

# Two new species of the genus *Stigmaeus* (Acari: Stigmaeidae) from Turkey

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## Abstract

Two new species from Turkey, *Stigmaeus seferihisarensis* and *Stigmaeus urhani* are described based on males and females.

**Keywords:** Acari, Stigmaeidae, *Stigmaeus*, new species, Turkey.

## Résumé

Deux nouvelles espèces du genre *Stigmaeus* (Acari: Stigmaeidae) originaires de Turquie

Deux nouvelles espèces originaires de Turquie, *Stigmaeus seferihisarensis* et *Stigmaeus urhani* sont décrites sur la base des mâles et femelles.

**Mots-clés:** Acari, Stigmaeidae, *Stigmaeus*, nouvelles espèces, Turquie.

## Introduction

The genus *Stigmaeus* is one of the largest groups of the family Stigmaeidae. They live in the soil and on plants, and are usually predators of mites. A few prey on scale insects or parasitize flies (Gerson and Smiley 1990). To date only six species are known from Turkey (Koç and Ayyıldız 1997; Dogan and Ayyıldız 2003).

In this paper two new species from Turkey, *Stigmaeus seferihisarensis* and *Stigmaeus urhani* are described. The terminology used is based on Grandjean (1944) and Kethley (1990). All measurements are given in micrometers ( $\mu\text{m}$ ). Type and paratype specimens are deposited in the Zoological Museum of Celal Bayar University, Manisa, Turkey.

## *Stigmaeus* Koch, 1836

**Type-species-** *Stigmaeus cruentus* Koch, 1836.

Dorsum with 10-16 shields and ornamented in most species. Propodosomal shield with three or four pairs of setae. Setae *sce* on a small auxiliary shield.

Hysterosoma with two median shields, central and suranal; with three to five pairs of smaller, usually paired shields, humerals, marginals, median zonals, lateral zonals and intercalaries. Dorsum with 13-14 pairs of setae.

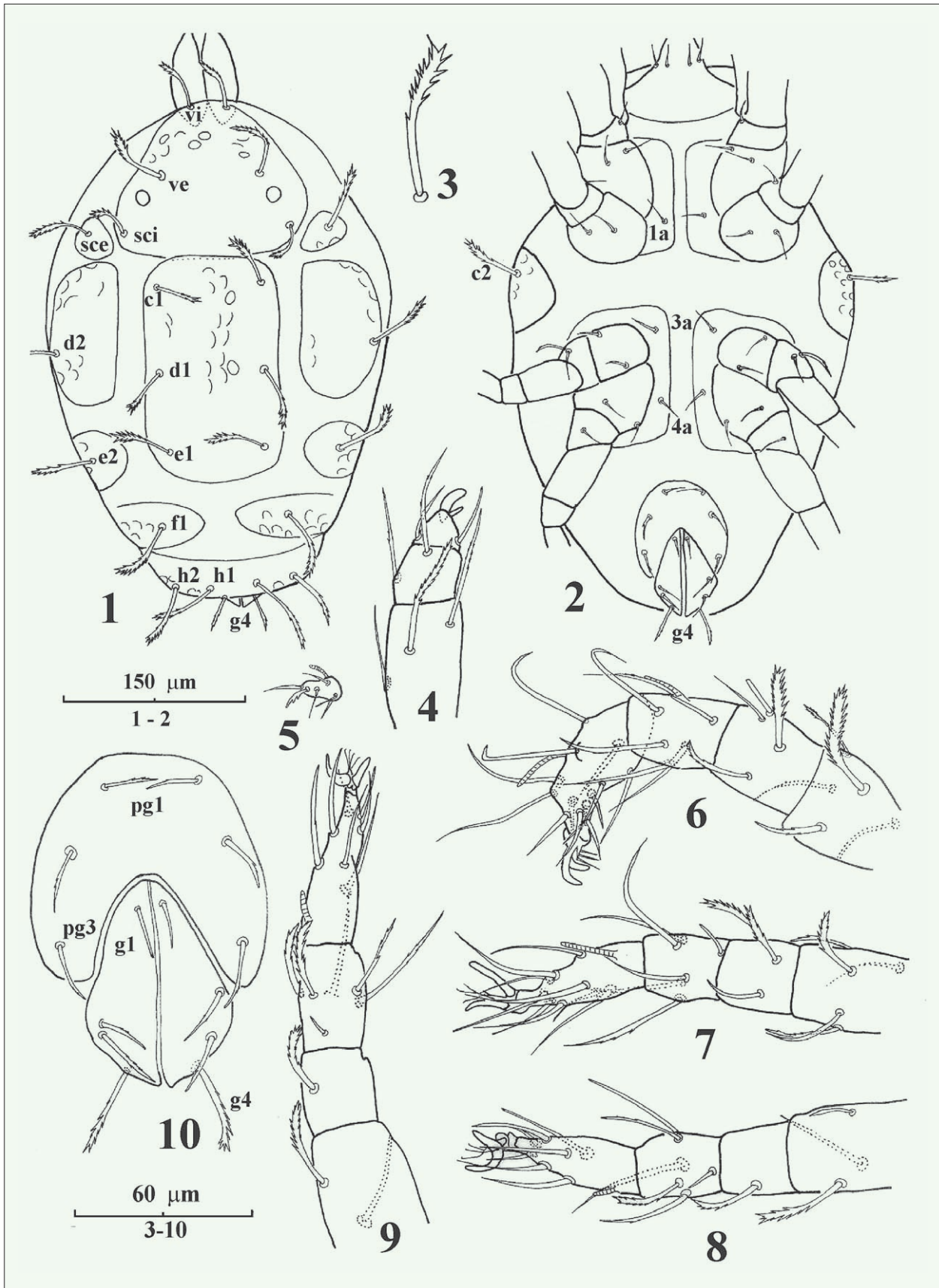
## *Stigmaeus seferihisarensis* sp. nov.

