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Robust biocatalysts may be formed by encapsulating prosthetic group in hydrophobic pocket like micelles, vesicles and macrocyclic compounds that mimic the polypeptide envelope protecting the catalytic center located in the natural enzymes. Artificial enzymes could biomimetically constructed from native protein as host for prosthetic active site to simulate the catalytic functions exhibited by natural enzymes.New four-component nano-biocatalyst concluding Camel β-Casein (Cβ-Casein), SDS, heme, imidazole, coined by us "Caseoperoxidase" provided high catalytic efficiency, as peroxidase-like nano-artificial enzyme, that was 24.5% native horseradish peroxidase (HRP). Caseoperoxidase is a biomimetic of native peroxidase that incorporates the active site by protein hydrophobic inside. Camel β-casein was selected as an appropriate apo-protein for heme active site by homology modeling method. Heme docking into new obtained camel β-casein structure indicates one heme incorporates with β-casein. Docking analysis has predicted the presence of one main active site and minor sites for heme ligand to Cβ-Casein. The presence of one main electrostatic site for the active-site into β-casein protein was also confirmed by experimental method through Wyman binding potential. Further experiments also confirm the retention of caseoperoxidase structure and function as artificial enzyme.

Keywords: Caseoperoxidase, Nano-artificial Enzyme, Horseradish Peroxidase (HRP), Biomimetic, Camel β-Casein, SDS, Heme.

Abstract No.178

Study of the Interaction Between Human Serum Albumin and Co (III) –Salen Complex Using Fluorescence Spectroscopy

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Distribution, metabolism and elimination of drugs, depend on the binding of drugs to protein. The characterization of molecular interactions between protein and drugs provide important clue for designing of effective drugs for the treatment of disease.Human serum albumin (HSA) is responsible protein for binding and transporting of numerous compounds, such as hormones, fatty acids and drugs. The discovery that cobalt (III) Schiff base complexes are potent antiviral agents prompted us to initiate an investigation of Co (III) interactions with proteins and nucleic acids. Co (III) Schiff base complexes with two amines in axial positions have been used as antimicrobial agents. The interaction of the Co (III)-salen complex with DNA using fluorescence Spectroscopy has been studied.Here, the interaction of Co (III)-salen of N, N ′-dipyridoxyl (1, 4-butanediamine) Schiff-base complex with human serum albumin (HSA) in phosphate buffer solution has been investigated using fluorescence spectroscopy.The successive fixed amount of drug solution was added to HSA solution. Upon additions of ligand, fluorescence intensity of HSA decreased, so successive binding of the drug should occur close to tryptophan residue that causes quenching. Also a blue shift was observed, which indicated the fall of polarity and the increase of hydrophobicity around tryptophan residues. The Stern-Volmer quenching constant, K_{sv} = 7.7 × 10^4 M^{-1} and quenching rate constant of the biomolecule, K_q = 7.7 × 10^{12} L mol-1 s^{-1} were determined using the Sterns–Volmer equation to provide a measure of the binding affinity between ligand and HSA. Also, according to the Lineweaver-Burk equation binding constant has been calculated. The results indicated that the binding between drug and HSA are strong and the possible quenching mechanism between HSA and ligand was suggested as static quenching.

Keywords: Human Serum Albumin, Cobalt (III)-Salen, Quenching, Fluorescence Spectroscopy.

Abstract No.179

Radical Scavenging Capability of Different Phenolic Acids: Caffeic, Ferulic, P-coumaric and Sinapinic Acids

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Phenolic phytochemical compounds are reactive toward free radicals such as reactive oxygen species (ROS). Free radicals and ROS are implicated in protein/DNA damage, cancer and especially accelerated cell aging. Herein, the structural and electronic properties of the four phenolic phytochemical compounds including caffeic acid, ferulic acid, p-coumaric acid and sinapinic acid have been theoretically investigated by performing semi-empirical molecular orbital theory at the level of AM1 quantum chemical method. Structure of the caffeic acid showing features important in defining the classical antioxidant potential of phenolic acids. The results indicated that caffeic acid is more reactive toward free radicals. This is mainly because of the catechol or dihydroxylated ring that having hydroxyl substitutions, enable the compound to scavenge free radicals.

Keywords: Semi-empirical, AM1, Antioxidant, Phenolic Acids, Caffeic Acid.

Abstract No.180

Golden Hamster Monoclonal Antibodies in the Treatment of Metastatic Rectal Cancer in Veterinary Kazeroon, Iran

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Monoclonal antibodies(MAB)have found increasing use experimental therapies.great limitation of their use is that they are recognized by the patient as being of foreign origin and an antiglobulin response is provoked.recombinant DNA technology offers the ability to convert these rodent antibodies into a more human form.there are currently several different strategies which can be adopted to generate humanized antibodies resulting in different degrees of humanization can be achieved ranging from chimeric antibodies with a combination of human constant regions with rodent variable regions to fully reshaped antibodies where the variable regions are also humanized.

At present the available data on clinical use of chimeric and reshaped antibodies is very limited. The rat IgG2b antibody CAMPATH-1G has been shown to be both useful as an immunosuppressive antibody as well as in the treatment of lymphoid malignancies. The reshaped version, CAMPATH-1H, was successfully used to clear detectable malignant cells from the blood and bone marrow in two patients with B-cell lymphoma . A more sustained course of the human antibody (126 mg over 30 days and 86 mg over 43 days) was tolerated than had previously been used for the rat antibody.

In the future in veterinary clinic of Sina gilan, it is clear that a majority of monoclonal antibodies produced for therapy will be humanised for the reasons discussed above. As far as improvements in the abilities of these antibodies to interact with human effector mechanisms goes it seems that there is unlikely to be any major differences between chimeric and fully reshaped antibodies.

important about humanised antibodies is whether there are any sequences contained within the variable region frameworks, complimentary determining regions or constant region allotypes which can be processed and presented as T-cell epitopes.

Keywords: Monoclonal Antibodies, Chimeric Antibody, Recombinant DNA Technology, Humanized Antibody, Antiglobulin.

Abstract No.181

Differential Scanning Calorimetry Study of Camel Serum Albumin in Presence and Absence of Fatty Acids

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This study aims to determine the thermal stability of camel albumin and compare it with human and bovine sources. Camel albumin was purified from serum via combination of Cohn method and anion-exchange chromatography. Physiologically albumin binds 0.1-2 fatty acid per mol so activated charcoal treatment was taken to remove them. The thermal denaturation process of camel albumin containing fatty acid (CAF) and free fatty acid camel albumins (CA) in aqueous solution was studied by use of differential scanning calorimetry. The melting temperature of CAF was similar to human serum albumin (80°C) and markedly higher than bovine source (69°C). Removing fatty acids decreased melting temperature of camel albumin, which shows the stabilizing effect of fatty acid. Here fatty acid may be