



## Two new species of oppioid mites from Turkey (Acari: Oribatida)

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### Abstract

Two new oppioid oribatid mites, *Moritzoppia unicarinata yozgatensis* ssp. nov. of the family Oppiidae and *Cosmogneta ozkani* sp. nov. of the family Autognetidae are described from Turkey, using specimens collected in Yozgat Pine Grove National Park.

**Key words:** Oppioidea, Oppiidae, Autognetidae, Yozgat Pine Grove National Park, Turkey

### Introduction

Yozgat Pine Grove National Park in Turkey was established in 1958 and is located within the borders of the Municipality of Yozgat. The black pine tree (*Pinus nigra*) grove of 265 ha is the nucleus of this area; the empty lands surrounding this area have also been added to the National Park by afforesting during the years of 1984–1986. Today, 800 ha of lands have been taken under protection and mostly consist of black pine trees and oaks (Anonymous, 1988).

Works on oribatid mites of Turkey do not mention any data on Yozgat Pine Grove National Park (Özkan *et al.* 1988, 1994). To date, there has been no report on the oppioid subgenus *Moritzoppia* (*Moritzoppia*) Subias & Rodriguez, 1988 and the genus *Cosmogneta* Grandjean, 1960 from Turkey (Özkan *et al.* 1988, 1994; Ayyıldız 1989; Baran & Ayyıldız 2004a, b).

The genus *Moritzella* was described by Balogh (1983), with the type species, *Oppia keilbachi* Moritz, 1969, but it was an invalid name and was renamed by Subias and Rodriguez (1988) as *Moritzoppia*. So far, 15 species and 7 subspecies of the subgenus *Moritzoppia* (*Moritzoppia*) are known (Subias 2004).

The genus *Cosmogneta* was described by Grandjean (1960) with the type species *Cosmogneta impedita* Grandjean, 1960. The genus *Cosmogneta* is represented by only three species (Subias 2004).

This work describes a new subspecies of *Moritzoppia unicarinata* and a new species of *Cosmogneta*, on the basis of the materials collected from Yozgat Pine Grove National Park in Turkey.

Measurements are given in micrometers. The type materials are deposited in the Acarological Collection of the Zoological Museum, Erciyes University, Kayseri, Turkey.

## Descriptions of new taxa

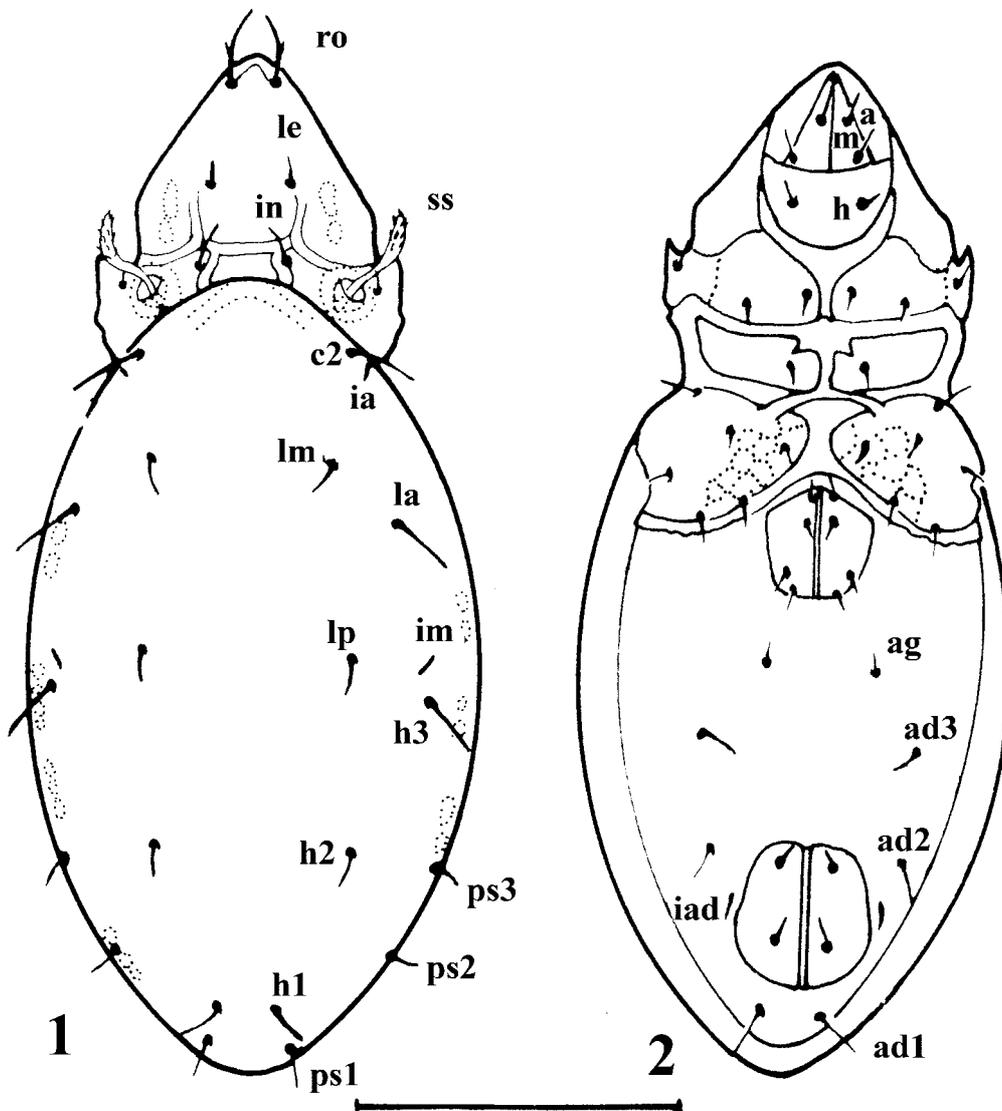
### *Moritzoppia unicarinata yozgatensis* ssp. nov.

