



Current Concept and Prospect of Herbal Nutraceutical

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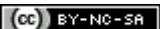
ABSTRACT

In recent years there is a growing the interest in Nutraceutical which is important for health promotion and disease risk reduction. Nutraceutical are food or part of food that provides medical or health benefits including the prevention and treatment of a disease. The principal behind the growth of the Nutraceutical market worldwide are the growth of population and the health trends. Nutraceutical which used in food product can be categorized as dietary fiber, prebiotics, probiotics, polyunsaturated fatty acids, antioxidants, Nutraceutical enzyme and different types of herbal or synthetic food. Nutraceutical has important advantage over the medicine because they avoid side effect, have naturally dietary supplement or dietary fiber etc. Nutraceutical and functional foods are assuming a middle ground between food and drugs due to growing body of evidence that supports to maintaining health and contributing to treatment of disease. "Traditional food" contains vitamins such as Vitamin- A, Vitamin-B, Vitamin-C and minerals which is useful in the diet. It is useful for supporting health and wellness. Whereas "functional foods" which have positive effect on health beyond basic nutrition. Nutraceutical help to cure some of the major health problems such as obesity, cardiovascular diseases, cancer, osteoporosis, rheumatoid arthritis, diabetes, cholesterol etc. Herbal Nutraceutical which is used as a powerful instrument in maintaining health and provide the protection against acute and chronic diseases, thereby promoting optimal health, longevity, increase life expectancy and support the function of the body. The present review focused on herbal Nutraceutical which is important for human health.

Keyword: Nutraceutical, dietary supplement, Functional food

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INTRODUCTION

The term Nutraceutical is a combination of two words "nutrition" and "pharmaceutical" by Stephen Defelice MD, founder and chairman of the foundation for innovation in medicine, located in Cranford, New Jersey, in 1989. According to Defelice "Nutraceutical are food or part of a food that provides medical or health benefits including the prevention or treatment of a disease." The Greek physician HIPPOCRATES often known as the "Father of Medicine" said "let food be the medicine and medicine be the food." Also the Health Canada defines Nutraceutical is a product isolated or purified from foods, and sold in medicinal forms not associated with food and have physiological health benefit or provide protection against chronic disease.

Nowadays people have tried to achieve a better quality of life by eating more vegetables, fruits, and other plant foods, taking dietary supplements or Nutraceutical, or using nutritional therapy or phototherapy to replace chemotherapy or radiotherapy. Nutraceutical may range from isolated nutrients, herbal products, dietary supplements, novel food and processed products such as cereals, soups and beverages.

Nutraceutical or functional food is special foods that have component or ingredient incorporated in them to give a specific medicinal or physiological benefit other than a purely nutritional effect. Functional food concept is different from Nutraceutical which can be defined as food products to be taken as part of the usual diet but has beneficial effects that go beyond which known as traditional nutritional effects.

Nutraceutical are derived from foods, but are used in the medicinal form of pills, capsules or liquids and gives physiological benefits. The concept of some countries functional foods and Nutraceutical are used interchangeably. Regardless the main focus of such products is to improve health and reduce disease risk through prevention. Herbal bioactives, an important category of Nutraceutical which have plenty of health promoting medicinal properties in addition to vitamins, minerals and other active components. The active components include: alkaloids, anthraquinones, bitters, flavonoids, saponins, tannins and essential oils. Herbal bioactive, an important category of Nutraceutical, are commonly used by people who seek conventional health care.

According to Dietary Supplement Health and Education Act of 1994, the definition of Nutraceutical has been expanded to include vitamins, minerals, herbs and other botanicals,

amino acids and any dietary substance for use by humans to supplement the diet by increasing total dietary intake and increased the use of Nutraceutical dramatically. It may be taken in the different form such as pill capsule, tablet or liquid form. It is not represented for use as a conventional food or the sole item of a meal or diet. It is labeled as a "dietary supplement." Under the DSHEA (1994), the manufacturer of a dietary supplement is responsible for ensuring that the dietary supplement is safe before it is marketed..[8]

Nutraceutical are found in a mosaic of products emerging from

- a) The food industry,
- b) The herbal and dietary supplement market,
- c) Pharmaceutical industry,
- d) The newly merged pharmaceutical/agribusiness/ nutrition conglomerates.[1]

CLASSIFICATION

Nutraceutical 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. Nutraceutical as per the chemical groupings.[1]

Categories of Nutraceutical

Nutraceutical are non-specific biological therapies used to promote wellness, prevent malignant processes and control symptoms. These can be grouped into the following categories -

Nutrients: Substances with established nutritional functions, such as vitamins, minerals, amino acids and fatty acid

Dietary Supplements: Reagents derived from other sources (*e.g.* Pyruvate, chondroitin sulphate, steroid hormone precursors) serving specific functions, such as sports nutrition, weight-loss supplements and meal replacements

Nutraceutical: Any nontoxic food component that has scientifically proven health benefits, including disease treatment and prevention.

