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Cyclic Variation and Combustion Analysis of Single Cylinder CI Engine with Cardanol Oil Biodiesel

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Abstract

This study was aimed towards the experimentally investigate on cyclic variation and combustion analysis of cardanol oil biodiesel in a single cylinder CI engine. Three different volumetric blends of cardanol and diesel (B10, B20, and B30) were investigated in diesel engine at 200 bar injection pressure, compression ratio 17.5, and varying load (0, 25, 50, 75 and 100% of full load) conditions. The results of the study indicated that B20 shows good performance as it varies between 1 to 1.5% of COV of Pmax as compared to other blend and diesel. From the MFB and NHRR curve it was evident that B20 biodiesel shown better combustion properties when compared with other blend and neat diesel. Hence, this study reveals that B20 cardanol blend can be used as CI engine fuel with proper tuning of injection parameters.

Keywords: *Cardanol Oil, CI engine, COV, MFB,* NHRR