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Mesostigmatic mite species (Acari: Mesostigmata) new records for the beneficial fauna of Turkey (I)

Sultan ÇOBANOĞLU*

Summary

This paper deals with mesostigmatic mite species from Turkey, ten species were identified and nine of them are new records for Turkey. The species belongs to the Ascidae family is examined in this part of manuscript. These are: ***Gamasellodes bicolor*** Berlese, ***Arctoseius semiscissus*** (Berlese), ***Asca bicornis*** (Can. & Fanz.), ***Proctolaelaps cf. rotundus*** (Hirchmann) and ***P. ventrianalis*** Karg (Ascidae). Illustration of the species are made. The remains will be examined in the second part.

Key words: Acari, Mesostigmata, Ascidae, ***Arctoseius, Asca, Proctolaelaps,*** Turkey

Anahtar sözcükler: Acari, Mesostigmata, Ascidae, ***Arctoseius, Asca, Proctolaelaps***, Türkiye

Introduction

World Mesostigmata (Acari) fauna is extremely rich. They are beneficial mites and they prey on the other mites, insects and small arthropods (Karg 1971, 1994; Gerson & Smiley, 1990).

Mesostigmata includes four suborders Sejina, Gamasina, Uropodina and Antennophorina and 16 important families and all the species are predator on the eggs and different stages of small arthropods (Karg, 1994). They are ectoparasitic and phoretic life cycle. Parasitic mites are common, wide spread, dominant members of forest, dung compost, organic debris and litter habitats. Some of them are common in the nests and on the bodies of small mammals.

Mesostigmata species except Phytoseiidae are poorly known in Turkey (Çobanoğlu 1991-1992, 1997). Only a few Mesostigmata species are reported

* Ankara University, Agricultural Faculty, Plant Protection Department, 06110 Ankara
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previously from stored products in Turkey. They are: ***Blattisocius tarsalis*** (Berlese), ***Blattisocius keegani*** Fox, ***Blattisocius mali*** (Oudemans), ***Proctolaelaps pygmaeus*** (Muller), ***Hemogamasus pontiger*** Berlese, ***Androlaelaps casalis casalis*** (Berlese), ***Eulaelaps stabularis*** (Koch) and ***Kleemannia plumosus*** (Oudemans) (Özer et al., 1989; Çobanoğlu, 1996). Beside that ***Proctolaelaps pomorum*** (Oudemans) and ***Hypoaspis aculeifer*** (Canestrini) were reported from edible mushroom (Çobanoğlu & Bayram, 1998).

Ramaraju & Madanlar (1998), reported that four new ***Poecilochirus*** G.&R. Canestrini (Acarina: Parasitidae) species from Turkey on mushroom compost.

During the studies of determination of Mesostigmatic mites, ten species were identified and nine of them are new for Turkey. All of the species belongs to the Ascidae are considered in this part of manuscript.

The identification of the species were done by Dr. LUNDQVIST (University of Lund, SWEDEN).

Material and Methods

The studied material were obtained mainly from Ankara and Edirne during the studies of Acarina in 1988-1995. Samples were preserved in 70% alcohol and mounted in Hoyer's fluid. Terminology are based on Evans & Till (1966), Hughes (1976) and Karg (1971, 1994). All measurements are given in µm. Illustrations and measurements were done by the phase-contrast microscope. Host range, distribution and habitats of the species are also considered. The figures indicates females otherwise they were mentioned for males. The specimens are kept in a part of author's collection at University of Ankara, Plant Protection Department, Ankara, Turkey.

Results and Discussion

Ten species were identified in the different families of Mesostigmata and five of them belongs to the family of Ascidae. All of the identified species are considered new records for Turkey (Table 1).

Fam.: Ascidae Oudemans,1905

The ascid mites have small metasternal shield, legs I with ambulacra, genital shield truncate at the bottom and dorsal shield includes more than 23 pairs of setae. These are free living predators and mainly obtained from soil, plants and stored products. ***B. tarsalis, B. mali*** and ***B. keegani*** were reported from stored products as a very common species in Turkey (Özer et al.,1989). Binns (1973), showed that ***Arctoseius cetratus*** (Sellnick) reduced by about 85% the egg hatch of ***Lycoriella auripila*** (Winnertz) (Diptera: Sciaridae) which is one of the serious pest of cultivated mushroom. Some ascids are also predators on nematodes (Gerson & Smiley, 1990).

Arctoseius Sig. & Thor. (Mesostigmata) have terrestrial predatory mite species, generally associated with Collembola (Insecta) and mite fauna found in organic debris.

The species of this genus have a pair of lateral incisions about midway on the dorsal shield of idiosoma of adults and deutonymphs.

Table 1. Ascidae (Acari: Mesostigma) species from Turkey

Mite species	Habitat
Arctoseius semiscissus (Berlese)*	Mushroom compost
Gamasellodes bicolor Berlese*	Wild mushroom
Asca bicornis (Can. & Fanz.)*	Wild mushroom, pine tree
Proctolaelaps cf. rotundus (Hirchmann)*	Wild and cultivated rose plants
Proctolaelaps ventrianalis Karg*	Tulip and Gladiolus bulbs

* The species new records for the fauna of Turkey.

