

**NOTES ON PHYTOSEIID MITES (MESOSTIGMATA: PHYTOSEIIDAE)
FROM THE MEDITERRANEAN LITTORAL ZONE OF ISRAEL, WITH
A DESCRIPTION OF A NEW SPECIES OF *TYPHLOCTONUS****

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ABSTRACT

A description is given of the predacious mite *Typhloctonus litoralis* n. sp. The following 14 species of phytoseiid mites are recorded from various plants in the Mediterranean littoral zone of Israel: *Typhloctonus montforti* Rivnay and Swirski, *Anthoseius cryptus* (Athias-Henriot), *A. recki* (Wainstein), *Typhlodromus athiasae* Porath and Swirski, *T. phialatus* Athias-Henriot, *Seiulus isotrichus* Athias-Henriot, *Phytoseius (Phytoseius) finitimus* Ribaga, *Amblyseius barkeri* (Hughes), *A. leucophaeus* Athias-Henriot, *A. messor* (Wainstein), *A. swirskii* Athias-Henriot, *Euseius rubini* (Swirski and Amitai), *Iphiseius degenerans* (Berlese), and *Phytoseiulus persimilis* Athias-Henriot.

INTRODUCTION

This work presents results of surveys carried out in the Mediterranean littoral zone of Israel since 1959 on the distribution of predacious mites belonging to the family Phytoseiidae. The collecting sites are marked on map 1.

Mites were stored in 70% alcohol, cleared in Nesbitt's solution (chloral hydrate 8, hydrochloric acid 0.5, water 5) and mounted in Hoyer's fluid. The setal terminology of Garman (1948) and Nesbitt (1951), as well as the spermatodacyl terminology of Wainstein and Kolodochka (1974), were followed.

Depository collections mentioned in the text are abbreviated as follows:

AROI - Agricultural Research Organization, Department of Entomology, Bet Dagan, Israel.

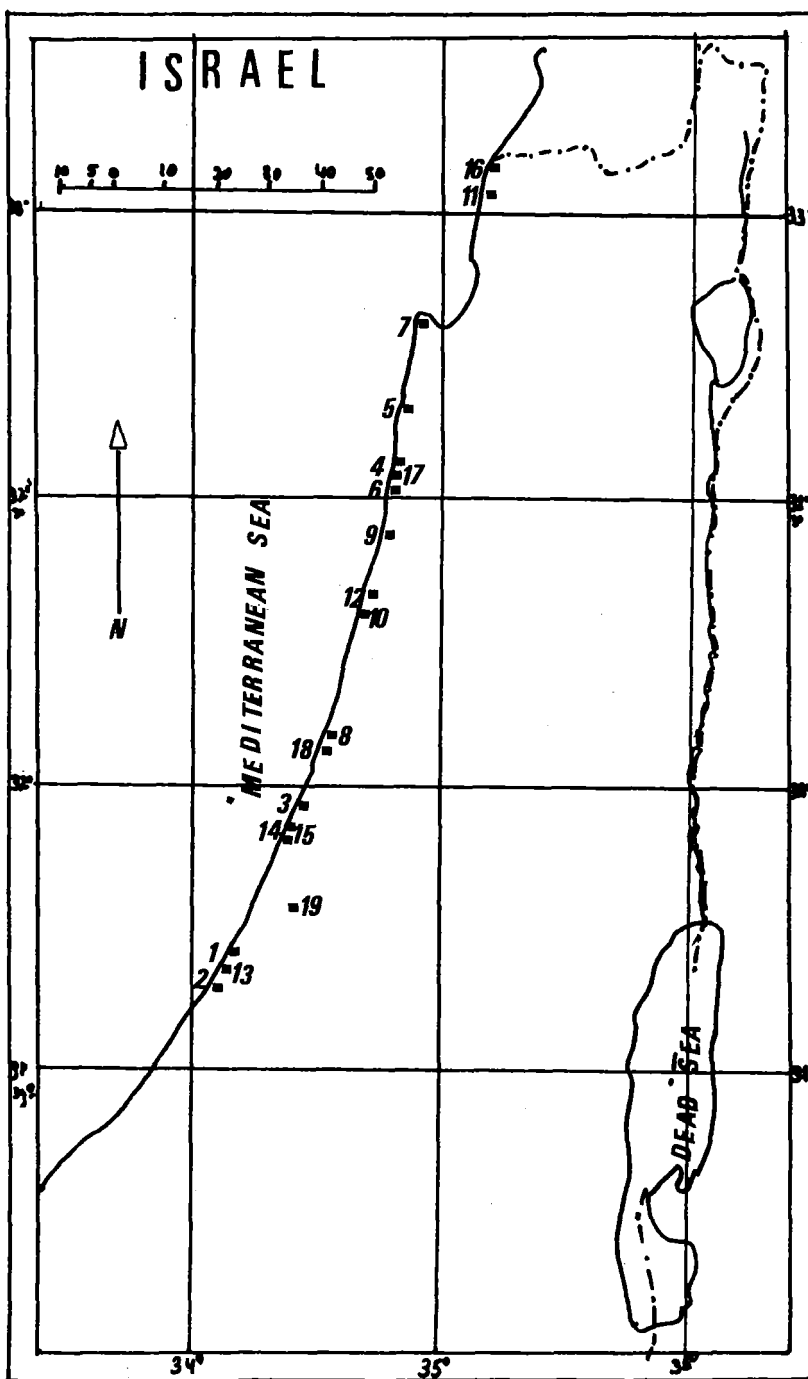
BCF — Berlese's Collection, Florence, Italy.

