

Abstract

Kinetic production of monoacylglycerol by glycerolysis of palm olein using immobilized lipase has been investigated. A mathematical model took into account mechanism of glycerolysis reaction using palm olein as substrate has been developed. The kinetic parameters were estimated by fitting experimental data of glycerolysis reaction of palm olein by immobilized lipase PS on Accurel EP-100. There was a good agreement between experimental results and those predicted by proposed model equations under various enzyme concentrations. From proposed model equations, the effect of water concentration and the synergic effect of glycerol and palm olein concentrations on monoacylglycerol production were simulated. The optimal condition for monoacylglycerol production from palm olein was determined by simulation study. The high production rate of monoacylglycerol of 0.338 mM h^{-1} was obtained at high palm olein concentration of 7.16 mM . The high yield of monoacylglycerol of 100% was obtained at low palm olein concentration of 2.39 mM .