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Proteinopathies or protein conformational diseases such as Alzheimer's, Parkinson's diseases and type II diabetes, are conditions that arise from the misfolding and aggregation of proteins in non-native conformations. Non-enzymatic mechanisms such as glycation or oxidation are a modifying factor that leads to proteinopathy, by affecting the structure and function of proteins which have essential role in diabetes. Identification of anti-glycation compounds is attracting considerable interest.In this study, deferiprone, deferasirox and desferal, three iron chelators used in the treatment of β-thalassemic patients, were chosen to explore their effects on the fructation of hemoglobin. Our results indicated that deferasirox cannot prevent AGE and carbonyl formation but it reduces the functional changes of hemoglobin, heme losses and helix depletion due to fructation. Deferiprone and desferal, on the other hand, prevent AGE formation and inhibit changes in the structure and function of hemoglobin during the fructation process.

Keywords: Glycation, Hemoglobin, Iron chelators, Proteinopathies.

Abstract No.215

Nanoflowers of Cobalt: Synthesis, Characterization and Application for the Electrocatalytic Oxidation and Determination of Sulfite and Nitrite

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Cobalt hexacyanoferrate (CoHCF) nanostructure was synthesized by anodic oxidation of metallic cobalt nanoflowers in a solution of K3Fe(CN)6. The synthesized CoHCF sample was then employed to prepare a modified carbon paste electrode. The modified electrode was characterized electrochemically in a phosphate buffer solution at physiological pH. Two redox transitions were appeared in the voltammograms which were related to the redox processes of CoII/CoIII and FeII/FeIII in the solid state of CoHCF. The modified electrode was successfully applied to the electrooxidation of nitrite and sulfite and these substrates were oxidized electrocatalytically on the modified electrode surface via the active FeIII species. The catalytic rate constants, the electron transfer coefficients and diffusion coefficients involved in the electrocatalytic oxidation of the compounds were reported. The modified electrode was applied to the amperometric determination of nitrite and sulfite.

Keywords: Cobalt hexacyanoferrate, Cobalt nanoflowers, Electrocatalysis, Modified electrode, Nanoflowers, Nitrite, Sulfite.

Abstract No.216

Measuring the Activity of Cytomegalovirus Promoter Using an in Vivo

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Transgenic technologies are dependent upon genetic tools among which sufficiently strong promoters for the construction of expression genes are very important. Reporter genes are essential for the quantitative analysis of gene elements that potentially regulate gene expression. Several kinds of reporter genes have been developed and luciferase reporter gene is the most favored for functional analysis of promoters and enhancers, due to rapid, sensitive and reproducible assay system.In this study we investigated the activity rate of cytomegalovirus promoter of mammalian viruse in model plant cell suspension of Nicotiana tabacum via firefly luciferase. The sequence of firefly luciferase (codon optimized luciferase gene LUC+) from pgl3 control vector was introduced in to plox vector via appropriate primers and two restriction enzymes (BamHI and XhoI). The luciferase gene was cloned in Plox vector so cytomegalovirus promoter used to drive the expression of firefly luciferase in suspension cells of Nicotiana tabacum. The plox vector which contains luciferase reporter was transformed to cells. Measurement of luciferase activity was done in intact cells. Our result show that the cytomegalovirus promoter can be