BM — British Museum (Natural History), London.

ENAA — Ecole Nationale d'Agriculture, Alger.

IAO — Institute of Acarology, Ohio Agricultural Research and Development Center, Wooster, Ohio, U.S.A.

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|----------------------|-----------------|---------------------|------------------|
| 1. Ashdod | 6. Giv'at Olga | 11. Nahariyya | 16. Rosh haNiqra |
| 2. Ashqelon | 7. Hefa (Haifa) | 12. Netanya | 17. Sedot Yam |
| 3. Bat Yam | 8. Herzliyya | 13. Nizzanim | 18. Tel Aviv |
| 4. Qesari (Caesarea) | 9. Mikhmoret | 14. Palmahim | 19. Yavne |
| 5. Dor | 10. Nahal Poleg | 15. Rishon LeZiyyon | |

IBIWR – Institute of Biology of inland waters, USSR Academy of Sciences, Borok, Yaroslavl District, USSR.

LAEPP – Laboratoire d'Acarologie de l'Ecole Pratique des Hautes Etudes, Paris.

MHNP – Museum National d'Histoire Naturelle, Paris, France.

Typhloctonus litoralis Swirski and Amitai n. sp.

(Figs. 1-8)

FEMALE: Dorsal shield (Fig. 1) suboval, with slightly constricted lateral margins; it is chitinised, strongly striated, passing in certain locations into reticulation; area between the bases of setae D_3 - D_5 , and posterior to the latter covered by subparallel elongate cells. Dorsal shield carries 19 pairs of setae: 6D, 2M, 11L; setae M_2 and L_9 sometimes barely serrated, usually smooth like the remaining setae. In the lateral series setae L_{11} are the longest, setae L_3 , L_4 are subequal in length; setae L_1 - L_9 not exceeding the distances between their bases and those of the setae following next. The shield bears six pairs of solenostomes distributed as follows: between L_1 - L_2 , posterior to D_2 - L_4 , between L_6 - L_7 , between M_1 - D_4 , anterior to M_2 , mesad to L_{10} .

Sternal shield slightly sclerotised, smooth, with short longitudinal striae near poroides pv1. The shield bears two pairs of setae and poroides pv1 and pv2; setae v3 are situated on membrane, or on weakly prominent platelets; setae v4 and poroides pv3 are placed on metasternal platelets. Genital shield normal, slightly sclerotised, V-line prominent. Ventrianal shield (Fig. 2) subtriangular; its anterior margin convex, with rounded lateral corners; lateral margins slightly concave; the shield is slightly striated; it carries four pairs of preanal setae and a pair of minute poroides; solenostomes not visible; length/width = 1.23-1.51. Three pairs of setae besides VL_1 surround the ventrianal shield. Two pairs of metapodal plates (Fig. 5) are present on the membrane; the primary ones are elongate (30-43 μ), the secondary ones are much shorter. Apex of peritreme reaches bases of setae L_1 or L_1 - L_2 .

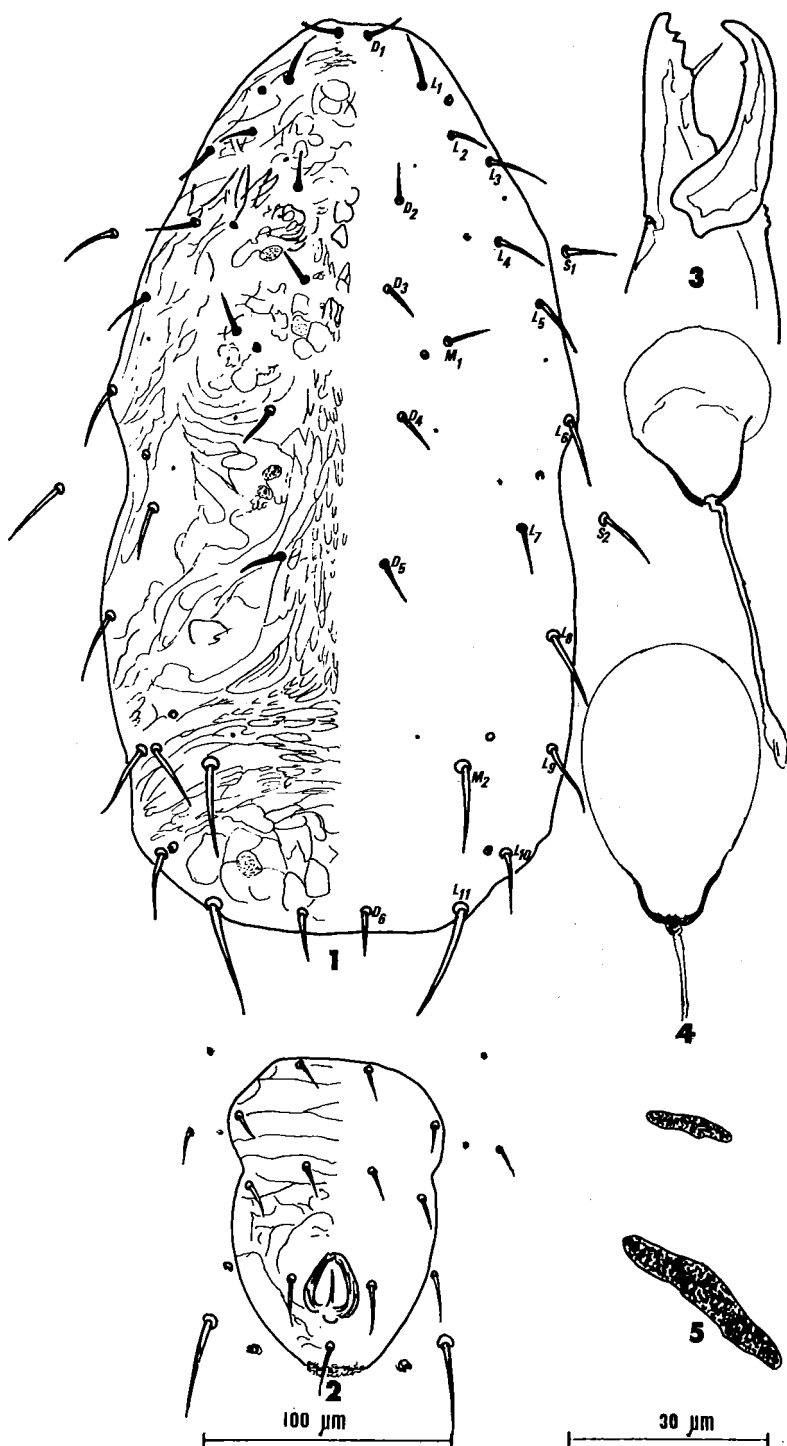
In the spermatheca (Fig. 4) the cervix is campanulate; the small atrium is adjacent to the cervix; major duct cylindrical and elongate.

