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Herbal Nutrients and Their Health Benefits

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ABSTRACT
The term nutraceuticals serves as a link between food and medicine. Offering preventive and curative effects against various diseases. This review focuses on selected plant-based nutraceuticals, including Amla (*Phyllanthus emblica*), Pomegranate (*Punica granatum*), Guava (*Psidium guajava*), Ashwagandha (*Withania somnifera*), Tulsi (*Ocimum sanctum*), Fenugreek(*Trigonella foenum-graecum*), Avocado (*Perseaamericana*), Kiwi(*Actinidia deliciosa*), and Cinnamon(*Cinnamomumverum*). Nutraceuticals can be grouped into nutrients, dietary supplements, herbal products, and functional foods (both traditional and modern varieties). They are becoming popular because they offer a natural and safe way to support health, prevent lifestyle-related diseases, and improve overall well-being. These plant-based products contain many helpful natural chemicals like polyphenols, flavonoids, alkaloids, and tannins. These compounds give nutraceuticals their antioxidant, anti-inflammatory, antimicrobial, heart-protective, and anticancer effects. Overall, nutraceuticals provide a natural approach to staying healthy and reducing the risk of chronic diseases.

KEYWORDS: Nutrition and pharmaceutical, Dietary supplements, antioxidant.

I. INTRODUCTION

Nutritraceutical from the words "nutrition" and "pharmaceuticals"(1).The idea of nutraceuticals first emerged in the UK, Germany, and France, where consumers valued nutrition more than exercise or genetics as a means of achieving excellent health(2). Nutraceuticals are natural products that blur the distinction between food and medication(3). Both plant-based and animal-based nutraceuticals present the food industry with great prospects for developing new food products in the future. The analysis of foods for their potential to prevent disease is currently the focus of nutraceutical researchin place of unlikable characters is the number of microorganisms, adulterants, fatty acids, and the concentration of inorganic pollutants(4-5).

Amla (*Emblica officinalis)*, this fruit in the Euphorbiaceae familyGallic acid, ellagic acid, rutin, and other active ingredients are found in Amla. It has several qualities: analgesic, anti-bacterial,antioxidant(6-7). Amla exhibits scavenging, free radical, and antioxidant qualities that protect the heart(8). Amla is said to be a potent rejuvenator that helps postpone aging and the degenerative process. The pomegranate, a well-known shrub fruit, is especially grown.It is a member of the Punicaceae family. Pomegranates are a well-known source of important nutrients. It contains phenolic organic acid compounds, hydrolysable, and other substances against illnesses. The remaining portion is the inedible peel. Complex polysaccharides, minerals, and phenolic compounds are found in peels. Anthocyanin is another component that is crucial to pomegranates as a functional food.Guava, significant of the approximately 150 guava species that are found globally. It provides a wealth of nutritious qualities, including dietary fiber, folic acid, and minerals Cu, Mn(9).

Depending on the kind, this fruit has different sizes, shapes, and flavors. Withania somnifera, a member, has been used for around 3,000 years. Its roots have been used as a stimulant, anthelmintic, diuretic, tonic, narcotic, and aphrodisiac. Ashwagandha's potential health benefits have drawn more attention, especially in the areas of stress reduction, cognitive function, and physical performance. AS awareness of the value of medicinal plants has grown in recent years, Tulsi*(Ocimum sanctum)*, a member of the Lamiaceae family, is a great source of possible medications. Herbal plant extracts are an important source of medicine and are particularly helpful in managing many kidney infections.

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Fig. no.1: Categories of neutraceutical(10).

CATEGORIES OF NEUTRACEUTICAL

Nutraceutical categories,non-specific biological therapies called nutraceuticals, are used to control symptoms, prevent cancer, and improve wellness. The following categories can be used to group these(10).

Nutrient

A nutrient is a component of feed that is present in an amount and type that will support an animal's survival. Proteins, lipids, carbs, minerals, and vitamins are the main categories of feed nutrients.

Supplemental food

A food additive is an item thatincorporates concentrations, constituents, extracts, or metabolites of at least a single nutritional component: nutrients, vitamins, / other plants orproteins.

Neutraceutical

The meals item that is safe with medically shown well-beingadvantages, Nutraceuticals include things like avoiding illnesses & therapy.

Herbals

Herbs: Botanical products or herbs in the form of concentrations & extractions. Clinical test data from animal experiments and research were necessary for How pharmaceuticals are developed for confirm consequences. Nevertheless, with regard of diet, therewas previously nothing available to verify if diets are useful in avoiding sickness. Nonetheless, once it had been experimentally demonstrated that eating habits can cause illnesses, the structure of food has grown as an ethical issue recently.

