CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY

Name(s)
William R. Cabison

Project Number
J0504

Project Title
Vitamin C Determination by Iodine Titration

Abstract

Objectives/Goals
The objective of this experiment is to determine which citrus fruit contains the most ascorbic acid through iodine titration.

Methods/Materials
A vitamin C (ascorbic acid) standard solution and a starch indicator were made. The iodine solution was the titrating agent and ascorbic acid was the titrant. Seven citrus fruits were tested in this experiment. With the iodine solution, 15mL of vitamin C standard solution and the 15mL juice samples of each fruit were titrated using a burette. Iodine solution was continually added to the mixture until the titration endpoint, a distinct color change in the solution with dark purple sediment, was reached. The amount of ascorbic acid present in a 1 cup juice sample of a fruit was calculated by using ratio proportions.

Results
Of the seven tested citrus fruits, the navel orange contained the most ascorbic acid in 1 cup of juice with 143.2mg of vitamin C. The citrus fruit with the least amount of ascorbic acid in 1 cup of juice was the California mandarin orange with 74.7mg of vitamin C. The 15mL juice sample with the greatest volume of iodine solution titrated to it indicates that the most ascorbic acid is present within the solution.

Conclusions/Discussion
My conclusion is that the navel orange contains the most ascorbic acid in 1 cup of juice, followed by the Texas grapefruit, the lemon and the red pummelo, the key lime, the Minneola tangelo, and the California mandarin orange.

Summary Statement
Citrus fruits were tested in order to determine which of them contain the most ascorbic acid by iodine titration.

Help Received
Cousin helped as a mentor; Teachers helped with report; Father and cousin helped with display board.