Figs. 1–6

*Measurements.* Body length: 296–320 (holotype: 300), body width: 124–140 (holotype: 134). Six specimens were measured.

*Prodorsum* (Fig. 1). Rostrum rounded. Rostral setae 22 in length, arising on the dorsal surface of rostrum, curved inwards, with one cilia. There is a protuberance between the rostral setae. Lamellar setae 6 in length, arising near the costulae. Interlamellar setae 10 in length, on a pair of cristae in the interbothridial region. Distance between lamellar and interlamellar setae shorter than that between rostral and lamellar setae. Costulae in the shape of two inverted 'V', transcostula well developed. One pair of tubercles outside of the costulae. Sensilla fusiform, with several distinct barbs.

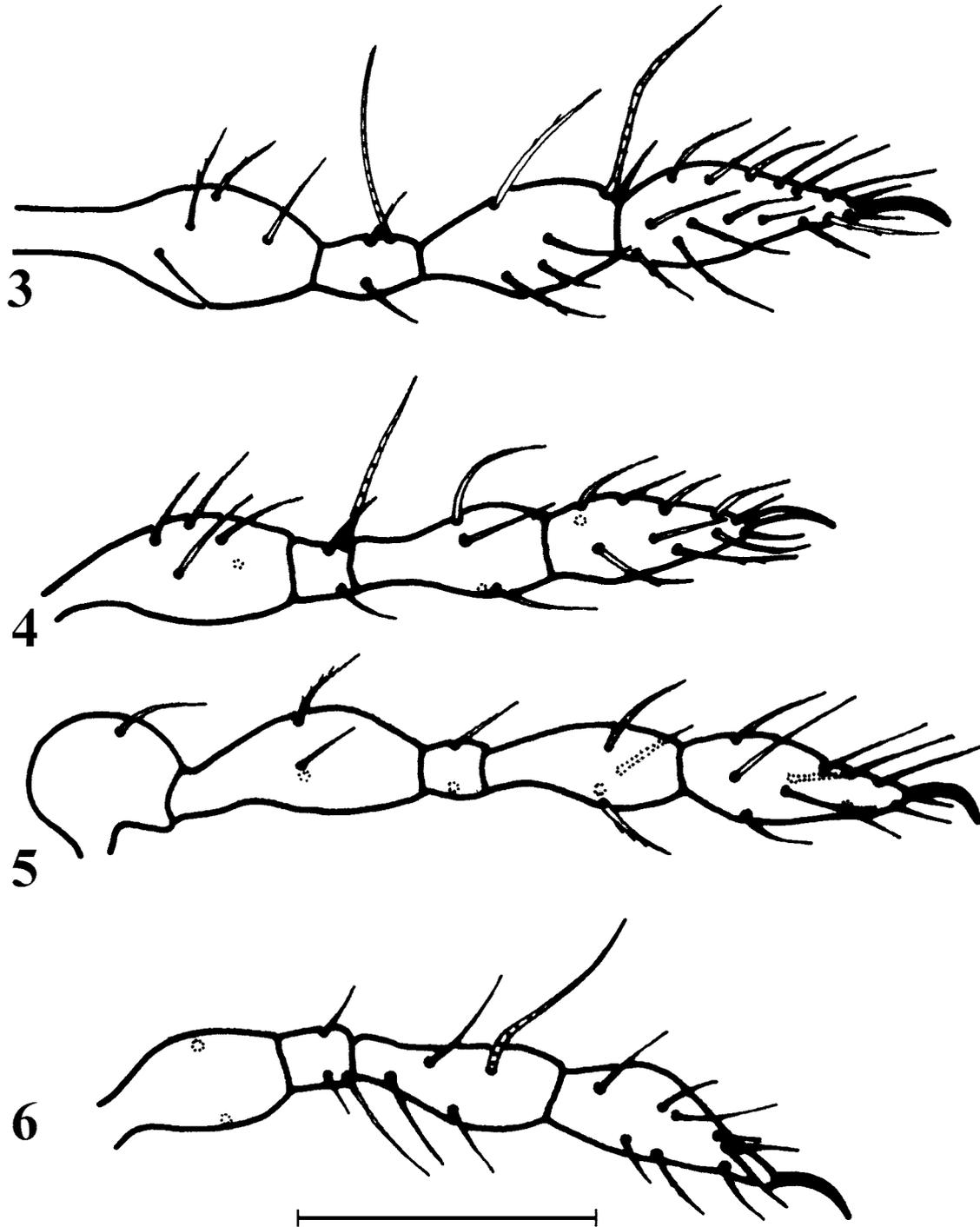
*Notogaster* (Fig. 1). Elongate oval, 234 in length, its anterior and posterior margins conspicuously narrowed; anterior margin reaching to the level of anterior edge of bothridia. Crista absent. Ten pairs of notogastral setae; seta  $c_2$  20 in length and smooth.



