SIZE EVALUATION OF THE SELECTED GROUPS OF MICROORGANISMS IN THE SOIL FORTIFIED WITH COMMUNAL SEWAGE SLUDGE

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Summary

Agricultural utilization of appropriately stabilized sewage sludge appears to be the most rational method of its utilization, even though there is no agreement among scientists as to the impact that these wastes can exert on the maintenance of the soil biological balance. That is why the objective of the performed field-laboratory experiments was to determine the developmental dynamics of selected groups of microorganisms in a grey-brown podzolic soil fertilized with acceptable and unacceptable doses of sewage sludge and farmyard manure. Numbers of six groups of microorganisms were determined at various dates associated with the development of spring barley (total bacterial number, number of actinomycetes, fungi, bacteria from the *Azotobacter genus* and *Pseudomonas fluorescens*) as well as pathogenic bacteria from the *Salmonella* genus. The selected groups of microorganisms were determined on selective media by the plate method. The obtained research results showed that, in the majority of cases, the applied levels of organic fertilization did not have a significant impact on the numbers of microorganisms in the soil. Therefore, it can be said that the application of both acceptable and unacceptable doses of sewage sludge in the form of fertilizers failed to disturb the biological balance of the examined soil. In addition, the results of the performed experiments indicated that the agricultural utilization of sewage sludge should be forestalled by a sanitation process (e.g. composting) in order to get rid of pathogenic bacteria, especially bacteria from the *Salmonella* genus.