

Parasitological evaluation of organic fertilizers, organic-mineral fertilizers and waste from biogas plants used in agriculture

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In recent years, the production of organic fertilizers based on sewage sludge and waste from biogas plants increases in Poland. The fertilizers may danger to humans, animals and the environment because of the contamination of dispersion parasites form. For this reason, before admission of 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 applying for admission to trading in 2014–2016 years. During the investigation it was used 196 fertilizer samples, including sludge from biogas plants (38 samples), produced on the basis of sewage sludge (27 samples), and other organic fertilizers (134 samples). Samples were examined by own accredited test methods. Viable eggs of parasites were found in 34 samples from biogas plants (89%) in 11 samples based on sewage sludge (41%) and 11 samples of other organic fertilizers (8.2%).

The most contaminated samples were samples from biogas plants. In these fertilizers were found from 60 to 251 640 live egg 1 kg dry mass. Viable eggs of *Ascaris* spp. were found in all positive samples, viable eggs of *Trichuris* spp. in 10 samples, and viable eggs of *Toxocara* spp. in 2 samples. 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 1 255 to 19 010 kg of eggs in dry mass. The most numerous were eggs of *Ascaris* and *Toxocara*. In other organic fertilizers were found small amounts of viable parasites eggs.

Obtained results indicate the necessity of parasitological researching these substances before admission to trading in order to eliminate risks to the health of humans, animals and the environment.