Abstract No.97

Binding Parameters in HSA Interaction with Antitumor Pd(II) Phenanthroline Derivative Complex

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The serum albumin proteins are among the most highly studied and applied in biochemistry and ligand binding to albumin has been studied for over 50 years. A number of studies have focused on the interaction of Palladium (II) complexes having fewer side effects against cancer with protein. It is important that structural change of proteins must be considered as a side effect of anticancer drug. We know the thermodynamic method is suitable for evaluating the magnitude of structural change of a protein, due to the binding of a ligand. Thus a new Palladium (II) complex of formula [Pd(phen)(TIP)](NO3)2, where phen is 1,10-phenanthroline and TIP is phenanthroline derivative has been synthesized and characterized by spectroscopic methods (see Figure 1). The interaction of HAS with Pd(II) complex was studied by isothermal titration UV-visible spectroscopy in Tris-HCl buffer solution containing 10 mM sodium chloride (pH=7.4) at 300 and 310K and binding parameters were found. Also, this compound can denature the HSA and the concentration of this complex in the midpoint of transition is decreased by increasing temperature. Using denaturation HSA, thermodynamic parameters such as conformational stability, molar enthalpy and entropy of HSA denaturation by complex were calculated.

Keywords: HSA Denaturation, Phenanthroline Derivative, Binding Parameter, Pd(II) Complex.

Abstract No.98

Fluorescence Spectroscopic Studies Of The Interaction Between A New Designed Pd (II) Complex With Human Hemoglobin

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Hemoglobin (Hb) is one of the most effective proteins in the blood that carries oxygen from the lungs to the tissues. Hb can also binds to different ligands such as drugs. In this study, we have investigated the interaction of a new synthesized anti-cancer compound (1, 10-phenanthroline butyl dithiocarbamato palladium (II) nitrate) with hemoglobin at two different temperatures of 25 and 37°C by fluorescence spectroscopic method.Intrinsic fluorescence data represented that in the presence of Pd (II) complex, the fluorescence intensity of Hb decreases. This result showed the Pd (II) complex is able to quench the intrinsic fluorescence of Hb. Also, binding and thermodynamic parameters of this interaction were calculated by fluorescence quenching methods. The binding constant (K) and the number of binding (n) were 0.02 μM and 1.1 at 25 and 37 °C, respectively. The values of DH° and DS° are 8.309 kJ/mol and 8.314 J/(mol K), respectively, which indicate that the hydrophobic interaction has a major role in this binding.The results obtained from this study suggested that interaction of this complex with Hb may be important to improved understanding of side effects of new synthesized drugs on their carriers.

Keywords: Hemoglobin, Pd (II) Complex, Fluorescence, Hydrophobic Interaction.

Abstract No.99

Preparation and Evaluation of Nisin-Loaded PLA-PEG-PLA Nanoparticles and Antimicrobial Effect on The Growth of Bacillus Cereus

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This Study was to assay the antimicrobial effect of nisin-loaded PLA-PEG-PLA nanoparticles as protein delivery vehicle. Among the potent antimicrobial agents, nisin has been found to be very efficacious against many Gram-positive spoilage, pathogenic bacteria and spore-forming bacteria such as bacillus cereus. The encapsulation of nisin