

## Enzymatic synthesis of butyl butyrate and kinetic analysis

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Butyl butyrate is used in the flavor and food industry to create sweet fruity flavors that are similar to pineapple. This study investigated enzymatic synthesis of butyl butyrate by esterification of butyric acid and butanol using Novozym 435 (Candida antarctica lipase B immobilized on macroporous polyacrylate resin) in heptane. Enzymatic reactions were conducted in aqueous or organic media, and butyl butyrate productivities were compared in each medium condition. Butyl butyrate was excellently synthesized in organic medium, heptane, at 50 oC and butyl butyrate conversion efficiency was over 95 % in fed-batch small-scale reactor (125 ml). The kinetics of esterification to butyl butyrate was mathematically analyzed to show the inhibition levels of the reaction products, butyl butyrate and H<sub>2</sub>O.