



A new species and a new record of ectoparasitic mites from thrips in Turkey (Acari: Trombidiidae and Erythraeidae)

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Abstract

Trombidium telletxae n. sp. is described from a larva parasitic on *Odontothrips* sp. (Thysanoptera: Thripidae) from Turkey. *Grandjeanella multisetosa* Zhang & Goldarazena is also reported for the first time in Turkey. A host list for ectoparasitic larval mites on thrips in Turkey is presented.

Introduction

Mites of the family Trombidiidae and Erythraeidae (Acari: Prostigmata) are ectoparasitic in their larval stage and predatory in their deutonymphal and adult stages, feeding on different kinds of arthropods, many of which are pests of economic importance (Welbourn, 1983). There are no records of larvae of Trombidiidae parasitising thrips, although several species of *Trombidium* Fabricius were collected on Coleoptera, Orthoptera, Diptera, Lepidoptera, Hemiptera, Homoptera, Hymenoptera, Opiliones, Pseudoscorpionides and Araneae (see Welbourn, 1983). Only a few species of mites in the family Erythraeidae (Acari: Prostigmata) have been found on thrips. For example, larvae of two closely related genera have often been reported as parasites of thrips: *Hauptmannia brevicollis* (Oudemans, 1910) and *H. rudaensis* Haitlinger, 1986 from an unidentified thysanopteran in Poland (Haitlinger, 1986, 1987), an unnamed species of *Hauptmannia* Oudemans from *Stenchaetothrips minutus* Van Deventer in Maharashtra, India (Jadhava & Varma, 1987) and an undescribed species of *Abrolophus* Berlese from unnamed thrips (Welbourn & Young, 1987). A few species of other genera in the Erythraeidae also have been found on thrips. *Erythrites osmondensis* (Southcott, 1946) and *E. urbrae* (Womersley, 1934) were reported from unidentified thrips hosts in Australia (Greenslade & Southcott, 1980), and *Lasioerythraeus johnstoni* Welbourn &

Young was found on a species of *Frankliniella* in Mississippi, USA (Young & Welbourn, 1988). *Abrolophus neobrevicollis* Zhang & Goldarazena, 1996, *Grandjeanella multisetosa* Zhang & Goldarazena, 1996 and *G. bella* Zhang, 1996 were described by Zhang & Goldarazena (1996) from different thrips species in the Basque Country, Northern Spain, and Iran. The seasonal abundance of *A. neobrevicollis* from *Thrips trehernei* Priesner in the Basque Country was reported by Goldarazena & Zhang (1998).

In this note we describe the larva of *Trombidium telletxae* n. sp. and record *G. multisetosa* for the first time from thrips in Turkey.

Materials and methods

Thrips specimens and ectoparasitic mites were captured by beating plants, shrubs and branches of trees on a picnic dish of about 40 cm in diameter. An iron stainless bar, 20 cm long, was used for shaking and beating. The specimens were stored in vials with AGA (60% alcohol 10 parts, glycerine 1 part, acetic acid 1 part). The description of *Trombidium telletxae* n. sp. is based the holotype mounted in Hoyer's medium housed at The Natural History Museum, London (BMNH). The terminology and abbreviations used in this paper are adapted from Robaux (1974) and Welbourn & Young (1988). All the measurements are in micrometres; measurements of the holotype are pre-

