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DESCRIPTION OF A NEW PHYTOSEIID GENUS AND SPECIES (ACARINA: MESOSTIGMATA) FROM ISRAEL

By

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Paragigagnathus tamaricis sp. n., a phytoseiid collected on Tamarix spp. in the Dead Sea area, the Judean desert and the Central Negev, is described and illustrated.

Paragigagnathus genus novum

Type species Paragigagnathus tamaricis sp. n.

Female: Dorsal shield with 17 pairs of setae, five pairs of lateral (L) setae on the anterior region of the dorsal shield. Setae present.

Peritremal plate not fused anteriorly with dorsal shield. Hypostome narrow and elongated. Hypostome and palp together as long as leg 1 (Plate 1). Genu III carries seven setae (1 22/01 1 according to the system of Evans (1963). Hind leg without macrosetae.

Relation to other genera: Paragigagnathus is similar to Gigagnathus Chant (1965), having five lateral setae on the anterior region of the dorsal shield and elongated hypostome and palps. The two genera differ in the following characters (Table 1).

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TABLE 1

Comparison of Paragigagnathus gen. n. (Females) to Gigagnathus Chant.

	Paragigagnathus	Gigagnathus
1.	Genu III with seven setae	Genu III with six setae
2.	Setae S_2 present	Setae S_2 absent
3.	Peritremal plate not fused with dorsal shield	Peritremal plate fused with dorsal shield

Paragigagnathus tamaricis sp. n.

Female (35 females): Dorsal shield 299-332μ long, strongly sclerotized and reticulated (Plate 2), bearing 17 pairs of setae: 6D, 2M, 9L (Fig. 1). In the dorsal row, setae D_1-D_4 subequal in length (17-23μ) and D_5 slightly longer (20-25μ). Lateral setae L_1-L_6 (20-28μ) and L_7-L_9 (23-33μ); each group of setae subequal in length; setae M_1 (17-23μ) M_2 (22-25μ); S_1 (20-25μ) S_2 (13-17μ). The setae thornlike, raising on an elevation.

Pores and minute structures: laterally to D_1, laterally L_1-L_2, laterally L_2-L_3 laterally D_2-D_3, one pair laterally L_4-L_5, laterally D_4, laterally and anterior D_5, laterally L_6, one pair anterior M_2-L_7, between M_2, mesad L_8 and laterally D_6.

Sternal shield smooth, bearing three pairs of setae, one pair of metasternal plates, each carries one pair of setae. Genital shield with one pair of setae. Ventrianal shield smooth, its length exceeding width at the anal area exceeding that of preanal level; lateral margins