Hind basitarsus carries an elongated, pointed macroseta, not reaching the dorsal lyriform fissure. Coxae I with solenostomes.

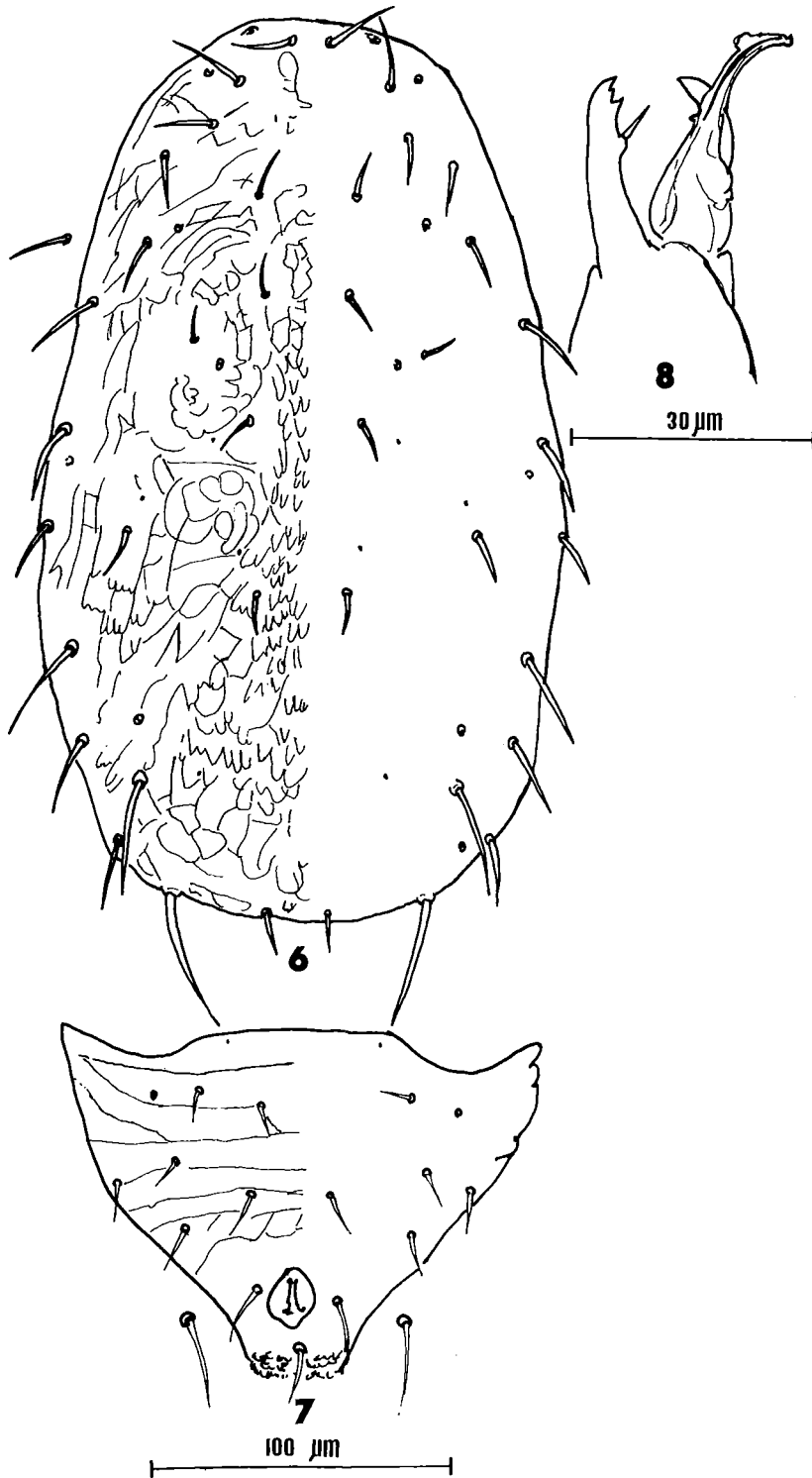
The movable digit of the chelicerae (Fig. 3) bears one tooth, sometimes none; the fixed one has 2 or 3 teeth, besides the *pilus dentilis*.

