



## Experimental Investigation on CI Engine to study the Emission Characteristics Using Biogas-Diesel as a Dual fuel

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**Abstract:** Biogas produced by the anaerobic digestion process using various organic wastes is an alternative partial substitution of fossil fuel due to the renewable resources that are widely available. This work is to determine the emission characteristics of CI engine using biogas and diesel in dual fuel mode. To determine the emission characteristics such as hydrocarbon, carbon monoxide, oxides of nitrogen and carbon dioxide using biogas-diesel for practical use by suitable modification on engine intake system. In this work, engine first operated with diesel mode by running the engine at a constant rated speed of 1500 rpm and varying the load between no load to 80% of the full load condition. To determine the emission characteristics, different set of readings were taken by charging the engine with different ratios of biogas and diesel for the above speed and load condition. The obtained emission results reveals that biogas-diesel mode shows less when compare to diesel mode. The results suggest that the engine operating with 80% biogas – 20% diesel mixture offers low emission than any other secondary fuel. The experiment results shows when engine operated with richer biogas-diesel than that of diesel-biogas mixture is better when compare to other mixing ratios under the same operating condition.

**Keywords :** Anaerobic digestion, biogas, dual fuel, compression ignition engine, exhaust emissions characteristics.

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