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INCIDENCE OF ECTOPARASITES ASSOCIATED WITH RODENT SPECIES *Mus musculus* L. AND *Arvicanthus niloticus* desmarest.

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ABSTRACT

Three families of ectoparasites associated with wild house mouse were recorded as Macronyssidae, Laelapidae and Dermanyssidae, the first family represented by 4 species i.e *Ornithonyssus bacoti* (Hirst), *Hirstionyssus sp.* , *Steatonyssus sp.* and *Ornithonyssus sp.* , the second was represented by 8 species i.e *Laelaps kegani* , *Laelaps humerata*, *Laelaps thammomys* Tauffeieb, *Laelaps barazzai*, *Laelaps vansomeri* , *Haemagamasus pontiger*, *Hypoaspis sardoa* and *Androlaelaps casalis casalis* and family Dermanyssidae was represented by species (*Dermanyssus gallinae*).

Three species of flea and four species of lice associated with wild house mouse and Nile rate. Five species of mites associated with Nile rat belonging 2 families, family Macronyssidae and family Laelapidae.

INTRODUCTION

Rats and mice not only cause great economic loss but are also vectors of human disease. They harbor at least eleven different species of intestimal pararites that may be transmitted to man, such as tape worms, round worms and trichina worm. They also are the reservoirs for the infective agents of typhus and rat bite fever. Salman and Maher (1979) recorded six species of mites on *A. niloticus* (Desm.) *R. rattus frugivorus* and *R. rattus alexandrinus* in Assiut Governorate. The identified mite specieswere higher on the Nile rate than on the other species.

Gamal-Eldin *et al.*, (1982) surveyed the mite species infesting three different rodents in the region of Alamin in the north western coast. Shoukry (1987) in Ismailia governorate recorded three species of mites as ectoparsites on *R. norvegicus* (Berk.,), *R. rattus* (Linn.) and *N. indica* (Gray and Handwike). El-Kady *et al.*, (1995) recorded four apecies of mite in the suez canal zone. Mourad (1997) collected four mites species from rodent species [(*R. rattus frugivorus*, *R. norvegicus* (Berk.) and *G.gerbillus* (Olivier)] in Ismailia governorate.

In Vietnam, Olson (1969) recorded that *X. chespis* was the commonest rodent flea of which 94 % were harbored by *R. rattus* (Linn). During the dry season *X. cheopis* index at less three fold per month.

Riffaat *et al.*, (1969) recorded that *R. norvegicus* Berk. exhibited the highest general infestation rate and flea index in upper Egypt, where the weather tended to be continental and dry. On the other hand *R. rattus* (Linn.) exhibited a lower infestation rate and flea index. The oriental rat flea *X.*

cheopis proved to be the most dominant species, followed by the carflea *C.felix felix*. The human flea *P. irritanus* has been recorded on *R.norvegicus* Berk., in Upper Egypt and showed minor affinity to infest his rat.

Abdel-Gawad (1979) showed there were two species of fleas parasitizing rodents. Mourad (1997) recorded three fleas species and two lice species on rodents in Ismailia governorate.

The present study is to investigate the incidence of some ectoparasites on rodent species.

MATERIALS AND METHODS

Observation of ectoparasities associated with rodent species on body rodents:

Chloroform was preferably used for killing trapped rodents and ensuring complete anesthesia of ectoparasites. Rodents were individually brushed off on a deep white plate using a relatively hard brush. They were caught upright from the tail with the head directed down wards. The ectoparasites were counted and temporarily preserved in separate labeled vials containing 70 % ethanol. For mounting, these fleas and lice were preserved in 70 % alcohol, they were dehydrated in descending grades of alcohol (50 % and then 30 %) for 15 minutes each change and then transferred to 10 % potassium hydroxide after puncturing the specimens on the ventral side and left overnight until soft parts were dissolved. The specimens were then washed thoroughly in distilled water, slightly acidified with acetic acid to neutralize the alkali and transferred to ascending grades of alcohol, 50, 70, 90 and 96 % each change for 15 minutes and then 2 changes in absolute alchohol for 20 minutes each. The materials were cleared in xylol for 2-3 minutes. Mounting was performed in Canada balsam. Slide were left to dry in an oven at a moderate temperature (40°C).

Mites preserved in 70 % alcohol were directly mounted in modified Berlese medium (Hoyer's) which was prepared according to **Baker and**

Wharton (1959) as follow:

Distilled water..... 50 ml.
Gum Arabic .....30 g.
Chloral hydrate .....200 g.
Glycerine .....20ml.

RESULTS AND DISCUSSION

Ectoparasites associated with rodents.

Ectoparasites associated with wild house mouse. [Table 1]

1-The results illustrated the occurrence of 13 species of mites associated with wild house mouse belonging to family Macronyssidae and order (parasitiformes) as shown in Table (1).

2-Three species of flea associated with Wild house mouse, *Mus musculus* represented by family (pulicidae) and belonging to order (Siphonaptera).

3-Four species of lice associated with Wild house mouse, belonging to 2 order. The first order Mallophaga was represented by one family (Philopteridae) and one species *Virgula meleagridis* while the second order Anoplura was represented by 3 families; each family was represented by one species (Table 1).

Table (1): Ectoparasites (Mites,fleas and lice) associated with wild house mouse Mus Musculus L., during two successive years (2001 and 2002).

