



**Scienxt Journal of Mechanical Engineering & Technology  
Year-2023; Volume-1; Issue-2, pp. 39-50**

## *Thevetia Peruviana as a Potential Biodiesel for Diesel Engines: Review Approach*

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<https://doi.org/10.5281/zenodo.10033131>

## **Abstract:**

Alkyl esters of long-chain fatty acids, more commonly methyl esters, make up the alternative and renewable fuel for diesel engines known as biodiesel. This fuel is typically produced using non-toxic biological resources like edible and inedible vegetable oils, animal fats, used cooking oils, and oil from algae. Although there are numerous steps in the manufacturing of biodiesel, the transesterification method is successfully used to lower the high viscosity of triglycerides and enhance other properties of the fuel. Since it is a renewable, biodegradable, non-toxic, and environmentally friendly fuel, biodiesel has been selected as one of the interesting alternative fuels and has gained a lot of attention worldwide. The current food crisis and daily rise in feedstock prices make it economically unviable to create biodiesel using food-grade vegetable oils. The use of non-traditional, low-cost feedstocks that are not edible and come from wild plants to make biodiesel has received a lot of interest. Using these unconventional and non-edible feedstocks can be sustainable for the manufacture of biodiesel because they have the ability to reclaim wasteland and do not compete with food crops. *Thevetia peruviana*, a non-edible feedstock, with a 60-65% oil content. This research attempts to analyze biodiesel synthesis, fuel qualities, and blending effects using this oil.

## **Keywords:**

*Thevetia peruviana*, Biodiesel, Transesterification, Performance, Combustion, Emission.