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Bioremediation of oil waste under field experiment

Galitskaya P., Gumerova R., Selivanovskaya S.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The remediation process of oily waste, selected in the tank battery, was conducted under field experiment. Compost (5 and 50%), prepared from the organic fraction of municipal solid waste, sewage sludge and sawdust, as well as two strains of soil bacteria Bacillus thuringiensis RG2 and Bacillus pumilus RG1 were used for remediation process. The lowest amount of petroleum hydrocarbons was detected when mixing waste with soil and compost at the amount of 50%. In the first case noted effect was achieved by increasing the number of hydrocarbon oxidizing bacteria, whereas in the second case it was attained by increasing the total microbial biomass and metabolic activity of the mixtures. Adding microorganisms-destructors did not have a significant effect on the hydrocarbon decomposition process. Taking into account the relevancy for soil resources preservation, the use of compost for bioremediation seems to be the most promising technique. © IDOSI Publications, 2014.

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Keywords

Bioremediation, Microbial biomass, Oil waste, Respiration