



CALIFORNIA STATE SCIENCE FAIR 2004 PROJECT SUMMARY

Name(s) Amy L. Wolfberg	Project Number J0929
Project Title Triclosan's Effect on a Marine Alga	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals This experiment was performed to determine if triclosan (antimicrobial) has an effect on a marine alga.</p> <p>Methods/Materials Five different treatments of triclosan were used starting at 0.25 mcg/l and was increased by five times for each succeeding treatment. A control with no triclosan was also set up. There were three replicates of each dilution for accuracy. Test tubes with 15 ml Isochrysis Galbana marine algae were set up, then the triclosan dilution was added. Using a cytometer, alga cells were counted three times during the experiment, on day one, four, and eight. Five cytometer squares were picked randomly and counted for each sample. The data was analyzed using the SYSTAT statistics and graphing program.</p> <p>Results All of the cell concentrations increased but the controls consistently had a higher concentration of Isochrysis than the algae with triclosan. The increasing rate of the treatments of triclosan was slower than the control. The difference between the control and the greatest treatment of triclosan was greater in the middle of the experiment, this shows that triclosan is most effective after a four day period. In general, as the triclosan treatment increased the cell concentration decreased. The analysis of covariance, produced by SYSTAT, showed that only the treatments and the days had a significant difference. These are the two variables that were graphed.</p> <p>Conclusions/Discussion Over all triclosan slowed the growth of the algae. The highest treatment of triclosan always had a slower growth rate than the control. Even though the cell concentrations of the triclosan treated Isochrysis did not decrease, they were always less than the control, revealing a possible environmental concern. The lowest treatment of triclosan used was 0.25 mcg/l, which is the lowest amount found in effluent waste water in the U.S.A according to my research. The difference between the triclosan treatments and the control was less on the eighth day. This could mean that the algae becomes less susceptible to triclosan or triclosan is degradable over an eight day period. Since algae is at the bottom of the food chain triclosan may be altering ecosystems.</p>	
Summary Statement My experiment was performed to show triclosan's (antimicrobial) effect on a marine alga (Isochrysis), it showed that triclosan may pose an environmental concern.	
Help Received Used Telonicher Marine Lab equipment at Humboldt State University under supervision of Dr. Dennis A. Thoney, Ph.D., and Grant Eberle, M.S.; Dr. Dennis A. Thoney, Ph.D., helped with SYSTAT statistics and graphing program; Kenny Norman, a math aide at Green Point Elementary helped with triclosan dilutions;	