CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)

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Project Number

S0511

Project Title

Thirsty? What Would You Like to Drink? Well Water: Is It Healthy, or Is Bottled Water or City Water Better?

Abstract

Objectives/Goals

To determine if rural water from wells is just as good as city and bottled water.

Methods/Materials

MATERIALS-water sample containers, testing containers, GPS Device, TDS/EC probe tester, distilled water, bottled waters, pH tester, Nitrate Test Kit.

PROCEDURE-Collect Water Samples, number them and use GPS. Describe Source. Test water quality in test containers. Test each sample for Total Dissolved Solids and Electrical Conductivity (salinity), and pH. Record results. Determine Turbidity. Observe the clarity of the waters. Use the Nitrate Test Kit to test for nitrates. Compare, rate and record results. Make Conclusions.

Results

The city water had an Average: TDS of 196, pH of 8.3, EC of 389, and a Turbidity of 2.8. The rural well water had an Average: TDS of 355, PH of 7.4, EC of 717, and a Turbidity of 3.5. The bottled water had an Average: TDS of 97, PH of 6.5, EC of 186, and a Turbidity of 1. All the samples tested negative for nitrates.

Conclusions/Discussion

Some well waters were better than city and bottle waters and vice versa. All waters are different. I concluded that many factors can affect the quality of water. Waters vary by a variety of circumstances. Well water varies from many different factors in the environment. Well water is not necessarily better or worse than city or bottled water. The depth to the aquifer, the underground environment at a specific place, the surface elevation of the well, and distance from cities and mountains all make a difference in the quality of water.

Some of the waters had a high pH that did not meet the water standards for drinking water, which could have been caused by the CO_2 or other dissolved gases in the water. This could be a marketing ploy: if the water has a lower pH, your body has to make up for it and neutralize it. In that process, it makes you dehydrated faster, and you will need to buy more of their water.

The highest EC/TDS was in well water, but even one of the city waters was slightly beyond Drinking Water Standards.

Since all waters are different, if you are going to be drinking a certain water for a long period of time, it is best to have it tested. It's good to know what you put in your mouth.

Summary Statement

My project is about comparing the quality of rural well water with that of city and bottled water.

Help Received

My Dad drove me to different well and home sites to get water samples and supervised my water analysis tests.