SOLID PHASE ANAEROBIC BIOREMEDIATION OF SOIL FROM THE “TOMB” AREA CONTAMINATED WITH CHLORINATED PESTICIDES

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Abstract: The paper presents results of laboratory tests of solid-phase anaerobic bioremediation of soil contaminated with chlorinated pesticides. It was shown that using methanogenic granular sludge as inoculum and lactate as electron donor, it is possible to remove 80% of γ-HCH, 94% of methoxychlor and 93% of DDT against control sample, with DDD accumulation much less than stoichiometric. Pesticides removal was practically completed after 4–6 weeks of incubation at 22°C. Additional application of nonionic surfactant Tween 80 resulted in about one and a half-fold decrease of residual concentrations of some compounds. It also enhanced DDT conversion to some extent, decreasing DDD accumulation and intensifying production of DBP, the terminal metabolite of DDT anaerobic degradation pathway. Use of methanol as electron donor produced effects quite similar to these obtained with lactate, however with reduced results scatter.