

SOME FALSE SPIDER MITES (PROSTIGMATA: TENUIPALPIDAE)  
FROM ISRAEL

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ABSTRACT

Three new species of false spider mites (Prostigmata: Tenuipalpidae), namely *Tenuipalpus cupressoides*, *T. pareriophyoides* and *Aegyptobia eremia* are described from Israel. Another eight species are recorded from Israel for the first time, and additional host and locality data are presented for other species.

The Tenuipalpidae or false spider mites, a family of some economic importance (Jeppson, Keifer and Baker, 1975), are poorly known in Israel. Pritchard and Baker (1958) recorded five species: *Brevipalpus* (= *Cenopalpus*) *pulcher* Canestrini and Fanzago, *B. californicus* (Banks), *B. obovatus* Donnadieu, *Tenuipalpus punicae* Pritchard and Baker and *Obdulia tamaricis* Pritchard and Baker. Other species identified from Israel include *Brevipalpus lewisi* McGregor and *B. phoenicis* (Geijskes) (Bytinski-Salz, 1966), *Tenuipalpus granati* Sayed (Sternlicht and Golan, 1966), *Brevipalpus* (= *Ceno-palpus*) *lineola* (Canestrini and Fanzago) (Dosse, 1974) and *Capedulia maritima* Gerson and Meyer (Gerson and Meyer, 1980). In the present assay we add 11 species (of which three are new) to this fauna, and include additional host-plant and distribution data for some of the already-recorded taxa. Order of presentation, concepts of genera and terminology follow Meyer (1979). All holotypes are in the collection of the Department of Entomology, Faculty of Agriculture, Rehovot. Paratypes will be placed in the collections of the Plant Protection Research Institute, Pretoria; the British Museum (Natural History), London and the U.S. National Museum, Washington, D.C.

## *Tenuipalpus* Donnadieu

*Tenuipalpus* Donnadieu 1875:139. For other descriptions see Meyer (1979, p. 3).

Genus characterized by lacking dorsosublateral setae, adults and nymphs having four pairs of legs, rostral shield present antero-medially; venter with a genitoventral plate or a separate ventral plate, these, however, not being quadrangular in shape, and in usually having the penultimate dorsolateral hysterosomal setae flagellate. If these setae of normal length and shape, then podosoma very broad and opisthosoma very narrow.

## *Tenuipalpus dubinini* Reck

*Tenuipalpus dubinini* Reck, 1951:296; Livshitz and Mitrofanov, 1967:30.

New record: Hiram, on *Ephedra campylopoda* (Ephedraceae), 20.II.1970, UG.

## *Tenuipalpus cupressoides* n. sp.

(Figs. 1-4)

This species comes nearest to *T. caudatus* (Dugés), but differs in having the first two pairs of propodosomals, the anterior dorsolaterals and the third dorsocentral setae spatulate (setiform in *caudatus*). The longitudinally-directed folds on the hysterosoma, meeting in a median line, also differ from the rounded reticulations possessed by *caudatus*.

*Female.* (Fig. 1). Dimensions of holotype (measurements in parentheses indicate variations in paratypes): length, with gnathosoma 360  $\mu$ m (333, 340); without gnathosoma 320  $\mu$ m (300, 313); greatest body width 233  $\mu$ m (227, 233).

*Dorsum.* Propodosoma with two Y-shaped ridges whose arms begin at the eyes and at the second propodosomal setae, and converge posteriorly, at some transverse folds. Hysterosoma with lateral longitudinal folds beginning behind legs IV and converging anteriorly towards suture. Mid-hysterosoma with coarse, irregular striae which become longitudinally-directed between third pair of dorsocentral setae, meeting at a distinct longitudinal groove. Rostral shield acutely and deeply bifurcate. Anterior dorsal propodosomal setae spatulate, minute (6-7  $\mu$ m). Second pair similar, slightly larger. Third pair much longer, reaching halfway to suture. First pair of dorsocentrals broadly lanceolate, reaching almost to bases of second pair, which are spatulate and shorter. Third pair spatulate, minute, resembling anterior propodosomals. Humerals spatulate, large. First pair of dorsolateral setae similar to anterior propodosomals. All four pairs of non-flagellate caudolaterals broadly lanceolate, overreaching bases of setae next in line. Penultimate pair flagellate. Opisthosoma constricted. One pair of pores located anterior-laterad of third pair of dorsocentrals.

*Venter.* (Fig. 2). Median area mostly with delicate transverse striae, except between legs I and on anal flaps, which are longitudinally-striated, and punctate areas laterad to genitoanal zone. Ventral plate indistinct. Single pair of anterior medioventral setae

