CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY

Name(s)
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Project Number
J0501

Project Title
Apple Dehydration

Abstract

Objectives/Goals
The objective of this experiment was to determine whether salt water or lemon juice had any effect on the rate of dehydration of different types of apples. The hypothesis was that lemon juice would increase the rate of dehydration.

Methods/Materials
Three different types of apples were used; Granny Smith, Gala, and Golden Delicious. 27 apple slices were weighed before and after being dipped in three solutions: distilled water, salt water, and lemon juice. Specimens were placed on appropriate, color-coded screens, within a cardboard chamber, near a window. Daily measurements were taken until weight loss became constant; thus, dehydration was reached.

Results
No significant difference was found in the rate of dehydration between the 3 types of apples(A,B,C). The major finding was that regardless of type, all apples experienced a water loss ranging from 83%-87%. Apples dipped in a salt water solution dehydrated marginally slower than apples dipped in distilled water. The difference of the daily percentage of water loss between apples dipped in salt water(AY,BY,CY) and those dipped in distilled water(AX,BX,CX) ranged from 2%-7%. Also, salt water had the most antioxidant effect on the apples. Most water loss occurred between the first 3 days of the experiment.

Conclusions/Discussion
The data from this experiment did not support the hypothesis, which stated that the addition of lemon juice would increase the rate of apple dehydration. Salt water had a slower rate of dehydration during the 1st 3 days of the experiment.

Summary Statement
The purpose of my experiment was to find out whether the application of lemon juice or salt water had any effect on the rate of dehydration of different types of apples.

Help Received
Dad helped me create home-made apple slicer, color-coded screens, graphs , charts and water loss percentages . Mom took me to various libraries for research as well as helped in dipping apples in their solutions and taking pictures during experimentation.