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

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Summary

This paper deals with mesostigmatic mite species from Turkey, ten species were identified and nine of them are new records for Turkey. Five of these belongs to the family Ascidae and they were taken into account in the first manuscript. The remains were examined in the second part. These are: ***Hypoaspis aculeifer*** (Canestrini), ***H. cf. laevis*** (Michael) (Laelapidae); ***Parasitus fimetorum*** (Berlese) (Parasitidae), ***Alliphis cf. halleri*** (Canestrini) (Eviphididae) and ***Veigaia nemorensis*** (Koch) (Veigaiidae). Illustration of the species are made.

Key words: Acari, Mesostigmata, Parasitidae, Eviphididae, Veigaiidae, ***Hypoaspis, Alliphis, Parasitus, Proctolaelaps, Vulgorogamasus, Veigaia,*** Turkey

Anahtar sözcükler: Acari, Mesostigmata, Parasitidae, Eviphididae, Veigaiidae, ***Hypoaspis, Alliphis, Parasitus, Proctolaelaps, Vulgorogamasus, Veigaia,*** Türkiye

Introduction

As mentioned before, Mesostigma (Acari) species are poorly known in Turkey and only a few Mesostigmata species are reported previously from stored products. In these studies ten mesostigmatic mites were identified and five of them were examined in the first part (Çobanoğlu 2000). The second part includes five species belongs to the families Laelapidae, Parasitidae, Eviphididae and Veigaiidae. Four species are new records for Turkey.

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

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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 and Till (1966), Hughes (1976) and Karg (1971,1994). All measurements are given in µm. Illustrations and measurements were done by phase-contrast microscope. Host range, distribution and damage of the species are also considered.

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 Mesostigmata, and five of them were placed in part (I) and the remains considered in part (II).

During these studies five species were identified belongs to the Laelapidae, Parasitidae, Eviphididae and Veigaiidae, four of which are new records for Turkey (Table 1). Parasitidae, Laelapidae and Ascidae species had been known previously but Eviphididae and Veigaiidae families are reported here for the first time.

Fam.: Parasitidae Oudemans, 1901

Parasitid species are common predators in soil. They are often dispersed during their deutonymph stage by various insects, especially beetles and flies. ***Poecilochirus monospinosus*** Wise, Hanessey & Axtell feeds on house fly (***Musca domestica*** L.) immatures in poultry manure. This predator occurred mainly in late spring and early summer and was considered to be an important predator in suppressing the fly populations (Wise et al., 1988).

Karg (1961), reported that several species of ***Pergamasus*** Berlese feeds on stored product mites. This family has 14 genera and 350 species (Smiley & Knutson, 1983). The species of this family are live manure, compost, moss, bird and small mammal nests, stored food products, bark beetle galleries, bee nests, forest and grassland soil. They are predator on bark beetles and housefly larvae (Gerson and Smiley, 1990).

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

Table 1. Laelapidae, Parasitidae, Eviphididae and Veigaiidae (Acari: Mesostigma) species from Turkey

Family	Mite species	Habitat
Laelapidae	***Hypoaspis aculeifer*** (Canestrini)	*Gladioulus* bulb, wild mushroom.
	Hpoaspis cf. laevis (Michael)*	Wild mushroom
Parasitidae	***Parasitus fimetorum*** (Berlese)*	Gladioulus bulb
	Vulgarogamasus sp.	Rose hip
Eviphididae	***Alliphis cf. halleri*** (Canestrini)*	Natural edible mushroom
Veigaiidae	***Veigaia nemorensis*** (Koch)*	*Dahlia* sp., Wild mushroom
	Veigaia sp.	mushroom

* Mite species new records for the fauna of Turkey.

Parasitus fimetorum (Berlese,1903)

Parasitus affinis Oudemans 1904.

Female: Idiosoma (DL) (♀♀) : 898.7±65.63 (774-1059.9) µm in length; (Dw): 626.1±12.45 (596.5-650.7) µm in width (n=5). This is large species. Dorsal setae are almost equal in length. Dorsal surface strongly sclerotised and divided in two part (Fig. 1).

Chelicera: Fixed digit (Df) has small dentations at the tip and movable digit (Dm),has three teeth and serrations (fig. 2).

Three pairs of gnathosomal setae and corniculi horn like. Tectum three pronged.

Venter: Metasternal shield large, flanking anterior of the genital shield. The lateral of the sternal shield fused with the endopodal plates. The genital shield hinged to this part (Fig. 3).

Male (♂♂) DL: 475.7±47.3, Dw: 288.4±7.47 µm (n=2) (Fig. 20). The movable of the digit of the chelicera bears a spematodactyl and fused the digit (Fig. 4).

Distribution: All over the European countries.

This species is found forest trees, compost and decaying matter. It is prefer humid areas (Karg 1971, 1994).

Material examined: ***Gladiolus*** sp., 22.12. 1992, Ipsala (5 ♀♀, 2 ♂♂, 1 Dn).

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

Vulgarogamasus sp.

Material examined: Rose Hip, 23. 10. 1994, Ankara (2 ♀♀, 1 Dn.).

