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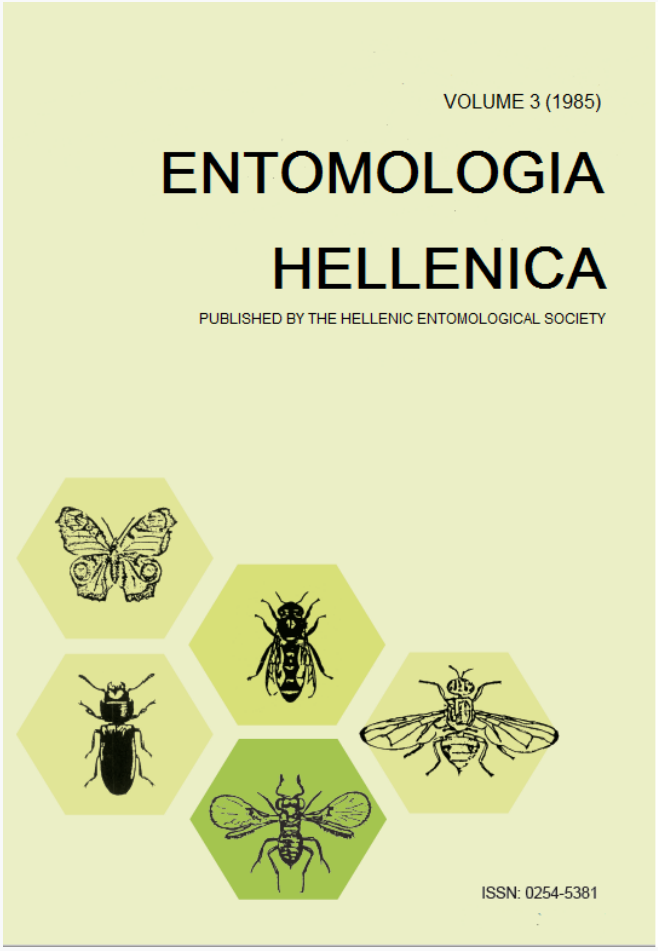


# Two new species of the family Tarsonemidae (Acari: Prostigmata) from Greece

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# Two New Species of the Family Tarsonemidae (Acari: Prostigmata) from Greece[1]

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## ABSTRACT

Adult males and females of two tarsonemid species, *Steneotarsonemus hordei* and *Tarsonemus pruni*, are described and illustrated. Data are given on their plant hosts and distributions in Greece.

## Introduction

Among the tarsonemid mites collected during the senior author's investigations of the Greek tarsonemid fauna (Emmanouel 1984), several species proved to be new to science. Two of these, *Steneotarsonemus hordei* and *Tarsonemus pruni*, are described and illustrated here. The terminology of Suski (1968) and Lindquist and Smiley (1978) is used for the taxonomic descriptions.

All measures are given in microns; the scale used is 1 cm = 14 μ, unless otherwise indicated in the figures.

## Description

*Steneotarsonemus hordei* n.sp.

Diagnosis. The female of *S. hordei* closely resembles that of *S. varicocus* Livshits at al. 1981. In the former species however, 3b setae are inserted well before posterior extremities of apodemes IV and anteromedian apodeme is not uniformly thickened, while in the latter species 3b setae are inserted at posterior extremities of apodemes IV and anteromedian apodeme appears uniformly thickened. The oblique lateral sections of transverse apodeme resemble those of *Steneotarsonemus violae* Schaarschmidt 1960, and ventral apodemes are similar to those of *Steneotarsonemus acuticlavus* Wainstein 1979. Seta v of tarsi I-III is pointed in *S.acuticlavus* and blunt dentate in *S. hordei*, while the shape of apodemes IV is very different between *S. violae* and *S. hordei*. The male somehow resembles that of *S. smileyi* (Emmanouel and Papapanou - Emmanouel in press) but the length of dorsal seta and the shape of femurogenu expansion of leg IV readily distinguish those two species.

