A REVIEW ON NUTRACEUTICALS

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ABSTRACT

‘Nutraceutical’ is a term proposed to used a classify foods that ‘provide medical or health benefits’. Nutraceutical is any food or food ingredient considered to provide medical or health benefits including the prevention and treatment of disease. Dr Stephen Defelice coined the term "Nutraceutical" from "Nutrition" and "Pharmaceutical" in 1989. The term nutraceutical is being commonly used in marketing but has no regulatory definition. Nutraceuticals and functional foods are assuming a middle ground between food and drugs due to growing body of evidence that supports their role in maintaining health and contributing to treatment of disease. “Traditional nutrient” refer to vitamins and minerals considered essential to the diet and / or to correct a classical nutritional deficiency disease, whereas “functional foods” may provide specific health benefits beyond basic nutrition when consumed a part of varied diet. Nutrient, herbals and dietary supplements are major constituents of nutraceuticals, which make them instrumental in maintaining health against various disease conditions and thus promote the quality of life. The focus of this article is to give a brief overview on Nutraceutical.

KEYWORDS:

Neutraceuticals, Types of Neutraceuticals, Uses of Neutraceuticals
INTRODUCTION

Drug and food from natural origin play a significant role in the public health care system of any nation. The search for specific constituents of plant, animals, minerals and microbial origin which are beneficial to our mental and physical health has caused coinage of terminologies such as Nutraceuticals, Cosmoceuticals, Dermaceuticals, Phytochemicals, Phytonutrient, Phytofoods, Functional foods (1). Nutraceutical word— with “nutra” derived from nutrition and “ceutical” from pharmaceutical refers to substances that may be considered a food or part of a food and may provide medical and health benefits (2). 'A nutraceutical is any substance that is a food or a part of a food and provides medical or health benefits, including the prevention and treatment of disease. Such products may range from isolated nutrients, dietary supplements and specific diets to genetically engineered designer foods, herbal products, and processed foods such as cereals, soups and beverages. It is important to note that this definition applies to all categories of food and parts of food, ranging from dietary supplements such as folic acid, used for the prevention of spina bifida, to chicken soup, taken to lessen the discomfort of the common cold. This definition also includes a bio-engineered designer vegetable food, rich in antioxidant ingredients, and a stimulant functional food or pharmafood.’ Since the term was coined, its meaning has been modified. Health Canada defines nutraceutical as: 'a product isolated or purified from foods, and generally sold in medicinal forms not usually associated with food and demonstrated to have a physiological benefit or provide protection against chronic disease' (3) Examples: beta-carotene, lycopene

Nutraceuticals

Functional foods are foods that may provide health benefits beyond their basic nutritional value. The benefits may come from naturally occurring parts of the foods themselves or from the manufacturing process. It is a food engineered or supplemented to give improved nutritional value. It exits at the interface between food and drugs. When functional food aids in the prevention and/or treatment of disease and/or disorders other than anemia, it is called a nutraceutical. e.g. transgenic canola oil engineered for improved trans fatty acids content (4). A dietary supplement is a product that is indebted to supplement the diet that bears or contains one or more of the following dietary ingredients: a vitamin, a mineral, and a herb that gives health benefits (5). The use of nutraceuticals, as an attempt to accomplish desirable therapeutic outcomes with other therapeutic agents has met with great monetary success (6-7). Nutraceutical have been found to be associated with the prevention and/or treatment of many chronic disease and ailments such as cancer, diabetes, heart disease, hypertension, arthritis, osteoporosis etc. Nutraceuticals and functional foods hold promise in clinical therapy as they have the potential to significantly reduce the risk of side effects associated with chemotherapy along with reducing the global health-care cost. However, with all of the aforementioned positive points, nutraceuticals still need support of an extensive scientific study to prove “their effects with reduced side effects” (7-8).

Types of Nutraceuticals

Nutraceutical are broadly categorized as follows. • Substances with established nutritional function such as vitamins, minerals, amino acid and fatty acids nutrients.
What are functional foods?

Functional foods are ingredients that offer health benefits that extend beyond their nutritional value. Some types contain supplements or other additional ingredients designed to improve health.

The concept originated in Japan in the 1980s when government agencies started approving foods with proven benefits in an effort to better the health of the general population (1Trusted Source).

Some examples include foods fortified with vitamins, minerals, probiotics, or fiber. Nutrient-rich ingredients like fruits, vegetables, nuts, seeds, and grains are often considered functional foods as well (2).

Oats, for instance, contain a type of fiber called beta glucan, which has been shown to reduce inflammation, enhance immune function, and improve heart health (3Trusted Source).

