



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Ramakrishnan Kumaran	Project Number J0413
Project Title Vitamin C: Mortal in Heat, Immortal in Cold	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals To determine vitamin C stability in citrus fruits stored at room temperature (28 degrees Celsius) for two weeks.</p> <p>Methods/Materials 10 percent tangerine (<i>Citrus reticulata</i>) juice was titrated against iodine solution with starch as an indicator: starch indicates the endpoint of reaction between vitamin C and iodine by changing the color of the solution from colorless to a bluish-purple solution. Tangerines were stored in oven with light on to maintain a constant temperature of 28 degrees Celsius.</p> <p>Results Reduction of Vitamin C concentration was observed in tangerines stored at room temperature for two weeks. Vitamin C dropped steeply during the first two days, but declined more gradually during the next eleven days.</p> <p>Conclusions/Discussion The observed decrease in Vitamin C concentration in tangerines stored at room temperature possibly occurred due to increased fructose production, thereby leading to Vitamin C decomposition. The above investigation can be improved by reading core temperatures of fruit-samples for accuracy, and testing a single tangerine over a period of time instead of testing several individual fruit samples. Similar tests can be performed on a variety of fresh produce, to understand the effect of room temperature on destruction/depletion of essential nutrients in fruits and vegetables.</p>	
Summary Statement This project tested whether or not the Vitamin C content in citrus fruits (tangerines) declined over the course of two weeks when stored at room temperature.	
Help Received Parents helped create board and proofread articles; our neighbor helped by contributing fruits for conducting the study; teachers offered their tireless support, encouragement and valuable thoughts.	