MALE (Figs. 1-2)

Gnathosoma wider than long: 39(37-42) and 32(30-34), respectively. Anterolateral setae longer than ventral ones: 15(14-16) and 9(8-10), respectively. Palpi distinct, strong, directed anteromedially, each with a small lobelike process toward the anterior end, with two other smaller processes and a minute seta ventrally. Cheliceral bases and stylets distinct. Pharynx as figured, with a pair of small glandular structures anteriorly.

Idiosoma. Body conspicuously widened at hysterosoma. Propodosoma about 1.5x as wide posteriorly as long medially. Length and width of genital capsule: 45(42-47) and 42(40-43), re-

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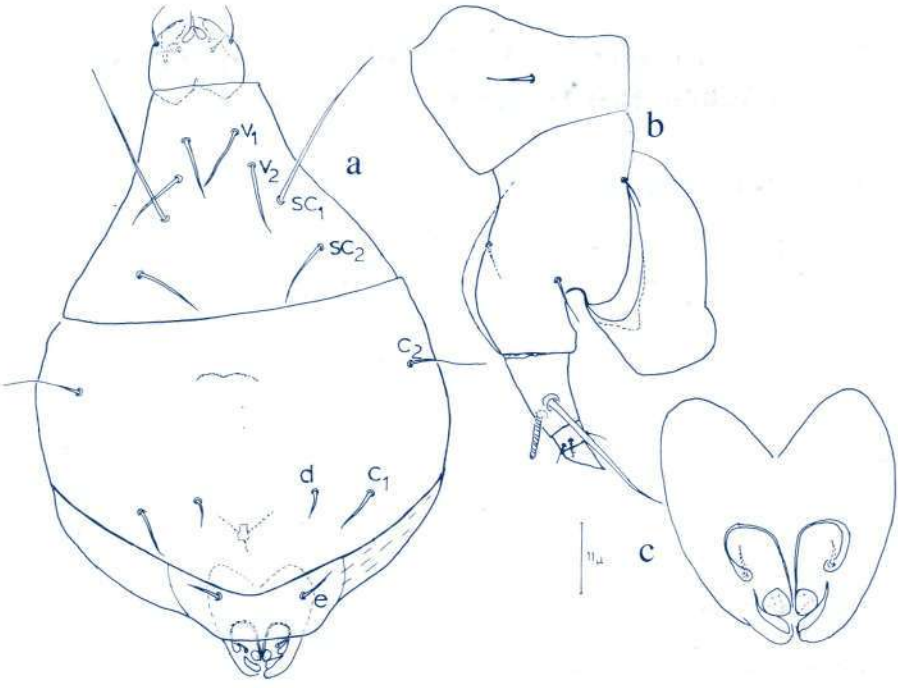



FIG. 1. *Steneotarsonemus hordei* n.sp. (adult male): a, dorsum of idiosoma; b, left leg IV; c, genital capsule.

FIG. 2. *Steneotarsonemus hordei* n.sp. (adult male): ventral aspect.

spectively.

Dorsal setation as follows: $v_1$: 27(25-29); $v_2$: 28(25-29); $sc_1$: 70(63-74); $sc_2$: 28(26-30); $c_1$: 18(17-19); $c_2$: 30(28-33); d: 11(10-12); e: 14(12-15). Distances between $c_1$-$c_2$ and $c_1$-d, 55(54-56) and 21(20-22), respectively.

Anteromedian apodeme extends for a short distance beyond posterior extremities of apodemes II. Apodemes II directed abruptly posteriorly, not uniting with anteromedian apodeme. Apodemes III and IV strong, almost uniting anteriorly. Posteromedian apodeme not strong in most of its anterior length and not united with apodemes III and IV. Coxal seta 1a, about 7, and 2a, about 9, in length, inserted behind and well behind apodemes I and II, respectively. Coxal setae 3a and 3b, 18 and about 10(9-11) in length respectively, inserted just behind anterior margin and slightly anteriad of the posterior half of apodemes III and IV, respectively.