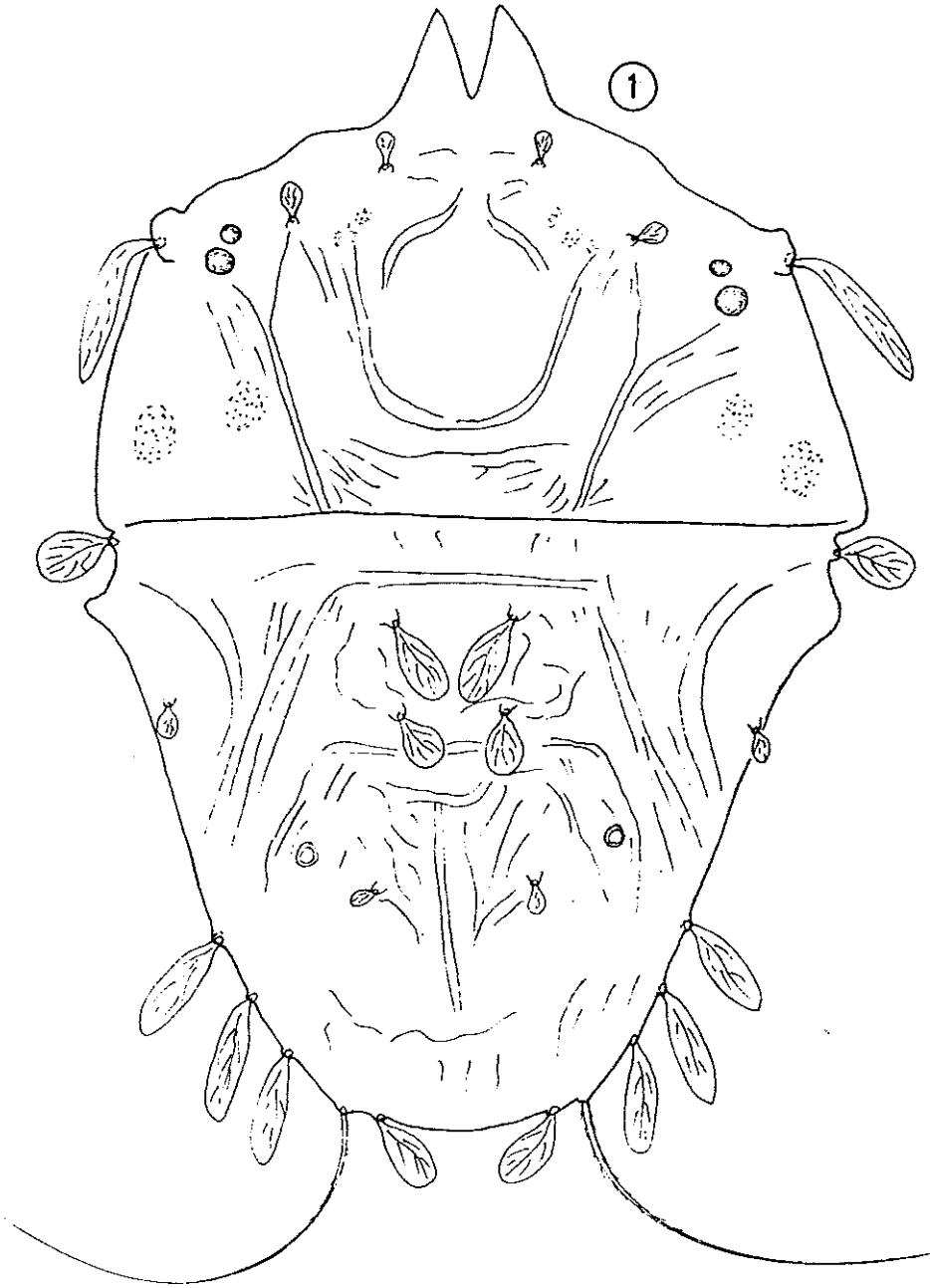
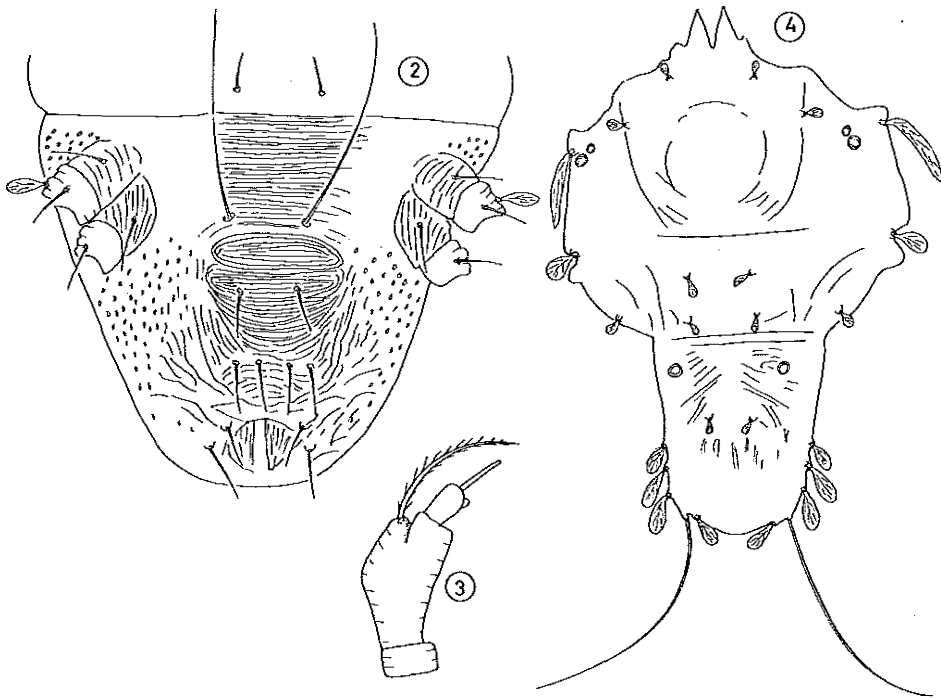


Fig. 1. *Tenuipalpus cupressoides* n.sp. Female, dorsum.



