

Latest Trends in Microbial Biofuels

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ABSTRACT

Biofuel research is presently an area of immense interest due to the enlargement in global energy command by emerging economies and the recent growth in global oil prices. The utilization of organic substrates by a microorganism and its further utilization in the metabolic processes give rise to useful products.

Keywords: Cultures; Microorganisms

INTRODUCTION

Pure cultures influence the current industrial bioprocesses; however, they are approach with challenges due to the increased requirement for higher efficiency of production and attainment of more complicated tasks in nature, 99% microorganisms live in the form of microbial consortia. Stimulate by the omnipresent natural microbial consortia, more attention has been paid on the bioprocess evolution of artificial ones, which pools distinguished engineered microorganisms in one pot. Diverse microbial groups within the same or different species have been set up to realize more complicated tasks.

In addition to treatment of wastewater, biodegradation of textile azo dye and get rid of contaminated, currently, co-cultivation systems were also applied to produce biofuels (bioethanol, biobutanol, biodiesel, etc.), bulk chemicals (lactic acid, 2-keto-L-gulonic acid, etc.) and natural products (polyketides, terpenes, flavonoid, etc.). The sequential application of component sugars of lignocellulose materials would make use of the whole process's efficiency. microbial consortia enable to rationally utilize dissimilar substrates on the specific metabolic pathway. A novel binary culture can deal with the problem flexibly, in which one could only preoccupy glucose and the other could only consume xylose, shifting the interchange modes from the battling to the commensalism.

Biofuel research is presently an area of immense interest due to the enlargement in global energy command by emerging

economies and the recent growth in global oil prices. Numerous approaches are currently being researched for the use of microorganisms in the manufacture of various biofuel (e.g., alcohols, hydrogen, biodiesel, and biogas) from numerous starting materials.

MFC technology has been upgraded significantly in the recent decades. However, it has experienced several challenges in scale-up and practical application, such as heaviness in each compartment, membrane resistance in the proton transportation process. Integrated with those, MFCs have integrated two bottleneck problems in power generation, the utilization of organic substrates by a microorganism and its further utilization in the metabolic processes give rise to useful products, which can be utilized as a fuel to produce energy. An outline of the microbial pathways for the manufacture of different biofuels the selection of microbes, substrates, and the production processes are crucial for biofuel synthesis. The microbial biofuel production, e.g., ethanol from corn, also needs more input of fossil fuel energy as contrast to the mechanism involving sugarcane as the substrate.

CONCLUSION

Diverse microbial groups within the same or different species have been set up to realize more complicated tasks. The utilization of organic substrates by a microorganism and its further utilization in the metabolic processes give rise to useful products. MFC technology has been upgraded significantly in the recent decades.

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