**Research Plan**

Instructions: Using the suggested research activities presented at the end of each lecture, identify at least one activity that you are most interest in and will be involved in upcoming months.

**Faculty Name:** Jesus Garcia

**Email:** jmgarcia534@swtjc.edu

**Institution:** Southwest Texas Junior College

**Title of the Research:** Biodiesel Production from Multiple Vegetable Oil Sources

**Will it be a collaborative work with other partners (if yes, name of the partner):** SWTJC – school of automotive technology.

**Objectives of Activity:**

1. To test efficacy of multiple sources of vegetable oil as substrates for biodiesel production
2. To test Biodiesel-Diesel blends for performance and emissions standards

**Description of the activity:**

1. Small-batch titration of vegetable oils to determine quantity of NaOH required for transesterification.
2. Run through biodiesel generator and measure time of esterification and quality of product.
3. Test BD100, BD80, BD60 and BD40 blends for emissions and determine the blend with the least harmful emissions.

**Possible deliverables/output (a product, software, article, etc.):**

**Product:** A biodiesel blend that can replace diesel fuel for farm equipment (important for Uvalde county as it is primarily farmland)

**Student poster/presentation** detailing progress of the investigation and development of the product.

**Expected Students involved:**

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| --- | --- | --- | --- | --- | --- |
| **Name** | **Email** | **Field of interest** | **Hours/week working** | **Minority?** | **Female Minority?** |
| Kaylynn Wesson | kswesson@swtjc.edu | Chemistry | 15 | No | No |
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