



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Camille T. Miake</b>	<b>Project Number</b> <b>J0512</b>
<b>Project Title</b> <b>Orange You Glad You Have Vitamin C? Citrus Fruits: Their Absolute Vitamin C Content and How It Is Affected by Storage</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Which citrus fruit contains the highest absolute vitamin C content? Is that value affected if it is covered or uncovered? My objective is to find which type of citrus fruit contains the highest absolute vitamin C content and to see if over time having the fruit juice covered or uncovered affects the vitamin C content.</p> <p><b>Methods/Materials</b> 5cc Syringe, Plastic containers with lids, Plastic containers without lids, 500mL of 1% starch solution, Iodine, 250mg vitamin C tablets, 25mL Pipette, 100mL Burette with stop cock, 250mL of distilled water, Juicer, 2125mL of juice of the following: Florida grapefruit, Lemons, Valencia oranges, Limes, Minello Tangerines. I used the titration method to test for the absolute vitamin C content in the juices.</p> <p><b>Results</b> Results were as follows: for the fresh test, the oranges had the highest vitamin C content, followed by lemons, grapefruits, tangerines, and limes. When looking at the vitamin C content in the stored juice both the covered and uncovered samples had about the same amount of vitamin C content by day 8, though it was lost at different rates.</p> <p><b>Conclusions/Discussion</b> Valencia oranges had the highest absolute vitamin C content when freshly squeezed. This disproved my hypothesis that the lemons would have the highest content. I have also concluded that the environment in which juice is stored can affect its vitamin C content but not as significantly as I expected. At first the covered juice lost vitamin C slower than the uncovered, however, it kept losing each day. The uncovered lost vitamin C content very rapidly within the first few days but was then able to stabilize itself to the point that by day 8 it had basically the same vitamin C content as the covered.</p>	
<b>Summary Statement</b> Testing different citrus fruits for their absolute vitamin C content and how that value is affected by storage	
<b>Help Received</b> Mother helped research, print papers, and design board and Father for getting me a burette and pipette and identify the different parts of the Scientific Method.	