INCIDENCE OF EUPALOPSELLID MITES IN EGYPT, WITH DESCRIPTION OF TWO NEW SPECIES (EUPALOPSELLIDAE : PROSTIGMATA)

BY

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INTRODUCTION

Members of the family Eupalopsellidae are considered predators of scale insects as they were mainly found associated with them in nature (BAKER & WHARTON, 1952, RASMY *et al.*, 1972, SOLIMAN *et al.*, 1973 and ZAHER & YOUSEF, 1973). To assure this phenomenon, IBRAHIM, 1971 and RAKHA, 1976 reared some eupalopsellid mites on eggs of different scale insects.

This family was known to include only the three genera : *Saniosulus*, *Exothorhis*, and *Eupalopsellus*, but in 1966, SUMMERS added the genus *Eupalopsis* which he separated from family Stigmaeidae.

Survey studies showed that this family is represented in Egypt by four species of which two are new. These are *Saniosulus nudus* Summers, *Eupalopsellus olearius* sp. n., *Eupalopsis aegyptiaca* Zaher & Soliman, and *Eupalopsis pentascuta* sp. n. Therefore, this paper deals with the description of the two new species and the male of *S. nudus* Summers, and redescription of *E. aegyptiaca*. Also a key to collected species is given.

Nomenclature applied to dorsal plates and setae is that used by SUMMERS (1960 a & b) SUMMERS & CHAUDRI (1965), and GONZALEZ (1965).

KEY OF COLLECTED FEMALES

1. Idiosoma completely covered with dorsal plates..... 2
— Idiosoma not covered with dorsal plates except a pair of small, ill-defined platelets between eyes and a narrow suranal plate ; three posterior pairs of dorsal setae on opisthosoma, (li), (le), and (e) longer than other dorsal setae..... *Saniosulus nudus* Summers
2. Palptarsus prolonged anteriorly but not longer than palptibia..... 3
— Palptarsus prolonged, approximately as long as palptibia plus genu ; dorsal seta (li) the longest ; genital covers with 4 pairs of genital setae..... **Eupalopsellus olearius** sp. n.
3. Idiosoma covered with 4 dorsal plates, tibiae III and IV each with spine (k)..... *Eupalopsis aegyptiaca* Z. & S.
— Idiosoma covered with 5 dorsal plates, tibiae I & IV each with a curved spine (k)..... **Eupalopsis pentascuta** sp. n.

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Saniosulus nudus Summers

Members of the genus *Saniosulus* can be distinguished by having idiosoma without dorsal plates except a pair of small ill-defined platelets on propodosoma between eyes, and a narrow suranal plate over end of opisthosoma.

FEMALE : was described by SUMMERS, 1960.

MALE : (fig. 1, A & B) Resembles female in dorsal plates, mouthparts, and setal chaetotaxy but differs in the dorsum striations at end of opisthosoma, genitalia, and distribution of solenidia on legs. Mouthparts as in female, but palp femur with a stubby, brushlike rod ; gnathosoma shorter in diameter than that of female, opisthosoma ended with two very short pairs of setae like spines. Venter as female, anogenital aperture subdorsal, aedeagus slender tube extending backwards from neck of drop-shaped vesicle, retracted tip sheathed in a chamber of complex