FIGURES 1–2. *Moritzoppia unicarinata yozgatensis* ssp. nov. —1) Dorsal view, 2) Ventral view (scale bar for all figures = 100  $\mu$ m).

*Ventral side* (Fig. 2). Mentum 26 in length, 40 in width. Setae *m* 10, setae *a* 12 in length. Epimeral setal formula 3-1-3-3. Epimeral regions 3 and 4 with polygonal network, but on epimere 2 polygonal network is visible only in median part. Genital plate 34 in length, 32 in width, with four pairs of setae. Anal plate 40 in length, 44 in width, with two pairs of setae. One pair of aggenital and three pairs of adanal setae. Distance between genital and anal plates 72. Lyrifissures *iad* situated in para-anal position. Adanal setae *ad*<sub>1</sub> in postanal, *ad*<sub>2</sub> in para-anal and *ad*<sub>3</sub> in preanal positions.

*Legs* (Figs. 3–6). All legs monodactylous, setation of leg segments is given in figures 3–6.



**FIGURES 3–6.** *Moritzoppia unicarinata yozgatensis* ssp. nov. —3) Leg I, 4) Leg II, 5) Leg III, 6) Leg IV (scale bar for all figures = 40  $\mu$ m).

*Material examined.* YÇMP-370, soil from *Pinus nigra* and *Quercus* spp. forest, N 39°48.137', E 034°48.663', 1569 m, 18 Apr 2006, holotype and one paratype; YÇMP-363, as for the previous sample, N 39°48.140', E 034°48.666', 1563 m, 18 Apr 2006, one paratype YÇMP-379, as for the previous sample, N 39°48.122', E 034°48.653', 1577 m, 18 Apr 2006, three paratypes (one of them in the collection of L. S. Subias, Spain).

*Etymology.* Specific name *yozeatensis* is named after the locality, Yozgat, where the present new species was found.