**Female.** (Figs. 1-10) HOLOTYPE – (minimum, maximum followed by measurements of holotype): Length of body (including gnathosoma) 406-442 (416), width: 255-296 (270).

**Gnathosoma-** Length of gnathosoma 83-104 (104). Ventrally with two pairs of adoral setae and two pairs of subcapitular setae, dimensions of subcapitular setae: m: 21-26, n: 21. Chelicera 104-114 (114) (including digits). Palpi 83-94 (94), counts of setae and solenidia on palpi (femur to tarsi): 3, 2, 2+1 claw +1 accessory claw, 5+1  $\omega$  + 1 tridentate eupathidium.

**Dorsum-** Propodosomal shield with three pairs of setae, one pair of eyes located between setae *ve* and *sci*. Setae *sce* located on small auxiliary shields.

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FIGS. 1-10.

*Stigmaeus seferihisarensis* sp. nov. (Female)- 1. Dorsal view, 2. Ventral view, 3. Seta c<sub>2</sub>, 4. Palpus, 5. Tarsus of palpus, 6. Leg I, 7. Leg II, 8. Leg III, 9. Leg IV, 10. Genital region.

Central shield with three pairs of setae,  $c_1$ ,  $d_1$  and  $e_1$ . Setae  $c_2$  on small shields ventrolaterally. Marginal shield with setae  $d_2$ . Lateral zonal shield with setae  $e_2$ . Intercalary shields divided, with setae  $f_1$ . Suranal shield entire, with two pairs of setae,  $h_1$  and  $h_2$ . Dorsal body setae of hysterosoma all similar in form and length, basal half smooth, distal half spinulate. Dimensions of setae as follows:  $vi$ : 42-47 (47),  $ve$ : 47-57 (57),  $sci$ : 36-36 (36),  $sce$ : 47-52 (52),  $c_1$ : 36-47 (47),  $c_2$ : 42-52 (52),  $d_1$ : 47-52 (47),  $d_2$ : 47-52 (52),  $e_1$ : 47-52 (52),  $e_2$ : 52-57 (52),  $f_1$ : 47-57 (52),  $h_1$ : 47-52 (52),  $h_2$ : 42-52 (52). Distances between setae as follows:  $vi-vi$ : 26-31 (31),  $vi-ve$ : 57 (57),  $ve-ve$ : 78-83 (78),  $ve-sci$ : 52-57 (57),  $sci-sci$ : 130-140 (140),  $c_1-c_1$ : 78-83 (83),  $c_1-d_1$ : 68-78 (73),  $c_1-d_2$ : 88-109 (109),  $d_1-d_2$ : 83-88 (88),  $d_1-d_1$ : 78-88 (88),  $d_1-e_1$ : 62-68 (68),  $e_1-e_1$ : 73-83 (83),  $e_1-e_2$ : 57-68 (62),  $e_2-e_2$ : 182-218 (208),  $f_1-f_1$ : 78-104 (104),  $f_1-h_1$ : 52-62 (62),  $h_1-h_1$ : 42 (42),  $h_1-h_2$ : 26-31 (31),  $h_2-h_2$ : 88-99 (99). Dorsal shields with polygonal dimples incompletely developed; dimples show plainly as deep invaginations.

