

TECHNOLOGY DEVELOPMENT ON BIOFUELS

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ABSTRACT

India is one among the world's largest economies and its energy demand accounts for 3.5% of world's commercial energy consumption. According to the International Energy Agency oil demand in India is expected to grow by a factor 2.2 by 2030, increasing the dependency on import of oil from 69% now to 91% until discovery of any large oil reservoir in India. Petroleum being the major source of energy, particularly in the transportation sector, India is facing stiff challenge to achieve a modest growth rate above 7%, which paving the way for sustainable use of biofuels. Application of renewable fuels in a phased manner will not only promote relief on import of crude oil but also will reduce carbon footprint of the country.

Over the decades we have observed a tremendous effort on development of process options on Bioethanol and Biodiesel production, as potential renewable biofuels in the research laboratories in the country. However seamless substitution of bioethanol and biodiesel with petrol and diesel @ E5 and B20 respectively in the entire country could not be achieved due to many unforeseen reasons such as short supply of oil seeds, higher cost of production, lower energy density and higher hygroscopy of bioethanol with higher blends. In fact automobile manufacturers of our country have rejected the plan for introduction of bioethanol beyond E10 blend.

Therefore it is essential to identify resources for quantitative feedstock supply, technological gaps for the production of biofuels, value added chemicals and bioenergy in a Biorefinery. Intregation of Biorefinery with petroleum refinery will be another dimension for the development of cost effective, sustainable technologies for surface and aviation transport fuels as well as value added chemicals. Nevertheless scope of untapped fossil energy resources can be explored to add more energy in the basket.

A brief account on challenges and prospects on technological development of bio-based fuels has been summarised in the lecture

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