Fam.: Laelapidae Trägardh, 1908

The members of this family are blood sucking, parasites of birds and mammals, nest inhabiting or free living predators of small invertebrates. Several species of this family feed on immature stages of the house fly and phoretic on the adults. Some of them feed on the eggs and small larvae of the flies. Soil-borne predator ***H. aculeifer*** able to decrease of the populations of plant nematode (Gerson and Smiley, 1990).

This family can be identified by more than 23 pairs dorsal setae, flask shaped genital shield and small metasternal shield.

Hypoaspis aculeifer (Canestrini, 1884) (Fig. 5-7)

Female : Idiosoma (DL) (♀♀): 626.23±25.12 (493-695) µm in length; (Dw): 345±5.01 (271-384) µm in width (n=7).

Female has a weak spine on femur II. Peritreme extending to about middle of coxa I. Dorsal shield scleotized and slightly reticulated (Fig. 5).

Chelicera: Large, movable digit bidentated, fixed digit with three teeth and a row of serrations.

Venter: Sternal shield reticulated and with three pairs of setae. Genital shield is flask- shaped and has one pair of setae. The anal plate has three anal setae (Fig. 6).

Male (♂♂) DL: 527.5, Dw: 246.5 µm (n=1). *Spematodactyl short and* finger shaped and free (Fig. 7).

Distribution: Europe, South and North America, Asia.

Material examined: Gladiolus spp., 29.12.1992, Ipsala (5 ♀♀, 1 Dn., 1Pn.); Wild mushroom, 29.6.1988, Ankara (2 ♀♀, 1♂, 2 Dn., 2 Pn.).

It was recorded previously from edible mushrooms in Ankara from Turkey (Çobanoğlu & Bayram, 1998).

This species is prefer heavy soils and it is easily found on the grass and humus. ***H. aculeifer*** feeds on nematoda, ***Collembola***, other mites and small insects larvae.

Hypoaspis laevis (Michael, 1891) (Fig. 8)

Pseudoparasitus leavis (Micheal, 1891)

Gymnolaelaps leavis (Micheal, 1891)

Female: Dorsal shield (DL) (♀♀): 531±6.04 (522.6-542.3) µm in length; (Dw): 320.45±10.04 (301-330) µm in width (n=3).

Dorsal shield with 41 pairs of setae. Chaetotaxi of ***H. laevis*** is very similar to the previous species. All the dorsal seate short, setiform, surface of the shield granular and with some striations near the margin. Peritreme extends anterior of coxa I.

Venter: Sternal shield with three pairs of setae and two pairs pores. Genito-ventral shield reticulated and very large with one pair of genital setae. Anal shield with three anal seta (Fig. 8).

Male: Not found.

Distribution: This species was reported nest of ants in Cornwell and in Austria (Evans and Till, 1966) and also from Europe (Karg, 1971).

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

H. laevis is the new record for the fauna of Turkey.

Fam.: Eviphididae Berlese, 1913

Eviphidid mites which are easily found in dung, may act as a predator in fly control. Generally they found with marochelids. They are predators on nematods, oligochaetes, arthropods or their eggs. They are also predacious on dung beetles.

This family has (8) genera and (25) species. The species of this family are encountered in Western Hemisphere, Europe and Africa (Smiley and Knutson, 1983).

Alliphis cf. halleri (G. R. Canestrini, 1881) (Fig. 9-13)

Gamasus halleri G. R. Can.1881

Female: Idiosoma (♀): 443.7 µm in length 261.3 µm in width.

All dorsal setae short (15-16 µm) and dorsal plate slightly reticulated (Fig 9).

Chelicera has one tooth on movable digit (Dm) and two big theeth on digitus fixus (Df) (Fig. 10).

Tectum lanceolate shaped pointed at the tip and with featherous (Fig. 11).

Ventral plate has small ventrianal shield. Peritreme long extending to the verticals. Genital shield truncate and with one seta. Anal plate small and with three anal setae (Fig. 12).

Male: Spematodactyl leaf shaped (Fig. 13).

This species feed on nematoda especially on their larvae, and found very often in forest and grasses (Gerson and Smiley, 1990).

Distribution: Middle Europe (Karg, 1971).

Material examined: Natural edible mushroom, 25.4.1995, Ankara (4 ♀♀, 1 ♂).

A. cf. halleri is new record for the fauna of Turkey.

Fam.: Veigaiidae Oudemans, 1939

This family are presented by three genus and 30 species. The member of this family prey on the other acarina species and other small arthropods. Their habitats are: rock crevices, under stones, moss, leaf litter, and forest soil. This family was reported Europe, North America and Australia (Smiley & Knutson 1983).

Veigaia nemorensis (C.L. Koch, 1839) (Fig. 14-17)

Gamasus nemorensis (C.L. Koch, 1839)

Cytolaelaps nemorensis (C.L. Koch, 1839)

Cytolaelaps kochi Tragardh, 1892

Veigaia sellnicki Michelcic, 1958

Female: Idiosoma (♀) : 690.2 µm in length 433.8 µm in width. Dorsal shield divided in two part and dorsal setae similar length (Fig. 14).

Chelicera long, digitus mobilis and digitus fixus has one small tooth (Fig. 15).

Tectum is three pronged and the central prong longer than the others and with two lacinae (Fig. 16).

