



Arthropod Parasites of *Rattus Rattus Frugivorus* in Sheep Farming in El-Kawther City, Sohag Region, Egypt

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Abstract

The white bellied rat, *Rattus rattus frugivorus* was infested with various species from arthropoda such as fleas & lice (Insecta) and mites & ticks (Acari), from this studied found that two species of fleas were *Xenopsylla cheopis* & *Pulex irritans* and two of lice was *Haplopleura oenonydis* & *polyplax spinulosa* infested the captured white bellied rat. While The study of ectoparasite from acari show that seven species of mites *Amerosieus* sp., *Ornithonyssus bacoti*, *Dermanyssus* sp., *Rhizoglyphus echinopus*, *Glycyphagus* sp., *Myocoptes* sp., and *Tarsonemus* sp., and two species of hard tick was *Amblyomma* sp., and *Haemophysalis* sp., infested *Rattus r. frugivorus* which captured from the study area.

Key words: *Rattus rattus frugivorus*, fleas, lice, mites, hard tick, white bellied rat.

Introduction

Rodents play an important role in disease transmission by their urine, feces, bite, and ectoparasites. Different disease agents of bacteria, rickettsia, viruses, protozoa and helminthes can be transmitted by rodents to human and animals. Some examples of such diseases are plague, leptospirosis, salmonellosis, rat-bite fever, leishmaniasis, Chagas' disease, Omsk hemorrhagic fever, murine typhus and Lassa fever (Bell *et al.*, 1988) Crimean Congo Hemorrhagic Fever (CCHF theilerios, babesia, anaplasmosis and Ehrlichiosis (Inokuma *et al.*, 2001 & 2003). The close association of commensal rodents with human and domestic animals is a risk factor for transmission of these diseases.

Rodent is considered as the main reservoir host of zoonotic cutaneous leishmaniasis and plague. Knowledge on reservoir host and their ectoparasites will provide a clue for control planning of diseases in a given areas. There are a few documented papers on ectoparasites of rodent different regions (Tajedin *et al.*, 2009). The aim of this study was to determine the species composition and infestation parameters for parasitic arthropods associated with *Rattus r. frugivorus*.

Materials and Methods

The present work was carried out in the experimental station of the Faculty of Agriculture, El-Kawther city, Sohag University during December, 2012 till November.2013. It is located in newly reclaimed area at the Eastern desert area as arid region (15km. East of Sohag Governorate). This area has been planted from along period about (30 years) with isolated patches of vegetables, wheat, Egyptian clover, alfalfa, certain orchards and have a sheep farm, this farm about 5 Faddens, including the crops, buildings of animal sheds and animal food storages. The present work aimed to survey the ectoparasites associated with *rattus rattus frugivorus* in sheep farm.15 wire-box traps were baited and distributed twice every 15 days at 6pm and collected at 7am.

Rodents were collected alive and classified to species and subspecies, male and female of each as well as the distribution frequency of each species (%) was estimated. For collection of ectoparasites, rodents were individually anaesthetized in a jar containing a cotton pad moistened with chloroform then brushed in a deep white plate using a relatively hard brush. After collecting the ectoparasites, they were preserved in plastic tubes containing 70% ethyl alcohol and labeled with necessary information. The ectoparasites were classified as fleas, lice, mites, and ticks from the whole fauna.

Mites were selected and separately isolated in small vials using a camel's hair brush and then counted using stereoscopic binocular microscope. Clearing and preparation of mites were done using lactic acid. Two types of slide preparations were done (i.e., Temporary and Permanent preparations). The two types were used for mites examination of identification. Identification of mites were done using different keys constructed by Hughes (1976), Krantz (1978), Evans (1982) & Zaher (1986 a and b).

Results and Discussion

The white bellied rat, *Rattus r. frugivorus* was infested with various species from arthropoda such as fleas & lice (Insecta) and mites & ticks (Acari), from this studied found that two species of fleas were *Xenopsylla cheopis* & *Pulex irritans* and two of lice was *Haplopleura oenonydis* & *polyplax spinulosa* infested the captured white

bellied rat. While The study of ectoparasite from acari show that seven species of mites *Amerosieus* sp., *Ornithonyssus bacoti*, *Dermanyssus* sp., *Rhizoglyphus echinopus*, *Glycyphagus* sp., *Myocoptes* sp., and *Tarsonemus* sp., and two species of hard tick was *Amblyomma* sp., and *Haemophysalis* sp., infested *Rattus r. frugivorus* which captured from the study areas. Generally, the results of our study are able to provide data on the external parasites so that we can prevent and control of animal diseases in the region. These results were agreed with (Shayan & Rafinejad, 2006; Telmadarraiy *et al.*, 2007; Abo-Elmaged & Desoky, 2013).

Table (1) Survey of *R. r. frugivorus* ectoparasites in farm animals of the Faculty of Agriculture, El-Kawther City, Sohag University, during 2012-2013.

N	Rodents		N	<i>R. r. frugivorus</i>
	Ectoparasites			
1	Fleas		1.1	<i>Xenopsyllae cheopis</i>
			1.2	<i>Pluex irritans</i>
2	Lice		2.1	<i>Haplopleura oenonydis</i>
			2.2	<i>Polyplax spinulosa</i>
3	Mites	Mesostigmata		
		3.1	<i>Ameroseiidae</i> <i>Amerosieus</i> sp.	
		3.2	<i>Dermanyssidae</i> <i>Ornithonyssus bacoti</i>	
		3.3	<i>Dermanyssus</i> sp.	
		Astigmata		
		3.4	<i>Acaridae</i> <i>Rhizoglyphus echinopus</i>	
		3.5	<i>Glycyphagidae</i> <i>Glycyphagus</i> sp.	
		3.6	<i>Listrophoridae</i> <i>Myocoptes</i> sp.	
Prostigmata				
3.7	<i>Tarsonemidae</i> <i>Tarsonemus</i> sp.			
4	Ticks		Ixodidae	
			4.1	<i>Amblyomma</i> sp.
		4.2	<i>Haemophysalis</i> sp.	

Conclusion

The aim of this study was to determine the species composition and infestation parameters for parasitic arthropods associated with *Rattus r. frugivorus*. Because of the role of some rodent ectoparasites, such as certain ticks and fleas, as vectors of zoonotic pathogens, and the reservoir potential of certain rodents for these pathogens, it is important to document host parasite associations and infestation parameters for parasitic arthropods infesting rodents.

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