

Parasitological evaluation of organic fertilizers used in agriculture in Poland

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Sanitary safety of organic fertilizers used in agriculture is essential for public health protection. In recent years, the production of organic fertilizers based on sewage sludge and waste from biogas plants increases in Poland. The fertilizers may be dangerous to humans, animals and the environment because of the contamination of dispersion parasites form. For this reason, before admission them to trading it is necessary to perform research proving their parasitological safety. The aim of the study was to assess the parasitological contamination of organic fertilizers to be admitted into commercial use in Poland in 2015–2017.

In the study 355 samples of organic fertilizers were examined, with the use of own accredited procedures. During the investigation it was used 113 samples sludges from biogas plants, 75 samples produced on the basis of sewage sludge, and 167 samples other organic fertilizers. Viable eggs of parasites were found in 54 samples from biogas plants (47.8%) in 23 samples based on sewage sludge (17.3%) and 21 samples of other organic fertilizers (12.6%).

Viable eggs of *Ascaris* spp. were found in 83 samples, viable eggs of *Trichuris* spp. in 33 samples, and viable eggs of *Toxocara* spp. in 24 samples. The most numerous were eggs of *Ascaris* and *Toxocara*. The most contaminated samples were samples from biogas plants. In these fertilizers were found from 60 to 251 640 live eggs of the genera *Ascaris* and *Trichuris* in 1 kg dry mass. Organic fertilizers samples produced on the basis of sewage sludge were contaminated by eggs of *Ascaris*, *Trichuris* and *Toxocara*. Total number of parasites eggs in samples ranged from 858 to 19 010 kg of eggs in dry mass. In other organic fertilizers were found small amounts of viable parasites eggs.

The obtained results indicate the necessity of parasitological examination of the organic fertilizers before admission to trade in order to eliminate the potential risks to human and animal health.