

**A REVIEW OF MITES OF THE GENUS *PSEUDOTARSONEMOIDES* (ACARI: HETEROSTIGMATA: TARSONEMIDAE) OF CRIMEA, WITH DESCRIPTION OF TWO NEW SPECIES**

**ОБЗОР КЛЕЩЕЙ РОДА *PSEUDOTARSONEMOIDES* (ACARI: HETEROSTIGMATA: TARSONEMIDAE) КРЫМА С ОПИСАНИЕМ ДВУХ НОВЫХ ВИДОВ**

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Key words: *Pseudotarsonemoides*, new species, Crimea  
Ключевые слова: *Pseudotarsonemoides*, новые виды, Крым

**ABSTRACT**

Two new species of *Pseudotarsonemoides* (Acari: Tarsonemidae) are described from Crimea. *P. longisetus* sp.n. and *P. vermiformes* sp.n. were collected from galleries of *Scolytus intricatus* (Ratzeburg, 1837) (Coleoptera: Scolytidae). *P. innumerabilis* Vitzthum, 1923 and *P. pteleobii* Cooreman, 1963 also reported from the galleries of *Scolytus pygmaeus* (Fabricius, 1787) and *Pteleobius vittatus* (Fabricius, 1787), respectively. The male of *P. longisetus* sp.n. described for the first time for the genus.

**РЕЗЮМЕ**

Описано два новых вида клещей рода *Pseudotarsonemoides* (Acari: Tarsonemidae) из Крыма: *P. longisetus* sp.n. и *P. vermiformes* sp.n. *P. innumerabilis* Vitzthum, 1923 и *P. pteleobii* Cooreman, 1963 обнаружены в ходах *Scolytus pygmaeus* (Fabricius, 1787) и *Pteleobius vittatus* (Fabricius, 1787), соответственно. Впервые для рода описывается самец *P. longisetus* sp.n.

Mites of the genus *Pseudotarsonemoides* Vitzthum, 1921 usually associated with, and phoretic on scolytid beetles or in one occasion with cerambycid beetles. Three species of *Pseudotarsonemoides* were described for the European region: *P. eccoptogasteris* Vitzthum, 1921 (= *P. spinitarsus* Hirst, 1923), *P. innumerabilis* Vitzthum, 1923 and *P. pteleobii* Cooreman, 1963.

During 1995–97 we found 4 species of *Pseudotarsonemoides* associated with different bark beetles (Coleoptera: Scolytidae) in Crimea. Two of them are described as new for science, two other species reported for the first time for Ukraine. In the description we follow the idiosomal and leg chaetotaxy nomenclature developed for Heterostigmata by Lindquist [1986]. All measurements are given in micrometers (mm). The type material are deposited in the collections of the Department of Agroecology, State Nikita Botanical Gardens, Yalta, Crimea, Ukraine.

*Pseudotarsonemoides innumerabilis* Vitzthum,  
1923

Numerous females of this species were collected from the galleries and phoretic on *Scolytus pygmaeus* (Fabricius, 1787) (Coleoptera: Scolytidae) from Yalta. This species was originally described from Germany [Vitzthum, 1923].

*Pseudotarsonemoides pteleobii* Cooreman, 1963

Seven females were collected phoretic on *Pteleobius vittatus* (Fabricius, 1787) (Coleoptera: Scolytidae) from neighbourhood of Yalta. This species was described from Belgium were it associated with *Pteleobius vittatus* [Cooreman, 1963].

*Pseudotarsonemoides longisetus* sp. n.