Arctoseius semiscissus (Berlese, 1892) (Fig. 1-6)

Laelaps (Iphis) semiscissus Berlese, 1892;

Lasioseius bispinatus Weis-Fogh, 1948;

Arctoseius sellnicki Karg, 1962

Female: Dorsal shield (DL) (♀♀): 409.19 ± 6.75 (330.31- 433.84) µm in length; (Dw): 207.06 ± 9.7(217-172.5) µm in width (n=15). Dorsal setae fairly long. Legs I with ambulacra. There are lateral incisions on the dorsal shield (Fig. 1).

Chelicera: Digitus fixus have 2 teeth and digitus mobilis has a tooth (Fig. 2).

Tectum: shoulder like, it has two pairs process and longer at the middle (Fig. 3).

In ventral, this species has short peritreme, extending middle of the coax II. Genital shield truncate at the bottom, anal plate oval shaped with three anal setae (Fig. 4).

Male (♂♂) DL: 317.98 ± 7.47, Dw: 170.01 ± 12.45 µm (n=2). It has large ventrianal shield with four preanal setae (Fig. 5). Spermatodactyl like a procees on chelicera (Fig. 6).

This is a cosmopolitan species.

A. semiscissus is the new record for the fauna of Turkey.

Distribution: It was reported originally from Italy. This species is distributed all over Europe (Karg, 1994).

Material examined: Mushroom compost, 30.3.1994, Ankara (15♀♀; 2♂♂).

Arctoseius species dispersed by clinging to various insects and considered as symbiotic or phoretic species. They prefers grass and some soil crops such as potato and beet, humid areas and organic debris (Gerson & Smiley, 1990).

Asca bicornis (Canestrini & Fanzago, 1887) (Fig. 7-8)

Asca nova Wilmann,1939

Female: Idiosoma (♀): 394.4 µm in length and 256.36 µm in width. Dorsal plate divided in two parts. All the dorsal setae are smooth, Z4 situated on the caudal tubercles (Fig.7).

Venter, it has very large ventrianal shield and most of the posterior ventral shield covered by this plate. Genital shield small and truncate. Metasternal shield has three setae (Fig. 8).

Male: not found.

Distribution: All over the European countries.

This species can be found on grass, hay, moss and humus. They prefers humid areas (Karg, 1971).

Material examined: Wild mushrooms, 29.6.1988; pine tree -.7.1989 Ankara (2♀♀).

A. bicornis is the new record for the fauna of Turkey.

Gamasellodes bicolor Berlese, 1918 (Fig. 9-10)

Leioseius bicolor (Berlese, 1918)

Digamasellus circuliformis Leitner, 1946

Female: Idiosoma (♀): 354.96 µm in length and 177.48 µm in width. Dorsal plate divided in two parts and reticulated caudally and ondulin shaped. Peritreme extending in normal size. Tectum three pronged. Dorsal setae almost equal in length except the caudal seta (Z5). The letter one is the longest (Fig. 9).

Venter: Ventrianal shield large, sternal shield long and it has small genital shield (Fig. 10).

Male: not found.

It was collected on cultivated areas and forest soil. They live in humus and pine trees. This species distributed all over Europe (Karg, 1971).

Material examined: Wild mushroom, 29.6.1988, Ankara (3♀. 1Deutonymph).

G. bicolor is the new record for the fauna of Turkey.

Proctolaelaps cf. rotundus (Hirchmann, 1963) (Fig. 11-13)

In the ***Proctolaelaps*** Berlese 1923 , marginal® series of setae arising from posterior region of dorsal shield. Fixed digit of chelicera with a membranous lobe in place of a pilus dentilis. Dorsal shield is entire in both sexes. The genital

shield usually has a truncate posterior margin. The anal shield usually bears three anal setae and is rarely extended anteriorly. This genus has presented by ***P. pygmaeus*** and ***P. pomorum*** from stored products and mushroom (Özer et al., 1989; Çobanoğlu, 1996; Çobanoğlu & Bayram, 1998).

Female: Idiosoma (♀♀): 423.98 ± 12.47 µm in length and 290.87 ± 34.85 µm in width (n=2).

The setae on dorsal shield are moderately long. Tectum hardly visible 5-10 incised. Dorsal setae thin and long (Fig. 11).

Chelicera: Fixed digit of chelicera with a row of closely set teeth along its entire margin (13-15) (Fig. 12).

Venter : Sternal shield with tree setae, genital shield truncate and it has small anal shield with tree anal setae (Fig. 13).

Male : not found.

Distribution: Middle Europe. ***P. rotundus*** prefers pine trees (Karg, 1994).

Material examined: Rose plants, 23.10.1994, Ankara (2♀♀).

P. cf. rotundus is the new record for the fauna of Turkey.

Proctolaelaps ventrianalis Karg, 1971 (Fig. 14-17)

Female: Idiosoma (♀♀): 546.24 ± 12.44 (517.6-591.6) µm in length and 266.22 ± 16.17 (236.6-320.4) µm in width (n=5).

Dorsal setae almost equal in length and dorsal shield without any reticulation. Peritreme extending to the coxa I. Palpus has three tined setae. Marginal series of setae placed on dorsal shield (Fig. 14).

Tectum has small dentations and almost smooth (Fig. 15).

Chelicera, Digitus mobilis (Dm) 2 teeth; Digitus fixus (Df) multidentade its entire edge (Fig. 16).

Venter: ventrianal shield large and extending anteriorly and include three pairs of preanal setae. Genital plate large and extending to the ventrianal shield (Fig. 17).

Male: not found.

Distribution: It is common beneath the pine tree ground cover and in compost. It is widely distributed Middle Europe (Karg, 1971).

