

The First Record For The Turkish Fauna *Platytrombidium fasciatum* (C. L. Koch, 1836) (Actinotrichida: Microtrombidiidae) With All Active Stages

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Abstract

In the present study, it has been evaluated mite specimens belonging to the genus *Platytrombidium* collected from Erzurum and Gümüşhane province. This genus firstly recorded for the Turkish acari fauna. Description and original drawings of the postlarvae and larvae specimens of *Platytrombidium fasciatum* (C. L. Koch, 1836) have been given. Measurements were made for some body parts of the specimens.

Keywords: Acari, Microtrombidiidae, new record, *Platytrombidium*, Turkey

INTRODUCTION

The genus of *Platytrombidium* Thor, 1936, which is located in the Microtrombidiidae family, is composed of 4 species and two of these species are known only from Europe; *P. curtipilosum* and *P. fasciatum* [1]. *Platytrombidium fasciatum* (C. L. Koch, 1836) are redescribed and status restored by Gabryś et al., [1]. The present paper describes the postlarvae and larva of *P. fasciatum* obtained from females by experimental rearing. Also, the data on biology, habitat specificity, developmental times of larvae are given.

MATERIAL and METHODS

Specimens used for taxonomic studies were captured in the field (postlarval instars) and larvae reared in the laboratory condition. The material obtained from different localities in Erzurum and **Gümüşhane**. In 2015, samples collected from Erzurum province (4 female, 12 adults, 4 deutonymphs and larvae obtained from the adult females by experimental rearing) and in 2014 samples collected from **Gümüşhane** province (2 adults). The material was preserved in 70% ethyl alcohol and then fixed on slides in Hoyer's medium [3]. For measurements and drawings a Leica DM 4000 microscope with phase contrast was used. Examined specimens were deposited in the Biology Department of Erzincan University, Turkey. For morphological terminology follows Gabryś (1999) and Gabryś et al., [2, 4]. All measurements are given in micrometres (µm).

RESULTS

Platytrombidium Thor, 1936

Type species. *Trombidium vagabundum* Berlese, 1903

Platytrombidium fasciatum (C. L. Koch, 1836)

Descriptions. Adults. Standard measurements for adult given in Table 1. Body length 1606-1795 and width 1168-1383. Colour in life red.

Gnathosoma. Medial surface of palp tibia one robust paradont, two row ctenidia and radula. Distal ctenidium of palp tibia composed of 4-7 long and strong spinisetae situated behind paradont. Proximal ctenidium consists of 4-8 spinisetae, slightly smaller than distal ctenidium. Radula consist of 4-9 long spine like setae (Fig. 1). Lateral face of palp tibia covered setulose or few nude setae and with long, strong basidont situated at the base of palp tarsus and with one long, smooth, whip-like setae at the base of odontus. At the base of palp tarsus, 3-5 long basidonts, distal ones usually the strongest and the longest. Palp tarsus cylindrical, with 1-3 eupathidia (ζ) and 3-4 solenidion (ω) (Fig. 2).

Idiosoma. Anterior border of aspidosoma triangular in outline (Fig. 3). Anterior process of crista metopica narrowed toward the end and border of anterior region and merge with vertex. Sclerotized vertex with 21-25 long, setulose and nonsensillary setae (AM). Sensillary area of crista metopica rounded and bear two medium length, smooth sensillary setae. Posterior process distinct, short accessory posterior process present and sessile double eyes placed on at half length of the anterior part of crista metopica and anterior lenses much bigger than posterior ones. Dorsal opisthosomal (pDS) setae uniform, short, narrowing distally, slightly fusiform and covered with delicate setules (Fig. 4). Mid-dorsal setae (mdS) longer than post-dorsal ones (pdS). Ventral setae similar to dorsal ones but shorter. Genital opening consist of epivalve and centrovalve and covered densely setae; three pairs of genital acetabula. Anus with barbed setae. Legs without lamellar processes, shorter than idiosoma; tarsus I elongate, always at least one and a half times as long as wide (288-300 long, 171-175 wide) (Fig.5).

