

LUMINESCENT MANIFESTATION OF THE DNA — BERBERINE INTERACTION

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S u m m a r y

The complete understanding of the therapy mechanism action of drugs is rather difficult without studies of the interaction of these compounds with biological objects on the molecular level. In our work, the results of investigations of the DNA — berberine guest molecules in amitozine (plant origin — *Chelidonium majus L.* — a drug with the anticancer and immune modulation properties) are presented.

The absorption, fluorescence, and phosphorescence of berberine are studied in a water solution without and in the presence of DNA. The adding of DNA macromolecules to berberine solutions doesn't lead to significant changes of the fluorescence and absorption spectra, but the fluorescence intensity dramatically increases (by ~60 times). In our opinion, this phenomenon is connected with the intercalation of berberine molecules into DNA macromolecules. According to our investigations, the triplet excitations in DNA are localized mainly on berberine molecules bound to DNA. It is found that the average value of the triplet excitation displacement reaches at least the length of the twenty bases of DNA.

The results obtained can be a key to explain the molecular mechanism of the drug action.