Leg III longer than leg I. Leg I longer than legs II and IV. Setation respectively, on femur, genu, tibia and tarsus of leg I: 4-4-5(2) - 8(1). Leg II: 3-3-4-6(1). Leg III: 1-3-4-4. Leg I without Ti$\gamma$ and with Ta$\alpha$ longer than Ti$\alpha$. Ti$\beta$

longer than Tiα. Leg II with Taα longer than Taβ. Setae δ, θ and v of tarsi I-III slightly dentate distally. Leg IV with trochanter of subequal width and length. Femurogenu more than twice as long as tibia and tarsus, with a large distinct expansion on inner margin and a smaller not so distinct one on outer margin. Inner distal (genual) seta 10(9-12) not much longer than proximal (femoral) seta 8(7-8). Dorsal seta not very distinct short, about 7 in length. Tibial solenidion distinct, slightly tapering, about 11 in length.

Length of idiosoma: 223(215-230); width 161(155-165) (10 specimens).

FEMALE (Figs. 3-4)

Gnathosoma 36(34-37) long and 40(38-43) wide with anterolateral setae longer than the ventrals: 18(17-19) and 8(7-10) respectively. All other characters similar to those of the male. Idiosoma elongate. Propodosoma about 1.4x as wide as long, with posterior margin slightly concave. Bothridial setae with oval apex. Stigmata protruding slightly from edges of shield. Tracheal trunks distinct, widening posteriorly, forming respiratory atria as figured.

Dorsal setation as follows: $v_1$: 21(19-23), $sc_2$: 52(47-56), $c_1$: 14(12-15), $c_2$: 18(17-19), d: 13(12-13), e: 13(12-13), f: 8(7-9); h: 13(12-13). Distances between $c_1$-$c_2$ and $c_1$-d, 34(32-36) and 54(50-59), respectively. Dorsal setae simple; $c_2$ thinner than others. Anteromedian apodeme weaking for a short distance after midlength, not extending beyond posterior extremities of apodemes II. Apodemes II not uniting with anteromedian apodeme. Transverse apodeme absent medially, its two lateral remnants characteristically oblique and with a semicircular formation near each submedial end. Apodemes III distinct posteriorly, but widening and becoming less distinct anteriorly. Apodemes IV not strong; anterior extremity very weak. Posteromedian apodeme very weak, variable in thickness, extending faintly beyond anterior ends of apodemes IV, and forming, after a short distance, a small, weakly defined bifurcation. Coxal setae 1a and 2a respectively 7(6-8) and 10(9-12) in length, inserted respectively, on and slightly behind apodemes I and II. Coxal setae 3a and 3b respectively of about 14 and 8 in length and inserted respectively in front of anterior extremity and near posterior end of apodemes III and IV. Intertrochanter lobe (tegula) 21(20-23) wide and 10(9-11) long. Length of caudal seta ps, 10(9-11).

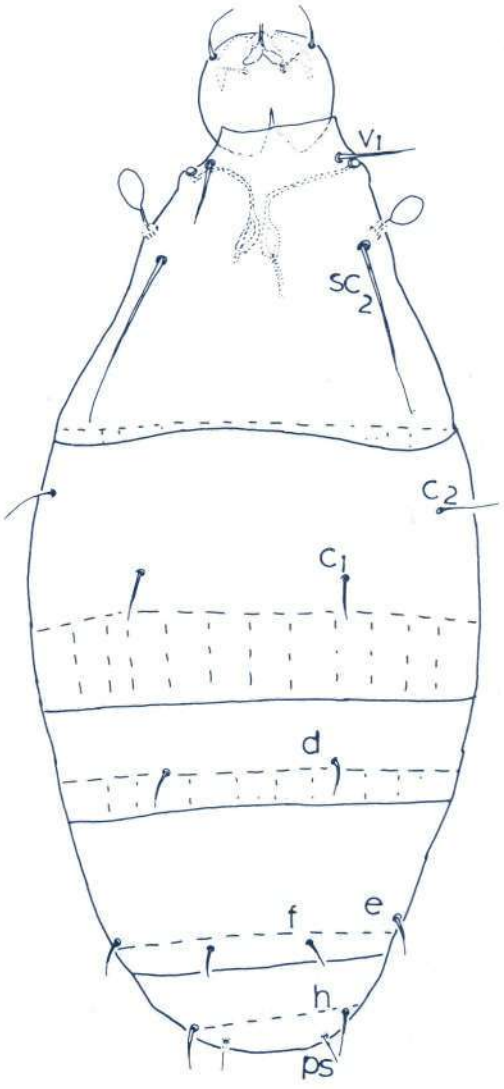



FIG. 3. *Steneotarsonemus hordei* n.sp. (adult female): dorsum of idiosoma.

