



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Clara Mangali	Project Number J0507
Project Title Comparing the Ethanol Yields of Plant-Derived Sugars	
Abstract Objectives/Goals The objective of this study was to compare the amount of ethyl alcohol (ethanol) distilled from fermented solutions of granulated sugars derived from plants. Methods/Materials Equal amounts of granulated plant-derived (sugarcane, sugar beet, sugar maples) sugars, dried Brewer's yeast (<i>Saccharomyces cerevisiae</i>) microbes, rubber latex balloons, distilled water, gram scale, and a traditional distillation apparatus with ring stand were used in this experiment. Solutions containing water and each granulated sugar were fermented in a glass bottle with balloon as an airlock. The solutions were distilled to separate out the pure ethyl alcohol. Results The amount of ethyl alcohol distilled from each solution was compared. Trials were repeated to discover which one produced the largest average volume. The fermented solution containing granulated cane sugar proved to contain the largest average amount of ethyl alcohol as reflected in its average yield of distilled liquid ethyl alcohol. Conclusions/Discussion The varying amounts of ethyl alcohol distilled from each solution and the cane sugar containing solution as the producer of the overall largest average volume of ethyl alcohol prove that the best source of sugar for ethanol production is unrefined and rich in glucose. These findings can be applied in the commercial production of ethyl alcohol as a natural fuel and energy source.	
Summary Statement I distilled ethyl alcohol from fermented solutions containing granulated sugars derived from various plant sources and found the most unrefined, glucose rich to yield the largest volume.	
Help Received With approval and consultation from my science teacher, I designed and performed the experiment myself.	