

Lilia Vladimirova, Elitsa Pavlova, CHEMILUMINESCENT RESEARCH ON THE REACTIONS BETWEEN FERRITIN, ALBUMIN AND REACTIVE OXYGEN SPECIES

We investigated the interactions of ferritin and albumin with reactive oxygen species (ROS) by the lucigenin-enhanced chemiluminescence method. These reactions are explored in different systems for generation of ROS: enzymatic (xanthine - xanthineoxidase) and chemical (phenazinemethosulfate - reduced α -nicotinamide adenine dinucleotide) - for the generation of O_2^- - radicals, and Fenton's system (H_2O_2 - Fe^{2+}) - for the generation of $\cdot OH$ - radicals. We also studied the effects of three chelators (desferal, ethylenediamineteraacetic acid and adenosine triphosphate) suppressing these redox processes. Their activity corresponds to different intensity of chemiluminescence. The constants of inhibition about ferritin, albumin and these substances with proven chelative effects are calculated. Their effect varies depending on pH and the type of the model system applied for the generation of ROS.

Keywords: chemiluminescence; ferritin; albumin; chelators; reactive oxygen species.

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