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## ON CALIGONELLID MITES FROM TURKEY (ACARI: CALIGONELLIDAE)

BY

**Salih DOĞAN**

(Ms. reçu le 24.11.2003, accepté le 28.11.2003)

### ABSTRACT

**On Caligonellid mites from Turkey (Acari: Caligonellidae).** - A new caligonellid mite, *Molothrognathus kamili* is described and illustrated from Turkey. Turkish *Molothrognathus* species has been reviewed and *Molothrognathus artvinensis* Koç & Ayyıldız 1997 **syn. nov.** has been given as a junior synonym of *Molothrognathus venusta* (Khaustov & Kuznetsov, 1997) **comb. nov.** Two caligonellid species, *Molothrognathus crucis* Summers & Schlinger, 1955 and *Neognathus spectabilis* (Summers & Schlinger, 1955), are newly recorded from Turkey and re-described. *Neognathus terrestris* (Summers & Schlinger, 1955) and *Caligonella humilis* (Koch, 1838) are recorded from new localities. A key to the known genera of Caligonellidae from Turkey is included.

**Key-words:** Acari, Caligonellidae, *Caligonella*, *Molothrognathus*, *Neognathus*, new species, new records, Turkey.

### INTRODUCTION

These free living predatory mites often live on tree bark, litter, soil moss, storehouse and bird's nest. They are feeding on small arthropods and worldwide distributions (SUMMERS & SCHLINGER, 1955; MEYER & UECKERMANN, 1989; FAN, 2000). In Turkey two caligonellid species have been described recently. During my studies on caligonellid mites in Turkey, I found that *Molothrognathus artvinensis* Koç & Ayyıldız 1997 **syn. nov.** is a junior synonym of *Molothrognathus venusta* (Khaustov & Kuznetsov, 1997) **comb. nov.** I describe a new species from Turkey, report two species from Turkey for the first time, provide diagnostic characters for each genera of Turkish Caligonellidae, give distributions for each species, and also give a key to the genera of Turkish Caligonellidae. Terminology follows those of KETHLEY (1990) and GRANDJEAN (1944). All measurements are given in micrometers ( $\mu\text{m}$ ). Types and examined specimens are deposited in the Zoological Museum of Atatürk University, Erzurum, Turkey.

### Key to the genera of Turkish Caligonellidae

- 1 Peritremes on laterobasal margins of stylophore, W-shaped . *Neognathus* Willmann
- Peritremes not on laterobasal margins of stylophore, not W-shaped . . . . . 2
- 2 Peritremes emerging anteriorly on stylophore . . . . . *Caligonella* Berlese
- Peritremes emerging medially on stylophore, immediately behind the stylet bases . . . . . *Molothrognathus* Summers & Schlinger

### *Caligonella* Berlese

**Type species** - *Stigmaeus humilis* Koch, 1838.

This genus has the following diagnostic characters: Dorsal shields absent or present; two eyes on each side on dorsum, peritremes originate on anterior tip of stylophore and terminate on its dorsal surface. This genus comprises six species worldwide. In Turkey, only one species, *Caligonella humilis* (KOCH, 1838) is reported by KOÇ AND AYYILDIZ (1996).

### *Caligonella humilis* (Koch)

**Examined materials** - Three females from soil under *Populus* sp., Gelinkaya, Ilıca, Erzurum, 30. X. 1999; one female from soil under *Juniperus* sp., Maden Köprübaşı, Pazaryolu, Erzurum, 30. X. 1999; two females from moss, Yukarı Parmaksız, Hınıs, Herzurum, 19. V. 2000; one female from soil and litter under *Astragalus* sp., Çat, Erzurum, 27. V. 2000; five females from moss, Karayazı, Erzurum, 08.VI. 2000; five females from moss, Yeniköy, Karayazı, 08. VI. 2000; ten females from litter under a mixed forest, Allahuekber Mountain, Şenkaya, Erzurum, 21. VIII. 2000; three females from litter under *Alnus* sp., Maçka, Trabzon, 21. VIII. 2000; two females from moss, Üzümlü, Erzincan, 28. X. 2000; eight females from soil and litter under *Astragalus* sp., Bardakçı Village, Çat, Erzurum, 02. V. 2001; ten females from litter under *Salix* sp., Hınıs, Erzurum, 04. VI. 2001; twenty two females from soil and litter under *Astragalus* sp., Kiremitlik Tabya Atatürk Forest, Erzurum, 19. V. 2001; sixteen females from moss and litter under *Pinus* sp., Akdag Mountain, Olur, Erzurum, 15. VI. 2001; four females from moss, Dumanlı Forest, Erzincan, 05. VII. 2001; five females from soil and litter under *Astragalus* sp., Dumanlı Forest, Refahiye, Erzincan, 05. VII. 2001; twelve females from soil under *Pinus sylvestris*, Uzundere, Erzurum, 05. VII. 2001; thirty females from soil under *Astragalus* sp., Ovaköy, Pasinler, Erzurum 12. VII. 2001; eight females from soil in the nest of a wild animal, Bardakçı Village, Çat, Erzurum, 12. VII. 2001; two females from moss, Köprükoy Village, İspir, Erzurum, 04. VIII. 2001; one female from moss, Ovit Mountain, İspir, Erzurum, 04. VIII. 2001; twenty females from moss and litter under *Juniperus* sp., Tortum, Erzurum, 20. VIII. 2001; two females from soil and litter under *Astragalus* sp., Kapapınar Village, Narman, Erzurum, 29. VIII. 2001; one female from moss, Beyler Village, Olur, Erzurum, 29. VIII. 2001; four females from soil and litter under *Quercus* sp., Yozgat, 07. IX. 2001; seven females from litter under a mixed forest, Uzunoluk, Oltu, Erzurum, 25. IX. 2001; one female from soil and litter under *Quercus* sp., Karaçubuk Village, Adaklı, Bingöl, 30. IX. 2001; one female from moss, Sirin Village, Bingöl, 30. IX. 2001; two females from litter and bark of *Salix* sp., Horasan, Erzurum, 24. X. 2001; one female from soil in hollow of *Salix* sp., Horasan, Erzurum, 24. X. 2001; one female from moss, the campus of Atatürk University, Erzurum, 30. XII. 2001; seven females from moss, Güney, Denizli, 05. III. 2002; eighty females from moss, Düziçi, Osmaniye, 08. III. 2002; four females from soil, Kırıkkale,



15. V. 2002; two females from moss, Amasya, 16. V. 2002; three females from moss, Amanos, Osmaniye, 16. VI. 2002; five females from soil and litter under *Astragalus* sp., Kavaklı Village, Ispir, Erzurum, 02. VII. 2002; two females from moss, Aşkale, Erzurum, 05. VIII. 2002; five females from soil under *Astragalus* sp., Eleşkirt, Agri, 20. VII. 2002.