Legs I and II subequal in length; leg III longer than legs I and II. Setation, respectively, on femur, genu and tibiotarsus of leg I: 4-4-5(2) + 8(1); leg II: 3-3-4-6(1); leg III: 1 + 3-4-5. Leg I without Tiγ and with Feγ and Feδ stronger than the rest of setae on same segment.

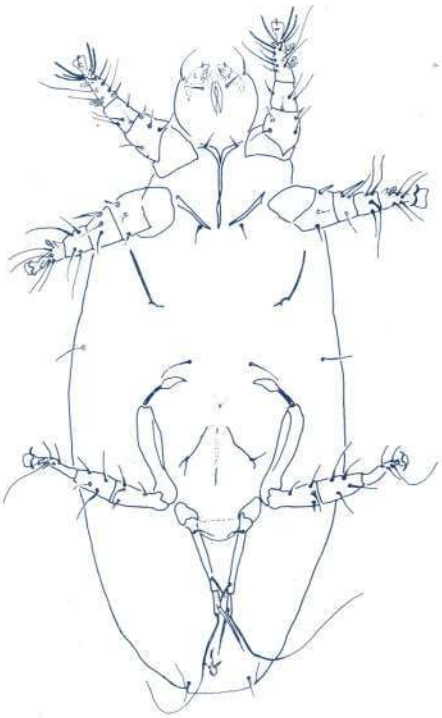


FIG. 4. *Steneotarsonemus hordei* n.sp. (adult female): ventral aspect.

Leg II with setae Feγ and Geδ strong, spinelike. Seta v on tarsi I-III as in the male. Leg IV slender, not reaching posterolateral edge of idiosoma; femorogenu about 3.7x as long as tibiotarsus and with distal (genual) seta subequal in length to proximal (femoral) seta. Terminal (tarsal) seta of tibiotarsus about 4x as long as subterminal (tibial) seta.

Length of idiosoma, 274(260-282), width 134(124-139) (10 specimens).

## TYPE MATERIAL

Male holotype and female allotype collected on *Triticum* sp. inflorescences at Aharnae, Athens, Greece, by N.G. Emmanouel in May 1983, and several male and female paratypes with the same data as above in the Acari Collection, Laboratory of Agricultural Zoology and Entomology, College of Agricultural Sciences of Athens, Greece. In addition, female and male paratypes are in the U.S. National Collection, Beltsville Agricultural Research Center - West, Beltsville, MD.

## DISTRIBUTION - PLANT HOSTS

*S.hordei* was collected from cultivated and/or wild gramineous plants belonging to the genera *Agropyron, Cynodon, Hordeum, Poa, Avena* and *Triticum*. It seems widespread in Greece, being found in many localities of Sterea Hellas, Peloponnisos, Thessalia, Macedonia, Hepiros, and Crete.

*Tarsonemus pruni* n.sp.

Diagnosis. The female of *T.pruni* has setae f and ps of tergites EF and PS characteristically long. The male resembles *Tarsonemus potentillae* Karl 1963 and *Tarsonemus kirchneri* Kramer 1876. The dorsal seta of femurogenu IV, however, is longer in *T. pruni* than in *T. potentillae;* also seta d on the dorsum is inserted anterior to $c_1$ in *T. kirchneri* and posterior to $c_1$ in *T. pruni*. The anteromedian apodeme which is also interrupted in *T.pruni,* is entire in *T. kirchneri*. The shape of the femurogenu flange also helps to separate these three species.

