CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)
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Project Number
J0503

Project Title
"C-ing" the Hot Potato: Measuring Vitamin C through Iodine Titration

Abstract

Objectives/Goals
The project was to determine whether lowering the power and extending the microwave cooking time has an effect on vitamin C remaining in cooked red yams. It was thought that the lowest power setting would preserve the most vitamin C.

Methods/Materials
One yam was left uncooked as the control. Four others were microwaved at 100%, 70%, 50%, and 30% power settings, with the time adjusted in an inverse proportion. Three liquid samples of each yam were made and titrated using an iodine, vinegar, and water solution.

Results
Overall, the amount of vitamin C did increase as the power decreased. In the 100% power group, 3.73 mg of vitamin C was detected, followed by 4.16 mg in the 70% power group, 4.35 mg in the 50% power group, and 4.65 mg in the 30% power group. The lowest amount of vitamin C was consistently detected in the raw yam, which is contrary to the fact that cooking destroys vitamin C.

Conclusions/Discussion
Lowering the power setting does preserve more vitamin C, as was hypothesized. It was also found that iodine titration is not a reliable method to detect all of the vitamin C present in raw yams.

Summary Statement
Changing microwave oven settings to fully cook a yam does affect the remaining vitamin C content.

Help Received
Father helped dissolve iodine stock solution in his lab.