

## ECOLOGICAL STUDIES ON THE SOIL PREDACEOUS MITES INHABITING SOME FIELD CROPS

A. M. Metwally<sup>1</sup>, Z. E. A. Darwish<sup>2</sup>, M. Mostafa<sup>3</sup> and S. A. Ezz El-Dein<sup>4</sup>

3- 4- Dept. of field crops Acarology, Plant Protection Research Institute, A.R.C., Cairo.

2- Dept. of Zoology, Faculty of Science (Girls), Al-Azhar University, Cairo.

1- Dept. of Agricultural Zoology and Nematology, Faculty of Agriculture, Al-Azhar University, Cairo.

**ABSTRACT:** The soil predaceous mites are very important natural enemies for controlling the destructive pests for most of the field crops in Egypt. Knowledge about its population, life history, reproduction still required. The present studies with the endeavor of contribution some of available knowledge on the ecological and biological aspects of these predators.

From the survey studies, there were two widespread orders namely: Parasitiformes and Acariformes. The first order has suborder Gamasida, but the Acariformes has Actinedida as common suborder. The gamasid mites represented by 14 families as follows: sejidiae, Micrognoiidae, Veigaiidae, Parasitidae, Digamasilidae, Rhodacaridae, Ologamasidae, Ascidae, Phytoseiidae, Macrochelidae, Pachylaelapidae, Laelapidae, Macronyssidae and Uropodidae. On the other hand, the suborder Actinedida has 17 families as follows: Pachynathidae, Pediculochelidae, Euopodidae, Ereyneidae, Tydeidae, Bdellidae, Cunaxidae, Raphignathidae, Eupalopsellidae, Stigmaeidae, Calligonellidae, Barbutiidae, Camerobiidae, Cheyletidae, Pseudocheyletidae, Erthraeidae and Leeuwenhoekidae.

The study also proved presence of 161 species belonging to 74 genera and 31 families.

### INTRODUCTION

Although the Acarina communities of Egyptian soil have not been widely studied, some information are available on the prostigmatid and mesostigmatid mites fauna. Owing to their numerical importance, the prostigmatid and mesostigmatid mites have received more attention than other soil Acari. The majority of these species appear to predators associated with small and immature stages of insects, mites, and nematodes in the soil surface (Karg, 1961, Sardar and Murphy, 1987). Some of them may also feed on fungi and helps in control soil born fungi diseases (Ragusa and Zedan, 1985 and Ahmed, 1998).

The present work aims to study and throw some light upon the survey of some soil predaceous mites in different localities of Egypt in some winter and summer field crops soil.

Thompson (1924) studied the soil fauna of grass land and arable land and found that quantitative and qualitative variation at different seasons were correlated with the environmental conditions. Baweja (1939) found that the maximum population of soil fauna occurred in Autumn and extended in early Winter. Allee *et al.*, (1949) reviewed the classification of soil organisms according to their food habits. They divided the soil organisms into (5 major groups: 1) chemical agents (bacteria and fungi; 2) ectophagous agents (species which eat whole; 3) endophagous agents (which mine green leaves and roots; 4) predators; and 5) shelters (animals which used the soil as a retreat only). Atalla (1961) noticed that the seasonal changes in mite numbers as he observed on autumnal peak. He stated that the vertical distribution of the mites in the soil seemed to depend on a complex of factors of which the most important were probably the size and shape of the soil activities, their relative humidity and the presence or absence of food. *Hypoaspis aculeifer* (Canestrini) has been recorded in a great variety of habitats associated with and preying on, important pest i.e. *Tyrophagus putrescentiae* (Schränk), (Kevan and Sharma, 1963 and 1964). El-Badry *et al.*, (1979) collected *Ameroseius aegypticus*, *Klemania kosi*, *K. zaheri* from decayed debris, litter and soil of trees in Egypt. Yousef *et al.*, (1983) surveyed 19 gamasid mite species from soil organic manures. These mite species are belonging to 5 families (Laelapidae, Ascidae, Ameroseiidae and Phytoseiidae).

The uropodid mites, in general, are common in soils rich in organic manure and seem to be feeding on a wide range of diets, including decayed organic materials, fungi, acarid mites, house-fly eggs or larvae, collembola and free nematodes (Ahmed, 1984 and Zaher, 1986). Ibrahim (1985) surveyed mesostigmatid mites belonging to the superfamilies Eviphidoidea, Asocidea and Dermanyssidea in different localities of Egypt. These mite species were collected from manure, debris, soil and bird's and rat burrows. During a survey of mites living in soil, Ragusa and Zedan (1985) collected *Hypoaspis aculeifer*.

Taha *et al.*, (1988) isolated the predaceous cunaxid mite, *Neocunaxoides andrei* Baker and Hoffman from soil grasses, animal debris, and faba bean straw in moderate numbers from Fayoum Governorate.

In grassland soils of the central united states, Walter and Oliver in (1989) collected the laelapid mite, *Cosmolaelaps cf. vacua* (Michael); *Rhodacarellus silesiacus* Willmann as rhodacarid mite; *Amblyseius (Neoseiulus) setulus* (Fox) as phytoseiid mite; *Veigaia pausilla* (Berlese) as veirgaiid mite and *Protogamasellus mica* (Athias), *P. hibernicus* Evans, *Lasioseius youcefi* Athias and *L. berlese* (Oudemans) as ascid mites. Bai *et al.*, (1996) in China collected *Ololaelaps wangi* as a new species from decaying *Phragmites communis* (*P. australis*) and *Zea mays*. Fouly *et al.*, (1997) in Florida collected *Cosmolaelaps simplex* from soil, including leaf litter under orange trees. Wood (1967) found 58 species of Cryptostigmata, 50 species of Prostigmata and 33 species of Mesostigmata in four grassland and two moss sites in England. Bhattacharyya (1968) collected 15 mesostigmatid mites in soil from India, of these 6 were recorded for the first time. *Parasitus consanguin-*

