



CALIFORNIA STATE SCIENCE FAIR 2011 PROJECT SUMMARY

Name(s) Nilay S. Sawant	Project Number 31473
Project Title Effect of Microwaving, Sunlight, and Heat Temperature on Vitamin C	
Abstract Objectives/Goals The objective is to determine the effect of Sunlight, Heat Temperature and Microwaving on vitamin C content in vegetable and fruit juices. I believe that microwaving and heat temperature will destroy the vitamin C but exposure to sunlight will increase the vitamin C content. Methods/Materials Glass cups, 500mg vitamin C tablet, dropper with measurements in ml, 500 ml measuring cup, corn starch, tincture iodine, various fruits, vegetables and fruit juices are needed to do this science project. Iodine Titration method was used to determine the vitamin C content in foods. Iodine-starch solution was prepared by adding tincture iodine drops to starch mixture. Iodine-starch solution was used to perform the titration against different fruit and vegetable juices. The iodine-starch solution was calibrated against vitamin C tablet solution. The same batch of iodine-starch solution was used for all tests. The content of vitamin C in the juices before and after the juices were exposed to microwave radiation, sunlight and heat temperature, was recorded by performing titration against the calibrated iodine-starch solution. Percent decrease of vitamin C content was compared among different juices and across different effects. Results Exposure to sunlight, heat temperature and microwave radiation destroyed vitamin C content in foods. The rate of destruction of vitamin C in different juices for different effects was not uniform. In some cases, the rate of destruction was slower initially but increased later for longer duration readings. Where as in other cases, the rate of destruction was faster initially but dropped drastically for longer duration readings. Conclusions/Discussion Vitamin C is very important for humans as unlike other organisms humans cannot make their own vitamin C. Humans get vitamin C from the food they eat. Inadequate vitamin C intake may lead to diseases such as Scurvy and Coronary Heart disease. Hence it is important to find out the changes to vitamin C content during the meal preparation. My hypothesis was correct on the effect of microwaving and heat temperature on vitamin C content. Microwave radiation and heat temperature destroyed the vitamin C content in the food. However I was wrong on the effect of sunlight exposure on vitamin C content. Sunlight exposure also destroyed vitamin C content in the food.	
Summary Statement Exposing vitamin C rich foods to sunlight, microwave radiation, and heat temperature decreases the vitamin C content at differing rates, and we can use these results to alter our cooking methods in order to preserve the most vitamin C.	
Help Received Parents helped me in purchasing materials for the project.	