



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2018 PROJECT SUMMARY**

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| <b>Name(s)</b><br><b>Sejal Chopra</b>  | <b>Project Number</b><br><b>J0608</b> |
| <b>Project Title</b><br><b>From Fryer to Fuel</b>  |                                       |
| <b>Abstract</b><br><b>Objectives/Goals</b><br>The purpose of this experiment is to find out which frying grease will produce the most biodiesel in terms of quantity and quality as an end result.<br><b>Methods/Materials</b><br>First, I filtered my four, restaurant obtained oils (Vegetable Oil, Olive Oil, and Canola Oil, then Canola Oil) and removed any traces of water by boiling it. Then, I created methoxide, which was necessary for creating the "base" of my biodiesel. Next, I mixed my heated oil and methoxide and let it sit for three weeks. Distinct layers of glycerol and biodiesel started to form and after three weeks, I siphoned out the oil. Finally, to really test its quality, I ran a few tests, such as the 3/27 methyl alcohol test, to see if my biodiesel truly was biodiesel.<br><b>Results</b><br>My hypothesis is the following: If the amount of biodiesel made is tested from Soybean Oil, Vegetable Oil, Olive Oil, and Canola Oil, then Canola Oil will produce the most biodiesel in the end result. In correspondence with the hypothesis, the average oils produced biodiesel from a greater amount to the least amount in the following order: Vegetable Oil (193 ml), Canola Oil (155 ml), Soybean Oil (116 ml), and Olive Oil (57 ml).<br><b>Conclusions/Discussion</b><br>I learned a lot from doing this project. I learned that out of four commonly used frying greases, Vegetable Oil is the best oil to use in making biodiesel in terms of quantity and quality. From this, I saw how easy it was to accomplish making a simple batch of diesel, and more importantly, the chemistry behind it. This further expanded my knowledge in chemical reactions, which I can definitely apply in the future. |                                       |
| <b>Summary Statement</b><br>I will test which frying grease will produce the most biodiesel in terms of quantity and quality from four commonly used frying oils.  |                                       |
| <b>Help Received</b><br>My mother and father helped me obtaining my oils. My science teacher, John Briner, supervised me during my time experimenting in the lab.  |                                       |