Figs. 2-4. *Tenuipalpus cupressoides* n. sp. 2. Female, venter of hysterosoma. 3. Female, palpus. 4. Male, dorsum.

short, single pair of posterior medioventrals 3-4 times longer. Ventral, genital and anterior anal setae are all subequal in length; posterior anals longer and may occur in spatulate form. All ventral setae nude.

*Gnathosoma.* Rostrum shorter than overhanging rostral shield, and with a single pair of pectinate ventral setae. Palpus three-segmented, the second segment being longest and bearing a long pectinate dorsomedian seta placed on a tubercle. Last segment carries two sensilla: one terminal, one-and-a-half times longer than segment, the other subapical, minute (Fig. 3).

*Legs.* Podomeres with setae and solenidia (in parentheses) as follows: coxae 3-2-1-1; femora 4-4-2-1; genua 3-3-1-0; tibiae 5-5-3-3- and tarsi 8(+1)-8(+1)-5-5. Most dorsal setae lanceolate to spatulate. Anterior dorsal setae on all tibiae longer than respective tarsi. Sensory setae on tarsi I-II small and club-like. Claws and empodia padlike, with many tenent hairs.

*Male.* (Fig. 4). Length (including and excluding gnathosoma, respectively) 267-273  $\mu\text{m}$ ; 233-240  $\mu\text{m}$ . Greatest body width 179-200  $\mu\text{m}$ . Generally like female but opisthosoma more constricted. Ridge going from above second propodosomals to suture without branch leading to eyes (and thus not forming a Y) on either side. Dorsal

skin folds irregular, not forming a mid-hysterosomal longitudinal groove. Rostral shield with two pairs of peaks, one acute, high, the other rounder, much lower. Dorsal setae as in female, but first pair of dorsocentrals shorter. Ventral striation, setation and gnathosoma as in female. Leg chaetotaxy also similar, except that tarsi I-II have an additional, "male" sensillum, and tarsus III also carries one. All sensilla longer than those of the female, parallel sided.

MATERIAL EXAMINED. Holotype and allotype: Israel, Kabri, on *Cupressus sempervirens* (Cupressaceae), 22.XII.1969, UG, Nos. 3234 and 3238. Paratypes 3♀♀ 1♂, same data. Additional paratypes 1♀, 1♂, same host, Maabarot, 12.VIII.1981, UG.

*Tenuipalpus pareriphyoides* n. sp.

(Figs. 5-11)

This species is closely related to *T. eriophyoides* Baker, differing from it by a series of subtle characters, summarised in Table 1.

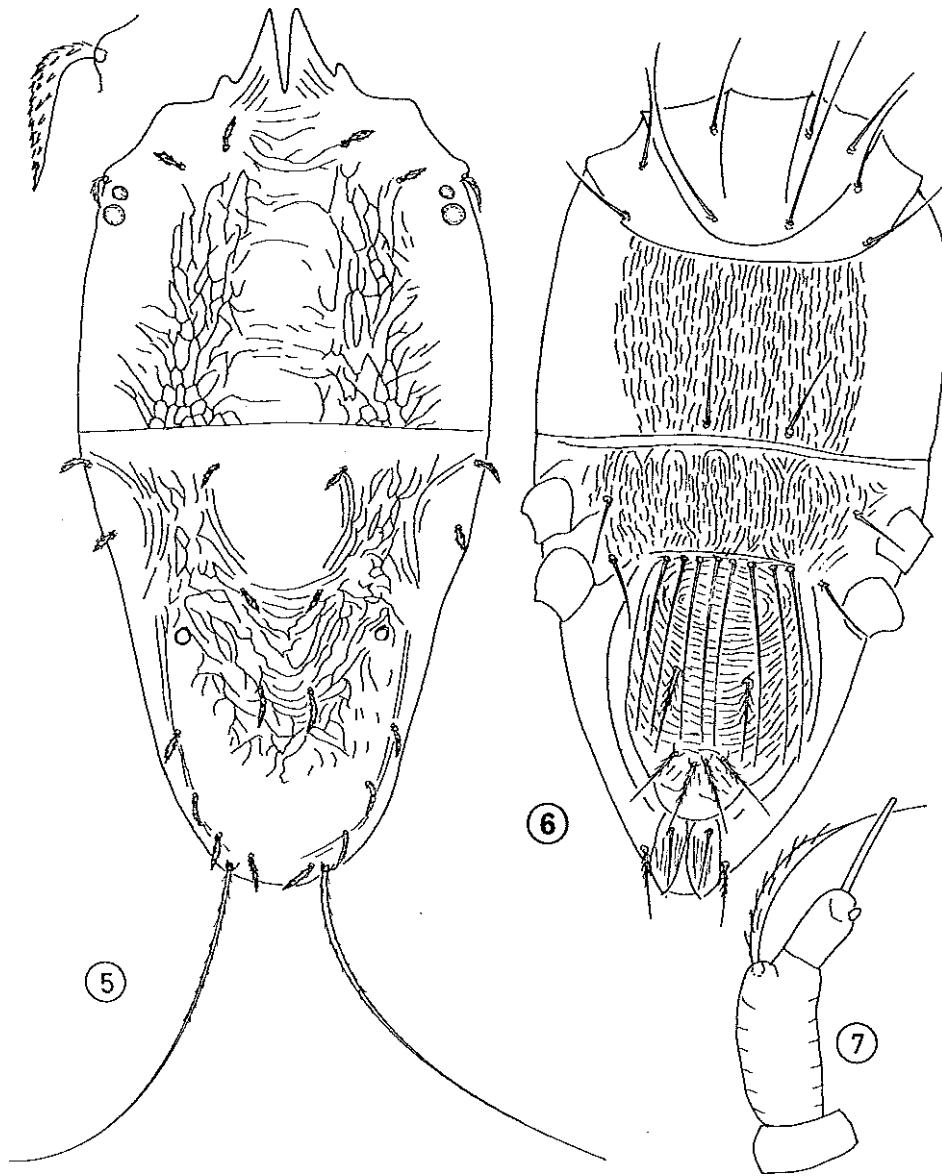
*Female.* (Fig. 5). Dimensions of holotype and paratypes: length of body with gnathosoma: 400  $\mu\text{m}$  (373,388); without gnathosoma: 367  $\mu\text{m}$  (347,353). Greatest body width 200  $\mu\text{m}$  (147,153).

