



Dielectric Constant and its Influence on Protonation Equilibria of L-Serine and L-Tryptophan in Acetonitrile-Water Mixtures

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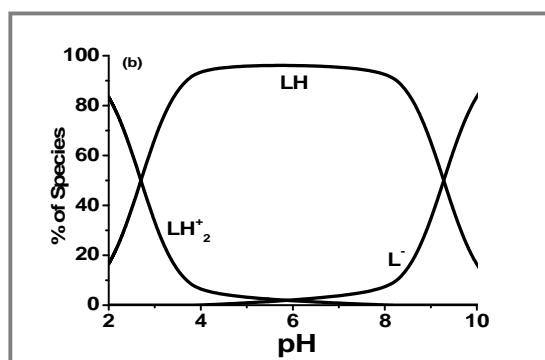
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ABSTRACT

Solute-solvent interactions of L-serine and L-Tryptophan have been studied in 0–50% v/v acetonitrile-water media using pH-metric method. The protonation constants have been calculated with the computer program MINQUAD75. Selection of the best fit chemical model of the protonation equilibria is based on standard deviation in protonation constants and residual analysis using crystallographic R-factor and sum of squares of residuals in all mass balance equations. Linear variation of protonation constants with inverse of dielectric constants of the solvent mixture has been attributed to the dominance of the electrostatic forces. Distribution of species, protonation equilibria and effect of influential parameters on the protonation constants has also been presented.

Graphical Abstract



Species distribution diagrams of L-Serine.

Keywords: Dielectric Constant, MINQUAD75, Acetonitrile, L-serine and L-Tryptophan.