**Venter**- Coxisternal shields divided, bearing 1a, 3a and 4a. Aggenital setae three pairs,  $pg_1$ : 21 (21),  $pg_2$ : 21-26 (26),  $pg_3$ : 26 (26). Anogenital covers with four pairs of setae,  $g_2$ : 16-21 (21),  $g_3$ : 21-26 (26),  $g_4$ : 26-31 (31). Seta  $g_1$  minute. Aggenital setae slightly spinulate. Anogenital setae,  $g_4$  long and strongly spinulate.

**Legs**- Leg I 156-182 (172), leg II 135-156 (156), leg III 120-146 (140), leg IV, 156-172 (166). Number of setae (solenidia in parentheses) on leg segments as follows: tarsi 13 (+ $\omega$ )-9 (+ $\omega$ )-7 (+ $\omega$ )-7 (+ $\omega$ ), tibiae 5 (+ $\Phi$ + $\Phi$ p)- 5 (+ $\Phi$ p)-5 (+ $\Phi$ p)-5 (+ $\Phi$ p), genua 4 (k)-3-1-1, femora 5-5-3-2, trochantera 1-1-2-1, coxae 2-2-2-2. Genua II without solenidion  $k$ . Genu I bearing long solenidia  $k$ .

**Male**. (Figs. 11-15) ALLOTYPE – Length of body (including gnathosoma): 322-346, width: 166-208.

**Gnathosoma** – Length of gnathosoma 83-104, with two pairs of adoral setae and two pairs of subcapitular setae. Chelicera 88-104 (including digits). Palpi 78-88, counts of setae and solenidia on palpi (femur to tarsus): 3, 2, 3+1 claw and 1 accessory claw, 5+1  $\omega$  +1 tridentate eupathidium.

**Dorsum** – General features of setae and dorsal ornamentation as in female. Dimensions of setae as follows:  $vi$ : 36,  $ve$ : 42-47,  $sci$ : 26-31,  $sce$ : 42-47,  $c_1$ : 36-42,  $c_2$ : 47,  $d_1$ : 36-42,  $d_2$ : 42-52,  $e_1$ : 36-42,  $e_2$ : 47-52,  $f_1$ : 47-52,  $h_1$ : 31-36,  $h_2$ : 36-47. Distances between setae:  $vi-vi$ : 26,  $vi-ve$ : 36-47,  $ve-ve$ : 52-62,  $ve-sci$ : 36-42,  $sci-sci$ : 94-104,  $c_1-c_1$ : 52-57,  $c_1-d_1$ : 52,  $c_1-d_2$ : 52-57,  $d_1-d_2$ : 57,  $d_1-d_1$ : 57,  $d_1-e_1$ : 47-52,  $e_1-e_1$ : 42-47,  $e_1-e_2$ : 36-42,  $e_2-e_2$ : 114,  $f_1-f_1$ : 42-57,  $f_1-h_1$ : 26-42,  $h_1-h_1$ : 26,  $h_1-h_2$ : 26,  $h_2-h_2$ : 78.

**Venter** – Coxisternal shields divided, bearing 1a, 3a and 4a. Aggenital shield with three pairs of setae. Anogenital covers bearing three pairs of minute setae.

**Legs** – Leg I 156-182, leg II 120-151, leg III 130, leg IV 125-146. Number of setae (solenidia in parentheses) on leg segments as follows: tarsi 13 (+ $\omega$ + $\omega$  $\sigma$ )-9 (+ $\omega$ + $\omega$  $\sigma$ )-7 (+ $\omega$ + $\omega$  $\sigma$ )-7 (+ $\omega$ + $\omega$  $\sigma$ ), tibiae 5 (+ $\Phi$ + $\Phi$ p)- 5 (+ $\Phi$ p)- 5 (+ $\Phi$ p)- 5 (+ $\Phi$ p), genua 3 (+k)-3 (+k)- 1-1, femora 6-5-3-2, trochantera 1-1-2-1, coxae 2-2-2-2. All tarsi bearing additional and long solenidia  $\omega$  $\sigma$ .