**Distribution:** The Baltic region, Europe and North America (KOCH, 1838; BERLESE, 1886; GRANDJEAN, 1946; SUMMERS & SCHLINGER, 1955; KUZNETZOV & PETROV, 1984; KOÇ AND AYYILDIZ, 1996; KHAUSTOV & KUZNETZOV, 1997; KAŻMIERSKI, 2000).

### *Neognathus* Willmann

**Types species** - *Neognathus insolitus* Willmann, 1952.

This genus can be defined by the following characters: Idiosoma without dorsal shield or eyes; stylophore elongate, conical; peritremes confined to stylophore, w-shaped, outer arms ending on small lobules projecting from side walls of inflated section of stylophore.

SUMMERS & SCHLINGER (1955) fully described this genus under *Stigmagnathus*. Summers (1957) synonymized the latter genus with *Neognathus* Willmann, 1952. FAN (2000) suggested that four species belonging to *Neognathus* are transferred to the genus *Paraneognathus*. There are seven species in the genus (DOGAN & AYYILDIZ, 2003). To date this genus in Turkey is represented by one species: *Neognathus terrestris*, the only species reported from California and Turkey (SUMMERS & SCHLINGER, 1955; DOGAN & AYYILDIZ, 2003).

### *Neognathus terrestris* (Summers & Schlinger)

**Examined materials** - Six females from grassy soil, the campus of Atatürk University, Erzurum, 31. VIII. 1999; one female from soil under *Acacia* sp., Dikyarkapı district, Uzundere, Erzurum, 03. X. 1999; one female from soil under *Populus* sp., Gelinkaya, Ilıca, Erzurum, 30.X. 1999; two females from soil under *Juniperus* sp., Maden Köprübaşı, Pazaryolu, Erzurum, 30. X. 1999; one female from soil and litter under *Rosa* sp., Güzelhisar, Köprüköy, Erzurum, 27. IV. 2000; four females from moss, Yukarı Parmaksız, Hınıs, Erzurum, 19. V. 2000; one female from soil Pınarderelesi district, Olur, Erzurum, 31. V. 2000; eight females from litter under *Salix* sp., Ilıca, Erzurum, 09. VII. 2000; thirteen females from soil and litter under *Astragalus* sp., Kiremitlik Tabya Atatürk Forest, Erzurum, 19. V. 2001; twenty two females from decayed bark of *Pinus* sp., Olur, Erzurum, 15. VI. 2001; one female from moss, Dumanlı Forest, Erzincan, 05. VII. 2001; twenty three females from moss, Köprüköy Village, Ispir, Erzurum; 04. VIII. 2001; eleven females from moss and lichen under *Ostyra carpinifolia*, Ispir, Erzurum, 04. VIII. 2001; two females from moss and lichen on the stone, Deve Mountain, Ispir, Erzurum, 04. VIII. 2001; ten females from moss, Tortum, Erzurum, 20. VIII. 2001; three females from moss and litter under *Juniperus* sp., Tortum, Erzurum, 20. VIII. 2001; one female from soil from vineyard, Yurtbaşı Village, Elazığ, 08. IX. 2001; thirty five females

from moss, Karaçubuk Village, Adaklı, Bingöl, 30. IX. 2001; forty five females from moss, Sirin Village, Bingöl, 30. IX. 2001; eight females from litter and bark of *Salix* sp., Horasan, Erzurum, 24. X. 2001; one female from soil in hollow of *Salix* sp., Horasan, Erzurum, 24. X. 2001; twenty two females from moss, the campus of Atatürk University, Erzurum, 30. XII. 2001; one female from soil from nut grove, Delice, Kırıkkale, 16. V. 2001; three females from grassy soil under *Pyrus malus*, Oltu, Erzurum, 23. V. 2002; thirteen females from moss, Amanos, Osmaniye, 25. VI. 2002; two females from moss, Aşkale, Erzurum, 05. VIII. 2002; three females from moss, Gülburnu Village, Espiye, Giresun, 30. VIII. 2002.

**Distribution** - Turkey and USA (SUMMERS & SCHLINGER, 1955; DOGAN & AYYILDIZ, 2003).

### *Neognathus spectabilis* (Summers & Schlinger)

(Figs 1-4)

*Stigmagnathus spectabilis* Summers & Schlinger, 1955: 546.

*Neognathus spectabilis* Summers, 1957: 55; Gerson, 1968: 429; Kuznetzov & Petrov, 1984: 97; Swift, 1996: 322; Khaustov & Kuznetzov, 1997: 83.

*Stigmathus* (sic) sp. Goff, 1987: 25.

