

ENVIRONMENTAL CONTAMINATION BY EGGS OF *TOXOCARA* SPECIES IN THE SOIL OF WARSAW URBAN AREA

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Toxocara canis and *Toxocara cati* are common intestinal parasites of dogs and cats. The soil, contaminated with eggs of these parasites is an important etiological factor in toxocara infections of people. In Poland there are several hundreds cases of toxocara infections recorded every year in children. They get infected mostly by contact with the soil contaminated with animal faeces.

Soil contamination by eggs of *T. canis* and *T. cati* reaches in Poland from several to over 50 per cent of samples, depending on the type of investigated environment. In Warsaw, as compared with other towns, Borecka (2003) has found relatively low level of contamination in sandpits, parks and backyards (4.4%, 1.25% and 11.8% of studied samples, respectively).

The aim of undertaken studies was to determine the level of soil contamination with eggs of those parasites in three residential areas of Warsaw, taking into consideration the level of urbanization, type of the estate, type of soil and the presence of animals.

In the three residential areas of Warsaw there were selected 26 points, that differed by the type of buildings:

1. Ochota – the street with dense apartment buildings (5 points);
2. Jelonki – apartment houses with green areas (6 points);
3. Piastów – suburban areas with variety of building types (15 points);

The points have been selected in the places located close to houses, available also to pets – dogs and cats, such as: side-walks, paths, backyards, lawns, children's playgrounds, sandpits and entrances to houses.

The study was repeated three times: in October 2004, April 2005 and September 2005. In each research point 4 samples of soil were collected from the top layer 1-3 cm thick, each sample 40 g. To detect the helminths eggs, the method of flotation was used, with NaNO₃ solution (d = 1.39), according to Mizgajska-Wiktor (2005). Microscopy recognition of the species was based on the analysis of morphological features of eggs and comparing with specimen.

In the investigated samples of soil from 26 research points, the *Toxocara* spp. eggs were detected in 5 points (19.2%): Jelonki in two sandpits – *Toxocara cati*, Piastow in sandpit – *T. cati*, Ochota in the cracks of side-walks and in entrance to apartment house – *T. canis*. The number of eggs in investigated samples was from 1 to 3.

Eggs of *T. cati* were detected only in loose soil – in sand used by children to play. The highest number of them was found in the sandpits of Jelonki. In this area the number of cats that ran wild was significant in the time when study was conducted. In these research points the *Toxocara* spp. eggs were detected twice: in October 2004 and April 2005. *Toxocara canis* eggs were found only in one study in the middle-town area (Ochota): in the side-walk covered with tiles, where animal's defecation is, unfortunately, normal, and near the entrance to apartment house.

The cumulation of eggs on the passages near houses makes it easy and highly probable to bring these eggs, especially *Toxocara canis*, to apartments. The problem of clearing dog

faeces urgently calls for solution, as soon as protecting sandpits and children's playgrounds from defecation of animals, especially cats.

Table 1 Results of the examination of spoil contamination with *Toxocara* spp.eggs in three residential areas.

localization	number of study points (number of samples)		<i>Toxocara</i> sp.
	examined	positive	
Ochota – downtown districts	5 (60)	2 (2)	<i>T. canis</i>
Jelonki – district with huge apartment houses	6 (72)	2 (4)	<i>T. cati</i>
Piastów – suburban residential area	15 (180)	1 (1)	<i>T. cati</i>
total	26 (312)	5 (7)	

Table 2 Results of the examination of spoil contamination with *Toxocara* spp.eggs in various time of a year.

localization	number of points examined / positive		
	X. 2004 r.	IV. 2005 r.	IX. 2005 r.
Ochota	5 / 2	5 / 0	5 / 0
Jelonki	6 / 2	6 / 2	6 / 0
Piastów	15 / 0	15 / 1	15 / 0
total	26 / 4	26 / 3	26 / 0

Table 3 Results of the examination of spoil contamination with *Toxocara* spp.eggs depending on type of study point.

characteristics of study point	number of points		<i>Toxocara</i> sp.
	examined	positive	
lawns – loose ground	4	0	
paths – trampled ground	7	0	
backyards – trampled ground	5	0	
pavements – beton tiles	1	1	<i>T. canis</i>
entrances to apartment houses	2	1	<i>T. canis</i>
playgrounds – trampled ground	3	0	
sandpits – loose sand	4	3	<i>T. cati</i>
total	26	5	

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