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Performance and Emissions Analysis of Diesel Engine with Bio-Diesel of Waste Cooking Oils

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Abstract : The waste cooking oil is taken as feedstock for biodiesel production. For this research, waste cooking oil is collected from many hotels and restaurants, and then biodiesel is prepared for experimentation purpose. The prepared biodiesel is mixed with mineral diesel in the proportion of 10%, 20%, and 30% to perform tests on a diesel engine. The experimental analysis is carried out at different load conditions to analyze the impact of the blending ratio on the performance and emission parameters. When the blending proportion of biodiesel is increased, then the highest pressure reduces due to the fall in the calorific value of the blended mixture. Experimental analysis shows a promising decrease in nitrogen oxides (NOx). A mixture of 20% biodiesel and mineral diesel is the best negotiation, mixing ratio, and beyond that, a remarkable reduction in the outcome of the performance has been observed.

Keywords : alternative sources, diesel engine, emissions, performance
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