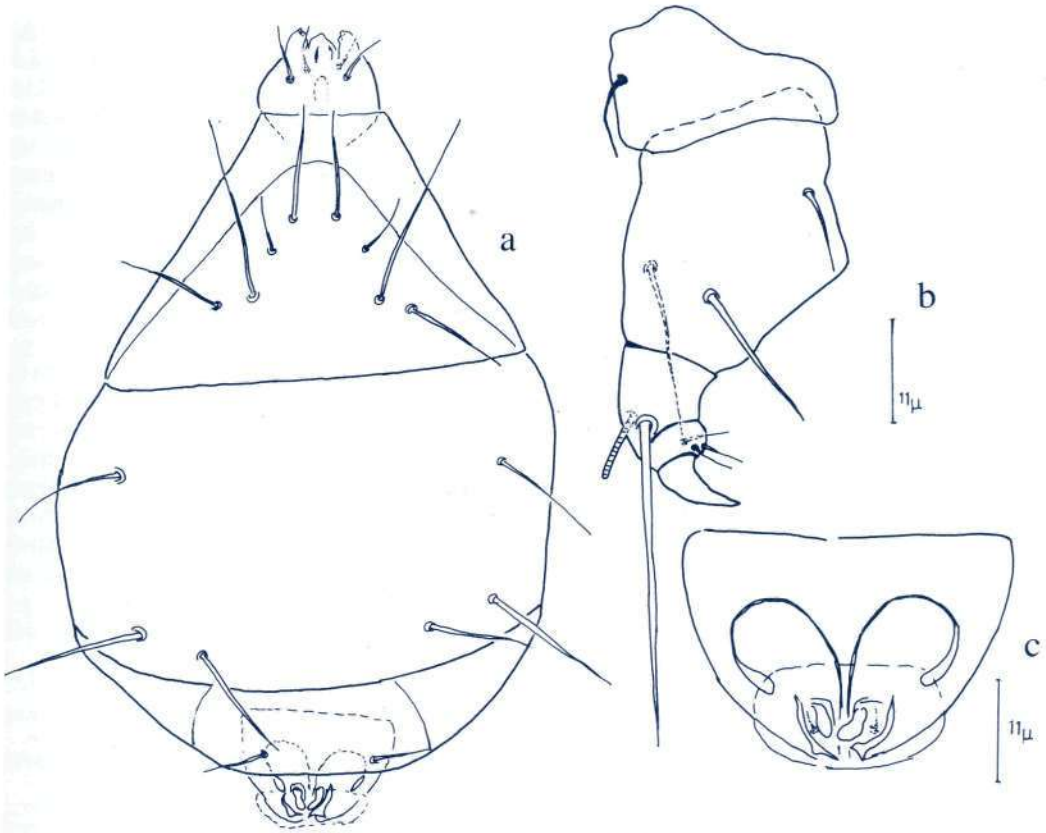
## MALE (Figs. 5-6)

Gnathosoma longer than wide, 35(34-36) and 33(32-34), respectively. Anterolateral setae slightly longer than ventrals, 14(13-15) and 12(11-13), respectively. Palpi short, distinct, each with two, minute, anterior protrusions. Cheliceral bases and stylets inconspicuous. Pharynx in shape of inverted U.

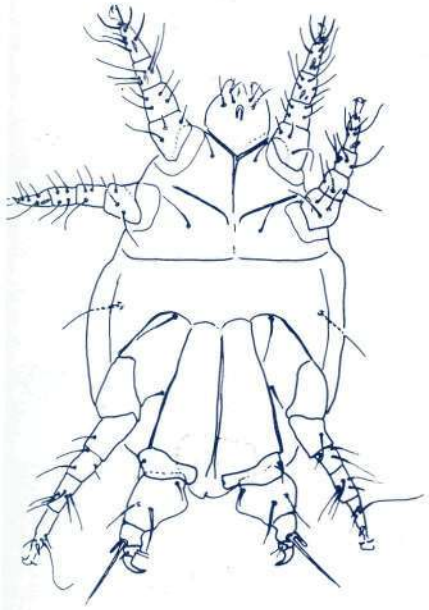
Idiosoma. Body somewhat rectangular. Prodorsal shield 2x as wide as long. Length and width of genital capsule, 32(30-34) and 41(40-42), respectively.
Dorsal setation as follows: $v_1$: 28(27-29); $v_2$: 15(14-16); $sc_1$: 53(50-57); $sc_2$: 28(26-30); $c_1$: 39(37-41); $c_2$: 31(30-32); d: 28(26-30); e: 15(14-16). Distances between $c_1$-$c_2$ and $c_1$-d, 36(35-38) and 19(18-21), respectively.

