

NUTRACEUTICALS

The term "Nutraceuticals" is the combination of two words "Nutrition" and "pharmaceutical" coined in 1989 by Stephen DeFelice, MD, founder and chairman of the Foundation for Innovation in Medicine (FIM), Cranford, NJ.

Nutraceutical can be defined as "a food (or part of a food) that provides medical or health benefits, including the prevention and / or treatment of a disease.

This is applied to nutrients, dietary supplements, herbal products, specific diets and processed foods such as cereals, soups and beverages.

FUNCTIONAL FOOD

A food is either natural or formulated, which will enhance physiological performance or prevent or treat diseases and disorders.

- Functional foods include those items developed for health purposes as well as for physical performance.
- The Institute of Medicine's Food and Nutrition Board defined functional foods as "any food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains.

Nutraceuticals are found in:

- a) The food industry,
- b) The herbal and dietary supplement market,
- c) Pharmaceutical industry, and

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 and improve medical condition of human.

According to Nutraceutical and nutritional therapy theory, Nutraceuticals help 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.

PROPERTIES OF NUTRACEUTICALS

Functional properties:

- Herbal foods are valued for their nutritional, antioxidant, antimicrobial and medicinal properties.
- Nutritional properties
- Most of the herbal spices are rich sources of protein, vitamins, especially vitamins A, C and B, and minerals such as calcium, phosphorus, sodium, potassium and iron.
- Parsley is the richest source of vitamin A, while coriander is one of the richest sources of vitamins C and A. Parsley is also rich sources of vitamin K.

Antioxidant properties:

- Antioxidants are added to foods to preserve the lipid components from quality deterioration.
- Synthetic antioxidants such as butylatedhydroxy anisole (BHA), butylatedhydroxy toluene (BHT), propyl gallate (PG) and tert-butyl hydroquinone (TBHQ) are the commonly used synthetic antioxidants.
- Owing to their suspected action as promoters of carcinogenesis, there is growing interest in natural antioxidants.

- Common culinary herbs from various different plant families are differ considerably in taste, aroma and chemical constituents.
- Besides their antioxidant activity, phenolic compounds have anti-inflammatory, anti-allergic, antimicrobial, anti-cancer properties,

Current scenario

The pharma companies like Novartis, Glaxo Smithkline and Cadila healthcares stepped into the dietary supplement industry in recent years.

The **FMCG** (Fast moving consumer goods) suppliers and pharmaceutical companies are the key players in the Indian Nutraceutical market.

Vitamin and mineral supplements are responsible for the 64 % of the total Nutraceutical market in India.

Indian Nutraceutical market

Indian Nutraceutical market is subdivided into two main categories.

- Functional foods and beverages
- Dietary Supplements, (category)

Functional Foods and beverages:

- This category covers almost **60%** of the total market.
- According to WHO the fortified food is referred to the addition of micro-nutrients to the processed food.
- These includes all the sports drinks, fortified drinks, fortified juices, fortified foods and energy drinks.

Dietary supplements:

- This category covers up the remaining **40%** of the Indian Nutraceutical market.
- This class includes vitamins and minerals supplement, herbal supplement, protein supplement and Chyawanprash also included in this category.

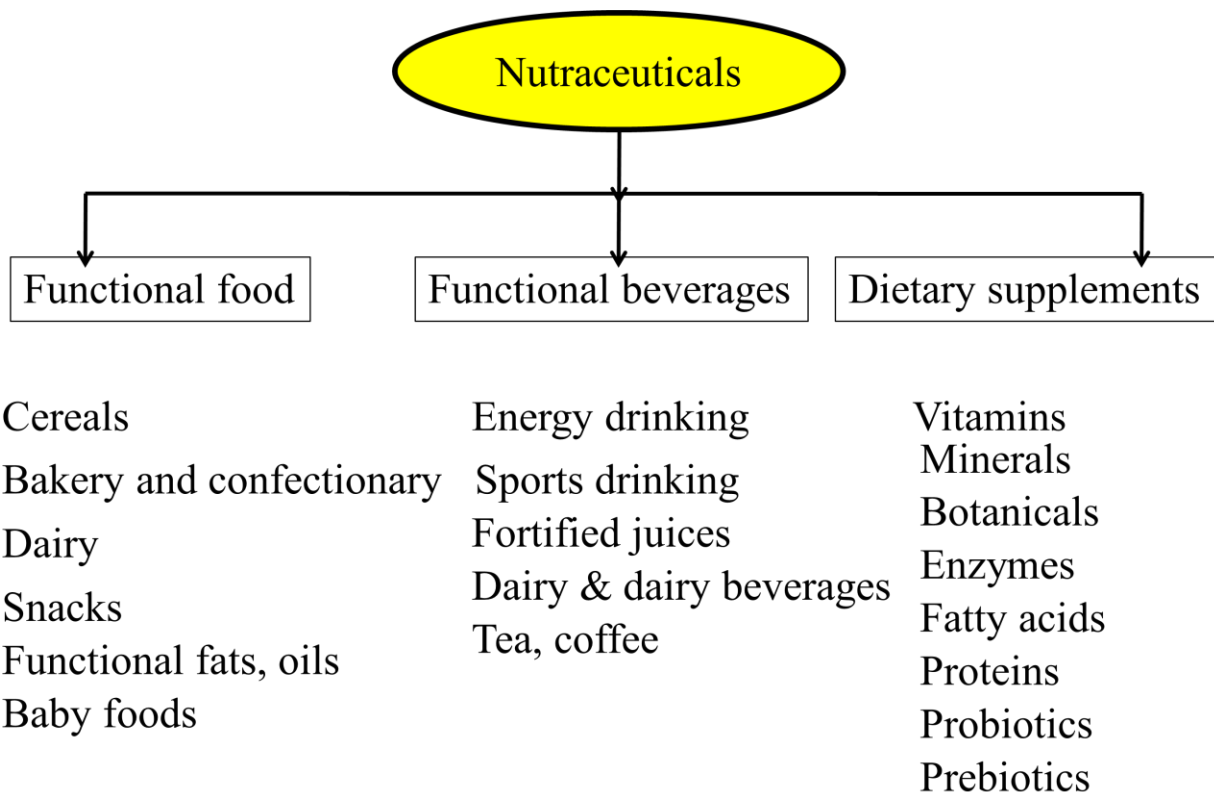
Scope

- Due to lack of clarity of specific regulations for registration of nutraceuticals and permitted additives, the entrepreneurs intending to launch nutraceuticals in India are still facing the following scope and opportunity.

- Drugs defined under Section 3(b)(i) of the Drugs and Cosmetics Act, 1940, the ayurvedic, siddha and unani drugs are specifically excluded from the scope of the definition of nutraceutical, health supplement etc, under Section 22 of the Act.

Types of products available in the market

1. Dietary Supplements
2. Probiotics and Prebiotic
3. Dietary fiber
4. Omega 3 fatty acid
5. Antioxidant
6. Functional Foods
7. Botanicals
8. Medicinal Foods



Antioxidants: They are present in fruits, vegetables and fishes. They are used to prevent the reactive oxygen species and free scavenging radicals. Eg: Vit-E, C, A, Beta carotene.