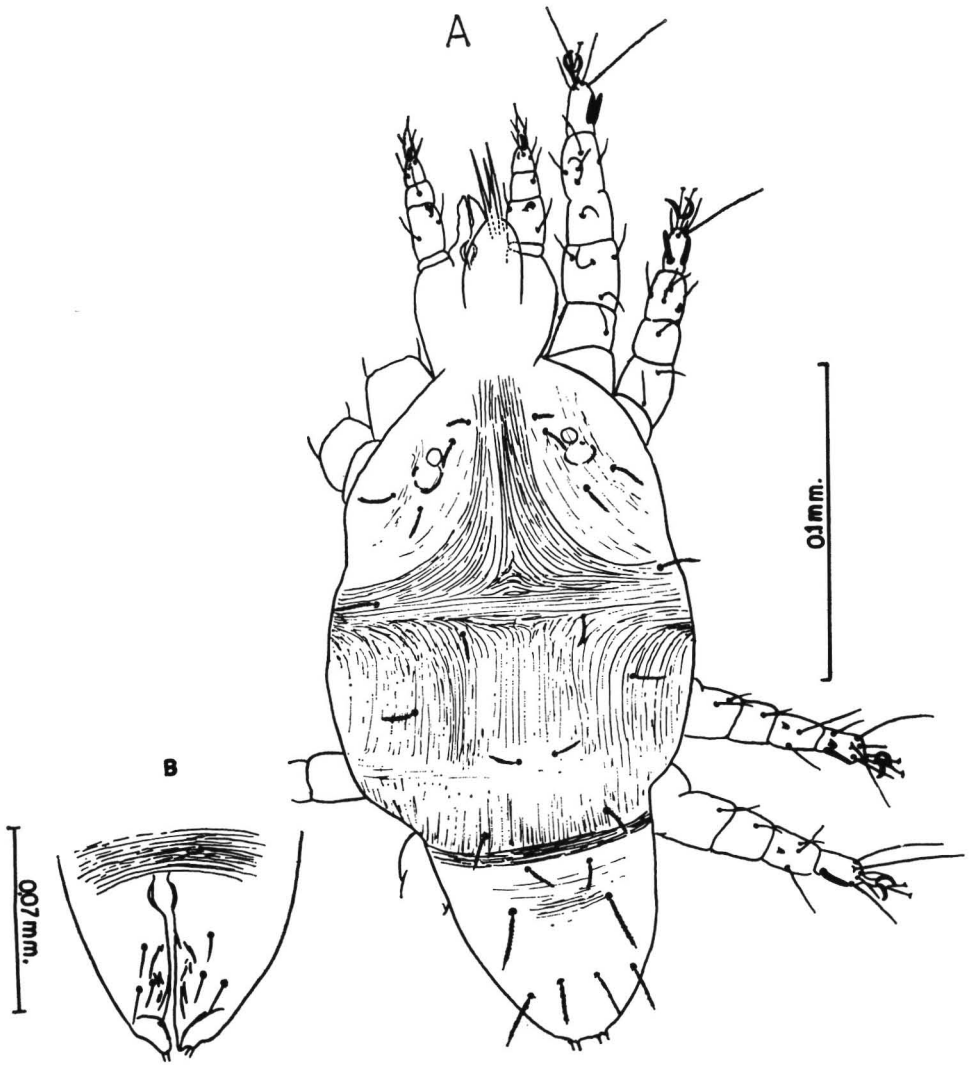

FIG. 1 : *Saniosulus nudus* Summers
A & B) Male dorsum and genitalia.

pattern ; anogenital covers with three pairs of simple anogenital setae in two rows, the anterior pair shorter than the posterior twopairs. Tarsi I-III each with two sensory rods, equal on tarsi I & II, but one large and the other reduced on tarsus III, tarsus IV with one large sensory rod. Tibiae I-IV each with a small sensory rod.

Measurements : Body length = 377.5 μ, gnathosoma = 127.5 μ, greatest width = 162.5 μ, dorsal setae : ae = 10, be = 10, ce = 15, de = 12.5, he = 15, a = 12,5, b = 10, c = 12,5, la = 12.5, lm = 12.5, li = 20, le = 20, and e = 17.5 μ. Legs : I-IV = 155, 137.5, 137.5, and 137.5 μ.

Collection data : Many adult females and males collected from apple buds, associated with scale insects, Dakahlia, Demiatta, and Alexandria governerates in July 1, 1969.

One adult male collected from bambo scales (with scale insects), Alexandria December 13, 1969.

Eupalopsis aegyptiaca Soliman & Zaher

Members of the genus *Eupalopsis* are characterized by having idiosoma covered with 4 plates (propodosomal, metapodosomal, opisthosomal, and suranal), and 12 pairs of dorsal setae.

Female (fig. 2, A & B) : Chelicerae protruded, their slender basal segments appressed, partly fused together in midline ; fixed digits drawn out as slender prongs ensheathing needle-like stylets ; both fixed and movable digits tend to converge anteriorly. Rostrum slender, over-all length approximately equals combined lengths of palp coxa, trochanter, and femur. Palp usually long (157.5 μ) its tip almost at the level of the pretarsus of leg I, tibial claw well-developed.

Idiosoma : Ovoid, dorsally punctated and longer than legs. Two pairs of eyes, the anterior one smaller than the posterior. Four dorsal plates, thinly sclerotized, and covering most of dorsum ; one extensive plate on propodosoma, one covering metapodosoma, a similar one covering most of opisthosoma, and a small suranal plate (not punctated) forms a caudal end piece, humeral plates fused with propodosomal plate. Twelve pairs of slender, finely denticulate dorsal setae arranged as follows : 4 pairs on propodosoma including humerals (he), 3 pairs on each of metapodosomal and opisthosomal plate, and 2 pairs on suranal plate located on small tubercles. Preocular seta (be) the longest, vertical seta (ae) the shortest, and all other dorsal setae ranged from 32.5 to 42.5 μ in length.