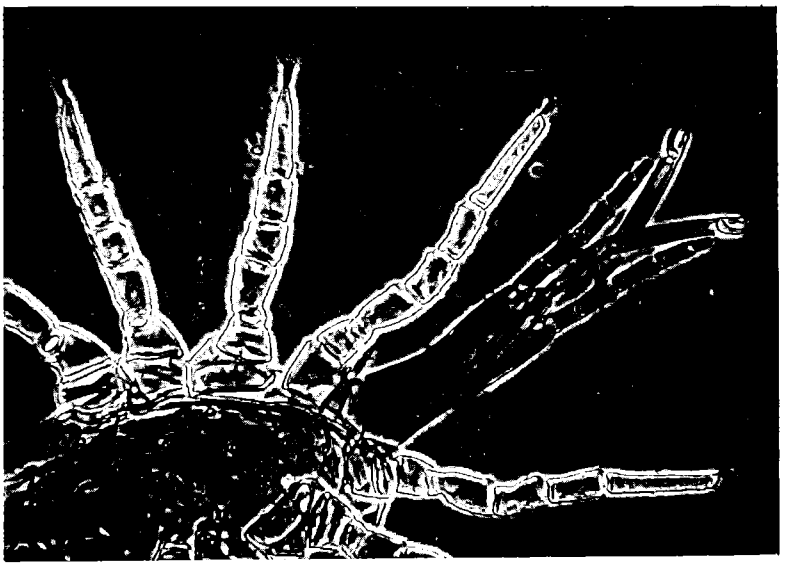
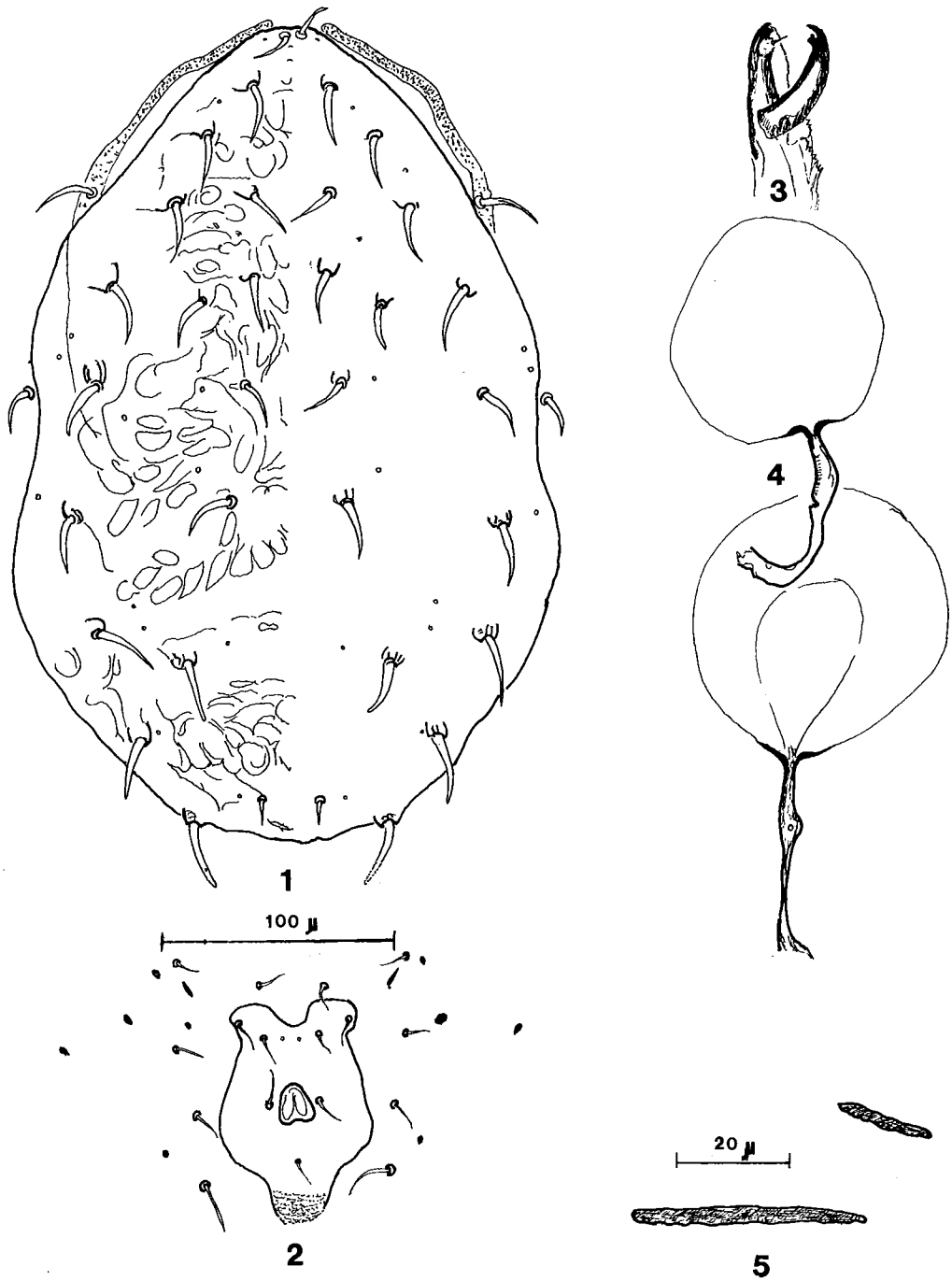


Plate 1-2: Paragigagnathus tamaricis sp. n.;

1 - hypostome and palp as long as leg 1.

2 - Reticulation and sclerotization of dorsal shield.