Material examined: Tulip and Gladiolus bulbs, 20.6.1992, Ipsala (Edirne) (5♀♀).

P. ventrianalis is the new record for the fauna of Turkey.

Özet

Türkiye faydalı faunası için yeni kayıt Mesostigmatic (Acari: Mesostigmata) akar türleri (I)

Mesostigmata (Acarina)'dan 5 akar türü 1988-1995 yılları arasında elde edilmiş ve tanımlanmıştır. Ascidae familyasina ait belirlenen bu türler: ***Gamasellodes bicolor*** Berlese, ***Arctoseius semiscissus*** (Berlese), ***Asca bicornis*** (Can. & Fanz.), ***Proctolaelaps cf. rotundus*** (Hirchmann) ve ***P. ventrianalis*** Karg (Ascidae)'dir. Belirlenen türler Türkiye akar faunası için yeni kayıttır. Bu türlere ilişkin tanıtıcı karakterler şekillerle açıklanmıştır.

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Figure legends

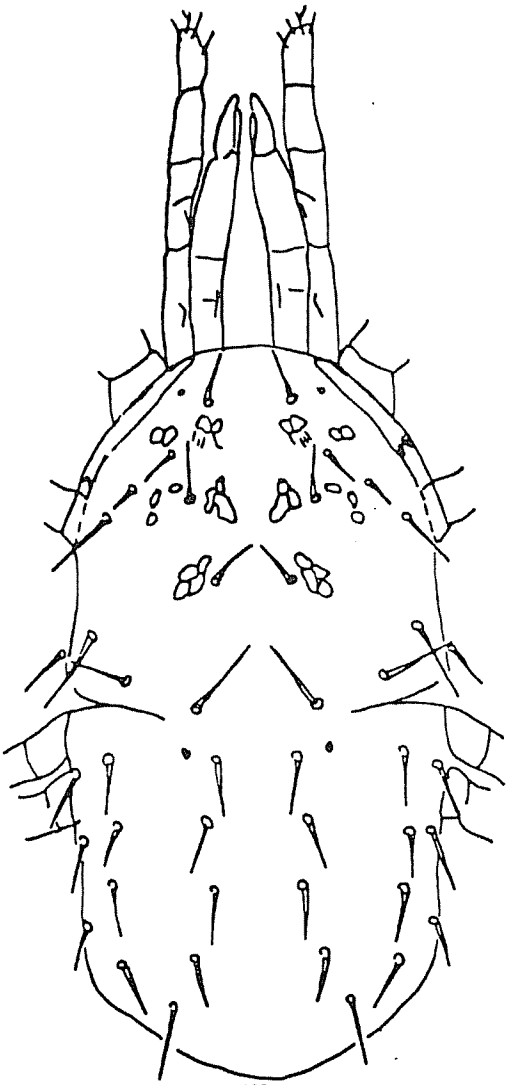
Figures 1-6. ***Arctoseius semiscissus*** (Berlese, 1892)
1. Dorsal shield, 2. Chelicera, 3. Tectum, 4. Ventral shield, 5. Ventral shield (male),
6. Spermatodactyl (male).

Figures 7-8. ***Asca bicornis*** (Canestrini & Fanzago, 1887)
7. Dorsal shield, 8. Ventral shield.

Figures 9-10. ***Gamasellodes bicolor*** Berlese, 1918
9. Dorsal shield, 10. Ventral shield.

Figures 11-13. ***Proctolaelaps cf. rotundus*** (Hirchmann, 1963)
11. Dorsal shield, 12. Chelicera, 13. Ventral shield.

Figures 14-17. ***Proctolaelaps ventrianalis*** Karg, 1971
14. Dorsal shield, 15. Tectum, 16. Chelicera, 17. Ventral shield.



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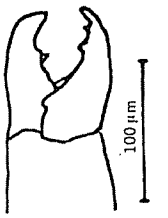

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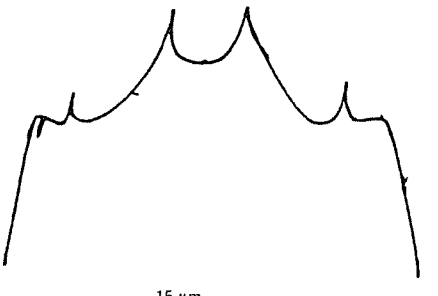

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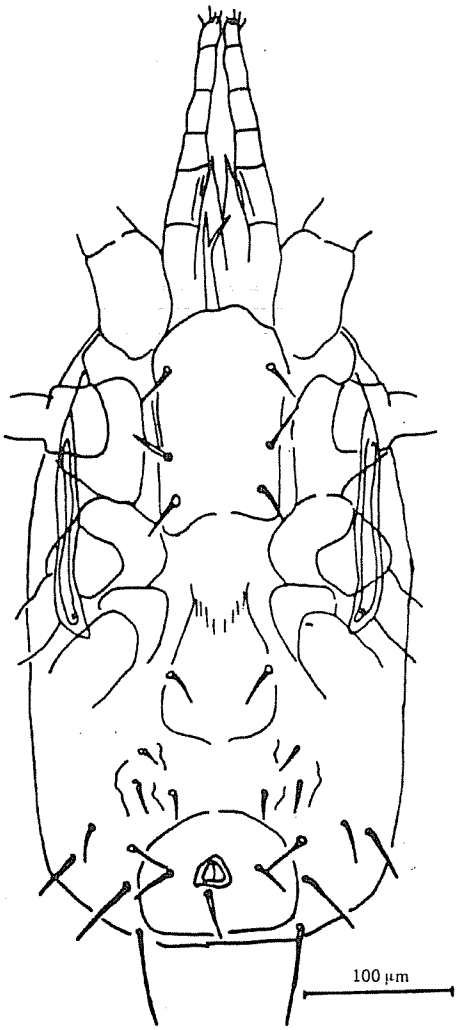

