



Biofuels as Alternative Energy Sources

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ABSTRACT: Currently used fuel sources are unsustainable leading to the search for newer sources. Biofuels are looked upon as attractive and alternate fuel sources. These are renewable fuels derived from microorganisms, plant or animal materials. Various types of biofuels are bioethanol - produced from sugar/starch from crops such as sugarcane, sugar beet, corn wheat (blended with petrol), biodiesel – made from oil of plants such as soybean, oilseed rape, sunflower or palm (blended with diesel) and biogas – a methane-rich gas that can be compressed to fuel vehicles, generated by anaerobic digestion of biomass. In the quest for alternative energy sources, the materials to be used as fuel sources are being extensively investigated. The first generation biofuels were obtained from food crops generating ethanol, as the end product, which could be blended with existing fuel. However, due to the concerns about food security, other feed-stocks were studied, comprising the second generation biofuels. The production of second generation biofuels is non-commercial at this time, although pilot or demonstration facilities are being developed. Therefore it is anticipated that these second generation biofuels could significantly reduce diversion of food crops for energy purposes. Bottlenecks in the lignocellulosic breakdown process, primarily availability and cost-effectiveness of enzymes, have led to the search for third generation biofuels. Yet another source of fuel can be algae, some of which accumulate oil inside their cells. These are considered as third generation biofuels. The review will provide an overview of types of biofuels, their advantages and limitations; commercial production outlook and future prospective. © 2014 iGlobal Research and Publishing Foundation. All rights reserved.

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