SOME CHEYLETID AND PSEUDOCHEYLID MITES FROM ISRAEL

BY

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Mites of the Prostigmatic family Cheyletidae have been very little studied in this country, as only 4 genera and species were recorded to date. These include *Cheyletiella* sp. (SHULOV, 1957) ; *Cheletomimus berlesei* Oud. (BAKER, 1949) ; *Cheyletus cacahuamilpensis* Baker (COSTA, 1961) and *Cheletogenes ornatus* (C. & F.) (GERSON, 1964).

The present report adds 4 genera and 5 species (2 of which are described as new) to the local fauna, and presents some distributional and morphological data as to 2 of the formerly recorded species. It also reports on the finding of a representative of a family new to Israel, the Pseudocheylidae.

CHEYLETIDAE.

Cheletogenes ornatus (Canestrini and Fanzago).

Cheyletus ornatus Canestrini and Fanzago, 1876, Att. Soc. Veneto-Trentina, p. 106.

Type locality and habitat : Italy, on plants.

This mite, which is often associated with populations of armoured scale insects, or Tenuipalpid mites, seems to have many host plants. It is quite prevalent in citrus groves along the coastal plain of Israel, being sometimes the most abundant mite on the bark of the trees.

It was also collected on *Quercus ithaburensis* (on the branches), Benyamina, December 21, 1963 ; on *Melia Azedarach* (on the bark), Rehovot, January 1, 1964 and July 26, 1965 ; on *Pinus halepensis* (on the branches), Ness Ziona, August 5, 1964 ; on *Nephelium tomentosum* (on the leaves), Rehovot, June 19, 1965 ; on *Pittosporum tobira* (on the leaves), Tel Aviv, June 22, 1965 ; on *Pyrus malus* (on the fruit), Ness Ziona, July 16, 1965 ; on *Cydonia oblonga* (on the leaves), Rehovot,

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July 25, 1965 ; on *Prunus* sp. (on the leaves), Ness Ziona, August 4, 1965 ; on *Olea europaea* (on the branches), Amiad, November 1, 1965 ; on *Thymelaea hirsuta* (on the branches), Rehovot, January 29, 1966 ; on *Hedera helix* (on the leaves), Rehovot, April 10, 1966 and on *Eriobotrya japonica* (on the leaves), Rehovot, April 28, 1966.

Cheletomimus berlesei (Oudemans).

Cheletes berlesei Oudemans 1904, Ent. Ber. Nederl., Ver. 1, fasc. 17, p. 154.

Type locality and habitat : Italy, on plants.

C. berlesei was redescribed by BAKER (1949) as having the dorsal propodosomal shield with 3 pairs of marginal and 4 pairs of submedian setae. During the present study a series of 34 females were examined, which showed some variation in the number of the dorsomedian setae. Thus, 23 (67 %) had the normal complement of 4 pairs. 7 (21 %) had one of these setae missing, *i.e.*, 4 setae on one side and 3 on the other ; in 1 specimen (3 %) there are only 3 pairs of dorsomedians on both sides, and 3 females (9 %) have an extra seta, that is, 4 on one side and 5 on the other. In all other respects these specimens do conform to the concept of *C. berlesei* as understood by BAKER (1949).

C. berlesei is abundant on citrus trees (especially on the bark). It was also collected on the bark of *Melia Azedarach*, Rehovot, January 8, 1964 and on twigs of *Pittosporum tobira*, Tel Aviv, May 27, 1966.

Cheletomorpha tatami Hara.

Cheletomorpha tatami Hara 1955, Japan. J. Exp. Med. 25, p. 69-70.

Type locality and habitat : Tomioka-Machi, Tokushima Prefecture, Shikoku, Japan. In Tatami (Japanese for rice straw matting).

Some specimens, which agree in detail with HARA's (1955) description, were collected from underneath the bark of a eucalyptus tree, Ness Ziona, on January 14, 1966. Others were found in straw litter, in a barn at Rehovot on April 28, 1966, and in a similar habitat at Beit Dagan, June 5, 1966.

Paracheyletia bakeri Ehara.

Paracheyletia bakeri Ehara 1962, Annotationes Zoologicae Japonenses, 35, p. 109.

Type locality and habitat : Sapporo, Hokkaido, Japan, on unspecified greenhouse plants.