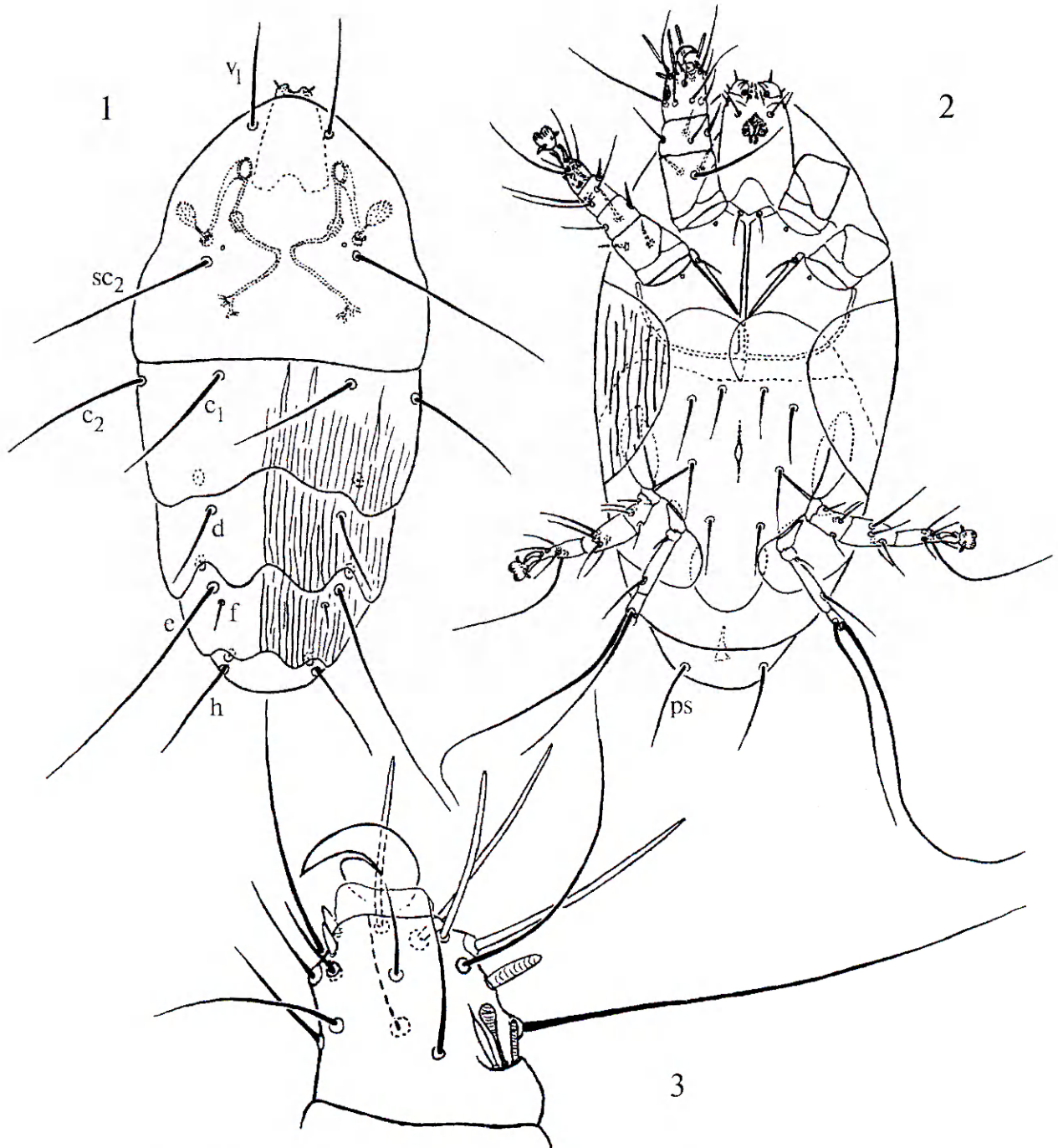
Figs. 1–14.

**Female** (Figs. 1–3). The length of the body 210–218, width 100–109.

**Gnathosoma.** Gnathosomal capsule longer than wide, ellipsoidal, not beaklike anteriorly. Pharynx with thick, heavily sclerotized, horseshoe-shaped walls, and with conspicuous paired glandlike structures posteriorly.

