

NEW RECORDS OF SOME MITE SPECIES INHABITING SOIL IN BAGHDAD

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ABSTRACT

The soil acari fauna of *Citrus orchards* of Baghdad in Jadiriya area was studied in a total of forty-eight samples. Twenty-two species were recorded during the present study of which eight species were first records to Iraq. The ordinal composition of the soil acari fauna was predominantly Mesostigmata.

This fauna represents diverse trophic groups. The most abundant groups were the predacious and the Microphytophagus, while the less abundant groups were the predacious/Microphytophagus, Macrophytophagus, and Panaphytophagus. The most abundant and frequent species were *Rhizoglyphus* sp. *Tyrophagus putrescentiae* (Scrank), *Pachylaelaps longisetis* Halbt. and *Stratiolaelaps miles* Berl.

INTRODUCTION

It is well known that the soil arthropoda play an assential part in the biological fertility of soil. Their activity contributes greatly to organic decomposition, the synthesis of humus, the restitution of biogenic element and the stimulation of fungal and bacterial metabolism, the mesofauna which includes subclass acari are involved both directly (Berthet, 1963 and Macfadyen, 1964) and indirectly (Witkamp, 1960) in this process.

The acari fauna of soil has been studied extensively by many workers among them (Ford, 1935; Wies-Fogh, 1948; Sheals, 1957; Block, 1965; Wood, 1967; Longworth, 1977; Curry, 1979; and Luxton, 1983).

Investigation on soil acari fauna in Iraq is scarce. The only work on this fauna that which reported by Mursi *et al.* (1966) from Palms-Citrus orchards and the checklist by Abul-hab (1984).

The main objective of this study is to investigate the soil acari fauna in Baghdad providing more information regarding the checklist of this fauna.

MATERIALS AND METHODS

A total of 48 samples were collected from the soil of *Citrus orchards*, in Baghdad (Jadiriya) over a period of six months from October 1992 to March 1993. All the samples were taken from the top of 10 cm by a steel Core-Sampler with case hardened cutting edge (Macfadyen, 1961). It consisted of a 6.3 cm diameter cylinder narrowing to 5.8 cm at the cutting edge, to avoid compression of soil sample. These samples were individually extracted in the laboratory through a modified Tullgren funnels extractor. The extracted mites were cleared by heating in 50% Lactic acid then mounted in Hoyer's medium on glass slides, and examined under a phase-contrast microscope.

The analysis of soil where the samples were taken showed that it was silty-loam with a relatively high organic matter about 2.2 percentage.

New records of mites

Tale 1: A systematic list of identified mites with their dominancy and frequency of occurrence in soil of *Citrus orchards*.

* Species and genera were first records to Iraqi fauna.

Species	Occurrence %	
	Frequency	Dominancy
ORDER ASTIGMATA		
Family Acaridae		
<i>Acarus sire</i> L.	4.2	1.3
<i>Caloglyphus berlesi</i> (Michael)	8.6	3.1
<i>Rhizoglyphus</i> sp.	33.3	17.7
<i>Tyrophagus</i> sp.	8.5	3.1
<i>Tyrophagus putrescentiae</i> (Schrank)	14.0	10.9
ORDER CRYPTOSTIGMATA		
Family Ceratozetidae		
* <i>Ceratozetes gracilis</i> (Michael)	2.1	0.8
Family Hypochthoniidae		
* <i>Hypochthonius</i> sp.	2.1	0.1
Family Malaconthriidae		
* <i>Malaconthrius</i> sp.	12.5	2.7
Family Oribatulidae		
<i>Oribatula</i> sp.	4.2	2.1
Family Stenoobelbidae		
* <i>Stenobelba</i> sp.	4.5	2.1
ORDER MESOSTIGMATA		
Family Laelapidae		
* <i>Hypoaspis lubrica</i> Voigts & Oudms.	8.6	7.3
* <i>Stratiolaelaps miles</i> (Berl.)	14.2	10.9
Family Macrochelidae		
* <i>Geholaspis</i> nr. <i>longispinosus</i> (Kr.)	2.1	0.6
Family Pachylaelapidae		
* <i>Pachylaelaps longisetis</i> Halbt.	45.8	20.7
Family Parasitidae		
* <i>Holoparasitus pallicipatus</i> (Berl.)	4.2	2.3
* <i>Paragamasus crassipes</i> (Linn.)	2.1	2.4
Family Uropodidae		
* <i>Trematura jacksoni</i> Hughes	2.1	1.2
<i>Urobovella marginata</i> (C. L. K.)	8.5	6.4
ORDER PROSTIGMATA		
Family Bdellidae		
<i>Bdella</i> sp.	2.1	0.2
Family Camerobiidae		
<i>Camerobia</i> sp.	2.1	0.2
<i>Bakerdina</i>	4.2	3.1
Family Tydidae		
* <i>Triphtydeus</i>	2.1	0.8