P. bakeri was originally described from Japan (EHARA, 1962), collected also in Florida (MUMA, 1964), and is probably of world-wide distribution (Edward W. BAKER, personal communication, 1965).

New records : on orange trees (on the bark), Mashmia-Shalom, July 12, 1964 and September 10, 1964 ; on lemon trees (on the bark), Geva, October 20, 1965 ; on grapefruit trees (on the fruits), Heletz, August 11, 1965 ; on *Morus alba* (on the leaves), Rehovot, January 3, 1965 ; on *Parthenocissus* (on the leaves), Rehovot, October 14, 1965 ; on *Rosa* (on the branches), Rehovot, November 12, 1965, and on *Pennisetum purpureum* (on the leaves), Rehovot, April 28, 1966.

Cheyletus malaccensis Oudemans.

Cheletes malaccensis Oudemans 1904, Ent. Ber. Nederl., Ver. 1, fasc. 12, p. 84.

Type locality and habitat : Malacca Straits, on skin of the bird *Psittinus cyanurus*.

New records : in damaged sorghum seeds, Rehovot, June 7, 1965, straw litter, Rehovot, April 28, 1966, straw litter, Beit Dagan, June 5, 1966.

Neoacaropsis volgini sp. n.

Female : Gnathosoma (figures 1, 2) approximately a third as long as idiosoma. Palpfemur 1.6 times as long as wide, outer margin rounded, inner margin almost straight ; dorsal seta lanceolate-serrate, about 1.3 times greatest width of segment, lateral seta shorter, inserted on anterior outer margin of femur and denticulate ; the 2 ventral setae nude, hairlike. Palpgenu with one dorsal, denticulate seta. Palptibia has 2 nude setae, the one ventral, the other inserted on inner margin of segment. Claw with 5 teeth, al inserted on basal half, the apical tooth largest. Palpal comb about half as long as claw, with 13-14 teeth. Also on palptarsus 2 sickle-like setae, the one shorter, the other longer, than claw, and a much shorter, broader and denticulate seta. Rostrum sharply pointed, its shield covered by fine, longish granulations, anterior third of this shield also with weak longitudinal reticulations. Peritreme with 5-6 segments. Idiosoma (figure 1) almost completely covered by 2 large contigouus dorsal shields. Propodosomal shield wider than long, with rounded angles, 1 pair of eyes and 7 pairs of spatulate-serrate setae, 4 laterals and 3 submedians. The second pair of marginal setae displaced from normal position to inner margin of eyes. Surface of shield covered with fine longish granulations, transverse in median area and longitudinal near setae. Shoulder setae inserted between 3th and 4th laterals, similar in shape to other dorsal setae. Hysterosomal shield slightly narrower and longer than propodosomal shield, with 8 pairs of spatulate-serrate setae, 4 laterals and 4 submedians. Granulations on surface of shield similar to those on propodosomal shield. A small incision present on each side of hysterosomal shield, between the 2th and 3th lateral setae. Venter of idiosoma with 6 pairs of nude setae, all subequal, about 35 μ long, the 6th pair located just anterior to genital opening (figure 4). The 2 pairs of genital setae nude, their bases removed from each other by more than their diameter. 3 simple,

