CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY

Name(s)
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Project Number
J0409

Project Title
How Does Temperature Affect the Amount of Vitamin C in Citrus Fruit Juice?

Abstract

Objectives/Goals
The purpose of my experiment was to find out how the amount of vitamin C in fruit juice is affected when thte juice is heated, refrigerated, or stored at room temperature.

Methods/Materials
I tested four different types of juices: orange, lemon, lime, and grapefruit. To test the amount of vitamin C in the juice, I performed a simple titration--after adding about ten drops of a solution made of baking soda and water to the juice, I added drops of iodine to the juice until it had dramatically changed color. The more drops of iodine it took for the solution to change color, the more vitamin C there was in the juice.

Results
I hypothesized that the juice stored at room temperature would have the most vitamin C. This was correct in all of the juices except grapefruit, in which the juice that was heated had the most vitamin C. What surprised me about my results was that with all four juices, the juice that was stored in the refrigerator had the lowest amount of vitamin C. While this is how fruit juice is generally stored, my experiment shows that storing juice this way can actually damage the vitamin C content.

Conclusions/Discussion
Through my experiment, I discovered that although many people may prefer fruit juice that has been refrigerated, the nutrients in the juice would be better preserved if it was stored at room temperature.

Summary Statement
The purpose of my experiment was to find out how the amount of vitamin C in fruit juice is affected when the juice is heated, refrigerated, or stored at room temperature.

Help Received
none