

Nutraceuticals New Era of Medicine and Health.

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Abstract:

The concept of Nutraceuticals was first introduced in the survey from the UK, Germany and France, where diet is rated more highly by consumers than exercise or hereditary factors for achieving good health. The word nutritional is a blend of the words nutrition and pharmaceuticals. Nutraceuticals, in broad terms, are foods or parts of foods that play a significant role in modifying and maintaining normal physiological function that maintains healthy human being. "Let food be your medicine" is a common misquotation attributed to Hippocrates, who is the father of western medicine, according to the health Canada. Nutraceuticals are foods or products prepared from food but sold in the forms of pills, powder, etc. (portion) or in other medicinal forms not usually associated with food. The benefits of Nutraceuticals are limitless as well as effective in everyday life, from physiological health Nutraceuticals have the potential to treat a wide array of illness and ailments. Recent studies have shown promising results for the effectiveness of herbal Nutraceuticals on disorder related to oxidative stress, including Alzheimer's, cardiovascular disorders, cancers, diabetes, inflammatory disease ,Parkinson's disease ,and obesity ,in whole , " nutritional "has provide a route to a new era of medicine and health ,in which the food industry has become a research oriented sector .[4-5]

Keywords: Nutraceutical, Categories of nutraceutical, Diseases, Medicine, Future Prediction.

Introduction:

Living healthy life style still remains challenge to a wide section of population; because of lifestyle have changed drastically due to increase in working hours, decrease self-esteem physiological stress, changing cultures which causes the various life threatening disease. The first fatality of this lifestyle change has been food habits. Consumption of junk food, fast food have directly affected our nutritional aspects of food, which has led to to number of diseases regulated to nutritional deficiencies. No wonder more and more people use Nutraceuticals and phytonutrients. Nutraceuticals play major role to provide additional nutrients and control life threatening diseases. [1-7].

Concepts Of Nutraceuticals :

The concept of nutraceutical was first introduced in the survey from UK, Germany and France. The nutraceutical is blend of the words 'nutrition' and pharmaceutical...

The nutraceutical was characterize as any substance that may be considered a food or part of food and provides medical or health benefits including the prevention and treatment of diseases... [8-4]



Categories Of Nutraceuticals :

The nutraceutical broadly classified into two categories, supplement, functional food products and beverage.

Functional food:

Functional foods are defined as "foods or dietary components that may provide a health benefit beyond basic nutrition" by the international food information council (ific). Functional foods are those that "provide health benefits beyond basic nutrition due to physiologically active food components," according to the international life sciences institute of North America (ilsi). Functional foods are those that look similar to traditional meals, are consumed as part of a regular diet, provide physiological benefits that have been shown, and/or lower the risk of chronic disease in addition to serving basic nutritional needs. Functional food is defined as "food fortified with added or concentrated ingredients to functional levels, which improves health or performance" by the nutrition business journal. Enriched cereals, breads, sports drinks, bars, and fortified cereals are examples of functional foods. [4-5].

Nutraceutical beverages:

The majority of nutritional drinks come from fruits and vegetables, but they can also be made from other plants, such as tea, coffee, cocoa, and soybeans, as well as from animal products like milk and alcoholic beverages. Such beverages deliver their health advantages through many mechanistic channels. However, the taste and flavour quality of such beverages are the major factors determining their acceptability. For their appropriate levels of consumption, which are required for health promotion and illness prevention, it is vital to formulate high-quality beverages with good flavour, aroma, and shelf-life stability. [7-2]

Dietary supplements:

A product is deemed to be a dietary supplement if it bears or contains one or more of the dietary components listed below: a concentration, metabolite, constituent, extract, or mixture of these ingredients. A mineral, vitamin, amino acid, medicinal plant, or other botanical nutritional supplement used by humans to boost daily intake. The nutritional supplements known as Nutraceuticals are utilized for medical conditions other than nutrition.