RESULTS AND DISCUSSION

Twenty-two species of mites were recorded during the present work. Of these 8 species and 4 genera were new records to Iraqi fauna, while the remaining species were previously reported from Iraq (Mursi *et al.*, 1966; Abul-hab, 1984; Mahmood, 1987; and Mahmood and AlDulaimi, 1988). The identified species were classified into different orders, 8 of the recorded species were of the order Mesostigmata, 5 species of each of Astigmata and Cryptostigmata, and the last four species were of Prostigmata (Table 1).

The dominance and frequency of occurrence of these species varied from one species to another, the most common and abundant species were *Rhizoglyphus* sp., *Tyrophagus putrescentiae* (Scrank), *Pachylaelaps longisetis* Halbt., *Stratiolaelaps miles* Berl. The species occurred in 33.3%, 14%, 45.8%, 14.2% and 8.5% of the total samples respectively.

It is recognized from the present results that the acari fauna of soil represents diverse trophic groups (Table 2). The classification of each species into their trophic groups was made by reference to the literature (Krantz, 1978 and Luxton, 1982).

Table 2: The percentage contribution of trophic groups to the total acarina fauna in the soil of *Citrus orchards* with the number of species represented by each group.

Trophic group	% of abundance	Number of species
Predacious	50.8	8
Microphytophagus	44.9	10
Predacious/Microphytophagus	2.8	2
Panaphytophagus	0.2	1
Macrophytophagus	1.3	1

The most abundant group was Predacious, which occurred in 50.8% of the total acari and represented by 8 species. The second most abundant group was the Microphytophagus, which occurred in 44.9% and represented by 10 species. The less abundant groups were the predacious/Microphytophagus, which represented by three species, Macrophytophagus and Panaphytophagus, each of them represented by one species only.

These results could be a reflect of well developed microflora associated with abundant supply of decaying organic matter (animal manure was added regularly to the orchard's soil) and also to the presence of a wide range of preys in the soil particularly Collembola and nematodes, since it were observed in the examined samples in a respectable numbers. Similar phenomenon was reported by Mursi *et al.* (1966) from palm-Citrus orchards and Luxton (1982) from grassland.

The most interesting aspect of this work is the presence of many important predacious mites such as *P. longisetis*, *S. miles*, *H. lubrica* and *U. marginata* in a relatively high numbers. This may have important indirect effects on decomposition process and mineral cycling through their interaction and through litter combination (Witkamp, 1971 and Luxton, 1972).

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دالمغبرفة برلان قتي تا اهلح اعاناض بلقديج بلايجتة

نوحه ووايحة لميهه

يعي ي الخ و الفحة م - دالمغبرفة مالج - حظ م الاب ا ب - دالمغبر - قلمط ا

قنلاخ دا

دالمغبر في تلمنح لبيص خي لم الحاة عمستود للاخن قيرد لجة ط نم ٤٨ مجف .
ت لجد سد ١٢٢ دل خ عو نظرع افق ر للوالحجة لونا ي نا ثم لمهنه قيم القمار .
قبة رتناك *Mesostigmata* هي الشائعة بين اموعات التقسيم لحلم التربة .
تمثل هذه اموعة بمجاميع غذائية واسعة، كانت الاميع *Predacious* و
Microphytophayus الاوسع انشاراً بينما كانت الاميع *Panaphytophagus* و
Rhizoglyphus Tyrophagus Macrophytophagus
.putrescentia, Pachylaelaps longisetis Stratiolaelaps miles