



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> <b>Roxana Rodriguez</b>	<b>Project Number</b> <b>S0523</b>
<b>Project Title</b> <b>Milk in Your Tea? The Effect of Milk on Green Tea Flavonoids</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective is to determine if milk affects green tea flavonoid concentration, and if so, which milk causes the most change in amount of flavonoids. Flavonoids, which are abundant in green tea, are capable of antioxidant activities. <b>Methods/Materials</b> Three samples of tea were prepared; green tea, green tea with skim milk, and green tea with whole milk. Ten milliliters of each sample were then centrifuged. The supernatant was then taken from each sample and an aluminum chloride colorimetric assay was performed on each. Percent transmittance of color was then measured quantitatively using a spectrophotometer for every group. Results were measured at 510 nanometers and recorded. The entire procedure was repeated for every trial conducted. <b>Results</b> Averages of percent transmittance were taken from the total trials conducted. Green tea had an average transmittance of 18.46, skim milk and green tea had 17.06 percent transmittance, and whole milk with green tea had 42.975 percent transmittance. The solution with a higher concentration of flavonoids will have a lower transmittance, as the green tea and green tea with skim milk had. Whole milk with green tea had the highest percent transmittance, meaning it contained the least amount of flavonoids. <b>Conclusions/Discussion</b> The milk which had the most effect on flavonoid concentration was whole milk, while skim milk had concentrations of flavonoids similar to green tea. This could be correlated with the amount of fat found in each milk. Recent research has shown that because milk caseins can affect flavonoid concentration in tea, the antioxidant capabilities of tea within humans can be affected. The results of the trials suggest that whole milk should be evaded in tea if these claims are true.	
<b>Summary Statement</b> My project seeks to determine which kind of milk, when added to green tea, will affect the flavonoid concentration of the tea.	
<b>Help Received</b> Parents bought supplies, Ms. Ramirez de la Cruz supervised and gave advice, Samantha Leon helped design board and provided research materials.	