Venter with 4 pairs of simple setae, the anterior pair long, flagelliform, and located between coxae II, the second pair situated between coxae III, short and more spaced than the anterior and two shorter pairs on opisthosoma. Genital and anal openings contiguous and subterminal, anogenital covers with 4 subequal pairs of anogenital setae, the anterior two pairs shorter and simple, the posterior two pairs longer and minutely serrate ; anogenital area with two pairs of para-anogenital simple setae. Coxae in two groups ; legs shorter than body length ; empodium with two pairs of capitate raylets ; tarsi I, II & III each with a slender sensory rod of moderate length, but that of tarsus IV shorter. Tibiae III and IV each with a curved spine k.

Measurements : Body length (from basis of verticals to end of idiosoma) = 275 μ, gnathosoma (bases of verticals to top of pedipalps) = 157.5 μ, greatest width = 175 μ. dorsal setae : ae = 20, be = 50.5, ce = 37.5, he = 42.5, a = 37.5, b = 35, c = 40, la = 32.5, lm = 37,5, li = 42.5, le = 32.5, and e = 40 μ. Legs I-IV = 205, 187.5, 175, and 217.5 μ.

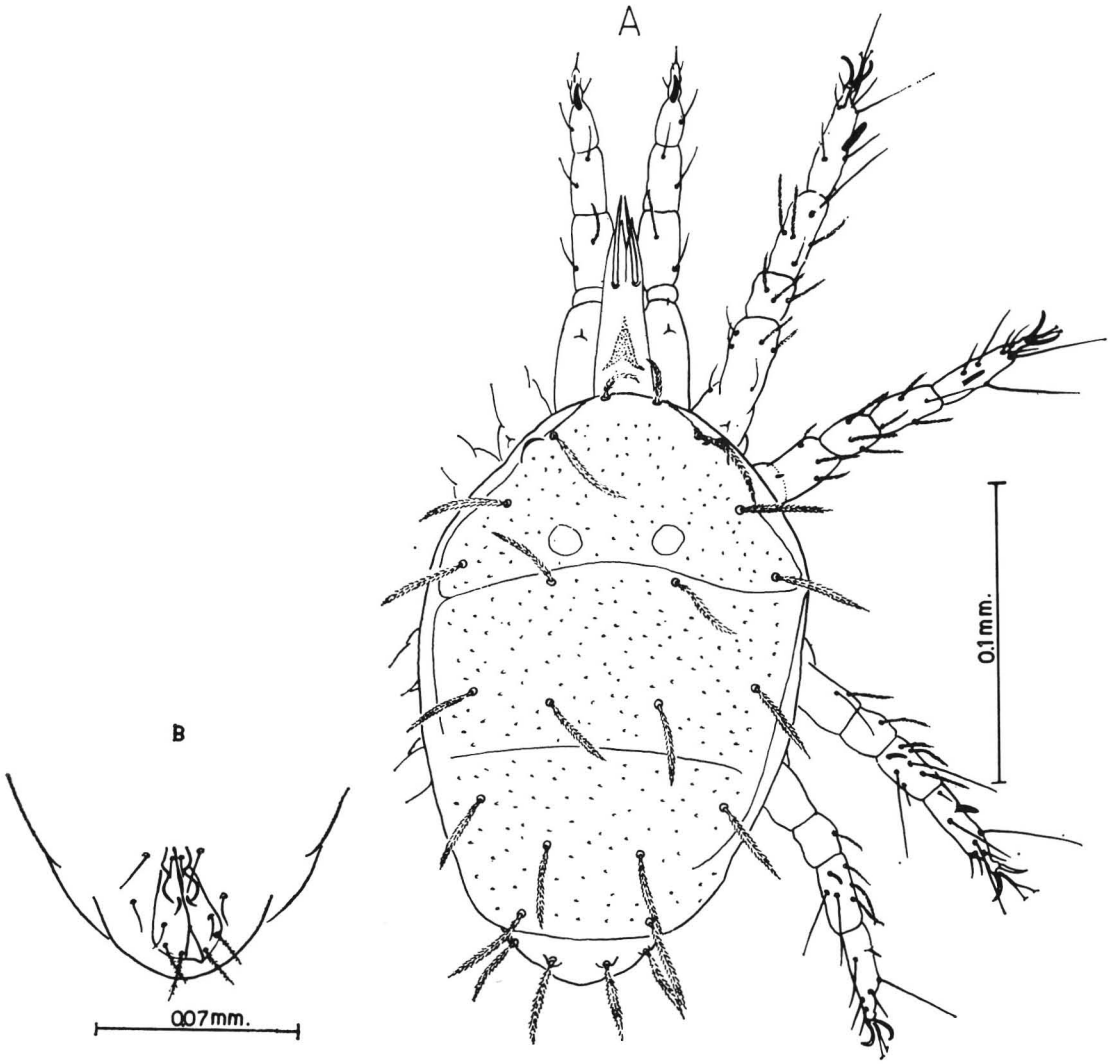

FIG. 2 : *Eupalopsis aegyptiaca* Zaher and Soliman
A & B) Female dorsum and genitalia.