*eus* Oudemans and Voigts, *Heteriophis arcuatus* Tragardh, *Uroactinia anchor* (Trouessart), *Uroobovella villosella* (Berlese), *Urosternella cylindrica* (Berlese) in-arottachytes longosetis Deb and Raychaudhury, and 9 species were described; *Po-docinum bengalensis*, *Proctolaelaps orientalis*, *Plataseius indicus*, *Lasioseius parbe-resi*, *L. reticulatus*, *Cynnolaelaps kabitae*, *Hypoaspis tarsalis* and *H. bengalensis* as new species. Edwards and Lofty (1969) found that Prostigmata increased in abundance after ploughing of old grassland, while other soil mites decreased. Farrage (1969) noticed that the total number of oribatid and mesostigmatid in the surface layer was more than the lower depth. The two bdellid soil-inhabiting mites, *Spinb-della bifurcata* and *Neomolgus* sp. were ecologically studied by Mohamed (1970). He mentioned that *S. bifurcata* recovered all over the year from soil, debris, dry leaves and bird nests. It's presence was associated with the book-lice insects (Cor-rodentia). *Neomolgus* sp. occurred only during Winter. Costa (1971) collected 10 mite species of the genus *Pachylaelaps* Berlese from Israel. The mites were *P. evansi* n.sp., *P. imitatus* Berlese, *P. pectnifier* (Canestrini), *P. lindrothi* Sellnik, *P. brevis* n.sp., *P. hispani* Berlese, *P. alpinus* Willmans, *P. siculus* Berlese, *P. karawa-aiEUR* Berlese and *Pachylaelaps* n.sp. Hirschman (1971) stated that the gamasid mites occurred, most commonly, in cultivated soil, but also found in manure and decaying wood. Hammad *et al.*, (1975) in their studies on the soil insect fauna and other arthropods mentioned that the Acarina formed the highest percentage of the total fauna (56.3%) in all the examined soils. Mohamed (1976) surveyed four soil predaceous prostigmatid species, *Cheyletomorpha lepidopterum* & *Acaropsella ae-gyptiaca* (Cheyletidae) and *Cyta latirostris* & *C. longiseta* (Bdellidae).

The seasonal composition of soil acarine fauna was studied from July 1991 to June 1992 in Dalbergia sissoo plantation, both in Indian litter and topsoil (Dorgan *et al.*, 1997). They noticed that in total, 25 different types of mites, belonging to 22 families were identified. Among these, 13 genera belong to suborder Cryptostigma-ta and 8 to Mesostigmata. Kaid (1998) studied the incidence of certain mesostig-matid mites belonging to the superfamilies, Sejoidea, Parasitoidea, Rhodacaroidea, Ascoidea, Phytosioidea, Eviphidoidea, Dermanyssoidea, Uropodoidea and Bde-loidea in some localities of Egypt collected from manure, debris and soil. The study indicated the occurrence of 36 species belonging to 13 families. Mahmoud (1999) collected and identified 38 mite species in soil belonging to 19 genera under 11 families. Suborder Gamasida represented by 30 mite species belonging to 13 genera under 8 families, while Suborder Actinedida represented by 8 mite species belonging to 3 families under 6 genera. The families were Laelapidae, Ascidae. Parasitidae, Phytoseiidae, Macrochelidae, Ameroseiidae, Pachylaelapidae and Uro-podidae belonging to Gamasida. The bdellid mite, *Trachymolgus jesusi* was col-lected as new species from soil and leaf litter of a tropical dry forest in Western Mexico, Mejie-Recamier and Palacios-Vargas (1999). Survey of the terrestrial mi-croarthropods fauna of the south Sandwich Islands was conducted by Convey *et al.*, (2000).

## MATERIALS AND METHODS

### *1st- Incidence and distribution of soil mites:-*

For incidence of soil mite study, sample of about 500 gm. of soil collected from different localities in Egypt all over the season throughout the successive seasons (1999-2002). Samples were freshly transferred to the laboratory for mite extraction in polyethylene bags. Mites extraction was carried out using modified Berlese funnels according to (Krantz, 1978) in Acarology Dept. Plant Protection Research Institute, A.R.C.. Each funnel has 60-watt electric lamp. After 24 hours exposure to light, extracted mites were received in petredish (9cm in diameter) filled with water. A fine brush was used to pick up transferring the extracted mites and cleared Nesbitt's solution. Examination of separated mites were made by using stereo microscope then mounted in Hoyer's medium on glass slides and examined microscopically.

### *2nd- Identification of the collected mites:-*

The collected mites were identified under research microscope in Agricultural Zoology and Nematodes Dept., Faculty of Agriculture, Al-Azhar University. The identification of the collected mites was carried out according to Baker and Wharton, 1952; Chant, 1965; El-Badry, 1965; Lindquist and Evans, 1965, Summer and Price, 1970; Krantz, 1978; Smiely, 1974; Zaher, 1986 and Volgin 1989.

## RESULTS AND DISCUSSION

The current survey had recorded the different predaceous soil mites of different locations in Egypt. From this survey the gamasid mite represented by 14 families as follows: Sejidae, Microgyniidae, Vegaiidae, Parasitidae, Digmaesellidae, Rhodacaridae, Ologamasidae, Ascidae, Phytoseiidae, Macrochelidae, Pachylaelapidae, Macronyssidae and Uropodidae. On the other hand, the actinedid mites represented by 17 families as follows: Pacygrothidae, Pediculochelidae, Eupodidae, Ereyneidae, Tydidae, Bdellidae, Cunaxidae, Raphrgnathidae, Eupalopsellidae, Stigmaeidae, Caligonellidae, Barbutiidae, Camerobiidae, Cheyletidae, Pseudocheyletidae, Erythraeidae and Leeuwenhoeekiidae. Only 161 species was recorded during this study belonging to 74 genera in 31 families which was previously mentioned before. (Table 1).

Data tabulated in Table (1) give the incidence of the different soil predaceous mites inhabiting some field crops in Egypt.

- Order: Parasitiformes
- Suborder: Gamasidae.
- Superfamily: Sejioidae

This super family was represented by 2 genera sejius and Microsejis belonging to 2 different families, family: Sejidae Berlese and Microgyniidae Traegard.

### \* *Superfamily Parasitoidae:*

Family: Veigaiidae Oudemans, this family was represented one genera Veigaia having only 2 species, also there abundance were occurred in wheat and clover soil in samples collected from Kafr El-Shiekh and El-Gharbia. On the other hand, fami-

ly Parasitidae Oudemans which included 5 genera having 17 species. These species can be grouped according to their abundance into to main groups: The first one which was found in a great number include Parasitus sp1 which isolated from El-Gharbia. Beni Sweief and Kafr El-Shiekh soil samples collected under clover cotton while the 2nd group which found in a few number includes the rest of the 16 species.

Family Digmasilidae Evans was represented by only one species *Dendrolaelaps* sp. during this study while both of Rhodacarudae and Ologamasidae Ryke families were represented by 2 species for each one of them. Also the two species of Ologamasidae were collected with a great number from samples of maize and clover represented from different governorates.

\* Superfamily: *Ascoidea*:

Concerning family Ascidae Voigts and Oudemans, this family were represented by 14 species belonging to 9 genera, among these species, only *Lasioseius egypticus* Afifi and *Melichares* sp. were collected with a great numbers.

\* Superfamily: *Phytosoidae*:

Family: Phytosiidae Berlese, this predaceous family was represented by 2 species *Amblyseius* sp. and *Amblyseius cydnodactylon* Shehata and Zaher.

\* Superfamily: Eviphidoidea: This superfamily represented by 2 families Macrochelidae, Vitzthum and Pachylaelapidae Berlese. The first family 7 species belonging to 2 genera while the 2nd one represented by 5 species belonging to one genera.