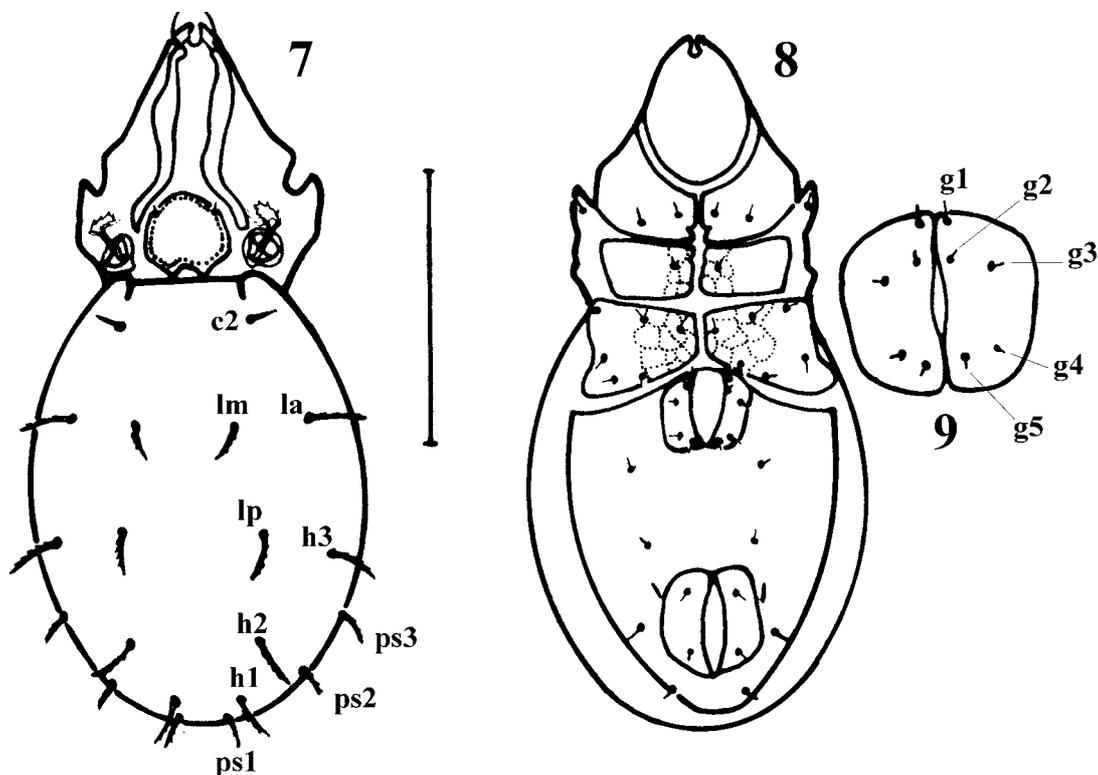
*Remarks.* This new subspecies resembles *Moritzoppia unicarinata clavigera* described by Hammer (1952) from Northern Canada. However, it can be distinguished from the latter species by the following features: 1) there is a protuberance between the rostral setae in the new species (there is no protuberance between the rostral setae in *M. unicarinata clavigera*); 2) lamellar setae arising near the costulae in the new species (lamellar setae arising at the distal end of the costulae in *M. unicarinata clavigera*); 3) anterior margin of the notogaster reaches to the level of anterior margin of the bothridium in the new species (anterior margin of the notogaster reaches to the level of posterior margin of the bothridium in *M. unicarinata clavigera*).

Colloff & Seyd (1991) redescribed *M. clavigera* by using syntypes. They stated that the translamella is absent the specimens they examined, although Hammer (1952) mentions that often the middle portion of the translamella is absent, or it is tripartite, and she shows it as complete in her figure. However, from the translamella point of view, our samples resemble the Hammer's figure (Hammer 1952). In the description, we used the transcostula instead of the translamella.

***Cosmogneta ozkani* sp. nov.**

Figs. 7–17

*Measurements.* Body length 228–244 (holotype: 244), body width 104–116 (holotype: 114).



FIGURES 7–9. *Cosmogneta ozkani* sp. nov. —7) Dorsal view, 8) Ventral view, 9) Genital plates (scale bar for 7 and 8 = 100 µm, 9 = 40 µm).

*Prodorsum* (Figs. 7, 10–13). Rostrum divided by deep median incision. Rostral setae smooth, 13 in length, arched inwards. The costulae long, parallel, widened at their median parts and reaching to the median incision of the rostrum. Lamellar setae 5 in length, arising at the distal end of the costulae, situated closer to rostral setae than to interlamellar setae. Interlamellar setae minute, 2 in length and arising in anterior one-third of the interbothridial protuberance. Lamellar and interlamellar setae smooth. Bothridia well developed. Sensilla with long stalk and little dilated, strongly barbed elliptical heads.

