that this result is in good agreement with obtained results of spectrometric techniques.

Keywords: Polyoxometalate, UV-Vis, Fluorescence, Cyclic Voltammetry, Calf Thymus DNA.

Abstract No.28

Structural and Activity Study of The Restriction DNAzyme by Spectroscopic Methods

*Mehdi Sadeqi, Bijan Ranjbar**

Department of Biophysics, Faculty of Biological Science, Tarbiat Modares University, Tehran, IR
(E-mail: mehdi.sadeqi65@yahoo.com)

Beyond the preservation of genetic information in the double helix structure in cells, DNA could also have catalytic role in the single stranded form taking different 3-D structures. This artificial catalytic biomolecule is known as DNAzyme or deoxyribozyme. The Cu^{2+} dependent DNA cleavage DNAzyme is the unique example of known DNAzymes. It is introduced as a restriction DNAzyme due to the site specific cleavage of single strand DNA molecule. It is also used as Cu^{2+} nanobiosensor in aqueous solutions by modification of DNAzyme molecule with florescence dye. Herein, we studied the structure and catalytic function of DNAzyme using Uv-visible and extrinsic fluorescence spectroscopy. Hyperchromic and hypochromic effects of DNA have been traced by UV-visible spectroscopy to investigate structure, hybridization phenomenon and catalytic function. Absorbance intensity at 260 nm decreases upon hybridization of DNAzyme with substrate (hypochromic effect), which increased upon addition of cofactor and starting catalytic activity (hyperchromic effect). This result confirmed the efficiency of this spectroscopic technique for kinetic and function study of the DNAzyme compared with conventional methods. The optimum pH and thermal conditions for hybridization of restriction DNAzyme and its catalytic activity was also determined. The results are well in accordance with pervious findings reported by R. R Breaker. The extrinsic fluorescence study of the DNAzyme hybridization and its catalytic function by SYBR GOLD show consistency with Uv-visible experiment results, however this technique offers higher sensitivity compared to that of Uv-visible spectroscopy. Fluorescence intensity of DNAzyme-substrate increased upon hybridization, and decreased when the catalytic activity started. Our findings suggest that spectroscopic techniques, particularly extrinsic fluorescence spectroscopy using SYBR GOLD could be a good alternative to conventional methods for studying kinetic and catalytic activity of DNAzyme, being affordable and time saving.

Keywords: DNAzyme, Hybridization, Catalytic activity, Uv-visible, Fluorescence, Spectroscopy.

Abstract No.29

The Effect of Detergents on Proteinasek Stability

Parisa Nooraei, Behzad Shareghi, Nayereh Bahamin, Somayeh Asgari, Sadegh Farhadian*

Department of Biology-Shahrekord University-Shahrekord-Iran, IR
(E-mail: parisanooraei@gmail.com)

Proteinase K EC(3, 4, 21, 14) is a serin proteinase from Tritirachum album Limber .This enzyme has two tryptophan residues and has two disulfide bonds, Cys34 - Cys123 and Cysl78 - Cys249, which contribute to the stability of the enzyme structure. Virtually all studies of the protein-folding reaction add either heat, acid, or a chemical denaturant to an aqueous protein solution in order to perturb the protein structure. In this study spectroscopic aspect of ProteinaseK as a function of varius concentration of SDS and DTAB by spectrophotometer and spectroflurimeter has been investigated. The reaction takes place at different pHs and variuse temperature. Results exhibit, upon increasing the concentration of the Sodium n-dodecyl sulphate(SDS), stability of Proteinase K was increased. But in the precence of DTAB stability of Proteinase K was decreased.

Keywords: Proteinase K, Stability, Spectroscopic, Detergent.

Abstract No.30

NMR-Monitored Hydrogen Exchange Study on the Conformational Stability of RNase A: The Effect of Cationic Gemini Surfactants

Razieh Amiri[1], Abdol-Khalegh Bordbar[1], Douglas Laurents[2]*

1. Department of Chemistry University of Isfahan, Isfahan, IR
2. Instituto de Química Física Rocasolano, CSIC, Serrano 119, Madrid 28006, ES
(E-mail: razieh.amiri@gmail.com)

The conformational stability of ribonuclease A (RNase A) has been measured at the per residue level by NMR-monitored hydrogen exchange in the absence and presence of cationic gemini surfactants. The hydrogen/deutrium exchange mechanism of RNase A has been