Figs. 1-5 Paragigagnathus tamaricis sp. n. female;

1 - dorsal shield; 2 - ventrianal shield; 3 - chelicera;

4 - spermatheca; 5 - metapodal plates.

constricted to form a waist; a notch at the anterior margin; ian-pores present; it carries two pairs of preanal setae (Fig. 2): length 83-91μ; width at anal area 53-66μ; width at preanal area 43-50μ. Ratio of length/width-1.36-1.56; rA=1.22-1.53. Setae VL_1 15-18μ long; three pairs of setae besides VL_1 surrounding the ventrianal plate. Apex of peritreme reaches D_1. In the spermatheca, the cervix shallow, atrium not adjacent to the cervix, major duct thick, minor duct not prominent (Fig. 4).

No specialized setae on hind leg. In the chelicera the fixed digit bears one tooth, the movable digit has one blunt tooth (Fig. 3).

TABLE 2

Paragigagnathus tamaricis sp. n., Female (measurements of setae in μ).

	D_1	D_2	D_3	D_4	D_5	D_6	L_1	L_2	L_3	L_4	L_5	L_6	L_7	L_8	L_9	M_1	M_2
1.	17	20	20	20	20	8	22	22	20	27	22	23	25	27	25	18	23
2.	17	18	17	18	20	10	20	20	22	23	20	22	23	25	23	18	22
3.	18	18	18	20	22	12	22	23	23	25	25	22	25	27	28	17	23
4.	17	17	17	18	20	10	22	22	22	23	20	20	25	25	25	18	20
5.	17	18	17	18	20	12	23	22	23	23	22	22	25	25	27	17	22
6.	17	22	20	22	25	10	25	25	25	27	27	27	28	28	25	22	25
7.	18	18	20	20	22	10	22	23	25	27	23	25	27	28	27	18	22
8.	18	18	20	20	20	10	23	22	23	25	22	22	25	27	27	20	22
9.	18	18	18	20	22	12	23	25	25	27	25	25	28	28	28	18	25
10.	17	20	20	20	22	12	22	23	23	28	25	25	27	28	27	18	25

1-3 : on Tamarix sp., 'Ein Gedi, Apr. 30, 1970 (1-Holotype);

4 : on Tamarix sp., 'Ein Mishmar, Feb. 25, 1970;

5 : on Tamarix sp., 'Ein Moor, Mar. 16, 1970;

6-8 : on Tamarix sp., 'Ein Fashkha, Apr. 20, 1970;

9-10: on Tamarix sp., 'Ein Fashkha, May 12, 1970.

Male (8 males) : Dorsal shield 230-257μ long, strongly sclerotized and reticulated. The setal pattern fundamentally similar to that of the female; setae S_1 and S_2 on the dorsal shield. Setae L_8, L_9 longer than other setae on the dorsal shield; setae L_9 serrated. S_1 20-23μ; S_2 12-13μ. Organization of pores and minute structures differs in the male from those of the female; between L_1-L_2, between L_2-D_2, between L_5, posterior D_5 and one pair between and anterior L_7-M_2 (Fig. 6).

Ventrianal plate 83-91μ long, 129-141μ wide; it carries three pairs of preanal setae (Fig. 7); VL_1 12-13μ long. For spermatodactyl see Fig. 8.