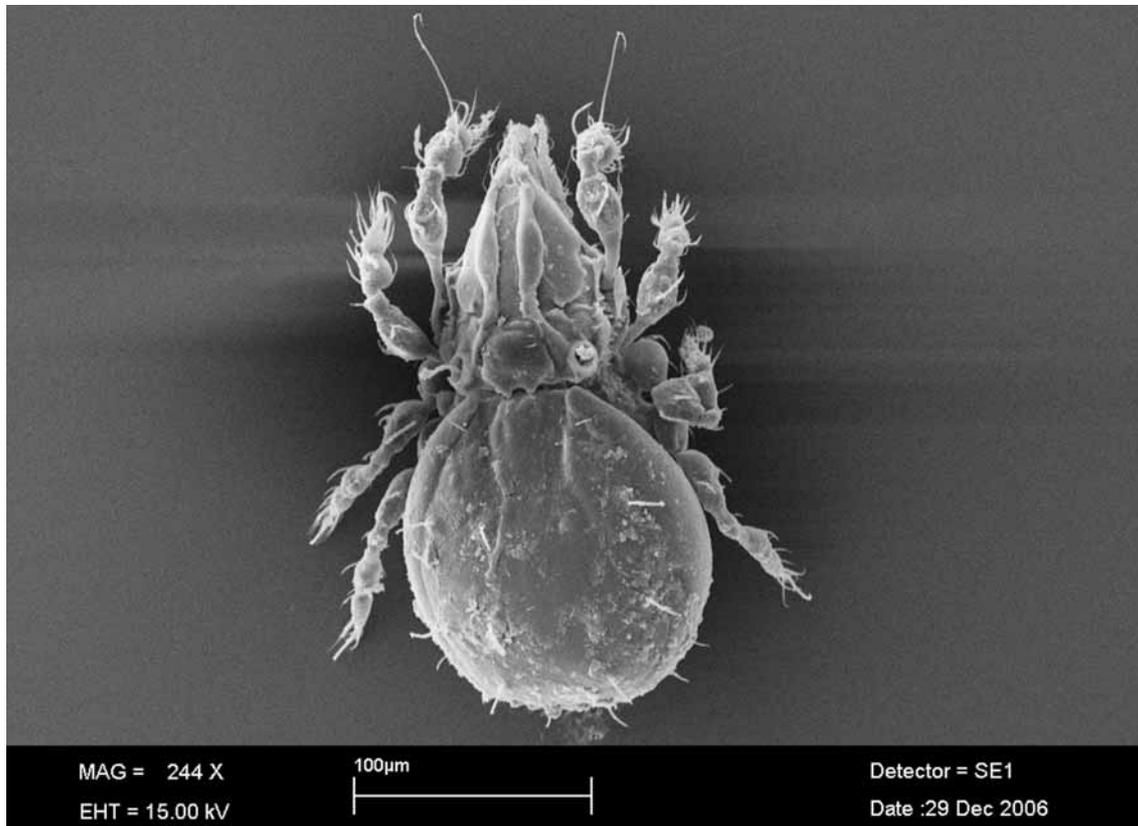


FIGURE 10. *Cosmogneta ozkani* sp. nov. —Dorsal view.

*Notogaster* (Figs. 7, 10). Oval, but straight anteriorly, with one pair of prominent humeral processes. Ten pairs of notogastral setae, thick and unilaterally barbed.

*Ventral side* (Figs. 8, 9). Epimeral regions 3 and 4 with polygonal network, but on epimere 2 polygonal network is visible only in median part. Epimeral setal formula 3-1-3-3. Genital plate 26 in length, 28 in width, with five pairs of setae. Form and position of genital setae as shown in Fig. 9. Anal plate 38 in length, 30 in width, with two pairs of setae. Aggenital setae and three pairs of adanal setae short and thin. Distance between genital and anal plates 38. Lyrifissure *iad* situated in para-anal position. Adanal setae *ad*<sub>1</sub> in postanal, *ad*<sub>2</sub> in para-anal and *ad*<sub>3</sub> in preanal position.

*Legs* (Figs. 14–17). All legs monodactylous. Setation of leg segments is given in figures 14–17.

*Material examined*. YÇMP-382, soil from *Pinus nigra* and *Quercus* spp. forest, N 39°48.141', E 034°48.742', 1498 m, 12 May 2006, holotype, four paratypes; YÇMP-251, soil and litter from *Pinus nigra* and *Quercus* spp. forest, N 39° 48.452', E 034°48.955', 1455 m, 01 Dec 2005, two paratypes; YÇMP-257, as for the previous sample, N 39°48.460', E 034°48.935', 1460 m, 01 Dec 2005, one paratype; YÇMP-258, as for the previous sample, N 39°48.456', E 034°48.932', 1461 m, 01 Dec 2005, one paratype; YÇMP-386, soil from *Pinus nigra* and *Quercus* spp. forest, N 39°48.189', E 034°48.713', 1505 m, 12 May 2006, one paratype; YÇMP-412, as for the previous sample, N 39°48.138', E 034°48.750', 1569 m, 12 May 2006, eleven paratypes (three of them in the collection of L. S. Subias, Spain); YÇMP-442, soil from uncovered area, N 39°48.022', E 34°48.557', 1548 m; 19 June 2006, seven paratypes.