By regarding to superfamily: Dermanyssoidea, only 2 families were recorded during this survey belonging to this superfamily laelapidae Berlese which represented by 15 species belonging to 4 genera while the 2nd family: Macronyssidae Radovsky which include one species *Macronosus* sp., collected for soil samples under maize from Rashid with low number.

Coming at the end of suborder Gamasidae during this study superfamily: Uropodoidea which represented by family Uropodidae Berlese contains three genera *Uroobovella*, *Uropodinychus* and *Chiropturopoda*. These genera including 5 species, all of them were collected in few numbers from clover and maize soil samples.

Suborder Actinidida, this suborder was represented by 8 different superfamilies containing 17 families.

The first superfamily: Pachygnathoidea represented by 2 families, family: Pachygnathidae Kramer including one species *Pachygnathus* sp., collected in few numbers. The next family Pediculochelidae Lavoipierre was the same as the previous family, had only one species *Pediculocheles* sp. .

Superfamily Eupodoidea, this prostegmated superfamily was represented by one family Eopodidae Koch which includes 6 species belonging to 2 genera, all of these species were isolated in few numbers from soil samples, under clover and

wheat.

*Superfamily: Tydeoidea*

Family: Ereynetidae Oudemans, only one species *Ereynetes* sp. was isolated in a great number from soil samples collected from soil samples under clover, maize, wheat and cotton belonging to the previously mentioned superfamily, family: Tydeoidea Kramer which represented by 3 genera including 4 species, among them only *Paralorryia bakeri* (Zaher and El-Bagoury) collected in few numbers from Hosh Eisa from soil samples under maize.

Following to that, superfamily Bdelloidea, which contains only 2 families, Bdellidae Duges and Cunaxidae Thor. The first one was represented by 7 species belonging to 2 genera, this species were *Spinibdella bifurcata* Atyeo, *Spinibdella tenuirastris* Atyeo, *S. cornini* Baker and Balock, *S. depressa* Atyeo, *Spinibdella* sp., *Bdellodes (Hoploscirus) serbentinus* Oudemans and *B. (Hoploscirus) camellae* Oudemans. The 2nd family, Cunaxidae Thor which observed during this study to have only 6 genera including 13 species. These genera were *Cunaxa* (5 species), *Cunaxodes* (one species), *Coleoscirus* (Two species), *Pulaeus* (3 species), *Neocunaxoides* (one species) and *Preudocunaxoides* (one species), the species of the last two mentioned genera were collected with a moderate numbers.

The fourth superfamily: Raphignathoidea which represented by families including 21 species, these families were, *Raphignathidae* Kramer which represented by 2 species, the 2nd family: *Eupalopsellidae* Willmann (one species) the 3rd family: *Stigmaeidae* Oudemans (9 species belonging to 5 genera), the 4th family: *Caligonelidae* Grandejian (4 species), the next family is *Barbutiidae* (one species), the last family is *Camerobiidae* Southcott (4 species belonging to 2 genera). All of these species were collected in few numbers next to this superfamily, the superfamily: Cheyletoidea which represented by family, *Cheyletidae* Leach. This family were contained 23 species belonging to 11 genera, among them only *Cheyletus malaccensis* Oudemans was isolated from soil samples under clover, wheat maize and cotton in a great numbers from Berket El-Sabaa, El-Qanater, Toukh, Abou Zaabal, Talkha, Rashid, El-Zagazig and Sherbin.

The predaceous superfamily: Anyotoidea were represented during this survey by only one family contain one species, *Preudcheyleus* sp. which isolated in moderate numbers from Shebien El-Koum and Toukh.

As the same as the last mentioned superfamily, the superfamily Erythraeoidea, as it have only one family, *Erythraeidae* Robbinau-Desvoidy expect that it represented by 2 species *Balaustium* sp. and *Leptus* sp. which collected from wheat samples.

The last superfamily observed during this survey was Trombidoidea which have only one family *Leeuwenhoekidae* Womersly, this family represented by *Leeuwenhoekia* sp. which collected in moderate numbers from cotton samples picked up from Ashmoun and Abou Hammad.

This result is agree with those obtained by (Zaher, 1986; Kaid, 1998; Mah-

moud, 1999; El-Gazzar, 2001 and Romieh, 2002) where the soil of some field crops harboured in most cases the Actinedida and Gamasida suborders as common soil predaceous mites in Egyptian fauna.

**Table (1): Incidence of different soil predaceous mites inhabiting some field crops in Egypt.**

Mite species	Locality	Host (s)	Abundance
<b>Order: Parasitiformes</b> <b>Suborder: Gamasida</b> <b>Superfamily: Sejioidea</b> <b>Family: Sejidae Berlese</b> <i>Sejius</i> sp.	(Desouk) Kafr El-Shiekh (Kafr El-Ziat) El-Gharbia	Clover Clover	(+) (+)
<b>Family: Microgyniidae Traegard</b> <i>Microsejius</i> sp.	(Ashmoun) El-Menofia (Tanta) El-Gharbia	Clover Clover	(+) (+)
<b>Superfamily: Parasitoidea</b> <b>Family: Veigaiidae Oudemans</b> <i>Veigaiia</i> sp.1 <i>Veigaiia</i> sp.2	(Kafr El-Shiekh) (Tanta) El-Gharbia	Wheat Clover	(+) (+)
<b>Family: Parasitidae Oudemans</b> <i>Parasitus fimetorum</i> (Berlese)	(Abou Zaabal) El-Qualuobia (El-Sadat City) El-Menofia (Demoo) El-Fayoum	Clover Wheat Wheat	(++) (++) (++)
<i>Parasitus consanguineus</i> Oudemans and Voligts	(Ashmoun)  (Damanhour) El-Baheira (Kafr Hakim) Giza	Cotton Clover Wheat Wheat Maize	(+++) (+) (+) (+) (+)
<i>Parasitus diversus</i> (Athias - Henriot)	(Benha) El-Qualuobia	Clover	(+)
<i>Parasitus talparum</i> (Oudemans)	(Ashmoun)	Clover	(+)
<i>Parasitus hyalinus</i> (Willmann)	(ElMansoura) (Rashid) El-Baheira	Wheat Maize	(+) (+)
<i>Parasitus insignis</i> (Holzman)	(Damanhour) El-Menofia (Berkit Elsabaa) El-Menofia	Wheat Clover	(+) (+)
<i>Parasitus</i> sp.1	(Zeifta) El-Gharbia (Beni Sweief) (Kafr El-Sheikh)	Clover Clover Clover and Cotton	(+++) (+++) (+++)
<i>Parasitus</i> sp.2	(Damanhour) (Kafr Hakiem)	Wheat Wheat	(+) (+)
<i>Parasitus</i> sp.3	(Kafr Hakiem) Giza	Wheat	(+)
<i>Parasitus</i> sp.4	(El-Khanka) El-Qualuobia	Clover	(+)
<i>Vulgarogamasus burchanensis</i> (Oudemans)	(El-Mansoura) (El-Dakahliea)	Wheat	(+)

Table (1): Cont.