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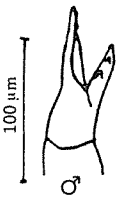

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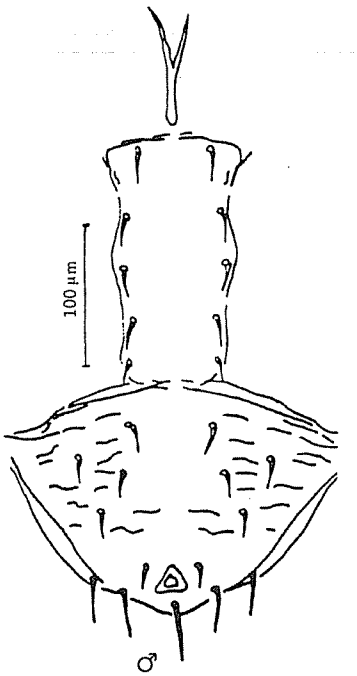

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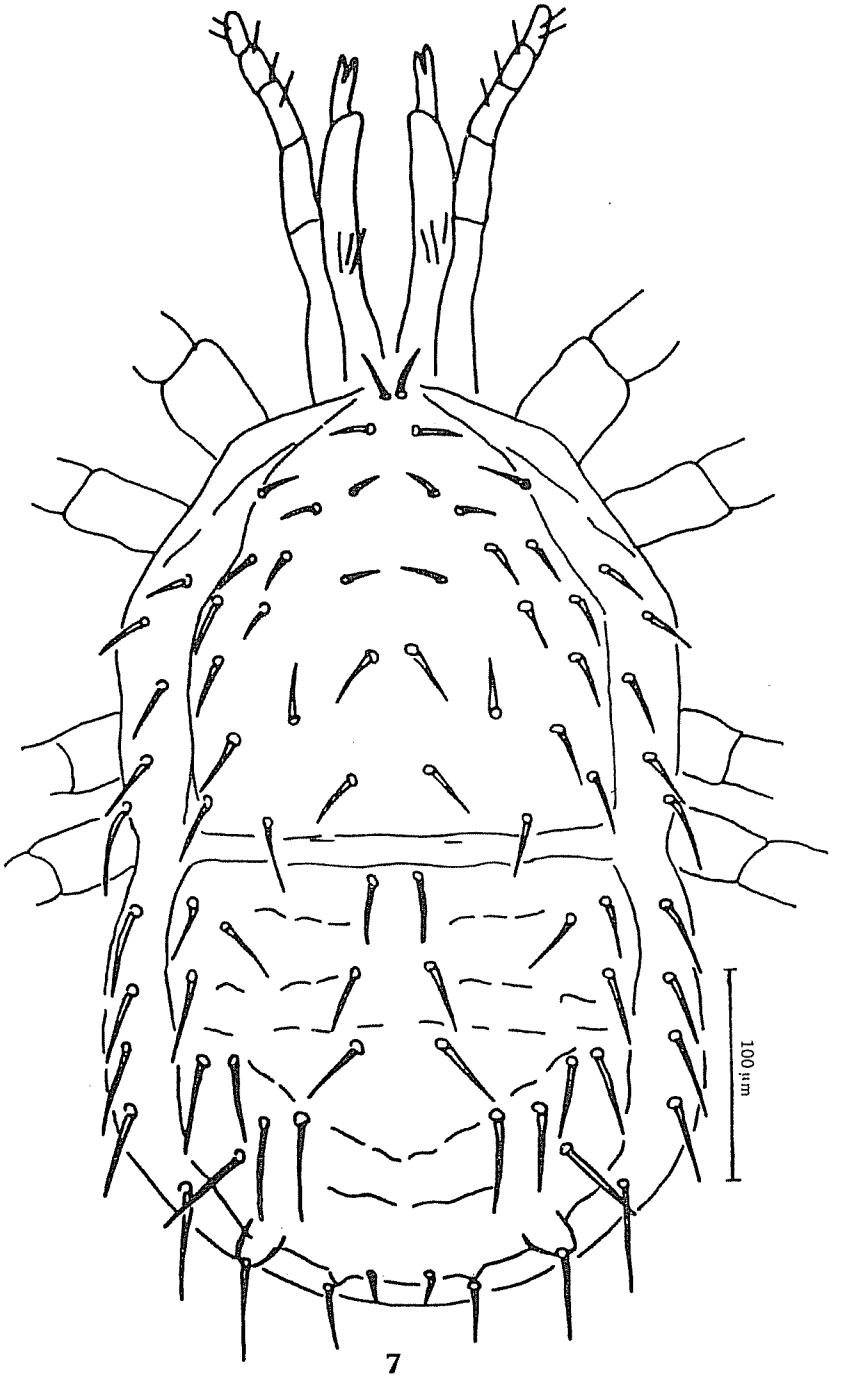

