



CALIFORNIA STATE SCIENCE FAIR 2010 PROJECT SUMMARY

Name(s) Alexis A. Garcia	Project Number J1713
Project Title Caution! Water Hazard	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my project was to determine if there are any adverse effects to reusing a water bottle for at most one week without being washed. There are two types of bacteria, Mesophilic and Coliform bacteria, which were tested in my project. For Mesophilic bacteria I hypothesized that there will not be sufficient amount of build up in five days to cause adverse effects and cause the water to be non-potable. I also hypothesized that Coliform bacteria will not show those same effects before seven days.</p> <p>Methods/Materials I used seven reused plastic water bottles for at most one week, but also tested a new bottle that was never reused as my control. I used two methods to culture cells, petri dishes and test tube incubation to test for both the Mesophilic and Coliform bacteria. The petri dishes were incubated upside down for 24-48 hours. After 48 hours, I observed the quantity of Mesophilic and Coliform bacteria in the petri dishes by counting each of the bacteria's colonies. The test tubes were used for handling and culturing both bacteria. Test tubes were filled with both distilled water from the bottles and Lactose broth, then upturned into a water-filled beaker to capture any gases of either bacteria. These two methods were repeated for the remaining seven bottles.</p> <p>Results My data and results shows that after four days of reusing a water bottle it is non-potable and can contain adverse effects. Bottle number eight, which was reused seven days in a row, reached the highest number of Mesophilic bacteria found out of all eight bottles, while the bottle that was reused only one day reached the lowest amount of Mesophilic bacteria found. For both of these bottles, Coliform bacteria were not found in seven days.</p> <p>Conclusions/Discussion Based on my research and results, I must reject both of my hypotheses because my findings show that after four days it contained more than 500 CFU (Colony Forming Units) per milliliter of the Mesophilic bacteria which does not satisfy the healthy drinking water criteria. I had hypothesized that there would be no adverse effects in five days. For the Coliform bacteria there were no colonies found in the seven days in which I tested.</p>	
Summary Statement The purpose of my experiment was to test to see if any adverse effects resulted from reusing a water bottle for at most one week.	
Help Received Used lab equipment at Rodriguez's Laboratory under the supervision of Mr. Rodriguez; friends and family for their contribution; mother helped construct the board; Mariela accompanied me in searching for a laboratory.	