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(57) Abstract :

The invention involves a method and composition for reducing emissions from a compression ignition engine and enhancing performance. The method includes the step of a) conducting a first phase performance, combustion and emission tests with diesel oil and mahua biodiesel oil in the compression-ignition (CI) engine to obtain first values indicating 20% mahua biodiesel oil by volume and 80% diesel oil (a B20 blend) presents an optimum mixture. The method includes the step of b) conducting a second phase performance, combustion and emission tests with a low heat rejection (LHR) modified engine and comparison is performed to obtain second values indicating the performance of a coated engine with B20 blend presents the optimum mixture. The method includes the step of c) in a third phase, implementing a low-temperature combustion (LTC) by an exhaust gas recirculation (EGR) at a ratio of about 5% to about 20% to reduce the NO<sub>x</sub> emission and results into increased emissions of the carbon monoxide (CO), and hydrocarbons (HC) in 15% ratio. The method includes the step of d) in a fourth phase, combining the low heat rejection (LHR) modified engine and the EGR and used in a diesel engine fuelled with the B20 blend and 5% ethanol is added as a blend to increase efficiency with low emissions and enhanced combustion. The most illustrative drawing: FIG. 2.

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**FORM 5**  
**THE PATENT ACT, 1970**  
(39 of 1970)  
&  
**THE PATENTS RULES, 2003**  
**DECLARATION AS TO INVENTORSHIP**  
*[See section 10(6) and rule 13(6)]*

**1. NAME OF APPLICANT(S)** DR.R.T.SARATHBABU,

hereby declare that the true and first inventor(s) of the invention disclosed in the complete specification filed in pursuance of my/our application no. **202041025613** dated **18/06/2020** is/are

**2. INVENTOR(S)**

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Dated this. **18/06/2020** Day of **2020**



Vikas Asawat  
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On Behalf of Applicant  
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**3. DECLARATION TO BE GIVEN WHEN THE APPLICATION IN INDIA IS FILED BY THE APPLICANT(S) IN THE CONVENTION COUNTRY:--NOT APPLICABLE**

We the applicant(s) in the convention country hereby declare that our right to apply for a patent in India is by way of assignment from the true and first inventor(s).

Dated this. **18/06/2020**. Day of **2020**



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**4. STATEMENT** (to be signed by the additional inventor(s) not mentioned in the application form) **NOT APPLICABLE**

I/We assent to the invention referred to in the above declaration, being included in the complete specification filed in pursuance of the stated application.

Dated this 18/06/2020



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