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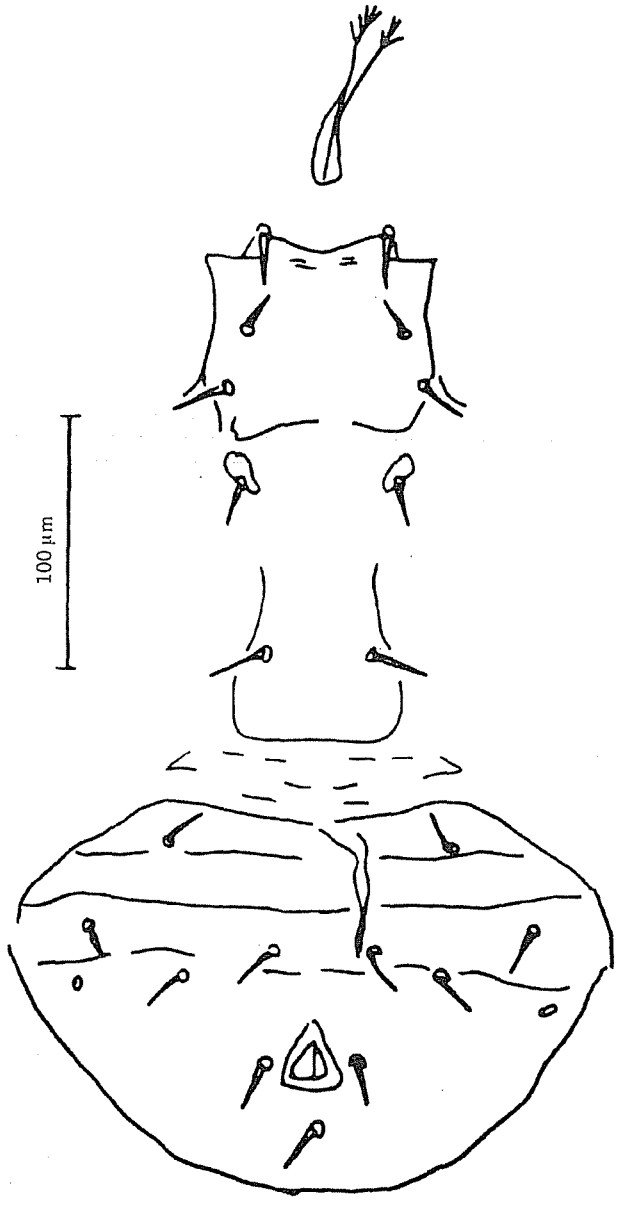

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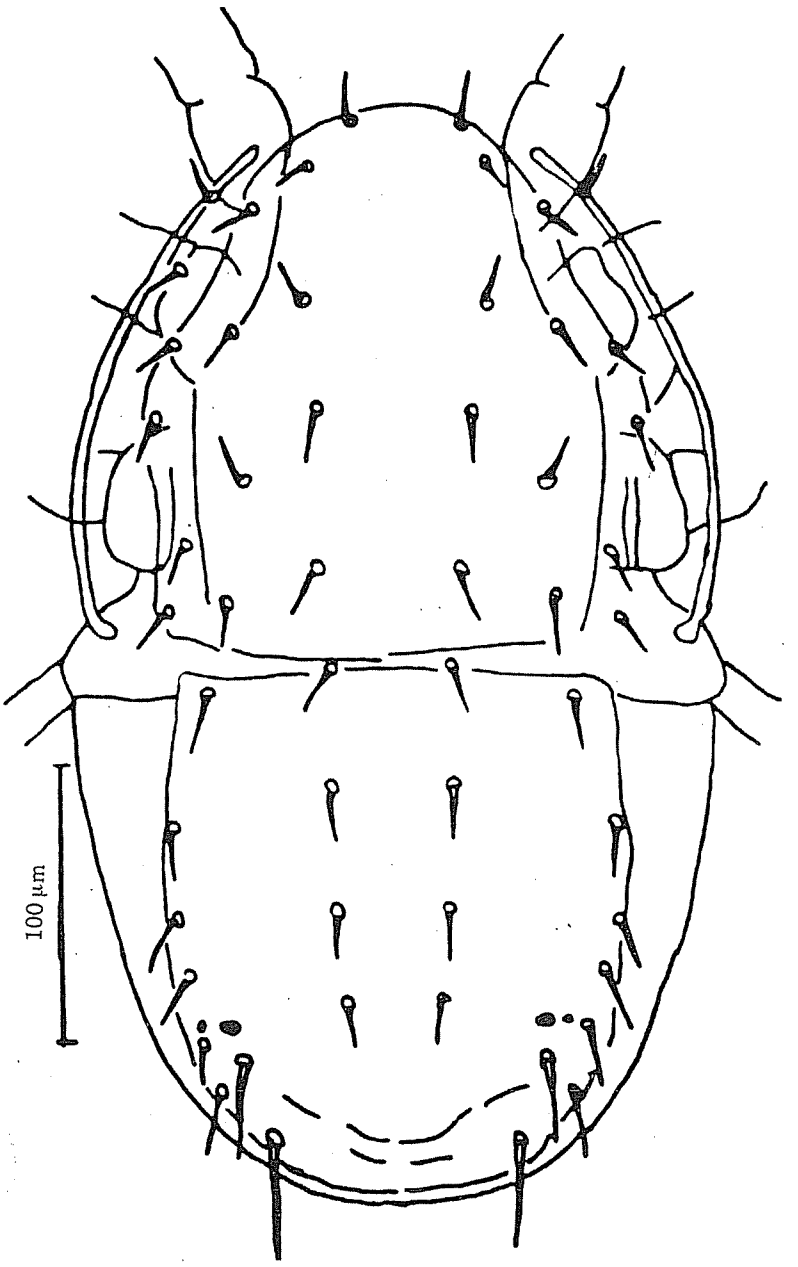