**Idiosoma.** Dorsal surface (Fig. 1). Dorsal shielding with longitudinal striation on plates C, D, EF. Prodorsal shield with anterior margin broadly rounded, hoodlike, over gnathosoma. Stigmata opening on ventral surface of prodorsal shield. Tracheal trunks without sclerotized structures internally. Bothridial setae capitate, spiculate, entirely covered by prodorsum. All setae of idiosoma nude, slender. The length of dorsal idiosomal setae of holotype is as follows:  $v_1$  40,  $sc_2$  60,  $c_1$  37,  $c_2$  43,  $d$  24,  $e$  80,  $f_9$ ,  $h$  46,  $ps$  32. The length of dorsal idiosomal setae of paratypes is follows:  $v_1$  40–42,  $sc_2$  58–65,  $c_1$  35–38,  $c_2$  42–47,  $d$  23–27,  $e$  80–83,  $f_8$ –10,  $h$  43–47,  $ps$  30–33.

Ventral surface (Fig. 2). Ventral shielding with apodemes 1 forming Y-shaped juncture with prosternal apodeme. Apodemes 2 nearly, but not distinctly, united with prosternal apodeme. Prosternal



Figs. 1-3. *Pseudotarsonemoides longisetus* sp.n., female: 1 — dorsal view, 2 — ventral view, 3 — tibia-tarsus I laterally.  
 Рис. 1-3. *Pseudotarsonemoides longisetus* sp.n., самка: 1 — дорсально, 2 — вентрально, 3 — тибия-тарзус I латерально.

apodeme united with sejugal apodeme. Sejugal apodeme well developed, continuous medially. Apodeme 3 not developed. Apodemes 4 weakly developed and extending from bases of trochanters III to some point anteromedial of setae 3b. Tegula enlarged, tongue-shaped, rounded apically.

**Legs.** Ambulacrum of leg I with large, strongly hooked, claw (Fig. 3). Number of setae and solenidia (in brackets) on femur, genu, tibia and tarsus, respectively: leg I: 3-4-6(2)+11(1); leg II: 2-3-4-7(1); leg III: 1+3-4-6.

