EFFECT OF HEAVY METAL IONS ON THE NUMBER AND ACTIVITY OF Azotobacter AND MELANINSYNTHESIZING MICROMYCETES

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The aim of the work was to determine the possibility of using the number and activity of Azotobacter cells and melanin-synthesizing micromycetes as indicators of gray forest soils of different types (fallow, extensive and intensive agrosoil) pollution with heavy metal ions. For this purpose, there were used laboratory-analytical, microbiological and statistical methods. As a result of research of increasing doses of heavy metals (zinc + lead) influence on the number of microorganisms in the gray forest soils it was found that the number and activity of Azotobacter and the number and part of melanin-synthesizing micromycetes in their total number may be fit into indicators of pollution with heavy metals. Azotobacter cells activity index may be considered indicative at contamination levels of 5–100 of maximum permissible concentration in the absence of vegetation, at contamination levels of 10–100 – for soils with phytocenosis. The number and proportion of melaninsynthesizing micromycetes in total quantity may serve as diagnostic sign of gray forest soils pollution with high doses of heavy metals, but only for the period of contamination up to 2 years.

It was shown that nature of the effect of heavy metals on the number of microorganisms of indicative groups depended on the presence of plants in the monitoring system, on doses of heavy metals, on the term of contamination and on the type of soil usage.

**Key words:** Azotobacter, melanin-synthesizing micromycetes, diagnostic indicator, pollution, heavy metals.
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