

SYNTHESIS AND KINETICS OF ALKALINE HYDROLYSIS REACTIONS OF METHYL ESTERS OF 3,5-DINITRO AND 3,5-DICHLORO-N-PHENYLANTHRANILIC ACIDS IN BINARY DIOXANE-WATER SOLVENT

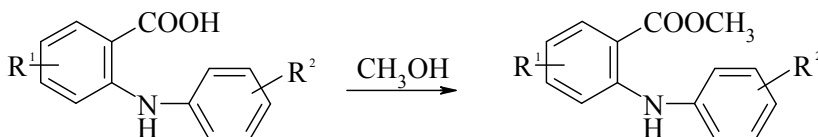
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The synthesis of new methyl esters of 3,5-dinitro- and 3,5-dichloro-N-phenylantranilic acids was carried out (scheme 1):

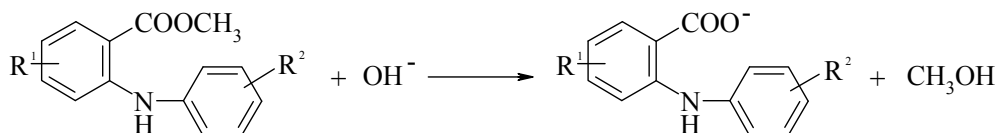
Scheme 1



The structure and purity of synthesizing compounds was confirmed by elemental, IR-, ¹H-NMR-spectral, chromatographic analysis and qualitative tests.

Kinetic of alkaline hydrolysis reactions of 18 derivatives of 3,5-dinitro- and 3,5-dichloro-N-phenylantranilic acids methyl esters was studied in the mixed dioxane-water solvent in the temperature range of 45-85 °C. The reaction fits following equation:

Scheme 2



$R^1 = 3,5\text{-NO}_2, 3,5\text{-Cl};$

$R^2 = \text{H}, 2'\text{-CH}_3, 4'\text{-CH}_3, 3',4'\text{-(CH}_3)_2, 4'\text{-OCH}_3, 4'\text{-OC}_2\text{H}_5, 4'\text{-OC}_3\text{H}_7, 4'\text{-Cl}, 4'\text{-Br}$

Bimolecular reactions rate constants, energy, enthalpy, entropy and free activation energy have been calculated. Effects of electronic nature and position of substituents in non-anthranilic molecule fragment of substrate on above-mentioned parameters have been analyzed. Validity of isokinetic correlation with enthalpic control has been shown and isokinetic temperature was determined.

It was established, that the synthesized substances have anti-inflammatory, analgetic, diuretic and bacteriostatic activity ($DL_{50}=1530\text{-}2000\text{ mg/kg}$). These investigations testify to prospects of search of biologically active substances among the given chemical compounds.