CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY

Name(s)
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Project Number
J0510

Project Title
C The Juice: Temperature and Vitamin C

Abstract

Objectives/Goals
People are seeking to get the best health benefits and research shows fruit juices are high in Vitamin C. Will the Vitamin C content of fruit juices be affected by temperature? It was hypothesized Vitamin C would be affected in the chilling of various fruit juices as research shows when juices are exposed to oxygen, it lowers the Vitamin C count.

Methods/Materials
The mg of Vitamin C in bottled and fresh squeezed juices at room temperature and with those chilled for two hours were tested. Control tests found the average number of drops of iodine needed to react with 25 mg of Vitamin C was 50. Iodine drops were added to each identical measured sample jar of 10 different bottled fruit juices along with a starch solution until a blue/black color indicated a reaction with the Vitamin C. The percentage decrease from room to chilled temperature was found by 100 minus the mg of chilled temperature which had been divided by the mg of Vitamin C at room temperature. 3 tests of 10 bottled juices were run in experiment 1 and 5 tests of 10 different types of fresh squeezed and bottled juices in experiment 2.

Results
All of the bottled and fresh juices tested at room temperature and then chilled showed a drop in the mg concentration of Vitamin C. The mg concentration of Vitamin C in fresh squeezed juices was less than in bottled. The percentage decrease from room to chilled temperature remained basically the same results as those in bottled juices. Most of the juices dropped an acerage of 50-60% from room to chilled temperature.

Conclusions/Discussion
In both experiments, the hypothesis was correct because Vitamin C was affected after chilling fruit juices. People should drink their juices immediately upon opening for maximum Vitamin C benefit. It has been shown that bottled fruit juices have a higher concentration because Vitamin C is added. The percentage decrease in all samples was the same. This proves that temperature does affect juices and fresh squeezed juices dont give you more Vitamin C benefit.

Summary Statement
To see the affect chilling on the Vitamin C content in 10 various fruit juices.

Help Received
My parents drove me and bought materials. My sister helped me with science fair guidelines.