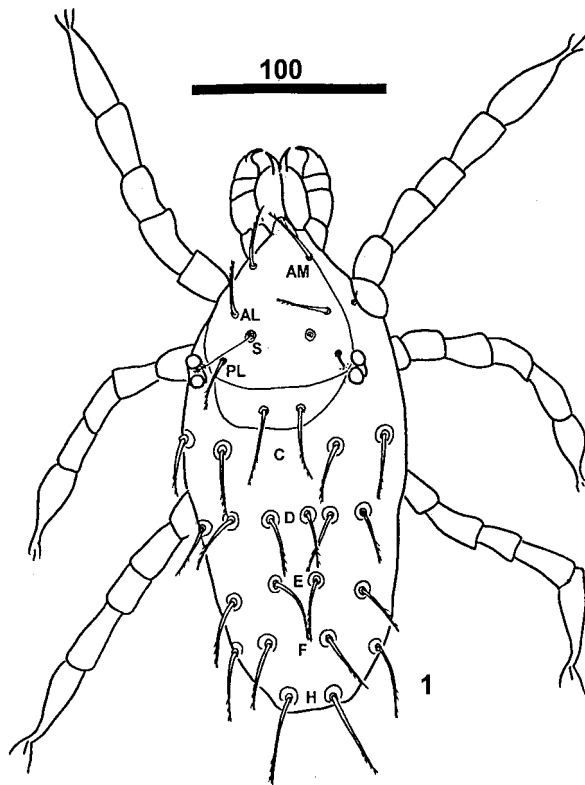


Figure 1. *Trombidium telletxae* n. sp., larva. Dorsal view. Scale-bar in micrometres.

sented in Table I and a host list of mites ectoparasitic on thrips is shown in Table II. Figures were drawn with the aid of a drawing tube on a Olympus BX 50 microscope.

***Trombidium telletxae* n. sp.** (Figures 1–6)

Diagnosis

Larva with the following features: $fD = 4(+2) - 6 - 4 - 4 - 2 = 22(+2)$; $fV = 2 - 2 - 2u - 2 = 8$; $fnCx = 2 - 2 - 1$; $fnTr = 1 - 1 - 1$; $fnFe = 5 - 5 - 4$; $fnGe = 4 - 3 - 3$; $fnTi = 5 - 5 - 5$; $fnTa = 16 - 14 - 12$; $fSol = I(0 - 2 - 2 - 1), II(0 - 1 - 2 - 1), III(0 - 1 - 0 - 0)$; $f\kappa = I(1 - 1), II(1 - 0), III(0 - 0)$; $f\zeta = 2 - 0 - 0$; $f\epsilon = 1 - 1 - 0$; $fPp = 0 - 0 - 0 - NNN - NNNNN\omega$; $Ip = 586$; Tarsus III with developed inner claw; AP subequal to MA; AA subequal to SB.

Description of larva (holotype)

Red in colour when alive. Idiosoma 240 long, 124 wide. Idiosoma dorsally with scutum, scutellum,