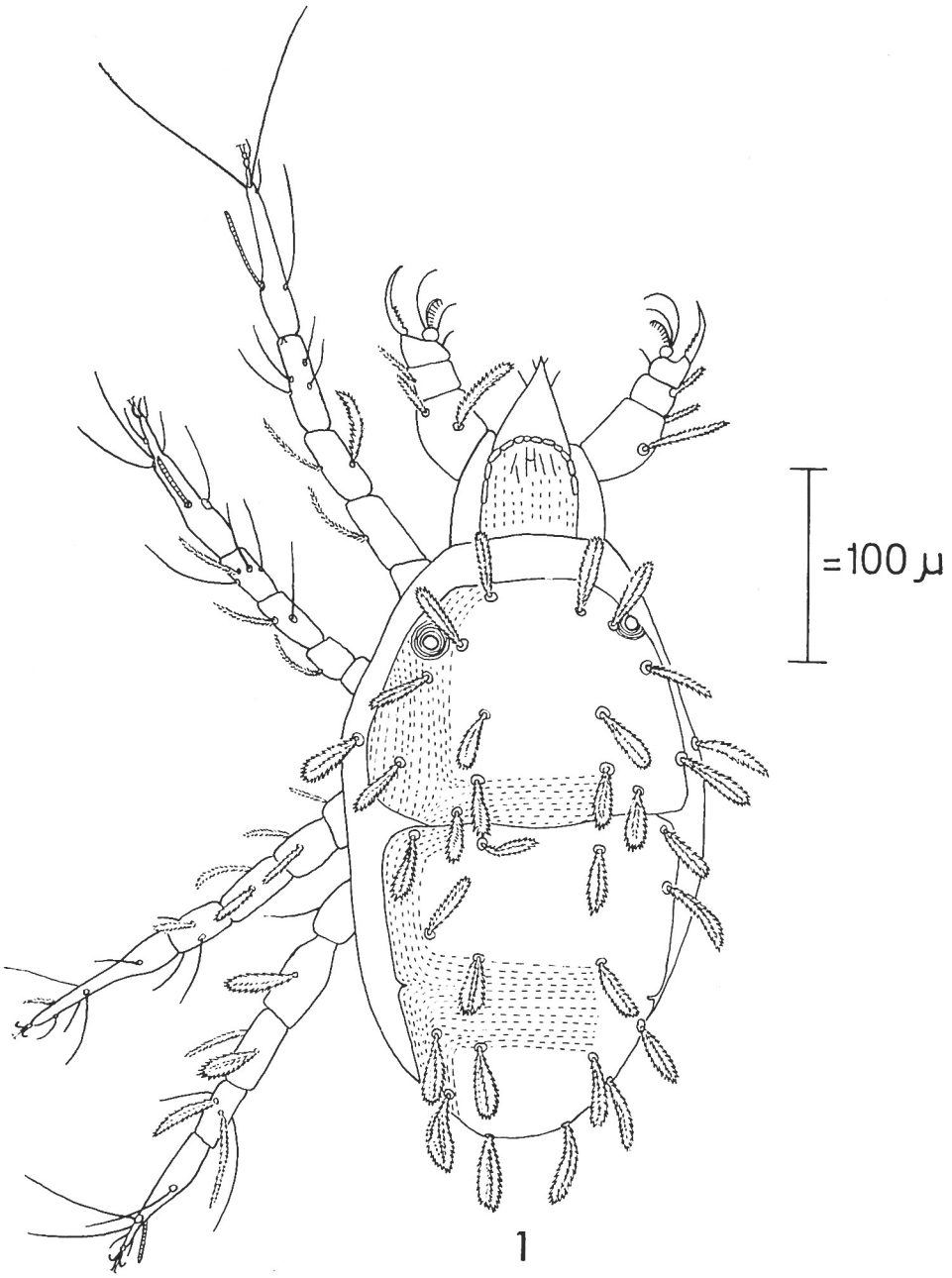

FIG. 1. *Neoacaropsis volgini* sp. n. Dorsal aspect of female.

nude anal setae present, and caudad to these 1 pair of lanceolate serrate post-anal setae, inserted near posterior margin. Coxae I, III and IV with 2 nude setae each, coxa II only with 1 such seta. Trochanters I, II and IV have 1 nude seta each, trochanter III with 2 setae, 1 nude, the other lanceolate-serrate. Femora I and II with 2 setae, 1 nude, the other lanceolate-serrate ; femur III has 2 lanceolate-serrate setae and femur IV 1 similar seta. Genu I with 2 lanceolate-serrate setae and a minute, club-shaped solenidion inserted at anterior end of segment ; genu II has 2 setae, the one nude, the other lanceolate-serrate ; genua III — IV with 2 lanceolate-serrate setae each. Tibia I (figure 3) with 5 nude setae and a minute, club-shaped solenidion inserted at anterior end of segment ; tibiae II and III have 1 lanceolate-serrate and 3 nude setae, and tibia IV with 2 lanceolate-serrate and 2 nude setae. Tarsus I has 7 nude setae and a solenidion, which is about half as long as segment and apparently without a guard seta ; tarsus II also with 7 setae, but its solenidion only a quarter the length of this segment ; tarsus III has 1 lanceolate-serrate and 6 nude setae, and tarsus IV with 1 lanceolate-serrate and 5 nude setae. Claws of leg I about half the size of other claws, and much shorter than tenent hairs. Measurements of legs I — IV (from base of trochanters to tip of claws), 280, 210, 230 and 270 μ, respectively. Length of idiosoma, 360 μ, with rostrum 470 μ, greatest width (in front of legs III), 210 μ.

