



CALIFORNIA STATE SCIENCE FAIR 2013 PROJECT SUMMARY

Name(s) Carly A. Scheufler	Project Number J1722
Project Title The Effects of Pesticide Residues on Brine Shrimp Mortality	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals I read an article regarding commercial produce that listed some vegetables that may contain pesticide residues. Organic farming does not use pesticides. My family has begun purchasing organic fruits and vegetables. I wondered about the levels of pesticide residues present in commercial vegetables. The purpose of this project was to determine if the amount of pesticide residues present in the commercial vegetables might be significant enough to affect brine shrimp health.</p> <p>Methods/Materials From a list of 45 fruits and vegetables arranged in order of possible pesticide residue contamination from greatest potential (number 1) to most pesticide free (number 45), I tested carrots (number 21), celery (number 2), green beans (number 18), potatoes (number 12), red peppers (number 3), and spinach (number 8). I weighed the vegetables to try to test similar amounts of commercial versus organic vegetables of each type. I soaked all of the vegetables in bottled spring water for 32 hours. I removed the vegetable water and placed the hatched brine shrimp into the sample water. After placing the brine shrimp in the vegetable water, I checked the brine shrimp every 30 minutes with a flashlight to see if there was a change in number of live brine shrimp. I compared the results of the organic versus the commercial vegetable water samples in the experiment.</p> <p>Results I tested more than 600 brine shrimp in 78 different sample dishes. I ran a preliminary test, Trial One, in order to refine my procedures. I wanted to become familiar with observing brine shrimp and transferring the shrimp. The commercial produce came from Vons for Trial Two and Ralphs and Albertsons for Trial three. All of the brine shrimp survived in the water samples from the soaked organic vegetables and the control spring water samples. For all three trials, the water from the soaked organic vegetables did not affect the brine shrimp in any adverse way. However, for the commercial vegetables, the number of brine shrimp remaining at end of six hours revealed mortality rates averaging 80%.</p> <p>Conclusions/Discussion The findings supported the hypothesis, that pesticides used in commercial vegetable farming could affect brine shrimp survival rates. The findings show that even vegetables not considered to have the greatest contamination for produce may still contain significant harmful pesticide residues and further studies should be conducted.</p>	
Summary Statement The purpose of this project was to test the effects of pesticide residues from commercial produce on brine shrimp mortality.	
Help Received I would like to thank my mother and father for driving me to the store to buy commercial and organic vegetables, and the sterile containers for testing. I would also like to thank my science teacher for providing me with guidance, some materials, and a lab in which to perform my tests.	