

SPECTROSCOPIC STUDIES OF AMPHOTERICIN B-COOPER COMPLEXES

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Amphotericin B (AmB) is a polyene antibiotic widely used in the treatment of deep-seated fungal infections. The mode of action of AmB is directly related to the effect of the drug on the lipid phase of biomembranes. Divalent metal ions like Cu^{2+} are present in blood serum and erythrocytes and may affect the action of polyene antibiotics. We were interested in the aggregation effects after the AmB- Cu^{2+} complexation as demonstrated by influence on the electronic absorption and fluorescence spectra. The absorption spectra of AmB in water (pH = 7) after the injection of water solution of CuSO_4 display a complex structure with hypsochromic- and bathochromic-shifted bands indicative of formation of molecular aggregates of the drug. Formation of molecular aggregates was analyzed at different concentrations of Cu^{2+} ions. By titration test it was also possible to find the isoelectric point $\text{pI} = 6.2$ for AmB. Intensity of fluorescence emission spectrum (characteristic for dimeric form of AmB) is decreased after the AmB- Cu^{2+} complex formation. This effect of AmB- Cu^{2+} induced formation of aggregated structures of AmB is different than spontaneous molecular aggregation process, as deduced from spectroscopic analysis.