

Effect of Ultrasound on the Hydrolysis of Soy Oil Catalyzed by 1,3-Specific Lipase Abstract

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Abstract : The hydrolysis of soy oil catalyzed by 1,3-specific enzyme (Lecitase Ultra) in a well-stirred bioreactor was studied. Two forms of applications of the ultrasound were evaluated aiming to increase reaction rates, wherein the use of probe ultrasound associated with the use of surfactant to pre-emulsify the substrate showed the best results. Two different reaction periods were found: the first where the ultrasound has great influence on reaction rates, and the second where ultrasound influence is minimal. Studies on the time of pre-emulsification, surfactant concentration and enzyme concentration showed that the initial rate of hydrolysis depends on the interfacial area between the oil phase and the aqueous phase containing the enzyme.

Keywords : specific enzyme, free fatty acids, Hydrolysis, lecitase ultra, ultrasound

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