

Parasitological and bacteriological contamination of arable lands and vegetable gardens

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Soil for the study was collected during the period from May–November 2017 across the whole of Poland. A total number of 120 soil samples were examined, including: 52 samples of soil from arable lands, 65 samples from vegetable gardens, and 3 samples from orchards.

Examinations were performed of the degree of contamination of soil with the eggs of intestinal parasites (*Ascaris* spp., *Trichuris* spp. and *Toxocara* spp.), presence of bacteria of the *Salmonella* genus, spore forming bacteria *Clostridium perfringens*, the total number of bacteria belonging to the family Enterobacteriaceae, as well as total bacterial count and fecal coliform group. The study was conducted based on Polish Standards.

EGGS OF INTESTINAL PARASITES (ATT). Eggs of intestinal parasites were found in 34.4% of soil samples collected in vegetable gardens, 7.5% – of samples from arable lands, and in 1 sample of soil collected in orchards. The largest number of the eggs found belonged to the genus *Ascaris* spp.

SALMONELLA BACTERIA. The presence of *Salmonella* bacteria was not observed in any of the soil samples.

COLIFORM BACTERIA. Bacteria belonging to the total coliform group were mainly the strains of *Escherichia coli* and *Klebsiella*, *Enterobacter* and *Citrobacter*. Fecal coliform bacteria were primarily *E. coli* and bacteria sparsely represented by other genera of the family Enterobacteriaceae. Coliform group bacteria were found in 13.8% of soil samples from vegetable gardens (coli titre > 0.001).

CL. PERFRINGENS BACTERIA. The presence of *Cl. perfringens* bacteria was not observed in the investigated soil.

TOTAL BACTERIAL COUNT. More bacteria of the family Enterobacteriaceae were detected in soil from vegetable gardens than that from arable lands; however, the total bacterial count was low.

CONCLUSIONS

1. The degree of biological contamination of soils collected in vegetable gardens was higher than that of soils from arable lands and orchards.
2. The presence of intestinal parasites was more often observed in the samples of soil from vegetable gardens.
3. *Salmonella* bacteria were not isolated from the examined samples of soil.
4. *Clostridium perfringens* bacteria were found exclusively in soil collected from vegetable gardens.

5. The results obtained confirm that there is a need for carrying out parasitological and bacteriological examinations of soil, especially in vegetable gardens.

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