Parasites	Order	Family	Species
Mites	Parasitiformes	Macronyssidae	*Ornithonyssus bacoti* (Hirst) *Hirstionyssus sp.* *Steatonyssus sp.* *Ornithonyssus sp.*
		Laelapidae	***Laelaps kegani* (Thurman)** ***Laelaps humerata* (Evans & Till)** *Laelaps thammomys* Tauffeieb *Laelaps barazzai* *Laelaps vansomeri* *Haemagamasus pontiger* *Hypoaspis sardoa* *Androlaelaps casalis casalis*
		Dermanyssidae	*Dermanyssus gallinae*
Fleas	Siphonaptera	Pulicidae	*Hoplopsilus anomalus* Baker *Ctenocepphalus canis* Curtis *Xenopsila cheopis* Roths
Lice	Mallophaga	Philopteridae	*Virgula meleagidis*
	Anoplura	Haematopinidae	*Polyplax spinulosa*
		Pediculidae	Pediculus humanus
		Phthiriidae	*Phthirius pubis* Linn.,

Ectoparasites associated with Nile rate [Table 2].

1-Five species of mites associated with Nile rate belonging to 2 families and order (Parasitiformes), family Macronyssidae was represented by 4 species and family Laelapidae was represented by one species (Table 2).

2-Three species of flea associated with Nile rate, *Arvicanthis niloticus* order (Siphonaptera) and family (Pulicidae). (Table 2).

3-Four species of lice associated with Nile rat, belonging to 2 orders. The first order Mallophaga was represented by one family (Philopteridae) and one species while the second order Anoplura was represented by 3 families, each family was represented by one species (Table 2).

Table (2): Ectoparasites (Mites,fleas and lice) associated with Nile rat *Arvicanthis niloticus* Desm., during two successive years (2001 and 2002).

Parasites	Order	Family	Species
Mites	Parasitiformes	Macronyssidae	*Ornithonyssus bacoti* (Hirst) *Hirstionyssus sp.* *Steatonyssus sp.* *Ornithonyssus sp.*
		Laelapidae	Haemagamasus pontiger
Fleas	Siphonaptera	Pulicidae	*Hoplopsilus anomalus* Baker *Ctenocepphalus canis* Curtis *Xenopsila cheopis* Roths
Lice	Mallophaga	Philopteridae	*Virgula meleagidis*
	Anoplura	Haematopinidae	*Polyplax spinulosa*
		Pediculidae	**Pediculus humanus**
		Phthiriidae	*Phthirius pubis* Linn.,

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الطفيليات المصاحبة للقوارض : فؤيرة المنازل وجرز الحقلى النيلى

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• **الطفيليات المصاحبة لفؤيرة المنازل**

(١)أوضحت النتائج وجود ١٣ نوع من الحلم مصاحبة لفؤيرة المنازل تنتمى لثلاث فصائل ورتبة واحدة :.

١- رتبة الحلم الطفيلى Parasitiformes

* فصيلة Macronyssidae: وسجل منها أربعة أنواع :

(Ornithonyssus bacoti , Hirstionyssus sp. , Steatonyssus sp., Ornithonyssus sp.) .

* فصيلة Laelapidae وسجل منها ثمانية أنواع :

(Laelaps kegani , Laelaps humerata, Laelaps thammomys , Laelaps barazzai, Laelaps vansomeri , Haemagamasus pontiger, Hypoaspis sardoa, Androlaelaps casalis casalis)

* فصيلة : Dermanyssidae وسجل منها نوع :

(Dermanyssus gallinae)

(٢) أوضحت النتائج وجود ثلاثة أنواع من البراغيث مهاجمة لفؤيرة المنازل تنتمى لرتبة Siphonaptera وفصيلة Pulicidae وهذه الأنواع هى :

(Hoplopsilus anomalus Baker , Ctenocepphalus canis Curtis , Xenopsila cheopis Roths).

(٣) أوضحت النتائج أربعة أنواع من القمل مصاحبة لفؤيرة المنازل تنتمى الى رتبتين وأربعة فصائل :

١- رتبة القمل القارض Mallophaga

فصيلة Philopteridae وسجل منها نوع Virgula meleagidis (Linn.)

٢- رتبة القمل الماص Anoplura

- فصيلة Haematopinidae وسجل منها نوع Polyplax spinulosa
- فصيلة Pediculidae وسجل منها النوع Pediculus humanus
- فصيلة Phthiriidae وسجل منها نوع Phthirius pubis

• **الطفيليات المصاحبة لجرز الحقل النيلى**

(١) أوضحت النتائج أيضا وجود خمسة أنواع من الحلم مصاحبة لجرز الحقل النيلى تنتمى الى رتبة واحدة وفصيلتين .

* رتبة الحلم الطفيلى Parasitiformes

١- فصيلة Macronyssidae وسجل منها أربعة أنواع هى :

(Ornithonyssus bacoti , Hirstionyssus sp. , Steatonyssus sp., Ornithonyssus sp.)

فصيلة Laelapidae وسجل منها نوع .Haemagamaus sp

(٢) أوضحت النتائج وجود ثلاثة أنواع من البراغيث مصاحبة لجرز الحقل النيلى تنتمى لرتبة Siphonaptera وفصيلة Pulicidae وهذه الأنواع هى :

(Hoplopsilus anomalus , Ctenocepphalus canis , Xenopsila cheopis).

(٣) أوضحت النتائج أربعة أنواع من القمل مصاحبة لجرز الحقل النيلى تنتمى الى رتبتين وأربعة فصائل :

١- رتبة القمل القارض Mallophaga

فصيلة Philopteridae وسجل منها نوع Virgula meleagidis (Linn.)

٢- رتبة القمل الماص Anoplura

- فصيلة Haematopinidae وسجل منها نوع Polyplax spinulosa
- فصيلة Pediculidae وسجل منها النوع Pediculus humanus
- فصيلة Phthiriidae وسجل منها نوع Phthirius pubis