



# CALIFORNIA STATE SCIENCE FAIR 2013 PROJECT SUMMARY

<b>Name(s)</b> <b>Reena M. Somani</b>	<b>Project Number</b> <b>J2015</b>
<b>Project Title</b> <b>Sweeteners and Sweetness: Is There a Non-Harmful, but Tasty, Sweetener for Teens?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective is to compare the tastes and safety of popular brands of sweeteners and find a non-harmful, but tasty sweetener that the teens will like. My hypothesis is Truvia will be the least harmful because it is obtained from natural substances. But, because it is made of a leaf extract, it may not taste good.</p> <p><b>Methods/Materials</b> Four popular brands of sweeteners (Sweet N Low, Equal, Splenda, and Truvia) were selected for the taste experiment, and solutions were prepared for each sweetener by dissolving 1 packet in 240ml water. 3ml of each solution were measured with a dropper and 6 samples were prepared for tasting of sweeteners. After cleansing the palate, 3 male and 3 female subjects were told to taste randomly placed samples and record their results on a scale of 1 to 5, compared to the solution of cane sugar. Experiment was repeated 3 more times. Extensive research was performed to gather information about these sweeteners, paying particular attention to safety of use.</p> <p><b>Results</b> Equal's taste was consistently very close to sugar, while Sweet N low was rated extra sweet by all subjects. 5 out of 6 subjects liked the taste of Truvia, whereas Splenda was noted to have a weird, bitter after taste. Safety research indicated Truvia was the least harmful sweetener, showing no toxic effects in diabetic or non-diabetic people. Other sweeteners have been linked to cause bladder cancer, lymphomas, and leukemia in rats; minor genetic damages in mouse cells, suppressing beneficial bacteria, and interfering with certain drugs.</p> <p><b>Conclusions/Discussion</b> My hypothesis was proven partially incorrect, as 5 out of 6 subjects liked the taste of Truvia. While Splenda claims that it is made from sugar, it does not taste like sugar because of the three chlorine molecules, which make it 600 times sweeter than sugar, leading to taste bud desensitization. Since Equal and sugar taste so similar, many companies have been adding it to several drinks, such as diet sodas, even though it is the most controversial of sweeteners. Research indicated that Truvia showed no side effects in diabetic or non-diabetic people. In fact it helps feed beneficial micro flora in the gut for a healthy immune system. Since it is fairly new, long term human safety studies are warranted. In conclusion, if you are diabetic, you may need to use a sweetener to keep your blood sugar in check, and, in that case, Truvia looks promising.</p>	
<b>Summary Statement</b> Project compares taste and safety of different sweeteners and shows that Truvia, which is made from natural leaf extract is least harmful and tastes better, but its use must be limited until it is proven safe in long term human studies.	
<b>Help Received</b> Mom helped with poster board, typing, and supervised my experiment; Sister helped with statistical analysis; Dad and Grandma helped with Journal.	