



DETECTION OF INTESTINAL PARASITES IN LABORATORY ANIMALS (RATS AND MICE)

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ABSTRACT

Across section study was conducted on intestinal parasites of laboratory animals from November 2015 to March 2016 in Animal houses of the college of science in Thi –Qar University. The present study were carried out on the total of 100 laboratory animals which 50 mice and 50 rats, out of the 100 fecal samples examined by sedimentation test in which the overall prevalence with different types of intestinal parasites was 66% of which 68% for rats and 64% for mice there were no significant deferent between those animals. The result showed that most of infections were with 50% single parasites, followed by double parasites 37.5%, regarding triple infections there were 12.5%, parasites were identified in the present study as: *Nyctotherus muris* with the higher incidence of 25%, followed by *Trichomonas muris* 23%, *Giardia muris* 20%, *Entamoeba muris* 17%, *Hymenolepis SPP* 9% and the least infection *Chilomastix* 5%. The present study indicated that laboratory animals in the animal house were infested with intestinal parasites Therefore, the animal house should be concerned to handle laboratory animals with care and personnel working with laboratory animals should aware the risk of parasitic zoonosis from these animals.

KEYWORDS: Intestinal Parasites, animal house (rats and mice), Laboratory animals, Naseryia city.

INTRODUCTION

Laboratory animal have contributed greatly to our knowledge of biological structure and function and are essential tools in training and biomedical research (Pam et al, 2013). They are used for the diagnosis of infective diseases, in the production of sera, vaccines and other biological substances of public health and veterinary importance, they are also used extensively in the safety evaluation of different therapeutic drugs, in broad variety of biological investigations and foods chemicals (Clark et al, 1997).

Experimental animals can get infected by many diseases and results in consequent loss of money, time and research effort. They kept captivity in cages consequent become prime target for parasites infection if appropriate preventive measures are not practiced (Anne., 2009; Medeiros, 2012). Among the commonly used experimental animals includes rabbits, rat, mice, guinea pig.

Intestinal parasites are parasites that populate the gastrointestinal tract of animals. They can live throughout the body, but prefer the intestinal wall or coelom. These intestinal parasites include protozoa,

cestodes, nematodes and trematodes. Some enteric parasites causes serious destruction to the laboratory animals as they lead to intestinal perforation, peritonitis enteritis, ulceration, diarrhoea, constipation, abdominal distension chronic weight loss and may lead to death (Pam et al, 2013).

MATERIALS AND METHODS

Sample collection

Total 100 sample fasces were collected from laboratory animal and by fasces sample for each the mice and rats for the period from November 2015 to March 2016 from the animal house of the college of science from Thi-Qar university.

Examination of samples

Samples were examined to investigation the cysts and trophozoites of protozoa and eggs of helminthes were examination using sedimentation by the way paniker (2007).

RESULTS

Across section study was conducted on intestinal parasites of laboratory animals from November 2015 to March 2016 in Animal houses of the college of science

in Thi –Qar University. The present study were carried out on the total of 100 laboratory animals which 50 mice and 50 rats, Out of the 100 fecal samples examined by sedimentation test in which the overall prevalence with different types of intestinal parasites was 66% of which 68% for rats and 64% for mice there were no significant deferent between those animals .Although high

percentage of infection in rats 68% than mice 64%. Table (1).

Table: (1) Results of detection of Intestinal parasites in faces of laboratory rats and mice

Animals	Number of samples	Positive		Negative	
		N	%	N	%
Rats	50	34	68%	16	32%
Mice	50	32	64%	18	36%
Total	100	66	66%	34	34%
Statistical Analysis	Chia square=0.17 P=0.677				

The result showed that the overall rate of infection with different parasite was 66%, most of infections were with 50% single parasites, followed by double parasites 37.5%, regarding triple infections there were 12.5%, in

mice while the infection were with 61.7% single parasite followed by double parasite 38.2% and triple infection there was 0% in rats. Table (2).

