

The diploma thesis examined the photochemical properties of verteporphin in liposomes. Absorption and fluorescence spectroscopy and time-resolved detection of singlet oxygen generated by verteporphin were used. The kinetics of singlet oxygen emission were studied under conditions of varying concentrations of dissolved oxygen, the presence of heavy water, and a specific quencher – sodium azide. It was found that verteporphin in liposomes is present in two distinct groups. It was also found that verteporphin in liposomes undergoes a photochemical change, and the formation of a photoproduct was observed in absorption and fluorescence spectra. The formation of the photoproduct is reflected in the times of increase and decrease of the kinetics of singlet oxygen luminescence. It has been demonstrated that the photoproduct is formed in the presence of oxygen in the ground state by an electron transfer mechanism from the triplet state of verteporphin and the formation and subsequent reaction of a superoxide radical.