

288q A New Concept about Adsorption Effect on Kinetic Resolution of Racemates Catalyzed by Immobilized Enzymes in a Batch Reactor

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Abstract: Adsorption, a typical physical phenomenon, always neglected in the kinetic resolution of the racemate catalyzed by enzymes immobilized on the porous solid support, was theoretically analyzed. A new concept that the adsorption effect plays an important role to affect the superficial performance of the enzyme which is often applied to evaluate the performance of the enzyme was described. Adsorption intensity, or so called mass equilibrium constant (K), is the most important factor to affect the performance of the enzyme compared with adsorption rate coefficient (k) and adsorption equilibrium (adsorption isotherm). The conclusion can be drawn that the solid support with a weak adsorption effect on the racemate may favorite the enzyme to exhibit a good performance in the kinetic resolution of the racemate. The adsorption phenomenon should be considered as an explanation to the performance changing of the enzyme after immobilized. Keywords: immobilized enzyme; kinetic resolution; adsorption; batch reactor