Development of Plant-Bacterial Systems for the In *Situ* Remediation of Halogenated Aromatics. S.D. SICILIANO* and J. J. GERMIDA, Toxicology Group and Department of Soil Science, University of Saskatchewan.

Biological remediation of contaminated soil is an effective method of reducing risk to human and ecosystem health. Bacteria and plants might be used to enhance remediation of soil pollutants in ***situ.*** This study assessed the potential of plant-bacterial systems (15 forage grasses and 10 bacteria isolates) to remediate 2-chlorobenzoic acid (2CBA) contaminated soil. Only 5 out of 15 forage grasses assessed germinated in 2CBA (816 mg kg^{-1}) treated soil. Growth of ***Bromus riparius, B. inermis*** and ***Agropyron riparum*** for 42 days had no effect on 2CBA concentration whereas ***A. riparum*** and ***Elymus dauricus*** decreased 2CBA relative to non-planted control soil by 20% and 36 %, respectively. Inoculation of ***A. riparum*** with ***Pseudomonas aeruginosa*** strain R75, a proven plant growth promoting rhizobacteria, increased germination by 180% and degradation of 2CBA to 58 % of the non-inoculated plant. Inoculation of ***E. dauricus*** with P. ***savastanoi*** strain CB35, a 2CBA degrading bacterium, increased germination by 234% and degradation of 2CBA to 52% of the non-inoculated plant. There was no clear relationship between enhanced 2CBA degradation and increased plant biomass. These results suggest that specific plant-microbial systems can be developed to enhance remediation of pollutants in soil.

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