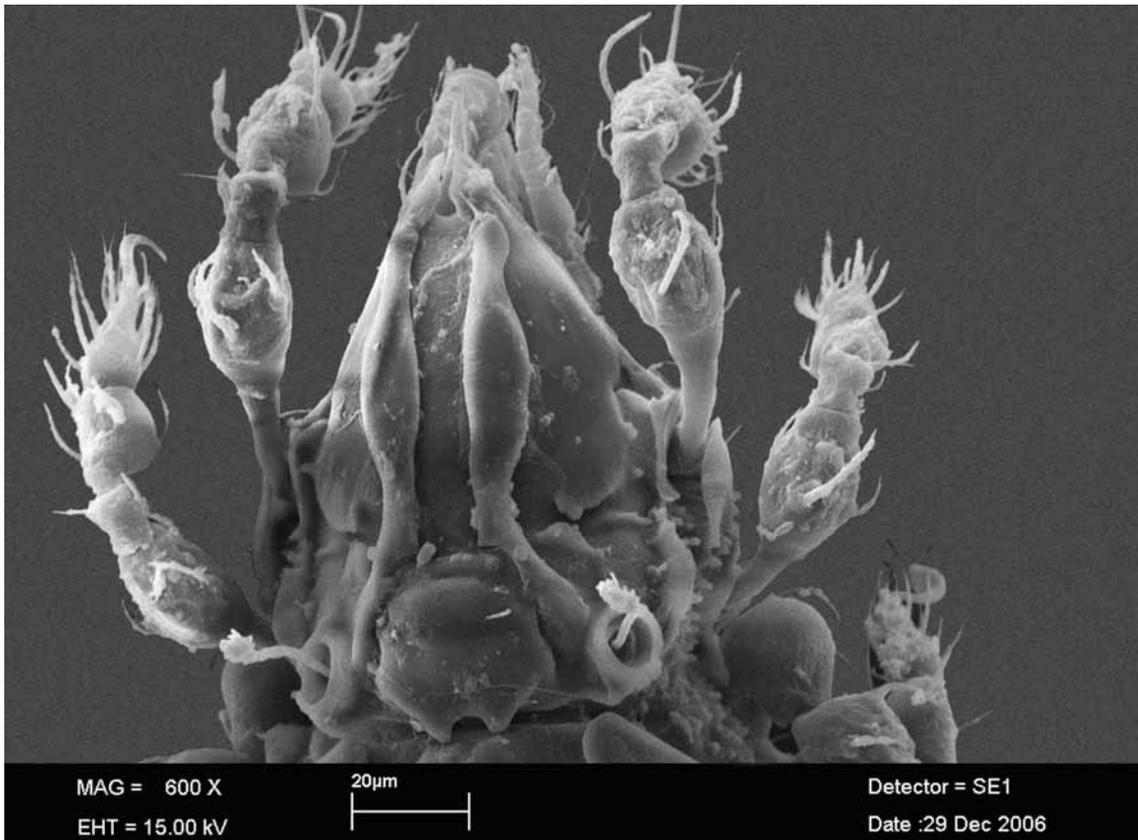


FIGURE 11. *Cosmogneta ozkani* sp. nov. —Prodorsum.