Mite species	Locality	Host (s)	Abundance
<i>Vulgarogamasius</i> sp.	(Ashmoun)	Clover	(+)
<i>Eugamasius berlese</i> Willman	(Ashmoun)	Clover	(++)
<i>Gamasodes spinigar</i> (Tragardh)	(El-Sadat City)	Wheat	(+)
<i>Gamasodes</i> sp.1	(Itay El-Barood) El-Baheira	Clover	(+)
<i>Gamasodes</i> sp.2	(Kafr El-Zieat) El-Gharbia (Rashid) El-Baheira	Clover Maize	(+) (+)
<i>Cornigamasius</i> sp.	(Rashid) El-Baheira	Maize	(+)
<b>Family: Digamasiliidae</b> Evans			
<i>Dendrolaelaps</i> sp. .	(Kafr Hakiem) (Ashmoun) (Demoo)	Clover Cotton Maize	(+) (+) (+)
<b>Family: Rhodacaridae</b> Oudemans			
<i>Rhodacarus tebeenus</i> Hafez and Nasr	(El-Bagour) El-Menofia	Clover	(+)
<i>Rhodacarus pollidus</i> Shcals	(Beba) Beni Sweief	Wheat	(+)
<b>Family: Ologamasidae</b> Ryke			
<i>Gamasiphis parbulchellus</i> Nasr and Mersal	(Ashmoun)  (Quluob) El-Qualuobia (Shebin El-Koom)	Maize and clover Clover Maize	(+++)  (++) (+)
<i>Gamasiphis denticus</i> Hafez and Nasr	(Abou Hammad) El-Baheira (El-Fashn) Beni Sweief (El-Zagazig) El-Sharkia	Maize Clover Maize	(+++) (+++) (+++)
<b>Superfamily: Ascoidea</b>			
<b>Family: Ascidae</b> Voigts and Oudemans			
<i>Lasioseius egypticus</i> Afifi	(Edfo) El-Baheira (Ashmoun)	Maize Maize, cotton, clover and wheat	(+++) (+++)
<i>Proctolaelaps melichares</i> Westerbor	(Ashmoun)	Wheat	(+)
<i>Proctolaelaps aegyptiaca</i> Nasr	(El-Bagour)	Clover	(+)
<i>Proctolaelaps bickleyi</i> (Bram)	(Quluob)	Clover	(+)
<i>Proctolaelaps</i> sp.1	(El-Bagour)	Clover	(++)
<i>Melichares pomorum</i> (Nesbitt)	(El-Mansoura)	Maize	(+)
<i>Melichares onata</i> Postner	(Itay El-Barood)	Clover	(+)
<i>Melichares</i> sp.	(Quluob) (Kafr El-Zieat)	Clover Clover	(+++) (+++)
<i>Laioseius lindquisti</i> Nasr and Abou-Awad	(El-Ariesch) North Sini	Maize	(++)
<i>Arctoseius bilinar</i> Nasr	(Sennoris) El-Fayoum (El-Mansoura) (El-Sadat City)	Clover Wheat Wheat	(++) (++) (++)
<i>Arctoseius</i> sp.	(Itay El-Barood) (Quluob)	Clover Clover	(+) (+)



Table (1): Cont.

Mite species	Locality	Host (s)	Abundance
<i>Gamasellodes bicolor</i> (Berlese)	(El-Fashn) Beni-Sweief	Wheat	(++)
<i>Gamasellodes</i> sp.	(El-Ariesh)	Wheat	(+)
<i>Blattisocus</i> sp.	(Ashmoun)	Wheat	(+)
<i>Protogamasellus minutus</i> Nasr	(Rashid)	Maize	(+)
<b>Superfamily: Phytosoidea</b>			
<b>Family: Phytoseiidae Berlese</b>			
<i>Amblyseius cydnodactylon</i> Shehata and Zaher	(Demoo)	Wheat	(+++)
	(Abou Rawash) Giza	Maize	(+++)
	(Beer El-Aabd) North Sini	Maize	(+)
<i>Amblyseius</i> sp.	(Demoo)	Wheat	(+)
<b>Superfamily: Eviphidoidea</b>			
<b>Family: Macrochelidae Vitzthum</b>			
<i>Macrocheles punctata</i> Hafez, El-Badry and Nassr	(Itay El-barood)	Clover	(+)
<i>Macrocheles glaber</i> (Muller)	(Sennoris)	Clover	(+)
<i>Macrocheles muscadomesticae</i> Scopoli	(Mettay) El-Menia	Maize	(++)
<i>Macrocheles merdarius</i> Berlese	(Rashid)	Maize	(+++)
	(Beni Sweief)	Maize	(+++)
	(Damanhour)	Wheat	(+++)
	(Berket El-Sabaa)	Clover	(+++)
<i>Macrocheles matrius</i> (Hull)	(Beer El-Aabd) North Sini	Maize	(+)
	(Baltiemi) El-Baheira	Maize	(+)
<i>Macrocheles maneronicus</i> Bregotova and Koroleva	(Baltiemi)	Maize	(++)
<i>Glypholaspis confusa</i> (Foa)	(Edfina) El-Baheira	Maize	(+)
<b>Family: pachylaelapidae Berlese</b>			
<i>Pachylaelaps reticulatus</i> Hafez and Nasr	(Tanta)	Wheat	(+++)
	(Demoo)	Wheat	(+++)
	(Hosh Eisa)	Maize	(+++)
	(El-Fashn) Beni Sweief	Clover	(+++)
	(Beni Sweief)	Wheat	(+++)
	(Abou Rawash) Giza	Maize	(+++)
	(El-Katataba) Giza	clover	(+++)
• <i>Pachylaelaps tianschanicus</i> Toroleva	(Quluob)	Clover	(+)
<i>Pachylaelaps imitanus</i> Berlese	(Abou Zaabal)	Clover	(+)
	(Kafr El-Sheiekh)	Cotton	(+)
<i>Pachylaelaps aegypticus</i> Hafez and Nasr	(Ashmoun)	Clover	(+)
• <i>Pachylaelaps</i> sp.	(Ashmoun)	Clover	(+)

Table (1): Cont.

