Influence of petroleum contamination on microbial communities in soil. (S03-germida101806-Poster)

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Abstract:

Effective phytoremediation of petroleum hydrocarbons relies on the ability of plant roots to influence their associated microbial populations. This study assessed the diversity of microbial communities in petroleum contaminated field soils and associated with the roots of Psoralea esculenta (Indian breadroot), Petalostemon purpureum (Purple prairie clover), Medicago sativa L. (Alfalfa), Agropyron dasystachyum (Northern wheat grass), Agropyron cristatum (Crested wheat grass) and Bromus ciliatus (Fringed brome) growing in contaminated soils in a growth chamber. Microbial communities were assessed by most probable number (MPN) determination of petroleum degrading bacteria, community level physiological profiles (CLPP) and denaturing gradient gel electrophoresis (DGGE). Cultural techniques like MPN and CLPP indicated that the microbial populations varied from soil to soil depending on contaminant levels. Molecular techniques indicated that genetic composition of the soil microbial community was influenced by contamination, plant type and soil type. Current research continues to address the issue of microbial community diversity in petroleum-contaminated soil.

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