

## **RESPONSES OF THE SOIL DECOMPOSER COMMUNITY TO THE RADIOACTIVE CONTAMINATION**

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The knowledge about biodiversity and about reasons and laws of dynamics of decomposer invertebrates has exclusively important (rather applied, or theoretical) significance for soil science. Earthworms and millipedes are probably the most important members of the soil biota and major contributors to total zoomass. Their activities are such that they are extremely important in maintaining soil fertility in a variety of ways. They play an important part in the redistribution of radionuclides accumulated in the natural biogeocenoses and accumulation of radionuclides in their bodies depends on their concentration in the habitat. Since radionuclides can limit biological activity, studies to estimate the tolerance of decomposer community to potentially toxic radiators are needed.

The effect of radioactive contamination on the soil invertebrates and decomposition processes in the different biogeocenoses we intensively studied during 17 years after Chernobyl accident. The soil invertebrates were collected according to generally accepted method by M. Ghilyarov. Soil samples were 0,25 m<sup>2</sup> and animals were extracted from samples by hand sorting.

Usually decomposition was affected by the presence of decomposer fauna. Considerable differences were found in the species number. The species composition of sites differed clearly. The study showed that the fauna was poorer under increasing levels of radioactive contamination. The higher radionuclide content was found to result in suppression of decomposer community. The results showed a vertical migration of earthworms to deeper soil layers with increasing of radioactive contamination. With the absence of decomposer fauna due to migration to the deeper layer and mortality, the layer of litter increased.

The results show that the earthworms were of small size. Cocoon production decreased. Radioactive contamination altered the process of reproduction and age structure of decomposer fauna. The invertebrates collected from the radioactive plots had considerable changes in the physiology.

Based on the results of our study, we have a conclusion – the decomposer community exposed to irradiation for a long time reacts clearly by a noticeable suppression. Furthermore, the results also demonstrated that there was a strong relation between decomposition rates and numbers of decomposer fauna present in soil layers. Given the important role of decomposer invertebrates in the development and maintenance of soil structure, and in the incorporation and breakdown of organic residues in the soil, we made conclusion that the reduction of density and biodiversity of decomposer organisms in the radiocontaminated zone produced long term effects on the soil health.