Preface

Diabetes, obesity, and their related complications are reaching epidemic proportions all over the world in the twenty-first century. A strong relationship exists between diabetes and obesity, with adipose tissue playing an important role in diabetes. The currently observed increase in diabetes, especially in industrialized countries, is correlated with the increase in obesity. For example, in the United States alone, one third of the population is obese, and another third is overweight; more than ten million people have been diagnosed with diabetes mellitus, and another five million remain undiagnosed. Similar prevalence has been reported in other Western nations as well, but it is more prevalent in developing countries. For instance, obesity has reached epidemic proportions in the Arabic-speaking countries, especially those in higher-income, oil-producing countries. Changes in food consumption, socioeconomic and demographic factors, physical activity, and multiple pregnancies may be important factors that contribute to the increased prevalence of obesity engulfing the Arabic-speaking countries.

Because diabetes and obesity are closely linked with the development of serious complications, including cardiovascular disease and several malignancies, their impact from a public health perspective is enormous and continues to increase. As the population ages and becomes more sedentary, the morbidity and mortality associated with obesity and diabetes will continue to escalate. Thus, it is imperative to focus our research efforts on trying to understand the etiology of obesity and diabetes as well as the mechanisms underlying the development of the complications associated with these conditions. It is also critically important to focus our public health efforts on the prevention as well as our clinical efforts on the treatment of these disease states.

Despite the great progress in synthetic chemistry, herb-derived compounds still build an important source of new drugs. Herbal-based therapies are still utilized as the main form of drugs by about 80% of the world’s population, and about one quarter of the currently used modern drugs are of herbal origin, containing at least one herb-derived active compound or chemically modified herbal phytochemicals to produce a pharmaceutically active drug.
Synthetic drugs dominated because of rapid developments in the pharmaceutical industry, though herbal medicine has never ceased. Even today, at least 25% of sold drugs are plant derived. In addition, about 75% of plants that provide active ingredients for prescription drugs came to the attention of researchers because of their use in traditional medicine. Additionally, among the 120 active compounds currently isolated from the higher plants are widely used in modern medicine today; 80% show a positive correlation between their modern therapeutic use and the traditional use of the plants from which they are derived.

*Anti-diabetes and Anti-obesity Medicinal Plants and Phytochemicals: Safety, Efficacy, and Action Mechanisms* furthers these goals by presenting a comprehensive review of both the research and clinical aspects of obesity and diabetes to scientists and practicing clinicians alike.

Part I (Chaps. 1 and 2) is a review of obesity, diabetes, and medicinal plants including possible action mechanisms. Part II (Chaps. 3, 4, and 5) focuses on medicinal plants and their potential role in the management of obesity and related diseases, reviewing known mechanisms and interactions. Part III (Chaps. 5 and 6) focuses on medicinal plants and phytochemicals and their potential role in the management of diabetes and related complications. Finally, Part IV (Chap. 8) presents state-of-the-art approaches using phytochemicals and polyherbal formulations to prevent/treat obesity and diabetes.

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