



A general review on “Nutraceuticals”: Its golden health impact over human community

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Abstract

Nutraceutical is the hybrid of ‘Nutrition’ and ‘Pharmaceutical’. Nutraceuticals, in broad, are food or part of food playing a significant role in modifying and maintaining normal physiological function that maintains healthy human beings. The principal reasons for the growth of the nutraceutical market worldwide are the current population and the health trends. The food products used as nutraceuticals can be categorized as dietary fibre, prebiotics, probiotics, polyunsaturated fatty acids, antioxidants and other different types of herbal/ natural foods. These nutraceuticals help in combating some of the major health problems of the century such as obesity, cardiovascular diseases, cancer, osteoporosis, arthritis, diabetes, cholesterol etc. In whole, ‘Nutraceutical’ has led to the new era of medicine and health, in which the food industry has become a research-oriented sector.

Keywords: dietary Fiber, nutraceuticals, prebiotics, polyphenols, spices, human diet

Introduction

In recent years, a new diet health paradigm is evolving which places more emphasis on the positive aspects of diet. The new lifestyle adopted by people today has changed the basic food habits of the latter. Consumption of the junk food has increased manifold leading to a number of diseases caused due to improper nutrition. Obesity is now recognized as a global issue. Heart disease continues to be a primary cause of death in most of the developing countries worldwide, followed by cancer, osteoporosis, arthritis and many others. Consumers being frustrated with the expensive, high-tech, disease-treatment approach in the modern medicines are seeking complementary or alternative beneficial products and the red tape of managed care makes Nutraceuticals particularly appealing.

Nutraceutical

The term “Nutraceutical” was coined from “Nutrition” and “Pharmaceutical” by Stephen De Felice, founder and chairman of the Foundation for Innovation in Medicine. According to De Felice, nutraceutical can be defined as, “a food (or a part of food) that provides medical or health benefits, including the prevention and or treatment of a disease”.

Nutraceuticals are found in a mosaic of products emerging from:

- a) The food industry,
- b) The herbal and dietary supplement market,
- c) Pharmaceutical industry, and
- d) The newly merged pharmaceutical/agribusiness/nutrition conglomerates.

Health benefits

- Avoid the side effect.

- May increase the health beneficial effect.
- May have naturally dietary supplement, so do not have unpleasant side effect.
- May increase the health value, our diet and improve medical condition of human.

May easily be available and economically affordable. Nutritional therapy is a healing system using dietary therapeutics or nutraceuticals as a complementary therapy. This therapy is based on the belief that foods can not only be sources of nutrients and energy but could also provide medicinal benefits.

According to Nutraceutical and nutritional therapy theory, it achieves this goal by using efficacy of such Nutraceuticals in detoxifying the body, avoiding vitamin and mineral deficiencies, and restoring healthy digestion and dietary habit. Phytonutrients basically is plant nutrients with particular biological activities in supporting human health.

The phytochemical work by the following ways:

1. Substrate for biochemical reactions.
2. Cofactors of enzymatic reactions.
3. Inhibitors of enzymatic reactions.
4. Absorbents that bind to and eliminate undesirable constituent in the intestine.
5. Enhance the absorption and/or stability of essential nutrients.
6. Selective growth factor for beneficial bacteria.
7. Fermentation substrate for beneficial bacteria.
8. Selective inhibitors of deleterious intestinal bacteria.
9. Scavengers of reactive or toxic chemicals.
10. Ligands that agonize or antagonize cell surface or intracellular receptors.

Health benefits of natural Nutraceuticals

Sl. No.	Nutraceuticals	Health benefits and functions
1	Cinnamon	Rich in antioxidants like polyphenols, phenolic acid and flavonoids. Helps to control diabetes and prevent cancer.
2	Garlic	Aids in digestion process. Strengthen Immunity. Helps in weight loss. Possess antifungal and antibacterial properties.
3	Ajwain	Contains thymol aids in digestion and prevents regurgitation. Prevents CVD (Cardio Vascular Disease).
4	Aloe Vera	Rich in antioxidant. Promotes Immunity. Aids in weight loss.
5	Green Tea	Prevents allergy. Posses antibacterial activity. Helps in lowering blood cholesterol. Preventing bone loss.

Fig 1

Classification

Nutraceuticals or functional foods can be classified on the basis of their natural sources, pharmacological conditions, or as per chemical constitution of the products.

1. On the basis of natural source, it can be classified as the products obtained from plants, animals, minerals, or microbial sources.
2. Nutraceuticals as per the chemical groupings.