Measurements (in microns): $D_s = 385$ (365-398); $L_{va} = 134$ (120-143); $l_{va} = 100$ (91-108); $D_1 = 23$ (22-25); D_2 , D_3 , M_1 , $L_2 = 15$ (13-18); $D_4 = 17$ (13-20); $D_5 = 18$ (17-20); $L_1 = 27$ (23-28); $L_3 = 24$ (20-27); $L_4 = 22$ (20-23); $L_5 = 27$ (25-30); $L_6 = 31$ (28-35); $L_7 = 19$ (15-22); $L_8 = 37$ (33-40); $L_9 = 31$ (27-37); $L_{10} = 30$ (25-37); $L_{11} = 60$ (48-70); $M_2 = 47$ (32-55); $S_1 = 26$ (23-33); $S_2 = 25$ (23-28); $VL_1 = 47$ (35-56); $st = 41$ (32-48).

MALE: Dorsal shield (Fig. 6) suboval, slightly chitinised; ornamentation similar to that of the female. It carries 20 pairs of setae: 6D, 2M, 11L, 1 S_2 ; setae S_1 on the interscutal membrane.



Figs. 1-5. *Typhloctonus litoralis* n.sp., female. 1. Dorsal shield. 2. Ventrianal shield. 3. Chelicera. 4. Spermathecae. 5. Metapodal plates.



Figs. 6-8. *Typhloctonus litoralis* n.sp., male. 6. Dorsal shield. 7. Ventrianal shield. 8. Chelicera.

Genitosternal shield slightly chitinised, normal, with five pairs of setae. Ventrianal shield (Fig. 7) sclerotised; striated, in some places the striation passes to reticulation; with six pairs of preanal setae; ratio of length/width = 0.73-0.84. Apex of peritreme reaches bases of setae L_1 - L_2 or L_2 .

Fixed digit of the chelicerae (Fig. 8) bears two teeth, besides the *pilus dentilis*; the movable digit carries one tooth and the spermatodactyl. In the spermatodactyl (Fig. 8) the ramus, antiramus and velum are well developed.

Hind basitarsus carries a pointed macroseta, not reaching the lyriform fissure.

Measurements (in microns): $D_s = 312$ (302-332); $L_{va} = 129$ (116-139); $l_{va} = 160$ (149-166); $D_1 = 22$ (20-23); $D_2, D_3, M_1 = 12$ (10-13); $D_4 = 15$ (13-17); $D_5 = 16$ (14-18); $L_1 = 24$ (22-27); $L_2 = 12.5$ (12-13); $L_3 = 19$ (18-20); $L_4 = 17.5$ (17-18); $L_5, L_6 = 24$ (20-27); $L_7 = 18$ (15-20); $L_8 = 30$ (28-32); $L_9 = 21$ (20-22); $L_{10} = 22$ (20-25); $L_{11} = 49$ (42-53); $M_2 = 43$ (38-46); $VL_1 = 28$ (23-35); $st = 35$ (32-40).

MATERIAL EXAMINED: Holotype ♀ (No. 3021c), Qesari, 20.X.1982, on *Inula crithmoides* (Compositae). Paratypes: 3♀♀, 2♂♂ same data as holotype; 1♀ on lichen on *Crucianella maritima* (Rubiaceae), Netanya, 21.IX.1982, 1♀ on *Oenothera drummondii* (Onagraceae); 1♀ on *Artemisia monosperma* (Compositae); 1♂ on *Retama roetam* (Papilionaceae). Rishon LeZiyyon, 29.V.1983, 1♀ on *Echiochilon fruticosum* (Boraginaceae); 1♀ on dry Gramineae; 1♀ on *Polygonum equisetiforme* (Polygonaceae); 13.VI.1983, 1♀ on *Ammophila arenaria* (Gramineae); 27.VI.1983, 3♀♀, 2♂♂ on *Scrophularia hypericifolium* (Scrophulariaceae); 1♀ on Gramineae.

Other records: Netanya, 27.II. 1984, 1♀ on *Lotus creticus* (Papilionaceae); Yavne, 24.VI.1984, 1♀ on *Artemisia monosperma*, 1♂ on *Retama roetam*. Ashdod, 24.VI.1984, 1♀ on *Ammophila arenaria*. Ashqelon, 18.VII.1983, 1♀ on undetermined plant.

