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Health and Medicinal Benefits of Nutraceuticals – A Review

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SUMMARY

Nutraceuticals are the emerging class of natural products that makes the line between food and drugs to fade. Although the use of nutraceuticals by people has a long history, only recently scientifically supported nutritional and medical evidence has allowed nutraceuticals to emerge as being potentially effective. The nutraceuticals of both plant and animal origin holds exciting opportunities for the food industries to create novel food products in future. Nutritional studies are now focusing on the examination of foods for their protective and disease preventing potential, instead of negative attributes such as microorganism count, adulterants, fatty acids and inorganic pollutant concentration.

INTRODUCTION

The term Nutraceuticals was derived from 'Nutrition' (a nourishing food or food component) and 'Pharmaceuticals' (a medical drug). "Nutraceutical" is a term coined by Dr. Stephen De Felice in 1989, founder and chairman of the Foundation for Innovation in Medicine (FIM). Nutraceuticals defined as – according to Dr. Stephen De Felice - a "food, or parts of a food, that provide medical or health benefits including the prevention and treatment of disease". Nutraceuticals range from isolated nutrients, dietary supplements, and specific diets to genetically engineered "designer" food, herbal products, and processed foods such as cereals, soups, and beverages (Anjali et al., 2018).

Categories of nutraceuticals

On the basis of availability of foods in market, nutraceuticals may be classified into two categories:

- Traditional nutraceuticals
- Non-traditional nutraceuticals

Traditional Nutraceuticals

Functional foods are commonly called as traditional nutraceuticals. They are consumed as a part of regular diet so as to get valuable effects directly (Prabu et al., 2012).

For example:

- Cheese, eggs and milk are rich sources of omega-3 fatty acids
- Customized fatty acids and vegetable oils
- Drinks and fruit juices that increases oxidant levels
- Grains and cereals, which contain sufficient amount of nutritional fiber
- Vegetables proteins, which are gained from canola, legumes, soy and vegetables.

Traditional nutraceuticals are further divided, on the basis of

Chemical Constituents

Nutrients, such as amino acids, animal products (meat, poultry), dairy products (milk, cheese, butter), fatty acids, fruits, minerals

Probiotic Microorganisms

Probiotics are live microbial feed supplement for improving its intestinal microbial balance. These include *Bacillus, Bifidobacterium, Enterococcus, Escherichia coli, Lactobacillus, Leuconostoc, Pediococcus, Saccharomyces, and Streptococcus*.

Nutraceutical enzymes

These are α-galactosidase (asparagus, beans, broccoli, whole grains), biodiastase (soybean), β-amylase (higher plants), bromelain (pineapple), chymotrypsin (vertebrates of all classes), oxbile (ox), pectinase (cell wall) and pepsin (tracheal secretions in animals).

Dietary fibre

Dietary fibre is the food material, more precisely the plant material that is not hydrolyzed by enzymes secreted by the digestive tract, but digested by microflora in the gut.

Phytochemicals

Phytochemicals are polyphenols, isoflavonoids, anthocyanidins, phytoestrogens, terpenoids, carotenoids, limonoids, phytosterols, glucosinolates, and polysaccharides.

Non-traditional Nutraceuticals

These are the products or plant materials, which are prepared artificially. These are biotechnologically engineered foods, follow-on added ingredients or agricultural breeding. Cereals breed by adding vitamins and minerals, flour fortified with folic acid and orange juice prepared adding calcium are used to enhance the valuable properties of these products (Dureja et al 2003).

Benefits of Nutraceuticals

Nutraceuticals may offer many benefits:

- May increase the health value of our diet.
- May help us live longer
- May help us to avoid particular medical conditions.
- May have a psychological benefit from doing something for one self
- May easily be available and economically affordable.

Health Benefits of Nutraceuticals

Cardiovascular diseases:

The nutraceuticals used are antioxidants, dietary fibres, omega-3 fatty acids, vitamins, minerals for prevention and treatment of CVD. Polyphenol (in grape) prevent and control arterial diseases (Swaroopa and Srinath 2017).

Diabetes:

Lipoic acid, an antioxidant is used for treatment of diabetic neuropathy dietary fibres from psyllium have been used for glucose control in diabetic patients and to reduce lipid level in hyperlipidemia (Swaroopa and Srinath 2017).

Obesity:

Herbal stimulants, such as ephedrine. Caffeine, ma huang-guarana, chitosan and green tea help in body weight loss (Swaroopa and Srinath 2017).

Cancer:

Flavonoids, which block the enzymes that produce estrogen, reduce of estrogeninduced cancers. Phytoestrogens is recommended to prevent prostate/breast cancer (Swaroopa and Srinath 2017).

Anti-inflammatory activities:

Cucurmin which is a polyphenol of turmeric have anticarcinogenic, anti-oxidative and antiinflammatory properties (Swaroopa and Srinath 2017).

CONCLUSION

The nutraceutical industry is growing at a rate far exceeding expansion in the food and pharmaceutical industries. Most of the nutraceutical food or food components that help in treatment and prevention of diseases.

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