MALE : not collected.

Collection data : Three adult females collected from *Musa* sp. and *Ficus sycomorus*, Elmanzala Dakahlia and Demiatta Governerate (Coastal region) on July, 20 1971.

Eupalopsis pentascuta sp. n.

FEMALE : (fig. 3 A & B) Boby reddish, ovoid and longer than legs. Basal articles of chelicerae fused together to form conical stylophore of triangular punctated surface, stylets elongated to reach mid of palpfemur ; rostrum slender with conical to truncated tip. Palp long, surpasses pretarsus of leg I ; tibial claw well developed, palptarsus not longer than palptibia, prolongs straightly forward, setae on palp segments as follows : Femur 2, genu 2, tibia 2, tarsus 5.

IDIOSOMA : Ovoid, completely covered with five plates separated with 4 faint sutures, all dorsal plates except the suranal plate punctated, dorsal plates arranged as follows : One large propodosomal plate with four pairs of dorsal setae and two pairs of eyes (the anterior pair smaller than the posterior one), large metapodosomal plate with three pairs of dorsal setae, two opisthosomal plates, the anterior larger than posterior and bears two pairs of dorsal setae, posterior opisthosomal plate small and bears one pair of setae, and small suranal plate with two pairs of setae located on small tubercles. Dorsal setae 12 pairs, finely denticulated, the verticals (ae) the shortest (25 μ), the (li) setae on posterior opisthosomal plate the longest (47.5 μ), but the preocular setae (be) and (la) 42.5 μ) longer than other dorsal setae which ranged from 32.5 to 40 μ.

Venter with two long flagelliform setae on podosoma, equal in length, and the posterior pair more spaced than anterior ; two posterior simple pairs on opisthosoma, the anterior pair

