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在十六烷基三甲基溴化铵(CTAB)溶液中水杨酸酯水解反应动力学 研究

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摘要 应用UV-vis法,在不同温度条件下,对水杨酸酯(丁酯、苯酯)在CTAB溶液中的水解反应进行跟踪,测定了不同浓度的表面活性剂存在下的反应速率常数,
得出CTAB对其反应是禁阻作用。通过温度对其反应速率影响,计算它们的反应活化能。并用^1HNMR方法,确定了反应物在CTAB胶束中的增溶位置,对禁阻的机理进行了探讨。

关键词 溴化十六烷基三甲铵 水杨酸酯 水解 反应动力学 质子磁共振谱法 反应速度常数 胶束

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Kinetic studies on the hydrolysis of salicylates in CTAB surfactant solution

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Abstract The hydrolysis kinetics of two salicylates (n-butyl salicylate, phenyl salicylate) are studied in CTAB surfactant solution by using UV-vis spectroscopy. The rate constants, activitied energies and frequency factors are also obtained. The solubilization positions of salicylate in CTAB micelle are determined by using ^1H NMR. The examined results indicate that n-butyal salicylate is solubilizated predominantly in the palisade layer and the micellar interior core, but phenyl salicylate solubilization is localized in the palisade layer and adsorbed at micelle water 'interface'. For phenyl salicylate molecules, most of which solubilized in the interface, there are more chances for them to be attacked by OH^-, so the reaction is faster than the former. The mechanisms for the forbidden hydrolyses of salicylates in aqueous CTAB and micelle are also discussed.

Key words HYDROLYSIS REACTION KINETICS PROTON MAGNETIC RESONANCE SPECTROMETRY REACTION RATE CONSTANT MICELLE

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