Table 1. Morphometric data on adults of *Platytrombidium fasciatum*

Characters	Adults (female) (n=6) min.-max.	Characters	Adults (female) (n=6) min.-max.
LB	1606-1795	vS [S]	30-32
WB	1168-1383	vS [P]	4-4
LB/WB	1.37-1.38	CML	250-255
Ch BS (L)	187-195	CMW	24-25
Ch BS (W)	97-100	AL (n)	28-30
Ch Cl	72-75	AL (L)	85-87
PaTr (L)	75-76	RCM	181-185
PaTr (W)	86-90	SAL	60-63
PaFe (L)	200-210	SAW	65-66
PaFe (W)	147-155	SB	28-31
PaGe (L)	87-90	SE	115-130
PaGe (W)	105-107	pPr	50-51
PaTi (L)	114-118	acpPr	15-17
PaTi (W)	82-85	OL	77-79
Odo (L) Lf-Rt	88-90	OCM	135-138
Par (L) Lf-Rt	62-63	ao	30-31
di Ct(n) Lf-Rt	7-8	pO	25-27
pr Ct(n) Lf-Rt	7-8	O-O	255-257
Bas (n) Lf-Rt	3-5	OaD	136-137
Rad (n) Lf-Rt	8-8	OSD	74-75
PaTaSol(n)	2-2	GOp (L)	250-265
PaTa (L)	87-90	An (L)	112-118
PaTa (W)	37-40	Ta_I (L)	288-300
pDS I [S]	28-36	Ta_I (W)	171-175
pDS I [P]	5-6	Ta_I (L/W)	1,68-1,71

Deutonymphs. Body smaller than adult. Other characters as in adults. Palps not as robust as in adults. Medial surface of palp tibia one paradont, one ctenidium made of 5–6 spinisetae and radula with 3–4 spinelike setae. Lateral face of palp tibia with 2–3 basidonts. Dorsal opisthosomal setae similar to those in adults but shorter. Two pairs of genital papillae.

Larvae. Standard measurements in Table 2. All larvae reared collected the field from females in the laboratory condition. Colour in life orange.

Gnathosoma. (Fig. 6). Movable gnathosoma typical and at anterior end with a ring-like sclerite (stephanostome) bearing about 30-35 distal teeth. Ring incomplete, with a dorsal slit, and ensheathed with smooth, folded cuticle. Cheliceral blade smooth with two minute hooks on internal edge, slightly curved, and sharp towards the tip. One pair of protorostral (adoral) setae situated laterally. Ventrally at anterior part of gnathosoma a pair of prominent tritorostral (subcapitular) setae, each with 6-7 finger-like setules at the distal end. Palpal formula: $fPp: 0-N-N-NNN-NN\omega\zeta\zeta NNNN$. Palp femur and genu each with one minute spine-like seta. Palp tibia with one long smooth seta, one small smooth seta and one minute spine like setae. Palp tibial claw (odontus) distinctly bifurcate in more than half of its length. Palp tarsus with one prominent proximal solenidion (ω), two eupathidia(ζ), two long and four short spine setae.

Idiosoma, dorsum (Fig. 7). Scutum (L 176, W 150) with laterally stolascutum. Scutum surface of the sclerite punctu-

ated and striation. Setae on scutum: anterior pair *AM* smooth, median pair *AL* smooth and posterior pair *PL* thicker and short barbed. One pair of smooth trichobothria (*S*) towards the end pointed. Laterally at the level of posterior end of scutum paired eye lenses on common sclerites. Scutellum punctuate, with striation similar to that on scutum, bears one pair of barbed c_1 setae situated at half length of the sclerite. Dorsal setae formula: $fD: (2)4-6-6-6-4$. Setae d_1 on the largest plates, setae c_2 on the second largest plates, setae $c_3-d_3-e_{1-3}-f_{1-3}-h_1$ smaller platelets.

Idiosoma, ventrum (Fig. 8). One pair of Claparède's organs laterally between coxae I and II. Coxal plates punctuated. Coxa I with setae 1a placed in medial position and covered with 5-7 setules, 1b lateral position, covered with 4-7 setules. Supracoxala I absent. Coxa II with setae 2b covered with 5-7 setules. Coxa III with setae 3b covered with 5-6 setules. One pair of setulated intercoxal setae 3a, with setules. Posteriorly following four barbed setae anterior and lateral to anal opening. Anal opening without sclerite.

Legs (Figs. 9-11). Segmentation formula: 6-6-6. Leg chaetotaxy. Leg I: Tr (1b) – Fe (4b,1n) – Ge (4b, 2σ, 1κ) – Ti (6n, 2φ, 1κ) – Ta (17(18)n, 2ζ, 1ω, 1ε). Leg II: Tr (1b) – Fe (3b,2n) – Ge (2b, 1σ, 1κ) – Ti (5b, 2φ)– Ta (13(14)b, 1ζ, 1ω, 1ε). Leg III: Tr (1b) – Fe (3b,1n) – Ge (2b,1σ) – Ti (5b) – Ta (10(11)b), lophotrix, scopa). Excluding of sensillar setae, all setae with setules. All tarsi with one paired claws and claw-like empodium. Leg III tarsus with modified inner claw (smilum), scopa and lophotrix (Fig. 11).

