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## Review Article

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### NUTRACEUTICAL—A BRIGHT SCOPE AND OPPORTUNITY OF INDIAN HEALTHCARE MARKET

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#### ABSTRACT

Nutraceutical is regarded as the bio active substance and the constituents are either of known therapeutic activity or are chemically defined substance generally accepted to contribute substantially to the therapeutic activity of the drug. Phytochemical screening involves botanical identification, extraction with suitable solvents, purification and characterization of the bioactive constituents of pharmaceutical importance. Quality control for the officiality and safety of herbal product is essential. The quality control of phytochemical may be defined as the status of a drug which is determined either by identity, purity, constant and other chemical physical biological properties or by manufacturing process. Compound with synthetic drug. The critical and approach for herbal drug are much more complex. Nutraceutical, a portmanteau of the words "nutrition" and "pharmaceutical", is a food or food product that reportedly provides health and medical benefits, including the prevention and treatment of disease. A product isolated or purified from foods that is generally sold in medicinal forms not usually associated with food. A nutraceutical is demonstrated to have a physiological benefit or provide protection against chronic disease.

**Keywords:** Nutrition, Disease, Bioactive constituents.

#### INTRODUCTION

The term nutraceutical was originally defined by Dr. Stephen L. DeFelice, founder and chairman of the Foundation of Innovation Medicine (FIM), Crawford, New Jersey. Since the term was coined by Dr. DeFelice, its meaning has been modified by Health Canada which defines nutraceutical as: a product isolated or purified from foods, and generally sold in medicinal forms not usually associated with food and demonstrated to have a physiological benefit or provide protection against chronic disease. Examples are beta-carotene and lycopene. Dr Stephen DeFelice coined the term

"Nutraceutical" from "Nutrition" and "Pharmaceutical" in 1989. The term nutraceutical is being commonly used in market-ing but has no regulatory definition. An attempt to re-define nutraceuticals and functional foods is made in this article. The proposed definitions can help distinguish between functional foods, nutraceuticals, and dietary supplements. The advantages and disadvantages of nutraceuticals are also briefly discussed. Many nutraceuticals, functional foods and naturally occurring compounds that have been investigated and reported in various studies revealed that these products

are extremely active, have profound effect on cell metabolism and often have little adverse effect. It is natural that people's focus is shifting to positive approach for prevention of diseases to stay healthy. Nutraceuticals is scientific area generated all over the world. **"The nutraceutical market in India is estimated to grow to US\$2,731 million in 2016 at a CAGR of 13%"** Biospectrum Asia Edition, 16 March 2012.

#### **DIETARY SUPPLEMENT**

The DSHEA formally defined "dietary supplement" using several criteria. A dietary supplement:

- is intended for ingestion in pill, capsule, tablet, or liquid form.
- is not represented for use as a conventional food or as the sole item of a meal or diet.
- is labeled as a "dietary supplement."
- includes products such as an approved new drug, certified antibiotic, or licensed biologic that was marketed as a dietary supplement or food before approval, certification, or license (unless the Secretary of Health and Human Services waives this provision).

A ray of "cure preference" in the mind of common patients revolves around nutraceuticals because of their false perception that "all natural medicines are good." Also, the high cost of prescription pharmaceuticals and reluctance of some insurance companies to cover the costs of drugs helps nutraceuticals solidify their presence in the global market of therapies and therapeutic agents.

#### **FOOD AS MEDICINE**

Considered a father of Western medicine, Hippocrates advocated the healing effects of food. The Indians, Egyptians, Chinese, and Sumerians are just a few civilizations that have provided evidence suggesting that foods can be effectively used as medicine to treat and prevent disease. Ayurveda, the 5,000 year old ancient Indian health science, have mentioned benefits of food for therapeutic purpose. Documents hint that the medicinal benefits of food have been explored for thousands of years. Hippocrates, considered by some to be the father of Western medicine, said that people should "Let food be thy medicine."

#### **Dietary supplements**

Dietary supplements, such as the vitamin B supplement show above, are typically sold in pill form. A dietary supplement

is a product that contains nutrients derived from food products that are concentrated in liquid or capsule form. The Dietary Supplement Health and Education Act (DSHEA) of 1994 defined generally what constitutes a dietary supplement. "A dietary supplement is a product taken by mouth that contains a "dietary ingredient" intended to supplement the diet. The "dietary ingredients" in these products may include: vitamins, minerals, herbs or other botanicals, amino acids, and substances such as enzymes, organ tissues, glandulars, and metabolites. Dietary supplements can also be extracts or concentrates, and may be found in many forms such as tablets, capsules, softgels, gencaps, liquids, or powders."

#### **Functional foods**

Functional foods are designed to allow consumers to eat enriched foods close to their natural state, rather than by taking dietary supplements manufactured in liquid or capsule form. Functional foods have been either enriched or fortified, a process called nutrification. This practice restores the nutrient content in a food back to similar levels from before the food was processed. Sometimes, additional complementary nutrients are added, such as vitamin D to milk.