Anteromedian apodeme not of uniform thickness, interrupted at two points, just before and a short distance after abruptly-directed posterior parts of apodemes II. Transverse apodeme nearly entire except medially. Apodemes III, IV and posteromedian apodeme well developed except at their junction, i.e. III with IV and IV with posteromedian.

Coxal setae 1a, 13(12-14) and 2a, 21(19-23) in




G. 5. *Tarsonemus pruni* n.sp. (adult male): a, dorsum of idiosoma; b, left leg IV; c, genital capsule.



G. 6. *Tarsonemus pruni* n.sp. (adult male): entral aspect.

length, inserted well behind apodemes I and II, respectively. Coxal setae 3a, length 23(22-25) and 3b, length 14(12-15), inserted just behind and mediolaterally of apodemes III and IV, respectively.

Leg I longer than II and shorter than III. Setation, respectively, on femur, genu, tibia and tarsus of leg I, 3-4-6(1)-8(1); leg II: 3-3-4-5(1); leg III: 1-3-5-4. Setae Taα, δ, θ and v of legs I-III,respectively, strong pointed. Trochanter IV much wider than long, 32(29-34) and 14(13-15) respectively. Femurogenu about 2x as long as combined length of tibia and tarsus. Dorsal seta thinner than distal (genual) seta. Distal seta more than 2x as long as proximal (femoral) seta. Tibial tactile seta of moderate length: 37(36-39). Tibial solenidion, rodlike, about 13 in length. Tarsal claw well developed, about 13 in length.

Length of idiosoma, 177(164-183); width 133(126-137) (10 specimens).

FEMALE (Figs. 7-8)

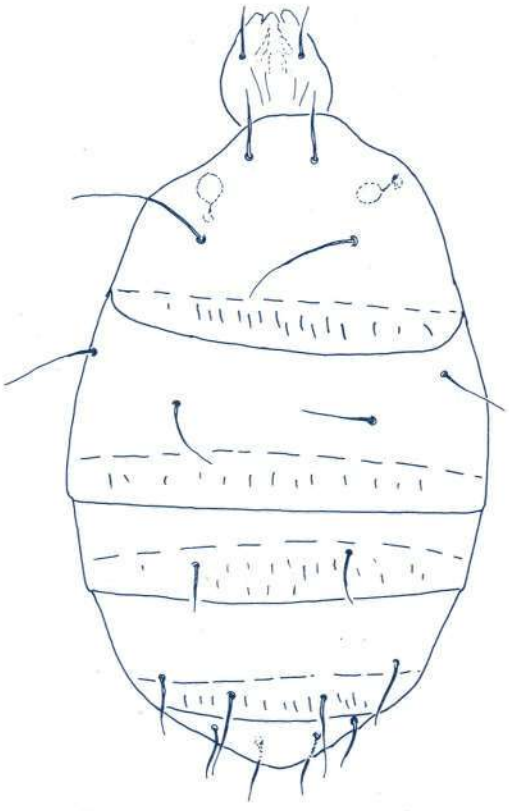


FIG. 7. *Tarsonemus pruni* n.sp. (adult female): dorsum of idiosoma.

Gnathosoma 41(38-43) long and 36(33-38) wide with anterolateral setae longer than the ventral ones, 18(16-19) and 14(12-15), respectively. Each palp with two minute setae and two lobelike anterior protrusions. Cheliceral bases and stylets more defined than in male.

