



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> Samuel S. Habib	<b>Project Number</b> <b>J0512</b>
<b>Project Title</b> <b>Vitamin C Content: Analysis of Food (Fruit and Vegetable Juices) by Titration</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Which fruit juices and vegetable juices contain the most amount of vitamin C? Comparing vitamin C in fruit drinks and fresh fruit juices. Does vitamin C have any anti-oxidant properties? Does temperature affect vitamin C content? Is vitamin C sensitive to oxygen and light? <b>Methods/Materials</b> Titrations of Standard vitamin C with starch and iodine were first done-this was a calibration.Drops of iodine needed for the end-point(Permanent blue-black color) were recorded.Next several titrations were done to determine concentration of vitaminC in various fruit and vegetable juices. Affect of temperature on vitamin C was investigated by titrating boiled , then frozen orange juice. Anti-oxidant properties were investigated by cutting an apple in half and sprinkling crushed vitamin C tablet on one half,then observing both halves every hour, for one day, to see if the apples enzymatic surface browning was affected. Light and oxygen sensitivity were investigated by finding vitamin C content in an open container of orange juice and in a closed container of orange juice over a period of 7 days. <b>Results</b> The grocery bought orange juice had 24mg vit.C.The grocery bought apple juice had 75mg vit.C.This was not accurate since vit.C is usually added in processed juices. However freshly juiced orange had the most vit. C of 9mg compared to freshly juiced apple which had 3mg only.Green pepper juice had 8mg of vitamin C. Boiling orange juice almost destroyed the vitamin C content. Vitamin C sprinkled on the cut apple prevented surface browning even after one day. Vitamin C content diminished when stored in an open container. <b>Conclusions/Discussion</b> Orange juice does in fact have the most vitamin C.Surprisingly the green pepper juice had almost the same amount of vitamin C as orange juice. Temperature does affect vitamin C content - boling almost destroys it but freezing has little affect. Vitamin C does have anti-oxidant properties.Vitamin C is readily oxidized itself so it prevents other chemicals from being oxidized. Vitamin C is very sensitive to oxygen,light and heat.	
<b>Summary Statement</b> Finding vitamin C in fruit and vegetable juices and investigating its properties and sensitivity.	
<b>Help Received</b> Mother explained the chemistry background.Sister helped type report.	