**FEMALE** - Length of body (excluding gnathosoma) 320-340, width 130-147.

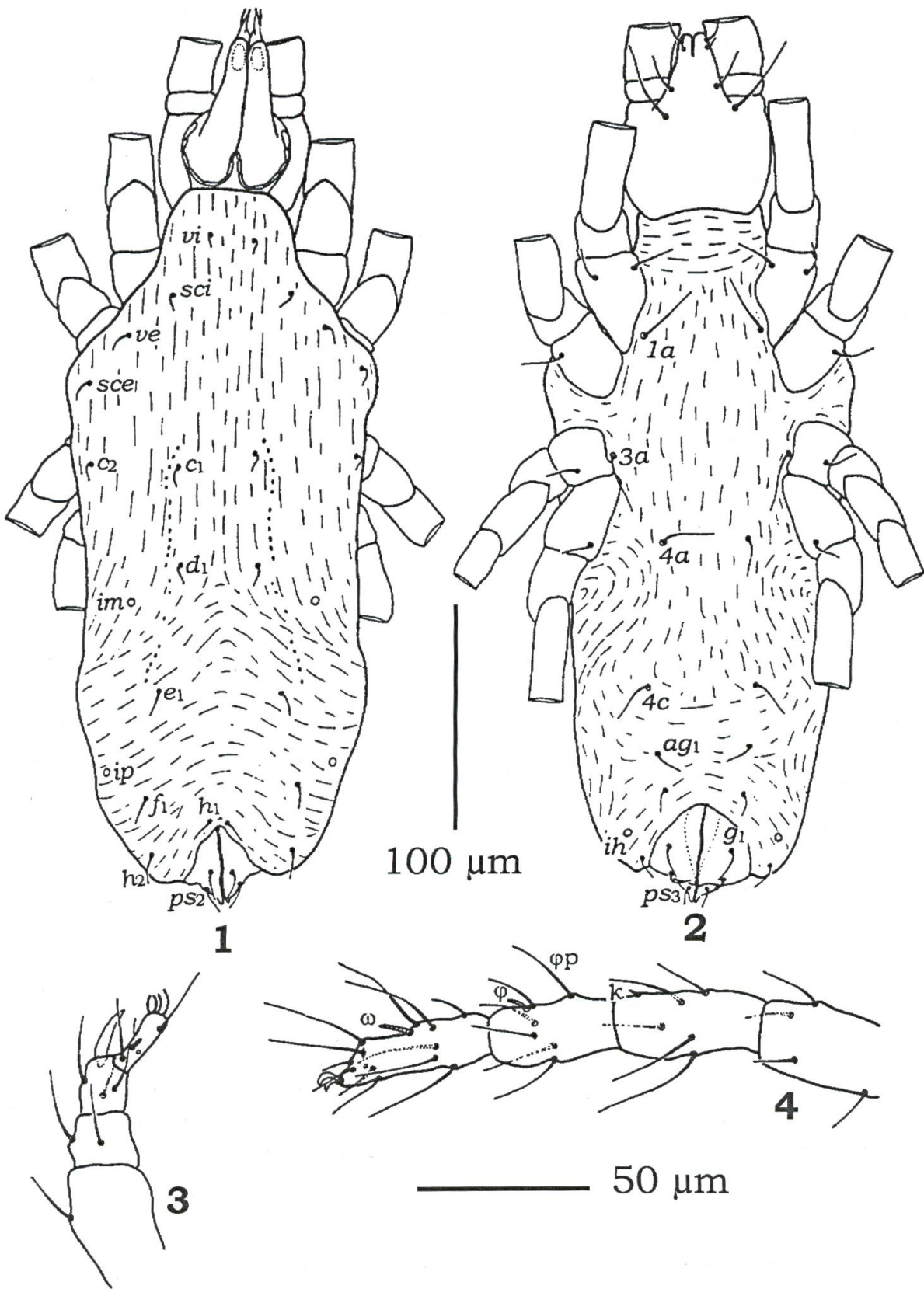
**Gnathosoma** - Length of gnathosoma 80. Ventrally with two pairs of adoral setae, two pairs of subcapitular setae, dimensions of subcapitular setae: *n*: 45, *m*: 23, distances between *n-n*: 30, *m-m*: 24, *n-m*: 12. Chelicerae 83 (including digits), stylophore conical, peritremata W-shaped, with eight segments. Palpi 93, count of setae and solenidion on palpi (femur to tarsus): 1, 2, 3 + 1 well-developed claw, 4 + 1  $\omega$  + 4 eupathidia.

**Dorsum** - Dorsum without shields and eyes, with striae. Dorsal body setae eleven pairs, simple and vary in length from 10 to 15. Distances between setae: *vi-vi*: 20, *ve-ve*: 83, *sci-sci*: 50, *vi-sci*: 29, *sce-sce*: 118, *sci-ve*: 20, *ve-sce*: 29, *c<sub>1</sub>-c<sub>1</sub>*: 31, *c<sub>2</sub>-c<sub>2</sub>*: 110, *c<sub>1</sub>-c<sub>2</sub>*: 37, *d<sub>1</sub>-d<sub>1</sub>*: 33, *c<sub>1</sub>-d<sub>1</sub>*: 52, *e<sub>1</sub>-e<sub>1</sub>*: 57, *d<sub>1</sub>-e<sub>1</sub>*: 62, *f<sub>1</sub>-f<sub>1</sub>*: 65, *e<sub>1</sub>-f<sub>1</sub>*: 45, *f<sub>1</sub>-h<sub>1</sub>*: 29, *f<sub>1</sub>-h<sub>2</sub>*: 23, *h<sub>1</sub>-h<sub>1</sub>*: 9, *h<sub>2</sub>-h<sub>2</sub>*: 62, *h<sub>1</sub>-h<sub>2</sub>*: 32. Three pairs of cupules dorsolaterally on integument, *ia*, *im*, *ip*. Anal shields terminal with three pairs of setae (*ps<sub>1-3</sub>*): two pairs of setae dorsally, a pair of setae subdorsally.

**Venter** - Ventral surface with striae. Endopodal shields absent. Setae *1a*, *3a*, *4a* and *4c* present, *1a* and *3a* not set on coxae. Coxae in two groups. Three pairs of aggenital setae (*ag<sub>1-3</sub>*) on ventral shield. Genital shields bearing two pairs of simple setae (*g<sub>1,2</sub>*); one pair of cupules (*ih*) laterad of genital shields.

**Legs** - Leg I 238, leg II 193, leg III 183, leg IV 225. Number of setae (solenidia in parenthesis) on leg segments as follows: tarsi 16( $\phi p, \omega$ )-11( $\phi p, \omega$ )-8( $\omega$ )-8( $\omega$ ), tibiae 7( $\phi, \phi p$ )-6( $\phi p$ )-6( $\phi p$ )-5( $\phi p$ ), genua 6( $\kappa$ )-5-3-3, femora 4-3-2-2, trochanters 1-1-2-1,





FIGS 1-4.

*Neognathus spectabilis* (Summers & Schlinger) (female) - 1. Dorsal view, 2. Ventral view, 3. Palp, 4. Leg I.

coxae 2-1-1-1. All tarsi each bearing a chemosensory claviform solenidion  $\omega$ , tarsi I and II with a thin, curved solenidion  $\phi p$ , also all tibiae each bearing solenidion  $\phi p$ , tibia I with a short, straight solenidion  $\phi$ , genu I with famulus  $\kappa$ .

**MALE** - Not observed.

**Examined materials** - Three females from litter under a mixed forest, Allahuekber Mountain, Şenkaya, Erzurum, 21. VIII. 2000; one female from litter under *Alnus* sp., Maçka, Trabzon, 21. VIII. 2000; four females from moss, Üzümlü, Erzincan, 28. X. 2000; twenty five females from soil and litter under *Astragalus* sp., Dumanlı Forest, Refahiye, Erzincan, 05. VII. 2001; thirty three females from soil under *Pinus sylvestris*, Uzundere, Erzurum, 05. VII. 2001; eighteen females from soil in the nest of a wild animal Bardakçı Village, Çat, Erzurum, 12. VII. 2001; two females from moss and litter under *Juniperus* sp., Tortum, Erzurum, 20. VIII. 2001; five females from ant nest, Uzundere, Erzurum, 29. VIII. 2001; nine females from soil and litter under *Astragalus* sp., Uzundere, Erzurum, 29. VIII. 2001; six females from litter and bark of *Pinus sylvestris*, Uzunoluk Forest, Oltu, Erzurum, 29.VIII. 2001; seven females from soil and litter under *Astragalus* sp., Karapınar Village, Narman, Erzurum, 29.VIII. 2001; two females from decayed bark of *Pinus* sp., Turnal Village, Şenkaya, Erzurum, 29. VIII. 2001; one female from soil from the hollow of *Salix* sp., Pasinler, Erzurum, 11. IX. 2001; two females from litter under a mixed forest, Uzunoluk, Oltu, Erzurum, 25. IX. 2001; one female from moss under *Quercus* sp., Erciyes Mountain, Kayseri, 16. V. 2002; nineteen females from soil the hollow of *Pinus sylvestris*, Allahuekber Mountain, Şenkaya, Erzurum, 22. V. 2002; five females from moss under *Pinus sylvestris*, Kiremitlik Tabya Atatürk Forest, Erzurum, 27. VI. 2002; eighty four females from soil and litter under *Astragalus* sp., Kavaklı Village, Ispir, Erzurum, 02. VII. 2002; fourteen females from soil and litter under *Astragalus* sp., Eleşkirt, Ağrı, 20.X. 2002; two females from soil from the nest of a wild animal, Kiremitlik Tabya Atatürk Forest, Erzurum, 13. VI. 2003; six females from litter under *Pinus* sp., the campus of Uludag University, Görükle, Bursa, 10. IX. 2003; one female from litter under *Cupressus* sp., the campus of Uludag University, Görükle, Bursa, 10. IX. 2003.

