

عنوان مقاله:

Kinetics study and a mechanistic investigation of reaction between 4-methyl benzaldehyde 1, aniline 2, and trialkyl phosphite 3, in the presence of catalysts such as succinic acid and meso-2,3-dibromo succinic acid

محل انتشار:

اولین همایش ملی فناوری های نوین در شیمی و مهندسی شیمی (سال: 1392)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

The major objective of the work undertaken were to carry out kinetics, studies of the three component reaction between 4-methyl benzaldehyde 1, aniline 2, and trialkyl phosphite 3, in presence of catalysts such as succinic acid and meso-2,3-dibromo succinic acid . To determine the kinetic parameters of thereaction, it was monitored by the UV spectrophotometer technique. The values of the second order rate constant (k_2) were automaticallycalculated using standard equations within the program when the second order fits of the mentioned reaction were automatically drawn by the softwareassociated with a Cary UV spectrophotometer at appropriate wavelength. Based on the experiment data, the order of reaction with respect to each of thereactants (1, 2 and 3) and catalyst are respectively 1, 1, 0 and 1 and overall order of the reaction is second. At the temperature range studied the dependence ofthe second order rate constant ($\ln k$) on reciprocal temperature was in agreement with Arrheniusequation. This provided the relevant plots to calculate the activation energy and parameters (E_a , $\Delta H^\ddagger$, $\Delta G^\ddagger$, and $\Delta S^\ddagger$) of the reaction. Furthermore, usefulinformation regarding the mechanism of the reaction was obtained from studies of the effect of solvent, catalyst, concentration, and different alkyl groups within the trialkyl phosphite (structural effect) on the rate of the reactions. The (results showed that the first step of the mechanism is a rate determining step (RDS

کلمات کلیدی:

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