Table (2): Single, Double and Triple infection with intestinal parasite among laboratory Rats and Mice

Type of infection Animals	Single		Double		Triple		Total	
	N	%	N	%	N	%	N	%
Rats	21	61.7%	13	38.2%	0	0%	34	68%
Mice	16	50%	12	37.5%	4	12.5%	32	64%
Total	37	37%	25	25%	4	4%	66	66%

The present result showed that the highest rate of infections was with *Nyctotherus muris* and the lowest rate of infections was with *Chilomastix* in both rats and mice. The highest rate infection in rats was with

Trichomonas muris and the lowest rate of infection was with *Hymenolepis spp* while in mice the highest rate infection with *Nyctotherus muris* and the lowest rate infection with *Chilomastix*. Table (3).

Table (3): prevalence of Intestinal parasites among Examined laboratory Rats and Mice.

Lab. Animals Enteric Parasites	Rats		Mice		Total	
	N	%	N	%	N	%
<i>Giardia muris</i>	6	17.6%	14	43.7%	20	20%
<i>Entamoeba muris</i>	8	23.5%	9	28.1%	17	17%
<i>Trichomonas muris</i>	15	44.1%	8	25%	23	23%
<i>Nyctotherus muris</i>	10	29.4%	15	46.8%	25	25%
<i>Hymenolepis spp</i>	3	8.8%	6	18.7%	9	9%
<i>Chilomastix</i>	5	14.7%	0	0%	5	5%

DISCUSSION

The study was carried out on the total of 100 laboratory animals which 50 mice and 50 rats, out of the 100 fecal samples examined in which the overall prevalence with different types of intestinal parasites was 66%. This result indicated high prevalence in intestinal parasites in laboratory animals. The results of the present survey were not too different from those obtained in the past in other countries by Casebolt *et al.*, (1988) and Glioli *et al.* (2000). Parasites infect laboratory mice and rats worldwide at high prevalence and usually highly contagious infection proceeds without symptoms unless heavy infection occurs (Baker, 1998). However, these infections have several effects on biological experiments,

specially altering blood parameters, immune responses, radiation and nutritional studies making some experimental results invalid (Ito, 1982).

The result showed that the overall rate of infection with different parasite was 66%, most of infections in mice were with 50% single parasites, followed by double parasites 37.5%, Regarding triple infections there were 12.5%, while in rats the infection were with 61.7% single parasite followed by double parasite 38.2% and triple infection there was 0%.

The results in this study indicated that the highest rate in single infection with intestinal parasites in both rats and mice.

As expected, the prevalence of parasite infections were due to the mixing of several species from different breeders in the same room under conventional conditions, the absence of a quarantine program and effective sanitary barrier systems able to keep animals under controlled (Rehg and Toth, 1998).

The present result showed that the highest rate of infection was with *Nyctotherus muris* and the lowest percentage of infection was with *Chilomastix* in both rats and mice, whereas the highest rate infection in rats was with *Trichomonas muris* and the lowest rate infection was with *Nyctotherus muris* and the lowest rate infection with *Chilomastix*. This result agreement with study done by *Rahemo et al.*, (2012) showed that the higher rate in rats was reported for *Trichomonas muris*, is exactly in agreement *Bicalho et al.*, (2007), which is not in agreement with the result of *Gilioli et al.*, (2000) *Entamoeba muris*. while was disagreement with study done in Iraq by *Ali and Jabber*, (2006), showed that the lowest rate infection with *Nyctotherus muris*. This result may be due to these hosts highly infection with protozoa such as *Nyctotherus*, *Trichomonas*, *Entamoeba*, and *Chilomastix* have been considered as commensal agent as they are not related to alteration of animals health or interferences in experimental results (*Rahemo et al 2010*).

Most *Nyctotherus* are parasites in the intestine of various invertebrates (*Bhamare et al.*, 2013).

This laboratory animals infection with deferent enteric parasites the highest prevalence for class protozoa may be due to present infective stages (cysts or trophozoites) which they ingest infective cysts in contaminated food or water while lowest prevalence for class Platyhelminthes.

Due to the existence of *Nyctotherus muris* on rats and mice in the studied area, more studies are needed to evaluate the way of their transmission and disease productions.

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