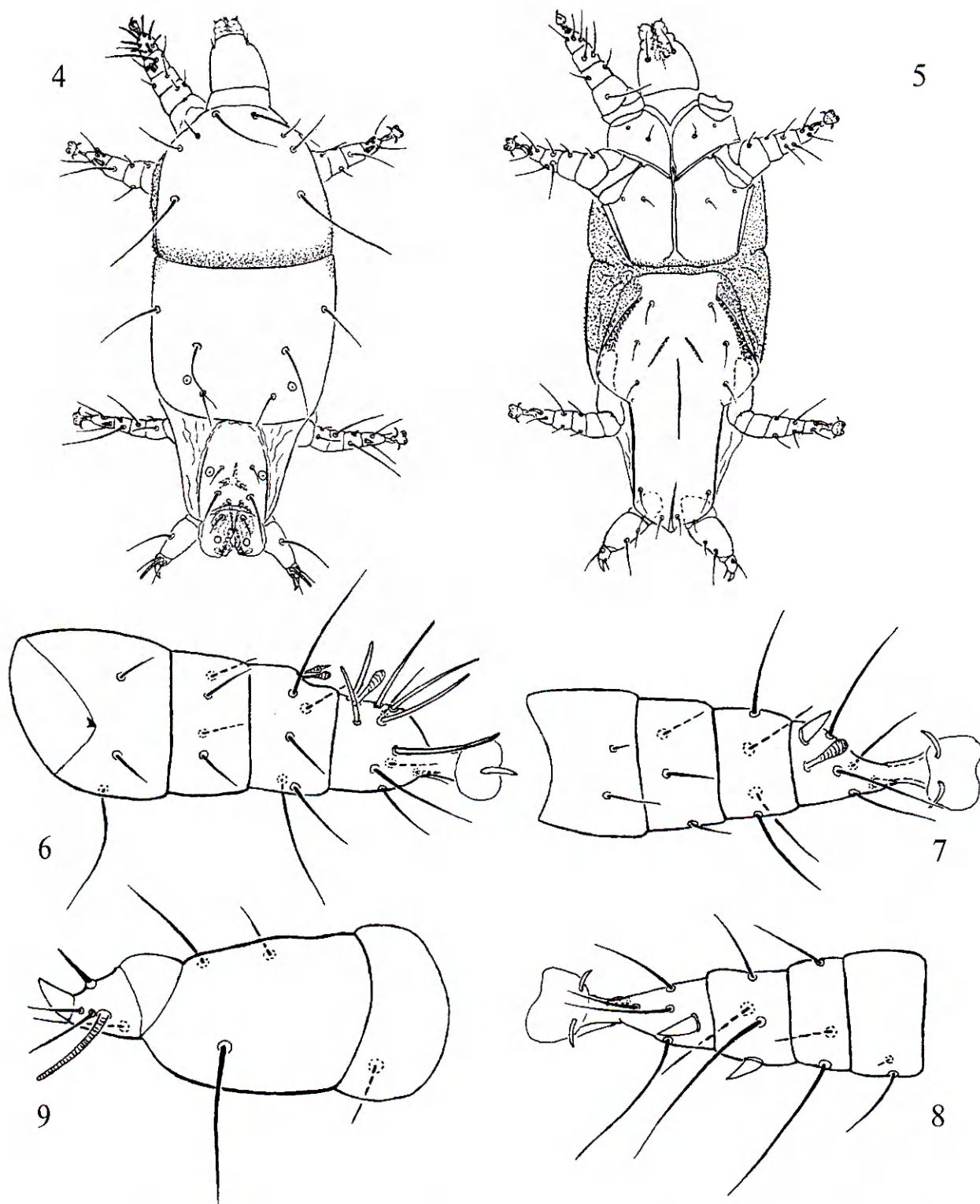
**Male** (Figs. 4-9). The length of the body 220, breadth 72.

**Gnathosoma.** Similar with that of female, but slightly beaklike anteriorly.

**Idiosoma.** Dorsal surface (Fig. 4). Dorsal shielding smooth. Dorsal setae nude, slender. The length of setae is follows:  $v_1$  25,  $v_2$  6,  $sc_1$  24,  $sc_2$  34,  $c_1$  28,  $c_2$  17,  $d$  19,  $e$  9,  $f$  20,  $h$  6.

Ventral surface (Fig. 5). Sejugal apodeme well developed laterally, but indistinct medially. Apodemes 1 forming Y-shaped juncture with prosternal apodeme. Apodeme 2 nearly united with prosternal apodeme. Apodemes 3 and 4 weakly developed.

**Legs** (Fig. 6-9). Ambulacrum of leg I with small claw. Leg IV with united tibia-tarsus. Number of setae and solenidia on femur, genu, tibia and tarsus, respectively: leg I: 3-4-6(2)-12(1); leg II: 2-3-4-6(1); leg III: 2-3-4-7; leg IV: 1+2-1(1)+3. Femorogenu without flangelike processes.



Figs. 4-9. *Pseudotarsonemoides longisetus* sp.n., male: 4 — dorsal view, 5 — ventral view, 6 — leg I, dorsally, 7 — leg II, dorsally, 8 — leg III, dorsally, 9 — leg IV, dorsally.

Рис. 4-9. *Pseudotarsonemoides longisetus* sp.n., самец: 4 — дорсально, 5 — вентрально, 6 — нога I дорсально, 7 — нога II дорсально, 8 — нога III дорсально, 9 — нога IV дорсально.

