CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)
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Project Number
J2208

Project Title
Could Nanosilver in Consumer Products Affect Pond Life?

Abstract

Objectives/Goals
The objective of my study is to investigate the effects of different concentrations of nanosilver on the water organism Daphnia magna.

Methods/Materials
Daphnia magna cultures, water pipettes , 100mL graduated cylinder, 1 one-gallon jug of pond water, 6 petri dishes, clear 18oz cups, 1 fluid oz of Natural Path Silver Wings colloidal silver mineral supplement 500ppm, magnifying glass, camera. Placed 10 daphnia in 3 different concentrations of nanosilver then calculated the heart rates and the mortality rate every 2 hours.

Results
Daphnia magna were studied in pond water where different concentrations of nanosilver were applied to their environment. The concentrations of nanosilver were 0 ug/L (control), 5 ug/l, and 25 ug/L. Over a period of six hours I studied the effects of these various concentrations to see how the Daphnia magna's heart rate and mortality rate were affected. I noted that the heart rates increased from 75 BPM to 193 BPM in the higher concentrations,and the mortality rate grew where there was more nanosilver present.

Conclusions/Discussion
I repeated my study twice and both times I noted that the Daphnia magna were adversely affected by higher concentrations of nanosilver. I realized this because at higher concentrations the heart rates of Daphnia magna increased and their mortality rate did as well.

Summary Statement
I showed that nanosilver, an antibacterial used in everyday objects, poses a threat to the environments organisms such as the Daphnia magna.

Help Received
None, I created all of the concentrations and collected all of the data on my own.