CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)

Connor R. Lough

Project Number

J1013

Project Title

The Effect of Vitamins on Hatching Artemia salina (Brine Shrimp) in Various Polluted Waters

Abstract

Objectives/Goals

My project was to determine when vitamins are added to various polluted Artemia salina (Brine Shrimp) habitats, if the added nutrients would increase the amount of hatched Brine Shrimp.

Methods/Materials

I constructed 10 Artemia salina hatcheries using 946 ml (1 quart) mason jars with attached air pumps. Each jar was filled with 800 ml of 26 degree Celsius distilled water. Baking soda (1.25 ml) was added to each jar and the pH level was tested. Sea salt (15 grams) was then added to each jar. After waiting 1 hour, 2.5 grams of Artemia salina eggs were added to each jar. No pollutants were added to Control Jars 1a and 1b. Storm drain water (30 ml) was added to Jars 2a and 2b. One cigarette was added to Jars 3a and 3b. Bleach (15 ml) was added to Jars 4a and 4b. Motor oil (15 ml) was added to Jars 5a and 5b. Kent Marine Zoe vitamins (1 ml) were added to Jars 1b, 2b, 3b, 4b and 5b. No vitamins were added to Jars 1a, 2a, 3a, 4a and 5a. After 24 hours, the air pumps were turned off and light was directed to the bottom of the jars. I collected a 1.25 ml sample from the bottom of each jar to observe, count and record the number of Brine Shrimp hatched. I replicated the 10 versions, 5 times each for a total of 50 tests.

Results

In the experiment, on average more Artemia salina hatched in the jars with vitamins added than without vitamins. Specifically, there was a (1) 74.4% increase in the control jars, (2) 78.8% increase in the jars with storm drain water, (3) 39.58% increase in the jars with cigarettes, (4) 569.57% increase in the jars with bleach, and (5) 18.82% increase in the jars with motor oil. Standard deviations were calculated for each testing group.

Conclusions/Discussion

In my experiment, I determined that more Artemia salina would hatch when nutrients from vitamins are added to their polluted water habitats. The data I collected did support my hypothesis. The overall average increase of Artemia salina hatched in habitats with vitamins added was 156.23%.

Summary Statement

When I added vitamins to various polluted Artemia salina (Brine Shrimp) habitats, I discovered that more Artemia salina hatched.

Help Received

My teachers reviewed my report and offered guidance with the experiment. My parents purchased the materials, supervised the experiment and the construction of the hatcheries. Catherine Takata offered suggestions and edits for the project and presentation board.