

ON A NEW PREDATORY MITE OF ECONOMIC
IMPORTANCE FROM SUDAN
(ACARINA : PHYTOSEIIDAE)

BY

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The natural enemies of phytophagous mites and other arthropod pests include large number of acarine predators. Among the predatory species of Acarina, the most important from the economic point of view are members of the family Phytoseiidae.

The phytoseiid mites of the Sudan are still so poorly known that it is inevitable that the attention of the taxonomist is almost entirely taken up with the describing of new species and construction of keys. The Sudanese species of the family Phytoseiidae examined so far during a recent survey appear to be restricted to four genera ; *Typhlodromus*, *Amblyseius*, *Phytoseius* and *Iphiseius*. The reader is referred to CHANT'S (1965) paper for a proper definition of the phytoseiid genera. The present paper deals only with the genus *Iphiseius*. Descriptions of the new species belonging to the rest of the genera are published in separate articles (EL BADRY, 1967 a, b & c). The system of setal nomenclature proposed by SCHUSTER and PRITCHARD (1963) is applied with the exception that vertical and clunal setae on the dorsal shield are included in the dorsocentral series. The setal nomenclature for the legs is that suggested by EVANS (1963).

Preliminary experiments conducted in the laboratory showed that adults of *I. orientalis*, in captivity, attacked and consumed, eggs as well as all active stages of the citrus brown mite, *Eutetranychus orientalis* (Klein), the most widely distributed and common pest of citrus. These findings were further confirmed in some cases by the presence of red colouration in the gut of some adult predators, a condition indicating that they had fed on Tenuipalpid mites and eggs of *Brevipalpus inornatus* Banks, when present in large numbers on citrus. In nature, it is usual to find whole colonies of citrus mites decimated by the phytoseiid mite.

Field observations indicated that female *Iphiseius* do not hibernate as in case of other phytoseiids (VAN DER MERWE and RYKE, 1963), since winter conditions in Sudan are favourable for continuation of reproduction. The biology and ecology of this predatory mite need to be investigated before any further attempt is

taken to use it in biological control against its phytophagous hosts. After the controversy in the literature pertaining the efficiency of phytoseiid mites to exert effective control of phytophagous mites, CHANT (1959 & 1961) stressed the point that it is absolutely necessary to study each species in detail to be able to evaluate the capabilities of the phytoseiids as predators of phytophagous mites.

The type material of *I. orientalis* is deposited in the Acarina collection of the Entomological Society of Egypt.

***Iphiseius orientalis* sp. n.**

Diagnosis.

This species is not obviously related to any described species of *Iphiseius*. It has lateral setae L_3 , L_4 , L_9 ; postmediolateral setae M_2 ; dorsal setae D_4 , D_5 very long. Promediotaterals M_1 minute, genua of legs II and III bear one macroseta. Leg IV with two macrosetae, on genu and on basitarsus.

Female.

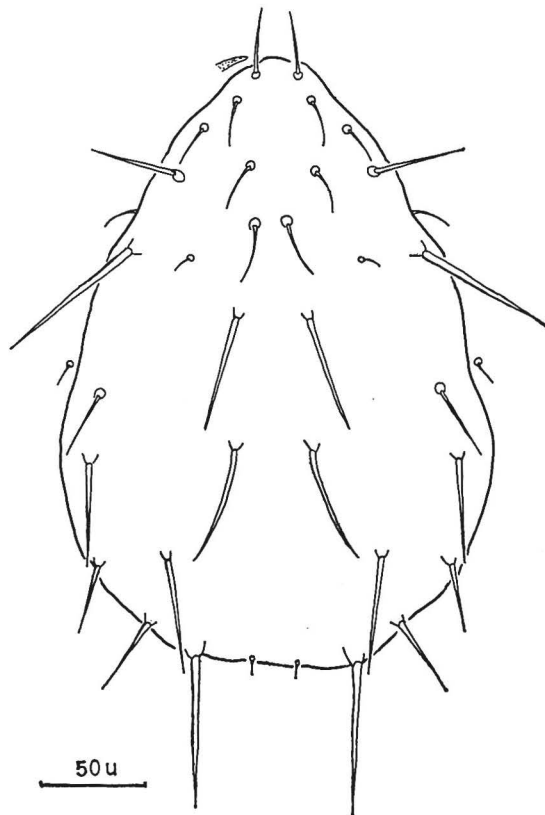


FIG. 1 : *Iphiseius orientalis* n. sp., female dorsum.

Idiosoma 315 μ long; 192 μ wide. Dorsal shield smooth; well sclerotized; covering dorsum; not seen; pores; with seventeen pairs of smooth setae, mostly long; nine in the lateral, two in the mediolateral and six in the dorsocentral rows (Fig. 1). Proscutum with four pairs of prolateral setae, L_1 34 μ , L_2 30 μ , L_3 53 μ , L_4 77 μ long. Promediolaterals minute 8 μ long. Sublateral I on sclerotized lateral integument, 27 μ long. Four pairs of dorsocentral setae on proscutum, D_1 30 μ , D_2 35 μ , D_3 38 μ , D_4 70 μ long. Postscutum with five pairs of lateral setae I 42 μ , II 69 μ , III 38 μ , IV 38 μ , V 78 μ long. Postmediolaterals 65 μ long. Two pairs of dorsocentral setae on postscutum, D_5 73 μ , D_6 4 μ long. Posterior sublateral setae in normal ventrolateral position, 22 μ long. Peritremes fused anteriorly to dorsal shield, reaching to the level of prolaterals; with posterior projection curving around coxae IV. Ventri-anal plate approximately oval, longer (85 μ) than wide (55 μ), with anterior corners rounded, with lateral margins convex and widest part at anus, with three pairs of preanal setae arranged in transverse row across anterior third of plate, and with a pair of distinct elliptical preanal pores. Three pairs of ventrolateral setae surrounding ventri-anal plate. Ventrocaudal setae, 50 μ long. One pair of slender metapodal platelets, 15 μ long and 3 μ wide; accessory platelets lacking. Genital plate 79 μ wide, with one pair of setae. Sternal plate weakly sclerotized, with three pairs of setae, fourth pair of sternal setae on very weak metasternal platelets. Spermatheca with well sclerotized cervix, fully visible as in figure 3. Chelicera with one tooth on fixed digit, movable digit smooth (Fig. 4). Genu II 2 — 2/0, 2/0 — 1, with one macroseta 27 μ long (Fig. 5). Genu III 1 — 2/0, 2/1 — 1, with one macroseta 28 μ long (Fig. 6). Leg IV with two macrosetae, on genu 30 μ , on basitarsus 32 μ long.

Male.

Unknown.

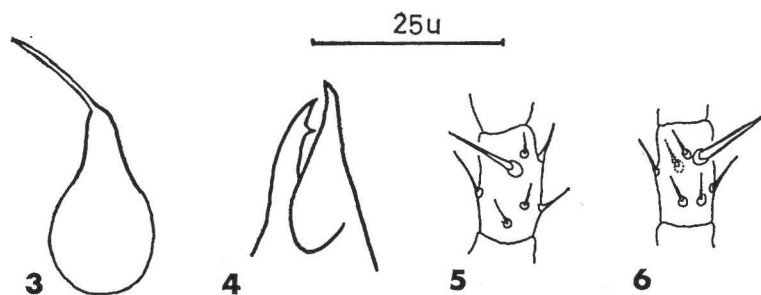


FIG. 2 : *Iphiseius orientalis* n. sp., female venter.

Holotype.

