

Nutraceuticals Stirring the Modern Rehabilitation for Existence Diseases

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Abstract

Nutraceuticals are the pharmaceutical products that hold both nutritional in addition to the medicinal value. Such a creation is deliberate to advance the objective health, clash daily challenges such as stress, increase longevity, etc. Current days, importance is given to those herbs which are used as food and medicine due to its superior acceptance. The Demand of nutraceuticals among general public as well as healthcare providers has been gained over medicines and health supplements due to versatile action, Current literature review credentials herbs with a ample variety of salutary values like immunity jab, anti-diabetic, anti-cancer, anti-microbial, and gastro protective. So, from various researches it was found out that herbs could be well again options to create as nutraceuticals. Numerous nutraceuticals are described based on their accessibility as food, chemical nature, and mechanism of action.

Keywords: Chemical; Food; Diseases; Nutraceuticals

Introduction

The father of modern medicine, Hippocrates (460-377 BC) almost 2500 years back conventional the relation of food and its magnitude for the treatment of various diseases in a very traditional way optimizing various pay back [1]. Nutraceuticals is collected of two words: nutrient and pharmaceutical. It is a food supplement that has a essential role in maintaining the healthy body and provides necessary supplements required for various metabolic processes to regulate body functions and thus prevents the body from diseases [1]. There is a vast abundance of herbs and foods which stimulate support and push our body system. Most of them used by various Ayurveda systems of different countries, evaluated by modern research thru various experimental work. Use of pharmaceutical antibiotic would assemble up tolerances which make it hopeless in the long run. In our routine life, superior way to select such herbs in which not only capable of normalizing our daily routine body work (even in deteriorate condition) but also protective, nutritive, and also boost our energy level. An herb may not act as correctly as an antibiotic but can act as antibacterial (even antiviral) by boosting our body's own security mechanism. To experience as a healthy wellbeing, classical mind-blowing attitudes is to keep away from stress/tension and other lifestyle affecting diseases. Various examples of herbs used as food as well as medicine during infection, to boost the immune system or even in several other illnesses.

Vetiveria zizanioides roots were used from tradition in the treatment of various types of liver disorder. *Vetiveria zizanioides* root (Commonly known as: Ushira, Family: Poaceae), is a perennial herb, basically found throughout the plains and lower hills of India, on the banks

of river and in gorgeous marshy soil. Applications of plants are such as digestive issue, carminative, stomachic, constipation, haematinic, cough remedies, liver protection [2-5], muscle spasm, bronchospasm, and antigout [6]. It possesses various pharmacological activities such as anthelmintic [7], antimicrobial [8], diuretic [9] and antioxidant activity [10].

Triphala is one of the for the most part admired tonics in Ayurveda. It is a combination of three important herbs, namely, *Terminalia bellirica* (Combretaceae), *Terminalia chebula* (Combretaceae), and *Embllica officinalis* (Phyllanthaceae). All these herbs act as a nutritive tonic. Triphala benefits almost all organs/systems of our body, particularly skin, liver, eyes, and digestive and respiratory system.) The most well-known therapeutic uses are immunomodulating, antibacterial, antimutagenic, and adaptogenic, etc. which are well established [11,12].

Amomum subulatum Roxb. (Commonly known as Greater cardamom, Family: Zingiberaceae) is a perennial herb which grows widely in moist tropical countries. Plant derived natural products such as phenolic compounds (flavonoids), terpenoids, steroids, glycosides, saponins, volatile oils, etc. have received considerable attention in recent years due to their diverse pharmacological properties including antioxidant and hepatoprotective activity [13]. Antioxidants play an important role in inhibiting and scavenging radicals, thus providing protection to humans against various diseases. In our previous study we already reported hepatoprotective activity of Amomum subulatum against ethanol and Carbon tetrachloride induced liver damage in rats [14,15].

The northeast region of India is very rich in flora and fauna. The tribal people of the northeast region follow the principle of Hippocrates. They use their food as medicine. According to Ayurveda, garlic, onion, and ginger are the basis of all healing food recipes (Figure 1). Garlic is one of the most widely used natural health products. These are considered as food, spice, and medicine [16]. It has been the subject of intensive study for its possible effects against heart disease and cancer [16-18]. It increases the general immune system activity. Studies have also shown to be effective in treating AIDS and antimicrobial [19-21].

