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Esterification for butyl butyrate formation using *Candida cylindracea* lipase produced from palm oil mill effluent supplemented medium (Article)Salihu, A.^{ab} , Alam, M.Z.^a, AbdulKarim, M.I.^a, Salleh, H.M.^a ^aBioenvironmental Engineering Research Unit (BERU), Department of Biotechnology Engineering, Faculty of Engineering, International Islamic University Malaysia (IIUM), Kuala Lumpur, Gombak, Malaysia^bDepartment of Biochemistry, Ahmadu Bello University, Zaria, Nigeria

Abstract

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The ability of *Candida cylindracea* lipase produced using palm oil mill effluent (POME) as a basal medium to catalyze the esterification reaction for butyl butyrate formation was investigated. Butyric acid and n-butanol were used as substrates at different molar ratios. Different conversion yields were observed according to the affinity of the produced lipase toward the substrates. The n-butanol to butyric acid molar ratio of 8 and lipase concentration of 75 U/mg gave the highest butyl butyrate formation of 63.33% based on the statistical optimization using face centered central composite design (FCCCD) after 12 h reaction. The esterification potential of the POME based lipase when compared with the commercial lipase from the same strain using the optimum levels was found to show a similar pattern. It can be concluded therefore that the produced lipase possesses appropriate characteristics to be used as a biocatalyst in the esterification reactions for butyl butyrate formation. © 2013.

Author keywords

Butyl butyrate Esterification Lipase Palm oil mill effluent

Indexed keywords

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Butyl butyrate
Candida cylindracea lipase
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 Statistical optimization

Engineering main heading: Palm oil

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