

# Structural and fluorescence properties of bovine serum albumin sodium alkyl sulfates bioconjugates

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According to develop new protein-based sustained release drug systems the study of interaction between protein and surfactants are one of the most important research field. Sodium n-alkyl sulfates are mostly dominant classes of widely used anionic surfactants for example: in field of medicine, pharmaceuticals, cosmetic and toiletry products, although this type of surfactants perhaps has toxic effects.

In this work presented here, the interaction between bovine serum albumin (BSA) protein and surfactants with different alkyl chain length were studied in aqueous buffer solution at pH = 3. The formed microstructure were characterized with the following different techniques: The change in particle size and the electrokinetic potential ( $\zeta$ -potential) of globules or complexes were measured with dynamic light scattering (DLS) apparatus.

The determination of specific surface charge of proteins is very important factor to identify the maximal amount of adsorbed other components like surfactants, biomolecules etc. The specific surface charge of protein was determined with particle charge detection technique. Moreover, the thermal denaturation characteristics of globular protein in the presence of increasing concentration of sodium n-alkyl sulfate (sodium n-octyl sulfate; sodium n-decyl sulfate; sodium n-dodecyl sulfate) has been determined by differential scanning calorimeter (DSC).

The nanostructure of the aggregated protein-detergent bioconjugates the small-angle X-ray scattering (SAXS) technique was also applied, and showed a necklace-like model.

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