

Performance of compression ignition engine using Jatropha oil with diesel fuel blend

Research problem:

Problem of this research lies in the study of the impact of a combination of diesel fuel with Jatropha oil on a diesel engine as well as the impact of a combination of diesel fuel with kerosene to the diesel engine.

Research importance:

Importance of this research lies in the possibility of introducing new fuel, cheap, available and has good specifications can be used in diesel engines.

Research objectives:

- Study the effects of diesel fuel and Jatropha oil blend on the performance of diesel engine.
- Study the ability of use kerosene and Jatropha oil blend in C.I engine.

Research approach:

This research will depend mainly on laboratory experiments.

Methodology: This research will depend mainly on experimental tests in the workshop and thermal laboratory. Before the experimental test in the workshop some preparation with the engine and the fuel must be done:

- Cylinder engine will be dismantled and clean the cylinder heads and all other parts.
- The engine will be run firstly by diesel fuel only, and take readings to determine engine performance.
- In the second stage will run the engine with Jatropha oil and diesel fuel blend in ratio of 10J90D, 20J80D, and so on till the full use of Jatropha oil only.
- The chemical and physics analysis of the dilution of Jatropha with diesel fuel will take place simultaneously.
- Dismantling the engine again to investigate the impact of the use of jatropha oil blend with diesel fuel on the engine (the deposit of carbon).
- Finally the engine will be run with dilution of Jatropha oil with kerosene with the same sequence as above.

Anticipated results:

- Improve the performance of the engine when to use Jatropha oil blend with diesel.
- Difficulty to run the engine on cold ratio for high viscosity of Jatropha oil.
- The ability to run the C.I engines by kerosene with Jatropha oil blend.