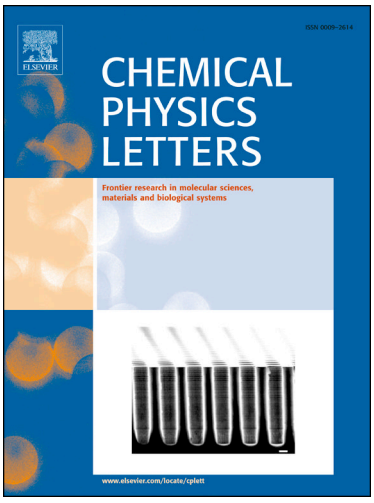

Research paper

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Assorted Interactions of Amino Acids Prevailing in Aqueous Vitamin C Solutions Probed by Physicochemical and Ab-Initio Contrivances

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Abstract

Qualitative and quantitative analysis of molecular interaction prevailing in Tyrosine and Tryptophan in aqueous solution of Vitamin C have been probed by thermophysical properties. The apparent molar volume (ϕ_V), viscosity *B*-coefficient, molal refraction (R_M) of tyrosine and tryptophan have been studied in aqueous vitamin C solutions at diverse temperatures via Masson equation which deduced solute-solvent and solute-solute interactions, respectively. Spectroscopic study along with physicochemical and computational techniques provides lots of interesting and highly significant insights of the model biological systems. The overall results established strong solute-solvent interactions between studied amino acids and vitamin C mixture in the ternary solutions.

Abbreviation: Tyrosine = Tyro, Tryptophan = Tryp, Fluorescence intensity = Fl intensity, Aqueous = aq, Aqueous ascorbic acid = (AA)

Keywords: Solute-solvent interaction, amino acids, Vitamin C, Fluorescence spectra and NMR Spectra.

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1. Introduction

Amino acids, basic component of protein molecules particularly important in biochemistry are serious for life processes, and have countless functions in metabolism. Components of supreme significance of cell membranes are a variety of proteins. These membranes are thin, fluidic and highly flexible in nature which permits selective passage of materials from and into the cells plus permit lateral flow of membrane components in itself. A trans membrane protein is a vital type of protein that spanstotal of the biological membrane to which it is permanently attached. Several trans membrane proteins function as gateways to permit the transport of exact substances across the biological membrane. They habitually undergo significant conformational changes to shift a substance through the membrane. The