

# EXPERIMENTAL INVESTIGATION ON PRODUCTION OF BIODIESEL FROM WASTE COOKING OIL USING HETEROGENEOUS CATALYST AND ITS WORKING CHARACTERISTICS ON A CI ENGINE.

## Abstract

The Global crises we are facing today's life are fossil fuel depletion and emitting a high concentration of air pollutants. The search for alternative fuel sources is kind attention to many kinds of research, which consents a pleasant correlation with energy conservation, sustainable development, meets the environmental standards, and efficiency in the current scenario. Biodiesel fuel's physical and chemical properties are sufficiently close to fossil fuel and may be considered as alternative fuels, but continuous usage of biodiesel or their blends causes various operational and durability problems in the CI engine and biodiesel to need to be modified. The present study deals with methods of production of biodiesel from FFA waste cooking oil by a derived heterogeneous catalyst from waste eggshells. The study involves performance, combustion, and emission characteristics of CI engine fuelled with waste cooking oil biodiesel and its blend in comparison with diesel fuel. It is generally produced by the process of esterification or transesterification reaction of FFA in the presence of methanol, catalyst, and temperature over the period of time. Utilization of waste cooking oil as a feedstock for biodiesel production will make the environmentally safe and cleaner for not disposing of water bodies, sustainable and low cost alternative renewable energy sources.

**Keywords:** Biodiesel, CI Engine, Egg Shell Heterogeneous Catalyst, Waste Cooking Oil