Ventral shield trapezoid shaped and not fused with peritremal shield. It is rugose and reticulated. It has small orifices posterior the coax IV. Sternal shield with three setae. Anal shield three anal setae (Fig 17).

Male: Not found.

Generally it was found on grasses, and the leaves of the forest trees. Beside that, this species may found in humus, likens, organic debris and heavy soil and they prefer humid areas (Karg, 1971).

Distribution: Europe and Asia (Karg, 1994).

Material examined: ***Dahlia*** sp. and Tulip, Ipsala (4.6.1992; 16.11.1992), (3 ♀♀, 3 Deutonymph); Wild mushroom, 4.5.1995 (Ankara) (1 ♀).

V. nemorensis is the new record for the fauna of Turkey.

Veigaia sp.

Material examined: Mushrooms, 25.4.1994, Ankara (2 ♀♀, 4 Dn).

Özet

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

Mesostigmata (Acarina)'dan 5 akar türü 1988-1995 yılları arasında elde edilmiş ve tanımlanmıştır. Belirlenen türler: ***Parasitus fimetorum*** (Berlese) (Parasitidae), ***Hypoaspis aculeifer*** (Canestrini), ***H. cf. laevis*** (Michael) (Laelapidae); ***Alliphis cf. halleri*** (Canestrini) (Eviphididae) ve ***Veigaia nemorensis*** (Koch) (Veigaiidae)dir. ***H. aculeifer*** dışındaki diğer türler Turkiye akar faunası için yeni kayıttır. Bu türlere ilişkin tanıtıcı karakterler şekillerle açıklanmıştır.

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Figure legends

Figures 1-4. ***Parasitus cf. fimetorum*** (Berlese, 1903)

1. Dorsal shield, 2. Chelicera, 3. Ventral shield, 4. Spermatodactyl (male)

Figures 5-7. ***Hypoaspis aculeifer*** (Canestrini, 1884)

5. Dorsal shield, 6. Ventral shield, 7. Spematodactyl (male)

Figures 8. ***Hypoaspis laevis*** (Michael, 1891)

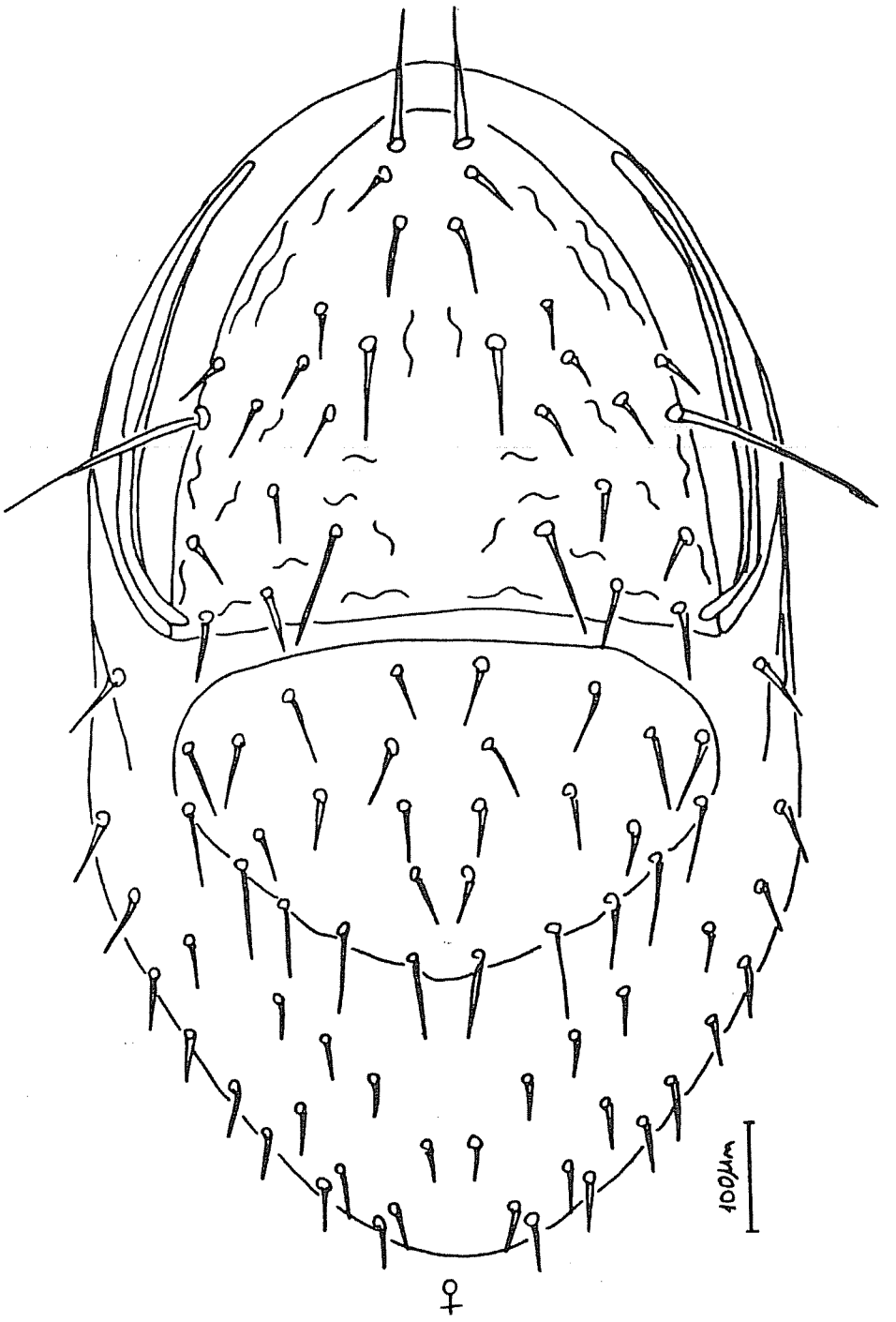
8. Ventral shield

Figures 9-12. ***Alliphis cf. halleri*** (G.R. Canestrini, 1881)