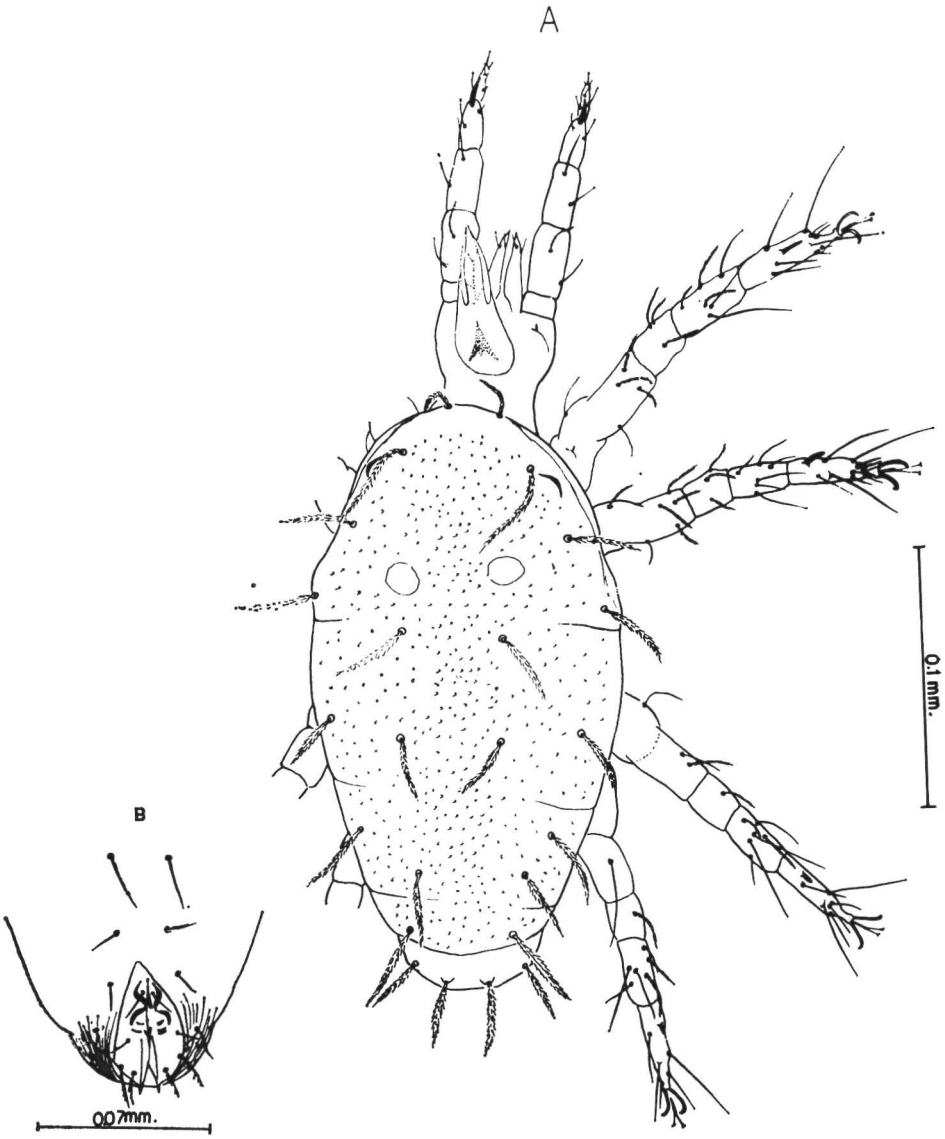

FIG. 3 : **Eupalopsis pentascuta** sp. n.
A & B) Female dorsum and genitalia.

longer than the posterior. Genital and anal openings contiguous and subterminal, anogenital covers with four unequal pairs of anogenital setae, the anterior two pairs simple and shorter, the posterior two pairs longer and minutely serrate ; two pairs of simple para-anogenital setae present. Coxae in two groups, legs shorter than body length, empodium with two pairs of capitate raylets, tarsi I, II & III each with a slender sensory rod of moderate length, but that of tarsus IV shorter. Tibiae I-IV each with slightly curved spine K.

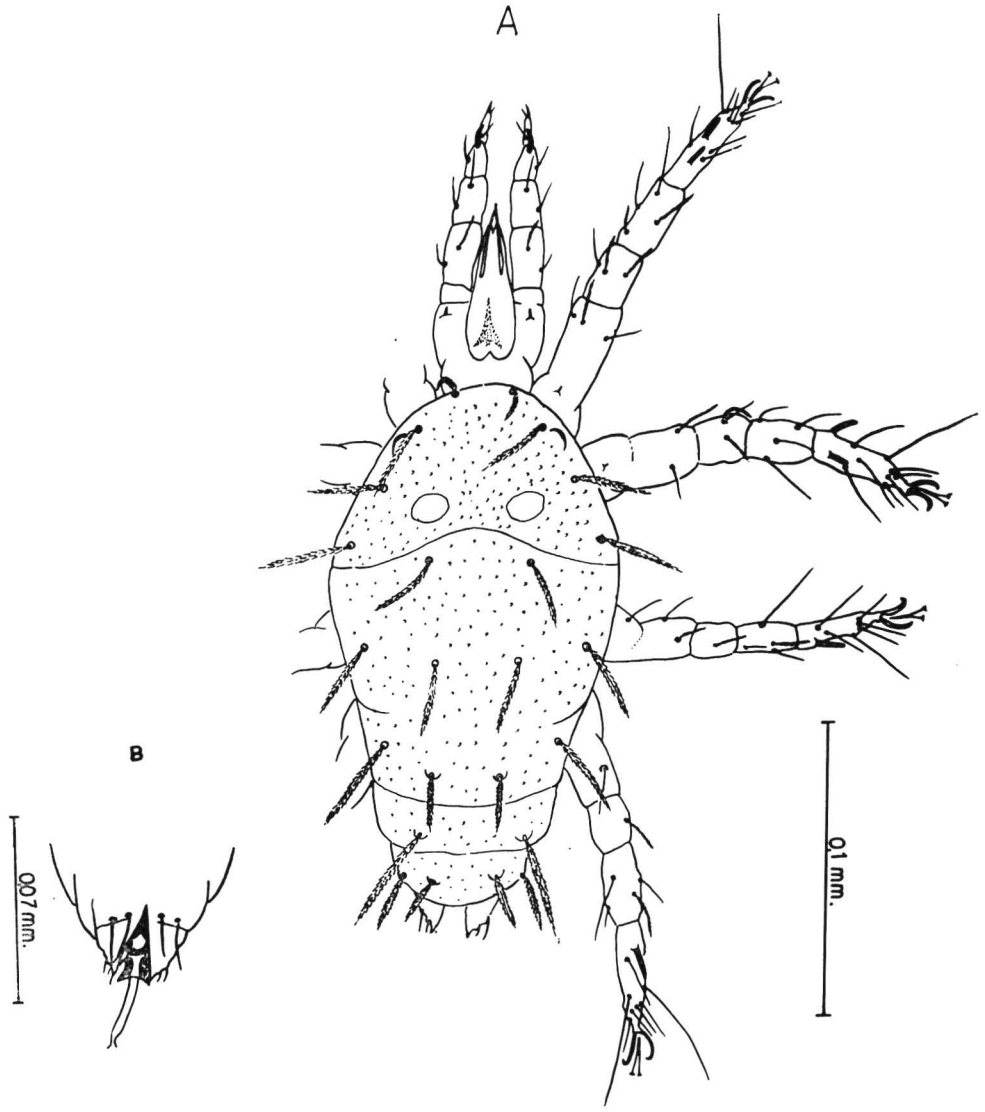

FIG. 4 : **Eupalopsis pentascuta** sp. n.
A & B) Male dorsum and genitalia.

