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A MINI REVIEW ON NUTRACEUTICALS: AN EMERGING ERA IN THE HEALTH INDUSTRY

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ABSTRACT

Nutraceuticals have a wide range of biochemical effects on the health of consumers. The upper limit of the physiological effect dimension will be food capable of curing or healing certain ailments. Nutraceuticals also provide benefits that go beyond their fundamental nutritional functions. It is important to differentiate dietary deficiency from other physiological effects such as risk reduction for disease. Nutraceuticals include dietary supplements, genetically modified foods, herbal supplements, and refined foods. This article discusses nutraceuticals, their categories, as well as their international and national status, need protection, merits, the current nutraceutical products, major nutraceutical firms, and therapeutic applications. It also emphasizes the critical need for research and development in the formulation of nutraceuticals.

Keywords: Health, Categories, Therapeutic, Nutraceuticals, Wellbeing.

INTRODUCTION

Dr Stephen coined the word "nutraceutical" in 1989 to describe a product that can be considered a food or component of food that offers medical or health benefits, including disease prevention and treatment. Since the beginning of time, mankind has produced medicines from natural material extracts and used them for a variety of purposes. At present, nutraceuticals are proving

to be extremely useful in this age of modern life, where we are all constantly stressed and are looking for a magical cure.

Nutraceuticals are therapeutic foods that promote overall well-being, improve fitness, modulate immunity, and thus aid in the prevention and treatment of specific diseases (Dudeja et al., 2016). As a result, the area of nutraceuticals can be viewed as one of the critical missing pieces in an individual's health value.

Nutraceuticals have been classified according to a variety of criteria, including their chemical composition, operational activity, and their role in the treatment of disease. A few of them are mentioned below:

TYPES AND USES OF NUTRACEUTICALS

Based on Their Chemical Constitution

Vitamins, minerals, amino acids, and fatty acids are all examples of nutrients. Numerous nutrients are proven to show their related health benefits which include;

Herbals: Concentrates and extracts of herbs or botanical items.

Dietary Supplements

They are items that are taken orally and contain a dietary ingredient that is intended to enhance the flavour of the foods you consume. Black cohosh is used to treat menopausal symptoms, Ginkgo Biloba is used to treat memory loss, and glucosamine/chondroitin is used to treat arthritis. Additionally, they are used for specialized purposes such as sports medicine, weight-loss supplements, and meal replacements. Vitamins, minerals, plants or other botanicals, amino acids, enzymes, organ tissues, and gland extracts are all examples of supplement ingredients.

According To Their Roots

Conventional Nutraceuticals

Traditional Nutraceuticals include foods that have not been altered in any way; they are essentially natural, whole foods with new knowledge about their possible health benefits. There has been no improvement to the foods themselves, only in the way they are perceived by the customer. Numerous fruits, vegetables, grains, fish, dairy, and meat products contain many natural components that provide additional benefits beyond nutrition, such as lycopene in tomatoes, omega-3 fatty acids in salmon, and saponins in soy. Even tea and chocolate have been shown to have health-promoting properties in several tests. Tomatoes and salmon are two foods that researchers have discovered contain nutrients that go beyond basic nutrition – in this case, lycopene and omega-3 fatty acids (Kessler et al., 2001).

Non-Conventional Nutraceuticals

They are produced as a result of agricultural breeding or by the addition of nutrients and/or ingredients such as non-traditional nutraceuticals that include calcium-fortified orange juice, vitamin- or mineral-fortified cereals, and folic acid-fortified rice. Agricultural scientists have successfully developed techniques for increasing the nutritional value of specific crops. Numerous other crops are currently undergoing research to enhance their nutritional quality.

Disease-Specific

Cardiovascular Conditions

Antioxidant substances, dietary fibres, omega-3 polyunsaturated fatty acids, vitamins, and minerals are all beneficial in preventing and treating cardiovascular disease. Polyphenols (found in grapes) help to avoid and manage arterial diseases. Flavonoids (found in onions, vegetables, grapes, red wine, apples, and cherries) inhibit the ACE enzyme and enhance the tiny capillaries that provide oxygen and essential nutrients to all cells.

