Structural Effects upon Catalysis by Cationic Micelles

Bunton, C. A.

Robinson, L.

Sepulveda, L.

The catalytic efficiencies of phenyl- and 2,4-dimethoxyphenylcetyldimethylammonium bromides (CPDA and CDPDA) are greater than that of cetyltrimethylammonium bromide (CTABr) for the spontaneous hydrolyses of the dianions of 2,4- and 2,6-dinitrophenyl phosphates, the reactions of hydroxide and fluoride ions with p-nitrophenyl diphenyl phosphate, and the reaction of hydroxide ion with 2,4-dinitrochlorobenzene in water, because of more efficient micelle-substrate binding. There is little effect upon the rate in the micellar phase. 2,4-DimethoxybenzyIcetyldimethylammonium bromide (CDBDA) is an even better catalyst for the spontaneous hydrolysis of 2,4-dinitrophenyl phosphate, but not for the other reactions, probably because of its low solubility in water.