



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> <b>Amulya M.R. Kunduru</b>	<b>Project Number</b> <b>J0414</b>
<b>Project Title</b> <b>Lemon Juice or a Sugar Solution as an Apple Preservative?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of my experiment is to see whether a sugar solution or lemon juice works better to preserve cut gala apples. To do this I will cut six gala apples into four slices each. I will put eight slices in a clear, plastic container. This will serve as my control sample that will be compared against the other two treatments. Eight more slices will be dipped in a bowl filled with four tablespoons of lemon juice. These slices will go in a clear container labeled "Lemon Juice". The remaining eight slices will be dipped in a bowl filled with four tablespoons of sugar and a quarter cup of water and will go in a container labeled "Sugar". All three containers will stay in the refrigerator for fourteen days. They will be observe every day and observations will be taken in a notebook. <b>Methods/Materials</b> The materials that will be used for this experiment are: six gala apples, a knife, adult supervision, lemon juice(four tablespoons), sugar(four tablespoons), a measuring cup, fourteen days of time, three clear containers, tape, a sharpie, two bowls, a refrigerator, and water(quarter cup). <b>Results</b> My hypothesis was proven right in this experiment. I thought that lemon juice would work as a better preservative for gala apples rather than a sugar-solution because apples contain vitamin C, or ascorbic acid, which can prevent the polyphenol oxidation reaction, or the browning of the apples. My experiment has proved that it is better to preserve apples with the use of lemon juice rather than a sugar-substance. <b>Conclusions/Discussion</b> My data has shown me that it is better to treat apples in lemon juice rather than in a sugar-substance because the lemon juice helps keep the apples healthy and fresh. I noticed that as the days progressed, the control, lemon juice and sugar-substance apples were affected by the polyphenol oxidation reaction by an increase of about five percent. Only on some days did the apples stay the same health wise. Overall, my hypothesis was proven right. I originally thought that lemon juice worked as a better preservative than apples treated with a sugar-substance because lemon juice contains vitamin C which helps prevent the polyphenol oxidation reaction. A sugar-substance would not have been as effective because sugar is only meant to sweeten food. The only way that sugar could act as a preservative is to partially exclude air in the tissues of the apples	
<b>Summary Statement</b> The goal of my experiment is to see whether lemon juice or a sugar solution works best to preserve cut gasla apples.	
<b>Help Received</b> My father helped me cut the apples used in this experiment.	