BioTechnology
ISSN: 0974-7435

BioTechnology: An Indian Journal

Commentary|Vol17Iss11

Bringing Biofuels and Bioproducts Together

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Received date: November 03, 2021; **Accepted date:** November 07, 2021; **Published date:** November 22, 2021

Abstract

Bio-based product development (chemicals and materials) is one of the fastest-growing divisions of the biotech industry, and it represents a tremendous opportunity to advance the nascent bioeconomy. Bioproducts can be produced in a single-product process; however, co-producing bioproducts with biofuels provides a more efficient, cost-effective, and integrated strategy to utilising our country's biomass resources. The biorefinery offers significant prospects to profit on the development of bio-based chemicals and polymers that are exact drop-in replacements for petrochemicals in the context of biofuel generation. The revenue earned by the sale of co-products adds value to the overall economics of biorefinery operations, allowing for the manufacture of cost-competitive fuels.

Keywords: Biomass; Biofuels; Bioproducts

Introduction

Biomass is a very versatile source of energy. It can be turned to biofuel for use in automobiles, but it can also be used to create plastics, fertilisers, lubricants, industrial chemicals, and a variety of other items now made using petroleum or natural gas. These "bioproducts" are created from biomass and can be processed in an integrated biorefinery with biofuels. This plan uses our country's biomass resources in a more sustainable, cost-effective, and streamlined manner. Bioproduct revenue enhances the economics of biorefinery operations, allowing for more cost-competitive biofuels.In the petrochemical business, producing products alongside fuels has long been a reliable approach for increasing capital gains. For example, fuels account for around 75% of the volume of a barrel of crude oil, earning $935 billion in income. Petrochemicals, on the other hand, make up just about 16% of a barrel of crude oil. Chemicals create almost as much money as fuels, despite their smaller volume ($812 billion in chemicals sales). The Bioenergy Technologies Office (BETO) of the Department of Energy is developing techniques to boost the economic feasibility of advanced biofuel development by utilising revenue

from bioproducts. In the last year, BETO has supported a number of successful initiatives that have pioneered unique methods to the synthesis of sustainnable chemicals and materials from biomass. Lygos Inc., for example, said in early 2015 that it has successfully developed malonic acid from pure non-food sugar as a paradigm for cellulosic sugars on a pre-pilot scale [1]. This high-value chemical is used in pharmaceuticals, flavours, fragrances, and electrical and metal manufacturing processes. Pre-pilot-scale manufacturing was accomplished at Lawrence Berkeley National Laboratory's Advanced Biofuels Process Demonstration Unit, which was funded in part by BETO. Lygos has also received extra money from BETO through the Small Business Vouchers Pilot, a programme that helps small businesses bring next-generation renewable energy technologies to market faster by providing access to DOE national laboratories' knowledge and advanced equipment[2]. Lygos will continue to work with national laboratories to validate biomass-based feedstocks for their product using this platform by testing their unique technologies on cellulosic sugars. A microbe-based process for converting cellulosic sugars to butanediol (BDO), a chemical used in hard plastics, INVISTA's Lycra® spandex, and other high-performance fabrics, was developed by a renewable chemical business. This BETO-funded initiative improved BDO production technical readiness and demonstrated the advantages of sustainable chemical synthesis in a biorefinery. BETO will continue to look at feasible co-product technology options in the future, with some now in the works [3]. In 2015, the DOE provided grants to many companies and colleges in Wisconsin, Minnesota, California, Colorado, and Georgia to create integrated methods for the manufacture of advanced biofuels and goods. Continued use of bio-based chemicals and materials in the biofuel manufacturing process could result in new feedstock demands, technological advancements, and economic opportunities. These items will aid in the cost-effectiveness of advanced biofuels, as well as increasing energy security, lowering greenhouse gas emissions, and creating jobs in the United States.

REFERENCES

1.) Huang H, Yang Y. Preparation of silver nanoparticles in inorganic clay suspensions. Compos Sci Technol. 2008;68:2948- 53.

2.) Li L, Hu J, Yang W, et al. Band gap variation of size-and shape-controlled colloidal CdSe quantum rods. Nano Lett. 2001; 1:349-51.

3.) Perala SRK, Kumar S. On the mechanism of metal nanoparticle synthesis in the brust-schiffrin method. Langmuir. 2013;6;29(31):9863-73.