

Experimental Study on Effect of Lime Peel oil on Efficiency of Diesel Engine: A Review

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I. INTRODUCTION

Energy demand is a main problem of all countries especially highly populated countries such as India and China. The population of entire world before 200 years was less than 1 billion (Coale & Hoover 2015). Recent population report of UN states that it has reached 7 billion and is expected to reach 8.5 billion in 2030 (Desa 2019). China and India are highly populated countries with 18.5 and 17.9 % of total world population. These fast growing rates of population attribute for dependency such as food, freshwater, minerals and energy for daily living. Though many renewable resources such solar, wind, hydro and tidal energy serves the energy requirements they do not satisfy completely because they rely on weather for power generation. Hence dependency for fossil fuel has increased for past few decades drastically. Other factor such as increasing automobiles is also one of the important reasons for fossil fuel dependency, especially crude oil for petrol and diesel.

REFERENCES

- [1]. Agarwal, AK, Dhar, A, Gupta, JG, Kim, WI, Choi, K, Lee, CS & Park, S 2015, 'Effect of fuel injection pressure and injection timing of Karanja biodiesel blends on fuel spray, engine performance, emissions and combustion characteristics', *Energy Conversion and Management*, vol. 91, pp. 302-314.
- [2]. Agarwal, AK, Shrivastava, A & Prasad, RK 2016, 'Evaluation of Toxic Potential of Particulates Emitted from Jatropha Biodiesel Fuelled Engine', *Renewable Energy*, vol. 99, pp. 564-572, <https://doi.org/10.1016/j.renene.2016.07.056>
- [3]. Ahmed, SA, Prabhakar, S, Soloman, BK & Ahmed, MI 2013, 'Performance Test for Lemon Grass Oil in Twin Cylinder Diesel Engine', *ARPN J. Eng. Appl. Sci.*, vol. 8, no. 6, pp. 435-437
- [4]. Ayatallah Gharehghani, Mostafa Mirsalim & Reza Hosseini 2016, 'Effects of waste fish oil biodiesel on diesel engine combustion characteristics and emission' *Renewable Energy*, vol. 101, pp. 930-936
- [5]. Basha, J & Anand, RB 2010, 'Effects of nanoparticle-blended water biodiesel emulsion fuel on working characteristics of a diesel engine', *International Journal of Global Warming*, vol. 2, no. 4, pp. 330-346.
- [6]. Belagur, VK, Reddy, V & Wadawadagi, SB 2009, 'Effect of Injection Pressure on Performance', *Emission and Combustion Characteristics of Direct Injection Diesel Engine Running on Blends of Pongamia Pinnata Linn (Honge oil) Oil and Diesel Fuel. Agricultural Engineering International: CIGR Journal*.
- [7]. Cardona, CA & Sanchez, OJ 2007, 'Fuel ethanol production: process design trends and integration opportunities', *Bioresource technology*, vol. 98, no. 12, pp. 2415-2457.
- [8]. Cenk Sayin & Mustafa Canakci 2009, 'Effects of injection timing on the engine performance and exhaust emissions of a dual-fuel diesel engine', *Energy Conversion and Management*, vol. 50, pp. 203-213.
- [9]. Chattopadhyay, S & Sen, R 2013, 'Fuel properties, engine performance and environmental benefits of biodiesel produced by a green process', *Applied energy*, vol. 105, pp. 319-326.
- [10]. Chew, SC 2020, 'Cold-pressed rapeseed (*Brassica napus*) oil: Chemistry and functionality', *Food Research International*, vol. 131, pp. 108997.
- [11]. Coale, AJ & Hoover, EM 2015, *Population growth and economic development*. Princeton University Press.
- [12]. Deep, A, Sandhu, SS & Chander, S 2017, 'Experimental investigations on the influence of fuel injection timing and pressure on single cylinder CI engine fueled with 20% blend of castor biodiesel in diesel', *Fuel*, vol. 210, pp. 15-22.
- [13]. Desa, UN 2019, 'World population prospects 2019: Highlights', New York (US): United Nations Department for Economic and Social Affairs.

- [14]. Dhar, A & Agarwal, AK 2015, 'Effect of Karanja Biodiesel Blends on Particulate Emissions from a Transportation Engine', *Fuel*, vol. 141, pp. 154-163, <https://doi.org/10.1016/j.fuel.2014.09.124>
- [15]. Dhinesh, B, Annamalai, M, Isaac Joshua Ramesh Lalvani, J & Annamalai, K 2017, 'Studies on the influence of combustion bowl modification for the operation of Cymbopogon flexuosus biofuel based diesel blends in a DI diesel engine', *Applied Thermal Engineering*, vol. 112, pp. 627- 637. ISSN: 1359-4311
- [16]. Ezekoye, V, Adinde, R, Ezekoye, D & Ofomatah, A 2019, 'Syntheses and characterization of biodiesel from citrus sinensis seed oil', *Scientific African*, vol. 6, p. e00217.
- [17]. Gad, MS & Jayaraj, S 2020, 'A comparative study on the effect of nano-additives on the performance and emissions of a diesel engine run on Jatropha biodiesel', *Fuel*, vol. 267, pp. 117-168.
- [18]. Ganapathy, T, Gakkhar, RP & Murugesan, K 2011, 'Influence of injection timing on performance, combustion and emission characteristics of Jatropha biodiesel engine', *Applied energy*, vol. 88, no. 12, pp. 4376-4386.
- [19]. Ganapathy, T, Gakkhar, RP & Murugesan, K 2011, 'Influence of injection timing on performance, combustion and emission characteristics of Jatropha biodiesel engine', *Applied energy*, vol. 88, no. 12, pp. 4376-4386.
- [20]. Ghahdarjani, A.M., Hormozi, F. and Asl, A.H., 2017. Convective heat transfer and pressure drop study on nanofluids in double-walled reactor by developing an optimal multilayer perceptron artificial neural network. *International Communications in Heat and Mass Transfer*, 84, pp.11-19.
- [21]. Gnanasekaran, S, Saravanan, N & Ilangkumaran, M 2016, 'Influence of injection timing on performance, emission and combustion characteristics of a DI diesel engine running on fish oil biodiesel', *Energy*, vol. 116, pp. 1218-1229.
- [22]. Goel, V, Kumar, N & Singh, P 2018, 'Impact of modified parameters on diesel engine characteristics using biodiesel: A review', *Renewable and Sustainable Energy Reviews*, vol. 82, pp.2716-2729.
- [23]. Goldemberg, J & Guardabassi, P 2010, 'The potential for first-generation ethanol production from sugarcane', *Biofuels, Bioproducts and Biorefining: Innovation for a sustainable economy*, vol. 4, no. 1, pp. 17-24.
- [24]. Gopal, KN & Karupparaj, RT 2014, 'Effect of Pongamia Biodiesel on Emission and Combustion Characteristics of DI Compression Ignition Engine', *Ain Shams Eng. J.*, vol. 6, no. 1, pp. 297-305, <https://doi.org/10.1016/j.asej.2014.10.001>
- [25]. Gumus, S, Ozcan, H, Ozbey, M & Topaloglu, B 2016, 'Aluminum oxide and copper oxide nanodiesel fuel properties and usage in a compression ignition engine', *Fuel*, vol. 163, pp. 80-87