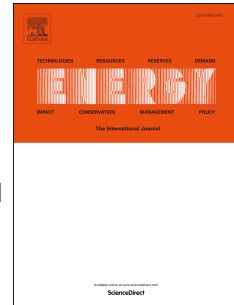


# Accepted Manuscript

Experimental investigation on performance, emission behavior and exergy analysis of a variable compression ratio engine fueled with diesel- aegle marmelos oil - diethyl ether blends

M. Krishnamoorthi, R. Malayalamurthi



PII: S0360-5442(17)30606-0

DOI: [10.1016/j.energy.2017.04.038](https://doi.org/10.1016/j.energy.2017.04.038)

Reference: EGY 10678

To appear in: *Energy*

Received Date: 26 December 2016

Revised Date: 28 February 2017

Accepted Date: 9 April 2017

Please cite this article as: Krishnamoorthi M, Malayalamurthi R, Experimental investigation on performance, emission behavior and exergy analysis of a variable compression ratio engine fueled with diesel- aegle marmelos oil - diethyl ether blends, *Energy* (2017), doi: 10.1016/j.energy.2017.04.038.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

1 **Experimental investigation on performance, emission behavior and**  
2 **exergy analysis of a variable compression ratio engine fueled with**  
3 **diesel- aegle marmelos oil - diethyl ether blends**

4 M.Krishnamoorthi<sup>a\*</sup>, R.Malayalamurthi<sup>b</sup>

5 <sup>a</sup> *Department of Mechanical Engineering, Government College of Technology, Coimbatore 641013, India.*

6 <sup>b</sup> *Department of Mechanical Engineering, Faculty of Engineering, Government College of Technology, Coimbatore*  
7 *641013, India.*

8 *Corresponding author E.mail:krishnamoorthism@gmail.com*

9 *Mobile: +91 9940772158*

10 **Abstract**

11 The intention of the prevailing effort is in the direction of experimentally look for the  
12 combined outcome of compression ratio and a number of nozzle holes on performance and  
13 emissions of a compression ignition engine by means of an emulsion fuel obtained from aegle  
14 marmelos (Bael) oil. This exertion consists of the exergy examination of compression ignition  
15 engine towards maximizing the work availability and decreasing the destroyed availability.  
16 Ternary blends of diesel - aegle marmelos – diethyl ether (DEE) within the proportion as  
17 percentages 100:0:0 (D), 70:20:10 (B1), 60:30:10 (B2), 50:40:10 (B3) became tested in a  
18 variable compression ratio (VCR) engine. When operating the diesel engine with B2, Brake  
19 thermal efficiency (BTE) of the engine is better by 4.3%, nitric oxides (NO<sub>x</sub>) emission has been  
20 reduced 3.9% at 100% load in compression ratio (CR) 17.5 with number of nozzle hole (NH) 5.  
21 The exergy efficiency of B2 fuel has been found 63.88% of fuel input at CR17.5 with 100%  
22 engine load. Increasing the number of nozzle holes improves the performance of the diesel  
23 engine fuelled with bael blends in terms of reduced brake specific energy consumption (BSEC),

Download English Version:

<https://daneshyari.com/en/article/5476030>

Download Persian Version:

<https://daneshyari.com/article/5476030>

[Daneshyari.com](https://daneshyari.com)