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Impact of Glycation on Proteomics of Human Serum Albumin: Relevance to Diabetes Associated Pathologies

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Abstract : Background: Serum albumin glycation and advanced glycation end products (AGE) formation correlates in diabetes and its associated complications. Extensive modified human serum albumin is used to study the biochemical, electrochemical and functional properties in hyperglycemic environment with relevance to diabetes. We evaluate Spectroscopic, side chain modifications, amino acid analysis, biochemical and functional group properties in four glucose modified samples. Methods: A series four human serum albumin samples modified with glucose was characterized in terms of amino acid analysis, spectroscopic properties and side chain modifications. The diagnostic technique employed incorporates UV Spectroscopy, Fluorescence Spectroscopy, biochemical assays for side chain modifications, amino acid estimations, electrochemical and optical characterstic of glycated albumin. Conclusion: Glucose modified human serum albumin confers AGEs formation alters biochemical, electrochemical, optical, and functional property that depend on the reactivity of glucose and its concentration used for in-vitro glycation. A biochemical, electrochemical, optical, and functional characterization of modified albumin in-vitro produced AGE product that will be useful to interpret the complications and pathophysiological significance in diabetes.

Keywords : human serum albumin, glycated albumin, adavanced glycation end products, associated pathologies
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