**Distribution** - Israel, Latvia, Ukraine, USA (California and Hawaiian Islands) (SUMMERS & SCHLINGER, 1955; GERSON, 1968; KUZNETZOV & PETROV, 1984; GOFF, 1987; SWIFT, 1996; KHAUSTOV & KUZNETZOV, 1997) and TURKEY (current paper).

**Remarks** - SUMMERS & SCHLINGER (1955) stated absence of integumental cupule *ia* and *k* on genu II. Swift reported presence of *ia* and *k* on genu II in a Hawaiian specimen. In Turkish specimens collected from Ağrı *ia* present, others absent, and in all not bearing *k* on genu II and tarsi III and IV with eight setae (including solenidion).

### ***Molothrognathus* Summers & Schlinger**

**Type species** - *Molothrognathus leptostylus* Summers & Schlinger, 1955.

Stylophore conical; peritremes arising dorsally on the median portion of the stylophore, immediately behind the stylet bases; palptarsi bearing one claviform solenidion and four distal eupathidial setae.



The genus *Molothrognathus* was established by SUMMERS & SCHLINGER (1955). Later ANDRÉ (1996) erected a monotypic genus, *Namibarbutia* in Barbutiidae, with *Namibarbutia seelyae* as the type-species. But, FAN *et al.* (2003) stated that *N. seelyae* André, 1996 was a species of *Molothrognathus* and they synonymised the genus *Namibarbutia* with *Molothrognathus*. Eighteen species together with *M. seelyae* (ANDRÉ, 1996) are currently recognized in the genus worldwide. The nineteenth species, *Molothrognathus kamili* sp. nov. is added here to this genus from Turkey. To date *M. artvinensis* Koç & Ayyıldız, 1997 was the only representative of this genus in Turkey; but *Molothrognathus artvinensis* Koç & Ayyıldız 1997 **syn. nov.** is a junior synonym of *Molothrognathus venusta* (KHAUSTOV & KUZNETZOV, 1997).

***Molothrognathus venusta* (Khaustov and Kuznetzov) comb. nov.**

*Caligonella venusta* Khaustov & Kuznetzov, 1997: 80.

*Molothrognathus artvinensis* Koç & Ayyıldız, 1997: 47, **syn. nov.**

**Distribution** - Turkey and Ukraine (KHAUSTOV & KUZNETZOV, 1997; KOÇ & AYYILDIZ, 1997).

**Remarks** - KHAUSTOV & KUZNETZOV (1997) gave a new mite under the name *Caligonella venusta*; however the generic name of this species was wrong. Actually, this species definitely belongs to the genus *Molothrognathus* of which peritremes is emerging medially on stylophore, immediately behind the stylet bases. There is only one character to distinguish *Molothrognathus* from *Caligonella*, the peritremes on stylophore. In the same year *Molothrognathus artvinensis* was described by KOÇ & AYYILDIZ (1997). Whereas they were conspecific. The date of submission in the paper of KOÇ & AYYILDIZ is 1996 (personal communication), but the date of submission in the paper of KHAUSTOV & KUZNETZOV is 1995. So, *Molothrognathus artvinensis* Koç & Ayyıldız **syn. nov.** is a junior synonym of *Molothrognathus venusta* (Khaustov & Kuznetzov).

***Molothrognathus crucis* Summers & Schlinger**

(Figs 5-9)

*Molothrognathus crucis* Summers & Schlinger, 1955: 545; Charlet & McMurtry, 1977: 197.

**FEMALE** - Length of body (excluding gnathosoma) 353-363, width 150-167.

**Gnathosoma** - Length of gnathosoma 93. Ventrally with two pairs of adoral setae and one pair of subcapitular setae, length of subcapitular setae: 40, distance between subcapitular setae: 20. Stylophore conical, length 73. Palpi 90, count of setae and solenidion on palpi (femur to tarsus): 1, 1, 3 + 1 claw, 3 + 1  $\omega$  + 4 eupathidia.