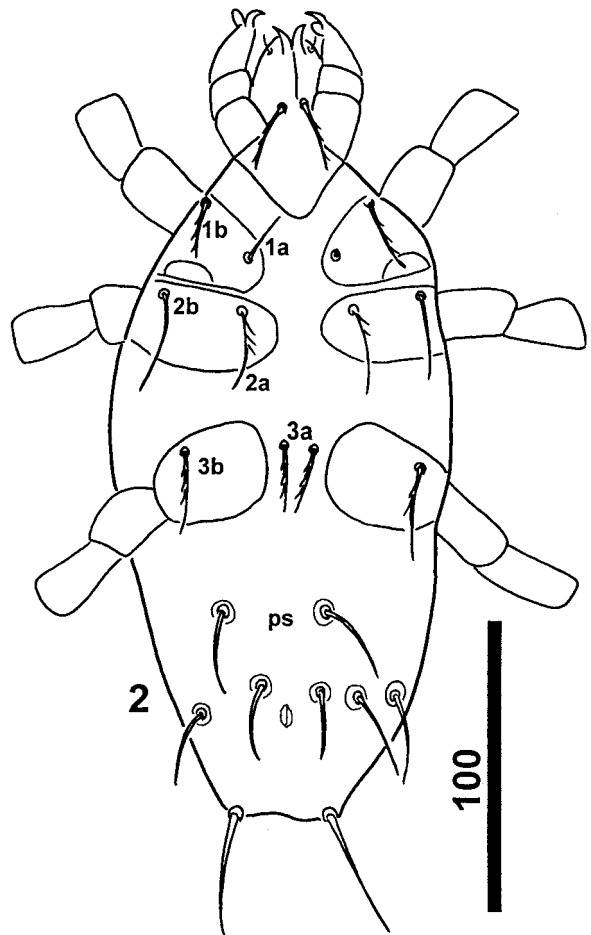
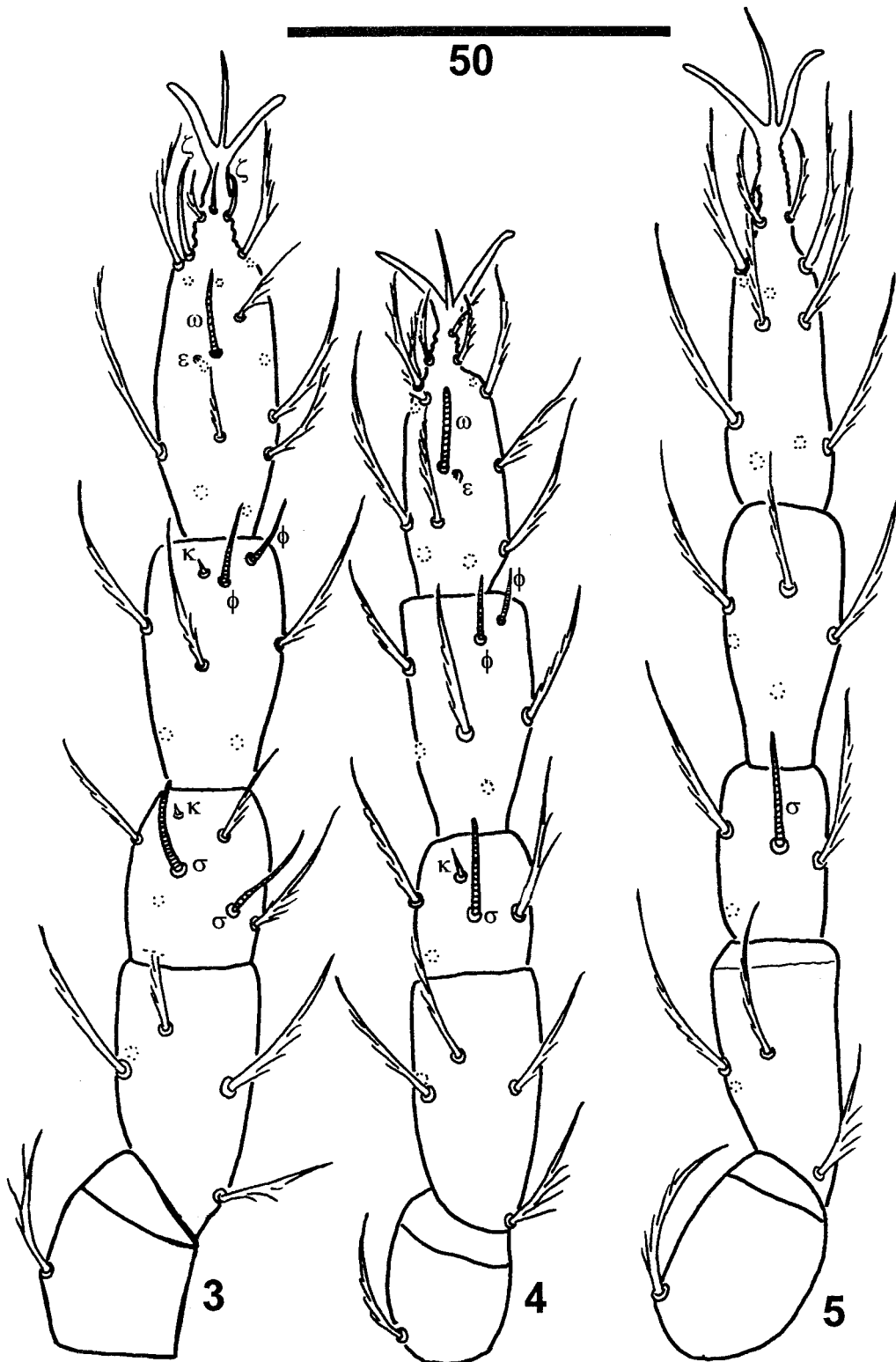


Figure 2. *Trombidium telletxae* n. sp., larva. Ventral view. Scale-bar in micrometres.

pair of ocular sclerites and 22 dorsal setae, each arising from small sclerite (Figure 1). Scutum subtriangular, widest at postero-lateral angles, with weakly convex posterior edge. Small punctations present on most of scutum, except for areas close to and anterior to setae AM. AM sparsely barbed. PL setae sparsely barbed, at postero-lateral angles of scutum. AL setae sparsely barbed, situated approximately midway between AM and PL setae. S barbed only on distal 1/3. Scutellum wider than long, with punctations and 2 sparsely barbed setae. Ocular sclerite, 18 long and 12 wide, situated lateral to postero-lateral angles of scutum; with 2 eyes, both 9 in diameter. All dorsal setae weakly barbed. Dorsal setal formula $fD = 4(+2) - 6 - 4 - 4 - 2 = 22(+2)$.

