

Role of Nutraceuticals as an Alternative Pharmaceutical for Medicinal & Health Benefits

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Abstract

A Nutraceutical product may be defined as a substance, which has physiological benefit or provides protection against chronic disease. The term is applied to products that are isolated from herbal products, dietary supplements, specific diets, and processed foods that other than nutrition are also used as medicine. The major two types are phytochemicals and antioxidants. Emphasis has been made to present herbal nutraceutical seffective on hard curative disorders related to oxidative stress, including Allergy, Alzheimer, Cardiovascular, Cancer, Diabetes, Eye, Immune, Inflammatory and Parkinson's diseases, as well as obesity. Nutraceuticals provide functional benefits by augmenting the supply of natural building stocks in the body, i.e. it lessens disease symptoms and improves its action. A healthy life, self-confidence, improved working capacity can be achieved on the proper administration of nutraceuticals. Therefore, if research continues it may help future researchers in identifying a right plant molecule to treat different diseases or to develop food formulations for better management. The rational awareness "from treatment to prevention" leads the increase in demanding the nutraceuticals.

Keywords: Nutraceuticals; Alzheimer; Cancer; Diabetes; Parkinson

Introduction

The term "NUTRACEUTICALS" was first framed in 1989 by Stephen Defelice which is derived from "nutrition" and "pharmaceuticals." According to De Felice, a nutraceuticals can be defined as a food that provides medical or health benefits. They are detoxifying our body, restoring our healthy digestion and dietary habits also. They can be classified based on the source of foods, mechanism of action and their chemical properties. As rationality follows the quote "prevention is better than cure", nutraceuticals become leading alternatives of Pharmaceuticals [1].

Nutraceuticals Categories

- Dietary supplements (botanicals): This includes the vitamins, coenzymes, minerals, carnitines.
- Functional foods: This includes omega-3, prebiotics, oats, bran, fishes, fruits, vegetables, nuts, legumes.
- Medicinal food: This includes lacto ferrin, transgenic plants, transgenic cows.

Nutraceuticals to Prevent Disease and to Promote Our Health

While Nutraceuticals, sometimes referred to as natural health products, are often used in medicinal forms as tablets, capsules or liquid, functional foods are those that resemble the traditional food, as such, but confer benefits beyond their nutritional role. Among diseases of concern, cancer and Coronary Heart Disease (CHD) are high on the list. In this respect, phenolics of plant origin, as an example, have been found to act as free radical scavengers, inhibitors of cholesterol oxidation and DNA breakage, among others, thus serving as potential cancer preventing agents. The type of phenolics involved depends on the species as well as other variables. Similarly, marine foods have often been considered as "heart food" because of the role of their omega-3 fatty acid constituents in lowering of triacylglycerol and cholesterol levels and hence the incidence of CHD.

Allergies and Nutraceuticals

Allergy is a hypersensitive disorder of the immune system. Allergic reactions are noteworthy because of excessive activations of Mast cell and basophiles. Quercetin, an antioxidant, scavenges free radicals

and treats the allergies [2]. When an individual comes in contact with an allergen, their immune system reacts by creating histamines, or chemicals that cause allergy symptoms such as nasal congestion or watery eyes. To solve unwanted side effects, many pharmaceutical companies have developed an all-natural non-antihistamine called Histamine Shield. This supplement boosts the body's immune response, so that the allergic reaction can be lessened.

Alzheimer and Nutraceuticals

Alzheimer is the chronic, progressive neuro degenerative, irreversible brain disorder forming plaques and tangles. Nutraceuticals like curcumin, lutein, lycopene, turmerin and beta carotenemay exert positive effects on specific disease by combating oxidative stress. Zujube is nowadays very effective to regain memory by treating the Alzheimer [3].

