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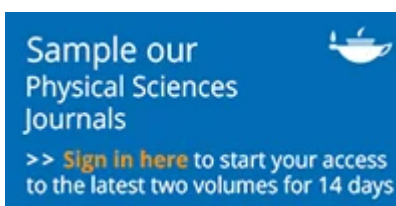
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Spectrophotometric Determination and Kinetic Studies of Condensation of Aromatic Aldehydes with 2-Thiobarbituric Acid

H. A. A. Medien & A. A. Zahran

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Abstract

The condensation reaction of 2-thiobarbituric acid with aromatic aldehydes in ethanol has been investigated spectrophotometrically at 30-50°C. The reaction was catalyzed by HCl solutions. The reaction follows overall second order kinetics, first order each in reactant. Activation parameters have been calculated from the dependence of the rate constants on temperature. The rate of condensation increases with the presence of electron donating groups on the aromatic ring of the aldehyde. The rate-determining step involves dehydration of the aldol intermediate. Based on this reaction, determination of 13 aromatic aldehydes in a concentration range of 0.149-76 µg/ml is proposed.

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Keywords: 2-thiobarbituric acid, aromatic aldehydes, determination, kinetic

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