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## A Study on Ectoparasites Associated on the White Bellied Rat, *Rattus rattus frugivorus* Captured from the Houses at Sohag Region, Sohag Governorate, Egypt

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### Abstract

The present study was carried out to study ectoparasites infesting the white bellied rat, *Rattus rattus frugivorus* captured from the houses at Sohag region, Sohag Governorate, Egypt. The results showed that found two species of mites *Ornithonyssus bacoti* & *Dermanyssus sp.*, infested the white bellied rat which captured from the study area. Also, the study of ectoparasites from insects show that two species of fleas were *Xenopsylla cheopis* & *Pulex irritans* and two of lice was *polyplax spinulosa* & *Haplopleura oenonydis* infested the captured rats.

**Keywords:** *Rattus r frugivorus*; *Dermanyssus sp*; *Ornithonyssius bacoti*; *Xenopsylla cheopis*; *polyplax spinulosa*

### 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 [1]. 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 [2]. The aim of this study was to identify for external parasite species on *Rattus r. frugivorus* captured from the houses.

### Materials and Methods

#### Study Area

The present study was carried out to study ectoparasites infesting the white bellied rat, *Rattus rattus frugivorus* captured from the houses at Sohag region, Sohag Governorate, Egypt.

#### Rat Capturing and Classification

The method of [3] was adopted by using locally made metal traps (live trap) to capture the rats. Traps were baited with

Vegetables, bread. Traps were placed in rodent activity areas such as kitchens, corridors, etc. The rats were transported to the laboratory in perforated metal boxes to provide good ventilation and allow conducive environment for the animals in transit. Rats were identified and classified to specie level using the method of [4]. The study was carried out using fifty rats (*Rattus rattus frugivorus*) during 2019 from February till October. It is the period of rodent activity during the year.

#### Survey for Ectoparasites

The ectoparasites study was carried out using the method of [3]. Captured rodents were subjected to euthanasia under diethyl ether anesthesia. The unconscious rats were placed on a clean white tile. Starting from the head to the neck, trunk and the tail, ectoparasites were dislodged from the rats body by brushing with the aid of hand brush onto cotton wool soaked in formalin. Visible ectoparasites such as ticks that could easily be removed without brushing were removed with a pair of forceps. The ectoparasites recovered were preserved in specimen bottles containing 70% alcohol, the parasites were sorted and transferred to the microscope slide for identification. Identification of mites and ticks was done using different keys constructed by Hoogstraal and Kaiser, Zaher & Evans [5-8].

#### Results and Discussion

Data in Table 1 showed that found two species of mites *Ornithonyssus bacoti* & *Dermanyssus sp.*, infested the white

bellied rat which captured from the study area. Also, the study of ectoparasites from insects show that two species of fleas were *Xenopsylla cheopis* & *Pulex irritans* and two of lice was *polyplax spinulosa* & *Haplopleura oenonydis* infested the captured rats. Results similar with Vatandoost & Telmadarraiy [9,10]. Found that Most medically important rodents belong to the families of muridae and the cricetidae. Rodents play a role in many diseases, such as plague, transmitted by the rat flea *Xenopsylla cheopis* and Weil's disease, a severe form of leptospirosis transmitted via infected rat urine. Dada [11] showed that This study has shown that infestation of rodents by ectoparasites is of serious zoonotic importance. Rodent and rodent-borne parasites may become more serious in human population, zoonotic transmission of these rat-borne parasites are exacerbated in communities where standards of environmental and personal hygiene are not maintained.

**Table 1:** Types of external parasites identified on *Rattus rattus frugivorus*.

Rat Ectoparasites	Species
Lice	<i>Polyplax spinulosa</i>
	<i>Haplopleura oenonydis</i>
Fleas	<i>Xenopsylla cheopis</i>
	<i>Pulax irritans</i>
Mites	<i>Ornithonyssus bacoti</i>
	<i>Dermanyssus sp</i>

### Conclusion

Infestation of the white bellied rat, *Rattus rattus frugivorus* with various types of external parasites (lice, fleas and mites). These parasites may transmit some common diseases to humans or animals. From these results, an integrated control program for the white bellied rat must be established inside the houses..

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