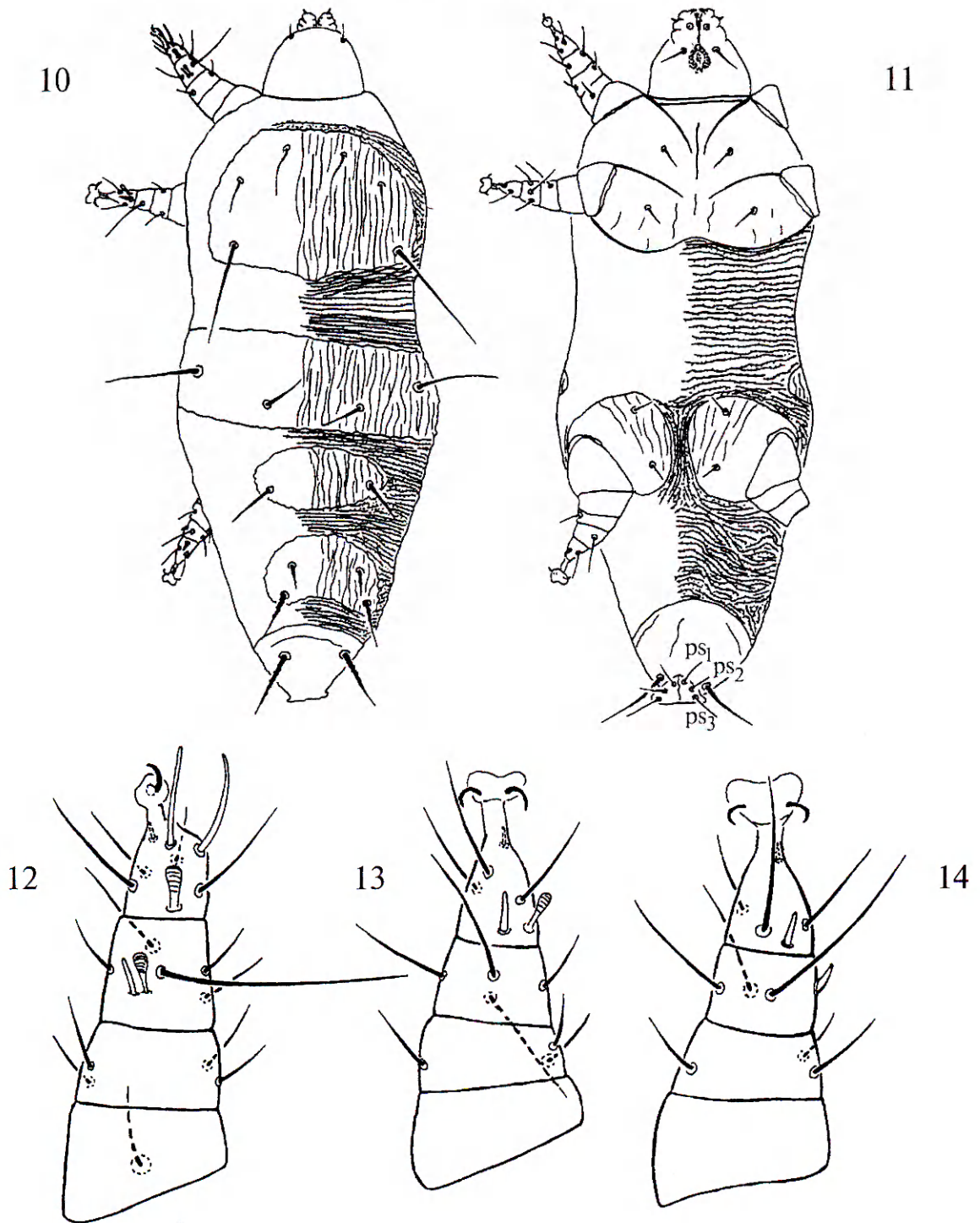
**Larva** (Figs. 10-14). Body length 255, breadth 90.

**Gnathosoma.** Similar with that of male, but slightly broader.

**Idiosoma.** Dorsal surface (Fig. 10). Dorsal idiosomal shielding with longitudinal striae. Setae *d, e, f, h1* slightly serrate basally, other setae nude. The length of setae is as follows: *vl* 22, *sc1* 14, *sc2* 38, *c1* 15, *c2* 33, *d* 14, *e* 9, *f* 22, *h1* 22, *h2* 28.

