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Effect of Air Intake Pressure Drop on Performance and Emissions of a Diesel Engine Operating with Biodiesel and Ultra Low Sulphur Diesel (ULSD)

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Abstract. The main objective of this research is to study the effect of the pressure drop in the inlet manifold, on the engine performance and exhaust emission system, the fuel used in this v6 diesel engine is Rapeseed Methy Ester (RME) and a comparison between (RME) fuel and ultra low sulphure diesel (ULSD) was conducted and a steady state test for both fuels were carried at BMEP 3.1 and 4.7 bar. At combustion process in terms of cylinder pressure and heat release, engine performance and exhaust emission were analysed, an experimental evidence showed that, pressure drop increasing in the intake manifold will increase the fuel consumption and reduces the engine efficiency by using both, RME and ULSD. Engine efficiency with RME is 1.2%- 2% lower than ULSD, having exhaust emission level of NO_x and CO slightly higher for RME comparing to ULSD. Emission of unburned hydrocarbon for RME is much smaller than ULSD.