



International Journal of Ambient Energy >

Volume 38, 2017 - [Issue 4](#)

177 | 8 | 0
Views | CrossRef citations to date | Altmetric

Articles

Experimental investigations on a variable compression ratio (VCR) CIDI engine with a blend of methyl esters palm stearin-diesel for performance and emissions

A. R. Babu , G. Amba Prasad Rao & T. Hari Prasad

Pages 420-427 | Received 12 Oct 2015, Accepted 07 Dec 2015, Accepted author version posted online: 28 Dec 2015,
Published online: 07 Feb 2016

Cite this article <https://doi.org/10.1080/01430750.2015.1132768>



Sample our
Economics, Finance,
Business & Industry Journals
>> [Sign in here](#) to start your access
to the latest two volumes for 14 days

- Full Article Figures & data References Citations Metrics
 Reprints & Permissions [Read this article](#) [Share](#)

ABSTRACT

The present work deals with an experimental evaluation of the existing diesel engine with a blend of methyl esters of palm stearin (PS) oil and petro-diesel under varying injection pressures and compression ratios (CRs). It was observed that the brake thermal efficiency of engine was high with PSME40 at an injection pressure of 210 bar and CR of 16.5 when compared to other fuel injection pressures of 190 and 230 bar. However, the engine performance was superior with CR 19 at the rated injection pressure of 190 bar. Higher peak pressures are observed with higher CR. The engine emissions in terms of hydrocarbons, carbon monoxide and smoke opacity were lower but the nitrogen oxides were found to be increased due to the better combustion. It is

observed that CR and fuel injection pressure simultaneously played a vital role in the reduction of emissions. The study revealed that PS could be explored as a source for producing biodiesel effectively with environmental concerns.

KEYWORDS:

CI engine PSME40 blend fuel injection pressures compression ratios engine performance exhaust emissions

Acknowledgments

The authors thank the management of Sri Venkateswara College of Engineering, RVS Nagar, Chittoor, for providing the necessary experimental facilities to perform this research.

Disclosure statement

No potential conflict of interest was reported by the authors.

Related research

People also read

Recommended articles

Cited by
8

Information for

[Authors](#)

[R&D professionals](#)

[Editors](#)

[Librarians](#)

[Societies](#)

Opportunities

[Reprints and e-prints](#)

[Advertising solutions](#)

[Accelerated publication](#)

[Corporate access solutions](#)

Open access

[Overview](#)

[Open journals](#)

[Open Select](#)

[Dove Medical Press](#)

[F1000Research](#)

Help and information

[Help and contact](#)

[Newsroom](#)

[All journals](#)

[Books](#)

Keep up to date

Register to receive personalised research and resources by email



Sign me up



Copyright © 2026 Informa UK Limited [Privacy policy](#)

[Cookies](#) [Terms & conditions](#) [Accessibility](#)

Registered in England & Wales No. 01072954
5 Howick Place | London | SW1P 1WG



Taylor & Francis
by informa