TABLE 1. COMPARISON OF *TYPHLOCTONUS LITORALIS* N. SP. WITH *T. CARMELI* AND *T. MONTFORTI*

	<i>T. litoralis</i>	<i>T. carmeli</i>	<i>T. montforti</i>
Main metapodal plate	narrow, elongated (30-43 μ)	subtriangular (23 μ)	narrow, elongated (32-43 μ)
Dorsal shield	striated, passing at certain locations into reticulation; area between D_3 - D_5 covered by elongated cells	not reticulated, but ornamented anteriorly and striated posteriorly	reticulated
Macroseta on tIV	32-48 μ, pointed	58-66 μ, knobbed	33-38 μ, pointed
Pairs of setae on sternal shield	2	3	2
No. teeth fd	2	1	3-4
No teeth md	1	3-4	2

TAXONOMIC NOTES: An important feature of *Typhloctonus litoralis* n.sp. is the presence of a prominent macroseta, on the hind basitarsus. This macroseta is absent in the following species of *Typhloctonus* Muma (1961): *T. tiliarum* (Oudemans, 1930), *T. aceri* (Collyer, 1957), *T. tuberculatus* (Wainstein, 1958), *T. squamiger* (Wainstein, 1960) and *T. runiacus* Kolodochka (1980). Moreover, *T. tiliarum* differs from *T. litoralis* by having a short peritreme (extending to setae S₁ or L₄). The Israeli species *T. carmeli* Rivnay and Swirski (1980) and *T. montforti* Rivnay and Swirski (1980) also have a long macroseta on the hind basitarsus, and a long peritreme, but they can easily be distinguished from *T. litoralis* by various characters given in Table 1. *T. cassinae* (Collyer, 1982), *T. myopori* (Collyer, 1982), *T. prunus* Denmark and Rather (1982) and *T. vollsella* Chaudhuri (1974) differ from *T. litoralis* by having three macrosetae on the hind leg (Denmark and Rather, 1984).

Typhloctonus montforti Rivnay and Swirski, 1980

TYPE LOCALITY AND HABITAT: On *Quercus calliprinos* (Fagaceae), at Montfort (Western Galilee, Israel); Holotype ♀ found on 10.IX.1970; 3 paratype ♀♀ collected on 30.VIII.1972 (AROI).

MATERIAL EXAMINED: Dor, 24.II.1983, 1♀ on *Inula crithmoides*. Herzliyya, 26.I.1983, 1♀ on *Artemisia monosperma*.

Anthoseius cryptus (Athias-Henriot, 1960)

TYPE LOCALITY AND HABITAT: ♀♀ and ♂♂ on *Crataegus oxyacantha* subsp. *monogyna* (Rosaceae), at Algiers (Algeria), in Dec. 1956. (LAEPP) (Athias-Henriot, 1960).

MATERIAL EXAMINED: Ashqelon, 19.III.1970, 1 ♀ on *Cynodon dactylon* (Gramineae).

Anthoseius recki (Wainstein, 1958)

TYPE LOCALITY AND HABITAT: *Salvia nemorosa* (Labiatae), Tbilisi, Georgia, USSR (IBIWR) (Wainstein, 1958).

MATERIAL EXAMINED: Nahariyya, 5.VII.1984, 1♀ on *Inula viscosa* (Compositae); 1♀ on *Verbascum sinuatum* (Scrophulariaceae); 2♀♀ on *Moltkiopsis ciliata* (Boraginaceae). Hefa, 3.VII.1984, 1♀ on *Verbascum sinuatum*; 2♀♀ on *Inula viscosa*; 1♀ on *Oenothera drummondii*; 1♀ on *Sinapis arvensis* (Cruciferae). Qesari, 20.X.1982, 2♀♀, 1♂ on *Echium angustifolium* (Boraginaceae); 4♀♀ on *Solanum incana* (Solanaceae), 27.II.1984; 3♀♀ on *Centaurea* sp. (Compositae). Sedot Yam, 7.VII.1965, 2♀♀ on

Withania somnifera (Solanaceae). Giv'at Olga, 23.XII.1982, 3♀♀ on *Retama roetam*. Netanya, 21.IX.1982, 1♀; 20.III.1983, 2♀♀; 14.II.1984, 2♀♀, all on *Echium* sp. Nahal Poleg, 29.I.1970, 1♀ on *Solanum* sp.; 1 ♀ on *Polygonum equisetiforme*; 10.II.1970, 2♀♀ on *Convolvulus* sp. (Convolvulaceae); 1♀ on *Anagyris foetida* (Papilionaceae) (all collected by Tova Rivnay). Herzliyya, 26.I.1983, 3♀♀ on *Atractylis flava* (Compositae) Tel Aviv, 6.II.1982, 2♀♀ on *Echium angustifolium*; 1♀ on *Withania somnifera*; 1♀ on *Chrysanthemum* sp. (Compositae). Bat Yam, 5.II.1984, 1♀ on *Ephedra campylopoda* (Ephedraceae); 1♀ on *Malva* sp. (Malvaceae). Rishon LeZiyyon, 15.I.1970, 2♀♀ on *Ononis* sp. (Papilionaceae) and 1♀ on *Thymelaea hirsuta* (Thymelaeaceae); 2♀♀ on *Phagnalon rupestre* (Compositae); 6.V.1983, 7♀♀, 2♂♂ on *Lotus creticus*; 5♀♀ on *Inula viscosa*; 2♀♀ on *Echium angustifolium*; 9.V.1983, 3♀♀ and 1♂ on *Echiochilon fruticosum* (Boraginaceae); 3♀♀ on *Scrophularia hypericifolia* (Scrophulariaceae); 2♀♀ on *Centaurea procurrens*; 29.V.1983, 1♀, 1♂ on *Echiochilon fruticosum*; 7♀♀, 1♂ on *Centaurea ascalonica*; 13.VI.1983, 1♀ on *Artemisia monosperma*. Palmahim, 20.IV.-1983, 1♀ on undetermined Boraginaceae; 6♀♀, 4♂♂ on *Ononis natrix*; 1♀ on *Retama roetam*; 8.IV.1984, 4♀♀ on *Echium angustifolium*; 2♀♀ on undetermined Gramineae; 5♀♀, 4♂♂, 12 nymphs on *Medicago marina* (Papilionaceae), mainly on inflorescences. Yavne, 24.VI.1984, 2♀♀, 1♂ on *Centaurea* sp. Nizzanim, 11.VIII.1983, 1♀, 1♂ on *Withania somnifera*; 2♀♀, 1♂ on *Atriplex halimus* (Chenopodiaceae). Ashqelon, 3.I.1964, 2♀♀ on *Echium angustifolium*; 19.III.1970, 3♀♀ on *Heliotropium* sp. (Boraginaceae); 6.V.1971, 21♀♀, 18♂♂ on *Oenothera drummondii*; 11.X.1971, 4♀♀ on undetermined Gramineae; 18.VII.1983, 3♀♀, 1♂ on *Echinops* sp. (Compositae); 2♀♀, 1♂ on *Retama roetam*; 9♀♀, 4♂♂ on *Ballota philistaea* (Labiatae); 3♀♀, 1♂ on *Centaurea procurrens*; 11.VIII.1983, 6♀♀, 1♂ on *Prosopis farcta* (Mimosaceae); 3♀♀ on *Echinops* sp.

