

An Experimental Study on Performance Parameters of Diesel Engine Fueled with Blends of Diesel Fuel and Linseed Biodiesel



Brahma Nand Agrawal, Shailendra Sinha, Sudhir Kumar Singh, Kaushlendra Kumar Dubey, and Manoj Kumar

Abstract An experimental study has been performed to investigate the various performance parameters of a direct injection compression ignition engine fuelled with linseed biodiesel blend share 10–50% with diesel fuel. Furthermore, the empirical relationship has been developed for every performance parameter in terms of engine load and percentage of linseed biodiesel by using regression technique. It could be helpful to determine the values of different performance parameters at any value of engine load and also any blend share of linseed biodiesel. The results indicate that the performance parameters of a diesel engine while using blends deliver results which are better to diesel fuel in terms of brake-specific fuel consumption, indicated mean effective pressure, and indicated power and comparable in term of mechanical efficiency and brake thermal efficiency. The results revealed that L50D50 achieves better outcomes among diesel fuel and all other blends for engine performance of a direct injection compression ignition engine.

Keywords Linseed biodiesel · Diesel fuel · Blended fuel · Performance parameters

B. N. Agrawal (✉) · S. K. Singh · K. K. Dubey · M. Kumar
Department of Mechanical Engineering, Galgotias University, Greater Noida, India
e-mail: agrawalbrahma@gmail.com

S. K. Singh
e-mail: sudhirkumar.singh@galgotiasuniversity.edu.in

K. K. Dubey
e-mail: kaushalendra.dubey@galgotiasuniversity.edu.in

M. Kumar
e-mail: manojkumar@galgotiasuniversity.edu.in

S. Sinha
Department of Mechanical Engineering, Institute of Engineering and Technology, Lucknow, India
e-mail: ssinhaet@gamil.com