



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Clarissa E. Merz	Project Number J1319
Project Title Raisin' Alcohol Yields: A Study of Ethanol Production by Different Yeast Strains	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals What type of yeast strain: Bread Yeast, Champagne Strain, Pasture Red, or Ruby Ferm yeast will be the best to use when fermenting raisins to yield ethyl alcohol for use as an automobile fuel?</p> <p>Methods/Materials METHODS: Gather 1 kg of raisins and boil it in 6 cups of water. Boil for five minutes to sterilize and rehydrate raisins. Put the raisins and water on "mix" in the blender for 10 seconds. Filter out pumice using cheese cloth. Let cool. Check brix level using hydrometer. Adjust to 16 brix. Measure 300 mL of raisin juice and add 50 mL of it to six bottles. Cap off with balloons. Call this trial one. Repeat procedure three times. Let all trials ferment for three days. Check alcohol level using an ebulliometer. Before next trials, clean equipment/bottles with a 2 percent chlorine solution.</p> <p>MATERIALS: Raisins, blender, thermometer, hydrometer, water, cheese cloth, Bread Yeast, Ruby ferm yeast, Champagne strain yeast, Pasture red yeast, Dujardin Salleron ebullometer, graduated cylinder, pencil and data sheet.</p> <p>Results The results are as follows: Bread yeast had an average percent of ethanol 6.9%. Pasture red had an average percent of ethanol of 6.9%. Champagne strain had an average percent of ethanol 4.9% and Ruby ferm had an average percent of ethanol 7.9 %.</p> <p>Conclusions/Discussion My hypothesis was, that based on my research of the yeast strains , Bread Yeast, Champagne strain, Pasture Red and Ruby ferm, Ruby ferm yeast would produce the most ethanol when fermented in raisin juice. The results showed that Ruby ferm yeast yielded the most ethanol from raisin juice fermentation. Therefore, the hypothesis was supported.</p>	
Summary Statement This project focuses on the investigation of which yeast strain is most effective in producing alcohol for fuel additive replacement.	
Help Received My Parents helped with my board and using the ebulliometer , my teacher helped with research information and project input, Phoenix Bio Industries for supplies used	