CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
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Project Number
S0815

Project Title
Will Sodium Lauryl Sulfate (SLS) Affect the Absorption and Uptake of Lead (Pb) in Brassica juncea (Indian Mustard)?

Abstract

Objectives/Goals
My project was to determine the effects of Sodium Lauryl Sulfate on the phytoremediation process of Brassica Juncea.

Methods/Materials
10 plants separated into five categories of differing Lead and Sodium Lauryl Sulfate concentrations were observed over a course of six weeks. At the conclusion of the growing phase, a soil analysis of each plant was taken.

Results
The surfactant Sodium Lauryl Sulfate appeared to have no significant effects upon the absorption of lead or the growth of the Brassica Juncea plants. However, there were no negative effects or trends indicated by this experiment.

Conclusions/Discussion
The novel process of phytoremediation is extremely efficient compared to classical soil remediation techniques. Although some plants have been identified as hyperaccumulators, by experimenting with combinations of plants and chemicals, an increased efficacy of phytoremediation plants will allow for an accelerated renewal of contaminated environments. Although this experiment did not identify any positive characteristics of Sodium Lauryl Sulfate on Brassica Juncea, there also were no negative effects; thus, in different conditions SLS may be beneficial to phytoremediation for Brassica Juncea plants.

Summary Statement
My project distinguishes the effectiveness of Sodium Lauryl Sulfate in increasing the absorption of Lead in Brassica Juncea.

Help Received
Participant in COSMOS program; designed experiment at COSMOS with the aid of Dr. LeAnn Lindsay; used lab equipment at Napa High School with the aid of Mr. Roger Ruegg; Barry Blessing and Midwest Laboratories provided free ICP analysis reports; UC Davis Library provided access to research journals;