Mite species	Locality	Host (s)	Abundance
<b>Superfamily: Dermanyssoidea</b>			
<b>Family: Laelapidae Berlese</b>			
<i>Hypoaspis orinetalis</i> Hafez, El-Badry and Nasr	(Demoo) (Rashid)	Maize Maize	(-) (-)
<i>Hypoaspis gergus</i> Hafez El-Badry and Nasr	(Tanta)	Clover	(-)
<i>Hypoaspis koseii</i> Hafez El-Badry and Nasr	(Beba)	Wheat	(-)
<i>Hypoaspis bregetovae</i> Shereef and Afifi	(Berket El-Sabaa)	Clover	(+)
• <i>Hypoaspis queenslandicus</i> (Womersly)	(El-Saff)	Maize	(+)
<i>Hypoaspis</i> sp.1	(Rashid)	Maize	(+)
<i>Hypoaspis</i> sp.2	(Itay El-Barood) (Ashmoun)	Clover Clover	(+) (+)
<i>Ololaelaps bregetovae</i> Shereef and Soliman	(Demoo) (Fakous) El-Sharkia  (Abou Rawash) Giza (Ashmoun) El-Menofia (Quesena) El-Menofia	Maize Maize, cotton and clover Maize Cotton Clover	(+++) (+)  (++) (+++) (+)
<i>Ololaelaps</i> sp.	(Ashmoun)	Clover	(-)
<i>Laelaspis astronomicus</i> (Koch)	(Ashmoun) (El-Zagaziga)	Wheat Maize	(+) (-)
<i>Laelaspis initalus</i> Reitblat	(Ashmoun)  (Demoo)	Clover, wheat, maize and cotton Clover, wheat, maize and cotton	(+++)  (+++)
<i>Androlaelaps casulies</i> (Berlese)	(Demoo) (El-kanater El-Kheiria) (Quesena) (Berker El-Sabaa)	Maize Clover Clover Clover	(+++) (+) (-) (-)
<i>Androlaelaps</i> sp.1	(Ashmoun) (El-Isamilia) (EL-aariesh)	Maize Maize Maize	(+) (+) (+)
<i>Androlaelaps</i> sp.2	(Ashmoun)	Cotton	(+)
<i>Androlaelaps wahabi</i> Metwaly and Wahab	(El-Farafra) El-Wadi EL-Gedid	Clover	(-)

Table (1): Cont.

Mite species	Locality	Host (s)	Abundance
<b>Family: Macronyssidae Radovsky</b> <i>Macronosus</i> sp.	(Rashid)	Maize	(+)
<b>Superfamily: Uroodoidea</b> <b>Family: Uropodidae Berlese</b>			
• <i>Uroobovella (Fuscuropoda) kranzi</i> Zaher and Afifi	(Abou Hamnad) (Quluob) (El-Ismailia)	Maize Clover Clover	(+) (+) (+)
<i>Uroobovella ovalis</i> Hirschmann	(Sohag) (Desouk)	Clover Clover	(+) (+)
• <i>Uropodinychus</i> sp.	(Tanta)	Clover	(+)
• <i>Urodinychus oilosus</i> Ahmed	(Itay El-Barood)	Clover	(+)
• <i>Chiropturopoda bakeri</i> Zaher and Afifi	(El-Farafra)	Clover	(+)
<b>Order: Acariformes</b> <b>Suborder: Actinedida</b> <b>Superfamily: Pachygnathoidea</b> <b>Family: Pachygnathidae Kramer</b>			
• <i>Pachygnathus</i> sp.	(Desouk)	Maize	(+)
<b>Family: Pediculochelidae Lavoipierre</b>			
• <i>Pediculocheless</i> sp.	(Kafr Hakiem)	Wheat	(+)
<b>Superfamily: Eupodoidea</b> <b>Family: Euopodidae Koch</b>			
• <i>Eupodes aegyptiacus</i> Abou Awad and El-Bagoury	(Kafr El-Sheikh)	Clover	(+)
• <i>Eupodes moneni</i> Abou-Awad	(Ashmoun)	Clover	(+)
• <i>Eupodes temperatus</i> Shiba	(Demoo)	Wheat	(+)
• <i>Eupodes niloticus</i> Abou Awad and El-Bagoury	(Menouf)	Clover	(+)
• <i>Eupodes</i> sp.	(Ashmoun)	Clover	(+)
• <i>Cocceupodes strandtmanni</i> Abou Awad and El-Bagoury	(Menouf)	Clover	(+)
<b>Superfamily: Tydeoidea</b> <b>Family: Ereynetidae Oudemans</b>			
• <i>Ereynetes</i> sp.	(Menouf) (Tanta) (El-Zagazig) (Sohag) (Kafr El-Sheikh) (Shebein El-Koum) (Ashmoun)	Clover Clover Maize Maize Wheat Wheat Cotton	(+++) (+++) (+++) (+++) (+++) (+++) (+++)
<b>Family: Tydeidae Kramer</b>			
• <i>Tydeus kochi</i> (Oudemans)	(El-Mansoura)	Wheat	(+++)
<i>Paralorryia aegyptiaca</i> (Rasmy and El-Bagoury)	(Ashmoun)	Wheat	(+++)

Table (1): Cont.

Mite species	Locality	Host (s)	Abundance
• <i>Paralorryia bakeri</i> (Zaher and El-Bagoury)	(Hosh Eisa)	Maize	(+)
• <i>Pronematus</i> sp.	(Ashmoun) (Tanta)	Cotton Clover	(+++) (+++)
<b>Superfamily: Bdelloidea</b> <b>Family: Bdellidae Duges</b>			
• <i>Spinibdella bifurcata</i> Atyeo	(Etfieh) Giza El-Mansoura	Clover Wheat	(+) (+)
• <i>Spinibdella tenuirostris</i> Atyeo	(El-Farafra) (Rashid)	Clover Maize	(+) (+)
• <i>Spinibdella cornini</i> Baker and Balock	(Rafah) North Sini	Clover	(+)
• <i>Spinibdella depressa</i> Atyeo	(Rashid)	Maize	(+)
• <i>Spinibdella</i> sp.	(Desouk)	Clover	(+)
• <i>Bdellodes (Hoploscirus) serbentinus</i> Oudemans	(Kafr Hakiem)	Wheat	(+)
• <i>Bdellodes (Hoploscirus) camellae</i> Oudemans	(Sennoris)	Clover	(+)
<b>Family: Cunaxidae Thor</b>			
• <i>Cunaxa capreolus</i> Berlese	(Beni Sweief) (Baltim) (Itay El-Barood)	Wheat Maize Clover	(+) (+) (+)
• <i>Cunaxa nercruzanum</i> Baker and Hoffman	(Baltim)	Maize	(+)
• <i>Cunaxa sitirostris</i> (Hermann)	(El-Mansoura) (Tanta)	Maize Clover	(++) (++)
• <i>Cunaxa</i> sp.1	(Beba) (Ashmoun)	Wheat Clover and wheat	(+) (+)
• <i>Cunaxa</i> sp.2	(Rafah)	Maize	(+)
• <i>Cunaxodes</i> sp.	(Ashmoun)	Wheat	(+)
• <i>Coleoscirus breslauensis</i> (Den Heyer)	(Benha)	Clover	(+)
• <i>Coleoscirus</i> sp.	(Menouf)	Clover and wheat	(+)
<i>Pulaeus niloticus</i> Zaher and El-Bishlawy	(Sids) (Hosh Eisa) (El-Menia)	Clover Cotton Cotton	(+) (+) (+)
• <i>Pulaeus glebulentus</i> Den Heyer	(Ashmoun) (El-Areiesh)	Wheat Maize	(++) (++)
• <i>Pulaeus zaheri</i> El-Bishlawy and Rakha	(Ashmoun)	Wheat	(+)

Table (1): Cont.