NUTRACEUTICAL BENEFITS

Nutraceuticals may provide several broad benefits:

1. Might enhance ourregular dietary health value.
2. Might extend our lifespan.
3. May prevent certain health problems.
4. Self-care may provide mental benefits
5. It might be thought to be less likely to have unpleasant side effects and more "natural" than conventional medicine.
6. Foods can be handed out to groups with needs, like senior citizens who need healthy foods(11).

Supplementary Nutrition

Topical medicines containing nutrients intended to augment or improve eating habits are called supplements for food.Such as black cohosh for signs of menopause, chondroitin/glucosamine supplements for arthritic management, and ginkgo biloba for recollection enhancement. Additionally, numerous nutrients have specific uses, like diets for athletes, weight control, and substitutes for food.

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Volume 10, Issue 6, Nov-Dec 2025, pp:1342-1352 www.ijprajournal.com ISSN: 2456-4494

phytochemicals or plant-based amino acids, nutrients, lysates from organs and glands, and various other nutritious substances can count among its components.

Traditional and non-traditional neutraceutical

Numerous nutritious diets that can be classified into conventional or unconventional diet categories are available on the marketplace.

a)Traditional nutraceutical

certain meals whichare natural and entire, providing fresh details regarding their possible wellness benefits. No changes are made to the food. Other than the consumer's perception,in terms of diets themselves, everything was altered. Many organic elements of fruit, vegetables, cereals, marine milk, cheese, or beef productsoffer benefits beyond just sustenance. Even tea and chocolate have been shown to have health benefits. Researchers even demonstrate the medical advantages provided by chocolate coffee tea. Experts have found that both kinds of nutrition, for example, —had advantages beyond simple nourishment: tomatoes and salmon.

b) Non-traditional neutraceutical

They are the outcome of agricultural breeding or added nutrients and/or ingredients, such as orange juice fortified with calcium, cereals with added vitamins or minerals, and flour with added folic acid are non-traditional nutraceuticals. Agricultural scientists have successfully come up with techniques to boost the nutritional content of certain crops. Research is currently being conducted to improve the nutritional quality of many other crops(12).

HERBAL NUTRIENTS

1) *Emblica officinalis* (Amla)

Synonyms: Indian gooseberry, Emblic myrobalan, Amalaki,Aonla.

Biological Source:The biological source of amla is the plant *Emblica officinalis Gaertn.*

Family:Euphorbiaceae

Geographical origin: Amla is native to the Indian subcontinent.It is believed to have originated in tropical and subtropical regions of India.

Chemical constituents: Kaempferol, ellagic gallic acid, corilagin, chebulinic acid, 1, 6-di-o-galloylbeta-d-glucose, and others. In Ayurveda, Amla is alsoknown as *Phyllanthusembolica*, Alma, or Indian glass berry.One of the most widely utilised botanicals for medical and nutraceutical purposes is the fruit *Phyllanthusemblica* L.

Fig.no.2: *Emblica officinalis* (Amla)(13).

Role of *Emblica officinalis* (Amla)

Unlike earlier findings, recent studies have indicated Amla's function as an antioxidant in nutraceuticals. The antioxidant activity of *E. officinalis*components is supported by a variety of *in vitro, in vivo*, and human research. The polyphenol content of this fruit has also been linked to strong antioxidant activity in the case of the *in vitro* investigations(13).

Cardioprotective function,one of the main requirements for the development of atherosclerosis, is low-density lipoprotein cholesterol.Anti-Cancer action: Polyphenol-containing plants have been shown to enhance cancer prevention. Polyphenols enhance apoptosis and prevent. DNA damage by inhibiting stress and producing pro-inflammatory molecules through a variety of ways.

The liver of animals treated with Amla extract had significantimprovements in adiponectin activity which improves steatosis.The attenuation of neurological alterations, particularly the biochemical changes observed in carriers of Alzheimer'sdisease(14).

2) *Punica granatum* (Pomegranate)

Synonyms:Pomegranate and Anar

Biological Source:*Punica granatum*

Family:Lythraceae

Geographical origin: Pomegranate is native to the region extending from Iran to Northern India.

ChemicalConstituents:Myrtilli,ellagicacid,cyanidin-3,5-O-diglucoside, punicalins, urolithin metabolites, gallagicacid,punicic acid.

Pomegranate and its juice and extract are currently being widely promoted, with or without scientific backing. Pomegranates and their juice and extract are currently being heavily marketed as one of the new superfoods for customersthat can cure a wide range ofillnesses.

International Journal of Pharmaceutical research and Applications
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Fig.no.3:*Punica granatum* (Pomegranate)(15).

Fig.no.4:*Psidium Guajava* (Guava)(17).