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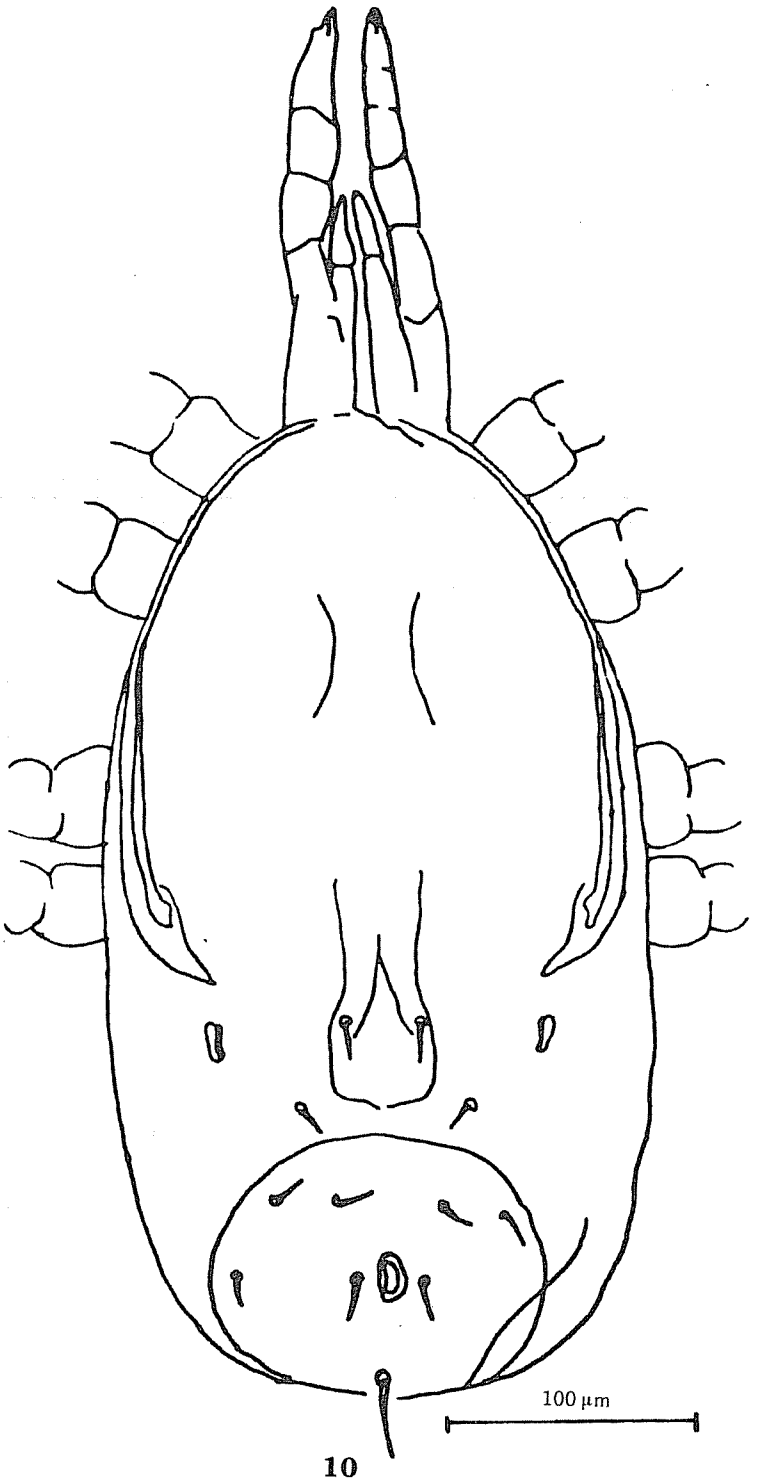

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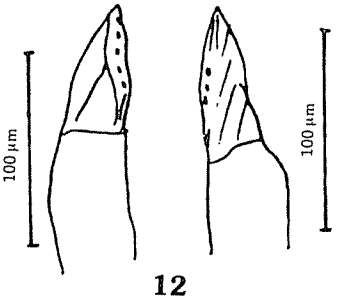