9. Dorsal shield, 10. Chelicera, 11. Tectum, 12. Ventral shield, 13. Spermatodactyl (male)

Figures 14-17. ***Veigaia nemorensis*** (C.L. Koch, 1839)

14. Dorsal shield, 15. Chelicera, 16. Tectum, 17. Ventral shield.



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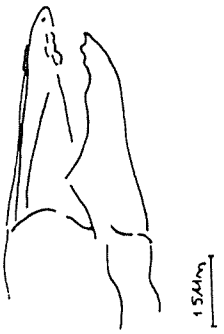

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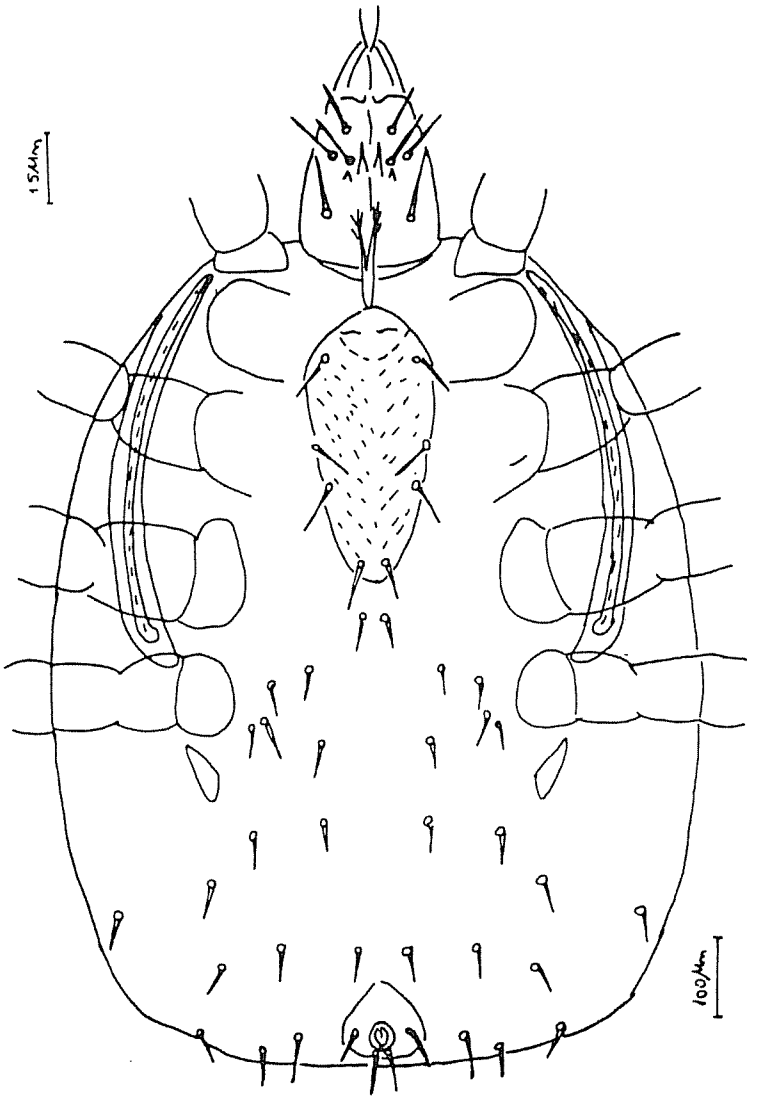

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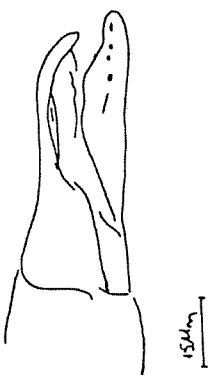