#### **FARMACEUTICALS**

According to a report written for the United States Congress entitled "Agriculture: A Glossary of Terms, Programs, and Laws", "(Farmaceuticals) is a melding of the words farm and pharmaceuticals. It refers to medically valuable compounds produced from modified agricultural crops or animals (usually through biotechnology). Proponents believe that using crops and possibly even animals as pharmaceutical factories could be much more cost effective than conventional methods.

#### **SCOPE AND OPPORTUNITY INDIAN NUTRACEUTICAL MARKETS**

The Indian nutraceutical market valued at \$ 1,480 million in 2011 could grow to \$ 2,731 million in 2016, a report said today. According to the report by business research and consulting firm Frost & Sullivan, functional foods will be the quickest growing category followed by dietary supplements until 2015. However, dietary supplements specifically herbal and dietetic supplements, will form the greatest opportunity areas for nutraceutical manufacturers, it

added. Nutraceutical a portmanteau of the words 'nutrition' and 'pharmaceutical', is a food or food product that reportedly provides health and medical benefits, including the prevention and treatment of diseases. The report said that at present the dietary supplements were the largest category accounting for 64 per cent of the nutraceuticals market. This market is driven primarily by the pharmaceutical sector in the form of vitamin and mineral supplements, it added. As per the study the global nutraceutical market was estimated to be \$ 149.5 billion in 2011 with US, Europe and Japan being the largest regional markets, accounting for nearly 93 per cent of the global nutraceutical demand. As these markets are nearing maturity, with exceedingly high per capita spends on nutraceutical products nutraceutical manufacturers are looking at developing countries such as India and China as key growth regions, it added. Apart from the current low per capita spend on these products in India, other factors that could support the growth of nutraceuticals in India are increasing obesity in the population and rising instances of diabetes and cardiovascular diseases, the report said. The government is also chipping in by funding vitamin fortification initiatives due to increasing food security concerns in India and need for additional nutrition.

#### **RATIONALE FOR USE OF NUTRACEUTICALS**

Dietary factors play an important role in premature chronic disease appearance, disease progression, morbidity and mortality. Approximately 40-50% proportion in cardiovascular disorders, 35-50% proportion in cancers, and 20% proportion in osteoporosis is attributable to dietary factors. Use of food as medicine for treatment and prevention of various disorders is not a recent development. Fortification of table salt with iodine and wheat flour with iron/folic acid has been used with specific aims of prevention of iodine deficiency goiter and anemia for long. Similarly, food fortified with vitamin A has been found to be a feasible and cost-effective approach to reduce vitamin A deficiency.

#### **REGULATION OF NUTRACEUTICAL INDUSTRY IN INDIA**

The Indian definition (as per Food Safety and Security Act passed in 2006, yet to be implemented) lists down the ingredients a nutraceutical product must have and its general properties. A traditional medicine is not a part of nutraceuticals. Foods for special dietary use are specifically processed or formulated to satisfy particular dietary

requirements which exist because of a physical or physiological condition or specific disease and disorder. These are presented as such, where in the compositions of these foodstuffs must differ significantly from the Indian Standard (IS) composition of ordinary foods of comparable nature.

#### **FSSAI: The new ray of hope!**

Food Safety and Security (FSS) Act was passed by the parliament in 2006. In 2008, Food Safety and Standard Authority of India (FSSAI) came into existence. The FSSAI has prepared the draft rules and regulations for implementation of FSS Act 2006 which is going through process of pre-publication consultation. It is expected that by the end of this month (September 2010) the draft regulation would be sent for notification.

#### **NUTRACEUTICALS AND DISEASES**

Nutraceuticals are currently receiving recognition as being beneficial in coronary heart disease, obesity, diabetes, cancer, osteoporosis and other chronic and degenerative diseases such as Parkinson's and Alzheimer's diseases. Evidences indicate that the mechanistic actions of natural compounds involve a wide array of biological processes, including activation of antioxidant defenses, signal transduction pathways, cell survival-associated gene expression, cell proliferation and differentiation and preservation of mitochondrial integrity. It appears that these properties play a crucial role in the protection against the pathologies of numerous age-related or chronic disease. It is very imperative that the nutrients found in many foods, fruits and vegetables are responsible for the well documented health benefits. For example, lutein and zeaxanthin prevent cataracts and macular degeneration; beta-carotene and lycopene protect the skin from ultraviolet radiation damage; lutein and lycopene may benefit cardiovascular health, and lycopene may help prevent prostate cancer.

#### **CONCLUSION:**

Nutraceuticals are available in the form of isolated nutrients, dietary supplements and specific diets to genetically engineered foods, herbal products and processed foods such as cereals, soups and beverages. Nutraceuticals provide all the essential substances that should be present in a healthy diet for the human. Nutraceuticals provides energy and nutrient supplements to body, which are required for

maintaining optimal health. Nutraceuticals are widely used in the food and pharmaceutical industries. Some Nutraceuticals are useful in maintaining healthy prostate function, remedy for restlessness and insomnia. Nutraceuticals, such as glucosamine and chondroitin sulfate, offer possible chondro-protective effects against joint injury.

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