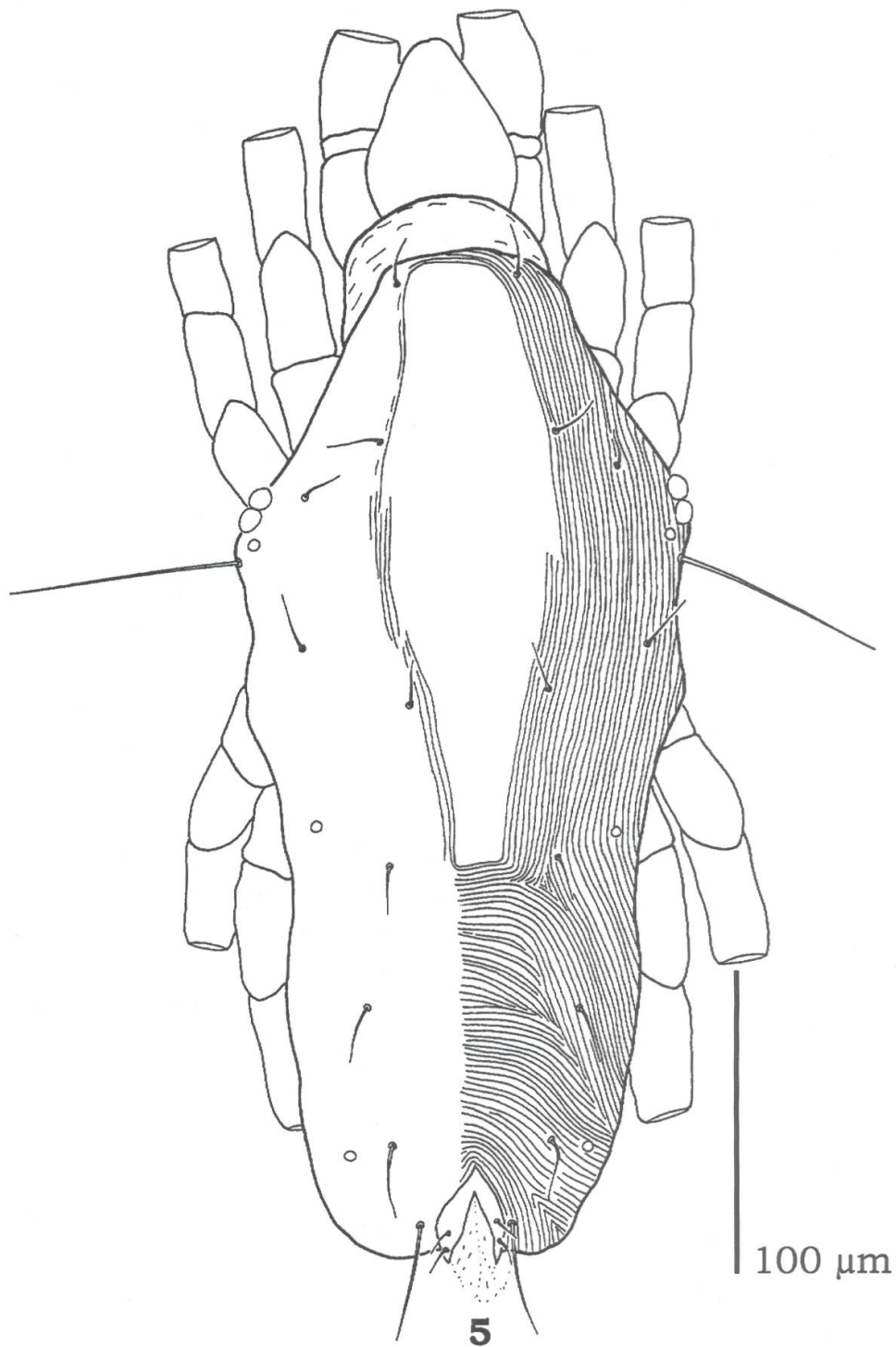


FIG. 5.

*Molothrognathus crucis* Summers & Schlinger (female) – Dorsal view.

**Dorsum** - Idiosoma slender, fusiform. Simple striated on integument. Dorsum with shield between setae *vi* and *d*<sub>1</sub> and with two pairs of eyes. Dorsal body setae eleven pairs, simple. Setae *sce* longer than others. Setal measurements: *vi*: 21, *ve*: 18, *sci*: 18, *sce*: 70, *c*<sub>1</sub>: 19, *c*<sub>2</sub>: 21, *d*<sub>1</sub>: 18, *e*<sub>1</sub>: 18, *f*<sub>1</sub>: 25, *h*<sub>1</sub>: 43, *h*<sub>2</sub>: 43. Distances between setae: *vi-vi*: 38,

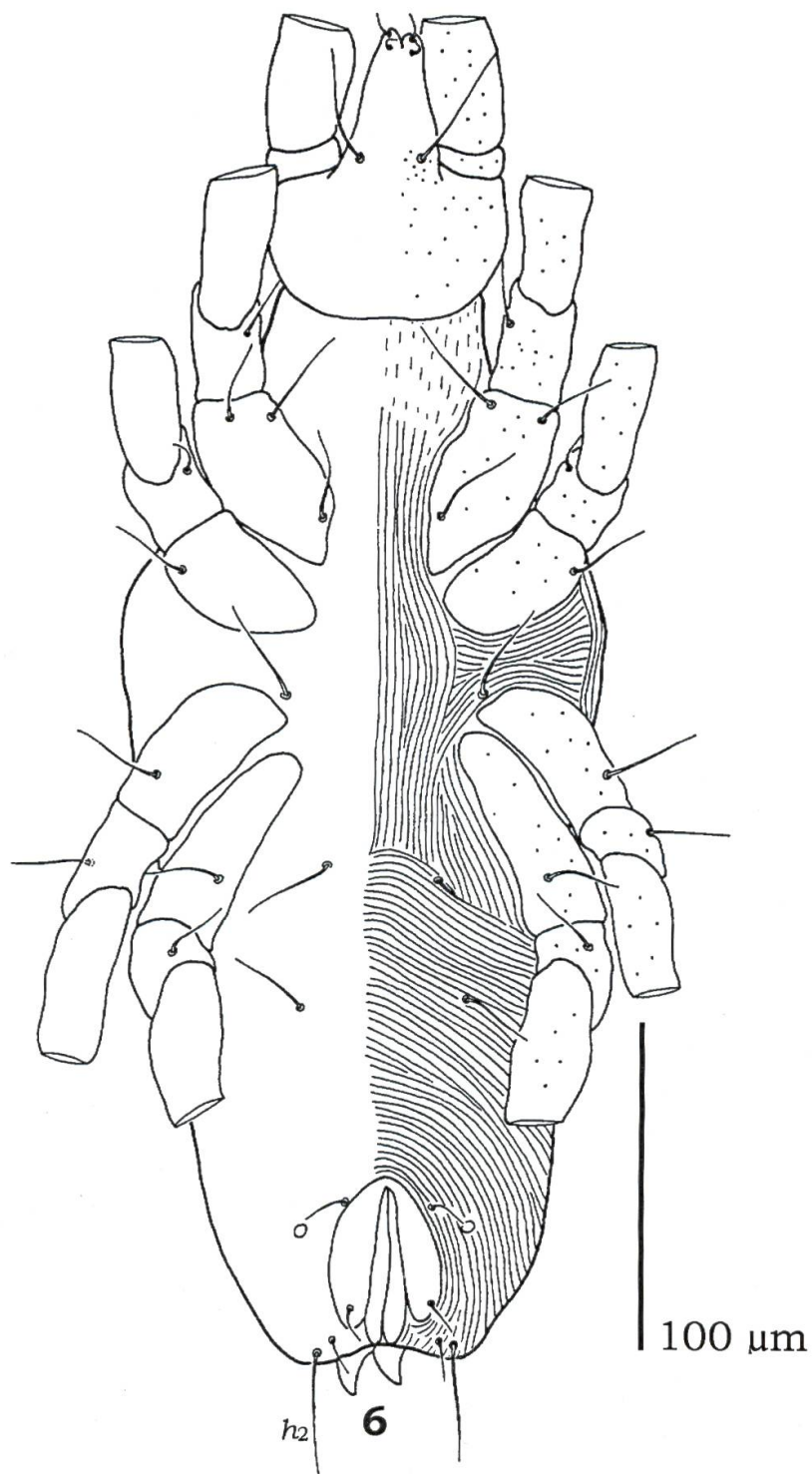
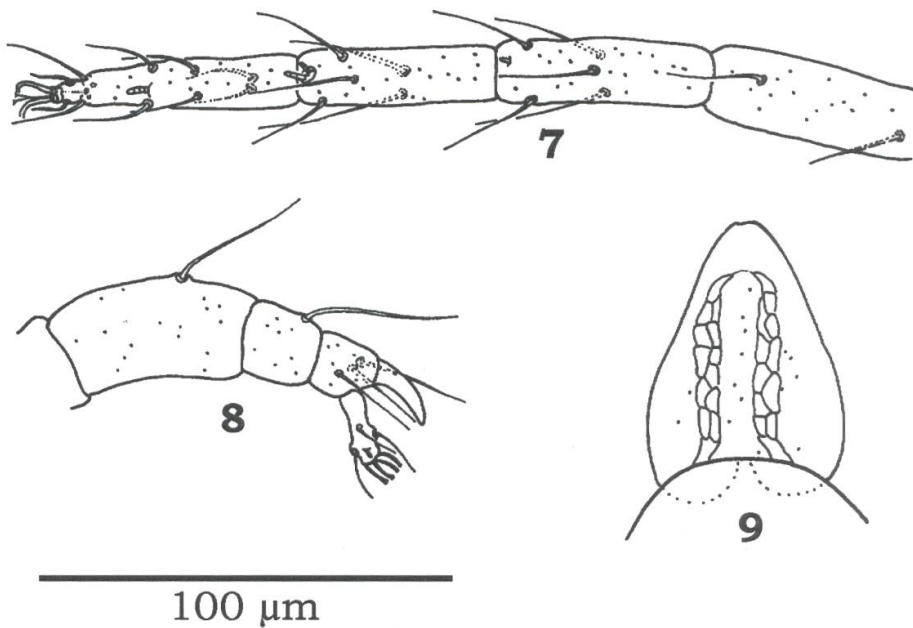


