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Study of the interaction between Schiff base complex and human serum albumin by fluorescence spectroscopy

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Abstract

new Schiff-base has been synthesized from the 1:1 M condensation of 2,2'-((1E,1'E)-(1,2-phenylenebis(azaneylylidene))bis(methaneylylidene))bis(4-bromophenol) (H_2L) with $Co(OAC).4H_2O$. The present study aims to investigate and identify the modes in the binding of the Schiff base complex to HSA. Hence, [$Co(H_2L)(Py)_2]ClO_4$complexe has been characterized by spectroscopic methods such as infrared and 1H-NMR as well as chemical analysis. Also, the studies on the interactions between metallodrugs and Human Serum Albumin (HAS), as carriers for drugs and biological molecules, are extremely important to design new drugs[1]. In this study, the interaction between HSA and newly designed anti-cancer compounds has been investigated[2]. Circular dichroism and fluorescence quenching studies revealed one molecule of our Schiff bases to bind to HSA. The number of binding sites, the Stern-Volmer quenching constant and the association constant of the complex were calculated on the HSA protein[3]. According to the results, these complexes can bind to the main blood carrier protein (HSA) and change the secondary structure of the protein Schiff base complex is shown. The in vitro cytotoxicity of the metal complex on the SW-480 cancer cell line was evaluated using the MTT test. The complex exhibited more activity against SW-480 than fluorouracil (FU), with an IC50 value of 0.107μM.

Key words: HAS, Schiff base,Anti-cnacer,Fluorescence

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