



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Delia M. Bullock	Project Number J2104
Project Title Sweeten Your Knowledge: The Search for the Perfect Sugar Substitute	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my project was to determine which artificial sweetener achieves the lowest calorie content without sacrificing taste.</p> <p>Methods/Materials One mass scale balance was used to measure 12 different types of sweeteners. Baker's Yeast, Ziploc plastic sandwich bags, and measuring cups were used to ferment the sweeteners. The amount of carbon dioxide produced when the sweeteners fermented demonstrated the relative amount of calories. The three sugars with the least amount of calories, as well as refined sugar as a base line, were used in a taste test. In the taste test, I recorded the responses of a group of 30 human subjects to samples of each sweetener. Subjects were asked to rate each sweetener on a sweetness scale of 0 -3 and whether they would use each sweetener.</p> <p>Results While most sweeteners produced significant amounts of carbon dioxide, Truvia, Purevia and Splenda showed almost no fermentation. On the taste test, sugar was by far the most popular, but Splenda performed the best out of the non-sugar sweeteners.</p> <p>Conclusions/Discussion Artificial sweeteners are a billion dollar industry with huge advertising campaigns that can sometimes be misleading. My results clearly show that three artificial sweeteners, Purevia, Truvia and Splenda, were most truthful about their calorie content whereas other sweeteners were not as accurate in their representations. Out of these three lower calorie sweeteners, Splenda was the most popular to human subjects.</p>	
Summary Statement This project focused on product testing of taste and calorie content in sugar substitutes	
Help Received Mother helped with setting up the statistical analysis and conducting the taste test. Father helped with setting up yeast test.	