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An overview on fuel properties and prospects of Jatropha biodiesel as fuel for enginesSunil Thapa^{1,2,3}, Natariato Indrawan^{1,2,4}, Prakashbhai R. Bhoi⁵¹Environmental Science Graduate Program, Oklahoma State University, Stillwater, OK, 74078²Biobased Products and Energy Center, Oklahoma State University, Stillwater, OK, 74078³Center for Clean Energy Research and Education, Eastern Illinois University, Charleston, IL, 61920⁴Department of Mechanical Engineering, Institut Teknologi Nasional, Bandung, 40124, Indonesia⁵Department of Mechanical Engineering, Allen E. Paulson College of Engineering and Information Technology
Georgia Southern University, Statesboro, GA 30460 USA**Abstract**

The demand for energy is ever increasing since the establishment of human society. In recent years, the demand for energy is steadily increasing due to growth of population and industrial development. As conventional sources of energy are on the verge of extinction and are considered threat to the environment, search for alternative forms of energy is increasing. Biodiesel is one of the sources that can play a pivotal role for future energy, especially in transportation sector, as an alternative to diesel fuel. Jatropha is regarded as one of the best options for biodiesel production in tropical and subtropical developing countries. In terms of fuel properties and emission factors, biodiesel from Jatropha has advantages over conventional diesel. In addition, Jatropha biodiesel when compared with other biodiesels is more environment friendly as there is less emissions of greenhouse gases. A review on performance of Jatropha as a fuel shows that, although emission of NO_x is increased from 5.58 to 25.97%, PM is reduced by 50 to 72.73 %, CO by 50 to 73 %, HC by 45 to 67 % and CO₂ by 50 to 80 %. However, the future of the Jatropha biodiesel will also depend upon the establishment of low-cost and competent biodiesel production technologies.

Key words: Alternative energy, Biofuel, Biodiesel, Jatropha, Greenhouse gas emissions

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