Male and immature stages not seen.

Type locality and habitat : Rehovot, pine needle litter, collected October 25, 1965. Holotype in author's collection, 1 paratype deposited in U. S. National Museum. Also available 1 additional female, with same collection data as types, and another female, collected at Rehovot, in straw litter, on April 28, 1966.

Remarks : N. volgini is most closely related to *N. rohdendorfi* Volgin 1962. It may be separated from the latter by the type of setation on trochanters I and IV, genu II and tibiae I, II, as well as by the presence of a hysterosomal incision and by the absence of a forked anal seta.

Eutogenes citri sp. n.

Male : Gnathosoma (figures 5, 6) approximately a quarter as long as idiosoma. Palpfemur as long as wide, outer margin strongly rounded, inner margin almost straight ; dorsal seta lanceolate-serraet, about as long as segment and set on strong tubercle ; ventral setae nude. Palpgenu with 2 setae, inserted on outer margin, the dorsal one lanceolate-serrate, the ventral one nude. Palptibia with 2 ventral, nude setae, inserted on inner and outer margins ; claw without teeth. Outer palpal comb almost as long as claw, with 13-14 teeth, inner comb shorter, with twice as many teeth. Also inserted on palptarsus are the 2 sickle-like setae, the one somewhat longer, the other somewhat shorter, than inner comb. Rostrum with 2 acute marginal projections, its shield covered by fine, longish granulations, these

