عنوان مقاله:

Recent Development in Biological Production of ۱, ۳-Propanediol

محل انتشار:

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خلاصه مقاله:

With the growing market in biodiesel production, the oversupply of byproduct, glycerol deflates its market value, encouraging innovation to the potential. Copious glycerol could be exploited as renewable feedstock for valuable chemical production such as ۱,۳-propanediol (PDO), ۳-hydroxypropionic acid (۳HP), and ۳-hydroxypropionaldehyde (۳HPA) via green processes. PDO is an attractive chemical that offers an ideal platform for polycondensation to numerous applications with high industrial interest in the bio-based chemical industry. Along with the commercialization of biotechnological PDO production, the researchers have focused on cost-efficiency in developing efficient microbial biological factory, bioprocess routes using alternative cheap substrates, and elimination of undesired byproducts. This review explores the natural PDO-producing and glycerol-assimilating microorganisms, discussing their associated genes and metabolic pathways. The challenges posed using industrial glycerol directly and the genetic and metabolic hurdles linked to the industrial application of these microbes are examined in this review. The review also explores the biotechnological strategies to tackle these challenges, including mutagenesis, metabolic and evolutionary engineering.

کلمات کلیدی:

propanediol, value-added chemicals, Green chemistry, Microorganism, Genetics-۳ ,۱

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