Benefits :

Nutraceuticals are substance that are used for health reasons other than just for food. Several natural ingredients found in many fruits, vegetables, grains, fish, dairy, and meat products provide benefits above and beyond merely providing nutrition, such as lycopene in tomatoes, omega-3 fatty acids in salmon, or sapiens in soy. Some studies have found that even chocolate and tea have health-promoting properties. Salmon and tomatoes are two food items that have been identified by researchers as having advantages over standard nutrition, including lycopene and omega-3 fatty acids.

The possibilities are endless and new applications are emerging every day. Nutraceuticals can help with everything from your body to your mind. They can:

- Improve your overall health
- reduce energy levels reduce anxiety, improve mental clarity improve
- quality and quantity of sleep 4-prevent chronic diseases reduce drug cravings
- reduce the aging process 6-improve life expectancy support regulate bodily functions

The health benefits of the nutraceutical products are well known and include lowering the risk of cancer and heart disease as well as preventing or treating hypertension, high cholesterol, obesity, osteoporosis, diabetes, arthritis, digestive upsets, and constipation. In concentrated forms, such as pills, capsules, powders, and tinctures, Nutraceuticals can be purchased as a single ingredient or in combination with other ingredients.

Nutraceuticals are a big part of the global economy and are expected to keep growing over the next few years. In 2022, the market for these products was worth \$291.33 billion, and it's expected to reach \$317.22 billion by 2023. It's estimated that the market will grow at a rate of 8.4% between 2023 and 2030, reaching a total of \$598.71 billion.[15]

Classification:

A nutraceutical or functional food can be classified as natural, traditional, unnatural, or non-traditional based on its source.

- On the basis of its natural source, a nutraceutical can be classified as a product obtained from a plant, animal, mineral, or microbial source.
- Non -Traditional Nutraceuticals can be classified as Nutraceuticals prepared via biotechnology.

1) Traditional – Traditional nutraceutical are basically characteristic with no change to the nourishment. Nourishment contains a few characteristic components that convey benefits past fundamental substances, such as lycopene in tomatoes. Omega-3 greasy acids in salmon or sapiens in soy. They are assembled based on.[5-3]

1.1) Chemical constituents

- **Nutrients**
- **Herbal**
- **Phytochemicals**

1.2) Probiotic microorganisms**1.3) Nutraceutical enzymes.**

Chemical constituents

Nutrients-

Substances such as vitamins, minerals, amino acids and greasy acids with set up dietary capacities. Most vegetables, whole grains, cereals, dairy items, natural products and creature items such as meat, poultry contain vitamins and after assistance remedy heart illness, stroke, diabetes and cancer, mineral found within the plant, creatures and dairy items Are valuable in osteoporosis, frailty and construct solid bones, teeth, muscles, progress nerve driving forces and heartbeat. Flaxseed and salmon contains greasy acids omega -3 puffs and are strong controllers of provocative forms upkeep of brain work and decrease cholesterol testimony...

Herbals:

Herbal nutraceutical improve health and prevent chronic illness. Examples include willow bark (*Salix Ingra*), having active component silicon, which is anti-arthritis. Lavender (*lavendula angustifolia*) contains tannin which is helpful in curing hypertension, depression, stress, cold, cough and asthma.[14-7]



