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Investigations of Blue Oxidase -  
Ceruloplasmin: Photoregulation of  
Redox Reactions in Biomolecular  
Systems

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It is showed that helium-neon laser action on the cells and blood components consists in the alteration of the redox processes, in particular, free radical membrane lipid peroxidation, which depends on the mechanism of photoactivation. He-Ne laser wave length (632.8 nm) lies in the absorption region of ceruloplasmin (plasma protein) which, being an oxidant, inhibits processes of lipid peroxidation, responsible for destruction of proteins and lipids. Antioxidant ability (enzyme activity) of ceruloplasmin depends upon its electron acceptor properties.

Our main conclusions: 1. He-Ne laser irradiation changes enzyme activity of ceruloplasmin; 2. maximum photosensitivity of ceruloplasmin to He-Ne laser irradiation is revealed in acid medium (pH 5.5).

Thus, in clinical practice it is possible to use He-Ne laser irradiation to regulate redox reactions in various pathological conditions.