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# FUNCTIONAL FOODS FOR CHRONIC DISEASES

**VOLUME 5** 

**Diabetes and Related Diseases** 

Edited By Danik M. Martirosyan, PhD and Nicola Abate, MD

#### FUNCTIONAL FOODS FOR CHRONIC DISEASES, Volume 5: Diabetes and Related Diseases

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#### **Important Notice:**

This publication is neither a medical guide nor manual for self-treatment. If you should suspect that you suffer from a medical problem, you should seek competent medical care. The reader should consult his or her health professional before adopting any of the suggestions in this book.

#### **Food Science Publisher**

Edited by Danik M. Martirosyan, PhD and Nicola Abate, MD

2010

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#### INTRODUCTION

Chronic illness affects the population worldwide. Data from the World Health Organization shows that chronic disease is also the major cause of premature death around the world. Furthermore, chronic disease is the leading cause of death and disability in the United States. As described by the Centers for Disease Control, it accounts for 70% of total deaths in the US, which is an astounding 1.7 million each year. Chronic disease – such as heart disease, cancer, and diabetes – is the leading cause of death and disability in the United States. Studies have shown that diabetes continues to be the leading cause of kidney failure, nontraumatic lower-extremity amputations, and blindness among adults, ages 20-74. More specifically, diabetes is a chronic disease that requires long-term medical attention to limit the development of its devastating complications as well management when these effects do occur. Regardless of treatment, the management of diabetes through traditional therapy over a period of time will almost surely bring about side effects and serious complications. For this reason, there is a big interest in functional foods that could potentially help in the prevention and management of diabetes as well as for diabetes related complications, such as obesity and cardiovascular disorders, without side effects. Functional foods might have a particularly high impact for prevention and control of diabetes for which, the link between nutrition and diseases is established.

This book not only introduces new functional foods for the management of diabetes, but also shows the investigations and research that have led to their creation. Also, the book preserves the numerous ideas and contributions made in this thriving field, presentating the current progress and evolution that will undoubtedly change the lives of millions.

The first part of this book provides clinical studies on the prevention and management of diabetes via functional foods. The second part focuses on the experimental aspects of the creation of functional ingredients and functional foods for diabetes and diabetes related diseases, such as obesity and cardiovascular diseases, including chapters on the investigations of bioactive compounds. The final part of the book is composed of reviews about functional foods, functional ingredients and bioactive compounds in controlling diabetes.

This scientific work was written by leading authorities from different parts of the world, including the participants in the  $6^{th}$ 

International Conference "Functional Foods for Chronic Diseases: Diabetes and Related Diseases" that was held at Texas Woman's University, Denton, Texas, USA on December 4-5, 2009

This book is beneficial to nutritionists, food scientists and technologists, scientists working in the field of diabetes, entrepreneurs who are designing and marketing new functional foods, as well as public health professionals and physicians. Furthermore, it provides significant information for people interested in maintaining and preserving health and therefore, a longer, happier life.

#### Danik M. Martirosyan, PhD

Founder and President of Functional Food Center Inc. Hon. Clinical Associate Professor in Food and Nutrition Science Department at Texas Woman's University

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#### **PART ONE**

## CLINICAL TRIALS AND HUMAN STUDIES

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Functional Foods for Chronic Diseases, Volume 5

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