Herbals: Herbs or botanical products as concentrates and extracts. Herbals are as old as human civilization and they provide a complete storehouse of remedies to cure acute and chronic diseases. [6]

Fig 1: List of various common Herbal Nutraceutical. [2]

| Name | Botanical Name | Family | Chemical Constituents | Uses |
|-------------------|--------------------------------|------------------|---|---|
| Ginseng | <i>Panax ginseng</i> | Araliaceae | Protopanaxadiol, Sterols polyacetylenes, choline, Vit-B1, B2, B12 | Hypertension, Hypoglycemia, Anxiety, anti oxidant |
| Garlic | <i>Allium sativum</i> | Liliaceae | Allicin, Allin, Ajoene | Colon and lung cancer, hyperlipidaemia, Anti-inflammatory |
| Turmeric | <i>Curcuma longa</i> | Zingiberaceae | Curcumin, desmethoxy curcumin | Anticancer, antiseptic, Anti-inflammatory |
| Tomato Lycopene's | <i>Lycopersicon esculentum</i> | Solanaceae | Lycopene | Prostate cancer |
| Karela | <i>Momordica charantia</i> | Cucurbitaceae | Momordicine | Hypoglycemia |
| Spirulina | <i>Spindina platensis</i> | Oscillatoriaceae | Gamma linoleic acid, Oleic acid, Phycocyanin | Viral infection, arthritis, diabetes, influenza |
| Maiden hair tree | <i>Ginkgo biloba</i> | Ginkgoaceae | Ginkgolide, Bilobalide | Memory enhancer, anti-oxidant |
| Ginger | <i>Zingiber officinale</i> | Zingiberaceae | Zingiberene, gingerols | Stimulant, chronic bronchitis, throat ache |
| Liquorice | <i>Glycyrrhiza glabra</i> | Leguminosae | Glycyrrhizin, liquirtin | Anti-inflammatory, Anti-allergic, Expectorant |
| Aloes | <i>Aloe barbadensis</i> | Liliaceae | Aloins, aloesin | Dilates capillaries, anti-inflammatory, emollient |
| Senna | <i>Cassia angustifolia</i> | Leguminosae | Sennosides | Purgative |
| Brahmi | <i>Centella asiatica</i> | Umbelliferae | Madecassoside | Nervine tonic, spasmolytic, anti-anxiety |
| Onion | <i>Allium cepa</i> Linn | Liliaceae | Allicin, Allin | Hypoglycemic activity, Antibiotic |
| Flax seed | <i>Linum usitatissimum</i> | Linaceae | Gamma linoleic acid, proteins, ligands | Colon and rectal cancer, diabetes |
| Soya bean | <i>Glycine max</i> | Leguminosae | Daidzein, genistein | Estrogen dependant cancers |
| Pepper | <i>Piper nigrum</i> | Piperaceae | Piperine | Analgesic, Antimutagenic, |
| Tea | <i>Thea sinensis</i> | Theaceae | Caffeine | Diuretics, CNS stimulant |

Health Benefits

- It increase the health value of our diet.
- It helps to live long life.
- Avoid side effect.[1]
- It is easily available and economical affordable
- It cure and prevent any chronic disease.
- It helps us to avoid particular medical condition.
- Nutraceutical play a role in healthy eating and to contribute to prevention and treatment of diseases.