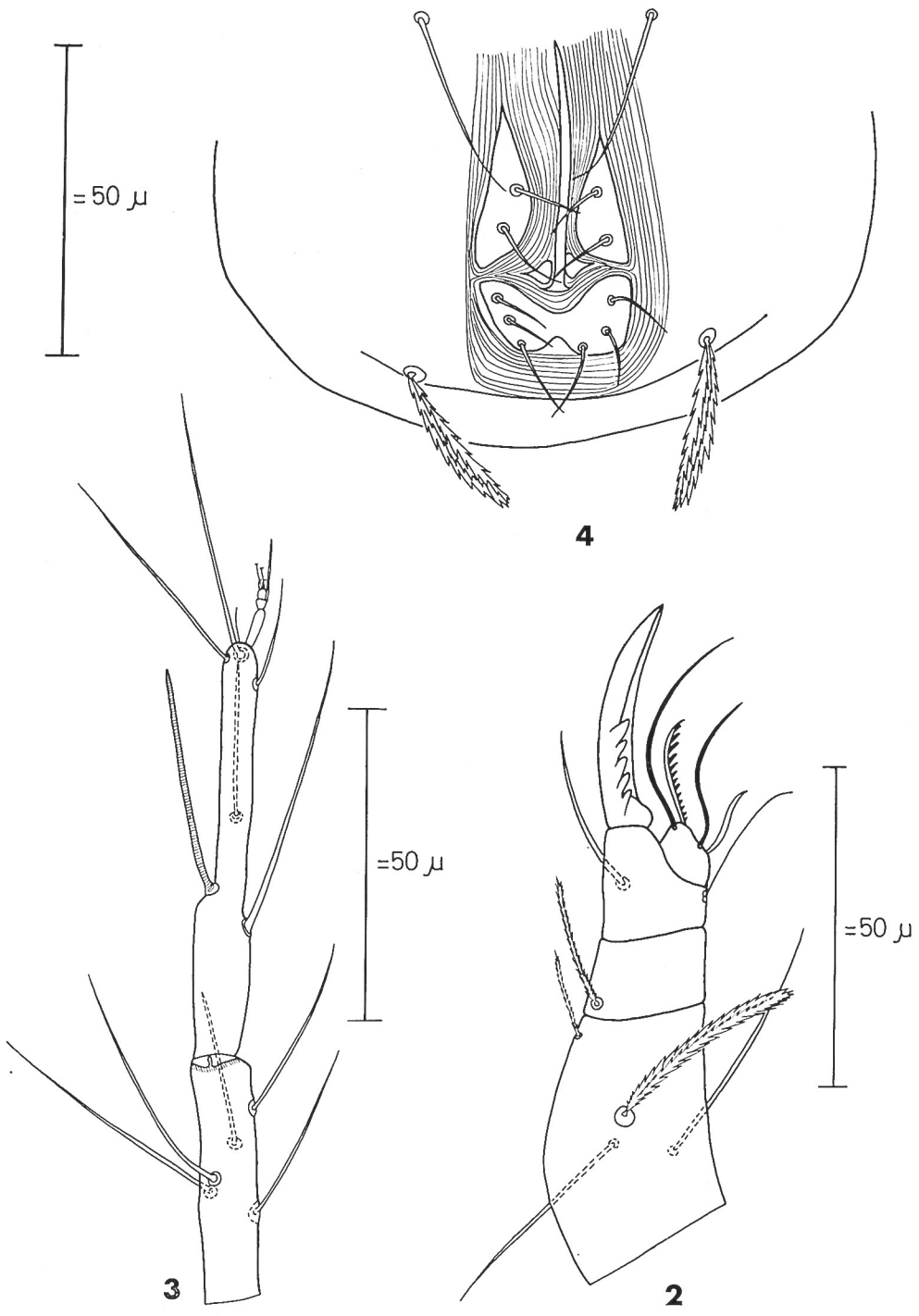

FIG. 2-4. — *Neoacaropsis volgini* sp. n.
2 — Palpus of female. 3 — Tibia and tarsus of leg I, female.
4 — Ventral aspect of opisthosoma, female.

becoming tuberculate anteriorly. Peritreme with 7 narrow segments. Idiosoma (figure 5) covered by 2 large, contiguous shields. Propodosomal shield wider than long, anterior and posterior margins parallel ; with 8 pairs of squamiform, narrowly palmate setae, all subequal, about 17 μ long ; 5 pairs in lateral series and 3 pairs in submedian position, arranged as in figure 5. Anterior margin of hysterosomal shield straight, posterior rounded, with 3 pairs of terminal papillae,

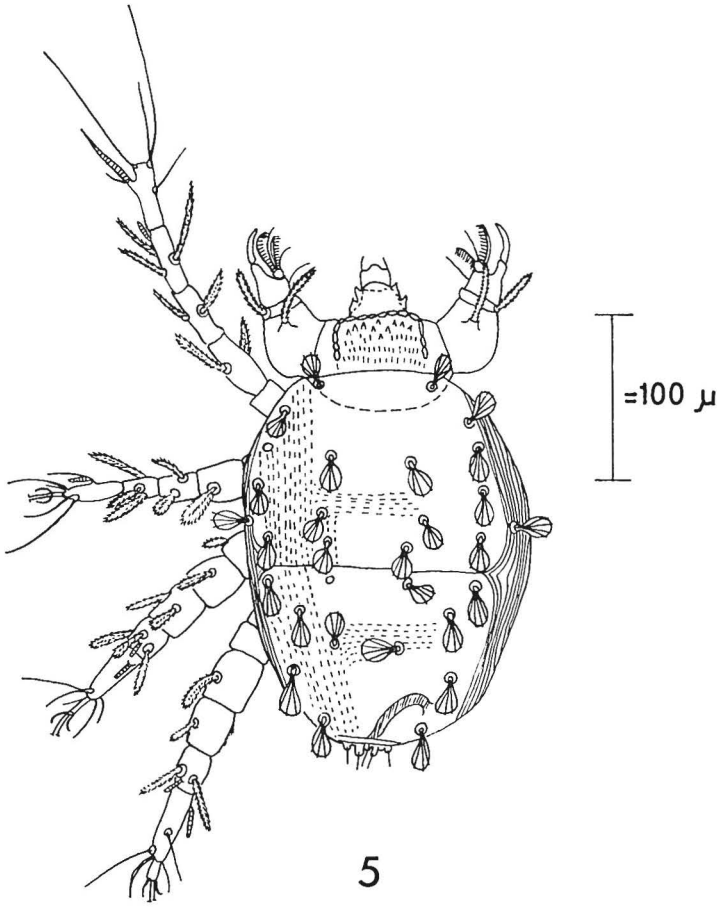

FIG. 5. — *Eutogenes citri* sp. n. Dorsal aspect of male.

