

Photodynamic therapy is a method that can be used to treat a number of diseases, such as oncological diseases. The basis of this method is the elimination of diseased tissue by singlet oxygen obtained by energy transfer from photosensitizers, including verteporphin. The experimental part of this work examines the absorption and fluorescence spectra of verteporphin for different concentrations. Furthermore, from the kinetics of singlet oxygen luminescence for different concentrations, lifetimes of singlet oxygen, verteporphin triplets and their dependence on the sample concentration were obtained. The quenching constant was determined from the dependence of singlet oxygen lifetimes on verteporphin concentration. From the comparison of the measurements in the sample in equilibrium with air and with pure oxygen, the quenching constant of the verteporphin triplets with dissolved oxygen was determined.