CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)
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Project Number
34964

Project Title
Soaking in Soda: Good for Pennies, Bad for Teeth

Abstract

Objectives/Goals
To determine which soda, if any, will clean the tarnish and corrosion off of a penny after a week of soaking in the beverage. If the sodas can remove corrosion, I will infer from the results which soda is most likely to harm your teeth's enamel.

Methods/Materials
Methods- The first step in my experiment was to choose similarly worn, and corroded pennies to test. I selected six pennies for each soda. One to use as a #control# penny to compare the results to, and five to test in the soda. Since the difference in corrosion levels between the pennies was a variable that couldn#t eliminate, I tried to select pennies that were very similar to the #control# penny to reduce the variable as much as possible.
The second step was to label plastic cups with the name of the soda and to fill each cup with exactly 4 oz. of that soda. I placed a control penny for each soda in front of each row, and placed a penny in each cup. I soaked the pennies for one week in the sodas.
At the end of the week, I removed the pennies from the cups and rinsed them off with water. I grouped the pennies by soda and compared them to the control penny for each soda. I ranked the pennies to determine how much each had been cleaned. I was then able to determine which sodas had the greatest effect, on average.
Materials- corroded pennies, 20 different carbonated beverages, 100 plastic cups, measuring cup.

Results
With the exception of water, which was my control beverage, all of the other sodas cleaned of some corrosion on the pennies teste4d. The soda that seemed to remove the least amount of corrosion was A&W Root Beer. The sodas that removed the most amount of corrosion were Dr. Pepper and Pepsi.

Conclusions/Discussion
I could infer from the results that these sodas would likely wear away the enamel of your teeth him a similar way that they removed the corrosion from pennies. Although the pennies in my experiment soaked in the sodas for a week, I had observed that remains on your teeth for even a short period of time can start having an effect on your enamel. Therefore it is best to brush your teeth as soon after drinking any of these sodas. All of these sodas tested removed some level of corrosion from the pennies, and can wear away the enamel of your teeth. Therefore, the safest beverage to select to protect your teeth is water.

Summary Statement
Are the ingredients in different types of soda powerful enough to clean off a corroded penny (and likewise harm the enamel of your teeth as well)?

Help Received
Father helped print and mount paper on board.