Similarly, fruits and vegetables are packed with antioxidants, which are beneficial compounds that help protect against disease (4Trusted Source).

Examples of functional foods

Functional foods are generally separated into two categories: conventional and modified (2).

Conventional foods are natural, whole-food ingredients that are rich in important nutrients like vitamins, minerals, antioxidants, and heart-healthy fats.

Meanwhile, modified foods have been fortified with additional ingredients, such as vitamins, minerals, probiotics, or fiber, to increase a food’s health benefits.

Here are some examples of conventional functional foods:

- **Fruits**: berries, kiwi, pears, peaches, apples, oranges, bananas
- **Vegetables**: broccoli, cauliflower, kale, spinach, zucchini
- **Nuts**: almonds, cashews, pistachios, macadamia nuts, Brazil nuts
- **Seeds**: chia seeds, flax seeds, hemp seeds, pumpkin seeds
- **Legumes**: black beans, chickpeas, navy beans, lentils
- **Whole grains**: oats, barley, buckwheat, brown rice, couscous
- **Seafood**: salmon, sardines, anchovies, mackerel, cod
- **Fermented foods**: tempeh, kombucha, kimchi, kefir, sauerkraut
- **Herbs and spices**: turmeric, cinnamon, ginger, cayenne pepper
- **Beverages**: coffee, green tea, black tea

Here are some examples of modified functional foods:

- fortified juices
- fortified dairy products, such as milk and yogurt
- fortified milk alternatives, such as almond, rice, coconut, and cashew milk
- fortified grains, such as bread and pasta
- fortified cereal and granola
- fortified eggs

**Potential benefits**

Functional foods are associated with several potential health benefits.

**May prevent nutrient deficiencies**

Functional foods are typically high in important nutrients, including vitamins, minerals, healthy fats, and fiber.

Filling your diet with a variety of functional foods — including both conventional and fortified foods — can help ensure you get the nutrients you need and protect against nutrient deficiencies.

In fact, since the introduction of fortified foods, the prevalence of nutrient deficiencies has significantly decreased around the globe.

For instance, after iron-fortified wheat flour was introduced in Jordan, rates of iron deficiency anemia among children were nearly cut in half (5Trusted Source).

Fortification has also been used to prevent other conditions caused by nutrient deficiencies, including rickets, goiter, and birth defects (6Trusted Source).
May protect against disease

Functional foods provide important nutrients that can help protect against disease.

Many are especially rich in antioxidants. These molecules help neutralize harmful compounds known as free radicals, helping prevent cell damage and certain chronic conditions, including heart disease, cancer, and diabetes (7Trusted Source).

Some functional foods are also high in omega-3 fatty acids, a healthy type of fat shown to reduce inflammation, boost brain function, and promote heart health (8Trusted Source).

Other types are rich in fiber, which can promote better blood sugar control and protect against conditions like diabetes, obesity, heart disease, and stroke. Fiber may also help prevent digestive disorders, including diverticulitis, stomach ulcers, hemorrhoids, and acid reflux (9Trusted Source).

May promote proper growth and development

Certain nutrients are essential to proper growth and development in infants and children.

Enjoying a wide range of nutrient-rich functional foods as part of a healthy diet can help ensure that nutritional needs are met. In addition, it can be beneficial to include foods that are fortified with specific nutrients that are important for growth and development.

For example, cereals, grains, and flours are often fortified with B vitamins like folic acid, which is essential for fetal health (6Trusted Source, 10Trusted Source).

Low levels of folic acid can increase the risk of neural tube defects, which can affect the brain, spinal cord, or spine. It’s estimated that increasing the consumption of folic acid could decrease the prevalence of neural tube defects by 50–70% (11Trusted Source, 12Trusted Source).

Other nutrients commonly found in functional foods also play key roles in growth and development, including omega-3 fatty acids, iron, zinc, calcium, and vitamin B12 (13Trusted Source).
Uses of Nutraceuticals

A well-rounded, healthy diet should be rich in a variety of functional foods, including nutrient-rich whole foods like fruits, vegetables, whole grains, and legumes.

These foods not only supply your body with the vitamins and minerals it needs but also support overall health.

Modified, fortified functional foods can also fit into a balanced diet. In fact, they can help fill any gaps in your diet to prevent nutrient deficiencies, as well as enhance health by boosting your intake of important nutrients like vitamins, minerals, fiber, heart-healthy fats, or probiotics.

REFERENCES


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13. www.nutraceuticalsworld.com *