



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Camille T. Miake</b>	<b>Project Number</b> <b>J0521</b>
<b>Project Title</b> <b>Got Vitamin C? Determining the Relative Amount of Vitamin C in Preserved Fruits using Titration</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective is to find which method of food preservation retains the most vitamin C content in kiwis and oranges using the titration method.</p> <p><b>Methods/Materials</b> Nine of the same type of oranges and 16 of the same type of kiwis were preserved 4 different ways, with a sample left fresh. The fruits were frozen, dried, canned, and boiled. A cornstarch-iodine solution was then made, as an indicator solution, by mixing cornstarch, iodine, and water. To perform the titration method the juice of the preserved fruits had to be obtained. To obtain the juice, preserved fruit pieces and water were blended together, then filtered which left the juice of the preserved fruits.</p> <p>The juice was then added to 10 mL of the cornstarch-iodine solution, a drop at a time. After each drop was added, the mixture was stirred, to see if there was a color change. The number of drops required to change the color of the cornstarch-iodine solution was recorded.</p> <p>The results of the tests were normalized to account for the differences in the amount of vitamin C in the kiwis and oranges, and were then compared.</p> <p><b>Results</b> The fresh sample contained the most vitamin C, and the best preserved sample was the frozen fruit. The second best was the dried fruit sample. The third was the canned fruit sample. And finally, the boiled sample contained the least amount of vitamin C.</p> <p><b>Conclusions/Discussion</b> My conclusion is that the different methods of food preservation have a large effect on the vitamin C in fruits. And also that the freezing method was the best at retaining vitamin C, which was my original hypothesis.</p>	
<b>Summary Statement</b> Determining the relative amounts of vitamin C in preserved fruits using the titration method.	
<b>Help Received</b> Mr. Kaleikau helped me to understand the parts of the Scientific Method; Mother helped print papers, research, and assemble board; Father helped cut the board and identify the parts of the Scientific Method; Mariani, Dole, Ocean Spray, and Del Monte for providing information	