



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Nathan R. Fennacy	Project Number 34295
Project Title Can <i>Pluerotus ostreatus</i> Digest and Remove Di(2-ethylhexyl) Phthalate from Soil?	
Objectives/Goals Can <i>Pleurotus Ostreatus</i> (Oyster Mushrooms) digest and remove Di(2-ethylhexyl) phthalate (DEHP) from soil? Abstract Can <i>Pleurotus Ostreatus</i> (Oyster Mushrooms) digest and remove Di(2-ethylhexyl) phthalate (DEHP) from soil? Methods/Materials In Part 1 the Oyster Mushrooms were prepared and a mushroom spawn with running mycelium was prepared for mushroom growth. In Part 2 DEHP was spiked into two out of the three tanks of soil. The mushrooms were then inoculated into 2 out of the three tanks, one with DEHP one without. This lasted for 12 days. 30 gram samples were taken on Day 1, 2, 4, 6, 8, 10, and 12. All the samples were then taken to Agriculture and Priority Pollutants Laboratories Incorporated (APPL Labs) where they were went through sonification (Method 35) for 3 rounds. The extracted compound is then boiled down to a 1mL sample. It was then tested for Di (2-ethylhexyl) phthalate down to the parts per billion. Results Results were extremely varied but the overall average in the tank with DEHP and Oyster Mushrooms was lower when compared to the tank with pure soil and DEHP. The results, though, when compared to day to day results where to varied to confirm any positive effects caused by the mushroom. Conclusions/Discussion My hypothesis, that if mycelium of <i>Pleurotus ostreatus</i> is introduced into 1 gallon of soil (8.3 kilograms) and spiked with 300 milligrams of Di(2-ethylhexyl) phthalate (DEHP) at 60 degrees F (15 degrees C), then the mycelium and the fruiting bodies of <i>Pleurotus Ostreatus</i> will digest and remove the DEHP from the soil, was not supported. The results showed a large variation of trends, like the DEHP with <i>Pleurotus Ostreatus</i> had an over-all range from 11975.4 ppb of DEHP to 7801.6 ppb of DEHP. Results showed that the overall average for the DEHP tank vs. the DEHP with <i>Pleurotus Ostreatus</i> was 10727.5 ppb to 11229.6 ppb, respectively.	
Summary Statement My project test the digestive properties of <i>Pluroteus Ostreatus</i> when introduced to soil spiked with Di(2-ethylhexy) phthalate.	
Help Received Father helped with printing out foam core, Dr. Leonard Fong helped with lab testing at APPL Labs.	