Typhlodromus athiasae Porath and Swirski, 1965

TYPE LOCALITY AND HABITAT: On citrus, Rehovot, Israel, Jan. 1961, 9♀♀ and 1♂; the allotype ♂ was collected on a grapefruit tree at Kefar Yehoshua, Israel, in June 1963. Additional paratypes of both sexes were removed from various plants in different localities of Israel. (AROI, IAO, MHNP, IBIWR).

MATERIAL EXAMINED: Qesari, 20.X.1982, 1♀ on *Pistacia lentiscus* (Anacardiaceae); 27.II.1984, 2♀♀ on *Echium* sp. Sedot Yam, 7.VII.1965, 2♀♀ on *Withania somnifera*. Giv'at Olga, 23.XII.1982, 2♀♀ on *Thymelaea hirsuta*. Nahal Poleg, 1.II.1970, 3♀♀ on *Quercus ithaburensis*; 2♀♀ on *Thymelaea hirsuta*; 1♀ on undetermined Chenopodiaceae (all collected by Tova Rivnay). Bat Yam, 6.II.1984, 1♀ on *Retama roetam*. Rishon LeZiyyon, 9.V.1983, 1♀ on *Artemisia monosperma*; 29.V.1983, 3♀♀ on undetermined Umbelliferae; 27.VI.1983, 1♀ on *Artemisia monosperma*. Palmahim, 20.IV.1983, 1♀ on *Prasium majus* (Labiatae). Yavne, 24.VI.1984, 1♀ on *Ammophila arenaria*. Ashdod, 24.VI.1984, 4♀♀ on *Ephedra campylopoda* and 1♀ on *Ammophila arenaria*. Nizzanim, 11.VIII.1983, 4♀♀, 1♂ on *Atriplex halimus*. Ashqelon, 19.III.1970, 4♀♀ on *Cynodon dactylon*; 18.VII.1983, 1♀ on *Tamarix* sp. (Tamaricaceae).

Typhlodromus phialatus Athias-Henriot, 1960

TYPE LOCALITY AND HABITAT: Algeria in Oct. 1959, on various plants. (LAEPP) (Athias-Henriot, 1960).

MATERIAL EXAMINED: Giv'a't Olga, 23.XII.1982, 2♀♀ on *Retama roetam*. Mikhmoret, 27.II.1984, 3♀♀ on *Artemisia monosperma*. Tel Aviv, 6.II.1984, 6♀♀ on undetermined Gramineae and 6♀♀ on *Artemisia monosperma*. Bat Yam, 5.II.1984, 1♀ on *Chrysanthemum* sp. and 13♀♀ on *Artemisia monosperma*. Rishon LeZiyyon, 6.V.1983, 1♀ on *Artemisia monosperma*; 9.V.1983, 3♀♀ on *Echiochilon fruticosum*. Palmahim, 8.IV.1984, 1♀ on *Lotus creticus* and 2♀♀ on undetermined Gramineae. Ashqelon, 19.III.1970, 5♀♀ on *Artemisia monosperma*.

Seiulus isotrichus Athias-Henriot, 1958

TYPE LOCALITY AND HABITAT: On *Inula viscosa*, at Rasauta (Algeria), in Oct. 1956. (MHNP) (Athias-Henriot, 1958).

MATERIAL EXAMINED: Hefa, 3.VII.1984, 1♀, 1♂, 1 nymph. Rishon LeZiyyon, 27.VI.1983, many ♀♀, ♂♂, nymphs. All collected on *Inula viscosa* infested by rust. Some of the mites were reddish, apparently feeding upon the fungus.

Phytoseius (Phytoseius) finitimus Ribaga, 1904

TYPE LOCALITY AND HABITAT: *Buddleia madagascariensis*, Portici, Italy. (apparently lost) (Denmark, 1966).

