

Ultrasonic Investigation as Tool for Study of Molecular Interaction of 2-Hydroxy Substituted Pyrimidine Derivative at Different Concentrations

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Abstract : Recent decades have witnessed an exponential growth in the field of acoustical parameters and ultrasound on solid, liquid and gases. Ultrasonic propagation parameters yield valuable information regarding the behavior of liquid systems because intra and intermolecular association, dipolar interaction, complex formation and related structural changes affecting the compressibility of the system which in turn produces variations in the ultrasonic velocity. The acoustic and thermodynamical parameters obtained in ultrasonic study show that ion-solvation is accompanied by the destruction or enhancement of the solvent structure. In the present paper the ultrasonic velocity (v), density (ρ), viscosity(η) have been measured for the pharmacological important compound 2-hydroxy substituted phenyl pyrimidine derivative (2-hydroxy-4-(4'-methoxy phenyl)-6-(2'-hydroxy-4'-methyl-5'-chlorophenyl)pyrimidine) in ethanol as a solvent by using different concentration at constant room temperature. These experimental data have been used to estimate physical parameter like adiabatic compressibility, intermolecular free length, relaxation time, free volume, specific acoustic impedance, relative association, Wada's constant, Rao's constant etc. The above parameters provide information in understanding the structural and molecular interaction between solute-solvent in the drug solution with respect to change in concentration.

Keywords : acoustical parameters, ultrasonic velocity, density, viscosity, 2-hydroxy substituted phenyl pyrimidine derivative

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