Measurements : Boby length (bases of verticals to end of idiosoma) = 290 μ, gnathosoma (bases of verticals to top of pedipalps) = 172.5 μ, greatest width = 162.5 μ, dorsal setae : ae = 25, be = 42.5, ce = 40, he = 37.5, a = 35, b = 32.5, c = 47.5, la = 42.5, lm = 37.5 li = 32.5, le = 32.5, and e = 35 μ. Legs : I-IV = 225, 195, 195, and 230 μ.

MALE : (figs. 4 A & B) Resembles female in organization of gnathosoma, podosoma, and legs. Body oval, pointed posteriorly, smaller than female and legs somewhat shorter. Idiosoma covered with five dorsal plates each with a number of dorsal setae like female and all punctated. Dorsal setae finely serrate, seta (ae) the shortest, seta (li) the longest. Ano-genital aperture in terminal position, two pairs of setae on anal part of anogenital covers reduced, spine-like, other two pairs on genital part present, aedeagus prolonged posteriorly. Tarsi I & II each with two sensory rods, tarsi III & IV each with only one sensory rod but longer than those of female.

Measurements : Length = 250 μ, greatest width = 140 μ. gnathosoma = 137.5 μ, dorsal setae : ae = 15, be = 40, ce = 35, he = 40, a = 35, b = 32.5, c = 22.5, la = 35, lm = 37.5, li = 42.5, le = 22.5, and e = 17.5 μ.

Legs : I-IV = 205, 187.5, 205, and 205 μ.

Collection data : Three adult females and two males collected from mango buds associated with scale insects, Demiatta, and Kafr Elshaikh Governerates (Coastal region), on May 17, 1969.

Eupalopsellus olearius sp. n.

Members of the genus *Eupalopsellus* are characterized by having a palptarsus approximately as long as palptibia plus palpgenu, and idiosoma incompletely covered with 4 unpaired dorsal plates : propodosomal, metapodosomal ; opisthosomal, and suranal.

FEMALE : (fig. 5 A & B) Body pyriform, slender, elongate and reddish. Gnathosoma prolonged anteriorly. Chelicerae with fine, straight, fixed and movable digits set close together at proximal ends, length of needles exceeds length of fused basal pieces. Palp gradually tapered from trochanter to pointed tarsus, ratio length of palp from trochanter/leg I from trochanter = 0.9. Palptibia with small claw. Palptarsus very long, measured about 42.5 μ to end of terminal sensillum, nearly equal to combined lengths of genu plus tibia. Sensilla and setae on palp segments : Femur 2, genu 1, tibia 2, and tarsus 6.

Idiosoma : Elongate oval, and flattened, with a weak humeral constriction. Dorsum partly covered with 4 median plates : propodosomal, metapodosomal, opisthosomal, and suranal. Each humeral seta (he) originates on its own separate humeral platelet. Each of opisthosomal plates wider than length ; striations separate dorsal plates. One pair of eyes present. Dorsal setae 13 pairs, pointed, very finely denticulate, intercalaries (li) the longest (35 μ), verticals (ae) the shortest ; the suranals nearly equal and long, other dorsal setae except verticals, suranals, and intercalaries ranged between 12.5 and 25 μ in length. Venter with three pairs of long, simple flagelliform setae, the anterior pair between coxae I and shorter than the two posterior equal pairs, the second pair between coxae II & III, and the third pair between coxa IV. Anogenital aperture subterminal, anogenital covers with 4 pairs of anogenital setae, the anterior two pairs simple and longer than others, the posterior two pairs nearly equal and very finely denticulate ; three pairs of simple para-anogenital setae present and, located on small platelets, the anterior two pairs equal and shorter than the posterior. Legs subequal ; leg I the longest, legs II and III nearly equal, and leg IV the shortest ; tarsi I-IV each with sensory rod, that of tarsi I and II longer than that of III and IV.

