



CALIFORNIA STATE SCIENCE FAIR 2014 PROJECT SUMMARY

Name(s) Joseph N. Blinder	Project Number J2004
Project Title Why Juice?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective is to investigate what happens to the vitamin C content of 3 freshly squeezed juices as they undergo processes similar to those performed on the juices sold at the supermarkets, i.e. flash pasteurization and addition of sugars to enhance the taste of the juice.</p> <p>Methods/Materials I used titration to measure the content of vitamin C in freshly squeezed apple, orange, and pomegranate juices. I prepared a royal blue starch-iodine solution and measured how many drops of juice were needed to cause the solution to change its color from royal blue to the color of the juice being tested. Then I warmed up each juice imitating flash pasteurization technique and checked the content of vitamin C. I then added sugar to each of the three juices and checked the content of vitamin C. My control group were the 3 different kinds of freshly squeezed juices (non-heated, non-sweetened). The experimental group consisted of juices heated to 80C, 90C, 100C and juices sweetened with 2g, 4g, and 6g of sugar.</p> <p>Results When I added sugar to the juice, the more sugar was added, the more drops of juice were needed to make the indicator lose its royal blue color, meaning that there was less vitamin C in each drop of juice. This means that the more sugar was added to the juice the less vitamin C it had. The higher temperature I exposed the juice to, the more drops of juice were needed to make the indicator solution lose its royal blue color, i.e. the less vitamin C was present in the juice.</p> <p>Conclusions/Discussion My hypothesis for this project stated 1)If the freshly squeezed juices are mixed with sugar then the juices lose some of their vitamin C because of the chemical reaction between ascorbic acid and sugar. 2)And if the freshly squeezed juices are heated, then the juices lose some of their vitamin C because the high temperature speeds up the reaction between air and ascorbic acid causing ascorbic acid to break down. The results showed that both parts of my hypothesis should be accepted. My experiment proved that freshly squeezed juices are healthier than those juices purchased in stores.</p>	
Summary Statement I investigated what happens to the vitamin C content of different freshly squeezed juices as they undergo processes similar to the ones performed on the juices sold in stores.	
Help Received Mother supervised and helped operate the stove when I was flash-pasteurizing the juice.	