

A Promising Alternative and Renewable Energy Source

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Abstract—Development in various sectors depends largely upon energy. Whether it is agriculture, transportation, industries or mining, all need energy. As the population is growing, the demands for energy is also increasing causing further energy deficit. At present the fossil fuels are supplying a major percentage of the commercial energy and are not going to last for a long period. Depletion in fossil fuel reserves and growing demand for energy has led the search for alternative renewable energy resources such as plants. Bioenergy refers to renewable source of energy that are produced from biomass and that can serve as an alternative for fossil fuels. Biofuels are the alternative source of energy derived from plant biomass and can be liquid or gaseous in composition. These can be used alone or in combination with other energy such as petrol. These are classified as first, second, third and fourth generation biofuels. Biodiesel and bioethanol falls under first generation biofuels. First generation biofuels are made from carbohydrate rich substances such as sugar and starch (bioethanol) and also from various seed oils (biodiesel). Bioethanol has gained a lot of importance as it burns clean and is non-polluting. It is considered as an excellent substitute for kerosene and its combustion is comparable to LPG (Liquid Petroleum Gas). Use of oils directly as energy source can be damaging to the diesel engines due to their high viscosity and high density. So, it is very necessary to convert these oils into biodiesel so that these can be used as an alternative for petroleum based diesel.