



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> <b>Katie I. Huston</b>	<b>Project Number</b> <b>J2008</b>
<b>Project Title</b> <b>Yeast + Sugar Substitutes: Rise or Fall?</b>	
<b>Objectives/Goals</b> My project was to determine if it was possible to have yeast react when using the sugar substitutes aspartame (Equal), sucralose (Splenda), and saccharin (Sweet'N Low) and which would produce the most carbon dioxide. My hypothesis was that it is possible to get a reaction with yeast and sugar substitutes and that sucralose would work the best by creating more carbon dioxide.	
<b>Abstract</b> A contraption was made to catch the carbon dioxide that the mixture of sweetener, yeast, and water may produce. A tube connected two bottles; one bottle contains the yeast mixture and the other bottle (upside down in a tub of water) would trap the carbon dioxide by displacing water from inside the bottle. Three trials each were done for sugar, Equal, Splenda, and Sweet'N Low. To measure how much carbon dioxide was trapped, I marked the water level, then filled the marked bottle with water up to the line and finally poured it over into a glass measuring cup. A formula was used to convert ounces into cubic centimeters.	
<b>Methods/Materials</b> A contraption was made to catch the carbon dioxide that the mixture of sweetener, yeast, and water may produce. A tube connected two bottles; one bottle contains the yeast mixture and the other bottle (upside down in a tub of water) would trap the carbon dioxide by displacing water from inside the bottle. Three trials each were done for sugar, Equal, Splenda, and Sweet'N Low. To measure how much carbon dioxide was trapped, I marked the water level, then filled the marked bottle with water up to the line and finally poured it over into a glass measuring cup. A formula was used to convert ounces into cubic centimeters.	
<b>Results</b> All three sugar substitutes reacted with the yeast. Aspartame (Equal) was the sugar substitute that worked the best when combined with yeast and warm water by producing the most carbon dioxide.	
<b>Conclusions/Discussion</b> I believed the artificial sweeteners would react with the yeast because their chemical makeup includes some of the same compounds as sugar. The experimental data supported the first part of my hypothesis in that I did get a reaction from sugar substitutes indicating that it should be accepted. However, the data did not support the second part of my hypothesis that stated sucralose would work best. Sucralose did not react the best indicating the second part of my hypothesis should be rejected. Aspartame (Equal) worked the best when combined with yeast and warm water.	
<b>Summary Statement</b> My project is about determining if it is possible to have yeast react with the sugar substitutes aspartame (Equal), sucralose (Splenda), and saccharin (Sweet'N Low) and which would produce the most carbon dioxide.	
<b>Help Received</b> My mother helped me type my report and helped me glue information to my display board. My dad helped me build my contraption by drilling the hole in the cap.	