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Spectroscopic Studies of the Interaction Between new Designed Palladiumcomplex(II) with Human Hemoglobin

Farshad Sanginabadi[*1], *Farhad Sanginabady*[1], *Adeleh Divsalar*[2], *Ali Akbar Saboury*[3], *Mina Avini*[3]

1. Science and Research Branch, Islamic Azad University, Tehran, IR
2. Dept. of Biological Sciences, Tarbiat Moallem University, Tehran, IR
3. Institute of Biochemistry & Biophysics, University of Tehran, IR
(E-mail: farshad.sanginabadi@yahoo.com)

Hemoglobin (Hb) is one- of the most important and effective of blood proteins. In the present study, the intraction oftwo new synthesized Pd complexes(bipyridine ethyldithiocarbamat palladium ((IInitratandbipyridine buthyldithiocarbamat palladium ((IInitrat) with human Hb, as a model protein, was investiyated by different spectroscopic methods of UV-visible, fluorescence and circular dichroism (CD) at different temperatures of 25, 37, 42 and 47 0C.UV-Visible resultsshowed that adding of Pd complexes tothe Hb solution increase the absorbtion of the protein in 280 nm. Intrinsic fluorescence studies represented that Pd complexes have ability to quench the fluorescence intensity of Hb via the static quenching mechanism. Also, in the presence of different concentrations of Pd complexes, the maximum emission wavelengh of Hb shifted to a higher wavelengh (red shift), which indicates that the hydrophobicity of Trp environment decreased. Also, the number of binding sites of Pd complexes on the protein and their binding affinities were investigatedusingquenchingmechanism.
Results showedthatthebindingsite may be inthe near of tryptophan residue. Far UV-CD data showed that Pd complexes can change the regular secondary structure content of Hb via decreasing of α-helix content atdifferent temperatures of25, 37, 42 and 47 0C.From above results, it can be concluded that our new designed Pd complexes can change the secondary and tertiary structure of Hb at different temperatures.

Keywords: Hemoglobin, Pd Complexes, Fluorescence, Circular Dichroism.

Abstract No.168

Study of Enzymatic Activity in Static Magnetic Field for Immobilized and free Trypsin Onto Silica Gel

*Maryam Mousavi**, *Mohammad Reza Housaindokht*, *Mostafa Gholi zadeh*

Department of Chemistry, Faculty of Sciences, Ferdowsi University of Mashhad, Mashhad, IR
(E-mail: asemanmousavi@yahoo.com)

We immobilized trypsin onto silica gel particles and investigated the effects of a static magnetic field (13 mT) on the enzymatic activity, at 40°C.We found that the activity of the enzyme molecules immobilized on to silica gel particles incressed in the static magnetic field. Although the power magnetic field was weak, the significant results were observed. The effects of magnetic field on the free enzymes activity were also investigated.The results showed that free enzymes activity increased in the presence of magnetic the field similar to immobilized enzyme. Kinetic analysis carried out for both free and immobilized enzyme. Thermal and storage stabilities were found to be incress with immobilization. The estimated Michaelis constants (Km) and (Vmax) for the free and immobilized trypsin were calculated. Empolyment of immobilization lead to an increase and a decrease in Km and Vmax, respectively. Therefor enzyme activity upon immobilization method was lower than that of in free form. In addition, optimum pH shifted to basic region in immobilized form.The value of optimum pH for free enzyme was 7 while for immobilized enzyme was 7.5.

Keywords: Static Magnetic Field, Trypsin, Enzyme, Immobilization, Activity.

Abstract No.169

Study of ROS Production Manner during Hemoglobin Fructation and Its Relation to Heme Degradation

*Masume Goodarzi**[1], *Mehran Habibi-Rezaei*[2], *Ali Akbar Saboury*[1], *Mostafa Shourian*[1], *Hedayatollah Ghourchian*[1], *Ali Akbar Moosavi-Movahedi*[1]

1. Institute of Biochemistry & Biophysics, University of Tehran, IR
2. School of Biology, University of Tehran, Tehran, IR
(E-mail: m.goodarzi@ibb.ut.ac.ir)

Some probable mechanisms have been demonstrated for the source of Reactive Oxygen Species (ROS) during protein's glycation reactions in the presence of glucose. In this state, glucose autoxidation, ketoamine and oxidative AGEs formation have been introduced as major sources. On the other hand there were some evidences for heme degradation during hemoglobin glycation that demonstrated on ROS corporation for heme degradation. Two questions are proposed from these research lines: 1- Whether fructose can produce ROS alone or not. 2- The existence of the relationship between ROS production and heme