CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)

Lillian Ohara; Samantha Pearlstein

Project Number

34420

Project Title

The Effect of Over the Counter Pharmaceuticals on Brine Shrimp and Algae Growth

Abstract

Objectives/Goals

The objective of this experiment was to determine the mortality rate of the brine shrimp and the growth rate of algae in different concentrations of over-the-counter (OTC) pharmaceuticals. In this experiment, the goal was to determine whether OTC pharmaceuticals pose a risk to aquatic organisms.

Methods/Materials

The control showed the lowest mortality rate (2 brine shrimp dead/day) and the highest growth rate in algae (0.03 cm/day0. The results of the study revealed that any of the OTC concentrations had an effect on the mortality of brine shrimp and algae growth. The highest concentration of pharmaceuticals resulted in the highest mortality rates in the brine shrimp (20 dead/day) and a lower algae growth rate (0 cm/day).

Results

The control showed the lowest mortality (2 brine shrimp/day) and the highest growth rate in algae (0.03 cm/day). The results of the study revealed that any of the OTC concentrations had an effect on the brine shrimp and algae growth. The highest concentration of pharmaceuticals resulted in the highest mortality rates in the brine shrimp (20 brine shrimp dead/day) and a lowest algae growth rate (0 cm/day).

Conclusions/Discussion

Supporting the hypothesis, the algae showed no growth rate and brine shrimp had higher mortality rates (10 times higher) in higher concentrations of pharmaceuticals compared to the control tests. Tests with brine shrimp in increasingly high concentrations of pharmaceuticals also showed to have higher mortality rates. The control had the lowest mortality rate for brine shrimp (2 dead per day) and the highest growth rate for algae (0.03 cm per day). The algae control tests looked visually greener and the brine shrimp control tests were more active compared to the other tests.

Summary Statement

This experiment tests the effect of over-the-counter pharmaceuticals on the growth rate of algae and mortality rate of brine shrimp.

Help Received

Parents helped pay for supplies and drive to necessary locations; Teacher helped narrow focus on choice of project and answered questions when needed.