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VALACHIL, POST FARANGIPETE, MANGALURU-574143

SECOND INTERNATIONAL CONFERENCE ON

## RECENT TRENDS IN MECHANICAL ENGINEERING SCIENCES (RTIMES-2023)



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A.J. Institute of Engineering & Technology  
Mangaluru - 575 006

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Floyd Steev Santhmayer, Gagan, Anush Kumar Acharya, Iyas Ahmad K

RTIMES23042	<b>Pick and place robot controlled by IOT with voice over command</b> Raghavendra M J, Vineeth Valsarajan Nambiar	46
RTIMES23043	<b>Unmanned Aerial Vehicle for Fire and Safety</b> Melvin Alex, Ibrahim Anas, Ajaaz C. A., Meghana J.K., Rajesh	47
RTIMES23044	<b>Design and Fabrication of Propellant for Hybrid Rocket Engine using 3D Printing.</b> Shamsulsadiq, Vinaykumar H S, Neha K U, Sagar K K, Mr.Srinidhi Kukkila	48
RTIMES23045	<b>Design and Fabrication of Stair Climbing Mechanism To Lift Load over Stairs</b> Prof. Sudheendra H N, Akshay Krishnan, Hasim B K, Srujan Shetty B, Jayananda	49
RTIMES23046	<b>Design and Fabrication of a parabolic trough solar collector to generate steam</b> Gokul P, Deekshith, Akhilesh gatty, Prof. Jayaram Thumbre	50
RTIMES23047	<b>Preventive maintenance modelling of a rubber compound processing machine in a small-medium enterprise</b> Prashanth Pai M, Ramachandra C G, C V Pujar, Yathin Krishna	51
RTIMES23048	<b>Experimental Studies on Effects of Carbon Nano Tubes (CNT'S) On Mechanical Properties reinforced with Al-8011 Metal Matrix Composites.</b> Vishwanath M M, B Gangadhar Shetty, Rathika M, Harisha P	52
RTIMES23049	<b>BCI System, Current gaps and its Future in Home Automation</b> Dr. Kirti Mahajan, Mrs. Pragya Nigam	53
RTIMES23050	<b>Manufacturing of EDM electrode by Direct Metal Laser Sintering method</b> Shashank S, Dr. Thomas Pinto, Dr. C. G Ramachandra, Dr.Raghavendra M .J	54
RTIMES23051	<b>Performance, Combustion and Emission Study for a Single Cylinder CI Engine with Cardanol oil Biodiesel.</b> Rishi Joshi, Vighnesha Nayak, Muhammed Munavvar C.P., Bharath P., Satvik Poojari	55
RTIMES23052	<b>Cyclic Variation and Combustion Analysis of Single Cylinder CI Engine with Cardanol Oil Biodiesel</b> Vikas R Shetty, Vighnesha Nayak, Prasad B.G, Trivikram, Shreyank S,	56

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RTIMES23051

## Performance, Combustion and Emission Study for a Single Cylinder CI Engine with Cardanol oil Biodiesel

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### Abstract

Increasing prices and depletion of fossil fuels creates the importance of finding an alternative fuel (biodiesel) from renewable natural resources. This research paper deals with the performance, combustion and emission analysis of cardanol oil biodiesel in a single cylinder CI engine at 1500 rpm and different load condition. The properties of produced biodiesels and their blend for different ratios (B10, B20, and B30) are comparable with properties of diesel and ASTM biodiesel standards. Tests have been conducted on the CI engine, which runs at a constant speed of 1500 rpm, injection pressure of 200bar, compression ratio 17.5, and varying load (0, 25, 50, 75 and 100% of full load). The use of cardanol Biodiesel in a CI engine results in lower CO, NOx and smoke opacity emissions compared to a conventional diesel fuel. The performance parameters include brake thermal efficiency and brake specific fuel consumption, are marginally lower than the neat diesel. Pressure crank angle plot gives B20 as better blend when compared to the other blend and diesel fuel.

**Keywords:** *Cardanol Oil, Performance, Emission, Combustion.*

  
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