

# Chapter 13

## Nutraceuticals for Management of Metabolic Disorders

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### ABSTRACT

*Human wellness and health are predominately governed by the consumption of nutritive foods. Modern approaches such as healthy diet, modified lifestyle, and switching to natural products (nutraceuticals) instead of pharmaceuticals are recommended to counteract the metabolic abnormalities. Globally, usage of nutraceuticals has increased in recent years. Nutraceuticals provide better therapeutic opportunity with lesser-known side effects. Nutraceuticals are the products obtained from foods (dietary supplements, isolated nutrients, and herbal products) that aid physiological effect in the body by promoting health benefits beyond basic nutrition. Many researchers claimed nutraceuticals are effective in improving health and wellness by curing metabolic disorder and thus increasing life expectancy. Clinically, nutraceuticals target the pathogenesis of metabolic disorders and their complications and positively harmonize different clinical and biochemical outcomes. This review highlights the beneficial effects of the popular nutraceuticals in managing metabolic disorders.*

### 1. INTRODUCTION

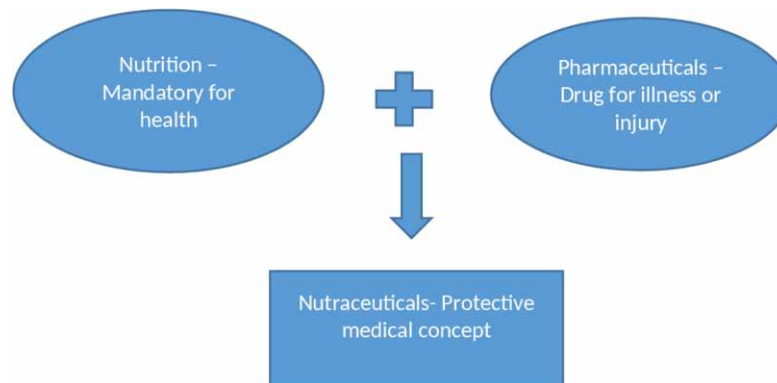
#### 1.1 Nutraceuticals

Dr. Stephen Defelice introduced the term “Nutraceutical” in 1989, which was derived from words “Nutrition” (food) and “Pharmaceutical” (drug) (Brower, 1998). According to Defelice, nutraceuticals are the foods or part of it that have health-promoting benefits or medicinal properties in preventing or treatment of metabolic disorders (Trottier et al., 2010). Father of medicine “Hippocrates” said, “let food be your medicine” the ideology behind this was to mainly focus on prevention rather than treatment of

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diseases. Usually, nutraceuticals are also referred to as multifunctional foods, functional food and dietary supplements, etc. Functional foods are the food that claim to have health-giving additives either by incorporating new ingredients or from existing ingredients. It can be defined as foods that usually have a positive impact on an individual's health besides providing basic necessary nutritional requirements. These foods are also known as FOSHU (Foods for specific health uses) (Kalra, 2003).

*Figure 1. Basic theory of nutraceuticals*



### **1.2 Nutraceutical Principle**

Dietary supplement, health and education act (DSHEA, 1994) defined dietary supplements are the dietary products which are specifically designed to supplement the diet. It usually contains one of the following dietary ingredients such as herb, mineral, vitamin, amino acid or botanical either in extracted or concentrated form, which is consumed in liquid, tablet or pill form (Zeisel, 1999). It is generally labelled as “dietary supplements” (FDA/CFSAN, 1994), it cannot be consumed as a sole meal or conventional food. As per DSHEA Act 1994, the firms are whole sole liable for ensuring the legal safety requirements of their dietary supplements before marketing to safeguard that they meet up all specifications of DSHEA (Unites state Pharmacopeia USP, 2006).

In simple words, Nutraceuticals can be defined as a “food substance that has both nutritive as well pharmaceutical properties that help to promote health benefits by preventing metabolic disorders” whereas, functional foods are described as “food products that are consumed as a part of a routine diet to attain health benefits in addition to basic nutritional properties”.

### **1.3 Nutraceuticals Benefits**

- No side effect
- Increase healthful effects
- Usually have natural dietary supplements
- Amend medical condition by improving health values
- Readily available at nominal price

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