each topped by a short nude seta. This shield with 6 pairs of setae, similar to those on propodosoma, 4 laterals and 2 submedians. Shoulder setae inserted between 2th and 3th legs, similar to other dorsal setae. Both dorsal shields covered with fine granulations, these transverse in median area and longitudinal around lateral setae. Venter of idiosoma with 5 pairs of nude setae, their respective lengths being (begining with the anteriormost one) 16, 45, 12, 45 and 20 μ. The posterior pair of these ventral setae situated in front of the genitoanal opening, on each side

of which are inserted 2 short, nude setae. Aedeagus about 50 μ long, 6 μ wide parallel sided. Coxae I, III and IV with 2 nude setae each, coxa II has only 1 such seta. All trochanters with 1 lanceolate serrate seta. Femora I, II and III have 2 lanceolate serrate setae, whereas femur IV has only one. All genua with 2 lanceolate serrate setae. All tibiae with 3 lanceolate serrate setae, 1 nude seta and a solenidion, the latter about 10-12 μ long, inserted at distal third of respective segments. Tarsus I (figure 7) with 5 nude setae and a solenidion. 3 of the setae are terminal, 2 very long, about 85 μ in length, the third 50 μ long. The solenidion approximatly also 50 μ long, tapering, slightly longer than segment, placed at its distal third on distinct tubercle. Guard seta about a third as long as solenidion. Tarsi II-IV with 6 nude setae each and a solenidion. On tarsus II the solenidion is situated at midsegment, is as long as greatest width of this tarsus (12 μ), and its guard seta is twice as long. The solenidia on tarsi III-IV are inserted at basal third of respective segments, similar in size to that on tarsus II, but apparently without guard setae. All claws about 6 μ long, shorter than the empodial tenent hairs. Leg I (from base of trochanter to tip of tarsus) 175 μ long, other legs (from base of trochanter to tip of claw), 150, 165 and 172 μ long, respectively. Length of idiosoma, 225 μ, with rostrum, 300 μ, greatest width (at level of legs III), 170 μ.

Female and immature stages not seen.

Type locality and habitat : Karmon, southern coastal plain of Israel, October 8, 1964, under button of a lemon fruit. Holotype in author's collection.

Remarks : This species may easily be distinguished from its congeners by the reduced number of dorsal setae. A key to the species of *Eutogenes*, modified from VOLGIN (1958) is as follows :

1. Propodosomal shield with 10 or more pairs of dorsal setae..... 2
— Propodosomal shield with 8 pairs of dorsal squamiform setae. Only the male known.. **E. citri** sp. n.
2. Propodosomal shield with 12 pairs of lanceolate or squamiform setae..... 3
— Propodosomal shield with 10 pairs of squamiform setae..... 4
3. Setae on dorsum squamiform serrate ; peritreme composed of 4 segments..... *E. foxi* Baker
— Setae on dorsum lanceolate serrate ; peritreme composed of a single segment..... *E. narashinoensis* Hara and Hanada
4. Dorsal shields contiguous, covering entire dorsum ; palpal femur with a simple seta on outer margin ; proximal ventral seta on tibia 1 simple, smooth..... *E. frater* Volgin
— Dorsal shields separate, not covering entire dorsum ; palpal femur with pilose setae on outer margin ; both ventral setae of tibia 1 pilose..... *E. quadrisetatus* (Berlese).