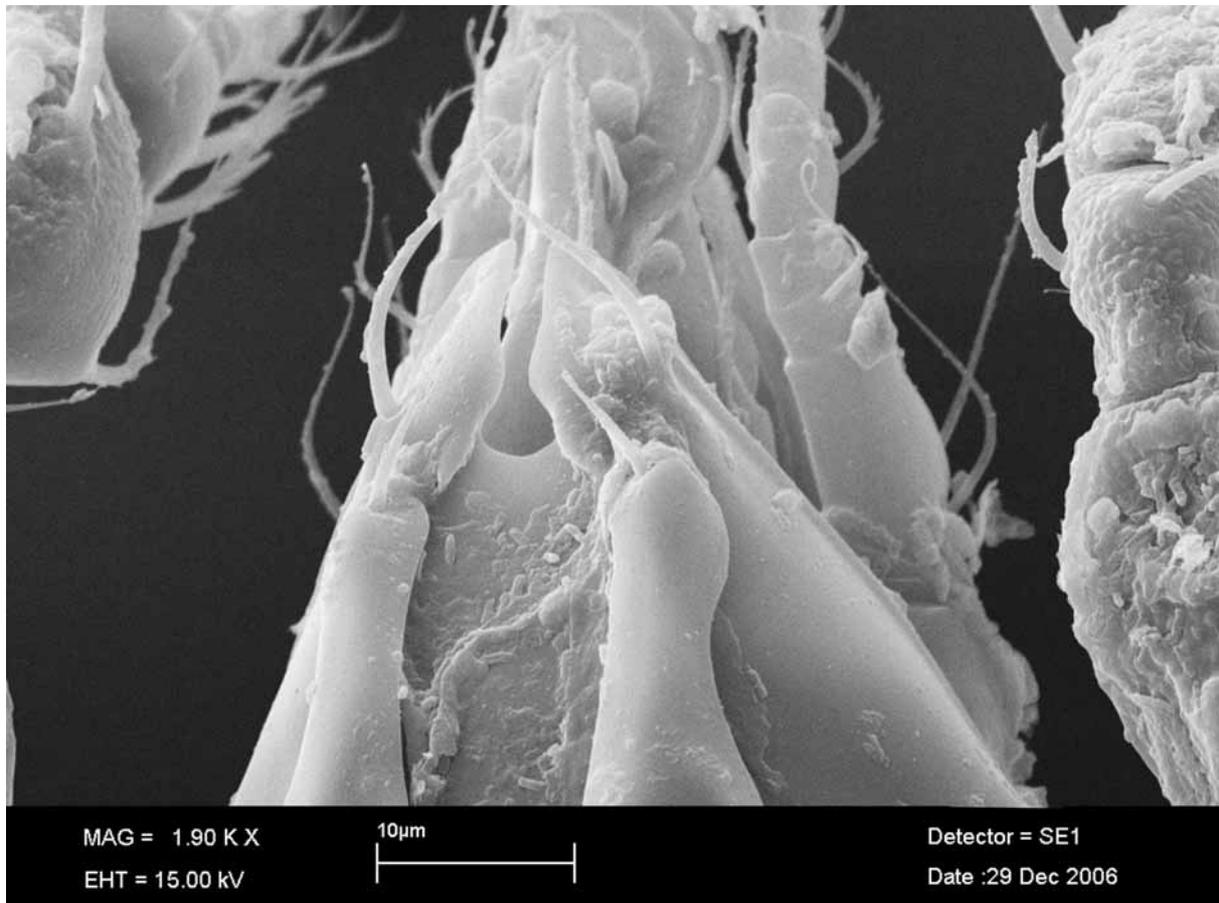
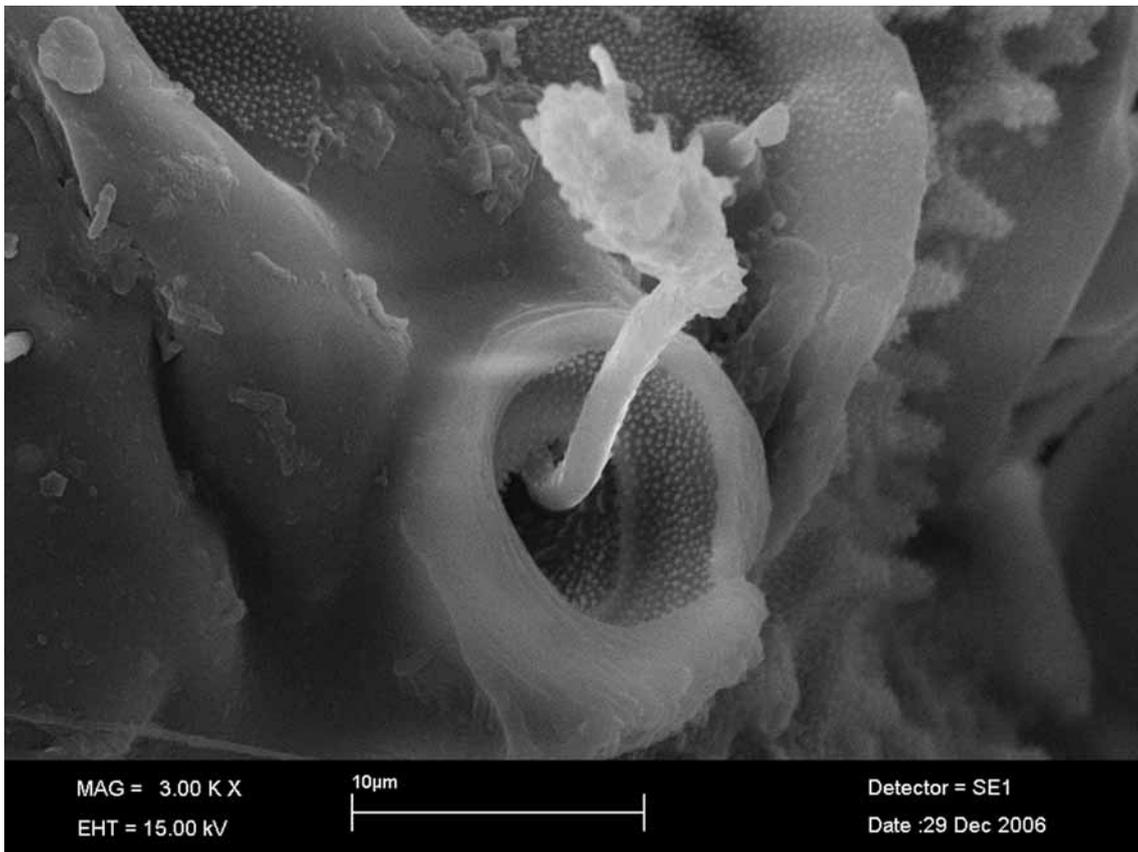
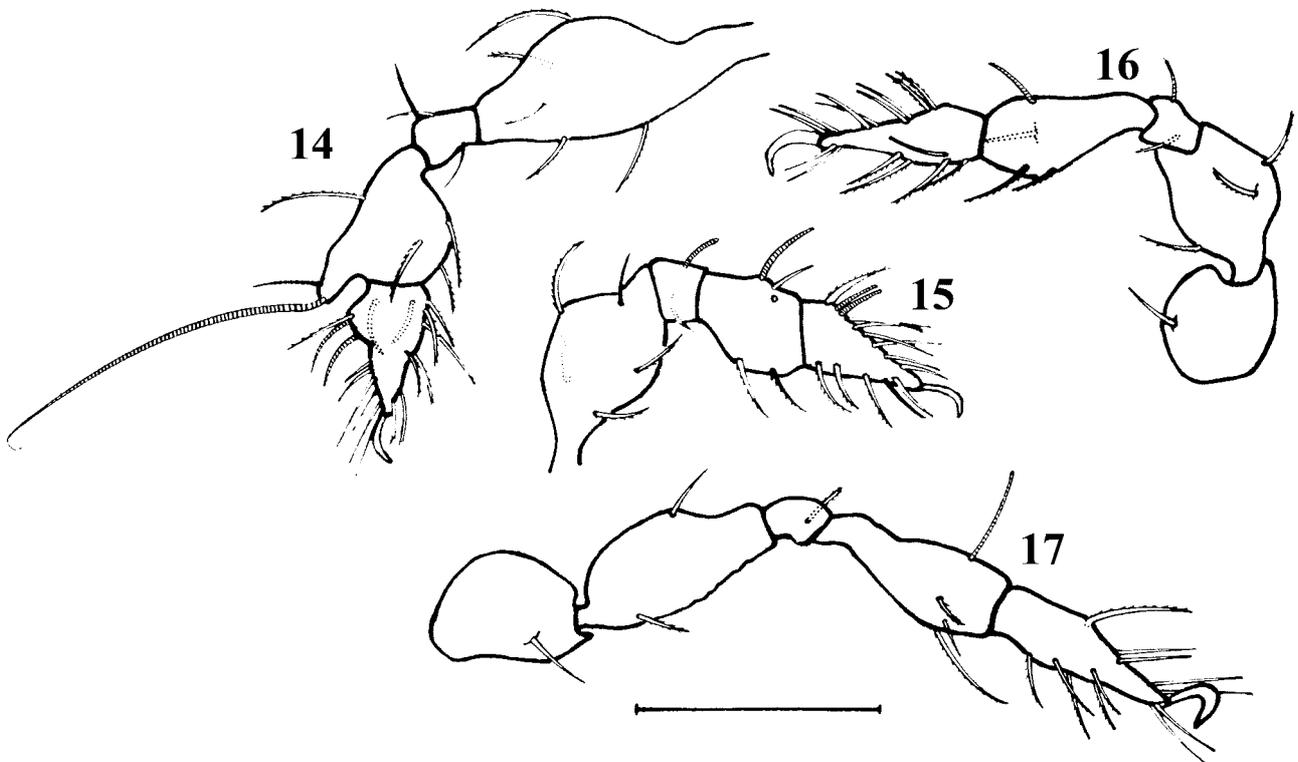