*Dorsum.* Propodosoma with a few transverse median folds which are flanked by longitudinally-directed reticulations at anterior part, and by polygonal cells towards the suture; totally devoid of conventional striations. Hysterosoma with rugose, lateral longitudinal reticulations which converge towards median area, where they become roundly transverse. Rostral shield acutely and deeply bifurcate, subequal in length to gnathosoma. All dorsal setae (except barbed flagellate penultimate dorsolaterals) subequal in length, narrowly lanceolate, barbed. Diameter of posterior corneae twice that of anterior one. One pair of pores located in usual position. Opisthosoma not constricted.

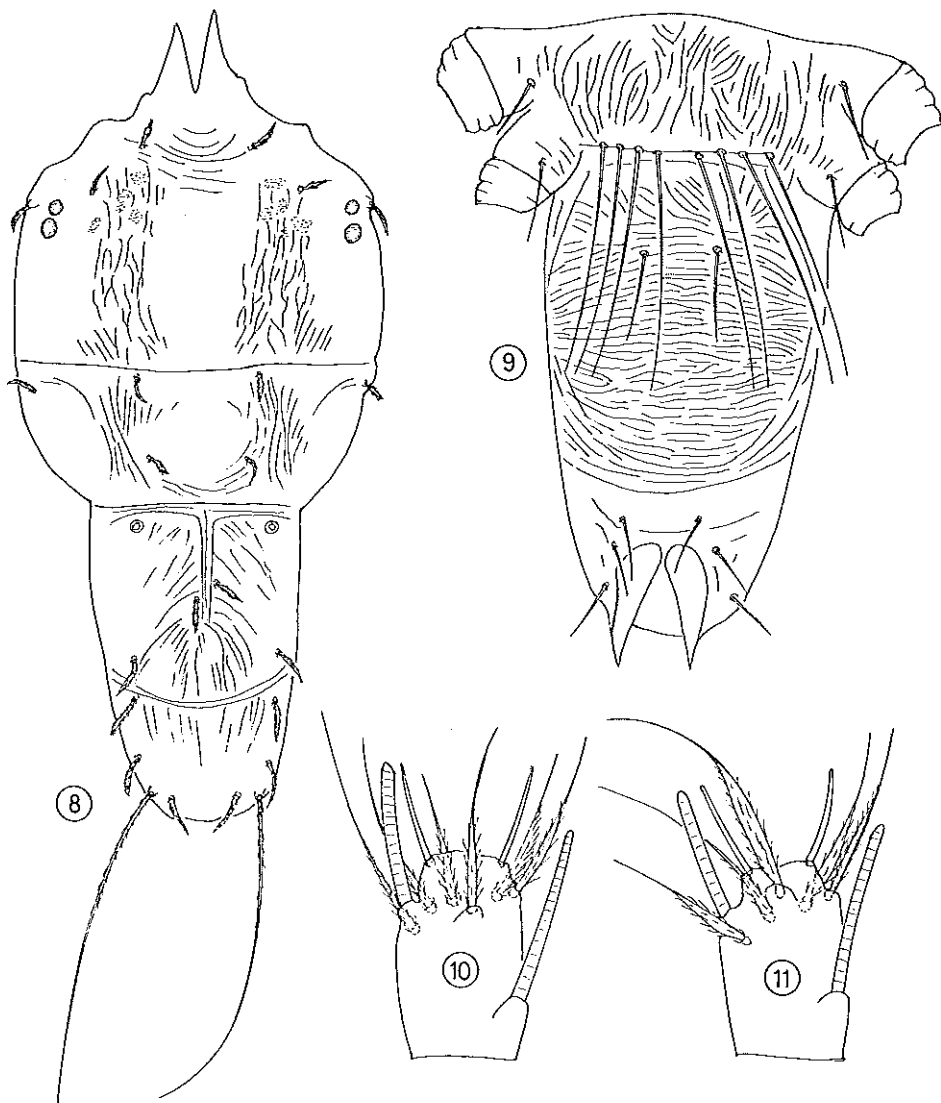
*Venter.* (Fig. 6). Anterior part of propodosoma transversely divided by apodemes extending between coxae I and between coxae II. Striae posterior to these apodemes longitudinal but not continuous, with broken, anastomosing lines. On the ventrigenital plate the striations are transverse. Medioventral area with one anterior and four posterior pairs of setae, the latter long, almost reaching bases of the genital setae and slightly expanded at their basal third. The barbed ventral setae reach bases of genitals, which are subequal to anals in length and barbed. The posterior anal setae are placed just outside anal covers.

