CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)

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Project Number

J1915

Project Title

The Effects of Container Size on the Ascorbic Acid Content of Solanum lycopersicum

Abstract

Objectives/Goals

The objective is to determine whether potted Solanum lycopersicum plants' container size can affect the ascorbic acid production by its fruits.

Methods/Materials

Six Solanum lycopersicum plants were grown in three different container sizes (24.57 L, 15.14 L, and 10.85 L) over a period of 2.75 months and watered regularly. Afterwards, two fruits were harvested from each of the plants and blended. Using a starch-iodine titration, the ascorbic acid content of each plant's tomatoes was calculated. The data of each plant's tomatoes was then analyzed and compared to those of the other fruits tested.

Results

It was found that Solanum lycopersicum plants grown in the largest containers had fruits with an average Vitamin C ratio of 1.3636mg per given tomato volume of 10cm3, whereas those in the smallest containers had 0.96365mg of Vitamin C/ 10cm3. Solanum lycopersicum plants grown in the middle sized containers had an average of 1mg/10cm3.

Conclusions/Discussion

The results indicate that increasing container size does have a positive effect on the ascorbic acid production by the fruits of the Solanum lycopersicum, supporting the hypothesis. As more soil space is given to the plants, a better development of the plant was established. Thus, more ascorbic acid was produced by the fruits, providing for a more nutritionally efficient harvest.

Summary Statement

Different sized containers were used to grow Solanum lycopersicum plants to test its effect on the fruits' ascorbic acid production.

Help Received

Family helped construct the board; Ridgecrest Intermediate School lent measurement lab tools.