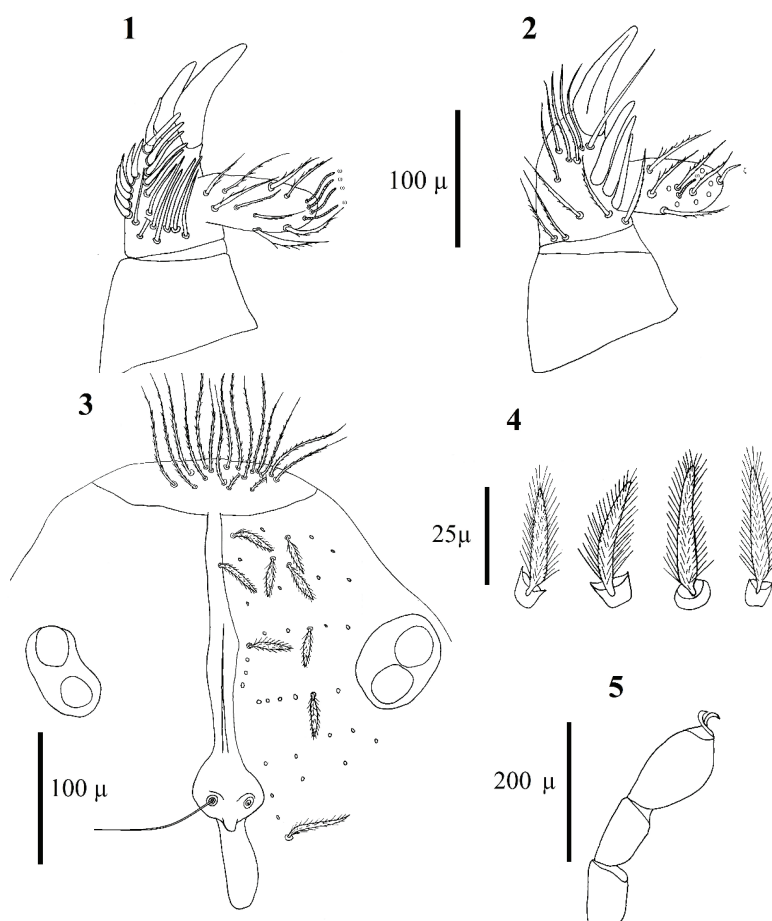


Figure 1-5. *Platytrombidium fasciatum* Adult 1. Palp medial 2. Palp lateral 3. Crista metopica region 4. Dorsal setae (*pDS*) 5. Leg I genu-tarsus.

Table 2. Morphometric data on larva of *Platytrombidium fasciatum*

Characters	Larva (n=10) min.-max.	Characters	Larva (n=10) min.-max.
L	300-366	Tr I	30-48
W	170-219	Fe I	58-62
L/W	1.65-1.86	Ge I	24-28
Scutum L	167-200	Ti I	50-54
Scutum W	136-150	Ta I	87-98
AA	57-75	Leg I	319-350
AW	118-136	Cx II	66-80
PW	125-135	Tr II	34-39
SB	111-121	Fe II	67-70
ASB	145-174	Ge II	19-22
PSB	22-29	Ti II	49-53
AM	31-55	Ta II	83-88
MA	87-99	Leg II	318-352
AL	29-32	Cx III	60-65
AP	47-49	Tr III	42-45
S	65-78	Fe III	74-79
PL	38-43	Ge III	22-25
HS	53-62	Ti III	57-64
LSS	135-148	Ta III	69-75
SL(=c1)	51-60	Leg III	324-353
SS	75-85	IP	961-1055
Cx I	70-80		