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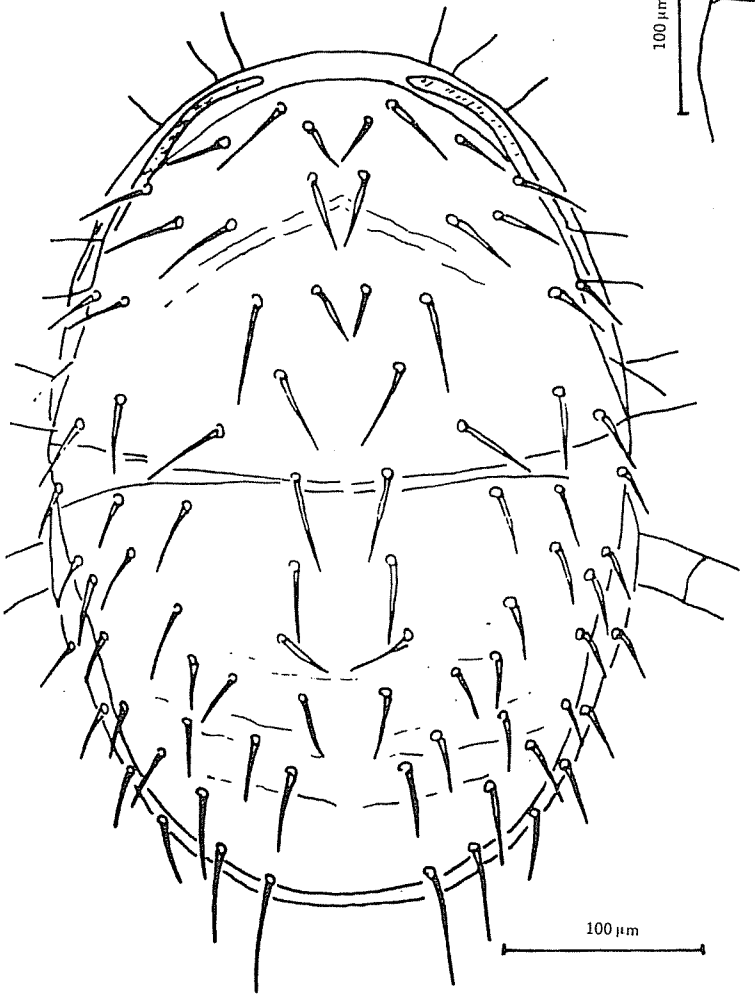

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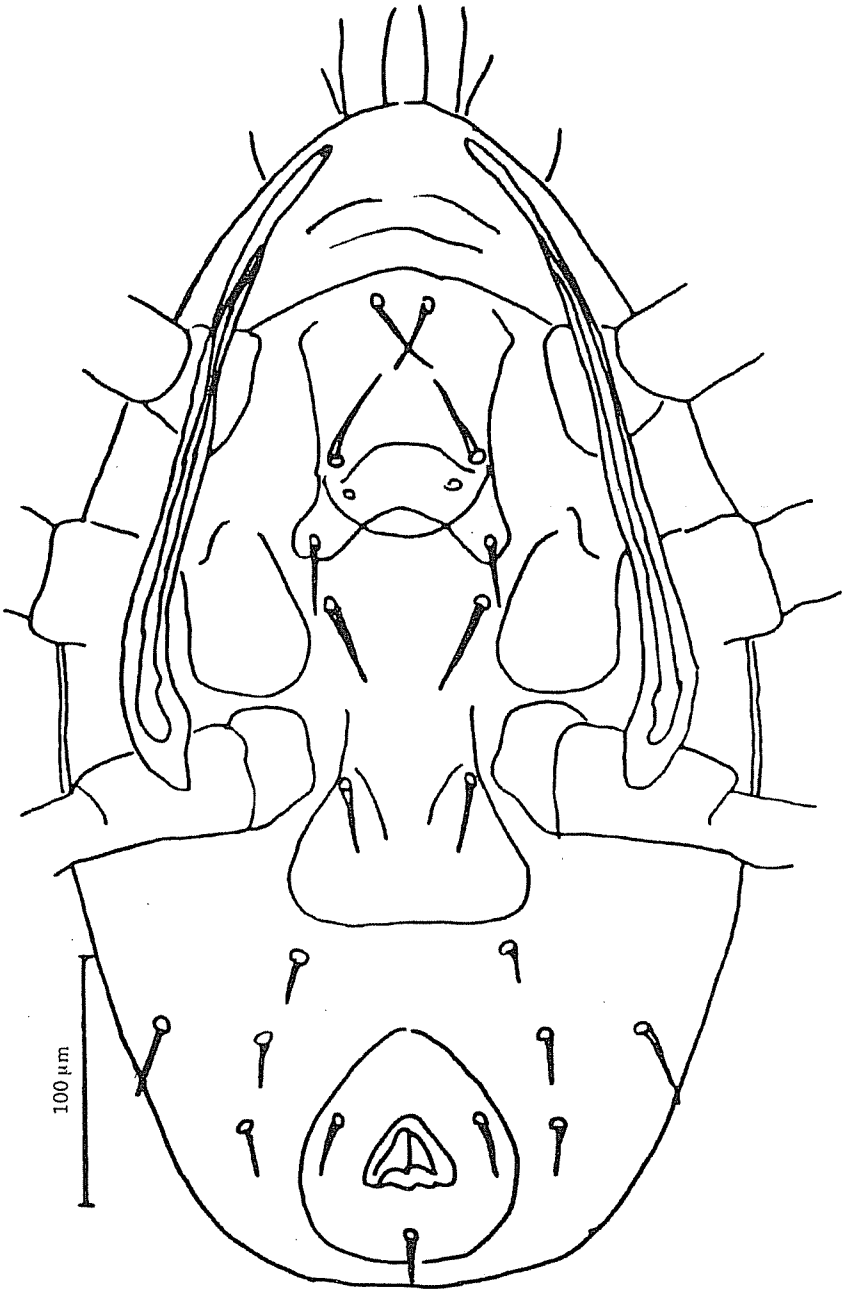