MATERIAL EXAMINED: Nahariyya, 5.VII.84, 3♀♀, 1♂ on *Ficus carica* (Moraceae). Nahal Poleg, 29.I.1970, 5♀♀ on *Solanum* sp.; 10.II.1970, 6♀♀, 5♀♀ on undetermined Solanaceae and 15♀♀ on undetermined plant (all collected by Tova Rivnay). Ashdod, 24.VI.1984, 1♀ on *Ficus carica*. Ashqelon, 18.VII.1983, ♀♀ and ♂♂ on *Vitis vinifera* (Vitaceae).

Amblyseius barkeri (Hughes, 1948)

TYPE LOCALITY AND HABITAT: Germinating barley plumules, London Docks, England (Hughes, 1948). (? BM, Chant, 1959).

MATERIAL EXAMINED: Nahal Poleg, 29.I.1970, 1♀ (collected by Tova Rivnay). Ashqelon, 26.V.1971, 1♀; 27.X.1971, 1♀, collected by S. Ragusa (all collected on undetermined Gramineae).

Amblyseius leucopheus Athias-Henriot, 1959

TYPE LOCALITY AND HABITAT: Females and males on *Thymelaea hirsuta*, Fort-de-l'Eau (Algeria), 17.II.1958. (SAEPP, ENAA) (Athias-Henriot, 1959).

MATERIAL EXAMINED: Giv'at Olga, 23.XII.1982, 1♀. Nahal Poleg, 10.II.1970, 8♀♀, 1♂ (collected by Tova Rivnay). Netanya, 27.II.1984, 1♀. Rishon LeZiyyon, 15.I.1970, 1♀ (all collected on *Thymelaea hirsuta*).

Amblyseius messor (Wainstein, 1960)

TYPE LOCALITY AND HABITAT: Gramineae, Georgia (U.S.S.R.), in May, June 1953, 1955, females (Wainstein, 1960). Males were found in Israel on *Solanum nigrum*, at Nahal Poleg, in Feb. 1970; on *Artemisia monosperma*, at Ashqelon, in March 1970 (Amitai and Wysoki, 1974). (IBIWR) (Wainstein, 1960).

MATERIAL EXAMINED: Ashqelon, 11.I.1971, 1♀ on undetermined Gramineae.

Amblyseius swirskii Athias-Henriot, 1962

TYPE LOCALITY AND HABITAT: Holotype female and four paratype females on *Prunus amygdalus*, at Bet Dagan (Israel), Sept. 1961 (Athias-Henriot, 1962). Nine males on *Citrus* spp., at Gan Efrayim (Israel), Aug. 1962 (Porath and Swirski, 1965). (LAEPP, Mme. Athias-Henriot's Collection).

MATERIAL EXAMINED: Nahal Poleg, 29.I.1970, 2♀♀ on *Inula* sp.; 1♀, 1♂ on *Polygonum equisetiforme*; 1♀, 2♂♂ on *Solanum* sp.; 10.II.1970, 6♀♀ on *Thymelaea hirsuta*; 1♀ on undetermined Chenopodiaceae; 1♀ on undetermined Solanaceae; 2♀♀ on undetermined plant (all collected by Tova Rivnay). Rishon LeZiyyon, 29.V.1983, 1♀ on *Centaurea ascalonica*; 2♀♀ on *Vitis vinifera*. Ashqelon, 27.X.1971, 1♀ on undetermined Gramineae (collected by S. Ragusa).

Euseius rubini (Swirski and Amitai, 1961)

TYPE LOCALITY AND HABITAT: Females and males on *Ricinus communis* (Euphorbiaceae), Azor, May 1960, Aug. 1961; on *Ipomoea* sp. (Convolvulaceae), Tel Aviv, Aug. 1960; on *Pyrus malus* (Rosaceae), Bet Dagan, Aug. 1961 (Swirski and Amitai, 1961). (AROI, MHNP).

MATERIAL EXAMINED: Nahariyya, 5.VII.1984, 2♀♀, 1♂ on *Ricinus communis*. Giv'at Olga, 23.XII.1982, 2♀♀ on *Ceratonía siliqua* (Caesalpiniaceae). Nizzanim, 11.VIII.1983, 2♀♀, 1♂ on *Ficus sycomorus*. Ashqelon, 18.VII.1983, 6♀♀, 2♂♂ on *Zizyphus lotus* (Rhamnaceae); 1♀ on *Echinops* sp.; 1♀ on *Ricinus communis*; 11.VIII.1983, many ♀♀ and ♂♂ on *Zizyphus lotus*; many ♀♀ and ♂♂ on *Ficus sycomorus*.

Iphiseius degenerans (Berlese, 1889)

TYPE LOCALITY AND HABITAT: Leaves and moss (Italy). (BCF) (Chant, 1959).

MATERIAL EXAMINED: Nahal Poleg, 10.II.1970, 3♀♀ on *Solanum vilosum*. Bat Yam, 5.II.1984, many ♀♀, ♂♂ and nymphs on *Ricinus communis*. Ashqelon, 18.VII.1983, 1♀ on *Ricinus communis*; 11.VIII.1983, 1♀ on *Ficus sycomorus*.

Phytoseiulus persimilis Athias-Henriot, 1957

TYPE LOCALITY AND HABITAT: Females and males on roses in glasshouses, infested by *Tetranychus urticae* (L.), at Staoueli (Algeria) (Athias-Henriot, 1957).