**Type materials**- Holotype female, allotype male, three paratype females and one paratype male from soil and litter under *Tamarix* sp., at coast, Seferihisar, Izmir, 02.V.2004.

**Etymology**- This species is named after the type locality (Seferihisar, Izmir).

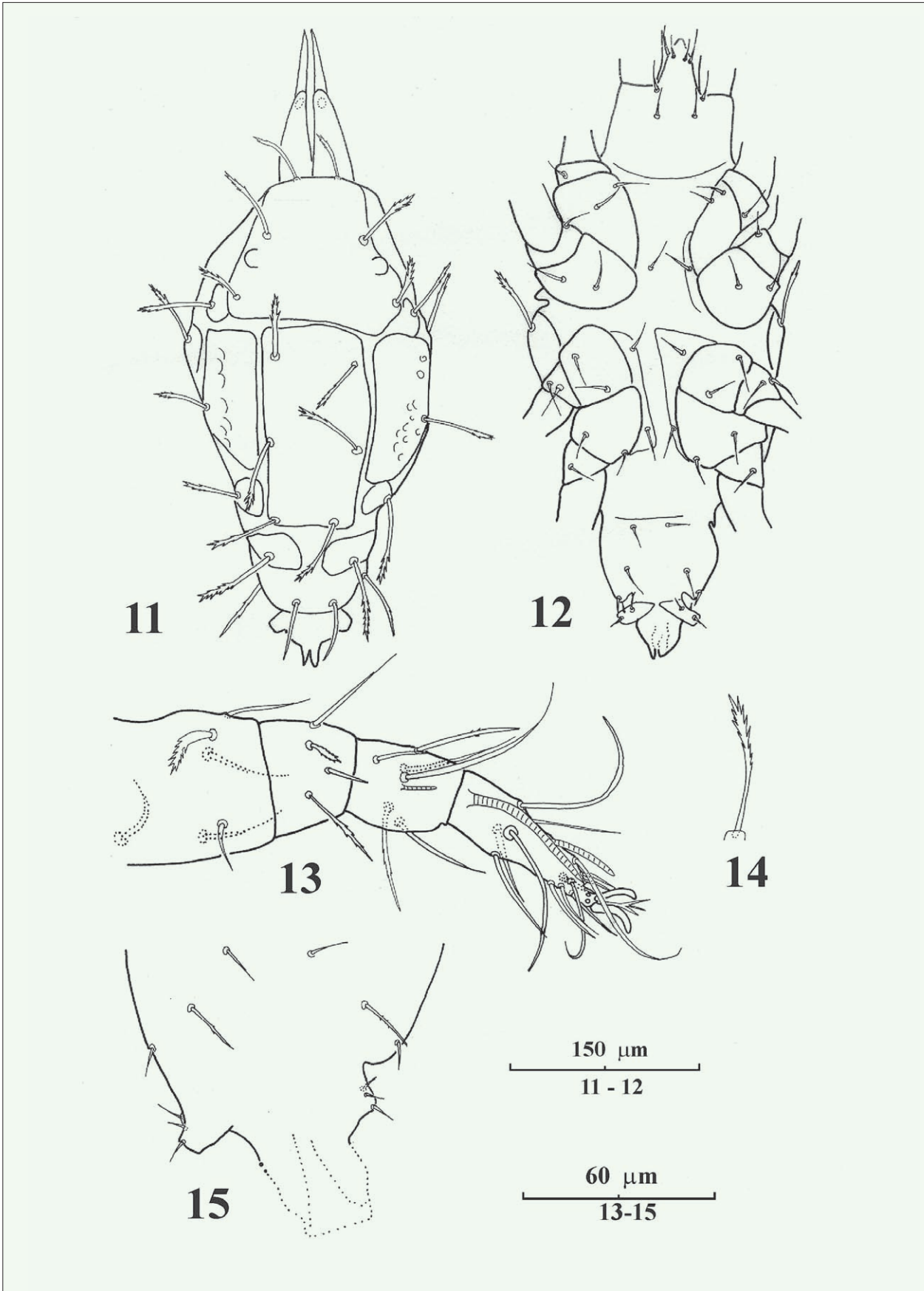
**Remarks**- This new species resembles *S. sphagneteti* (Hull 1918) (Summers 1962) in that central shield bears three pairs of setae and a long solenidion  $k$  on genu I. However, it can be separated from the latter by femur I bearing five setae and genu II without solenidion  $k$ .