FIG. 6.

*Molothrognathus crucis* Summers & Schlinger (female) - Ventral view.

*ve-ve*: 56, *vi-ve*: 53, *sci-sci*: 100, *ve-sci*: 24, *sce-sce*: 147, *c<sub>1</sub>-c<sub>1</sub>*: 46, *c<sub>2</sub>-c<sub>2</sub>*: 113, *c<sub>1</sub>-c<sub>2</sub>*: 37, *d<sub>1</sub>-c<sub>1</sub>*: 56, *c<sub>1</sub>-d<sub>1</sub>*: 56, *e<sub>1</sub>-e<sub>1</sub>*: 70, *d<sub>1</sub>-e<sub>1</sub>*: 50, *f<sub>1</sub>-f<sub>1</sub>*: 50, *e<sub>1</sub>-f<sub>1</sub>*: 47, *f<sub>1</sub>-h<sub>1</sub>*: 27. Three pairs of cupules dorsolaterally on integument, *ia* behind posterior eyes. Anal shields terminal, with two pairs of setae.





FIGS 7-9.

*Molothrognathus crucis* Summers & Schlinger (female) - 7. Leg I, 8. Palp, 9. Stylophore.

**Venter** - Ventral surface with simple striae. Endopodal shields absent. Coxae in two groups. Setae *1a*, *3a*, *4a* and *4c* present, *1a* on coxa I. Genital shields with one pair of simple setae. Two pairs of aggenital setae on venter. One pair of cupules laterad of genital shields.

**Legs** - Leg I 317, leg II 223, leg III 280, leg IV 313. Number of setae (solenidia in parenthesis) on leg segments as follows: tarsi 16( $\omega$ )-11( $\omega$ )-9-9, tibiae 7( $\phi$ , $\phi p$ )-5-4-4, genua 6( $\kappa$ )-5-2-2, femora 2-2-2-2, trochanters 1-1-1-1, coxae 3-1-1-1. Tarsi I and II each bearing solenidion  $\omega$ , tibia I bearing two solenidia  $\phi$ , only genu I bearing famulus  $\kappa$ .

**MALE** - Unknown.

**Examined materials** - Four females from soil under *Astragalus* sp., Ovaköy, Pasinler, Erzurum, 12. VII. 2001.

**Distribution** - USA (SUMMERS & SCHLINGER, 1955; CHARLET & MCMURTRY, 1977) and Turkey (current paper).

**Remarks** - Sitrriae simple, dorsum with shield between setae *vi* and *d*<sub>1</sub>, setae *sce* much longer than other dorsal body setae are distinctive characters of this species. Turkish specimens exhibit all the characters of type species.

***Molothrognathus kamili* sp. nov.**

(Figs 10-15)