Some common ways of classifying nutraceutical based on their food sources, mechanism of action, chemical nature, etc. the food sources used as Nutraceutical are all natural and can be categorized as

- Dietary Fiber.
- Probiotics.
- Prebiotics.
- Polyunsaturated fatty acids.
- Antioxidant Vitamins.
- Polyphenols.
- Species.[1]

Traditional and Non-Traditional Nutraceutical

Traditional Nutraceutical: Nutraceutical are simply natural, whole foods with new information about their potential health qualities. Many fruits, vegetables, grains, fish, dairy and meat products contain several natural components that deliver benefits beyond basic nutrition, such as lycopene in tomatoes, omega-3 fattyacids in salmon or saponins in soy. Even tea and chocolate havebeen noted in some studies to contain health-benefiting attributes.

Non-Traditional Nutraceutical: These are the products or plant materials which are prepared artificially. These are biotechnologically engineered foods, follow- on added ingredients or agricultural breeding such as orange juice fortified with calcium, cereals with added vitamins or minerals and flour with added folic acid are non-traditional Nutraceutical.[7]

Global demand of Nutraceutical: The global Nutraceutical market has experienced maximum growth in the last decade. Although Nutraceutical as an industry emerged in the early 1990s, the world has witnessed its explosive growth in the first decade of this century. From 1999 to 2002 the industry grew at an annual average growth rate of 7.3 percent, while in this century the rate doubled to 14.7 percent. Herbal, non-herbal extracts has increasing acceptance by consumers and medical professional pushed world demand for herbal and

non-herbal extracts up to 6.5 percent annually to s1.85 billion in 2010. The global Nutraceutical ingredients market was valued at USD 152.0 billion in 2019 and is projected to reach USD 228.0 billion by 2025, at a CAGRof 7.0 % during the forecast period. Personalization and customization are current trends in the development of Nutraceutical, especially in development markets of the world.

CONCLUSION

Nutraceutical play an important role in future therapeutic developments but their success will be governed by control of purity, safety and efficacy without inhibiting innovation. Neutraceutical professional and regulatory bodies play a role for safety maintenance and advances of Nutraceutical. Future demand of Nutraceutical depends upon consumer perception of mankind and the relationship between diet and disease. Human health and disease prevention, health professional, nutritionists, and regulatory toxicologist should strategically work together to plan appropriate regulation to provide the ultimate health and therapeutic benefit to mankind. Herbal Nutraceutical is a powerful instrument in maintaining health and to act against nutritionally induced acute and chronic diseases, thereby promoting optimal health, longevity, and quality of life.

REFERENCE

1. A general review on “Nutraceutical”: Its golden health impact over human community Dr. D Padmavathi, Guest Professor, PG Department of Foods and Nutrition Muthurangam Government Arts College (A), Vellore Tamil Nadu, IndiaInternational Journal of Food Science and Nutrition ISSN: 2455-4898, Impact Factor: RJIF 5.14, www.foodsciencejournal.comVolume 3; Issue 2; March 2018; Page No. 214-217.
2. Functional and Nutraceutical Properties of Herbals and Its Applications in Food, Jhansi. D1, Manjula. K2. International Journal of Science and Research (IJSR), ISSN (Online): 2319-7064, Index Copernicus Value (2013): 6.14 | Impact Factor (2015): 6.391.
3. Developments in Nutraceuticals. H. Dureja, D. Kaushik, V. Kumar. Indian Journal of Pharmacology 2003; 35: 363-372.
4. Functional foods, herbs and nutraceuticals: towards biochemical mechanisms of healthy aging, Carlos K.B. Ferrari, Biogerontology 5: 275–289, 2004. 275 2004 Kluwer Academi Publishers. Printed in the Netherlands.
5. Nutraceuticals, Functional Foods and Dietary Supplements in Health and Disease FEREIDON SHAHIDI*Journal of Food and Drug Analysis, Vol. 20, Suppl. 1, 2012, Pages 226-230.
6. Nutraceuticals: A review S. Lakshmana Prabu*, T.N.K. SuriyaPrakash, C. Dinesh Kumar, S. SureshKumar1, and T. Ragavendran1, S. Lakshmana Prabu et al./ Elixir Pharmacy 46 (2012) 8372-8377.
7. Health benefits of nutraceuticals Anjali, Vandana Garg, Anju Dhiman, Rohit Dutt and Sweetey Ranga, The Pharma Innovation Journal 2018; 7(3): 178-181.
8. Shilpa P. Chaudhari*, Priyatama V. Powar and Mahesh N. Pratapwar. Dr, D.Y. Patil College of Pharmacy Akurdi, Pune-44. World Journal of Pharmacy and Pharmaceutical Sciences. 6(8), 681-739.