



CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s) Adeline Chiang	Project Number 31934
Project Title The Effect of Temperature on Ascorbic Acid in Orange Juice	
Abstract Objectives/Goals The objective was to determine if temperature affects the ascorbic concentration of orange juices, and if there is an effect, what temperature affects it most and least? Methods/Materials The two types of orange juices used were 100% pure and natural orange juice and orange juice from concentrate. The orange juices were all poured into flasks for preparation. Then, they were placed in different temperatures for 6 hours. I conducted my experiment at 3 and 6 hours by inserting 5mL of an iodine indicator solution into the test tubes. Then, I recorded the number of orange juice drops the indicator solution required to reach the equivalence point. The lower the number of juice drops, the more ascorbic acid present. The indicator solution is blue until equivalence point is reached turning it clear. I also calculated the ascorbic concentration of the trials by figuring out the molar mass of ascorbic acid and the mol of iodine used in my indicator solution. Results My data showed that the heated orange juices needed the most drops to titrate and room temperature needs least. This means that the heated orange juices contained the least amount of ascorbic acid and room temperature contained the most amount of ascorbic acid instead of chilled as I predicted. Conclusions/Discussion My hypothesis is rejected because I predicted chilled orange juices would have most ascorbic acid but the results show room temperature contains most. If I did this project again, I would also experiment with fresh orange juice. To keep the chilled orange juices in the same condition while I'm experimenting, I will put the flask of orange juice in cold water. To ensure accuracy, I hope I will be able to use micropipettes because they can accurately dispense the correct amount every time.	
Summary Statement My project is about how temperature affects the ascorbic content of the orange juice after being placed in a certain temperature for 6 hours.	
Help Received Chemistry teacher helped me understand the scientific terms and how to calculate the ascorbic concentration of the orange juices.	