*Gnathosoma.* Venter with a single pair of barbed setae. Palpus three-segmented, second segment largest, with a dorsal pectinate seta. The last segment with a long (one-and-a-half times length of segment) sensory rod and another subapical minute seta (Fig. 7).

*Legs.* Podomeres with setae and solenidia (in parentheses) as follows: coxae 3-2-1-1; femora 4-4-2-0; genua 2-2-1-1; tibia 5-5-3-3 and tarsi 8(+1)-8(+1)-5-5. Solenidia on tarsi I and II parallel-sided. Most dorsal setae on legs barbed. Claws and empodia pad-like, with rows of tenent hairs.



*Figs. 5-7. Tenuipalpus pareriphyoides n.sp. Female. 5. Dorsum. 6. Venter of idiosoma. 7. Palpus.*



*Figs. 8-11. Tenuipalpus pareriophyoides* n.sp. Male. 8. Dorsum. 9. Venter of hysterosoma. 10. Tarsus I (apotele omitted). 11. Tarsus II (apotele omitted).

*Male.* Dorsum of propodosoma with a few rugose transverse folds anteriorly and longitudinal ones laterally (Fig. 8). Anterior dorsal median area of podosoma smooth, flanked by a few vague folds which are longitudinal anteriorly and transverse-rounded posteriorly. Opisthosoma with an anterior longitudinal groove from which some faint diagonal folds are oriented posteriorly to body margins; posterior part of opisthosoma with vague longitudinal striae. Rostral emargination, corneae and dorsal setae as in female, except that the caudolateral setae become progressively larger, the ultimate pair being largest. One pair of pores situated at anterior shoulders of opisthosoma, but there are no transverse pores located at posterior edge of metapodosoma, as figured by Baker and Tuttle (1972, Fig. 70) for the male of *T. eriophyoides*. Third pair of dorso-centrals placed about two-thirds the way between anterior border of opisthosoma and line between members of the second pair of dorsolaterals. Ventral striae and gnathosomal as well as medioventral setae as in female, but there are three pairs of genitoanals, all subequal in length, nude (Fig. 9). Genital valves prominent. Gnathosoma as in female, except that the apical sensillum is twice as long as the segment. Leg setation as in female, except that the tarsi carry 8(+2)-8(+2)-4(+2)-3(+2) setae, the two solenidia

TABLE 1. DIFFERENCES BETWEEN *TENUIPALPUS ERIOPHYOIDES* BAKER AND *TENUIPALPUS PARERIOPHYOIDES* N. SP.

	<i>eriophyoides</i>	<i>pareriophyoides</i>
FEMALE		
Dorsal pattern of propodosoma	Exclusively striate	Mostly with complete and incomplete reticulations
Length of first pair of propodosomal setae	Shorter than second pair	Subequal to second pair
Ventral striae	Parallel, complete	Anastomosing, broken
Length of posterior medioventral setae	Reaching about halfway to ventral setae	Overreaching ventral setae
Shape of ventral, genital and anal setae	Nude	Barbed
MALE		
Dorsal opisthosomal pores	Absent	Present
Transverse row of minute dorsal metapodosomal pores	Present	Absent
Location of third pair of dorsocentral setae	In line with second pair of dorsolaterals	About two-thirds distance between first and second dorsolaterals
Dorsal striation	With lobes	Totally devoid of lobes
Number of solenidia on legs I and II	One	Two

being prominent on all legs, at least one always emerging at the basal third of the segment (Figs. 10,11). Length of body (including and excluding gnathosoma, respectively) 333 $\mu$ m (353,360), 300 $\mu$ m (313,320). Greatest width of body 147 $\mu$ m (160).

MATERIAL EXAMINED. Holotype and allotype: Israel, En Yahav, on date palms, *Phoenix dactylifera* (Palmae), 10.XI.1980, D. Blumberg, Nos. 3308 and 3309, respectively. Additional paratypes, 3♀♀, 1♂, same collection data.

### *Brevipalpus* Donnadieu

*Brevipalpus* Donnadieu 1875:143. For other descriptions, see Meyer (1979, p. 74).

Genus characterised by its adults and nymphs having four pairs of legs; rostral shield present; ventral and genital plates well defined and separated, the former being rectangular. A single pair of dorsosublateral setae may or may not be present.

### *Brevipalpus obovatus* Donnadieu

*Brevipalpus obovatus* Donnadieu 1875:144. For other descriptions, see Meyer (1979, p. 86).

