CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)
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Project Number
S0502

Project Title
Can You "C" The Difference?

Abstract

Objectives/Goals
This project compares genetically modified fruits (such as oranges, apples, watermelons, and papayas) against their non-genetically modified alternatives, to determine which has higher content of Vitamin C.

Methods/Materials
The juice of each fruit was added to iodine (0.08 ml) to determine the amount of Vitamin C (also referred to as ascorbic acid) contained in that fruit. If a fruit was composed of a particularly high ascorbic acid level, then just a few drops (maybe even less than 1 ml) of juice would turn the iodine transparent. Non-genetically modified Gala Apple; Genetically modified Ambrosia Apple; Genetically modified Cameo Apple; Genetically modified Honey Crisp Apple; Non-genetically modified Navel Orange; Genetically modified Navel Orange; Genetically modified Cara Cara Orange; Non-genetically modified Seedless Watermelon; Genetically modified Seedless Watermelon; Non-genetically modified Papaya; Genetically modified Papaya; Vitamin C tablet (500 mg tablets); Tincture of iodine; Dropper; Plastic cups (sample size); Labels for each vitamin C source; Kitchen knife/butter knife; Grater; Strainer/sieve; Bowl (preferably a cereal bowl); Spoon.

Results
No definite experimental results were obtained, thus disproving my hypothesis. The non-GMO orange contained more Vitamin C than the genetically engineered oranges, whereas the GMO papaya, GMO watermelon, and GMO apple had a higher level of Vitamin C than those of non-genetic modification.

Conclusions/Discussion
The results were mixed, and therefore my hypothesis was not definite. The one result that disproved my assumption prior to conducting the experiment was the high ascorbic acid content in the non-genetically modified Orange. This result differed from my hypothesis in that the assumption was the genetically modified oranges would have a higher level of Vitamin C than the non-GMO orange. Unlike the oranges, the apples, papayas, and watermelons supported my hypothesis. All three fruits containing genetically altered DNA contained more ascorbic acid than their non-genetically modified alternatives.

Summary Statement
This project tests the efficacy of genetically modifying a fruit to increase its Vitamin C content.

Help Received
Mother helped purchase fruit and items for display.