Name(s)	Project Number
Page B. Benoit	**J1504**

Project Title

Ten Little Teeth and How They Dissolved!

Abstract

Objectives/Goals

The purpose of my experiment was to examine the affect of certain liquids on teeth. I wanted to find out if the teeth would dissolve more (get lighter) the higher the acidity of the liquid. My hypothesis was that the teeth in the most acidic liquid would dissolve the most (lose the most weight).

Methods/Materials

I got ten teeth from an oral surgeon. At a dental office, I put on protective clothiing and cleaned the teeth with an ultrasonic cleaner and steam sterilized them in an autoclave. Once cleaned, I put each tooth in a numbered jar, labeled 1-10.I filled two jars with: distilled water, soymilk, Coke, vinegar and lemon juice. I used two teeth in each liquid in an effort to replicate my results. I let them sit in the liquids for one week. Then I cleaned the teeth and jars, weighed the teeth and put them back in their jars with fresh liquid. I repeated this procedure for three weeks.I also measured the acidity of each liquid.

Results

Vinegar and lemon juice were the most acidic liquids with a pH of 2.0. The teeth in these liquids lost the most weight. They also changed the most in appearance. I had two unexpected results. The first was that soymilk dissolved the teeth more then Coke. Coke was acidic at a pH of 2.5 while soymilk was basic at a pH of 8.4 but both the teeth in the soymilk lost more weight. The second interesting result was that distilled water had a pH of 4.7. That is slightly acidic and more acidic then the soymilk. That was unexpected because I thought distilled water was my neutral liquid. I went on the internet and found that distilled water is very reactive to carbon dioxide and when they combine they make acids.

Conclusions/Discussion

My results supported my hypothesis. The teeth in the most acidic liquids lost the most weight. I learned in my research that the acids react chemically with the calcium and minerals in the enamel and dissolve them. I think my experiment showed this happened. This is important because now people know what's happening in their mouths when they drink these liquids and don't brush their teeth. They are at risk for more cavities. Many people might have speculated that Coke was the worst drink for your teeth but my results suggest lemon juice or vinegar, often found in drinks and salad dressings, might be of more concern. The bottom line is to brush after every meal!

Summary Statement

I put ten human teeth in five different liquids, varying in acidity levels, for three weeks and found that the teeth in the most acidic liquids lost the most weight and changed the most in appearance.

Help Received

Father helped purchase teeth, at the dental office,and on the internet to purchase items and do reasearch, Mother helped type and proof read.