Fig :Salix Nigra

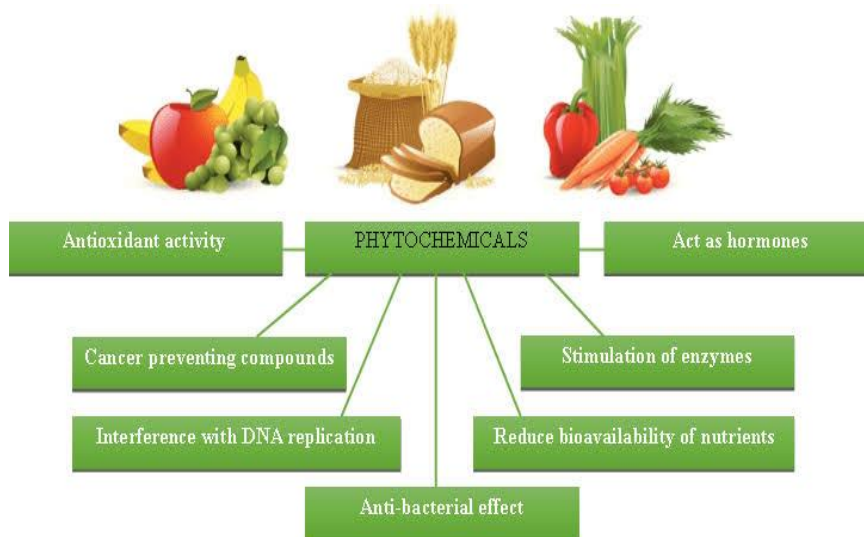


Fig : Lavandula

Phytochemicals :

They are classified by chemical name according to their plant based properties. For instance, carotenoids or isoprenoids are found in many fruits and vegetables and in egg yolk. They are anti-cancerous, stimulate the natural killer immune system and protect the cornea from us light. Non carotenoids are found in legumes (chicken peas and soybean) grains

and palm oil. They remove cholesterol and anti-cancerous properties. Flavonoids polyphenol are found in berry, fruit, vegetables and legumes. They are powerful antioxidants, anti-cancer, anti-prostate cancer and diabetes control. [12-8-3-9]



1.2) Probiotic microorganisms : The term “probiotic” which means “for life”, refers to live microorganisms that, when taken in sufficient quantities, have a positive impact on host’s health. Hord’s discovery of Metchnikoff’s work to convert the poisonous flora of the large intestine into a host friendly colony of bacillus bulgaricus sparked an increase in scientific in probiotics.

Benefits :

- They are beneficial microorganisms that support wholesome digestion and the absorption of some nutrients.
- They work to eliminate pathogens like yeast.
- Other bacteria and viruses that may otherwise cause disease and form a beneficial symbiosis with the human digestive system.
- Through altering the micro flora, preventing pathogens adhesion to the intestinal epithelium, competing for nutrients required for pathogen survival, producing an antitoxin effect of infection on intestinal epithelium such as secretory changes and neutrophil migration, they have an antimicrobial effect.
- By producing the exact enzyme (beta galactosides) that can hydrolyse the problematic lactose into its component sugars, probiotics can treat lactose intolerance.[61-44-2]

1.3) Nutraceutical enzymes : Without enzymes, life would not be possible and our bodies would stop working. Adding enzyme supplements to one’s diet can help patients with medical diseases like hypoglycaemia, blood sugar imbalances, digestive issues, and obesity get rid of their symptoms .These enzymes come from animal, plant, and microbial origins.

2) Non-traditional nutraceutical : Non-traditional Nutraceuticals are biotechnologically produced fake foods. Bioactive ingredients found in food samples are used to create products for human wellness. They are positioned into.

2.1) Fortified Nutraceuticals : It constitutes food that has been enhanced through agricultural breeding or the addition of nutrients or additives. For instance, folic acid-added flour, cereals with extra vitamins, and calcium-fortified orange juice. Examples include cholecalciferol-fortified milk used to treat vitamin d shortages. Milk that has been enriched

with prebiotics and probiotics and contains bifid bacterium lactic hn019 is used in children with diarrhoea, respiratory infections, and severe diseases...

2.2) Recombinant Nutraceuticals : Energy-soluble foods like bread, alcohol and fermented starch are produced by biotechnology, as well as fermented yogurt, cheese and vinegar, and other energy-soluble foods. Probiotics are produced through biotechnology, and bioactive components are extracted through enzyme / fermentation technologies and genetic engineering technology.