Mite species	Locality	Host (s)	Abundance
• <i>Neocunaxoides andrei</i> (Baker and Hofmann)	(Menouf) (Abou Zabaal) (Hosh Eisa) (Tanta)	Clover Clover Cotton Clover	(++) (++) (++) (++)
• <i>Pseudocunaxoides simplex</i> (Ewin)	(Tanta) (El-Farafra) (Hosh Eisa)	Maize Clover Cotton	(++) (++) (++)
<b>Superfamily: Raphignathoidea</b> <b>Family: Raphignathidae</b> <i>Raphignathus ehari</i> Zaher and Gomaa	(Ashmoun)	Clover	(+)
• <i>Raphignathus callrgiatus</i> Atyeo, Baker and Crossley	(Kafr El-Zaiyat) (Baltime) (El-Dalangat) (Abou Zabaal) (Samalot) El-Menia	Clover Maize Clover Wheat Maize	(++) (++) (++) (+) (+)
<b>Family: Eupalopsellidae</b> Willmann • <i>Eupalopsis</i> sp.	(Sohag)	Maize	(+)
<b>Family: Stigmaeidae</b> Oudemans • <i>Stigmaeus africanus</i> Soliman and Gomaa	(Kafr El-Sheikh) (Rashid) (El-Aiat)	Clover Clover Clover	(+) (+) (+)
• <i>Stigmaeus banksi</i> Gomaa and Hassan	(Abou El-Nomros)	Wheat	(+)
• <i>Stigmaeus zaheri</i> Gomaa and Hassan	(El-Wahat El-Baharia) (Edfina) El-Baheira	Clover Wheat	(+) (+)
• <i>Stigmaeus rattus</i> Gomaa and Rakha	(Edfina)	Wheat	(+)
• <i>Apostigmaeus navicolla</i> Grandjean	(Ashmoun)	Wheat	(+)
• <i>Eustigmaeus</i> sp.	(Ashmoun)	Wheat	(+)
• <i>Ledermuelleriopsis dendritus</i> Soliman and Gomaa	(Ashmoun) (Giza)	Clover Wheat	(+) (+)
• <i>Mediolata pentascuta</i> Zaher and Gomaa	(Ashmoun)	Clover	(+)
• <i>Mediolata aegyptiaca</i> Zaher and Soliman	(Gerga) Sohag	Maize	(+)
<b>Family: Caligonelidae</b> Grandjean • <i>Neognathus attiahi</i> Willmann	(Desouk)	Maize	(+)
• <i>Molothrognathus seuis</i> Summers and Scheinger	(Desouk)	Clover	(+)
• <i>Calligonella</i> sp.	(Ashmoun)	Maize	(+)
• <i>Neognathus</i> sp.	(Ashmoun)	Clover	(+)

Table (1): Cont.

Mite species	Locality	Host (s)	Abundance
<b>Family: Barabutiidae</b> • <i>Barbutia</i> sp.	(Tanta)	Clover	(+)
<b>Family: Camerobiidae</b> Southcott • <i>Neophyllobius aegyptium</i> Soliman and Zaher	(El-Sadat City) (Baltime)	Maize Maize	(+) (+)
• <i>Neophyllobius gonzalli</i> Zaher and Gomaa	(Baltime) (El-Sadat City) (Ashmoun)	Maize Maize Cotton	(++) (+) (+)
<i>Neophyllobius citri</i> Soliman and Zaher	(Baltime)	Clover	(+)
• <i>Neophyllobius mangiferus</i> Zaher and Gomaa	(El-Mansoura)	Clover	(+)
<b>Superfamily: Cheyletoidea</b> <b>Family: Cheyletidae</b> Leach • <i>Cheyletus zaheri</i> Hassan and Rakha	(Damanhour)	Clover	(+)
• <i>Cheyletus fortis</i> Oudemans	(Talkha) El-Dakahlia	Wheat	(+)
• <i>Cheyletus trouessarti</i> Oudemans	(Beni Sweief)	Cotton	(+)
• <i>Cheyletus oversor</i> Rohdendorf	(Ashmoun)	Maize	(+)
• <i>Cheyletus cocahumiplensis</i> Baker	(Itay El-Barood) (Benha) (Rashid) (El-Qanater)	Clover Clover Maize Clover	(++) (++) (+) (+)
• <i>Cheyletus badryi</i> Zaher and Hassan	(Ashmoun) (Edfo)	Cotton Maize	(++) (+)
• <i>Cheyletus balogi</i> Volgin	(Ashmoun) (El-Farafra) (Rashid)	Clover Clover Maize	(+) (+) (+)
• <i>Cheyletus eruditus</i> (Shrank)	(Hosh Eisa)	Clover	(+)
• <i>Cheyletus malaccensis</i> Oudemans	(Berker El-Sabaa) (El-Qanater) (Toukh) (Abou Zabaal) (Talkha) (Rashid) (El-Zagazig) (Sherbin)	Clover Clover Clover Wheat Wheat Maize Maize Cotton	(+++) (+++) (+++) (+++) (+++) (+++) (+++) (+++)
• <i>Cheyletomorpha bakeri</i> (Lawrence)	(El-Ariesh)	Maize	(+)
<i>Cheyletomorpha lepidopterorm</i> (Shaw)	(Ashmoun)	Wheat	(+)
• <i>Acaropsis sollers</i> Rhodendorf	(Kafir El-Shiekh) (Toukh)	Cotton Clover	(+) (+)
<i>Acaropsella notchi</i> Gomaa and Hassan	(Beni Sweief) (Toukh)	Maize Cotton	(+) (+)

Table (1): Cont.

Mite species	Locality	Host (s)	Abundance
• <i>Acaropsellina docta</i> (Berlese)	(Ashmoun) (Toukh) (Desouk) (Kafr Hakiem)	Cotton Wheat Wheat Wheat	(++) (++) (++) (++)
• <i>Acaropsellina soller</i> Rhodendorf	(Ashmoun)	Wheat	(++)
• <i>Hemicheyletia congensis</i> (Cunliffe)	(Ashmoun)	Maize	(+)
• <i>Hemicheyletia bakeri</i> (Ehara)	(Benha)	Clover	(+)
<i>Chelotogenes ornatus</i> (canstrini and Fanzago)	(Ashmoun)	Clover	(+)
• <i>Eutogenes africanus</i> Wafaa and Soliman	(Ashmoun) (Sahel Sleem) Assuit	Clover Maize	(+) (+)
• <i>Ker bakeri</i> Zaher and Soliman	(El-Farafra) (Sohag) (Baltime) (Sennoris)	Clover Maize Maize Clover	(++) (+) (+) (+)
• <i>Ker palmatus</i> Muma	(Shebien El-Koom)	Wheat	(+)
• <i>Ker summersi</i> Gomaa and Hassan	(Toukh)	Clover	(+)
• <i>Nodele</i> sp.	(Desouk)	Clover	(+)
Superfamily: Anystoidea Family: Pseudocheyletidae Oudemans			
• <i>Pseudocheyleus</i> sp.	(Shebien El-Koum) (Toukh)	Wheat Clover	(++) (++)
Superfamily: Erythraeoidea Family: Erythraeidae Robbinau- Desvoidy			
• <i>Balaustium</i> sp.	(Tanta)	Wheat	(+)
• <i>Leptus</i> sp.	(Beba)	Wheat	(+)
Superfamily: Trombidoidea Family: Leeuwenhoekiiidae Womersly			
• <i>Leeuwenhoekia</i> sp.	(Ashmoun) (Abou Hammad)	Cotton Cotton	(+) (+)

+ = Rare (1-3 mites)

++ = Moderate (3-9 mites)

+++ = High (more than 9 mites)

## REFERENCES

- Ahmed, M. A.** (1984): Biology of some soil fauna, feeding microorganisms. M.Sc. Thesis, Fac. Agric., Zagazig Univ., pp. 109.
- Ahmed, M. A.** (1998): Biological studies on some species of mesostigmatic mites with species reference to their chemical analysis together with preys. Ph.D. Thesis, Fac. Agric., Cairo Univ., pp. 299.
- Allee, W. C.; A. E. Emerson; O. Park; T. Park; K. P. Schmidt** (1949): Principles of animal ecology. Philadelphia: Saunders.
- Atalla, E. A.** (1961): Studies on the ecology of some selected soil mites M.Sc. Thesis, Wales Univ., pp. 90.
- Bai, X.; G. YiMing; w. Zicun; X. L. bai; Y. M. Gu. and Z. C. Wang** (1996): A new species of the genus *Oloaelaps* (Acari: Laelapidae) from China. Entomotaxonomia, 18 (1): 74-76.
- Baker, E. W. and G. W. Wharton** (1952): An introduction to Acarology. The Mac. Milan Comp. New York, 465pp.
- Baweja, K. D.** (1939): Studies on the soil fauna with special tolerance to the recolonization of sterilized soil. J. Animal Ecol., 8: 120-161.
- Bhattacharrya, S. K.** (1968): Studies on Indian mites (Acarina: Mesostigmata). Six records and description of nine species. Acarologia, 10 (4): 527-549.
- Chant, D. A.** (1965): Generic concepts in the family Phytoseiidae (Acarina: Mesostigmata). Can. Entomol., 97: 351-374.
- Convey, P.; P. Greenslade and P. J. A. Pugh** (2000): The terrestrial microarthropod fauna of the South Sandwich Islands. J. Nat. Hist., 34: 597-609.
- Costa, M.** (1971): Mites of the genus *Pachylaelaps* (B.) (Acari: Mesostigmata: Pachylaelapidae) from litter in Israel. Zool., 20: 253-277.
- Dorgan, D.; K. L. Jain and R. B. Mathur** (1997): Abundance of oribatid mites and their relationship to certain soil factors. Indian J. For., 20 (1): 70-73.
- Edwards, C. A. and J. R. Lofty** (1969): The influence of agricultural practice on soil micro-arthropod population. In: J. G. Sheals (Ed.), the soil ecosystem, London, 237-247.
- El-Badry, E. A.** (1965): Five new species of phytoseiid mites from U.A.R. with collection notes on three other species (Acarina: Phytoseiidae). Indian J. Entomol., 29: 177-184.
- El-Badry, E. A., A. K. Nasr and S. M. Hafez** (1979): Three new mite species of the family Amerosiidae from Egypt (Acari: Mesostigmata). Ain Shams Univ. Res. Bull. 1028: 1-10.
- El-Gazzar, H. F. H.** (2001): Biological and taxonomical studies on mesostigmatid mites. Ph.D. Thesis, Fac. Agric., Al-Azhar Univ., 164pp.
- Farrage, A. M.** (1969): Ecological and Biological studies on some selected species of soil mites in U.A.R. M.Sc. Thesis, Fac. Agric., Cairo Univ., pp. 136.
- Fouly A. H.; C. C. Childers and M. M. Abou-Setta** (1997): Redescription of *Cosmolaelaps simplex* Berlese (Acari: Laelapidae) with notes on its male. Int. J. Acarol., 23 (1): 33-37.
- Hammad, S. M.; M. S. Nasser; S. K. Dunia, and S. K. El-Sawaf** (1975): Studies on the soil insect fauna and other arthropods. Part I. Number and category of the soil animal fauna. Bull. Soc. Ent. Egypt, 59: 201-206.
- Hirschman, W.** (1971): A fossil mite of the genus *Dendrolaelaps* (Acari: Mesostigmata: Digamasellidae) found in amber from Chiapas, Mexico, Univ. Publ. Ent., 63: 69-70.
- Ibrahim, G. A.** (1985): Biological and taxonomical studies on some mites belonging to Superfamilies Eviphidoidea, Ascoidea and Dermanyssoidea. Ph.D Thesis, Fac. Agric., Al-Azhar Univ., pp. 165.
- Kaid, N. A. O.** (1998): Ecological and biological studies on some soil predaceous mites. M.Sc. Thesis, Fac. Agric., Al-Azhar Univ., pp. 66.