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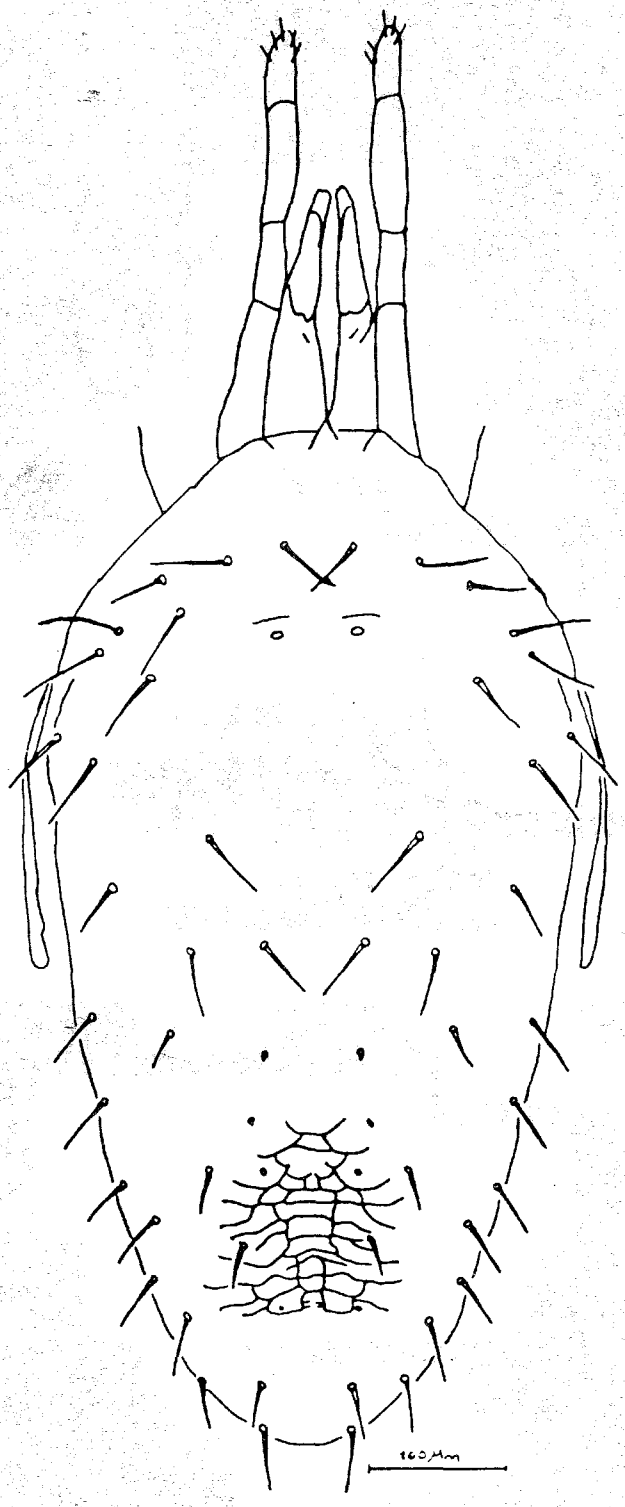

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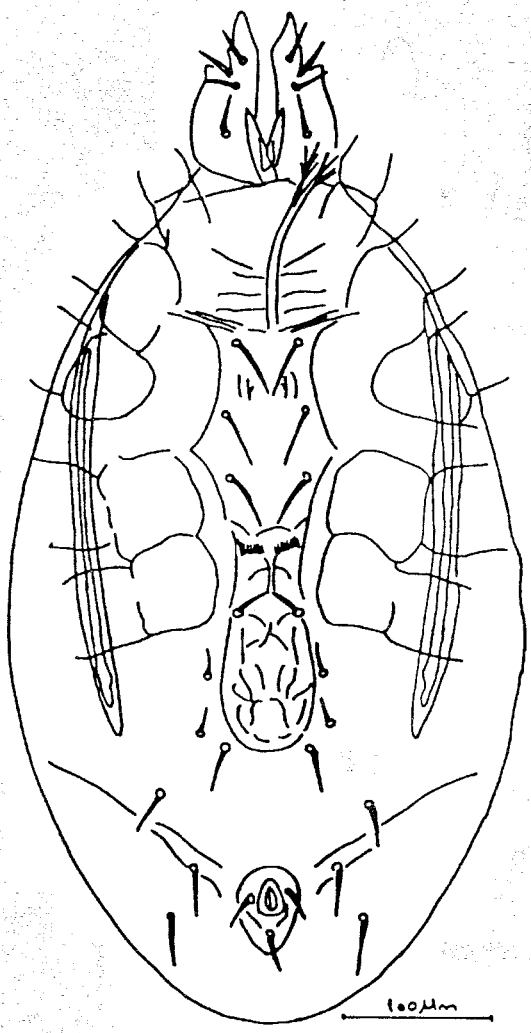

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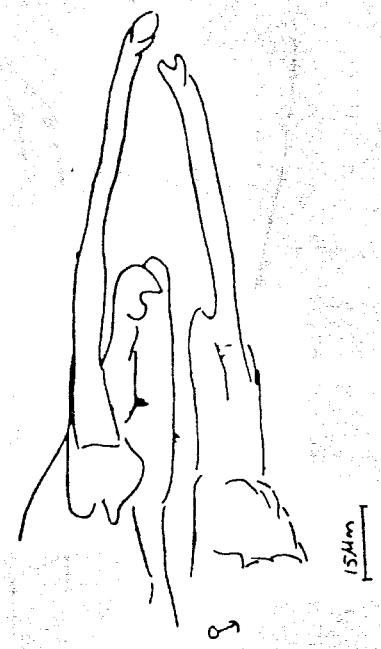

