

## NON-EDIBLE KUSUM OIL: POTENTIAL FOLIAGE OF BIODIESEL PRODUCTION AND ITS PRODUCTIVE USE IN MARINE ENGINES

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### ABSTRACT

Biodiesel from non-edible vegetable oils is of paramount significance in India due to insufficient edible oil production. The use of biodiesel has been widely accepted as an effective solution to reduce greenhouse emissions. The high potential of biodiesel in terms of PM, NO<sub>x</sub>, CO and CO<sub>2</sub> emission reduction may represent an additional motivation for its wide use. However the poor low temperature operability is imperative. According to these observations a different behaviour of the after treatment system, especially as far as control issues of the Diesel Particulate Filter are concerned is also expected. The use of biodiesel as alternative to fossil fuel for light duty CI engines to reduce greenhouse gas emissions was widely investigated. However, poor stability of biodiesel - diesel mixture limits the use of biodiesel to low volume concentrations. This paper presents the results concerning the use of a novel fuel additive package containing, pour-point depressant with the aim to increase the quality and amount of biodiesel in the diesel-biodiesel blends. In the above context Kusum oil methyl ester was blended with 10%, 20% ethanol and 10% ethanol diesel (each) to investigate the engine performance and emission characteristics. Result revealed Kusum oil methyl ester blended with 20% ethanol can be fuelled to marine diesel engines without any modification in engine hardware in spite of a negligible power loss.

**KEYWORDS:** KOME: Kusum Oil Methyl Esters, KOMEE20: 80% Kusum Oil Methyl Ester And 20% Ethanol, KOMEE10 D10: 80% Kusum Oil Methyl Ester Blended With 10% Ethanol And 10% Diesel, KOME E10: 90% Kusum Oil Methyl Ester And 10% Ethanol, CKO: Crude Kusum Oil, TEO: Transesterified Oil, FFA: Free Fatty Acids, FAME: Fatty Acid Methyl Ester, RKO: Refined Kusum Oil