- Karg, V. W.** (1961): Okologisch Untersuchungen von edaphischen Gamasiden (Acarina: Parasitiformes). *Pedobiologia*, 1: 77-98.
- Kevan, D. K. and G. D. Sharma** (1963): The effects of low temperature on *Tyrophagus putrescentiae*. *Advances in Acarology*, Cornell Univ. Ithaca, New York, 1: 112-130.
- Kevan, D. K. and G. D. Sharma** (1964): Observation on the biology of *Hypoaspis aculeifer* (Canestrini, 1884) apparently new to North America (Acarina: Mesostigmata: Laelapidae). *Acarologia*, 9 (4): 647-658.
- Krantz, G. W.** (1978): A manual of Acarology. Oregon State Univ. Book Stores. Inc., Corvallis, Oregon. pp. 335.
- Lindquist, E. E. and Evans, G. O.** (1965): Taxonomic concepts in the Ascidae, with a modification in setal nomenclature for the idiosoma of the Gamasina (Acarina: Mesostigmata). *Mem. Ent. Soc. Can.* No. 47.
- Mahmoud, M. A.** (1999): Ecological studies on certain soil fauna in Dakahlia Governorate. M.Sc. Thesis, Fac. Agric., Al-Azhar Univ., pp. 86.
- Mejje-Racamier, B. E. and J. G. Palacios-Vargas** (1999): A new species of *Trachymolgus* (Prostigmata: Bdellidae) from Mexico. *Acarologia*, 30 (2): 165-170.
- Mohamed, M. I.** (1970): Biological studies on the soil inhabiting Bdellid mites *Spinibdella bifurcata* and *Neomolgus* sp. M.Sc. Thesis, Fac. Agric., Cairo Univ., pp. 84.
- Mohamed, M. I.** (1976): The role of soil predaceous mites in Biological control. Ph.D. Thesis, Fac. Agric., Cairo Univ., pp. 174.
- Ragusa, S. and M. A. Zedan** (1985): The effects of food from Plant and animal sources on the predaceous mite *Hypoaspis aculeifer* (Canestrini) (Parasitiformes, Dermapneustidae). *Redia*, 31 (69): 481-487.
- Romieh, Amal H. M.** (2002): Biological, morphological and genetical studies on some predaceous mites and their prey. Ph.D. Thesis, Fac. Agric., Cairo Univ., 208pp.
- Sardar, M. A. and P. W. Murphy** (1987): Feeding tests of grass land soil-inhabiting Gamasine Predators. *Acarologia*, 28 (2): 117-121.
- Smiley, R. L.** (1974): A generic revision of the family Cunaxidae (Acarina). *Ann. Entomol. Soc. Amer.*, 68 (2): 244
- Summers, F. M. and D. W. Price** (1970): Review of the family Cheyletidae. *Univ. Calif. Publ. Entomol.*, 61-152pp.
- Taha, H. A.; M. E. El-Naggar; M. M. Abou EL-Nagga and S. M. Soliman** (1988): Effect of different prey species on the development and fecundity of the predaceous mite, *Neocunaxoides andrei* Baker and Hoff. (Acari: Cunaxidae) *Agric. Res. Rev.*, 66 (1): 129-135.
- Thompson, M.** (1924): The soil population. *Ann. Appl. Biol.*, 11: 349-394.
- Volgin, V. I.** (1989): Acarina of the family Cheyletidae of the world. Leiden. New York. KoBenltvan. Koln, 531pp.
- Walter, D. E. and J. H. Oliver** (1989): *Geolaelaps oreithyiae*, n.sp. (Acari: Laelapidae). Athelytokous predator of arthropods and nematodes, and a discussion of clonal reproduction in the Mesostigmata, *Acarologia*, 30: 293.
- Wood, T. G.** (1967): Acari and collembola of moor land soils from Yorkshire, England. 1. Description of the sites and their populations. *Oikos*, 18: 102-117.
- Yousef, A. A.; A. M. Metwally, M. R. Abbassy and G. A. Ibrahim** (1983): Incidence of parasitoid mites in some localities of Egypt, *Proc. 5th Arab Pesticide Conf. Tanta Univ.*, 3: 313-319.
- Zaher, M. A.** (1986): Survey and ecological studies on phytophagous, predaceous and soil mites in Egypt. II- Predaceous & Non-Phytophagous mites. *E.G. Ars-* 30, Grant No. F. G. E. G., 567pp.

# دراسات بيئية على بعض المفترسات الأكاروسية المتواجدة في تربة

## بعض المحاصيل الحقلية

١- أ.د/ عادل محمود مصطفى ٢- أم.د/ زكية عيسى عشاوي برويش

٣- أ.د/ عبد الستار محمد متولي ٤- سهام علي عز الدين

١-٤- معهد بحوث وقاية النباتات \_ مركز البحوث الزراعية.

٢- قسم علم الحيوان - كلية العلوم \_ جامعة الأزهر - فرع البنات.

٣- قسم الحيوان الزراعي والنيماتودا \_ كلية الزراعة \_ جامعة الأزهر.

### الملخص العربي

تعتبر الآفات الزراعية وإصابتها للمحاصيل الحقلية أهم عوامل الفقد والتلف سواء كان ذلك في الحقل أو خلال عملية الحصاد مما يؤثر على إنتاجية هذه المحاصيل وتعتبر المفترسات الحشرية والأكاروسية من أهم العوامل التي تؤثر على القضاء على هذه الآفات ومكافحتها.

ومن أهم هذه المحاصيل البرسيم والقمح والذرة والقطن. وهذه المحاصيل الحقلية معرضة للإصابة بمختلف الآفات وبالتالي وجود المفترسات الأكاروسية.

لذلك كان من الضروري دراسة هذه المفترسات الأكاروسية بيئياً وذلك للإستفادة منها في مجال مكافحة المتكاملة لهذه الآفات الضارة ولقد استهدفت هذه الدراسة حصر الأكاروسات المفترسة المتواجدة في تربة المحاصيل الحقلية السالفة الذكر والتي قسمت تبعاً لمواعيد الزراعة إلى محاصيل حقلية شتوية (برسيم وقمح) ومحاصيل حقلية صيفية (الذرة والقطن) ، وذلك في المناطق السابق ذكرها خلال الفترة من ١٩٩٩-٢٠٠١م.

وقد أوضحت دراسة حصر الأكاروسات المفترسة في تربة المحاصيل الحقلية وجود أنواع عديدة تابعة لرتبتين هما Parasitiformes وAcariformes حيث وجد تحت الرتبة الأولى تحت رتبة Ga- masida أما الرتبة الثانية فوجدت تحت رتبة Actinedida. وتم حصر ١٤ عائلة تحت الرتبة الأولى وهي: Micrognoiidae, Sejidae, Macro- Ascidae, Parasitidae, Veigaiidae, chelidae, Phytoseiidae, Ologamasidae, Rhodacaridae, Digamasillidae, Uropodidae, Macronyssidae, Laelapidae, Pachylaelapidae.

أما تحت الرتبة Actinedida فقد شملت ١٧ عائلة كالتالي: -Pediculochelidae, Raphignathidae, Cunaxidae, Bdellidae, Tydeidae, Ereyne- nathidae, dae, Eupodidae, Camerobiidae, Barbutiidae, Calligonelidae, Stigmaei- dae, Eupalopsellidae, Leeuwenhoekiiidae, Erthraeidae, Pseudocheylidae, Cheyletidae.

ولقد أوضحت هذه الدراسة وجود ١٦١ نوعاً من الأكاروسات المفترسة في التربة تنتمي إلى ٧٤ جنساً مختلفاً في ٣١ عائلة.