

Abstract

The aim of the present work is to investigate the possibility of using eucalyptus biodiesel and its blends with diesel fuel as an alternative fuel for diesel engines. Eucalyptus oil is converted to biodiesel with ethanol using sodium hydroxide as a catalyst. The characterization of the obtained biodiesel shows that the thermo-physical properties are in the range recommended by American Standard (ASTM D6751). Innovative biodiesel development tests on the diesel engine require a lot of time and efforts. Here, mathematical model, which is based on the thermodynamic single zone model, is developed to analyze the combustion characteristics such as cylinder pressure and the performance characteristics such as brake power, brake thermal efficiency and specific fuel consumption of a DI diesel engine