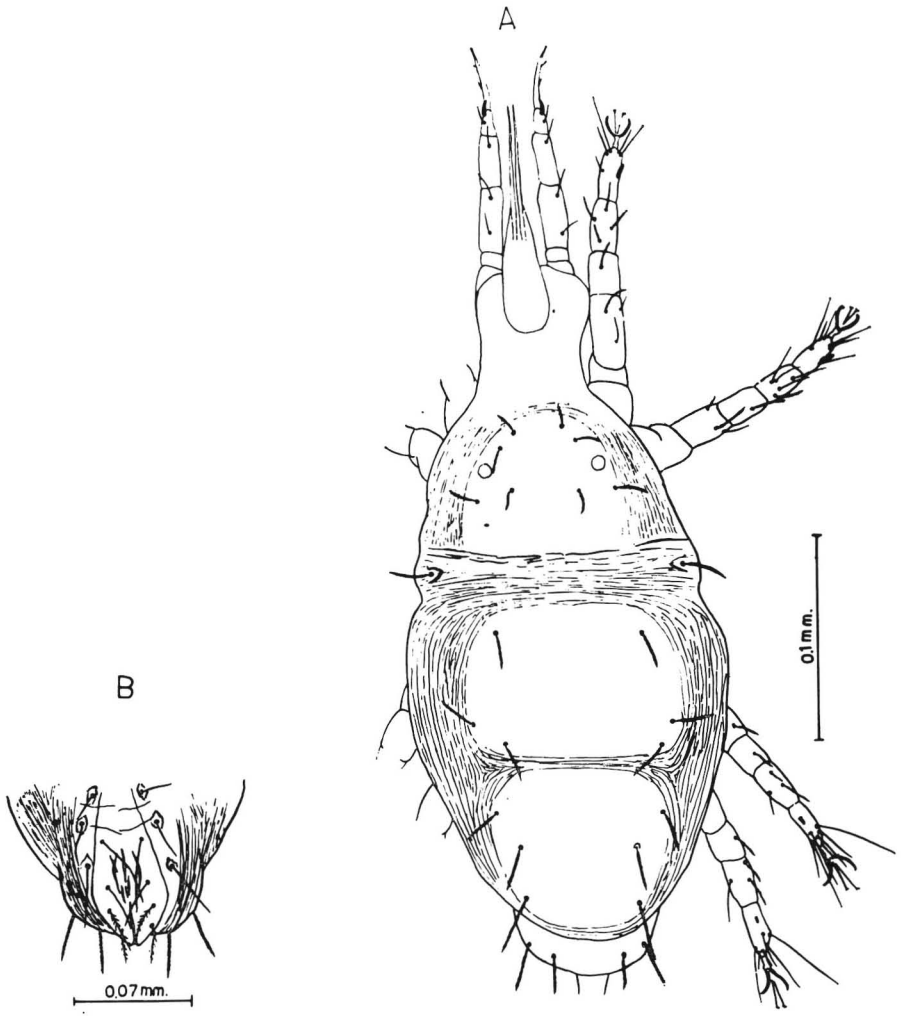

FIG. 5. : **Eupalopsellus olearius** sp. n.
A & B) Female dorsum and genitalia.

Measurements : length of idiosoma (from bases of verticals to end of anogenital covers) = 310 μ, greatest width = 185 μ, gnathosoma (bases of verticals to tip of palps) = 230 μ, palp-tarsus = 42.5 μ, dorsal setae : ae = 12.5, be = 15, ce = 17.5, de = 12.5, he = 22.5, a = 17.5, b = 20, c = 25, la = 20, lm = 22.5, li = 35, le = 27.5, and e = 20 μ, Legs : I-IV = 200, 172.5, 175, and 167.5 μ.

MALE : (fig. 6 A & B) Description of female also applicable to male except opisthosoma and certain sensilla of appendages. Male shorter in length of idiosoma and legs than female which is also wider. Dorsal plates faint to be identified ; dorsal setae somewhat shorter than those of female. Venter as female, but opisthosoma differs in being conical. Anogenital aperture subterminal ; three pairs of simple anogenital setae present, the anterior pair longer than the posterior ones ; two pairs of short setae like spines located at distal end of opisthosoma, aedeagus as tube extending backwards from neck of drop shoped vesicle. Male solenidia w ♂

appear on tarsi I-IV ; tarsi I & II with two sensory rods slightly curved ; tarsi III & IV each with one sensory rod, and tibia III with a spine K seta.

