



## Solution Thermodynamics of Lysine Clonixinate in Some Ethanol + Water Mixtures

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**SUMMARY.** The solubility of lysine clonixinate (LysClon) in several ethanol + water mixtures was determined at 293.15 to 313.15 K. The thermodynamic functions, Gibbs energy, enthalpy, and entropy of solution and of mixing were obtained from these solubility data by using the van't Hoff and Gibbs equations. In general this drug exhibit good solubility and the greatest value was obtained in the mixture 0.60 in mass fraction of ethanol. A non-linear enthalpy-entropy relationship was observed from a plot of enthalpy vs. Gibbs energy of solution. Accordingly, the driving mechanism for LysClon solubility in water-rich and ethanol-rich mixtures is the entropy, probably due to water-structure losing around the drug non-polar moieties by ethanol or increased ionic solvation; whereas, in the medium composition mixtures the driving mechanism is the enthalpy, probably due to LysClon solvation increase by the co-solvent molecules.

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**KEY WORDS:** Cosolvency, Ethanol, Lysine clonixinate, Solubility, Solution thermodynamics.

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