

Abstract No.45

Effect of ω -3 Fatty Acids Supplementation on Nutritional Status in Patients With Gastric Cancer During Chemotherapy

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Although the results of some studies indicated positive effects of ω -3 supplementation on nutritional status of cancer patients who undergo different cancer treatments, there is not consistent findings. Therefore, we examined the effects of ω -3 fatty acid on nutritional status of patients with gastric cancer undergoing chemotherapy. In this clinical trial 15 volunteer gastric cancer patients (stage II, III) received 3 gram ω -3 fatty acid for 45 days during chemotherapy. Before and after supplementation, height and body weight were measured and body mass index calculated. Dietary intake of patients were assessed using 24 hour recall questionnaire (3 days). Serum albumin of patients were determined by kits at the onset and the end of intervention. Data were analyzed by paired t-test. ω -3 supplementation resulted in significant increase in daily mean energy (1651.2 ± 183.4 vs 1792.7 ± 130.4 kcal/d), protein (73.16 ± 22.13 vs 74.5 ± 13.84 gr/d) intakes and the mean body weight (56.7 ± 10.2 vs 59.2 ± 8.9 kg) ($p < 0.05$). At the end of intervention, the mean serum albumin also increased (3.8 ± 0.22 vs 4.2 ± 0.34 gr/dl) significantly ($p < 0.05$). The result of this study indicated that supplementation of ω -3 fatty acid may have positive effects on body weight, and nutritional status in patients with gastric cancer during chemotherapy.

Keywords: Omega 3, Weight, Nutrition, Gastric Cancer.

Abstract No.46

Molecular Cloning, Overexpression and Biochemical Characterization of Pyrazinamidase from M. Tuberculosis

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The Nicotinamidase/Pyrazinamidase (PncA) of Mycobacterium tuberculosis plays a key role in the activation of the important front-line antituberculosis drug pyrazinamide by converting it into the active form, pyrazinoic acid. Mutations in pncA, the PZase coding gene, is considered to be the major mechanism of PZA resistance in M. tuberculosis. However the effects of pncA mutations on structure and function of pyrazinamidase is unknown. In this study, the wild type PZase and mutated PZases from M. tuberculosis PZA-resistant strains were cloned and expressed. The activity was assayed by a modification of the Wayne Test and recombinant pyrazinamidases were tested for their kinetic parameters (activity, k_{cat} , K_m , and efficiency) and in order to understand how PncA mutations affect the enzymatic function the mutated PZase structure was determined by homology modelling. These results suggest that the enzymatic activity and efficiency of the mutated pyrazinamidases varied according to the localization of the mutation and based on the color intensity the strains classified having positive, weak, or negative Wayne activity.

Keywords: Tuberculosis, Pyrazinamidase, Pyrazinamide, Enzymatic Kinetics, Resistance.

Abstract No.47

Investigation on the Side Effects of New Designed Anti Cancer Compound of 1,10-Phenanthroline Butyl Dithiocarbamate Palladium(II) Nitrate

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Human serum albumin (HSA) is the most prominent protein in plasma. This protein is responsible for about 80% of the colloid osmotic

pressure of the blood. In addition, it possesses enzymatic properties and serves as a transport and depot protein for numerous compounds, such as fatty acids, drugs, metabolites and metal ions. In present study, the interaction and side effects of new designed anti cancer compound (1,10-phenanthroline butyl dithiocarbamate palladium(II) nitrate) on HSA have been investigated by different spectroscopic (UV-visible, fluorescence and circular dichroism) techniques at different temperatures of 25 and 37°C. By the analysis of fluorescence spectra, it was observed that this complex has an ability to quench the intrinsic fluorescence of HSA through a dynamic quenching procedure. The number of binding sites and the association binding constants of Pd(II) complex were calculated at 25 and 37°C. Also, the positive values of ΔH° and ΔS° resulted interaction of Pd(II) complex with HSA using van't Hoff equation showed that the hydrophobic interaction has major role in this binding. The quantitative analysis of CD spectra represented that Pd(II) complex induced significant alterations in the secondary structure of protein via decreasing in the content of a helical structure of protein. Above results suggest that the new synthesized Pd(II) complex can bind to blood carrier protein of HSA and change the tertiary and secondary structure of protein which consider as side effects of this new synthesized drug.

Keywords: HAS, Pd(II) Complex, Side Effect, Quenching.

Abstract No.48

Investigation of the Side Effects of Bee Venom Via Interaction with Human Hemoglobin

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Interaction of biomolecules with exogenous agents attracts a lot of interest because of their inordinate biological importance. Hemoglobin (Hb) is a carrier protein in blood which carries oxygen and carbon dioxide, also it has a role in regulating of the blood pH. Since its concentration in blood is about 140 g/l, which is higher than serum albumin- so it can interact with a large number of exogenous agents. Bee venom (BV) is a complex mixture of peptides including, melitin, apamin, adolapin, the mast-cell-degranulating peptide, enzymes, biologically active amines and non-peptide components which have a variety of medicinal applications in traditional medicine. In present

study, we have investigated the interaction between BV and blood carrier protein of at different temperatures of 25 and 37 °C using fluorescence spectroscopic technique. Intrinsic fluorescence spectra of human extracted Hb in the presence of different concentrations of BV significantly increased. Also, by adding of different concentrations of BV, we have observed a new maximum emission bond on 430 nm which indicative of complexation between Hb and BV at both of temperatures. Since BV included some protein and enzymes, then we have subtracted the fluorescence emission spectra of Hb+BV from free BV in same condition. Binding parameters and thermodynamic parameters of this binding calculated using fluorescence method at both of temperatures. Above results suggest that BV can bind to blood carrier protein of Hb which may be important to improved applications and understanding of the side effects of compounds which used in traditional medicine.

Keywords: Bee venom, Hemoglobin, Side Effect, Fluorescence.

Abstract No.49

Thermostability and Kinetic Studies of Proteinase K in the Presence of Cu^{2+} ions

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Proteinase K (E.C. 3.4.21.14) which is also known as endopeptidase K, is an extracellular endopeptidase from fungus *Tritirachium album* Limbe. Proteinase K is a monomeric protein and belongs to the class of subtilisin-like serine proteases. It is a robust molecule and is more stable to chemical and thermal denaturants. In this Study stability of Proteinase K was studied in the presence of different concentrations of Copper ions at pH=7 in different temperature. Enzyme kinetic was studied at pH=7 against of this ions in 40°C. Result show Copper ions decrease enzyme activity and enzyme stability. T_m of this enzyme in the presence of different concentration of Copper ions decrease that show stability of enzyme reduce.

Keywords: Thermostability, Proteinase K, Copper ions.