Studi optimasi reaksi esterifikasi antara asam lemak hasil Hidrolisis minyak kelapa sawit dengan Sukrosa menggunakan Lipase Candida rugosa EC 3.1.1.3 Terimmobilisasi pada Matriks Zeolit = optimization study of esterification reaction between fatty acid obtained from Hydrolyzed Palm Oil with Sucrose using Immobilized Candida rugosa Lipase EC 3.1.1.3 on Zeolite

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Abstrak

Sucrose fatty acid esters can be synthesized via esterification between sucrose with fatty acids enzymatically using free Candida rugosa lipase in buffer pH 8. In this study, sucrose fatty acid esters are synthesized by esterification between fatty acid obtained from hydrolyzed palm oil with sucrose used immobilized Candida rugosa lipase on zeolite. The highest % loading efficiency for immobilized lipase was 78.31% with highest % immobilizing activity 10.475%. Optimization of esterification reaction carried out on several parameters, such as temperature, substrate ratio, incubation time and the weight of molecular sieve to produce the largest percentage of conversion. The optimum condition is obtained at temperature in 40 0C, mole ratio in 64:1 fatty acids with sucrose, for 32 hours incubation time, and 1.1 grams of molecular sieve with 3,698% conversion.

<hr>Ester asam lemak sukrosa dapat disintesis melalui esterifikasi antara sukrosa dengan asam lemak menggunakan lipase Candida rugosa bebas pada buffer pH 8. Pada penelitian ini, ester asam lemak sukrosa disintesis melalui esterifikasi antara asam lemak hasil hidrolisis minyak kelapa sawit dengan sukrosa menggunakan lipase Candida rugosa yang terimmobilisai pada matriks zeolit. Immobilisasi lipase Candida rugosa menunjukkan % loading efficiency terbesar sebesar 78,31% dan % aktivitas immobilisasi terbesar sebesar 10,475%. Optimasi reaksi esterifikasi dilakukan pada beberapa parameter, yaitu suhu, rasio substrat, waktu inkubasi dan berat molecular sieve untuk menghasilkan persentase konversi terbesar. Kondisi optimum diperoleh pada suhu 40 0C, rasio mol asam lemak dengan sukrosa 64:1, waktu inkubasi 32 jam, serta berat molecular sieve 1,1 gram dengan % konversi sebesar 3,698%.