LOCATION OF TYPES: MHNP (Athias-Henriot, 1957).

MATERIAL EXAMINED: Rosh Haniqra, 22.VI.1967, 1♂ on *Convolvulus* sp. Nahal Poleg, 10.II.1970, 2♀♀ on *Solanum vilosum*.

REFERENCES

- Athias-Henriot, C. 1957. Phytoseiidae et Aceosejidae (Acarina, Gamasina) d'Algérie. I. Genres *Blattisocius* Keegan, *Iphiseius* Berlese, *Amblyseius* Berlese, *Phytoseius* Ribaga, *Phytoseiulus* Evans. *Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord* 48: 319-352.
- Athias-Henriot, C. 1958. Dto. II. Phytoseiidae: clé des genres, genres *Amblyseius* Berlese (suite) et *Seiulus* Berlese. *Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord* 49: 23-43.
- Athias-Henriot, C. 1959. Acariens planticoles d'Algérie. I. 5e contribution au genre *Amblyseius* Berlese (Phytoseiidae). II. Première liste d'Actinochitinosi (Cheyletidae, Calligonellidae, Hemisarcoptidae). *Bulletin de l'Académie Royale de Belgique. Classe des Sciences* 54: 130-153.
- Athias-Henriot, C. 1960. Nouveaux *Amblyseius* d'Algérie (Parasitiformes, Phytoseiidae). *Acarologia* 2: 288-299.
- Athias-Henriot, C. 1960. Phytoseiidae et Aceosejidae (Acarina, Gamasina) d'Algérie. IV. Genre *Typhlodromus* Scheuten, 1857. *Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord* 51: 62-107.
- Athias-Henriot, C. 1962. *Amblyseius swirskii*, un nouveau phytoséiide voisin, d'*A. andersoni* (Acariens anactinotriches). *Annales de l'Ecole Nationale d'Agriculture d'Alger*, 3: 1-7.
- Berlese, A. 1889. Acari, Myriapoda et (Pseudo) Scorpiones Hucusque in Italia reperta, fasc. 54, No. 9.
- 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. *Canadian Entomologist*, Supplement 12: 1-166.
- Chaudhuri, W.M. 1974. Taxonomic studies of the mites belonging to the families Tenuipalpidae, Tetranychidae, Tuckerellidae, Caligonellidae, Stigmaeidae and Phytoseiidae. Phytoseiidae, pp. 204-233. University of Agriculture, Lyallpur, Pakistan, Project No. A 17-ENT-26 (under PL 480 Programme of U.S.A.); 1-249.
- Denmark, H.A. 1966. Revision of the genus *Phytoseius* Ribaga 1904 (Acarina: Phytoseiidae). *Florida Department of Agriculture, Division of Plant Industry*, Bull. 6: 1-105.

- Denmark, H.A. and Rather, A.Q. 1984. Revision of the genus *Typhloctonus* Muma 1961 (Acarina: Mesostigmata). *International Journal of Acarology*, 10: 163-177.
- Garman, P. 1948. Mite species from apple trees in Connecticut. *Connecticut Agricultural Experiment Station*, Bull. No. 520: 1-27.
- Hughes, M.A. 1948. The mites associated with stored food products. *Bulletin Ministry of Agriculture, Fisheries and Food*, 168 pp.
- Kolodochka, L.A. 1980. [New species of phytoseiid mites of the fauna of USSR (Parasitiformes, Phytoseiidae).] *Westnik Zoologii*, 1980, No. 2: 64-70. (in Russian)
- Muma, M.H. 1961. Subfamilies, genera and species of Phytoseiidae (Acarina: Mesostigmata). *Bulletin of the Florida State Museum, Biological Sciences*, 5: 267-302.
- Nesbitt, H.H.J. 1951. A taxonomic study of the Phytoseiinae (family Laelaptidae) predaceous upon Tetranychidae of economic importance. *Zoologische Verhandelingen, Rijkmuseum van Natuurlijke Historie*, Leiden, 12: 1-64.
- Porath, A. and Swirski, E. 1965. A survey of phytoseiid mites (Acarina: Phytoseiidae) on citrus, with a description of one new species. *Israel Journal of Agricultural Research*, 15: 87-100.
- Rivnay, T. and Swirski, E. 1980. Four new species of phytoseiid mites (Acarina: Mesostigmata) from Israel. *Phytoparasitica*, 8: 173-187.
- Swirski, E. and Amitai, S. 1961. Some phytoseiid mites (Acarina: Phytoseiidae) of Israel, with a description of two new species. *Israel Journal of Agricultural Research*, 11: 193-202.
- Wainstein, B.A. 1958. [New species of the genus *Typhlodromus* (Parasitiformes, Phytoseiidae) from Georgia (U.S.S.R.).] *Zhurnal Akademii Nauk Gruzinskoi SSR*, 21: 201-207. (in Russian)
- Wainstein, B.A. 1960. New species and subspecies of the genus *Typhlodromus* Scheuten (Parasitiformes: Phytoseiidae) of the U.S.S.R. fauna. *Zoologicheskii Zhurnal*, 39: 683-690. (in Russian)
- Wainstein, B.A. and Kolodochka, L.A. 1974. [New species of the genus *Anthoseius* (Parasitiformes, Phytoseiidae)]. *Zoologicheskii Zhurnal*, 534: 628-632. (in Russian)