FIGURE 12. *Cosmogneta ozkani* sp. nov. —Rostrum and anterior part of lamella.



**FIGURE 13.** *Cosmogneta ozkani* sp. nov. — Bothridium and sensillus.



**FIGURES 14–17.** *Cosmogneta ozkani* sp. nov. — 14) Leg I, 15) Leg II, 16) Leg III, 17) Leg IV (scale bar for all figures = 40 μm).

*Etymology.* This new species is named in honor of Prof. Dr. M. Özkan, Uludağ University, Turkey, for his contribution to the knowledge of Turkish mite fauna.

*Remarks.* Until now, only three species of the genus *Cosmogneta* have been described, namely *C. impedita* Grandjean, 1960 from France, *C. kargi* Grandjean, 1963 from Germany and *C. cassolai* Bernini, Baratti and Avanzati, 1991 from Italy (Grandjean 1960, 1963; Bernini *et al.* 1991; Subias 2004).

These species, and *C. ozkani*, are all similar to each other but can be identified with the following key.

1. Lamellar setae present .....2
- Lamellar setae absent.....3
2. All notogastral setae thick and barbed; length = 228–244 ..... *C. ozkani* sp.nov.
- The setae  $c_2$  and  $ps$  series short and thin, the remaining notogastral setae thick, apically enlarged and penicillate; length = 270 and 271 ..... *C. cassolai* Bernini, Baratti & Avanzati, 1991
3. All notogastral setae thin and smooth; length = 300–320 ..... *C. kargi* Grandjean, 1963
- The setae  $c_2$  and  $ps$  series short and thin, the remaining notogastral setae thick, apically enlarged and curved spatula-like; length = 270–310 ..... *C. impedita* Grandjean, 1960

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