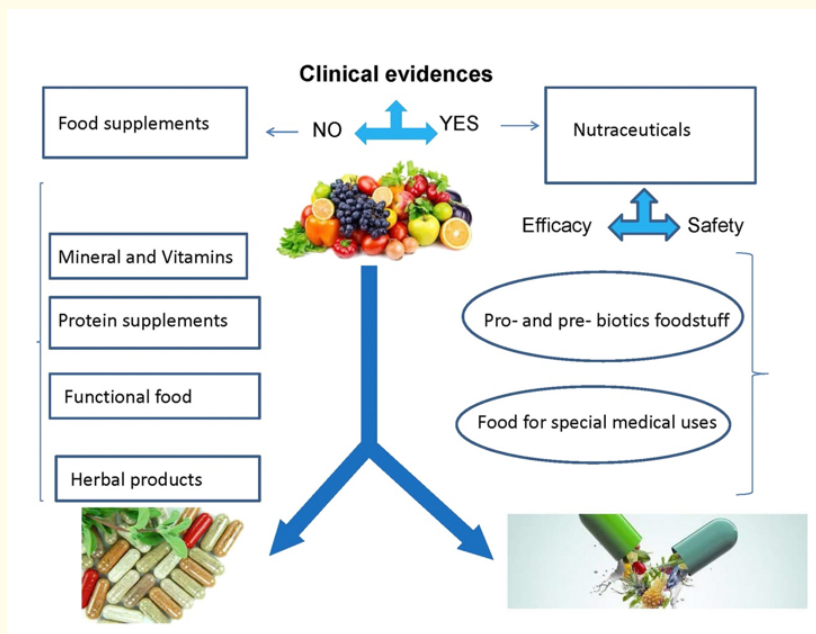


Figure 1: Clinical proof of nutraceuticals application.

Nutraceuticals nomenclature: Nutraceuticals established on food accessibility

Traditional nutraceuticals: Commonly classes are sourced in a straight line from nature, without any changes in the natural form. A number of ingredients such saponins in soy, omega-3 fatty acids in salmon, lycopene in tomatoes are available and consumed for different health profit. Supplementary, a different of types of Modern nutraceuticals are as follows (Figure 2):

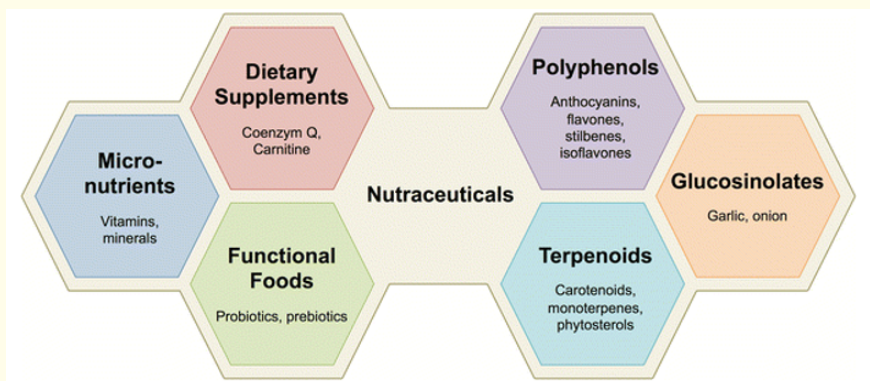


Figure 2: Types of traditional nutraceuticals.

1. Chemical constituents based
 - (a) Nutrients,
 - (b) Herbals,
 - (c) Phytochemicals
2. Probiotic microorganisms related
3. Nutraceuticals enzymes form.

Chemical constituents

Nutrients

In metabolic pathways numerous principal metabolites that are amino acids, quality vitamins, as well as fatty acids had well-clarified the functions in various metabolic pathways. Plant and animal products along with vitamin have numerous health benefits and are helpful in curing diseases related to heart, kidney, lungs, etc. Plants oriented natural products are beneficial in treating various illnesses like delicate bones and decline hemoglobin count, and they provide strength to bones and muscles, help in neuron transmission, and maintain rhythm of heart muscles. Salmon derived Fatty acids, omega-3 PUFAs, had unbiased the total inflammatory response and activity of brain and reduced cholesterol of arteries.