**FEMALE** - Holotype. Length of body (excluding gnathosoma) 400, width 257.

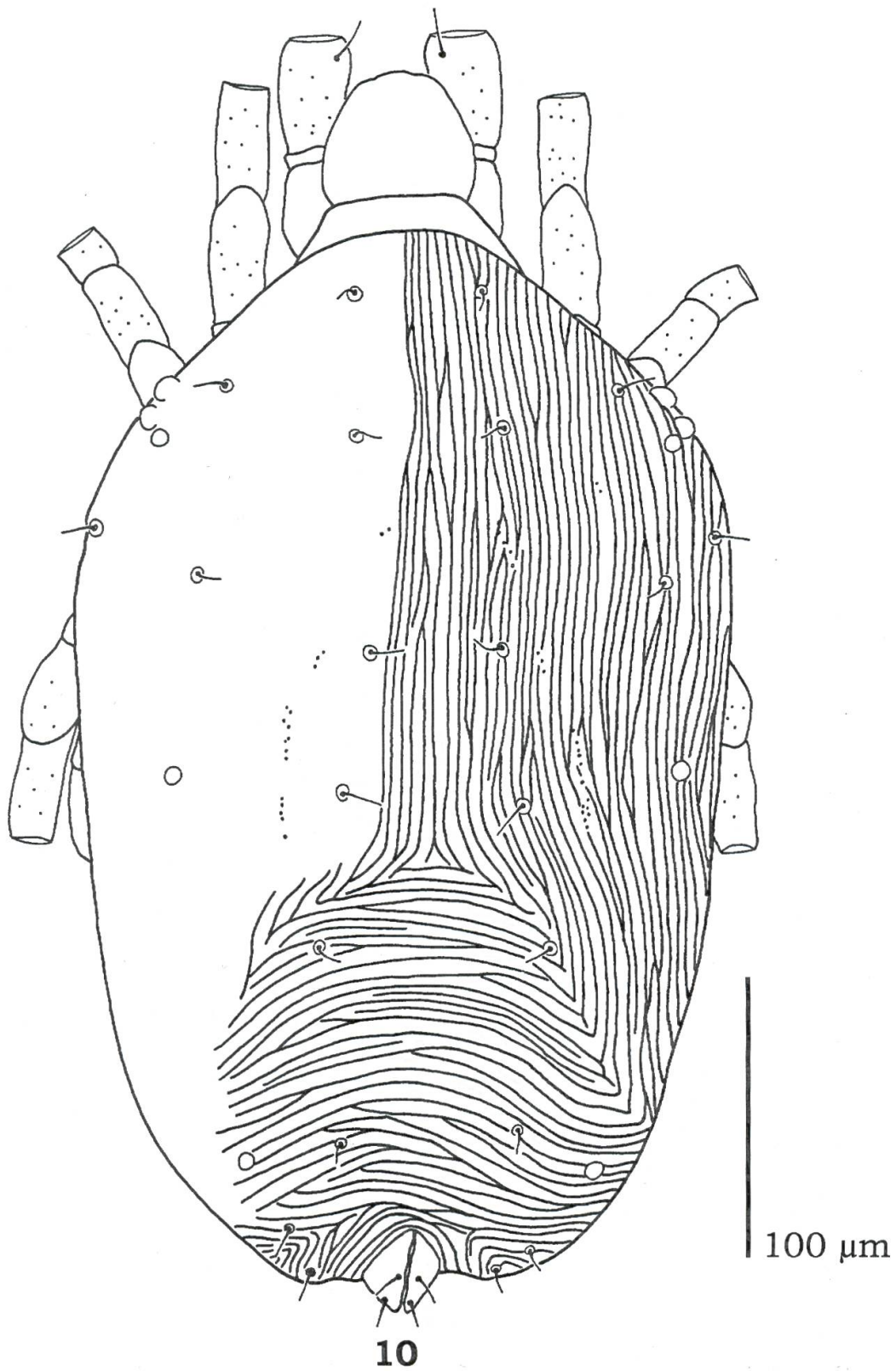


FIG. 10.  
*Molothrognathus kamili* sp. nov. (female) - Dorsal view.



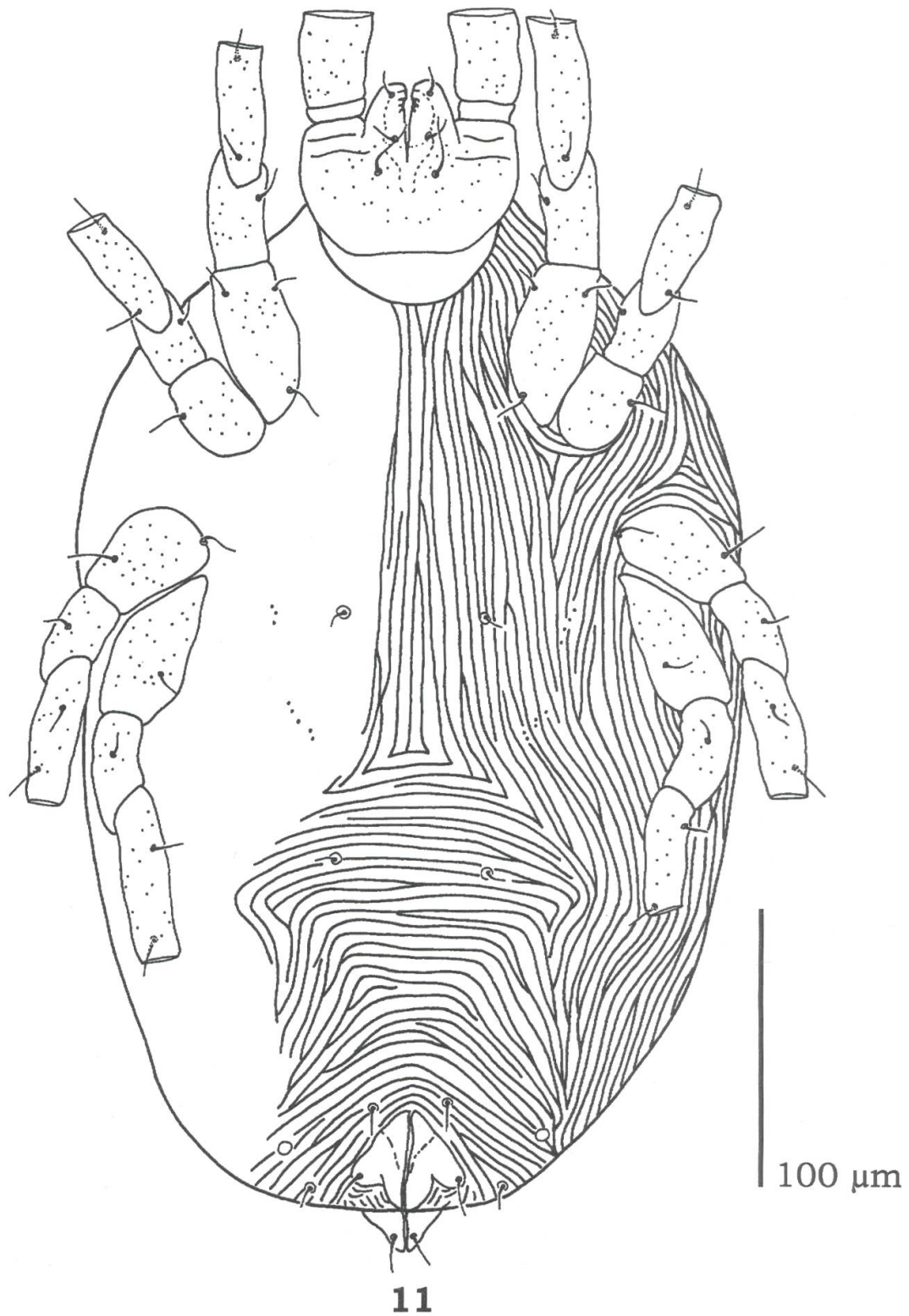
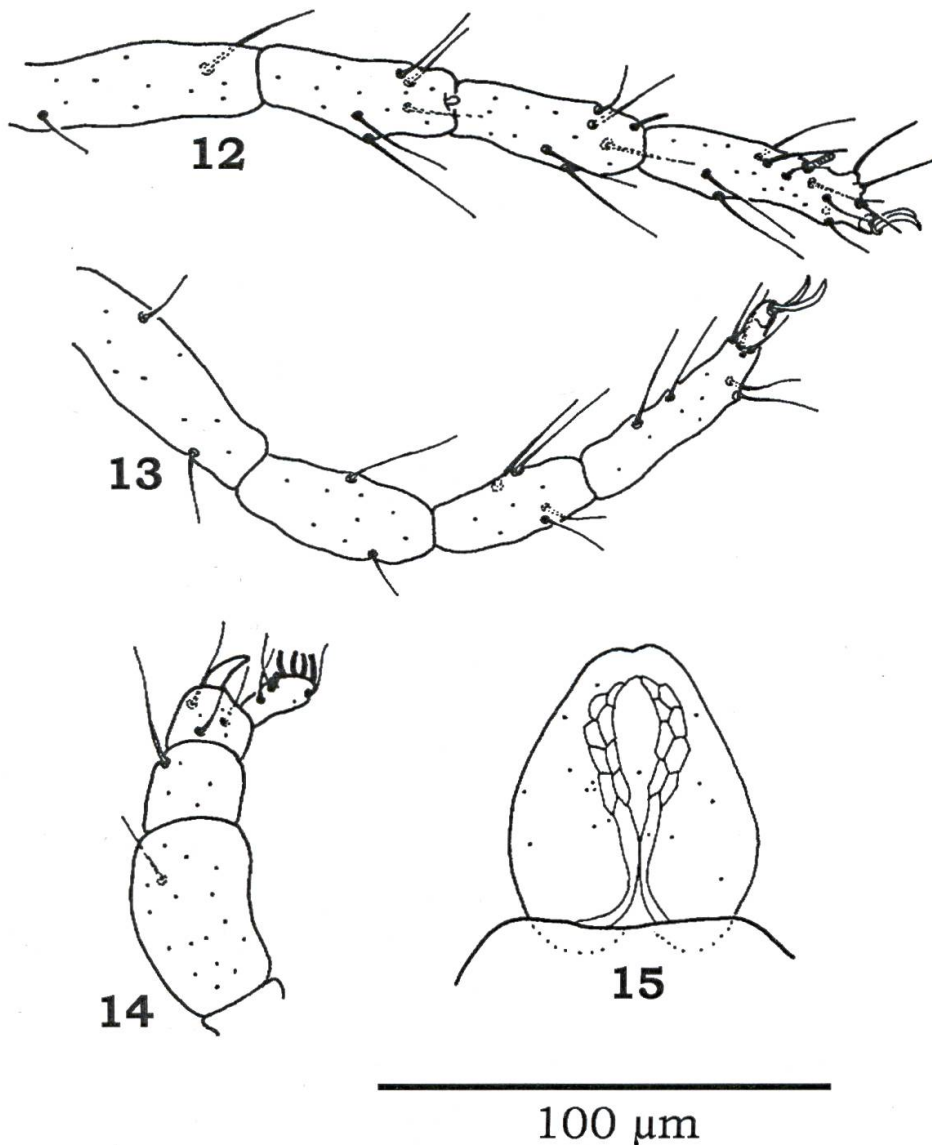