Role Of Nutraceuticals In Various Diseases

1) Heart and lung cancer:

Corn has a high fibre content and high folate content. Corn absorbs the high levels of homocysteines that cause blood vessel harm, heart attack, stroke, peripheral vascular disease, etc. Studies have shown that 100% of daily folate intake can reduce heart attack risk by 10%. One of the natural pigments in maize, cryptoxanthin, reduces lung cancer risk. Nutraceuticals' impact on disease prevention

2) Cancer:

By blocking the enzymes that make oestrogen, flavonoids protect against oestrogen-related cancers. They may also help prevent breast cancer and prostate cancer. You can prevent cancer by eating curcumin. Curcumin is found in many soy foods, such as curry, and is a soy-derived flavone. Lycopene: lycopene is a compound that accumulates in prostate, testicular, adrenal and epidermal tissues...

3) Obesity:

Is a global health issue that is characterized by the accumulation of unhealthy and excessive body fat. The consequences of obesity include: high blood pressure, angina pectoris, chronic obstructive pulmonary disease (COPD), respiratory disorders, osteoarthritis, malignant cells, hyperlipidaemia, other risk factors

4) Diabetes :

Leboic acid is an antioxidant that can be used to treat diabetic neuropathy. Psyllium dietary fibres are used to regulate blood sugar levels in diabetic patients and to reduce cholesterol levels in patients with hyperlipidaemia.

One of the most common joint conditions is osteoarthritis. People with osteoarthritis and other joint conditions tend to become sedentary, which can lead to weight gain. This weight gain can put extra pressure on the joints. Glucosamine is used to prevent osteoarthritis, as well as chondroitin sulphate (cs, gln).

5) Eye Health :

Lutein/zeaxanthin lutein and zeaxanthin are carotenoids found in high amounts in spinach, kale and parsley and in brassica. Supplementing with 30 mg/day of lutein or zeaxanthin has been shown to increase the optical density of macular pigment. Lutein is thought to be converted into zeaxanthin by the eye. Phycocyanin phycocyanin has been proposed as a treatment for diabetes retinopathy. Studies have shown that phycocyanin improves capillary resistance and reduces the leakage into the retina.

6) Bone Health :

Soy isoflavones – these are said to be natural alternatives to hormone therapy. One synthetic isoflavone, ipriflavone, has been shown to increase bone mass in postmenopausal women. 2) Other nutrients – n-3-pufas and g-linoleic acid prevent bone loss. Black tea is also useful. [5-1]

7) Alzheimer's disease:

Diagnosis of certain diseases may be relieved by anti-oxidant effects, oxidative stress, mitochondrial dysfunction, various forms of neurodegeneration, etc. Diagnosis of diseases can be relieved by antioxidants, anti-oxidants, and anti-neurodegenerative agents such as beta-carotene, curcumin, lutein, lycopene, turmeric etc. [51-55-4]

Current Trends And Future Prediction:

Nutraceutical industry in india is expected to grow rapidly as the urdan population in india is more health and fitness-conscious than ever before. Manufacturers and marketers are coming up with innovative ways to make consumers aware of the product's benefits and it's role in preventive healthcare and medical treatment. Industry players are also taking several initiatives of their own, such as increasing product quality standards increasing transparency and offering innovation. This will provide a huge growth opportunity for the nutraceuticals industry in india. Currently , the nutraceuticals market accounts of 67% share of the supplement market ,which is dominated by pharma. Nutraceuticals are a big part of the global economy and are expected to keep growing over the next few years. In 2022, the market for these products was worth \$291.33 billion, and it's expected to reach \$317.22 billion by 2023. It's estimated that the market will grow at a car of 8.4% between 2023 and 2030, reaching a total of \$598.71 billion.[15]

Conclusion :

Nutraceuticals can play an important role in protecting human health and disease prevention, health professionals, nutritionists and regulatory toxicologists should work together strategically to plan appropriate regulations to deliver the ultimate health and therapeutic benefits to humanity. Nutraceuticals are growing faster than the food industry and the pharmaceutical industry. Nutraceuticals provide excellent opportunities for research scientists and industry leaders to capitalize on their value.

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