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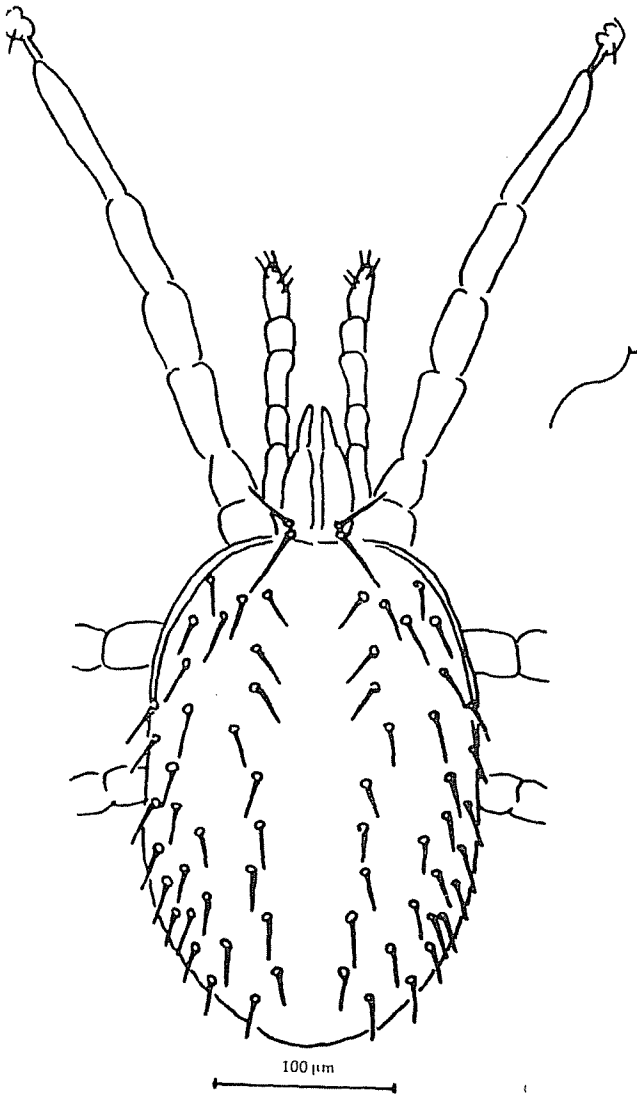

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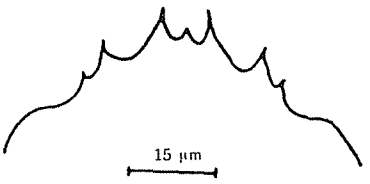

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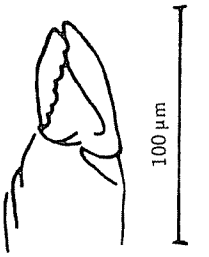

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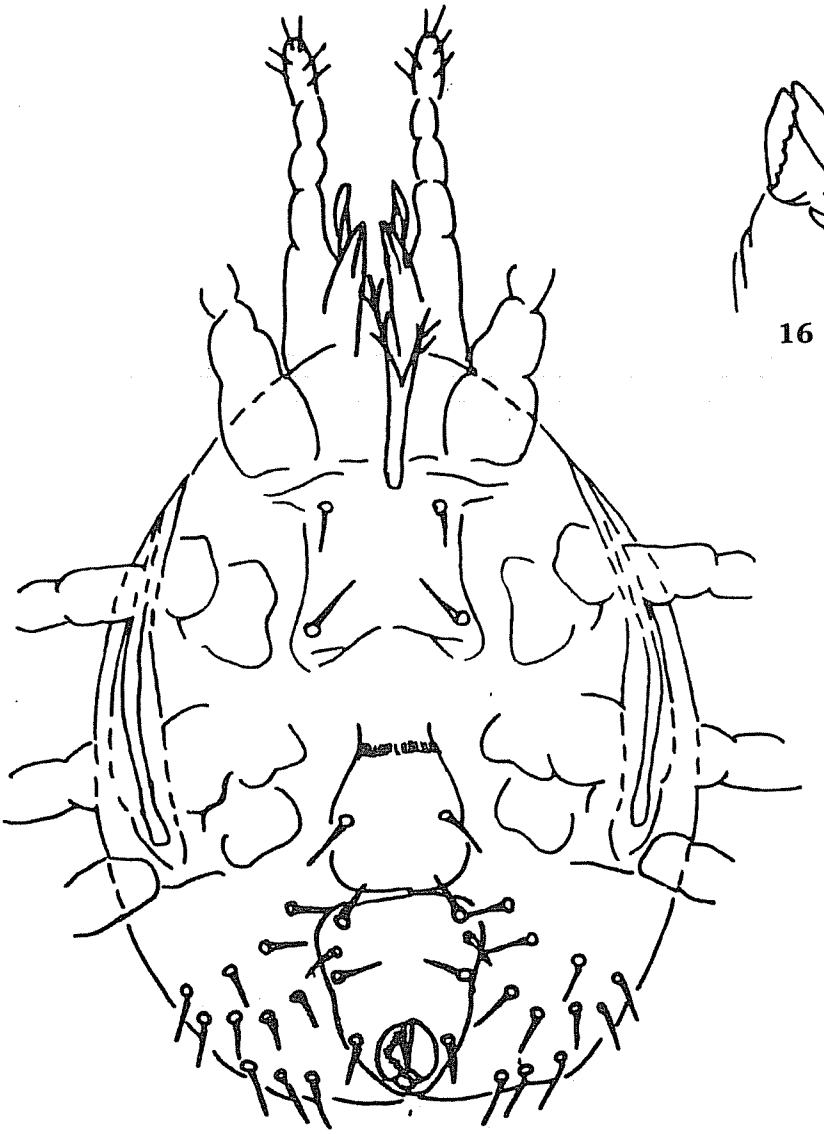

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