

## Biodiesel Production from Yellow Oleander Seed Oil

**Authors :** S. Rashmi, Devashish Das, N. Spoorthi, H. V. Manasa

**Abstract :** Energy is essential and plays an important role for overall development of a nation. The global economy literally runs on energy. The use of fossil fuels as energy is now widely accepted as unsustainable due to depleting resources and also due to the accumulation of greenhouse gases in the environment, renewable and carbon neutral biodiesel are necessary for environment and economic sustainability. Unfortunately biodiesel produced from oil crop, waste cooking oil and animal fats are not able to replace fossil fuel. Fossil fuels remain the dominant source of primary energy, accounting for 84% of the overall increase in demand. Today biodiesel has come to mean a very specific chemical modification of natural oils. Objectives: To produce biodiesel from yellow oleander seed oil, to test the yield of biodiesel using different types of catalyst (KOH & NaOH). Methodology: Oil is extracted from dried yellow oleander seeds using Soxhlet extractor and oil expeller (bulk). The FFA content of the oil is checked and depending on the FFA value either two steps or single step process is followed to produce biodiesel. Two step processes includes esterification and transesterification, single step includes only transesterification. The properties of biodiesel are checked. Engine test is done for biodiesel produced. Result: It is concluded that biodiesel quality parameters such as yield(85% & 90%), flash point(1710C & 1760C), fire point(1950C & 1980C), viscosity(4.9991 and 5.21 mm<sup>2</sup>/s) for the biodiesel from seed oil of Thevetiaperuviana produced by using KOH & NaOH respectively. Thus the seed oil of Thevetiaperuviana is a viable feedstock for good quality fuel. The outcomes of our project are a substitute for conventional fuel, to reduce petro diesel requirement, improved performance in terms of emissions. Future prospects: Optimization of biodiesel production using response surface method.

**Keywords :** yellow oleander seeds, biodiesel, quality parameters, renewable sources

**Conference Title :** ICECE 2015 : International Conference on Environmental and Civil Engineering

**Conference Location :** Kuala Lumpur, Malaysia

**Conference Dates :** August 24-25, 2015