Idiosoma ventrally with 3 pairs of coxae, one pair of intercoxal setae, 4 pairs of pseudanal setae (*ps*), and anus (Figure 2). All setae on ventral idiosoma



Figures 3–5. *Trombidium telletxeae* n. sp., larva. Legs I–III, respectively, dorsal view. Scale-bar in micrometres.

Table I. Measurements (in micrometres) of the scutum, scutellum and legs of larval *Trombidium telletxae* n. sp. from Turkey.

Scutum & scutellum	Legs				
AM	27	Leg1	198	Leg3	208
S	44	Cx1	34	Cx3	42
AL	22	Tr1	26	Tr3	30
PL	34	Fe1	36	Fe3	36
AW	50	Ge1	20	Ge3	22
PW	56	Ti1	32	Ti3	34
AA	28	Ta1	50	Ta3	44
SB	32	Claw 1	16	Claw 3	18
AP	22	Empodium 1	14	Empodium 3	20
MA	26	Leg2	180	Ip	586
ASB	50	Cx2	42		
PSB	28	Tr2	22		
SD	78	Fe2	30		
SL	38	Ge2	20		
SS	20	Ti2	30		
LSS	70	Ta2	36		
HS	39	Claw 2	14		
		Empodium 2	12		

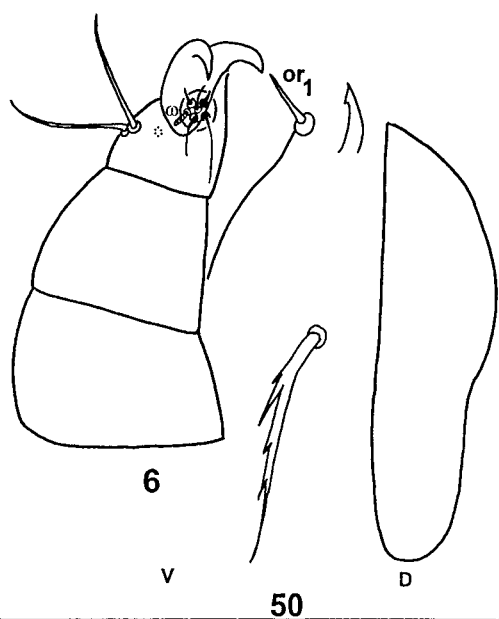


Figure 6. *Trombidium telletxae* n. sp., larva. Left half is a ventral view of the gnathosoma (V), showing the palp and part of subcapitulum including the anterior adoral seta (or_1) and posterior subcapitular seta. Right half is a dorsal of chelicera (D) including part of the anterior cheliceral blade and posterior cheliceral base. Scale-bar in micrometres.

weakly barbed with exception of smooth setae 1a and 2b. Coxa I with proximal seta 1a, 20 long, and anterodistal seta 1b, 24 long. Coxa II with two setae, 2a barbed, 34 long, and 2b smooth, 32 long. Coxa III with single antero-median seta, 3b, 32 long. One pair of intercoxal setae, 3a, present between coxae III, 30 long. Four pairs of *ps* setae surround anus. Ventral setae located on sclerites slightly smaller than those on dorsal setae.

Gnathosoma acuminate posteriorly. Palpal setal formula $fPp = 0 - 0 - 0 - NNN - NNNNN\omega$ (Figure 6). Palp 50 long from basal end of femur to distal end of tibial claw. A pair of adoral setae (or_1) small and nude. One pair of subcapitular setae long, brush-like, 22 long, 7 apart at base. Cheliceral base 40 long; cheliceral blade 24 long, curved with single minute tooth distally.

