عنوان مقاله:

KINETICS OF THE SYNTHESIS REACTION OF DIMETHYL2- (3H-INDOL-2-YL) FUMARATE CATALYZED BY TRIPHENYLARSINE

محل انتشار:

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خلاصه مقاله:

For the first time, triphenylarsine has been used as a catalyst for the synthesis of dimethyl 2- (3H- indol- 2- yl) fumarate derivatives using dimethylacetylene dicarboxilate and indol in methanol under thermal condition. This procedure has many advantages such as easy work-up, inexpensive materials, use of non-toxic catalyst and eco-friendly conditions. To specify the kinetic parameters of the reaction, it was monitored by the UV spectrophotometry method. Based on the experiment data, the order of reaction with respect to each reactant (1 and 3) was 1, 1 and overall order of the reaction was two. The reaction was followed at different temperatures and the correlate of overall rate constant (Ln kove) and (Ln kove/T) on reciprocal temperature was in a good agreement with Arrhenius and Eyring equations, respectively. This provided (data) the suitable plots for calculate the activation energy (Ea) and parameters (ΔS‡, ΔH‡, ΔG‡). In addition, useful information was obtained regarding mechanism of reaction from studying the effect of solvent, concentration and catalyst. The proposed mechanism was confirmed according to the obtained results and the steady state approximation and the first and second steps (k1, k2) of the reactions were recognized as the rate determining steps

کلمات کلیدی:

Kinetics, Mechanism, Catalyst, Triphenylarsine, Indol