First record of *Plagiorchis muris*Tanabe,1922 from black rat *Rattus rattus* in Qarmat Ali, Basrah,Iraq

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Abstract:

During the period from March till May 2004 a total of 20 black rats *Rattus rattus* were collected from Qarmat Ali ,Basrah .About 15% of these rats were found infected with digenetic trematode *Plagiorchis muris.* Full description ,measurements and a comparison with other studies in the world were given.The presence of this trematode in the present study is considered a first record in Iraq.

Introduction:

The rodents, particularly those living in close association with man , play a significant role of human health (Stojcevic,*et al*.,2004); its act as definitive and/or intermediate hosts of many endoparasites including helminthes with zoonotic potential (Ito and Itagaki,2003).Many of studies were carried out on rodent parasites in the world ,in contrast a few of those were carried out in different parts of Iraq. Two studies were done in Basrah province, Al-Hadithi *et al*.(1985) collect 50 of Norway rats *Rattus norvegicus* from center of Basrah and five helminthes recorded, three of cestode and two of nematode. Al-Zihiry (2002) collect 450 small mammals from many localities in Basrah province and he record two of trematodes from genus *Echinostoma* in black rats *R.rattus* and *R.norvegicus*. The aim of present study was to identify the main helminthes of *R.rattus* in Qarmat Ali, Basrah.

Materials and Methods:

A total of 20 specimens of black rats *Rattus rattus* (Rodentia) were collected from Qarmat Ali, Basrah during the period from March till May 2004 using number of live traps. The animals were dissected and their guts were opened in

petridishes contain normal saline and examined for helminthes on dissecting microscope. The recovered trematodes were flattened, fixed in 70% ethanol, stained with semichon acid carmine, dehydrated in ethanol, cleared in toullene and mounted on clean slides with Canada balsam (Garcia and Ash,1979).The measurements were taken by ocullar micrometer of Olympus microscope and adult trematodes were drawn by camera lucida.Yamaguti (1958) and Seo *et al*.(1964) were depended to identify these trematodes.

Results:

Eighteen specimens of Plagiorchis muris Tanabe, 1922 were isolated from the small intestine of three 15% black rat Rattus rattus with intensity of infection equal to 6.

Description : (All measurement was in millimeters which based on three specimens) Fig.1

Body elongate with spinose cuticle in interior half of body, 1.029 to 1.784 long by 0.315 to 0.415 wide in widest area at the level of ventral sucker. Oral sucker spherical, 0.124 to 0.166 in diameter. Pharynx muscular, 0.060 to 0.075 long by 0.042 to 0.060 wide. Esophagus short, bifurcation in two branches(Ceca)extending to posterior end of the body. Ventral sucker spherical, 0.100 to 0.130 in diameter and located in one third of body at the distance 0.350 to 0.550 from interior end of body. Testes oval, tandem, lying in posterior half of body. Interior testis at the right side of median line, 0.182 to 0.200 long by 0.150 to 0.160 wide. Posterior testis at the left side of median line, 0.180 to 0.210 long by 0.140 to 0.152. Cirrus sac elongate, located between ventral sucker and cecal branches and extends to level of ovary, 0.300 to 0.420 long by 0.060 to 0.080 wide.

Seminal vesicle is lying in posterior part of cirrus sac. Ovary spherical, located in the right side of median line beyond the ventral sucker, 0.112 to 0.130 in diameter. Vitteline glands follicular, lateral, extending from the pharynx level to posterior end of body. Uterus is in (S) shape and located in restricted area between end of ventral sucker and level of posterior testis. Egg oval, 0.030 to 0.032 long by 0.014 to 0.020 wide.

Host: Rattus rattus

Location: small intestine

Locality: Qarmat Ali, Basrah

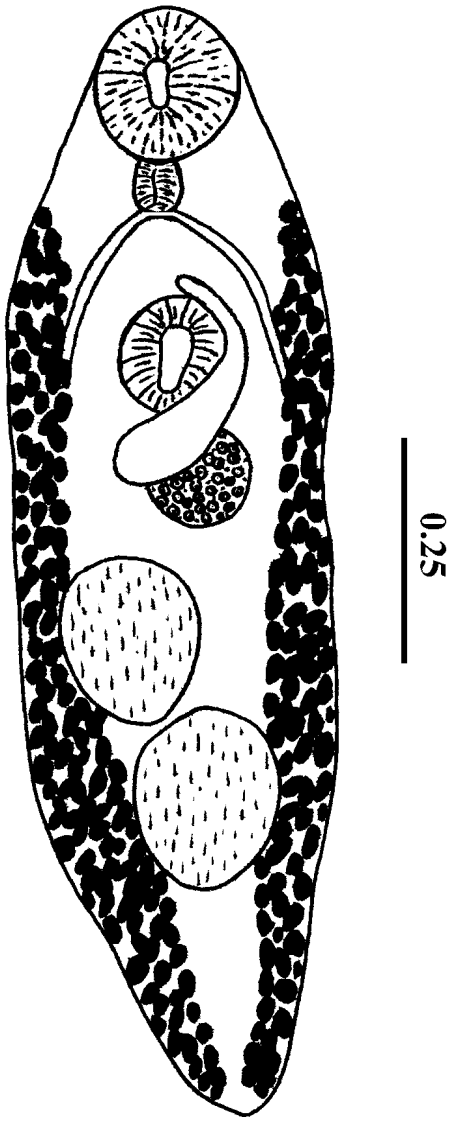

Fig. (1) : Adult of *Plagiorchis muris* , ventral view

Discussion:

The finding of trematode *plagiorchis muris* in the present study is considered as a first record in Iraq, while its recorded by Seo *et al*.,(1964) from *Apodemus agrarius* and *Rattus rattus* in Korea, its isolated in Taiwan by Fischthal and Kuntz (1975) from small intestine of *R. rattus*. In India Gupta and Jahan (1978) isolate the trematode from small intestine of *Crocidura* sp., through the study carried out in urban, rural residential and other ecological areas of Nigeria, these trematode was collected from *R.rattus* (Udonsi,1989), moreover its reported by Ito and Itagaki (2003) parasitizing in small intestine of *A.speciosus* in Japan. The measurments of the present specimens are similar to those taken by Seo *et al*.,(1964) and Ishimoto (1974) with some differences but its differents from measurments of the specimens isolated by Gupta and Jahan (1978) from *Crocidura* sp. (tab.1). These differences

can be attributed to the abnormal host (*Crocidura* sp.) to these trematode.Tanabe (1922) was the first how described this trematode in both *R.rattus* and *R.norvegicus* of Kyoto, Japan and he report that the snails *Lymnaea pervica* and *Stagnicola emarginata* were served as a first intermediate hosts.The second intermediade hosts are aquatic insects, such as mosiquito larvae, insect naiads, freshwater snails and freshwater fishes (Asada *et al*.,1962;Komiya,1965).Recently,six species of dragonflies were reported that infected with *P. muris* metacercariae and detected as a second intermediate hosts for this trematode (Hong *et al*., 1999). *P. muris* is the unique member of the family plagiorchidae is known as zoonotic pathogen by human infection (Lee *et al*., 2004). Several cases of human infection by this trematode were reported in parts of world, especially in Asia ,from this infections, 500 cases were recorded in Korea (Hong *et al*.,1996; WHO,2002).Experimental infection were carried out with these trematode on human in Michigan when 150 metacercariae were ingested. On the ninth day after the initial infection the first eggs (0.038 x 0.019) in morula stage were found in the stool, the egg production were reached to 74.700 egg per day on the seventeenth day after infection, the pathological nature were detected in these study (Mcmullen,1936).

Table (1): The comparison measurments of *plagiorchis muris* in present study and other studies

	Present study *Rattus rattus*	Seo *et al*.,1964 *R.rattus, A.agrarius*	Ishimoto, 1974 *Clethrionomys rufocanus, Apodemus argenteus, A. speciosus*	Gupta and Jahan,1978 *Crocidura* sp.
Body				
Long	**1.029-1.784**	**1.460-1.770**	**1.40-1.89**	**2.870**
Wide	**0.315-0.415**	**0.364-0.448**	**0.38-0.51**	**0.900**
Oral sucker				
Long	**0.124-0.166**	**0.154-0.168**	**0.147-0.207**	**0.220**
Wide	**in diameter**	**in diameter**	**in diameter**	**0.270**
Pharynx				
Long	**0.060-0.075**	**0.066-0.084**	**0.079-0.105**	**0.160**
Wide	**0.042-0.060**	**0.076-0.084**	**0.058-0.084**	**in diameter**
Ventral sucker	**0.100-0.130 in diameter**	**0.154-0.168 in diameter**	**0.126-0.172 in diameter**	**0.330 in diameter**
Location of ventral sucker from interior end	**0.350-0.550**	**0.420-0.644**	**One third**	**0.700**
Cirrus sac				
Long	**0.300-0.420**	**0.350-0.396**	**0.51-0.60**	**0.550**
Wide	**0.060-0.080**	**0.059-0.070**	**0.089-0.092**	**0.060**
Interior testis				
Long	**0.182-0.200**	**0.182-0.266**	**0.14-0.24**	**----------**
Wide	**0.150-0.160**	**0.168-0.238**	**in diameter**	
Posterior testis				
Long	**0.180-0.210**	**0.224-0.280**	**0.14-0.24**	**0.520**

Wide	0.140-0.152	0.154-0.210	in diameter	0.460
Ovary				
Long	0.112-0.130	0.154-0.210	0.10-0.18	0.240
Wide	in diameter	0.154-0.196	in diameter	0.280
Eggs				
Long	0.030-0.032	0.030-0.033	0.033	0.030-0.040
Wide	0.014-0.020	0.020-0.023	0.021	0.012-0.020

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تسجيل جديد للمثقوبة *plagiorchis muris* من الجرذ الأسود *Rattus rattus* في منطقة كرمة علي ، البصرة ، العراق

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الخلاصة

جمع 20 جرذ اسود *Rattus rattus* خلال الفترة من شهر اذار ولغاية نهاية شهر ايار عام 2004 من منطقة كرمة علي في محافظة البصرة وقد وجد ان 15% منها مصابة بالمثقوبة ثنائية المنشأ *Plagiorchis muris* .أعطي الوصف والقياسات الكاملة للمثقوبة وعملت مقارنة لقياسات الدودة المعزولة مع اخرى في دراسات سابقة اجريت في العالم . يعد وجود هذه المثقوبة في الدراسة الحالية هو التسجيل الأول لها في العراق .