Ventral surface (Fig. 11). Coxal plates I and II with 1 setae each. Coxal plates III with 2 pairs of setae. Setae *ps<sub>1,3</sub>* well developed.

**Legs** (Figs. 12-14). The number of setae and solenidia on femur, genu, tibia and tarsus, respectively: leg I: 1-4-6(1)-7(1); leg II: 0-3-4-5(1); leg III: 0-3-4-5.



Figs. 10–14. *Pseudotarsonemoides longisetus* sp.n., larva: 10 — dorsal view, 11 — ventral view, 12 — leg I, dorsally, 13 — leg II, dorsally, 14 — leg III, dorsally.

Рис. 10–14. *Pseudotarsonemoides longisetus* sp.n., личинка: 10 — дорсально, 11 — вентрально, 12 — нога I дорсально, 13 — нога II дорсально, 14 — нога III дорсально.

#### DIFFERENTIAL DIAGNOSIS

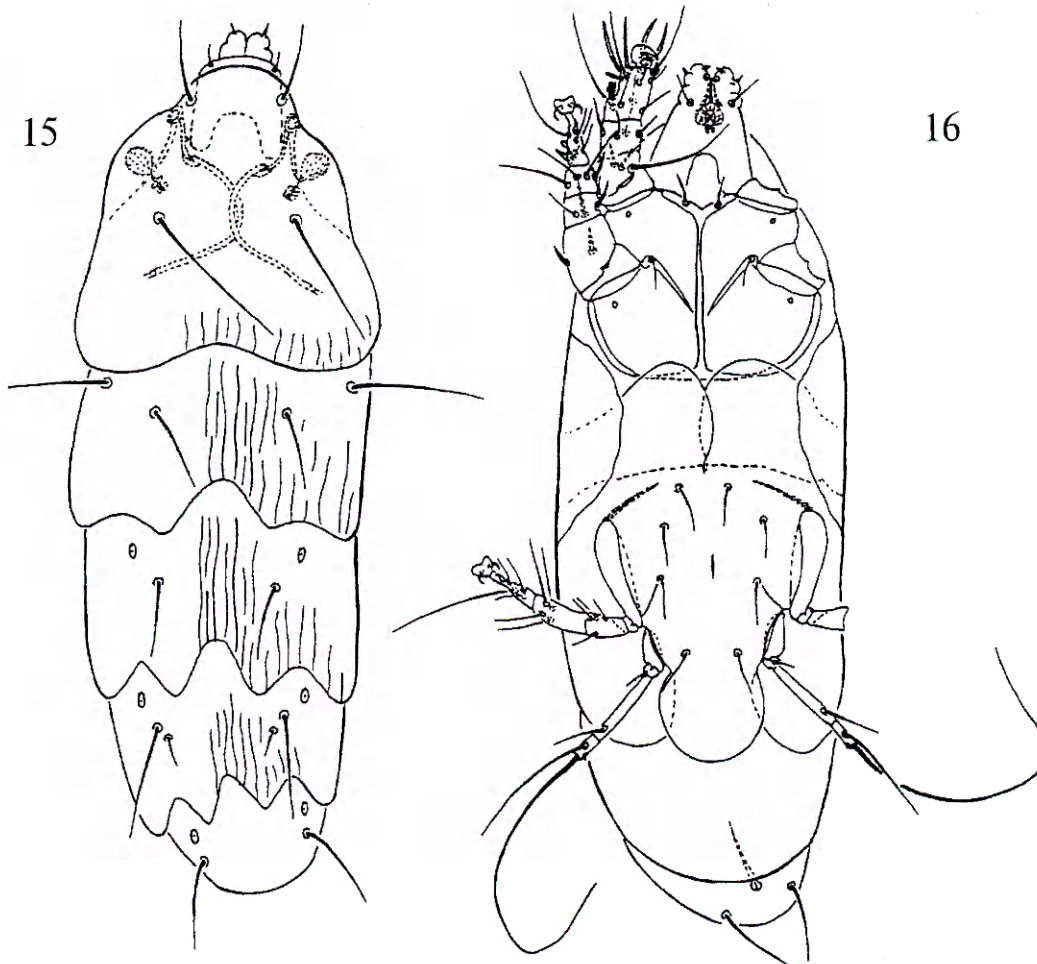
The new species similar with *P.innumerabilis* by the presence of longitudinal striae on the dorsal tergites of hysterosoma, but differs by the unusually long setae *e*.

