

The Luminescent Manifestation of the DNA – Amitozine’s Alkaloid Interaction

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The complete understanding of the therapy mechanism action of drugs is impossible without studies of the interaction of these compounds with biological objects on the molecular level. In our work some results of the investigations the DNA – amitozine (plant origin – *Chelidonium majus L.* – drug with anticancer and immune modulation properties) are presented.

The absorbtion, fluorecence and phosphorescence of amitozine were studied in water solution without and in presence of the DNA. The fluorecence maximum amitozine without DNA depends on excitation wavelength but fluorecence maximum amitozine in presence DNA doesn’t depend. Simultaneously the fluorecence intensities increase approximately 10 times (see Fig.1). This phenomenon is connected, to our opinion with the adsorption one of the one amitozine’s alcaloid on the DNA macromolecules (amitozine molecule consists from several alkaloids).

According to our investigations the triplet excitations in DNA are localized mainly on amitozine’s alkaloid – berberine (the phosphorescence spectra DNA+berberin are very close to berberine water solution spectra). It was obtained from studies of the phosphorescence dependence of DNA+berberine solution on berberine concentration, that average value of the triplet excitation displacement at least reaches the 20 base sequence length (7 nm.)

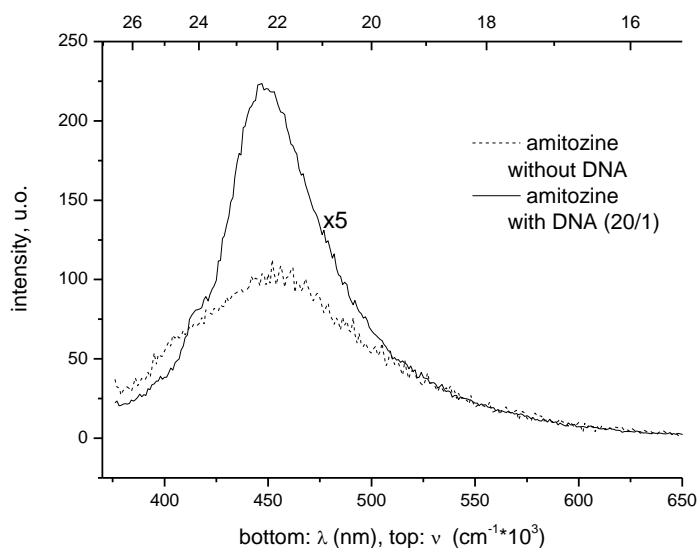


Fig. 1. The fluorescence spectra amitozine and DNA+amitozine water solutions, T=293 K, $\lambda_{exc}=366$ nm.

The data obtained open the way to establish the molecular mechanism of the amitozine therapeutic action.