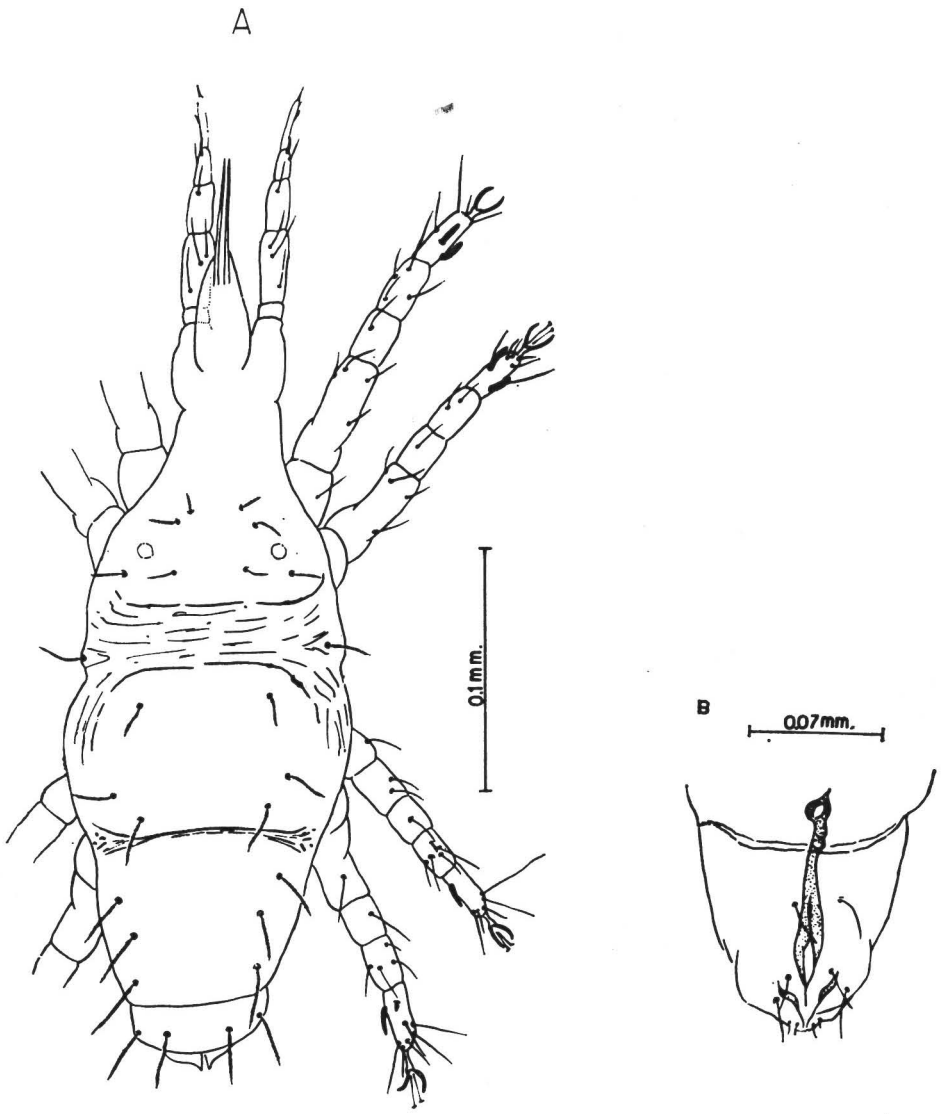

FIG. 6 : **Eupalopsellus olearius** sp. n.
A & B) Male dorsum and genitalia.

Measurements : Body length = 270 μ, greatest width = 142.5 μ, palptarsus = 40 μ, gnathosoma = 112.5 μ. Legs : I-IV = 187.5, 172.5, 170, and 177.5 μ, dorsal setae : ae = 10, be = 15, ce = 15, de = 10, he = 22.5, a = 15, b = 20, c = 20, la = 20, lm = 20, li = 32.5, le = 25, and e = 25 μ.

Collection data : Two adult females and two adult males collected from olive buds (*Olea europea*) associated with scale insects (El-Manzala), Dakahlia Governerate (Coastal region), on July 15, 1971.

SUMMARY

During a survey of Eupalopsellid mites in Egypt, the four species *Saniosulus nudus* Summers, *Eupalopsellus olearius* sp. n., *Eupalopsis pentascuta* sp. n. and *Eupalopsis aegyptiaca* Zaher & Soliman were collected from different vegitation. the two new species and the male of *S. nudus* are described.

Also female of *E. aegyptiaca* is redescribed as the first description appeared to be incomplete.

RÉSUMÉ

Au cours d'une étude sur les Eupalopsellidae en Égypte, les quatre espèces suivantes ont été récoltées : *Saniosulus nudus* Summers, *Eupalopsellus olearius* sp. n., *Eupalopsis pentascuta* sp. n. et *E. aegyptiaca* Zaher et Soliman. Les deux nouvelles espèces et le mâle de *S. nudus* sont décrits. La femelle de *E. aegyptiaca* est redécrite, la première description apparaissant comme incomplète.

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