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Mukul Sharma, Anil Kumar

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Promising biomass materials for biofuels in India's context

Mukul Sharma and Anil Kumar*

Department of Energy (Energy Centre), Maulana Azad National Institute of
Technology, Bhopal-462 003 (India)

*Corresponding Author: anilkumar76@gmail.com (Anil Kumar)

Abstract

India is developing at a faster rate in the current era. It needs usage of large amount fuel and electricity, which leads to increase the import of crude oil and huge greenhouse gas (GHG) emissions. Hence, air pollution in the metro cities is increased. To reduce these emissions, alternative fuel is to be used which emits less GHG emissions in the atmosphere. This review highlights the potential materials such as sweet Sorghum, Neem seed, Mahua seed, Sugarcane molasses, Jatropha etc. for producing biofuels. This article also discusses the promising blends and their effects on GHG emissions. This will help India to sustainably develop its economy.

Keywords: *Biomaterials; Biofuel; Neem; Jatropha; Ethanol*

1. Introduction:

Large-scale consumption of limited non-renewable energy sources has prompted towards a diversification of fuel sources and urged for more research on fuels which are renewable and pollution free [1]. Suitable alternatives can be extracted biofuels from vegetable oil, animal fats, crops or algal feedstock. The importance of biofuels; especially ethanol and biodiesel, has been acknowledged by many nations and their administrations have been endeavoring towards the advancement of these fuels [2]. The merits of biofuel are multifaceted. They are extracted from renewable sources and can provide energy security to a nation for a much longer time. Biofuel production increases employment as more workforce is required in cultivation, handling, and extraction of biofuels [2]. There are various agricultural materials which can be used to extract ethanol and biodiesel as shown in Fig.1. Oil from fruits and seeds of Neem, Mahua, Jatropha, Sunflower can be used for the production of biodiesel. The ethanol can be produced by fermentation of various crops like sweet sorghum [3], sugarcane molasses [4], rice straw [5] etc. Many nations have included diverse policies and

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