Diabetes

In diabetic patients, n-3 fatty acid ethyl esters can be helpful. Docosahexaenoic acid acts as a regulator of insulin resistance and is essential for neuro visual production. Antioxidant lipoic acid can be used for the treatment of diabetic neuropathy. Psyllium dietary fibres have been used to improve glucose regulation in diabetic patients and to lower lipid levels in patients with hyperlipidemia (Stauffer, 1999)

Weight Loss

Ephedrine, caffeine, ma huang-guarana, chitosan, and green tea are all herbal stimulants that aid in weight loss. Buckwheat seed proteins - which function similarly to natural fibres found in food - and green tea extract can both help in weight loss; the former decreases appetite, while the latter increases energy expenditure. Dietary supplements containing glucomannan, chitosan, fenugreek, G Sylvestre, and vitamin C have been shown to substantially decrease body weight. Conjugated linoleic acid (CLA), capsaicin, and Momordica Charantia (MC) have anti-obesity potential as well.

Cancer

Flavonoids, which inhibit estrogen-producing enzymes, help prevent estrogen-related cancers.

To help prevent prostate/breast cancer, a variety of phytopharmaceuticals with purported hormonal activity, dubbed "phytoestrogens," is recommended. Isoflavones found in soyfoods, curcumin found in curry, and soy isoflavones also have cancer-fighting properties. Lycopene is concentrated in the skin, testes, adrenal glands, and prostate, where it acts as a cancer preventative. Saponins (found in peas, soybeans, some spices, spinach, onions, potatoes, alfalfa, and clover) are antitumor and antimutagenic. Curcumin (diferuloylmethane), a polyphenol contained in turmeric is anticarcinogenic, anti-inflammatory, and anti-oxidant.

Topline antitumor activity has been identified for beetroots, cucumber fruits, spinach leaves, and turmeric rhizomes. Gamma-linolenic acid (found in green leafy vegetables, seeds, and vegetable oils such as evening primrose oil, blackcurrant seed oil, and hemp seed oil, as well as in spirulina and cyanobacteria) is used to treat inflammation and auto-immune diseases.

Anti-Inflammatory Activity

Glucosamine and chondroitin sulphate are used to treat osteoarthritis because they control gene expression and NO and PGE2 synthesis. Cat's claw contains seventeen alkaloids, glycosides, tannins, flavonoids, sterol fractions, and other compounds that serve as a potent anti-inflammatory agent.

Allergies

Quercet (found in onions, red wine, and green tea) has been shown to help alleviate inflammation associated with hay fever, bursitis, gout, arthritis, and asthma.

Alzheimer's Disease

Carotene, curcumin, lutein, lycopene, and turmeric also have the potential to exert beneficial effects on particular diseases through neutralizing the detrimental effects of oxidative stress, mitochondrial dysfunction, and different types of neural degeneration.

Vision Enhancing Agents

Lutein, also known as helenium, is a carotenoid found in mangoes, corn, sweet potatoes, carrots, squash, tomatoes, and dark, leafy greens such as kale, collards, and bok choy.

Zeaxanthin (present in maize, egg yolks, and green vegetables and fruits such as broccoli, green beans, green peas, Brussel sprouts, cabbage, kale, collard greens, spinach, lettuce, kiwi, and honey-dew) is a pigment found in corn, egg yolks, and green vegetables and fruits (such as broccoli, green beans, green peas, Brussel sprouts, cabbage, kale, collard greens, spinach, lettuce.

CONCLUSION

The global nutraceutical market is enormous, worth approximately USD 117 billion. The use of nutraceuticals is between 50% and 70% of the population in developed countries, and this percentage is growing with age. The female population consumes more nutraceuticals than the male population. The current population and health patterns are the primary drivers of the global nutraceutical industry. This trend is being driven by many factors, the most significant of which is the current consumer perception that 'Natural is good.' Other secondary factors include the increasing cost of several pharmaceuticals and their negative side effects, the persistent marketing campaign, and the awareness of the importance of a healthy diet and its role in maintaining health and homeostasis. However, the central point is that nutraceuticals, botanicals, and other herbal remedies, as well as the introduction of new functional foods, are significant due to their recognition as novel and modern types of natural substance gain. Due to the rapid growth in this region, many factors are considered to have the potential to negatively impact the future of the market for these products: an imbalance between the growing number of claims and products on the one hand and the development of policies to regulate their application and safety on the other, rapid and valuable controls to check the composition, inc. It's important to note that none of the negative factors identified by market observers indicates a shift in customer preferences. Numerous plant extract’s functional properties are being studied for possible use as novel nutraceuticals and functional foods. Although access to scientific data is increasing, the critical aspect is the validation of these items. The first phase in this critical aspect is ensuring the composition's security, which is accomplished through a useful and tailored analytical approach. On the other hand, in the first case, security is guaranteed by the vast majority of these plants' millenary use as food. The significance and innovation of functional food are inherent in the possibility of renewing the secure use of plants to sustain human health in novel, modern forms of use.

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