Fe III	60	59	50	50	59	54	57	60	50–60	38–53
Tr III	33	37	37	45	40	40	37	40	33–45	30–40
Cx III	64	57	57	65	74	62	62	60	57–74	60–70
Leg III	274	267	251	272	297	273	270	281	251–297	212–277
IP	840	837	787	867	908	851	860	865	787–908	608–847
SA/SP	1.0	1.3	1.0	1.0	1.4	1.4	1.4	1.4	1–1.4	0.8–1.0
AW/AMB	1.6	1.5	1.5	1.5	1.6	1.7	1.6	1.5	1.5–1.7	1.4–1.6
AW/SS	2.6	2.4	2.5	2.6	2.5	2.5	2.4	2.5	2.4–2.6	2.5–3.1
SL/SS	1.1	0.8	1.1	1.1	1.3	0.9	1.3	1.3	0.8–1.3	0.8–1.2
LSS/SS	2.4	2.6	2.6	2.8	2.4	2.6	2.6	2.5	2.4–2.8	2.8–3.5
HS/PLN	4.0	4.1	4.0	3.1	3.2	3.0	3.1	3.8	3.0–4.1	3.3–4.0

separated, blunt, finger-like tines. Palptarsus with a solenidion, two eupathidia, two nude and two barbed setae (Fig. 6). fPp = 0-N-N-NNN<sub>2</sub>-BBNNωζζ. Subcapitular setae (*bs*) conical, blunt and adoral seta (*cs*) nude.

**Material examined** – The holotype of *Eutrombidium sorbasiensis* was borrowed and studied. Iranian specimens (ARS-20090217-1a to -1h) larvae were collected by S. Azimi, ectoparasitic on *Calliptamus italicus*, 11 July 2007, in Dizaj Olya village (38°23.773' N, 45°45.214' E, 1854 m above sea level), Marand city, East Azerbaijan province, Iran. The Iranian specimens are deposited in the Acarological collection, Jalal Afshar Zoological Museum, College of Agriculture, University of Tehran, Karaj, Iran.

**Remarks** – *Eutrombidium sorbasiensis* is redescribed here and the corrected characters are as follows: dorsal setae on small platelets, posterior pygosomals arise from small expanded basal plates, scutum with tear-like chitinous bars, sternal setae weakly barbed, medial coxala I (*1a*) nude, setae (i.e. roxala and calcanala in Mayoral and Barranco (2004)) with fine barbs, Ta I with 1ω, 1ε, 2ζ, 18B; Ti I with 2φ, 1κ, 6B; Ta II with 1ω, 1ε, 1ζ, 14B; and fPp = 0-N-N-NNN<sub>2</sub>-BBNNωζζ.

Metric data of Iranian and Spanish specimens are given in Table 1.

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