



Bioenergy from Plants and Microbes

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ABSTRACT: Bioenergy is the renewable and sustainable source of energy produced from organic matter. The matter used to produce such energy is called as biomass or the biological material used as a biofuel. The challenge of depleting non-renewable resources can be addressed by exploiting the capability of biotic systems to produce bioenergy. Species of every kingdom has a potential to be used as source of bioenergy. The study talks about switching from first generation biofuels produced from sugars and seed oils to fourth generation biofuels which involves metabolically engineered plants. Recent developments in molecular biology techniques that have provided valuable tool which could help to optimize and control the process in an effective way in the future have been discussed. The paper presents the production of biofuels from fungi acting upon lignocellulosic materials. Lignocellulosic residues from wood, grass, agricultural and municipal solid wastes are abundant in nature and have a potential for bioconversion. The synthesis of nanostructures using fungi can act as super capacitors and is helpful in storage of bioenergy. The paper also discusses the employment of bacteria in Microbial Fuel Cell (MFC). The capability of bacteria to produce electricity acting upon lots of carbohydrates present in industrial waste water and thereby treating it, is the working principle of these microbial fuel cells. General biochemistry involved has also been presented. However there are limitations with every means and some new approach has to be established to match the demand. © 2016 iGlobal Research and Publishing Foundation. All rights reserved.

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