Cardio Vascular Disease and Nutraceuticals

Worldwide, the frequency of CVD is increasing in a progressive fashion and thus, the nutraceuticals play a significant role. The CDV includes coronary heart disease, peripheral vascular disease, cerebrovascular disease, heart failure. Vitamin D, coenzyme Q 10, folic acid, omega-3, polyphenols reduce the arterial disease by altering the cellular metabolism. Flavonoids present in vegetables like onion, fruits like grapes, apple and cherries block the angiotensin converting enzyme resulting in a decrease of blood pressure and prevent the fatal coronary heart disease and myocardial infarction. Ginger for their antioxidant and anti-inflammatory properties used to treat hypertension and palpitations. Green and yellow vegetables rich with phyto sterol also reducing the CDV by blocking the uptake of cholesterol [4].

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Cancer and Nutraceuticals

World cancer report said that the rate of cancer is increasing in such a way there would be 15 million new cases in year of 2020. The primitive method to provide chemo therapy to fight for the cancer was found to be fatal for future and thus the chemoprevention approach was perceived in terms of nutraceuticals. It was found that carotenoids present in colored vegetables prevent the cancer because of their antioxidant property. Tannins are largely accumulated in grapes, tea, lentils, blue berries, scavenge harmful free radicals and detoxify the carcinogens. Isoflavones and genistein, pectins inhibit the prostate cancer. Indoles, cruciferous vegetables are preventive for lung cancer [5].

Diabetes and Nutraceuticals

Globally, the type 2 diabetes is a leading disease. But, we can easily arrest it by the application of nutraceuticals. The very popular omega-3, omega-6 found in the fish bringing down the glucose tolerance. Isoflavones are phyto estrogens which have structural similarities to human estrogen associated with lower incidents and mortality rate of type II diabetes [6].

Parkinson and Nutraceuticals

Parkinson disease is an irreversible, chronic CNS disorder results from the destruction of dopamine generating cells. It can be prevented by incorporating vitamin E, glutathione and creatine [3].

Osteoarthritis and Nutraceuticals

Osteoarthritis is a joint tissues disorder mainly because of the degradation of cartilage. Nutraceuticals like banana, ginger, green tea, pomegranate, avocado, soybean are used to diminish the complication by regulating the gene expression. Application of olive oil reduces the pain, swelling, stiffness [5].

Eye Disorder and Nutraceuticals

Age related eye disorders like cataract; presbyopia can be prevented by use of Lutein, DHA, Carotenoids, vitamin E, green tea, flavonoids by preventing macular degeneration [4]. Rice bran, lutein and zeaxanthin reduce the chance of cataracts formation as well as glaucoma.

Inflammation and Nutraceuticals

Inflammation is a localized physical state characterized by swelling, pain, redness and heat. Omega-3 and omega-6 series have a significant impact by generating potent modulatory molecules for inflammatory response. Ginger, soybean, glucosamine are also used to cure it through their antioxidant property [7].

Stress Management and Headache

A nonspecific increase in the resistance of an organism to noxious influence is termed as stress. Herbal nutraceuticals like ashwagandha, rhodiola, L-theanine are effective to control stress. Another leading disorder is migraine, which cannot be prevented by taking medicine. But, magnesium rich food, riboflavin are migraine prophylactic [8].

Reproductive Health Regulated by Nutraceuticals

Nowadays, the hectic stressed lifestyle brings on various reproductive issues. Food supplements increase sperm, sperm motility, prevent the oxidative degradation. Fish oils, vitamin B6, vitamin B12, flaxseed oil reduces the risk of preterm labor, influence the steroidal output, regulate the menstrual cycle. Specific nutraceuticals impact the ovarian pathological state and increase reproductively [9].

Conclusion

“Nature is so smart it put the medicine inside the food”. On the basis of this nutraceuticals are gaining importance in the global health market. Recently nutraceuticals have received high interest due to their potential nutritional other than therapeutic capability. Nutraceuticals are largely used by all age groups due to its safety, higher quality, purity and efficacy. Thus, in this new era we must assert “Let food be your medicine and consumption of proper nutraceuticals can keep the medicine away.”

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