FIG. 11.  
*Molothrognathus kamili* sp. nov. (female) - Ventral view.



FIGS 12-15.

*Molothrognathus kamili* sp. nov. (female) - 12. Leg I, 13. Leg IV, 14. Palp, 15. Stylophore.

**Gnathosoma** - Length of gnathosoma 63. Ventrally with two pairs of adoral setae and one pair of subcapitular setae: 33, distance between subcapitular setae: 20. Stylophore conical, length 75. Palpi 107, count of setae and solenidion on palpi (femur to tarsus): 1, 1, 3 + 1 claw, 3 + 1  $\omega$  + 4 eupathidia.

**Dorsum** - With course dual striae, with two pairs of eyes, without shields. Dorsal body setae eleven pairs, simple. Setae *sci* longer than others. Setal measurements: *vi*: 17, *ve*: 17, *sci*: 20, *sce*: 17, *c*<sub>1</sub>: 15, *c*<sub>2</sub>: 17, *d*<sub>1</sub>: 15, *e*<sub>1</sub>: 15, *f*<sub>1</sub>: 15, *h*<sub>1</sub>: 14, *h*<sub>2</sub>: 14. Distances between setae: *vi-vi*: 43, *ve-ve*: 50, *sci-sci*: 140, *sce-sce*: 233, *c*<sub>1</sub>-*c*<sub>1</sub>: 49, *ve-c*<sub>1</sub>: 77, *c*<sub>2</sub>-*c*<sub>2</sub>: 177, *c*<sub>1</sub>-*c*<sub>2</sub>: 70, *d*<sub>1</sub>-*d*<sub>1</sub>: 67, *c*<sub>1</sub>-*d*<sub>1</sub>: 67, *e*<sub>1</sub>-*e*<sub>1</sub>: 83, *d*<sub>1</sub>-*e*<sub>1</sub>: 57, *f*<sub>1</sub>-*f*<sub>1</sub>: 67, *e*<sub>1</sub>-*f*<sub>1</sub>: 73. Three pairs of cupules (*ia*, *im*, *ip*) dorsolaterally on integument, *ia* behind posterior eyes. Anal shields



terminal with three pairs of setae ( $ps_{1-3}$ ): two pairs of setae dorsally, a pair of setae subdorsally.

**Venter** - Ventral surface with striae. Endopodal shields absent. Setae *1a*, *3a*, *4a* and *4c* present, *1a* and *3a* on the edge of coxae. Coxae in two groups. Genital shields with one pair of simple setae ( $g_1$ ). Two pairs of aggenital setae ( $ag_{1,2}$ ) on venter,  $ag_1$  antero-laterad of genital shields,  $ag_2$  laterad of  $g_1$ . One pair of cupules (*ih*) laterad of genital shields.

**Legs** - Leg I 310, leg II 237, leg III 277, leg IV 310. Number of setae (solenidia in parenthesis) on leg segments as follows: tarsi 15( $\omega$ )-10( $\omega$ )-8-8, tibiae 6( $\phi$ )-5-4-4, genua 6( $\kappa$ )-4-2-2, femora 2-2-2-2, trochanters 1-1-1-1, coxae 3-1-2-1. Tarsi I and II each bearing solenidion  $\omega$ , tibia I bearing solenidion  $\phi$ , genu I bearing famulus  $\kappa$ .

**MALE** - Unknown.

**Type materials** - Holotype female and one paratype female from soil under *Astragalus* sp., Akveren Village, Hınıs, Erzurum, 19. V. 2000.

**Etymology** - This species is named in honour of Dr Kamil Koç, Celal Bayar University, Manisa, Turkey.

**Remarks** - This species resembles *M. leptostylus* Summers & Schlinger, 1955 and *M. citrivallis* Meyer & Ueckermann, 1989 but can be recognized by femur IV bearing two setae, tibia I bearing only one solenidion and anal shields bearing three setae. This species also resembles *M. conantae* Swift, 1996 but can be distinguished by the absence of finely striated spindle shaped area. This species further resembles *M. rosei* Smiley & Moser, 1968 and *M. venusta* (Khaustov & Kuznetsov, 1997) but differs by the following combination of characters: dorsal body setae much shorter,  $c_1$  and  $d_1$  much shorter than half distances between their bases, pseudanal setae  $ps_3$  subdorsally and different shape of the peritremes.

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