**Type material.** Holotype: female (Ts-26), Crimea, Yalta, on the larvae of *Scolytus intricatus* (Ratzeburg, 1837) (Coleoptera: Scolytidae), under

the bark of *Quercus robur* L. (Fagaceae), 1.10.1996, coll. A.A.Khaustov; paratypes: 13 females, 2 males, 4 larvae, Crimea, Yalta, in the galleries of *Scolytus intricatus*, 20.09.1997, coll. A.A.Khaustov.

#### ETYMOLOGY

The new species is named *longisetus*, referring to unusual long setae *e* of the female.



Figs. 15–16. *Pseudotarsonemoides vermiformes* sp.n., female: 15 — dorsal view, 16 — ventral view.  
Рис. 15–16. *Pseudotarsonemoides vermiformes* sp.n., самка: 15 — дорсально, 16 — вентрально.

*Pseudotarsonemoides vermiformes* sp.n.

Figs. 15–16.

**Female.** The length of the body 283, breadth 100.

**Gnathosoma.** Similar with that of *P. longisetus* females.

**Idiosoma.** Dorsal surface (Fig. 15). Dorsal shielding with weakly developed longitudinal striation on plates C, D, EF and prodorsum. Prodorsal shield with anterior margin not completely overhead gnathosoma. Stigmata opening on ventral surface of prodorsal shield, close to lateral margins. Bothridial setae capitate, spiculate, entirely covered by prodorsum. All setae of idiosoma nude, slender. The length of dorsal idiosomal setae of holotype is as follows:  $v_1$  38,  $sc_2$  50,  $c$ , 28,  $c_2$  38,  $d$  23,  $e$  35,  $f$  10,  $h$  28,  $ps$  26.

Ventral surface (Fig. 16). Ventral shielding with apodemes 1 forming Y-shaped juncture with prosternal apodeme. Prosternal apodeme united with sejugal apodeme. Apodemes 3 and 4 weakly developed. Tegula enlarget, tongue-shaped.

**Legs.** Ambulacrum of leg I with large, strongly hooked claw. The leg chaetotaxy as in females of *P. longisetus*.

**Male and larva:** unknown.

**DIFFERENTIAL DIAGNOSIS**

The new species most close to *P. innumerabilis* by the presence of longitudinal striae on the dorsal tergites of hysterosoma, but differs from the latter by the shape of prodorsal shield and unusual position of stigmata.

**Type material.** Holotype: female (Ts-40), paratype: 1 female, Crimea, Yalta, in the galleries of *Scolytus intricatus*, under the bark of *Quercus robur* L., 20.09.1997, coll. A.A.Khaustov.

**ETYMOLOGY**

This species trivial name is derives from the Latin “vermes”, meaning <worm>, and referring to the shape of the female body.

**REMARKS**

Almost nothing is known about the feeding habits of *Pseudotarsonemoides*. Cooreman [1963] thought that they were probably the parasites of scolytid larvae, but provided no evidence other than Hirst’s [1923] earlier collection record of a single adult female mite found on the larva of *Scolytus*. We found a lot of females of *P. longisetus* on the larvae of *Scolytus intricatus*. Larvae were alive, and we did

not observe any damage of them by caused by mites. Feeding habits of *Pseudotarsonemoides* still remain incomprehensible.

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