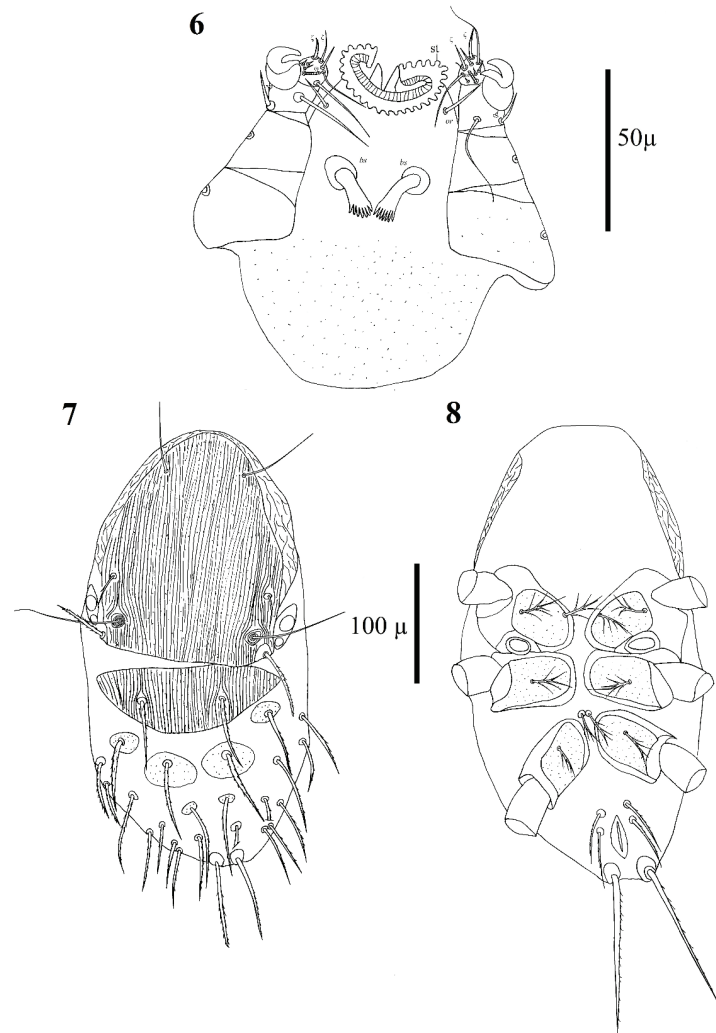


Figure 6-8. *Platytrombidium fasciatum* Larva. 6. Gnathosoma 7. Dorsal view 8. Ventral view

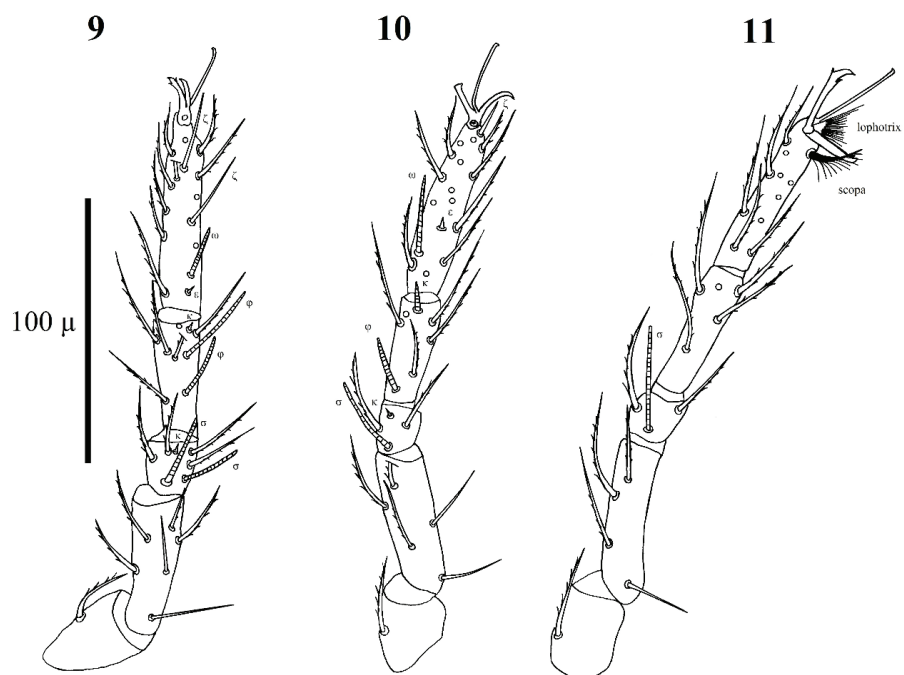


Figure 9-11. *Platytrombidium fasciatum* Larva. 9. Leg I 10. Leg II 11. Leg III

Material examined

19.05.2014, 6 females, 12 adults, 4 deutonymphs, grassy soil, totally 668 larvae obtained from five females by experimental rearing, 40°03'39"N 41°21'39"E 1793 m, Gürbüz Dad's Farm, Dumlu, Erzurum; 21.06.2014, 2 adults, grassy soil, 40°36'26"N 39°32'14"E 2280 m, Gözeler location, Gümüşhane, Turkey (Leg. S.Adil).

Distribution. France, Germany, Italy, Poland, Romania, Spain. (Makol & Wohltmann, 2012). New for Turkey fauna.

Biology. 5 female, after being collected in the field (Dumlu, Turkey) (19 May 2014, laid eggs on the 6nd day (25 May) of being kept under laboratory conditions (25 ° C, 40-50% humidity). The eggs were orange, spherical and settled single package. 19 days later (09 June) they turned into prelarvae; totally 668 reddish larvae were obtained from 5 female (150 larvae from first female; 100 larvae from second female; 100 larvae from third female; 150 larvae from fourth female; 158 larvae from fifth female and transferred to 90% ethyl alcohol (15 June).

DISCUSSION

Generally adults of Turkish specimens are similar the European specimens [2] but body size, dorsal setae lengths and structure are different. In European specimens, body size between 1000-2500/800-1800, the dorsal setae 20-40, some of the setae with very fine incision apically; In Turkish specimens body size between 1606-1795/1168-1383, the

dorsal setae 23-36 and all setae pointed apically and densely covered with setulae all over the surface. The larval morphological characters similar to European specimens [2].

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