#### **Stigmaeus urhani sp. nov.**

**Female**. (Figs. 16-24) HOLOTYPE – (measurements of holotype followed by that of paratype): Length of body (including gnathosoma) 400 (442), width: 218 (244).

**Gnathosoma**- Length of gnathosoma 57 (62). Ventrally with two pairs of adoral setae and two pairs of subcapitular setae, dimensions of subcapitular setae: m: 21-26, n: 21. Chelicera 99 (94) (including digits). Palpi 94 (94), counts of setae and solenidion on palpi (femur to tarsi): 3,2,2+1 claw +1 accessory claw, 5+1  $\omega$  + 1 tridentate eupathidium.

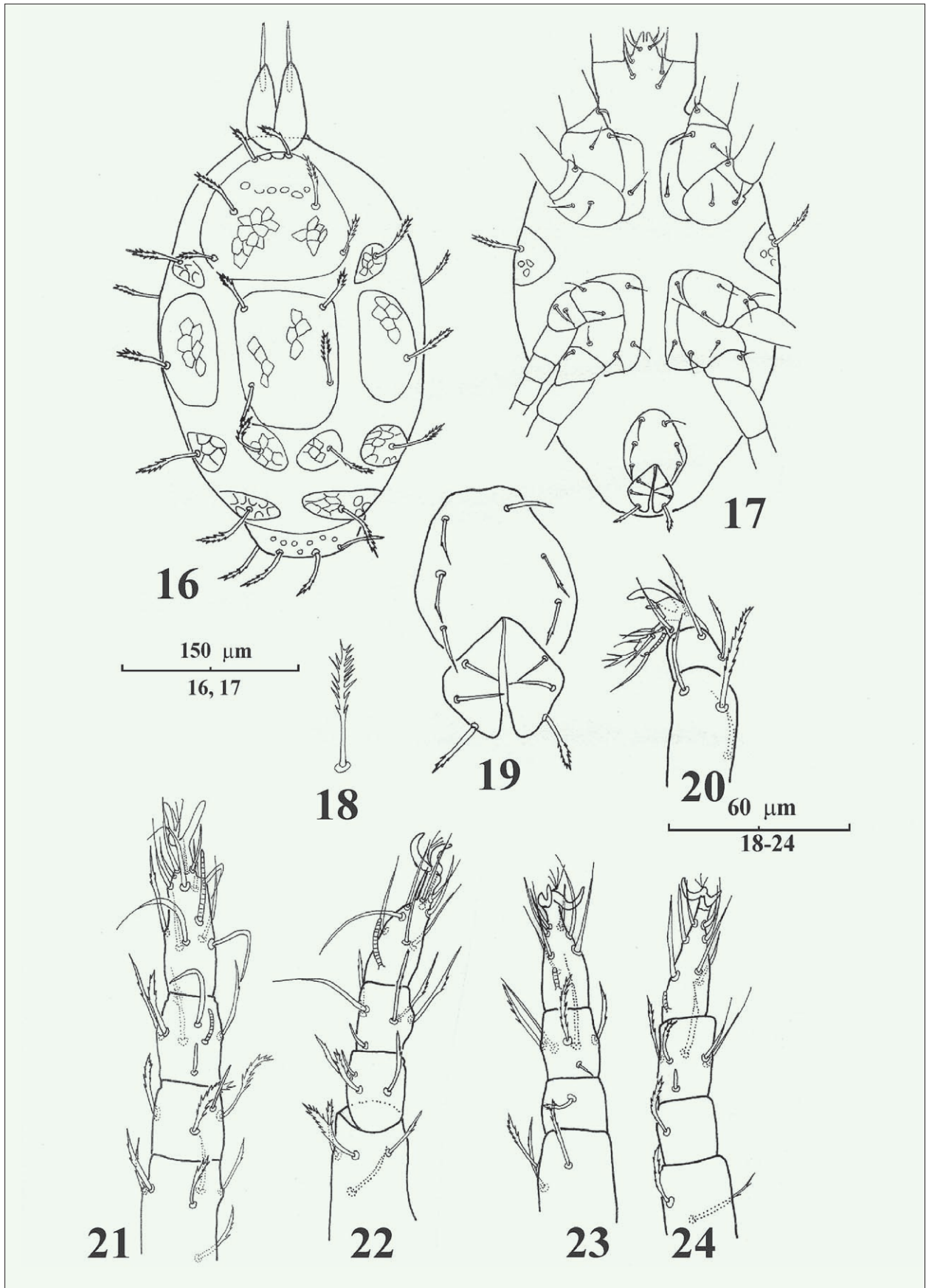
**Dorsum**- Dorsal shield with thick reticulum. Propodosomal shield with three pairs of setae, one pair of eyes located between setae  $ve$  and  $sci$ . Setae  $sce$  located on small auxiliary shields. Central shield with two pairs of setae,  $c_1$ ,  $d_1$ . Setae  $c_2$  on small shield ventrolaterally. Setae  $e_1$  located on small shields. Marginal shield with setae  $d_2$ . Lateral zonal shield with setae  $e_2$ . Intercalary shields divided, with setae  $f_1$ . Suranal shield entire, with two pairs of setae,  $h_1$  and  $h_2$ . Dorsal body setae of hysterosoma similar to that of *S. seferihisarenensis*. Dimensions of setae as follows:  $vi$ : 31 (36),  $ve$ : 44 (47),  $sci$ : 31 (36),  $sce$ : 41 (47),  $c_1$ : 36 (36),  $c_2$ : 42 (42)  $d_2$ : 42 (47),  $d_1$ :



