CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)

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Project Number

J1909

Project Title

Brine Shrimp? UV Light? What's the Connection?

Abstract

Objectives/Goals

To observe the effects of treating brine shrimp with UV light.

Methods/Materials

350 brine shrimp; 350 brine shrimp eggs; 21 1-liter containers; 1 UV Lamp; 1 box to perform UV treatment.

1.Gather materials. 2.Fill each container with 1 liter of salty brine water. 3.Put approximately 20 brine shrimp into each container. 4.Designate 2 containers for each time length of UV light. 5.Designate 2 containers to be controls. 6.Now take the two containers for the first time length. Place both of them into the box. Turn on the UV lamp for 10 minutes, and then turn it off. Remove the containers, and compare them to the controls. 7.Repeat step 6 for each time length every two days. 8.Hatch the brine shrimp eggs. (start this while the UV testing is going on.) 9.Divide hatched eggs into three containers. One will be the control. The other two will receive 20 minutes and 70 minutes of UV light respectively. 10.Repeat Step 6 using the two different containers of brine shrimp hatchlings (at different times). 11.Observe them under a microscope compared to the control.

Results

Please see Conclusions

Conclusions/Discussion

Our hypothesis was proven correct because within five days of the first testing, the UV treated brine shrimp died, but the CONTROL brine shrimp continued to live four days longer. Shortly after the UV treatment, the brine shrimp permanently paled in color. This may be because the UV light caused a reaction within the outer covering of the shrimp, which resulted in permanent damage. The brine shrimp treated with 10, 15 and 20 minutes of UV exposure swam extremely quickly, while the brine shrimp treated with 30 to 120 minutes of UV exposure swam slowly. All speeds returned back to normal within 30 minutes from the end of their testing. The UV light may have increased the body temperature of the organisms. When the brine shrimp were treated for longer amounts of time, the radiation might have penetrated into the organisms and caused damage to them. One possibility is that the radiation might have damaged/destroyed the brine shrimp's muscle tissue. The brine shrimp's speeds returned back to normal, so this theory could not be proven true. If we were to conduct this experiment again, we would measure the temperature of the water before and after the UV treatments. We would also add another species to this experiment to see if the effects of UV light were the same or close to those of the brine shrimp.

Summary Statement

It is about observing the effects ultraviolet light on brine shrimp and how it can hurt the environment.

Help Received

Science Teacher helped proofread and organize presentation board.