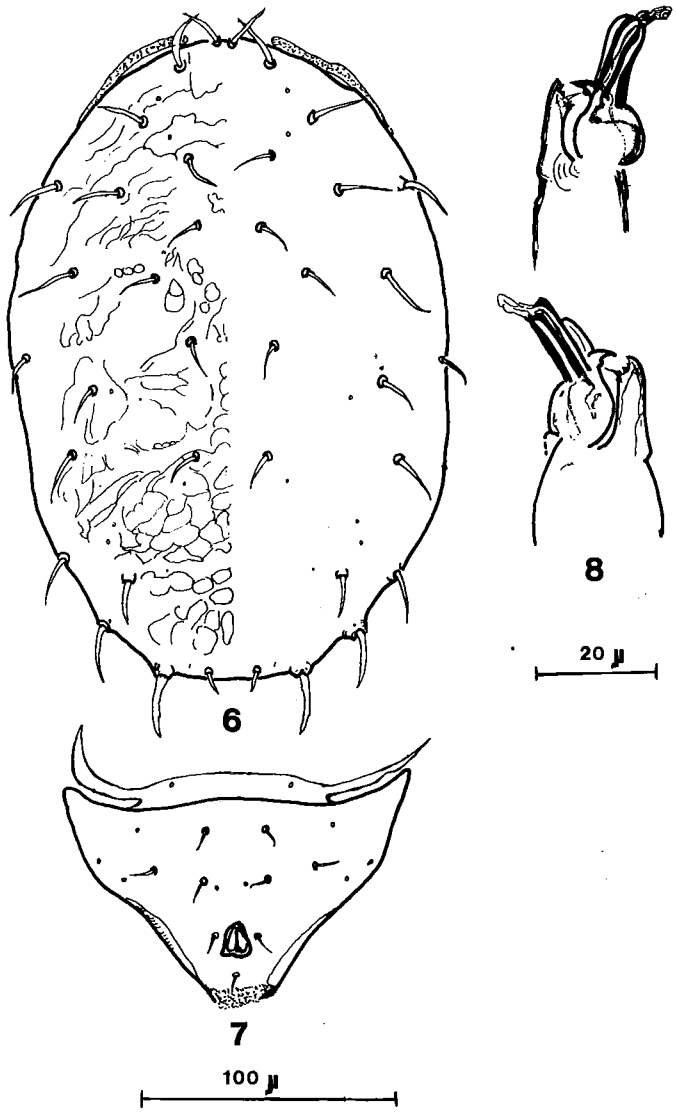
TABLE 3

Paragigagnathus tamaricis sp. n., Male (Measurements of setae in μ).

	D_1	D_2	D_3	D_4	D_5	D_6	L_1	L_2	L_3	L_4	L_5	L_6	L_7	L_8	L_9	M_1	M_2
1.	17	17	13	15	15	10	22	20	23	17	22	20	18	22	23	15	18
2.	15	12	12	13	13	8	/	18	17	22	17	18	20	23	23	13	1/
3.	/	13	13	13	13	8	/	18	20	20	17	18	20	23	22	15	18
4.	/	13	/	13	15	8	18	18	17	18	15	/	18	22	22	/	17
5.	/	15	/	13	15	10	22	20	20	20	17	18	20	22	22	15	17

/ -bent seate

1/ -broken seate



Figs. 6-8 Paragigagnathus tamaricis sp. n., male;
6 - dorsal shield; 7 - ventrianal shield; 8 - chelicera with spermatophoral process.

1-4 : on Tamarix sp., 'Ein Fashkha, Apr. 20, 1970 (1 - allotype);

5 : on Tamarix sp., 'Ein Fashkha, May 12, 1970.

Type locality and Habitat: A holotype female (No. G. 288d), seven paratype females and four males were collected on Tamarix sp. at 'Ein Gedi, Apr. 30, 1970. One allotype male, two other males and eleven paratype females were collected on Tamarix sp. at 'Ein Fashkha, Apr. 20, 1970. Other paratypes: On Tamarix, 'Ein Mishmar (Judean Desert), Feb. 25, 1970, one female; 'Ein Moor, Mar. 16, 1970, four females; 'Ein Fashkha, May 12, 1970, eleven females and one male.

Location of Types: In the Division of Entomology, Agricultural Research Organization, The Volcani Center, Bet-Dagan, Israel.

Observation

This mite was found on Tamarix trees growing near water, in the Dead Sea area, the Judean desert and the Central Negev. The first females brought into the laboratory were mounted on microscopic slides, and it was observed that the female bodies contain larvae, one in each female.

We suspected that the females of this species might be viviparous, a phenomenon unknown among phytoseiids.

The first breeding experiments failed, apparently due to the lack of the proper food. Then galls were found on Tamarix trees near 'Ein Fashkha, caused by a Tenupalpid mite Mobdulia tamaricis Pritchard and Baker, and they proved to be the suitable prey for this species.

Several breedings were then started and careful observations were carried on. Although the number of individuals increased in each of the breeding cages, still no eggs nor egg-shells were discovered; nor was any

larviposition observed. When mature specimens from the cages were mounted and examined microscopically, larvae were seen in each of the specimens observed.

Acknowledgements

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References

Chant, D.A. (1965) Generic concepts in the family Phytoseiidae (Acarina: Mesostigmata). Canad. Ent. 97: 351-374.

Evans, G.O. (1963) Observations on the chaetotaxy of the legs in the free-living Gamasina (Acari:Mesostigmata). Bull. Brit. Mus. (nat. Hist.) Zool. 10: 277-303.