

Production of highly enantioselective (–)-menthyl butyrate using *Candida rugosa* lipase immobilized on epoxy-activated supports

ABSTRACT

Optically active (–)-menthyl butyrate was synthesized by enantioselective esterification of racemic (±)-menthol and butyric anhydride using lipase from *Candida rugosa* immobilized onto epoxy-activated supports of Eupergit C and Eupergit C 250 L through physical adsorption method. The effects of various temperature, storage condition, stability in organic solvent and lipase recyclability were investigated for their influence on the enzymatic enantioselective formation of (–)-menthyl butyrate. The immobilized lipases retained high catalytic activity of up to 31% yield and 100% enantiomeric excess of the desired product, and showed better stability compared to the native lipase. They also exhibited about 50% retained activity even after incubation at higher temperatures, storage at room temperature and after long incubation in hexane. Immobilized lipases also showed considerably efficient reusability.

Keyword: Immobilization; Lipase; Enantioselectivity; Epoxide; Menthyl butyrate