عنوان مقاله:

Binding mode investigation between a platinum (II) complex and BSA by fluorescence spectroscopy

محل انتشار:

بیستمین سمینار شیمی معدنی ایران (سال: 1397)

تعداد صفحات اصل مقاله: 1

نویسنده:

Khatereh Abdi - *Department of Chemistry, University of Sistan and Baluchestan, Zahedan, Iran*

خلاصه مقاله:

Serum albumins, the most abundant proteins in blood plasma, have long been the center of attention of pharmaceutical industry due to their ability to bind a verity of metabolites and drugs. This outstanding binding capacity often seriously impacts pharmacokinetic properties of drugs [1]. In this study, the interaction between a platinum (II) complex of formula [Pt(en)(2-pyc)]NO3 (where en = 1,2-diaminoethane and 2-pyc = 2-pyridinecarboxylate anion), as a potential anti-tumor agent, and bovine serum albumin (BSA), as a protein model, was studied by fluorescence spectroscopy. To this purpose, a solution of BSA with a fixed concentration in Tris-HCl buffer of pH = 7.00 was titrated with a stock solution of the Pt(II) complex. After each addition, the sample was excited at excitation wavelength of BSA and the emission spectrum was recorded. The obtained results indicated that the Pt(II) complex strongly quench the intrinsic fluorescence of BSA. The binding constant (Kb), the number of binding sites (n) and the Stern–Volmer constant (Ksv) were calculated based on the obtained results. Furthermore, the fluorescence quenching mechanism was also investigated via examining the fluorescence quenching process at three different temperatures. The results demonstrated that the probable quenching mechanism of BSA by the Pt(II) complex is a static quenching, because the equilibrium constants have been decreased by rising temperature. The negative values of ΔHº and ΔSº show that hydrogen bonds and van derWaals force play a major role in the binding of the Pt(II) complex to BSA [2].

کلمات کلیدی: