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ROLE OF RODENTS AS A RESERVOIR OF SOME ENTERIC PARASITES (With One Table)

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دور القوارض كحاملات لبعض الطفيليات المعوية

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تم جمع ١٣٠ فأرا من أنواع مختلفة (٧٠ فار منزلي ، ٢٦ فار نرويجي ، ٢٤ فار حقلي) من أماكن في محافظتي البحيرة والاسكندرية وفحصت لوجود بعض الطفيليات المعوية. كما لوحظ أن هذه القوارض حاملة لبعض الطفيليات المعوية مثل الهينيموليس داي منيوسه ونانا بنسبة ١٥,٢٨% ، ١٣,٨٤% على التوالي كذلك وجد أن نسبة حويصلات كل من الانتيبيبا هتولينكا، الجيارديا لاميلا كانت ٢٨% ، ٢٨% على التوالي وكانت نسبة حويصلات الكريبتوسبورديوم ٦% بينما في كل من الفار المنزلي والفار النرويجي ٧% ، ٦% على التوالي بينما لم يعزل هذا الطفيل من الفار الحقلي . ولقد نوشت الأهمية الصحية لكل طفيل بالنسبة للإنسان والحيوان .

SUMMARY

Hundred thirty rats of different species (70 *Rattus rattus*, 36 *Rattus norvegicus* and 24 *Arvicanthus neloticus*) were trapped from different localities at Behera and Alexandria governorates and examined for the presence of some enteric parasites.

Hymenolepis diminuta, *Hymenolepis nana*, *Entamoeba histolytica*, *Giardia Lambila* cyst and *Cryptosporidium* oocyst were detected at a rate of 15.38, 13.84, 3.1, 5.38 and 4.6% respectively.

The public healthly important of each parasite for both man and animal was discussed.

INTRODUCTION

Rodents are widely distributed throughout the world and account for about 40% of the mammals living of the present time (WHO, 1972). In the last years, rodents population has markedly increased in number in Egypt (MORSY *et al.*, 1980).

Excluding the role of rodents in the different economic losses they produce, they are responsible for transmitting bacterial, viral, rickettsial and parasitic diseases. The world wide distribution and public health importance of parasitic diseases infesting rodents have attracted the attention of several investigations (CHANDLER and READ, 1961; LEE and LEE, 1966; ARAFA, 1968; SCHAFFICA *et al.*, 1981; TOSSON *et al.*, 1981; EL-MASRY *et al.*, 1985 and EL-SOKKARY & HEIKHEL, 1986).

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The purpose of the present work is to illustrate the role of rodents as reservoir of some enteric parasites.

MATERIAL and METHODS

Hundred thirty rodents were trapped alive from Alexandria and Behera governorates. The Captured rodents were identified according to KAMEL (1958) and anaesthetised by chloroform vapour. Each rodent was dissected and its intestine extracted and split open in a wide petri-dish full of saline. The contents were thoroughly examined for adult *Hymenolepis* spp. Smears from different parts of the intestine were taken, some of them were mixed with saline and iodine solution for direct microscopical examinations while others were dried in air and fixed with methanol then stained by modified Ziehl-Neelson technique (HENRIKSEN and POHLELNZ, 1981) for *Cryptosporidium* oocysts. Other smears were stained with Heidenhim's iron haematoxylin for *Entamoeba* and *Giardia* stages.

RESULTS

Presented in Table (1).

DISCUSSION

The results presented in Table (1) revealed that the total incidence of *Hymenolepis diminuta* eggs in the examined rodents were 15.38%. These results are higher than those obtained by SCHAFICA *et al.* (1981) and EL-MASRY *et al.* (1985) however, lower than those obtained by ABOU'SHADDY *et al.* (1983) and EL-SOKKARY and HEIKEL (1986) and nearly similar to the results obtained by KAOUD *et al.* (1983).

These variations may be attributed to the climatic conditions which including temperature and relative humidity prevailing in such areas. Moreover, *Hymenolepis nana* eggs were detected at a rate of 13.84% in the examined rodents (Table 1) which is nearly similar to the results obtained by EL-MASRY *et al.* (1985) and lower than the results obtained by ARAFA (1968), KAOUD *et al.* (1983) and EL-SOKKARY & HEIKEL (1986) however, MONIB (1980) detected *Hymenolepis nana* in the examined rodents without mentioning their incidence percentage. Regarding the public health importance of both *Hymenolepis diminuta* and *Hymenolepis nana*, RIELY (1920) and EL-MASRY (1985) detected both types in children and considered, rodents faeces as a main source of human infestation.

Entamoeba histolytica cysts were detected at an incidence of 3.1% (Table 1) in the examined rodents which is higher than those obtained by EL-MASRY *et al.* (1985) and lower than that obtained by TOSSON *et al.* (1981) however, OMAR (1976) could not detect *Entamoeba histolytica* in the examined rats. Concerning the public health importance, NEAL (1950) stated that rodents play a prominent role in the transmission of amoebic dysentery to man. On the other hand, WHO (1979) reported that

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Table (1): Showing the number and types of rodents as well as the type of enteric parasites in the examined rodents.

Type of rodents	No.	Type of Parasites					
		<u>H. dimenuta</u>	<u>H. Nana</u>	<u>G. lamblia</u>	<u>Entam. hist.</u>	<u>Cryptosp. spp.</u>	
		+ve	%	+ve	%	+ve	%
RRR	70	18	25.7	14	20	5	7.1
RRN	36	1	2.8	3	8.3	2	5.6
AN	24	1	4.17	1	4.17	-	-
Total	130	20	15.38	18	13.84	7	5.38
						4	3.1
						6	4.6

RRR : <i>Rattus rattus</i> <i>rattus</i>	H : <i>Hymenolepis</i>
RRN : <i>Rattus rattus</i> <i>noveboracicus</i>	Entam. hist: <i>Entamoeba histolytica</i>
AN : <i>Arvicanthus neotomicus</i>	Cryptosp. <i>Cryptosporidium</i>
	G : <i>Giardia</i>

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the infestation with Entamoeba histolytica may be hazard for persons dealing with animals and rodents. On the other hand, Entamoeba histolytica cysts were detected in the examined Rattus rattus and Rattus norvegicus at an incidence of 4.3 and 2.8%, respectively. However, these cysts could not be detected in the examined Arvicanthus neloticus (Table 1).

Giardia lamblia cyst was present in the examined Rattus rattus norvegicus only at an incidence of 5.6% which is nearly similar to those reported by EL-MASRY et al. (1985).

Cryptosporidium oocysts were observed in the stained faecal smears of both Rattus rattus and Rattus rattus norvegicus at a rate of 5.7% and 5.6%, respectively (Table 1). The specificity of the mammalian species of cryptosporidium is not known (Grant et al., 1980). The possibility of cross infestation between rodents and man with cryptosporidium need further investigations.

Generally, the presence of rodents constitute a complex economic and public health problems. So, rat proofing measures in human being and animal buildings and the maintenance of sanitary measure together with the mechanical, chemical and biological destruction of rodents are essential.

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