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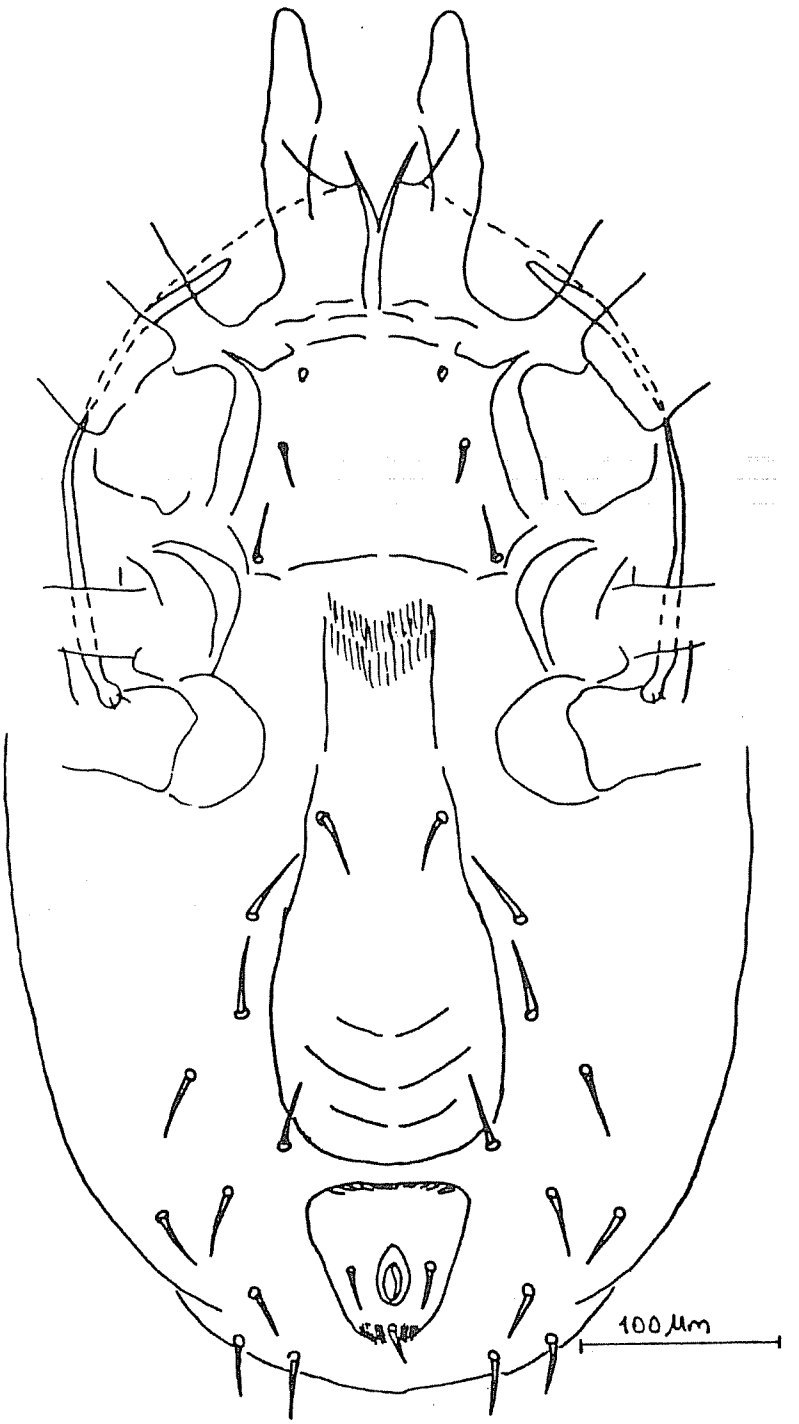

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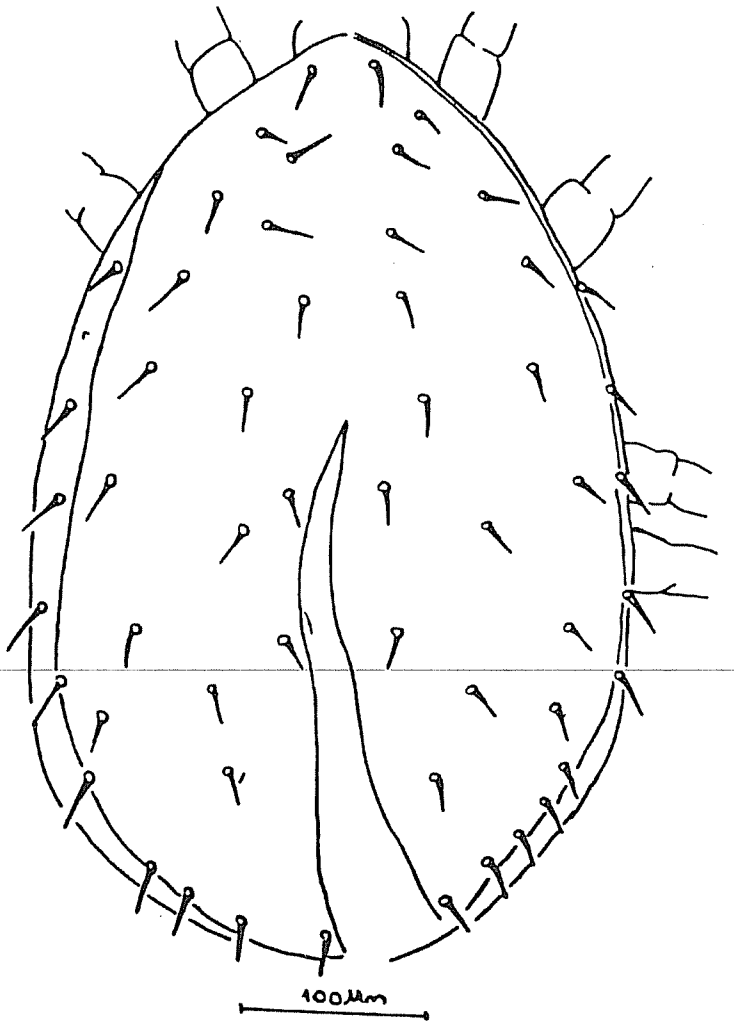