This species has a vast number of host plants. Additional local records include: *Gerbera jamesonii* (Compositae), Nes Ziona, 15.VII.1964, UG; *Periploca graeca* (Asclepiadaceae), Miqwe Yisrael, 27.XI.1969, UG; *Myoporum* sp. (Myoporaceae), Miqwe Yisrael, 27.IX.1969, UG; *Ligustrum* sp. (Oleaceae), Jerusalem, 20.XI.1969, UG; *Arctotis* sp. (Compositae), Urim, 26.IX.1969, J. Halperin; *Viburnum tinus* (Valerianaceae), Miqwe Yisrael, 21.X.1969, J. Halperin.

### *Brevipalpus olearius* Sayed

*Brevipalpus olearius* Sayed, 1950:1018; Attiah, 1956:444; Pegazzano 1971:361; Meyer 1979:89.

New record: olive, *Olea europaea* (Oleaceae), Gevim, 10.I.1968, UG.

### *Brevipalpus recki* Livshitz and Mitrofanov

*Brevipalpus recki* Livshitz and Mitrofanov 1968:680; Livshitz and Mitrofanov 1967:14.

New record: on *Quercus ithaburensis* (Fagaceae), Benyamina, 8.XII.1963, UG.

### *Brevipalpus lanceolatisetae* Attiah

*Brevipalpus lanceolatisetae* Attiah, 1956:436. Other descriptions detailed in Meyer (1979, p. 92).

New records: Tal Sahar, *Pyrus malus*, 11.XI.1969, UG; Qiryat Shemona, *Coton-easter* sp., 4.XII.1969, UG; Mt. Meron, *Crataegus aronia*, 10.II.1970, UG. The latter two plants are new records for this mite, but still restrict its known hosts to the Rosaceae.

### *Dolichotetranychus* Sayed

*Dolichotetranychus* Sayed, 1938:606. For other descriptions see Meyer (1979, p. 99).

This genus may be recognized by having a total of twelve pairs of dorsal setae, including a single pair of dorsosublaterals and two pairs of dorsocentrals; nymphs and adults with four pairs of legs; propodosoma without an anterior-median rostral shield; palpus three-segmented and genu IV without setae.

### *Dolichotetranychus australianus* (Womersley)

*Trichadenus australianus* Womersley, 1943:245. For other descriptions, see Meyer (1979, p. 101).

New record: Elot, on *Cynodon dactylon* (Gramineae), 15.V.1981, A. Vinician.

### *Obdulia* Pritchard and Baker

*Obdulia* Pritchard and Baker, 1958:260; Mitrofanov 1973b:1316; Meyer 1979:114.

This genus has ten pairs of hysterosomal dorsal setae, including two pairs of dorsosublaterals; its adults and nymphs have four pairs of legs, and the palpus consists of a single segment which is fused to the rostrum.

### *Obdulia tamaricis* Pritchard and Baker

*Obdulia tamaricis* Pritchard and Baker, 1958:260.

Hitherto this species has only been reported from galls of *Tamarix maris-mortui*, collected at Wadi Fukra, Israel. More recent collections show that it induces galls on branches of various *Tamarix* spp. (Tamaricaceae), occurring all along the Arava, from the Dead Sea to the Red Sea.

### *Raoiella* Hirst

*Raoiella* Hirst 1924:522. For other descriptions see Meyer (1979, p. 114).

This genus can be identified by having thirteen pairs of dorsal hysterosomal setae, of which four are dorsosublaterals; adults and nymphs with four pairs of legs and the palpus is two-segmented.

### *Raoiella indica* Hirst

*Raoiella indica* Hirst, 1924:522; Sayed, 1942:82; Pritchard and Baker 1958:256; Baker and Pritchard 1960:570.

This species commonly occurs on date palm fronds along the Arava valley.

### *Phyllotetranychus* Sayed

*Phyllotetranychus* Sayed 1938:602; Pritchard and Baker 1958:254; Baker and Pritchard 1960:571; Mitrofanov 1973a:508; Meyer 1979:115.

This genus can be determined by carrying thirteen pairs of dorsal hysterosomal setae, of which three are dorsosublaterals; adults and nymphs with four pairs of legs; palpus two segmented and all dorsal setae fan-shaped.

### *Phyllotetranychus aegyptiacus* Sayed

*Phyllotetranychus aegyptium* Sayed, 1938:602;

*Phyllotetranychus aegyptiacus* Sayed, 1940:250; Pritchard and Baker, 1958:255; Baker and Pritchard 1960:571; Meyer 1979:115.

This species commonly occurs on date palm fronds along the Arava valley.

### *Aegyptobia* Sayed

*Aegyptobia* Sayed, 1950:1018. For other descriptions see Meyer (1979, p. 117).

This genus may be recognized by having twelve or thirteen pairs of dorsal hysterosomal setae, including four pairs of dorsosublaterals; adults and nymphs with four pairs of legs and the palpus with five segments.

### *Aegyptobia salixi* Zaher and Yousef

*Aegyptobia salixi* Zaher and Yousef 1969:273; Meyer 1979:123.

