Degradation of TPH- Diesel in Soil through Mycoremediation

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The purpose of this research is to test the effectiveness of mycoremediation on urban soils. Mycoremediation is the process where fungal organisms such as mushrooms are used to degrade deleterious toxins in soils. In this case, the toxin was TPH-Diesel and the mushroom was Pleurotus ostreatus. The project utilized samples from three different sites in New York City: two, from accessible street ends (Plank Rd. and Apollo St.) located along Newtown Creek, which is an EPA Superfund site, and one sample from Eastern Parkway, NYC's Department of Environmental Protection bioswale site. A bioswale is a landscape system designed to remove pollutants from surface runoff waters. At first, the mushroom mycelium was cultured in petri dishes and then used to inoculate rye. Then, the inoculated rye was mixed with the soil collected from the three sites. Control samples from each site, without the mycelium were kept for comparison. Both the controls and mycelium samples were grown for two months. The initial and final levels of TPH-diesel in each sample were tested and compared to the controls. The hypothesis that mushroom mycelium would reduce TPH-Diesel levels in the soil was refuted because the control samples, put under the same conditions, reduced just as much, or in some cases even more than the mushroom mycelium samples. This research is valuable because it shows the multiple conditions that need to be overcome to incorporate mycoremediation successfully into urban areas like NYC.

Awards Won: