XI МЕЖДУНАРОДНЫЙ СИМПОЗИУМ
ПО БИОИНДИКАТОРАМ

СОВРЕМЕННЫЕ ПРОБЛЕМЫ
БИОИНДИКАЦИИ И БИОМОНИТОРИНГА

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XI INTERNATIONAL SYMPOSIUM
ON BIOINDICATORS

PROBLEMS OF TODAY
IN BIOINDICATION AND BIOMONITORING

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ТЕЗИСЫ ДОКЛАДОВ

ABSTRACTS

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В сборник включены материалы XI Международного симпозиума по биоиндикаторам. Работа десяти предыдущих симпозиумов в основном была посвящена разработке критериев и методов оценки качества окружающей среды. Публикуются работы, освещающие новые методы биоиндикации, включая дистанционное зондирование, и новые подходы, охватывающие комплексные методы индикации: от традиционных биогеохимических до создания геоинформационных систем.

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HEAVY METALS IN THE PROCESS OF WASTES UTILIZATION IN THE SYSTEM: SETTLINGS OF SEWAGE — GROUND — PLANTS

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Use of deposits of sewage of cellulose-paper combines is perspective in the conditions of negative balance of humus on poor soil in the North of Europe. The main reason not to use them in agriculture is connected with the raised contents in them of heavy metals ions (HM), though HM saturation is not the highest among industries. Hg, Cd, Pb, Zn, Cu are priority pollutants in this case.

Usage of deposits (active slime) in conditions of the North has the specific features stipulated by the subjects, that they should be applied in soils, which don’t have suf-
ficient buffer capacity to contaminants. Besides the operations on slime depositing are connected with engaging of expensive engineering, that does it economically inexpedient to use small doses (less than 80-100 t/ha). The most effective is the following technology of utilization, tested in practice and not accepting HM accumulation in finite production:

1. The initial decontamination of toxic components of wastes is carried out in bulk airing clamps. After degradation of inhibiting compounds the substance is invaded by soil biota, the processes of biotransformation of organic matter starts with the rise of temperature. The colour and odour of slime alter, the poorly smelling compounds disappear, green appears, earthworms settle. The structure also changes — from paste look consistency to aggregation structure and further, after exposition during three years — to friable structure.

2. The active slime is brought in superficially, is held out within day under operation of solar radiation. Then double milling on the depth of 12-15 cm for its even distribution in soil and ploughing is carried out. Thus there are the conditions for HM transition from linked to the mobil form, they become accessible to migration downwards under the soil profile. As the result of a vertical displacement upper horizon of low humus and acidic soils gets free from HM. In deep strata HM are inaccessible to the plants root systems, deposit soils with fine texture link them and, thus, there is a HM burial place as insoluble compounds.

3. Residual amounts of HM in arable layer are deposited by humus matter, which is brought in as dung-peat compost for the subsequent year. The high cation-exchange capacity of humic acids allows linking practically all HM. In outcome the inflow HM through assemblage of rootlets in plants is limited.

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