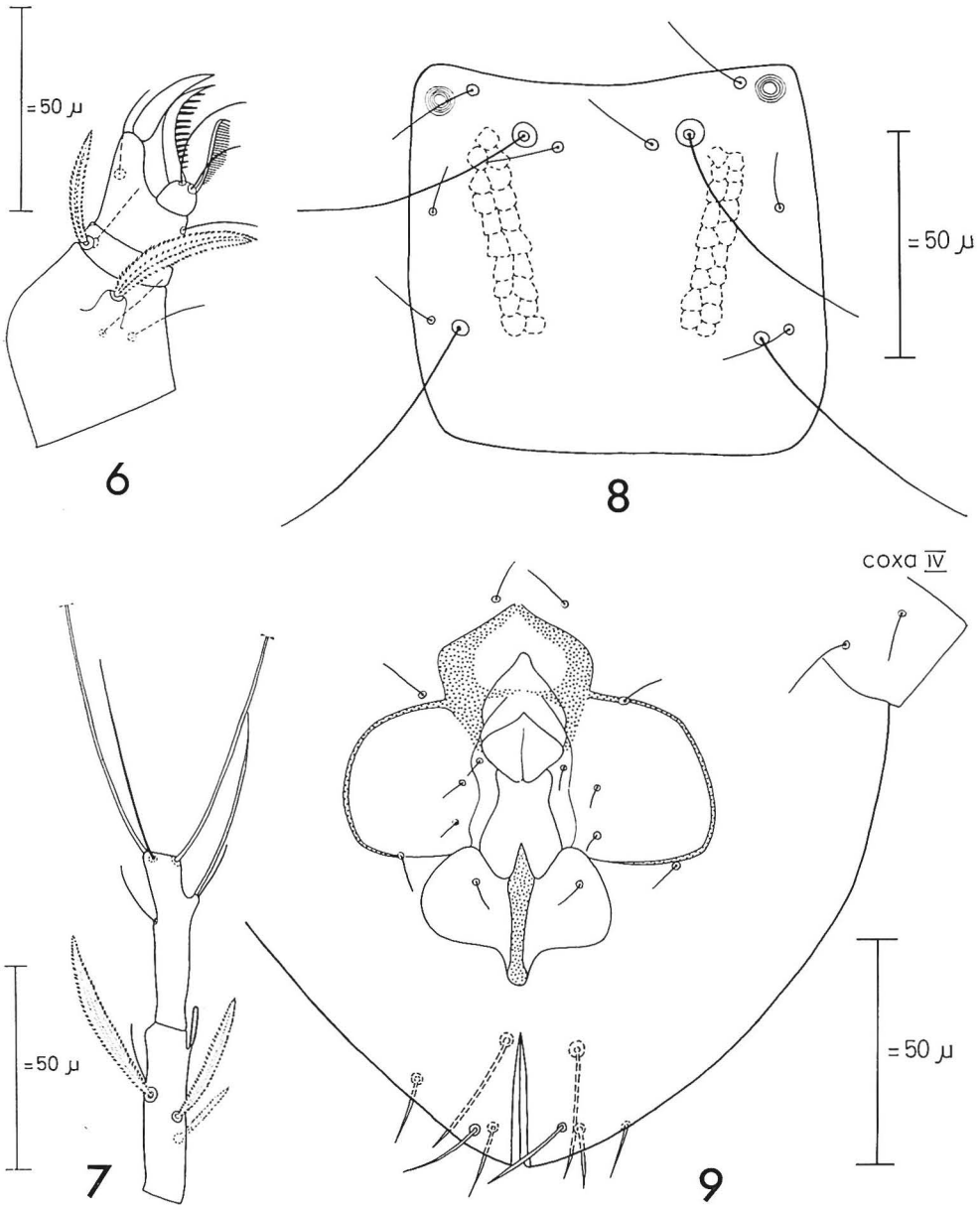

FIG. 6-7. — *Eutogenes citri* sp. n.
6 — Palpus of male. 7 — Tibia and tarsus of leg I, male.

FIG. 8-9. — *Anoplocheylus aegypticus* Baker and Atyeo.
8 — Dorsal propodosomal shield. 9 — Ventral aspect of opisthosoma.

PSEUDOCHEYLIDAE.

Anoplocheylus aegypticus Baker and Atyeo.

Anoplocheylus aegypticus Baker and Atyeo 1964, Bull. Univ. Nebraska St. Mus., Vol. 4 12, p. 267.

Type locality and habitat : Egypt, Kilometer 50 on the Ismaelia-Port Said Road, Soil.

Two specimens of this species were collected from pine needle litter, at Ness Ziona, August 18 and 30, 1965, and another in a similar habitat, Tel Aviv, December 23, 1965.

BAKER and ATYEO (1964) found and described only the tritonymph. Of the present specimens, at least one seems to be an adult. In general appearance it is similar to the tritonymph, but differs in having 6 pairs of setae on the propodosomal shield (figure 8). It also has a peculiar inner structure (figure 9), which suggests that the present specimen is a female.

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