

Biofuel and Biorefinery Technologies 4

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Biorefining of Biomass to Biofuels

Opportunities and Perception

 Springer

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Potential Role of Halophile in Crude Glycerol Based Biorefinery

Noopur Singh, Rukmini Roy, Swapna K. Srivastava
and Bijan Choudhury

Abstract Biorefinery includes microbial fermentation processes which could utilize glycerol as raw material for the production of bio-derived building block compounds and polymers. The recent expansion in biodiesel market has resulted in a remarkable transformation in availability and subsequent cost of glycerol, which is generated at 10% of total biodiesel produced. Being produced in excess, crude glycerol price has suffered a major decline, thereby affecting the economics of biodiesel industry. Purification of crude glycerol for use in cosmetics and pharmaceutical industry increases the production cost and hence not considered as a viable option for disposal of such huge amount of glycerol, which also poses an environmental concern. Thus the crude glycerol based refinery concept is being explored whose objective should be to actualize technologies for valorization of waste glycerol. The major challenge thwarting the development of such biorefinery is obtaining microbial strains tolerant of crude glycerol along with its impurities. However, concentrated crude glycerol has rarely been used for microbial conversion to value-added products. High usage of portable water is required to dilute concentrated crude glycerol for crude glycerol based biorefinery. In this chapter, the recent attempts to explore microbial assimilation of glycerol has been summarized. Besides how halophiles can be considered as a viable alternative for valorization of crude glycerol is presented.

Keywords Crude glycerol · Halophiles · Biorefinery

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