

# Investigating the interaction of sodium lauryl sulfate with hemoglobin and the effect of ascorbic acid antioxidant

Radvnush Mirzajani\*, Heshmatollah Ebrahimi Najafabadi,

**Abstract:** Hemoglobin (Hb), a kind of respiratory protein of vertebrate erythrocytes, is important in oxygen and carbon dioxide transport and electron transfer to all organs and parts of the body. Hemoglobin may enter to an oxidation process that can convert oxyhemoglobin to methemoglobin and hemichrom. Some molecules such as surfactants can facilitate oxidation process which may accumulate hemichrom in red blood cells. In this study, we prepared purified hemoglobin blood of a healthy person. The interaction of sodium dodecylsulfate with hemoglobin was studied by UV-Vis spectroscopy and chemometrics curve resolution techniques. Reconstructed spectral and concentration profiles show three forms of hemoglobin name as Oxyhemoglobin, Met-Hemoglobin and Hemichrom. Ascorbic acid as an additive to the mixture of hemoglobin and SDS, reduces the oxidation process. This could due to the effect of ascorbic acid to hydrogen peroxide which produces during interaction of hemoglobin with SDS and also reduction in critical micelle concentration of SDS in the presence of ascorbic acid. **Keyword:** Sodium lauryl sulfate, hemoglobin, Ascorbic acid antioxidants, Spectrophotometer, Electrophoresis

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