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Production of Quality Biodiesel and Evaluation of Performance and Emission Characteristics of Diesel Engine Using Different Biodiesel Blends

Krunal Pardasani , Shashwat Tiwari , Bikramjit Singh , BB Sahoo
Vellore Institute of Technology, Tamil Nadu 390018, India

Abstract

Production of quality biodiesel and evaluation of performance and emission characteristics of diesel engine using different biodiesel blends: Diesel engine has an excellent reputation for its low setup cost, high-energy efficiency, high stability, and its extreme flexibility for a variety of operating conditions. The energy demands from depleting non-renewable reserves of fossil fuels are increasing nowadays, due to a wide range of applications. The fossil fuels, with the current consumption rates, are getting exhausted in the near future. Hence, there is an increasing interest to transition towards alternative renewable, sustainable, and environmental-friendly fuels. Biofuels are one of the alternative sources of energy with great potential to provide energy, economy and environment security. Biodiesel, compared to the other biofuels, has gained increasing attention worldwide as blending components or direct promising substitution in CI engines. Since current emission standards are focusing more on reducing NO_x than other emissions , then the NO_x emissions of CI engines fuelled with different biodiesel blends are considered in this review. In this study we studied the extraction of oil, seed parameters along with the evaluation of the parameters which are then predicted using Artificial Neural Network using the NN tool by utilising appropriate algorithms on MATLAB® 2015, the predicted values of Specific fuel consumption(sfc), Brake thermal Efficiency which are the performance characteristics, CO, HC,NO_x the pollutants measure which are predicted across loads. In the present study, the effect of various blending ratios of Jatropha and Castor Oil will be studied. For the ANN modelling standard back propagation algorithm was found to be the optimum choice for training the model .The study will also involve the prediction of certain parameters using the Artificial Neural Network technique.

Biography:

KrunalPardasani is currently a graduate student pursing Bachlors in Mechanical Engineering with specialization in Automotive Engineering . He has published 1 research paper till date and have received an International recognization for the same by IJRULA Foundation as “Best researcher Award “ in the year 2018 and have also received “ GD Naidu Young scientist Award” from Vellore Institute of Technology. He has also won technical compitions like Tata Mindrover Challenge 2019 and Techgium 2019 organised by LNTTS.He is always dedicated towards research field in Automotive Sector.

Recent Publications:

1. A Sharma, CP Mohanty, K Pardasani. Finite Element Analysis of Cryogenically Treated EDM. Materials Today: Proceedings. 2018

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