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Impact of glycation on human serum albumin and its role in diabetes mellitus

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Diabetes is a metabolic disease; it results due to lack of insulin production, insulin action or both. It became epidemic in all over the world. Glycation of proteins is a major contributor to development of diabetes mellitus. HSA is the abundant protein in human blood; it is highly prone to glycation by the reducing sugars *in-vitro* and *in-vivo* in hyperglycemic condition. 2-deoxy D-ribose (dRib) is a reducing sugar having high reactivity with protein and it is present in the human blood. In present study, HSA was incubated with different concentrations of dRib at 37°C for 4 hours. Structural changes in HSA were determined by UV spectroscopy, fluorescence spectroscopy, circular dichroism (CD) and Fourier transform infrared spectroscopy (FTIR). To determine the role of dRib modified HSA in diabetes mellitus, immunological study has been done with the patients sera. We observed preferential binding affinity in the modified HSA coated wells as compare to native HSA coated wells. Thus, it can be concluded that dRib is potent enough to cause structural changes as well as generation of neoepitopes on the protein which may induce antibodies in diabetic patients and might play a role in the onset and progression of diabetes.

Biography

Ishrat Jahan Saifi is pursuing her research under the supervision of Dr. Sheelu Shafiq Siddiqi, Associate Professor and Director at Rajiv Gandhi Centre for Diabetes and Endocrinology, J N Medical College and Hospital, Aligarh Muslim University, Aligarh, India. She has completed her Post-graduation in Biochemistry from Integral University Lucknow, India. She has presented three research papers and has participated in various seminars/conferences held in India. She has published one research paper as a co-author.

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