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Abstract
A lipase-catalyzed enantioselective dynamic kinetic resolution thiotransesterification process in organic solvents was developed for the synthesis of (S)-naproxen hydroxyalkyl ester. To obtain best reaction conditions, the selection of different preparations of immobilized lipases and the effect of carbon chain length of alcohol containing different initial water activity were investigated. When the carbon chain length of alcohol was three to six, at low initial water activity can reduce the degree of hydrolysis side reaction. The constant control of water activity was more effective than initial control of water activity for reducing the side reaction of hydrolysis. The highest thiotransesterification / hydrolysis ratio were obtained when the constant control of water activity were used in the synthesis of (S)-Naproxen hydroxybutyl ester.

The optimum alcohol concentrations for 1,4-butanediol were found around 5 mM. Using the silica gel-adsorbed alcohols to resolve the limitation of solubility of alcohols in isooctane. The presence of silica gel-adsorbed also can reduce the inhibition of high alcohols concentration and gets more optimum thiotransesterification / hydrolysis ratio than free-silica gel system.
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