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METABOLISATION OF CHLOROBENZOIC ACIDS BY PLANT-BACTERIA ASSOCIATIONS

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Abstract

Chlorobenzoic acids, like other xenobiotics present in the environment, can be detoxified by biological systems, plants or microorganisms or consortia of both. In this work we tested degradation potential of plant-bacteria associations on soil contaminated by mixture of chlorobenzoic acids and compared this potential with degradation activity of plants or bacterial strains alone. Plants of black nightshade (*Solanum nigrum*) and strain A18 (*Pseudomonas pseudoalcaligenes*) or UH82 (*Arthrobacter* sp.) were used for testing. After half a year experiment, the amount of bacteria, concentration of individual chlorobenzoic acids in plant biomass and in soil was analyzed.

In plant biomass all chlorobenzoic acids initially present in soil were determined in trace amounts. Amounts of bacteria were in all cases comparable. In soil seven from eleven added chlorobenzoic acids were in the end of experiment below detection limit. Detected were 2,3,5-tri; 2,3-di; 2,6-di a 2,4,6-trichlorobenzoic acid in the ascend order. Positive effect of bacterial strains addition on chlorobenzoic acids removal from soil was not unequivocally proved. On the other site presence of black nightshade plants had positive effect on chlorobenzoic acids disappearance from soil.

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