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شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم



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شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



سامية محمد مصطفى



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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بالرسالة صفحات لم ترد بالأصل



ADVANCED GLYCATED ENDPRODUCTS AND ANTIOXIDANT ENZYMES ACTIVITY IN SCHISTOSOMIASIS

Thesis

Submitted for partial fulfilment of the M.D. degree in the
Medical Biochemistry

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To My Parents

To My Husband &

My lovely Sons



ACKNOWLEDGMENT

First of all and above all, great thanks to ALLAH whose blessings on me can not be counted.

I wish to convey my sincere appreciation and everlasting gratitude to *Prof. Dr Nafisa Al-shazly Omran*, Prof. and Head of Medical Biochemistry Department, Faculty of Medicine, Tanta University, for her helpful suggestion, continual encouragement and prospective guidance.

The sincerest thanks, deepest appreciation and greatest admiration to my *Prof. Dr. Nadia El-Hosseiny EL-Ashwah*, Prof. of Medical Biochemistry, Faculty of medicine, Tanta University, for her constructive keen supervision, continuous support and encouragement to complete this work. She continuously advised me and spared no time or effort to offer her help and skill that made the completion of this work possible. I owe special feelings of gratitude and thanks to her.

I would like to express my sincere appreciation and deepest gratitude to *Dr. Mohamed Ibrahim Nosir*, Assistant Prof. of medical biochemistry, Faculty of medicine Tanta University, for continuous advice and helping me

No words can adequately express my sincere gratitude and appreciation to *Dr. Thanna foad El- shiekh*, Assistant Prof. of Medical Biochemistry, Faculty of medicine Tanta University, for her patience, marvelous efforts, endless help, unlimited cooperation, kind support, valuable guidance supervision throughout the whole thesis.

I would like to express my sincere appreciation and deepest gratitude to *Dr. Al- Shazly Abd El- Hadi Sheta*, Assistant Prof. of Tropical medicine, Faculty of medicine, Tanta University, for his continuous advice and help.

I wish to express my deepest gratitude to *Prof. Dr. Sobhy Abd El- Hamid Hassan*, Prof. of Medical Biochemistry, Faculty of Medicine, Tanta University, for his helpful suggestions, continuous encouragement and prospective guidance.

I would like to dedicate this doctoral thesis to my husband, *Prof. Dr. Saber Abdel-Rhaman Ismail*, Prof. of Tropical Medicine, Tanta University for his kind help and continuous encouragement pthroughout this work.

Finally I wish to express my many thanks to all members of the Biochemistry Department, Faculty of Medicine Tanta University for their help.

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INTRODUCTION



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Schistosomiasis has been considered a great socioeconomic problem in Egypt (1). The brunt of this parasitic disease falls on the liver which is the main organ of intermediary metabolism(2). Although hepatocellular derangement is minimal, many metabolic changes have been frequently encountered in patients with schistosomal hepatic fibrosis (SHF)(3).

Abnormal carbohydrate and lipid metabolism are among those metabolic disorders. Glucose intolerance, hyperinsulinemia and dyslipidemia have been found the common sequelae of schistosomal hepatic fibrosis(4).

Fresh insight into the development of diabetic macroangiopathy and microangiopathy have emerged due to demonstration of excessive nonenzymatic glucosylation of proteins in hyperglycemic patients(5).

Available evidence suggests that collagen, the predominant protein of the body is the major target for attachment of glucose by means of stable ketoamine linkage involving amino acid groups of lysine and hydroxy lysine residues(6,7). Also, it has been focused recently on the role of free radicals in the development of diabetic complications(8).

REVIEW OF
LITERATURE



ADVANCED GLYCATED ENDPRODUCTS

Advanced glycated endproducts (AGE) are derivatives of nonenzymatic, post-translational and modification reactions between sugars and proteins or lipids (9,10,11,12), and together with AGE specific receptors are involved in numerous pathogenic processes associated with aging (13,14,15) and diabetes (5,6,15, 16,17,18,19,20).

The identification of glucosyl derivatives of a variety of proteins including hemoglobin (21), albumin (22,23), collagen (24), erythrocyte membrane proteins (23) and lens crystallins (25) has established that nonenzymatic glucosylation is a common post-translational modification of proteins in vivo. Prolonged elevation of blood glucose in diabetes is known to cause an increase in levels of nonenzymatically glycosylated hemoglobin, its concentration correlates well with fasting and mean and highest daily glucose levels (26,27) and is useful as an index of diabetes control (26,28).

It has been hypothesized that nonenzymatic glucosylations of body proteins, occurring at enhanced rates during hyperglycemia may contribute to the progressive chronic complications of diabetes (29,30). Glycosylated hemoglobin has an increased oxygen affinity and decreased sensitivity to 2-3 diphospho- glycerate (31,32). Glycosylated crystallins show both a decreased solubility and enhanced tendency to aggregate compared with the native forms (25).

In-vitro and in-vivo studies showed that glycosylated albumin is less soluble, catabolized faster, accumulated more rapidly by the liver