Idiosoma somewhat elliptical. Prodorsal shield 84(80-87) long and 126(118-131) wide. Bothridial setae with spherical apex. Dorsal setation as follows: $v_1$: 26(24-28); $sc_2$: 43(40-46); $c_1$: 27(26-28); $c_2$: 28(27-30); d: 16(16-17); e: 27(26-29); f: 30(28-32); h: 20(19-22). Distances between $c_1$-$c_2$ and $c_1$-d, 31(29-34) and 48(44-53) respectively.

Anteromedian apodeme not entire (interrupted at two points as figured), united with transverse apodeme. Posterior ends of apodemes II slightly directed anteriorly, not uniting with anteromedian apodeme. Apodeme III more developed than apodeme IV and the posteromedian apodeme, the latter bifurcated anteriorly and not uniting with apodemes IV.

Coxal setae 1a 9(8-10) long and 2a 14(13-16) long, inserted closely behind apodemes I and II, respectively. Coxal seta 3a 29(28-31) in length, inserted anteriad of and near anterior extremities of apodemes III, coxal seta 3b (about 11 in length) inserted on and towards the posterior end of apodemes IV. Intertrochanter lobe 30(29-32) wide and 14(13-15) long. Length of setae ps, 23(21-25). Legs I and II subequal in length, both shorter than leg III. Setation, respectively, on femur, genu, and tibiotarsus of leg I, 3-4-6(1) + 8(1); leg II, 3-3-4-5(1); leg III, 1 + 3-4-5. Leg II with Geα strong. Tav of legs I-III as in male. Leg IV slender, slightly extending beyond posterolateral edge of idiosoma. Femurogenu about 2x as long as tibiotarsus. Distal (genual) seta longer than proximal (femoral) setae, 16(15-18) and 11(10-12), respectively. Terminal (tarsal) seta about 3x as long as subterminal (tibial) seta, 91(87-94) and 27(26-28), respectively.

Length of idiosoma, 226(215-234); width 145(136-149) (10 specimens).

## TYPE MATERIAL

Male holotype and female allotype, together

FIG. 8. *Tarsonemus pruni* n.sp. (adult female): ventral aspect.

with three female paratypes collected on *Prunus avium* leaves at Hania Pilion Magnissia, Greece, by N.G. Emmanouel in May 1982, and a number of male and female paratypes on two slide mounts with the same data as above, are deposited in the Acari Collection, Laboratory of Agricultural Zoology and Entomology, College of Agricultural Sciences of Athens, Greece. Female and male paratypes are also deposited in the U.S. National Collection, Beltsville Agricultural Research Center-West, Beltsville, MD.

DISTRIBUTION – *PLANT HOSTS*

*T. pruni* was collected on leaves of *Prunus avium, P. armeniaca, P. persica* and *P. domestica* from Macedonia, Thessalia, Sterea Hellas, and Northern Peloponnisos. It seems that this species is more prevalent in the central and northern parts of the country.

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KEY WORDS: Tarsonemidae, *Steneotarsonemus hordei, Tarsonemus pruni*, Gramineous plants, *Prunus* spp.

# Δύο Νέα Είδη στην Οικογένεια Tarsonemidae (Acari: Prostigmata) από την Ελλάδα

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## ΠΕΡΙΛΗΨΗ

Περιγράφονται τα αρσενικά και θηλυκά δύο νέων ειδών ακάρεων Tarsonemidae από την Ελλάδα και δίδονται λεπτομέρειες της νωτιαίας και κοιλιακής όψεως, των ποδιών και του γεννητικού οπλισμού (στα αρσενικά). Το είδος *Steneotarsonemus hordei* βρέθηκε σε καλλιεργούμενα ή και αυτοφυή αγροστώδη *Agropyron, Cynodon, Hordeum, Poa, Avena* και *Triticum* και είναι πολύ διαδεδομένο στην Ελλάδα. Το είδος *Tarsonemus pruni* βρέθηκε σε φύλλα διαφόρων *Prunus* (*P. avium, P. armeniaca, P. persica* και *P. domestica*) σε περιοχές της Μακεδονίας, Θεσσαλίας, Στερεάς Ελλάδας και Πελοποννήσου.