Leg segmentation formula $fSp = 6 - 6 - 6$. IP = 586. Measurements of leg segments given in Table I. Setal formulae: $fnTr = 1 - 1 - 1$; $fnFe = 5 - 5 - 4$; $fnGe = 4 - 3 - 3$; $fnTi = 5 - 5 - 5$; $fnTa = 16 - 14 - 12$; $fSol = I(0 - 2 - 2 - 1), II(0 - 1 - 2 - 1), III(0 - 1 - 0 - 0)$; $f\kappa = I(1 - 1), II(1 - 0), III(0 - 0)$; $f\zeta = 2 - 0 - 0$; $f\epsilon = 1 - 1 - 0$. Tarsus III with inner claw developed. Locations of setae on leg segments as shown in Figures 4, 5 and 6 for legs I, II and III, respectively.

Etymology. This species is dedicated to the colleague of the first author, Mrs Socorro Telletxea, for her great contribution to the knowledge of the entomofauna of the Basque Country and Navarra, made while working at the University of Navarra during the last 30 years.

Type-material. Holotype larva: Antalya, Turkey, ex *Odontothrips* sp. larva in flowers of *Vicia* sp., collected on 1st May, 1998 by Arturo Goldarazena. Holotype BMNH (E) 1999.32.

Remarks

Using Southcott's (1986) revision, this species keys to *Trombidium*. It agrees with the broad definition of *Trombidium* larvae *sensu* Southcott (1986), except that the inner claw on leg III is normal rather than reduced, as noted by Southcott (1986). Our experience suggests that this character may be variable within trombidiid genera (e.g. *Allothrombium* Berlese) and we do not feel that this species needs to be placed in a new genus on account of this character. This new species also differs from other species of *Trombidium* by its subtriangular scutum (subrectangular in other species, not

Table II. Thrips host-associations with ectoparasitic larval mites in Antalya Province (Mediterranean Turkey).

Mite family/species Thrips host species	Location	Host plant	Climatic region
Erythraeidae			
<i>Grandjeanella multisetosa</i>			
<i>Aeolothrips gloriosus</i> Bagnall	Termessos	<i>Quercus rotundifolia</i>	Mediterranean
<i>Melanthrips fuscus</i> (Sulzer)	Antalya	<i>Brassica</i> sp.	Mediterranean
<i>Thrips angusticeps</i> Uzel	Antalya	<i>Anacyclus</i> sp.	Mediterranean
<i>Thrips tabaci</i> Lindeman	Antalya	<i>Allium</i> sp.	Mediterranean
<i>Thrips major</i> Uzel	Termessos	<i>Bellis</i> sp.	Mediterranean
<i>Frankliniella occidentalis</i> Pergande	Antalya	<i>Eucaliptus</i> sp.	Mediterranean
<i>Chirothrips aculeatus</i> Bagnall	Antalya	<i>Deschampsia</i> sp.	Mediterranean
<i>Aeolothripidae</i> larva	Termessos	<i>Quercus rotundifolia</i>	Mediterranean
<i>Thripidae</i> larva	Antalya	<i>Cistus</i> sp.	Mediterranean
<i>Rhipidothrips</i> sp.	Antalya	<i>Deschampsia</i> sp.	Mediterranean
Trombidiiidae			
<i>Trombidium telletxae</i>			
<i>Odontothrips</i> sp. larva	Antalya	<i>Vicia</i> sp.	Mediterranean

noted by Southcott, 1986) and its barbed setae AM (nude in other species, not noted by Southcott, 1986). These two characters, although not included in the definition of larval *Trombidium* by Southcott (1986), suggest that this species may belong to a new genus. However, as most of the larvae of *Trombidium* are not described yet and the morphological variation not fully understood, we feel that it is best to consider the differences between this new species and other known *Trombidium* larvae as intra-generic variation. If another species with features similar to the new species is found, then the erection of a new genus may be justified.

Grandjeanella multisetosa Zhang & Goldarazena, 1996

This mite was originally described from Spain and subsequently collected in the Mediterranean area of the Basque Country (Zhang & Goldarazena, 1996; Goldarazena & Zhang, 1998). In Table II the different thrips host species of this mite are presented. All the samples were collected by A. Goldarazena during the first week of May, 1998 at Antalya and The National Park of Termessos (Antalya Province, Mediterranean Turkey). This species is here recorded for the first time in Turkey.

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