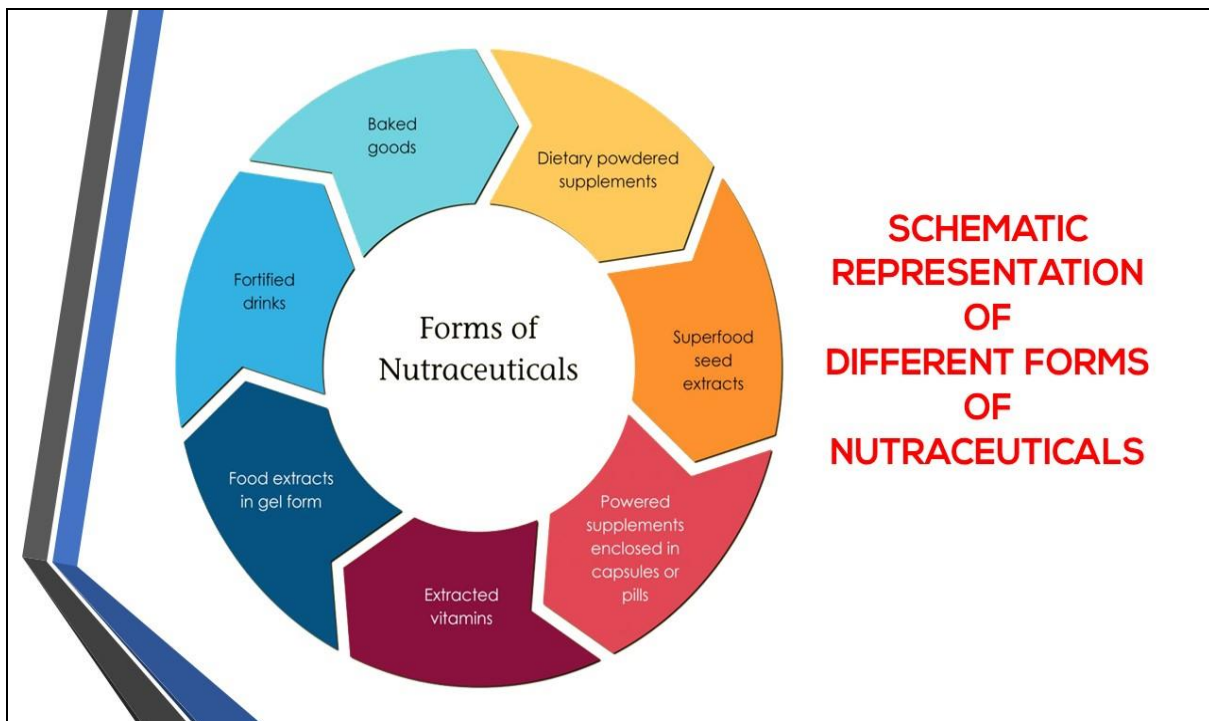


Fig 2

Category of Nutraceuticals

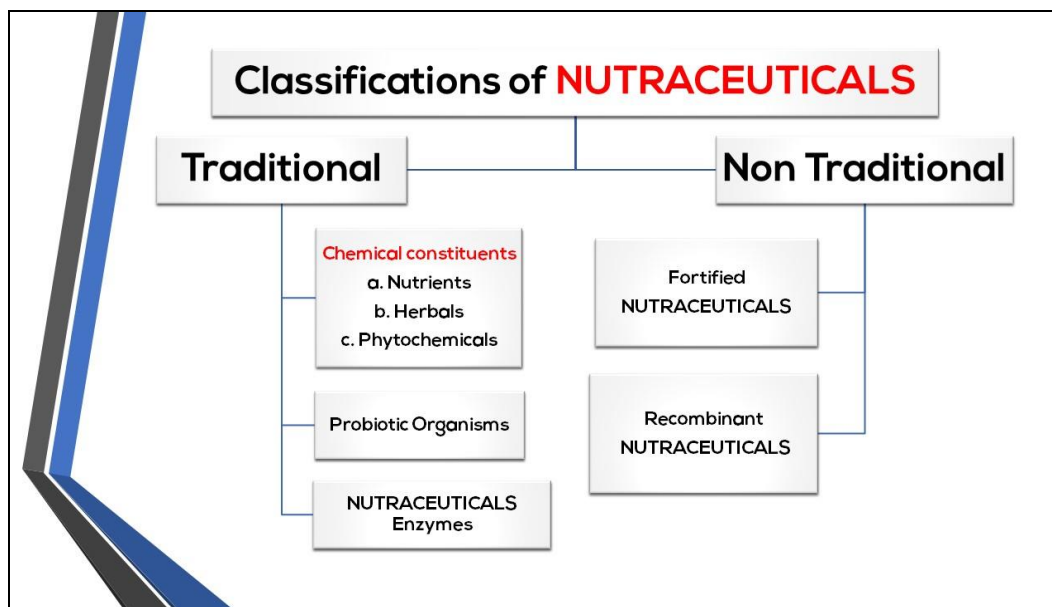


Fig 3

- Substances with established nutritional functions, such as vitamins, minerals, amino acids, and fatty acids–Nutrients.
- Herbs or botanical products as concentrates or extracts–Herbals.

Reagents derived from other sources (e.g., pyruvate, chondroitin sulphate, steroid hormone precursors) serving specific functions, such as sports nutrition, weight-loss supplements, fortified conventional foods, and meal replacements–Dietary supplements.



Fig 4

Dietary supplements are not intended to treat or cure disease, whereas nutraceuticals more emphasize the expected results of these products, such as prevention or treatment of diseases. Some of the most common ways of classifying nutraceuticals can be based on food sources, mechanism of action, chemical nature. The food sources used as nutraceuticals are all natural and can be categorized as:

1. Dietary Fiber.
2. Probiotics.
3. Prebiotics.
4. Polyunsaturated fatty acids.
5. Antioxidant vitamins.
6. Polyphenols.
7. Spices

Nutraceuticals are the emerging class of natural products that makes the line between food and drugs to fade. 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 micro-organism count, adulterants, fatty acids and inorganic pollutant concentration.

Conclusion

With the ever-changing lifestyle of humans, the antioxidant defence systems are often overloaded resulting in oxidative stress. Moreover, the levels of antioxidant defence mechanism decrease appreciably with age. These may result in the development of a great many diseases. Hence research over the past several decades have primarily focussed on different nutraceuticals. This review reflects the potential merits and demerits of nutraceuticals among healthy individuals. However, an individual's susceptibility to any particular disease predominantly depends upon genetic predisposition and lifestyle disorders like smoking, high alcohol consumption. So, the response of nutraceuticals can vary from person to person. Nutraceuticals have proven health benefits and their consumption (within their acceptable Recommended Dietary Intakes) will keep diseases at bay and allow humans to maintain an overall good health.

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