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Biodegradation of Tritium Labeled Polychlorinated Biphenyls (PCBS) by Local Salt Tolerant Mesophylic Bacillus Strains

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ABSTRACT

Salt-resistant Bacillus strains, isolated from agricultural soils in Uzbekistan, were tested for degradation activity towards a mixture of polychlorinated biphenyls (PCBs) under aerobic conditions. The study employed the use of tritium labeled PCB congeners and traced the tritium label in cultures with high salt content. The experiments show that most of the selected strains were able to adsorb a part of the radioactivity, indicating transformation of the added PCBs. Gas chromatography demonstrated transformation of PCBs. The radioactive label was removed from several cultures by up to 91%, indicating also mineralization of PCBs. The study suggests that the isolated strains might be good candidates for the bioremediation of contaminated high-salt soils in Uzbekistan and other Central-Asian countries.

KEYWORDS

Bacillus, Biodegradation, PCBs, Salinity, Tritium Label

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