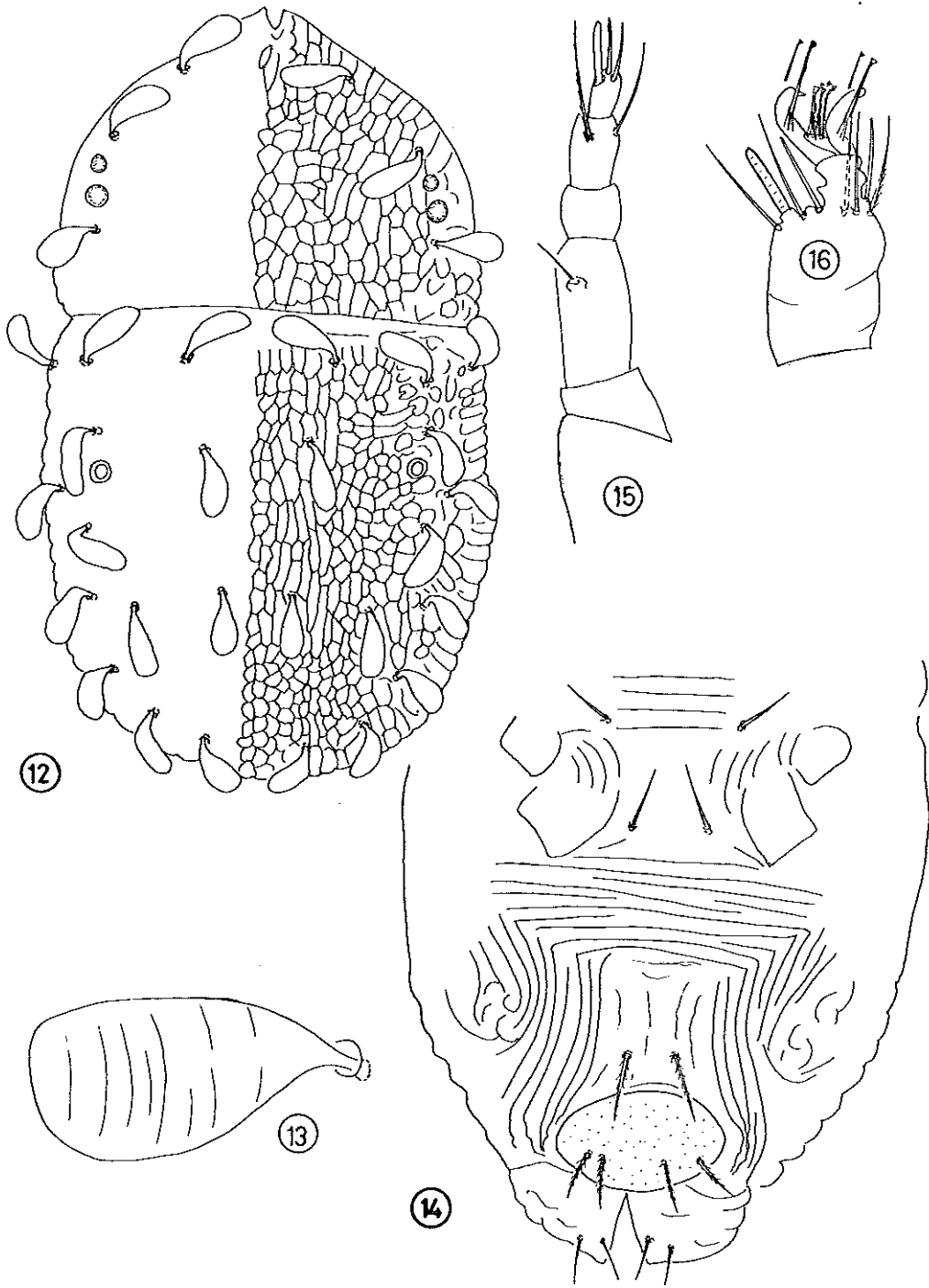
New record: shores of Lake Galilee, on *Salix alba* (Salicaceae), 20.VII.1973, UG.

### *Aegyptobia eremia* n.sp.

(Figs. 12-17)

This species is close to *A. thujae* Baker and Tuttle, differing in the shape of dorsal setae and reticulations.

*Female.* (Fig. 12). Dimensions of holotype (paratypes in parentheses): body, including gnathosoma, 367  $\mu$ m (353,407); excluding gnathosoma 300  $\mu$ m (307,333). Greatest body width 187  $\mu$ m (167,200).



Figs. 12-16. *Aegyptobia eremia* n.sp. Female. 12. Dorsum. 13. A dorsal seta. 14. Venter of opisthosoma 15. Palpus. 16. Tarsus I.