FIGS. 11-15.

*Stigmaeus seferihisarensis* sp. nov. (Male)- 11. Dorsal view, 12. Ventral view, 13. Leg I, 14. Seta ve, 15. Venter of genital region.





FIGS 16-24.

*Stigmaeus urhani* sp. nov. (Female)- 16. Dorsal view, 17. Ventral view, 18. Seta c1, 19. Genital region, 20. Palpus, 21. Leg I, 22. Leg II, 23. Leg III, 24. Leg IV.

36 (42),  $e_1$ : 42 (42),  $e_2$ : 52 (52),  $f_1$ : 52 (52),  $h_1$ : 42 (42),  $h_2$ : 42 (42). Distances between setae:  $vi-vi$ : 31 (31),  $vi-ve$ : 52 (52),  $ve-ve$ : 68 (62),  $ve-sci$ : 47 (31),  $sci-sci$ : 104 (104),  $c_1-c_1$ : 68 (62),  $c_1-d_1$ : 62 (68),  $c_1-d_2$ : 83 (88),  $d_1-d_2$ : 78 (78),  $d_1-d_1$ : 68 (62),  $d_1-e_1$ : 57 (57),  $e_1-e_1$ : 57 (57),  $f_1-f_1$ : 78 (68),  $f_1-h_1$ : 42 (42),  $h_1-h_1$ : 21 (21),  $h_1-h_2$ : 26,  $h_2-h_2$ : 73.

**Venter-** Coxisternal shields divided, bearing 1a, 3a and 4a. Aggenital setae three pairs, with minute spinules ( $pg_1$ - $pg_3$ ). Anogenital covers with three pairs of setae ( $g_1$ - $g_3$ ). Aggenital setae slightly spinulate. Anogenital setae,  $g_3$  long and strongly spinulate.

**Legs-** Length of legs I-IV (from femur to tip of tarsal claw): 177 (166)-130 (120)-120 (120)-130 (146). Number of setae (solenidia in parentheses) on leg segments as follows: tarsi 13 (+ $\omega$ )-9 (+ $\omega$ )-7 (+ $\omega$ )-7 (+ $\Phi$ ), tibiae 5 (+ $\Phi$ + $\Phi p$ )-5 (+ $\Phi p$ )-5 (+ $\Phi p$ )-5 (+ $\Phi p$ ), genua 4 (k)-4 (k)-1-1, femora 6-4-3-2, trochantera 1-1-2-1, coxae 2-2-2-2. Genua I and II with solenidion *k*.

**Type materials-** Holotype female, one paratype female from soil and litter under *Tamarix* sp., at coast, Seferihisar, Izmir, 02.V.2004.

**Etymology-** The specific name honours Dr. Rasit URHAN, Pamukkale University, Denizli, Turkey.

**Remarks-** This new species resembles *S. petrophilus* Kuznetsov and Petrov (1979), in that central shield bears two pairs of setae and in the setal formula of genua 4-4-1-1. However, it can be distinguished from the latter by femur II bearing four setae, setae  $g_1$  and  $g_2$  smooth, setae *ve* not reaching the posterior margin of propodosomal shield and in that setae  $c_2$  are similar other dorsal setae.

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