Journal of Bioengineering and Bioelectronics

Open access Opinion

Bioethanol Production Using Food Residues

John Mathew*

Department of Bioengineering and Bioelectronics, University of South Florida, USA

INTRODUCTION

Today, the most common application of bioethanol, which is a clean and renewable fuel with significant environmental advantages, is in conjunction with gasoline. It can be created using a variety of renewable feedstocks. Since bioethanol yields are currently too low to be commercially viable, the second and third generation of bioethanol processes require additional study and development. In contrast, the first generation of methods has been thoroughly documented and is widely used. The potential for producing bioethanol from cotton garments as a useful source of cellulosic raw material was examined and reported in this study.

DESCRIPTION

Worldwide, 17% of food is wasted however this food can be used to create biofuels and other products. This study serves as a resource for future work utilising food residue by providing an in-depth analysis of the procedures involved in the synthesis of bioethanol. The steps, components, and restrictions in producing bioethanol from food waste were listed. Vegetable residues, such as those from bananas, papayas, and potatoes, and grain residues, like coffee, are the most popular types of food residues utilised to make 2G bioethanol. The supply of fossil fuels and other conventional fuels is currently running out. A substitute source is necessary to meet the fuel's needs, and bioethanol can do this. As a source of energy that is renewable, bioethanol is created by banana peel is used. Agricultural waste that is lignocellulosic has the potential to yield bioethanol. Pre-treatment and hydrolysis are essential procedures in the synthesis of bioethanol. Both methods are utilised. H_2SO_4 was used in the hydrolysis method. The active strain employed for the fermentation process that converts sugar to bioethanol is S. Cerevisiae. By analysing absorption spectra at 600 nm with the potassium dichromate technique, the proportion of bioethanol was found. Pre-treatment is the key factor affecting bioethanol production. In Bagalkot, there are numerous farms with banana plantations, and their garbage is readily available and economically viable throughout the year. Banana peels are a waste that is easily available. The pre-treatment is the main barrier to using food residue in the production of bioethanol since it typically requires expensive research and investments. This raw material often uses drying, grinding, acids in various concentrations, and fat extraction. The potential for producing bioethanol from various types of banana waste created during the development of banana crops is enormous. The goal of the current review study is to compile data on a variety of topics, including variations in the physicochemical and biochemical composition of different types of banana waste and pre-treatment techniques, including mechanical, chemical, and biological ones, acid hydrolysis and enzymatic hydrolysis; fermentation process and role of microbes in the conversion of banana wastes; a variety of fermentation schemes for the production of bioethanol from banana wastes, based on a single fermentation vessel platform built with published literature. According to analysis, cutting-edge pre-treatment methods like organic acid pre-treatment and electrical pre-treatment methods like microwave and ultrasonic are progressing significantly. It has been demonstrated that robust statistical methods are beneficial for optimising process parameters. Finally, consideration has been given to the current difficulties and the necessity for additional research to advance the synthesis of bioethanol from diverse.

CONCLUSION

There is a quick worldwide necessity for a brilliant procedure for food squander transformation to biofuels to supplant non-renewable energy sources with inexhaustible assets. Food squander change to bioethanol could prompt a maintainable

Received:	28-November-2022	**Manuscript No:**	JBTC-23-15411
Editor assigned:	30-November-2022	**PreQC No:**	JBTC-23-15411 (PQ)
Reviewed:	14-December-2022	**QC No:**	JBTC-23-15411
Revised:	19-December-2022	**Manuscript No:**	JBTC-23-15411 (R)
Published:	26-December-2022	**DOI:**	10.35841/JBTC.22.4.26

Corresponding author John Mathew, Department of Bioelectronics and Bioelectronics, University of South Florida, USA, E-mail: johnmathew@gmail.com

Citation Mathew J (2022) Bioethanol Production Using Food Residues. BioEng BioElectron. 4:26.

cycle enjoying the double benefit of settling the issue of food garbage removal as well as meeting the energy necessities of the rising populace. Food squander is expanding at the pace of 1.3 billion tons each year, viewed as 33% of worldwide food creation. As per studies disposing of these squanders is garbage to the climate, thusly; it is advantageous to change over the food squander into bioethanol. The CO_2 emanation in this cycle offers no effect on the climate as it is biogenic. Among a few pre-treatment systems, aqueous pre-treatment could be a superior methodology for pre-treating food squander on the grounds that it solubilizes natural solids, bringing about an expanded recuperation of fermentable sugars to deliver bioenergy.