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A Study on the Lipase-Catalyzed Esterification in Organic Solvent

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**Abstract:** This study was undertaken to investigate effect of molecular sieves on the esterification reaction between lauric acid and geraniol in isooctane catalyzed by immobilized lipase in a batch and continuous-loop packed-bed reactor. Molecular sieves were used to reduce the inhibitive effect of water formed during the reaction by removing it as it formed. Results in a batch reactor showed that, for the molecular sieves to have a pronounced effect on the performance of the enzyme, a ratio of at least 2:1 with respect to the weight of the immobilized enzyme must be used. It was also found that the ability of molecular sieves to reduce inhibition by water is more noticeable when working in a packed-bed reactor. The physical contact between the molecular sieves and enzymes is of utmost importance for the adsorption of water since water is markedly insoluble in the organic solvent.

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