



Hydrocarbon degradation and plant colonization of selected bacterial strains isolated from the rhizosphere and plant interior of Italian ryegrass and Birdsfoot trefoil

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Hydrocarbon-degrading strains were isolated from the rhizosphere, root and shoot interior of Italian ryegrass (*Lolium multiflorum* var. *Taurus*), Birdsfoot trefoil (*Lotus corniculatus* var. *Leo*) grown in a soil contaminated with petroleum oil. Strains were tested regarding their phylogeny and their degradation efficiency. The most efficient strains were tested regarding their suitability to be applied for phytoremediation of diesel oils. Sterilized and non-sterilized agricultural soil, with and with out compost, were spiked with diesel and used for planting Italian ryegrass and birdsfoot trefoil. Four selected strains with high degradation activities, derived from the rhizosphere and plant interior, were selected for individual inoculation. Plants were harvested at flowering stage and plant biomass and hydrocarbon degradation was determined. Furthermore, it was investigated to which extent the inoculant strains were able to survive and colonize plants. Microbial community structures were analysed by 16S rRNA and alkB gene analysis. Results showed efficient colonization by the inoculant strains and improved degradation by the application of compost combined with inoculation as well as on microbial community structures will be presented.