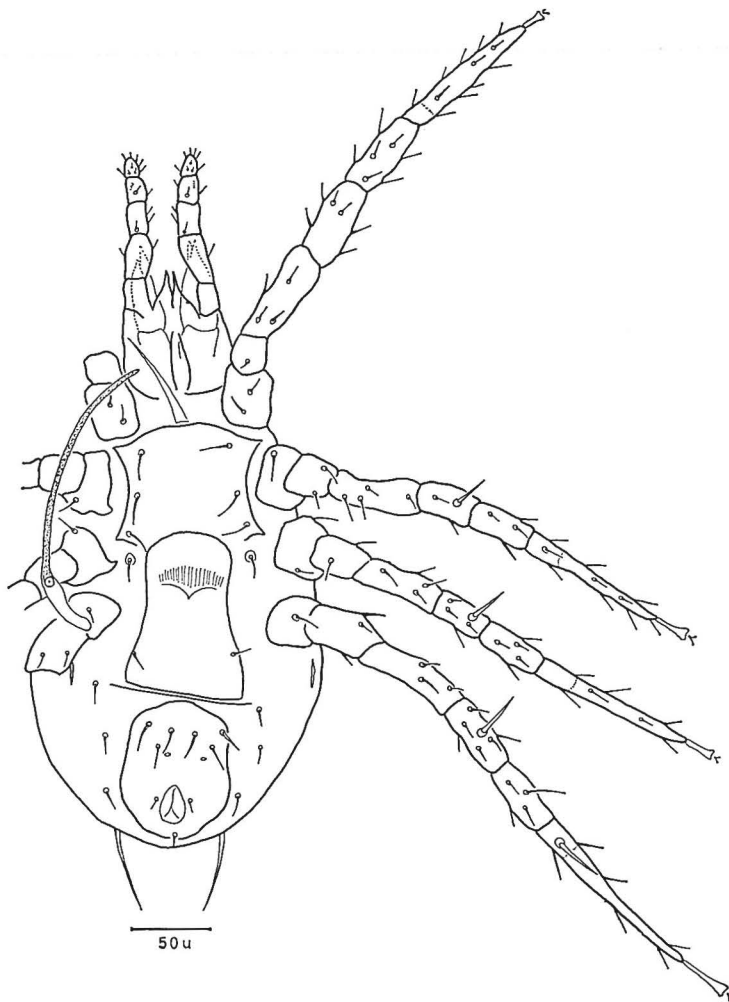
The holotype female has been collected from grape fruit tree in Shambat, Sudan; on September 13, 1966.

Paratypes.

Two females only have been collected ; data same as for holotype.

Summary.

Predatory mites of the genus *Iphiseius* in the Sudan appears to be restricted to one species. *I. orientalis* sp. n. is described and illustrated. The species is characterised by having seventeen pairs of dorsal setae ; nine in the lateral, two in the mediolateral and six in the dorsocentral series. Setae L_3 , L_4 , L_9 , M_2 , D_4 are



FIGS. 3-6 : *Iphiseius orientalis* n. sp., female.

3. — Spermatheca. 4. — Cheliceta. 5. — Genu leg II. 6. — Genu leg III.

very long. Promediolaterals are minute. Legs II and III with one macroseta on genu. Leg IV with two macrosetae on genu and on basitarsus.

I. orientalis is an important predatory mite attacking eggs and all other active stages of the citrus brown mite, *Eutetranychus orientalis* (Klein) and the tenuipalpid mite, *Brevipalpus inornatus* Banks, infesting citrus leaves.

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REFERENCES

- CHANT (D. A.), 1959. — Phytoseiid mites (Acarina : Phytoseiidae). Part I. Bionomics of seven species in southeastern England, Part II. A taxonomic review of the family Phytoseiidae, with descriptions of 38 new species. — *Canad. Ent. Supp.*, **12** : 1-164.
- CHANT (D. A.), 1961. — An experiment in biological control of *Tetranychus telarius* (L.) (Acarina : Tetranychidae) in a greenhouse using the predacious mite *Phytoseiulus persimilis* Athias-Henriot (Phytoseiidae). — *Canad. Ent.*, **93** : 437-443.
- CHANT (D. A.) 1965. — Generic concepts in the family Phytoseiidae (Acarina : Mesostigmata). — *Canad. Ent.* **97** : 351-374.
- EL BADRY (E. A.), 1967 a. — The genus *Amblyseius* Berlese in the Sudan (Acarina : Phytoseiidae). — *Ann. Ent. Soc. Am.* **60** (in press).
- EL BADRY (E. A.), 1967 b. — The genus *Phytoseius* Ribaga in Egypt and Sudan (Acarina : Phytoseiidae). — *Ann. Ent. Soc. Am.*, **60**, (in press).
- EL BADRY (E. A.), 1967 c. — New species of the genus *Typhlodromus* Scheuten (Acarina : Phytoseiidae). — *Jour. Zool., Lond.* **153** : 463-474.
- EVANS (G. O.), 1963. — Observations on the chaetotaxy of the legs in the free-living Gamasina (Acarina : Mesostigmata). — *Bull. Brit. Mus. (nat. Hist.)*, **10** : 277-303.
- SCHUSTER (R.) & PRITCHARD (E.), 1963. — Phytoseiid mites of California. — *Hilgardia* **34** : 191-285.
- VAN DER MERWE (G. G.) & RYKE (P. A. J.), 1963. — Key characteristics of the predacious family Phytoseiidae with special reference to the genus *Amblyseius* Berlese (Acarina). — *J. ent. Soc. S. Afr.*, **26** : 82-93.
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