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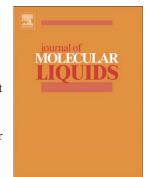
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## **ACCEPTED MANUSCRIPT**

Study of molecular interactions using excess thermo-acoustical parameters at different temperatures

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Abstract: Ultrasonic velocities, densities and viscosities have been measured in two binary liquid mixtures of quinoline with alkanols (ethanol and 1-propanol) over the entire molefraction range of quinoline at temperatures T=(303.15,308.15,313.15 and 318.15)K. From the experimentally measured data, excess thermo-acoustical parameters such as excess intermolecular freelength ( $L_f^E$ ), excess adiabatic compressibility ( $\beta^E$ ), excess free volume ( $V_f^E$ ), excess internal pressure ( $\pi^E$ ),excess enthalpy ( $H^E$ ) and excess Gibb's free energy of activation function ( $G^{*E}$ ) have been calculated. These results are fitted to the Redlich-Kister polynomial equation and have been explained on the basis of intermolecular interactions present between the component molecules of the liquid mixtures.

**Keywords**: Density; ultrasonic velocity; viscosity; excess intermolecular freelength; excess adiabatic compressibility; quinoline; ethanol;1-propanol.

#### **INTRODUCTION**

The study of the excess thermo-acoustical parameters is important in order to understand the nature of molecular interactions between the components of the liquid

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