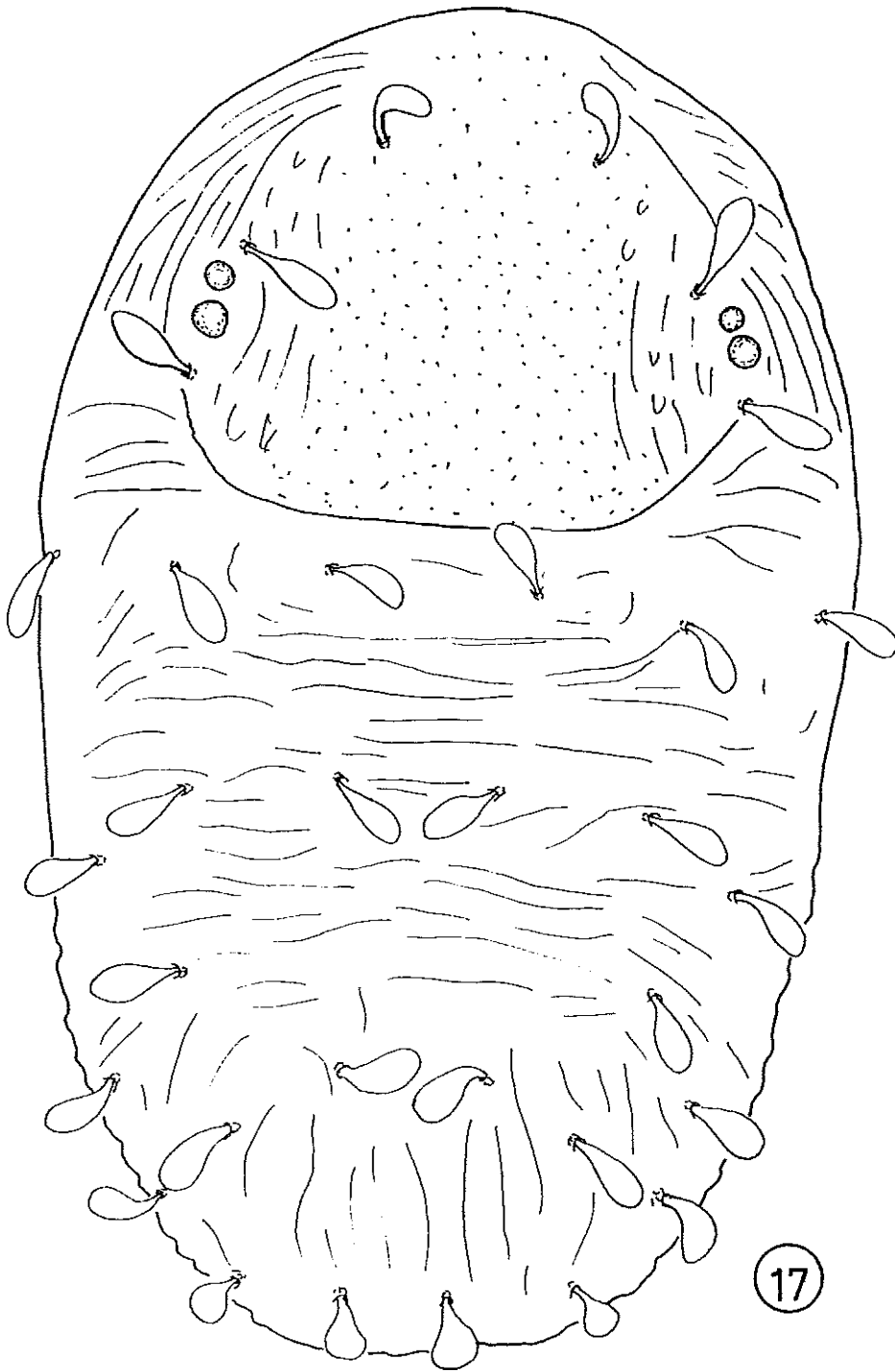


Fig. 17. *Aegyptobia eremia* n.sp. Nymph, dorsum.

*Dorsum.* Anterior margin indented. Reticulations mostly polygonal, those on mid-hysterosoma flanked by more longitudinally-oriented cells, laterad to which reticulation resumes its polygonal shape. All sixteen setae smooth, broadly scale-like, almost parallel-sided with distal margins somewhat truncate and showing obscure transverse subdivisions (Fig. 13). One pair of pores situated just beyond the second pair of dorsosublateral setae.

*Venter.* (Fig. 14). Anterior and posterior medioventral setae short, less than half the distance separating them. Ventral setae removed from each other and from the anterior margin of the genital plate by a little less than their own length. Genital shield faintly punctate, carrying two pairs of setae which are shorter than ventrals and, like latter, slightly barbed.

*Gnathosoma.* Rostrum reaches to about mid-genu I. Distal segment of palpus with a sensillum and two setae, all subequal in length (Fig. 15).

*Legs.* Setae and solenidia (in parentheses) on leg segments as follows: coxae 3-2-1-1; femora 4-4-2-1; genua 3-3-1-2; tibiae 4-4-3-3 and tarsi 8(+1)-8(+1)-5-5. Femora I, II and III as well as genua I and II carry one lanceolate seta each; other setae setiform. Claws unciniate, with tenent hairs, all empodia pad-like with three pairs of tenent hairs (Fig. 16).

Male not seen.

*Nymph* (n = 1). (Fig. 17). Length of body (including and excluding gnathosoma, respectively) 373, 313  $\mu$ m. Greatest body width 187  $\mu$ m.

Dorsal setae placed and shaped as in female. Dorsum of propodosoma with an ill-defined shield which is vaguely reticulate-punctate. Anterior part of hysterosomal dorsum with transverse folds, posterior area with longitudinal ones. Chaetotaxy of palpi and legs as in female, except that femora I and II carry only three setae each and genu IV has none.

MATERIAL EXAMINED. Holotype ♀, Israel, Yeroham, on *Hammada scoporia* (Chenopodiaceae), 13.XI.1969, UG. No. 3240. Paratypes 3♀♀, same data. Another series of paratypes and the nymph collected at Nahal Boqer on *Salsola* sp. (Chenopodiaceae), 28.II.1980, UG.

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