

PERFORMANCE AND EMISSION CHARACTERISTICS OF AMOORA OIL BLEND WITH DIESEL IN CI ENGINES

Project Reference No.: 45S_BE_2875

College : Vemana Institute of Technology, Bengaluru
Branch : Department of Mechanical Engineering
Guide(s) : Mr. Anup T J
Student(S) : Mr. Praveen C Shetty
Mr. Sharath N S Reddy
Mr. Pranav Raju R
Mr. Sudharshan P V

Keywords:

Bio diesel, Diesel Engine, Fuel properties & Amoora oil.

Introduction:

Globally the awareness of energy issues and environmental problems associated with burning conventional fuels has encouraged many researchers to investigate the possibility of using alternate source of energy instead of oil and its derivatives. Usage of bio-diesel will allow a balance to be sought between agriculture, economic development and the environment. The most promising alternative fuel to diesel due to the following reasons.

1. Without any modification of the engine bio diesel can be used
2. Bio diesel is made entirely from vegetable source hence it does not contains any harmful products to environment.
3. Unlike fossil fuels, the use of biodiesel does not contribute to global warming.
4. The occupational safety and Health administration classify bio diesel as a non-flammable liquid.
5. Biodiesel is produced from renewable vegetable oils/animal fats and hence improves fuel or energy security and economy independence.

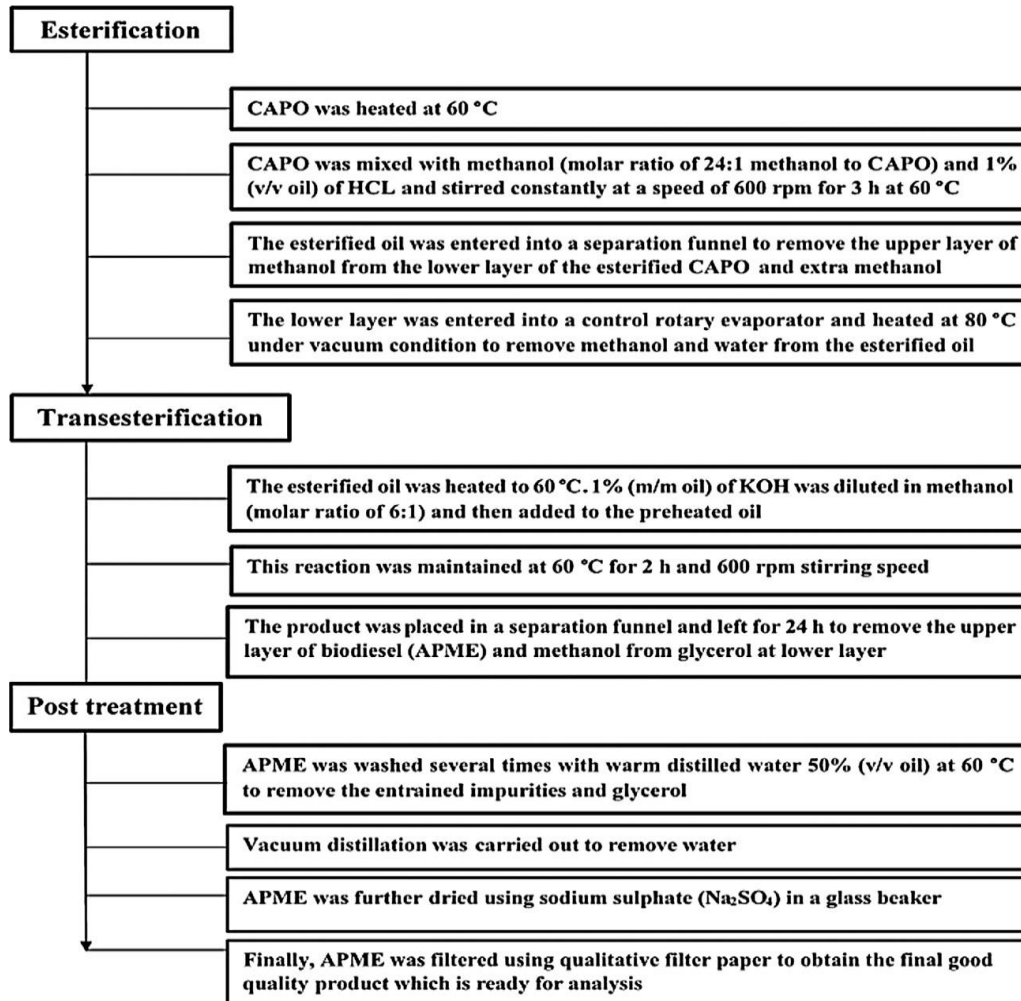
Large number of studies on performance, combustion and emission using raw vegetable oils and methyl/ethyl esters of Pongamia, waste cooking oil, Neem oil, Karnja oil, Jatropha oil, Mahua oil, Surhonne oil have been carried out on compression ignition (CI) engines. The purpose of this paper is to review previous studies that look into the effect of bio diesel on CI engine from the viewpoint of performance, combustion and emission and to study on Amoora biodiesel for internal combustion engine.

Objectives:

1. In this project, plant species, Amoora oil (*Aphanamixis polystachya* oil) used as newer sources for biodiesel production.
2. Transesterification of Amoora oil by using natural catalyst.

3. Trans esterified oil is blended with diesel to analyze the performance and emission characteristic of the CI engines.
4. Blending of the extracted Amoora oil with diesel to the reduce cost of the fuel

Methodology:



CAPO - crude Aphanamixis polystachya oil (Amoora oil)

APME - Aphanamixis polystachya methyl ester (Amoora final grade oil)

Conclusion:

Extraction, Transesterification and fuel properties of biofuel are done. We have to work on engine performance as final stage.

Scope for future work:

With the use of the same methodology, the biofuel blends with diesel for different range upto 30% biofuel and performance test of different blends of biodiesel for different injection pressure.