عنوان مقاله:

HSA Binding Analysis of a new Cu(II) complex of Lidocaine Drug : Spectroscopic and Molecular Docking Techniques

محل انتشار:

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خلاصه مقاله:

The binding interaction between a new [Cu(LC)۲(H۲O)۲](NO۳)۲ complex containing the lidocaine (LC) drug and human serum albumin (HSA) was investigated using absorption, fluorescence emission, and molecular docking techniques. The absorption spectrum of the HSA shows that the Cu(II) complex led to the decrease in absorbance of HSA at ۲۸۰ nm, which indicates the binding affinity of the Cu(II) complex with this biomolecule. The results demonstrated that the binding of the complex to HSA caused significant fluorescence quenching of HSA through a static quenching mechanism. Thermodynamic parameters (ΔH < ۰ and ΔS < ۰) indicated that hydrogen bonding and van der Waals interactions played major roles in the binding of the Cu(II) complex to HSA. Displacement experiments suggested that the binding site of the Cu(II) complex on HSA is located within domain III, at Sudlow's site ۲. These findings were further supported by molecular docking studies.

کلمات کلیدی:

Interaction, Cu(II) complex, HSA, Fluorescence, Docking; Spectroscopy