Herbals

Nutraceuticals combine with herbs had an outstanding synergistic impact on avoidance of variety of chronic diseases to make healthier life. Willow bark (*Salix nigra*) active constituent Salicin had been effective clinically for relief from Inflammation, Pain, Fever and inflammation of joints. Parsley (*Petroselinum crispum*) key ingredient flavonoid, psoralen useful as a diuretic, carminative, and antipyretic.

Terpenoids from Peppermint (*Mentha piperita*) like menthol, a bioactive essential helps to cures cold and flu. Lavender (*Lavandula angustifolia*) contain Tannin which help to release stress and blood pressure, Respiratory disorders such as asthma [22].

Phytochemicals

On the basis of phytochemicals they are mainly divided

Vegetables contains carotenoids (isoprenoids), improving immune system, especially killer cells have anticancer reply. Noncarotenoids present in chickpeas, soybeans, grains, and palm oil remove cholesterol as well as have anticarcinogenic effect. Secondary metabolites such as flavonoids, are present in most of the plants, having more than 4000 diversities had been recognized clinically for avoiding variety of diseases i.e. cancer, diabetes, heart diseases, and kidney problem by its antioxidant activity and because of their bioactive components [23].

Another Largest class of secondary metabolites, phenolic acids present in red wine and citrus fruits have free radical scavenging activity. Various metabolic pathways such as protein, carbohydrate and fat leads to formation of free radicals. They have additional anticancer and antitumour activity. Examples are curcumin (turmeric), commonly used as phytochemicals in most of the kitchen.

Probiotic microorganisms

“Probiotic” word invented by Metchnikoff. In modern medicine probiotic well boosted due to its skill of creation the intestine more comfortable for processes i.e. absorption and metabolism. Toxic flora of the intestine removed by probiotics make life smoother and maintaining a pleasant environment, for example, useful consumption of *Bacillus bulgaricus* [21]. At Presently various probiotic products are present in the market with enough nutrients to stand various pathogens so that a number of illnesses related to human body can be treated.

The antimicrobial stuff usually had a modifying impact on gastrointestinal microflora, making the epithelial tissues more comfortable and making a benefit for the supplements for better action, which is essential for the body. However, probiotics are very essential in lactose intolerance by the creation of similar enzymes (β -galactosidase) and hydrolyzing lactose into its sugar components [22].

Nutraceutical enzymes

Enzymes are proteineous in arrangement, are created by the typical cell, and role as a biocatalyst. It simplify the metabolic rate and accelerate the life process. Such medical problem mainly related to the gastro intestinal tract whether Gastroesophageal reflux disease or Difficulty in digestion or watery stool or inflammation of colitis could be preserved with supplements of enzymes. Enzyme could be an alternative choice for high glucose patients. Current days, enzyme treatments are jumble-sale for several unusual diseases such as Gaucher infection, Hunter condition, Fabry bug, and Pompe ailment. All in all enzymes are manufactured by their own host cells, microbial bases are choosen more over plant and animal sources as they are more affordable and reliable.

Nutraceuticals nontraditional origin

Foods supplemented with add-ons or biotechnologically engineered gathers to lift the nutrients; such as, rice and broccoli (brain booster) are amusing in β -carotene as well as vitamins. Foodstuff testers has bioactive components which are engineered to produce products for human wellbeing. They are arranged as follows:

1. **Invigorated nutraceuticals:** Above types of nutraceuticals basically breeding at agriculture level or accumulation of well-suited nutrients to the foremost ingredients like minerals added to cereals, flour invigorated with folic acid, calcium, iron and milk invigorated with cholecalciferol basically used for vitamin D paucity [23].
2. **Recombinant nutraceuticals:** Fermentation method in various dairy products and food materials like cheese, bread to extract the enzyme useful for so long as important nutrients at a peak level.

Classification based on pharmacological action

Nutraceuticals has been sub classified in respect to definite satisfying stuffs secretarial against microbes, inflammation, and oxidative stress properties.

Classification based on element nature

Chemical nature type's nutraceuticals are classified based on their main and minor metabolite sources that are isoprenoid derivatives, phenolic compounds, fatty acids, carbohydrates, and amino acid belonging substances.

Conclusion

Recognition of Natural products are gaining from their therapeutic values from eras. In the current period, these natural substances have been applied as a protection rooter; such as against diabetes, cancer, microorganisms, and intestinal disease; and so on. Therefore, these herbs could be ultimate idea to be formulated as nutraceuticals.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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