CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY

Name(s)
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Project Number
S1318

Project Title
Culturing Strains of Chlamydomonas reinhardtii Resistant to Polyethylene Dichloride

Abstract

Objectives/Goals
The goal of this experiment was to determine whether strains of Chlamydomonas reinhardtii, a freshwater green algae, could be developed with a resistance to the herbicide polyethylene dichloride.

Methods/Materials
Wild type + cultures were obtained from Duke University for use in this study. Cells were cultured in bubbler tubes to begin the experimental process. The LC50 was then determined by recording cell counts after 24 hours of exposure to various concentrations of polyethylene dichloride. After the LC50 was confirmed, the strains were exposed to increasing concentrations to slowly increase the polyethylene dichloride toxicity resistance.

Results
Chi Squared calculations determined that the developed strains of Chlamydomonas reinhardtii were significantly more resistant to the effects of polyethylene dichloride in comparison to previously unexposed strains suddenly exposed to equal concentrations of polyethylene dichloride.

Conclusions/Discussion
When exposed to polyethylene dichloride over a period of time, Chlamydomonas reinhardtii developed a resistance to the toxic effects of the chemical.

Summary Statement
Strains of Chlamydomonas reinhardtii were exposed to increasing concentrations of the herbicide polyethylene dichloride over a period of time as a method of increasing the resistance in Chlamydomonas reinhardtii to the herbicide.

Help Received
Advisor assisted with autoclaving; science department aide assisted with initial use of hemacytometer; aide assited with use of the Bunsen burner; classmate helped take photographs.