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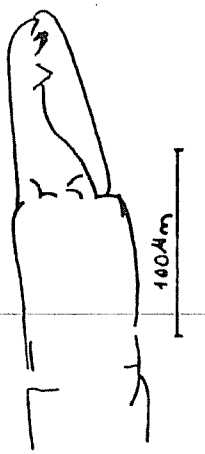

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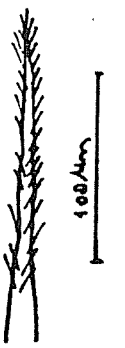

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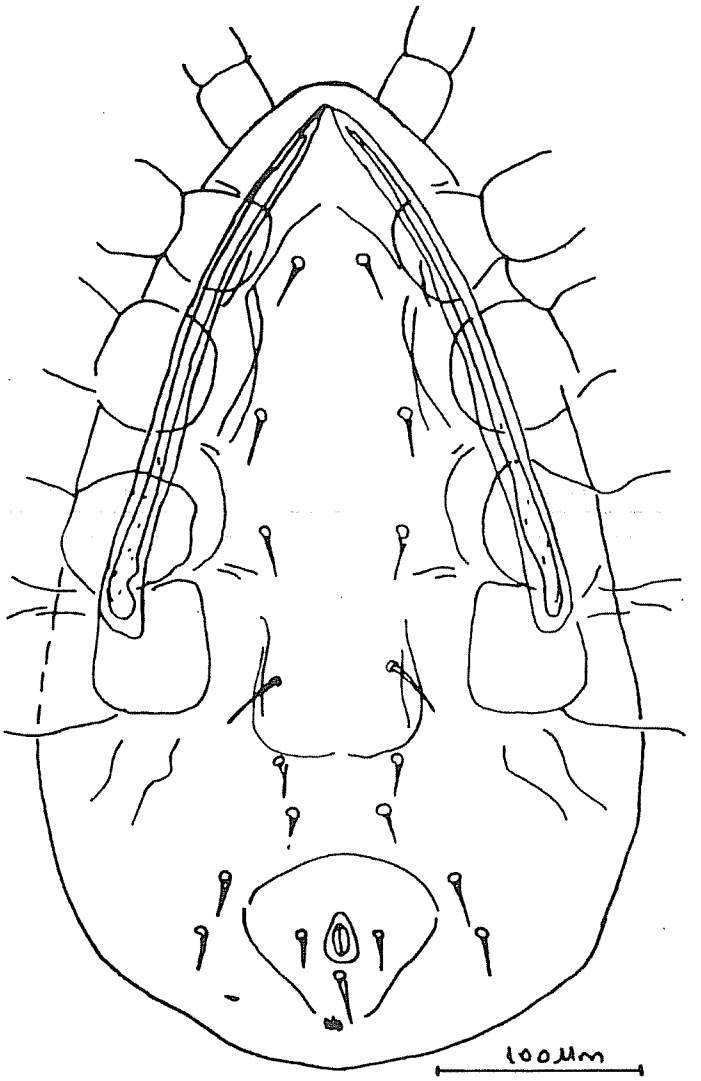

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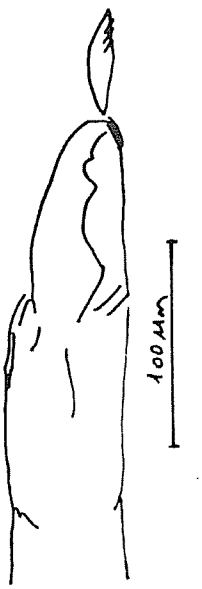

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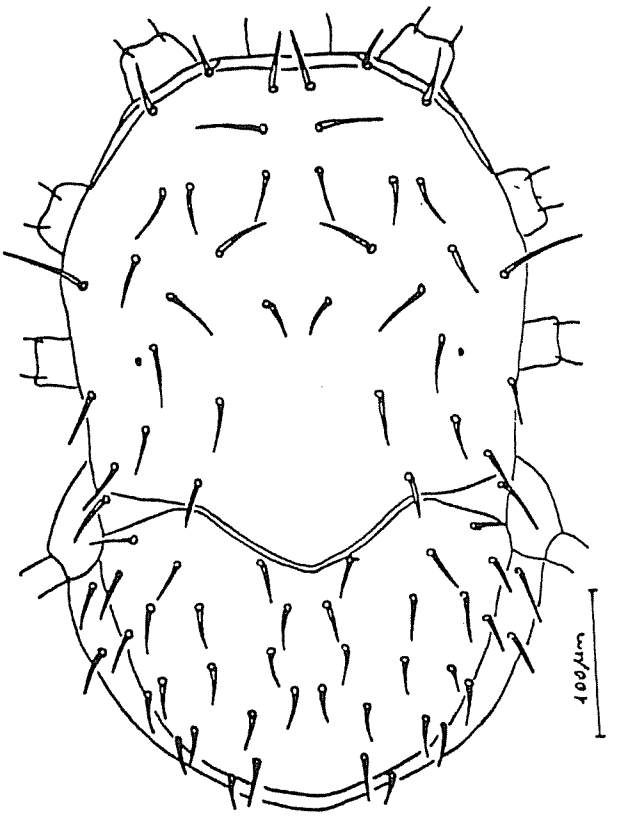

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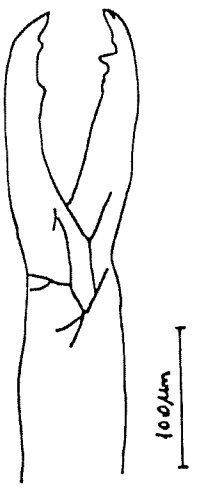

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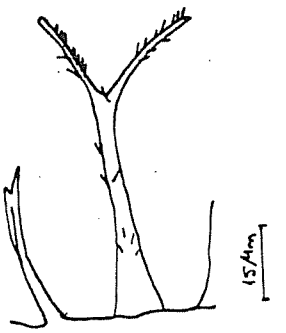

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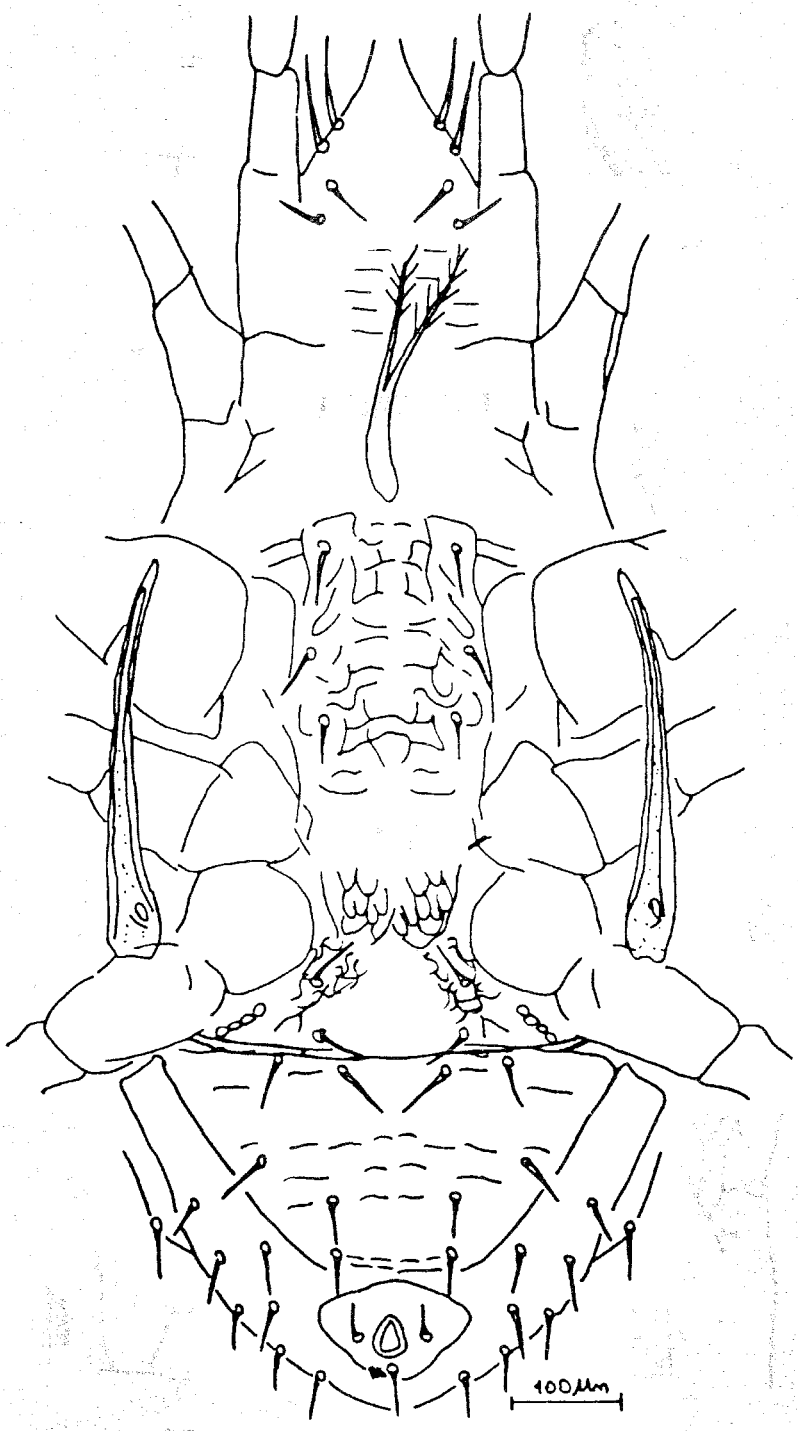

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