CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY

Name(s)
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Project Number
J1127

Project Title
What Is the Quality of Automated Vending Machine Water?

Abstract

Objectives/Goals
The objective of my project was to determine the quality of automated vending machine water by testing for pH level, water hardness, alkalinity, and free and total chlorine compared with distilled water, drinking fountain water and Arrowhead Mountain Spring bottled water. Another objective was to see if any of the water had Coliform Bacteria.

Methods/Materials
The objects I used for my project were the empty bottles from 21 Arrowhead Mountain Spring Bottled Water (and I bought one more to use for the actual Arrowhead Mountain Spring Water); 1 Arrowhead Mountain Distilled Water; Aquachek strips which I used to check the water hardness, alkalinity, pH level, and free and total chlorine; straws I used for eye-droppers; and the lactose broth that I used to see if the water contained Coliform Bacteria.

Results
My results were that the automated vending machine water had lower levels of all five factors compared to the Arrowhead Mountain Spring bottled water and the tap water from my school drinking fountain. Also I discovered that the Automated Vending Machine water and the distilled water had about the same levels of all five factors, although they differed by a small amount. My results did not support my hypothesis.

Conclusions/Discussion
In my opinion, I feel that water from Automated Vending Machines is good to drink, but I did not test for purity in my project. However, the high levels of water hardness in the Arrowhead Mountain Spring bottled water and the water from my school drinking fountain was surprising. I thought there would be quite a bit lower level of water hardness in the Mountain Spring bottled water because hard water is not as good to drink than softer water. I feel that there should be something done about this and that the water that Arrowhead Company makes should be softer. Hard water does not pose a health risk to you if you drink it, but it does not keep its suds if you are washing dishes. It also does not taste as good, in my opinion.

Summary Statement
In my project, I tested automated vending machine water for alkalinity, water hardness, pH level, free and total chlorine and Coliform bacteria.

Help Received
Mrs. Reed, my science teacher, provided the testing materials for my project and gave me great advice. My mother taught me Microsoft Excel so I could do the charts and she helped with the lay-out of my board. My dad drove me all over San Diego to get the water samples for my project.