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Analysis of hydration of ovalbumin by densitometry

Sirotkin V., Khadiullina A.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2014 by Nova Science Publishers, Inc. All rights reserved. High-precision densitometry was applied to study the hydration of hen egg-white ovalbumin. The excess volumes of the binary system of ovalbumin with water were obtained as a function of composition at 25 °C. The hydration process was characterised by analysing the excess functions of mixing. This method facilitates the individual evaluation of the protein and water partial quantities in the entire range of water content. The excess partial volumes are extremely sensitive to changes in the state of water and the protein. The excess volumes are determined by the hydration of the hydrophilic and hydrophobic protein groups. It was found that the more hydrophilic a protein is, the more significant the hydrophilic hydration contribution is.

Keywords

Densitometry, Excess functions, Protein (biomacromolecule) hydration, Volume