CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)
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Project Number
J1020

Project Title
Mycoremediation

Abstract

Objectives/Goals
The purpose of this experiment was to see whether Pleurotis Ostreatus (pearl oyster mushrooms) can break down diesel in contaminated wheat straw substrate. The hypothesis states that the trial samples with the mycelium treatment will have a lower concentration of hydrocarbons than the control samples at the end of three weeks.

Methods/Materials
The procedure involved spraying 10 ml. of diesel mixed with water onto 2.5 pounds of substrate for two treatment samples (inoculated with mushroom mycelium) and two control trials (without mycelium). All 4 samples were stored in the same location, under the same conditions. At the end of a three week period, each sample (2 treatments and 2 controls) were broken up and thoroughly mixed, for uniformity. At APPL labs, incremental sampling was performed on the treatments and controls, solvent was added to each sample, fluids were concentrated and extracted, then analyzed using a mass spectrometer.

Results
The average concentration of diesel for the control trials, in ppm, or parts per million, was 1,317 ppm, and the average concentration for the treatment trials was 1,819 ppm. This means that the hypothesis was rejected. The control levels were higher than the treatment levels.

Conclusions/Discussion
The results were inconclusive, possibly because evaporation was not accounted for. These results show that Pleurotis Ostreatus may or may not be able to break down the hydrocarbons in the substrate.

Summary Statement
The project examines the ability of Pleurotis Ostreatus (pearl oyster mushrooms) to breakdown hydrocarbons introduced into a wheat straw substrate.

Help Received
Used lab equipment at APPL Labs under the supervision of Sharon Dehmlow, lab director.