

عنوان مقاله:

Comparison of PHB production in submerged and solid-state cultivation

محل انتشار:

هفتمین کنگره ملی مهندسی شیمی (سال: 1390)

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خلاصه مقاله:

Environmental concerns have resulted in more attention given to production of biodegradable plastics such as PHB. Although submerged fermentation (SmF) has been the focus of most researches in this field, solid-state fermentation (SSF) has attracted the attention of some researchers in the last decade due to its advantages such as availability of low cost waste materials as solid substrates and easier downstream processing. Therefore in this work, we have investigated the possibility of PHB production in a defined solid culture and compared it with defined submerged culture under similar conditions. Perlite containing no organic material was chosen as the solid matrix in solid state cultures to allow elimination of the effect of solid substrate on microbial growth and product formation. Results showed a maximum PHB production of 2.13 g/l in submerged fermentation within 48 hours while the maximum PHB production of 5.98 g/l was achieved in solid-state fermentation within 96 hours. This confirms that SSF has the potential to compete with SmF for production of PHB, though it needs parameter optimization to improve its performance.

کلمات کلیدی:

Solid-state fermentation, submerged fermentation, PHB, defined medium

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