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Abstract

The subject of this work was to verify if a homologous series of N-alkylpyridinium substances and p-nitrophenylcarbonates possess the reciprocal influence of the length of alkyl chains on the rate of hydrolytic reaction.
In a series of N-alkylpyridinium substances was tested pyridinium bromide with alkyl chain lengths of C10, 12, 14, 16 and C18. These surfactants were tested with p-nitrophenyl acetate, -butyrate, -caprylate, -caprate, -laurate, -myristate, -palmitate and-stearate. The highest values throughout the group results were achieved through a combination of p-nitrophenyl-caprate and octadecylpyridinium bromide.
$5x10^{-3}$ M concentration of surfactant was able to accelerate the decomposition of p-nitrophenyl-caprate 120 times and almost reached the rate constant 0.0878 sec^{-1}, which corresponds to the half-life is approximately 8 seconds.
octadecylpyridiniumbromide and hexadecylpyridinium bromide were proved as successful micellar catalysts. The best hydrolysable substrates were medium-length alkylated.