

Short Communication / Kısa Bilimsel Çalışma

Gastro-intestinal helminths of wild rats (brown rat-*Rattus norvegicus*, Berkenhout 1769) in Samsun, Turkey

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Summary: This study was carried out to determine the gastrointestinal helminths and their prevalence in the wild rats. For this purpose 34 wild rats were necropsied, and, 27 out of 34 were found infected. Prevalence of helminths were as follow *Strongyloides ratti* (79.41%), *Heterakis spumosa* (79.41%), *Hymenolepis diminuta* (35.49%) and *Nippostrongylus brasiliensis* (20.59%).

Keywords: Helminth, Samsun, Turkey, wild rat

Türkiye’de (Samsun) yabani sıçanlarda (*Rattus norvegicus*, Berkenhout 1769) bulunan mide-bağırsak helmintleri

Özet: Bu çalışmada yabani sıçanlarda bulunan gastro-intestinal helmintler ve bunların yayılışı araştırılmıştır. Bu amaçla 34 yabani sıçanın nekropsi incelemesi yapılmış, bunların 27’si enfekte bulunmuştur. Enfekte hayvanlarda *Strongyloides ratti* (%79.41), *Heterakis spumosa* (%79.41), *Hymenolepis diminuta* (%35.49) ve *Nippostrongylus brasiliensis* (%20.59)’e rastlanmıştır.

Anahtar sözcükler: Helmint, Samsun, Türkiye, yabani rat.

Rats are raised as laboratory animals and used as experimental animals for many scientific studies for years. In order to maintain reasonablity of the study, rats that are not infected by any parasites is preferred to be used (2). Because of the high morbidity in helminth infection in rats, a good treatment and control program should be applied (1,6).

There are many studies about helminths of laboratory animals (3,4, 7,12,15), compare a few in wild rats (9,11).

The aim of the present study is to determine the prevalence of gastro-intestinal helminths of natural infected wild rats in Samsun, Turkey.

This study was performed on 34 wild rats (*Rattus norvegicus*, Berkenhout, 1769) between 2007 and 2008. Gastro-intestinal (GI) systems of the wild rats were examined for helminths.

Wild rats were caught via traps that were set out at Unit of Experimental Animals, Ondokuz Mayıs University, Samsun within the framework of pest control. The caught rats were numbered and brought to the laboratory in order to examine helminthologically. Rats were identified according to their anatomical features indicated by the literature (17). There are 11 (32.35 %)

males and 23 (67.65%) females, total 34 wild rats. Seven (20.59%) of 34 rats were babies, 27 (79.41%) of 34 were adults.

During necropsy, thorax and abdomen were opened, and each organs of GI system were ligatured and taken to different containers. After content of organs were sieved from 150 µm, parasites were collected under stereo microscope, and the parasites were identified (5,13).

Twenty seven (%79.41) of 34 wild rats were found as infected with four species, one cestode and three nematodes. The helminth species, numbers of collected helminths and rates of infected rats are given in Table 1.

Table 1. Number and prevalence of helminthes
Tablo 1. Helmint sayısı ve yayılışları

Helminth species	Number of helminthes	Infected rats (%) (n=34)
<i>Strongyloides ratti</i>	318 (♀)	27 (79.41)
<i>Heterakis spumosa</i>	2848 (1514♀;1334♂)	27 (79.41)
<i>Hymenolepis diminuta</i>	60	12 (35.49)
<i>Nippostrongylus brasiliensis</i>	35 (14♀;11♂)	7 (20.59)
Total	3261	27 (79.41)

Nineteen (82.61%) of 23 female rats, 8 of 11 (72.73%) male rats were found infected. Additionally, helminth infection was seen in all adult rats, but not at babies.

Twelve of infected wild rats were found as infected with 2 species, 13 of them were found infected with 3 species and 3 of them with 4 species. Helminth numbers collected from an animal varied from 6 and 331, *H. spumosa* was the mostly seen helminth species. Moreover, 325 *H. spumosa* was collected from the intestine of a female rat.

There are various studies about helminth infections in rats (6,14,16). However in Turkey, researches concerning with helminths of rats were done mostly on laboratory animals (3,4,12,15), but wild rats were examined very rare (8). Prevalence of helminth infections of rats were between 27-100% in Turkey (3,7,12) and between 29.7-100% in the world (1,5,9,16). In this study, 27 (%79.41) of 34 wild rats were found as infected with four species.

There were no significant differences in the prevalence of infection rate between male and female rats. All of 27 adult rats were infected, but there is no infection at babies.

Some of the rat parasites, *H. diminuta* and *H. nana* are zoonose which are important for human health (14). While *H. diminuta* among those parasites was found at 35.49%, *H. nana* was not seen in any samples.

Syphacia spp. is the mostly found species in rats (3,12,15). While Burgu et al. (4) defined that *S. muris* is parasite of rats and *S. obvelata* is parasite of mice, Göksu et al. (7) marked that *S. obvelata* as common parasites of laboratory rat and mouse. In this study, there is no *Syphacia* spp.

In Turkey the existence of *S. rattii*, *H. spumosa* and *N. brasiliensis* were determined without their ratio (10), in this study their rates were determined as 79.41%, 79.41 % and 20.59% respectively.

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