Role of *Punica granatum* (Pomegranate)

Earlier studies have provided substantial evidence supporting the role of Pomegranates as function many have been shown to be a result of long-term illnesses.During regular cellular metabolic activities or through being surrounded by ionizing orultraviolet rays from xenobiotics.According to multiple authors' reports, pomegranates' high antioxidant potential is attributed to anthocyanins, phenols (15).

Heart-related conditions, it has been demonstrated that dietary intake of foods high in flavonoids and pure flavonoids slows the development of atherosclerosis in rats. Intima media thickness decreased by an average of 30% atherosclerotic sufferers of coronary artery stenosis (a restriction of the vessels within the spine which deliver oxygen to the cerebral cortex)who consumed juice made from pomegranates (50 ml day−1) in among the inappropriate therapy for twelve months. In contrast, intima media thickness increased by 9% in control patients. Inhibition of cancer takes place by Pomegranate juice which includes various types of cancers like breast, skin, and colon.

3) *Psidium Guajava* (Guava)

Biological Source: Dried extract of *Psidium Guajava* leaves.

Synonyms: Amrood, Peru,*Psidium Guajava.*

Family:Myrtaceae

Chemical Constituent: Quercetin, ascorbic acid, terpenes, caryophyllene, limonene, and hyperin.

Geographical Source: Mexico, Central America, West Indies, Brazil.

Guava is an important fruit crop widely cultivated. It is considered one of the richest sources of vitamin C. Guava canaffect the Myocardium inotropes. Guava skin extract can control the level of diabetes after 21 days of treatment(16).

Role of *Psidium Guajava* (Guava)

Earlier studies have provided substantial evidence supporting the role of Guava as an antioxidant in nutraceuticals. Hormones and environmental factors can occasionally act as catalysts for the generation of free radicals.The oxidative reaction processes those unstable molecules that were the source (17).Additionally, pink guava exhibits strong antioxidant activity (18).Guava leaf extract doses can reduce the amount of cough due to its anti-cough activity. Aqueous, chloroform, and methanol extracts of leaves can reduce the growth of different bacteria. Guava leaf extract can inhibit the growth of *S. aureus*. Plant leaves and Bark methanol extract can inhibit Bacillus and Salmonella bacteria(19). Activity that prevents diarrhoea,Guava leaves regulate muscle tone and contain substancesthat resemble morphine. The cytotoxicity of guava is high (20).It is used to treat diarrhoea brought on by toxins from *S. aureus* or *E. coli* (21).Anti-inflammatory properties one significant substance found in guava is phenol, which has anti-inflammatory and anti-allergy properties (22).

Anti-parasitic properties, according to reports, guava contains anti-parasitic drugs that are used to treat infections brought on by helminths, parasitic fungi, protozoa, and ectoparasites, among other things. In an *in vitro* anti-parasitic experiment, Guava Leaf essential oil was successful (23).

4) *Withania Somnifera* (Ashwagandha)

Synonyms:*Withania Somnifera*, Indian Winter Cherry, And Indian Ginseng

BiologicalSource: It is made up of dried *Withania Somnifera*stem bases and roots, among other things.

Family: Solanaceae

ChemicalComponents: Choline, anahygrine, withanine, tropine, somniferin, etc.

Geographicalsources**:** India (Madhya Pradesh, Uttar Pradesh, Punjab, Gujarat), South Africa, Pakistan,

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and the Congo.Indian ginseng, another name for ashwagandha, is a winter cherry from India. The root is the substance that is utilised medicinally. The name "ashwagandha" comes from the two syllables "ashwa," which means horse. After eating this root, one has strength comparable to that of a horse. The second word, "Gandha," which means fragrance, describes the distinct scent of the plant's new root(24).

Fig.no. 5:*Withania Somnifera* (Ashwagandha)(25).

Role of *Withania Somnifera* (Ashwagandha)

Dementia is a syndrome with a multifactorial etiology characterized by a range of symptoms caused by brain disease, typically with a chronic and progressive course.

Neurodegenerative disease destroys the CNS, resulting in irreversible damage. In Alzheimer's disease, an abnormal deposition of β-amyloid protein in the brain is observed.The use of ashwagandha in Parkinson's disease, depending on the dosage, can enhance biochemical markers inParkinson's disease(25).

Immunomodulatory and anti-microbial effects. Ashwagandha is being researched for the treatment of several diseases linked to inflammation in the body, including cardiovascular disorders. Ashwagandha can be used for various disease treatment, autoimmune conditions like diabetes, cancer, and neurological illnesses.Increased infection caused by drug-resistant strains has become a major problem. It is known that reckless and often unwarranted use of antibiotics has resulted in the development of drug-resistant strains, and in some situations, these drugs have become completely ineffective.Anticancer Impact Breast, colon, lung, prostate, and blood cancers can all be effectively prevented by ashwagandha (26). An activity that prevents diabetes,Ashwagandha exhibits potent anti-diabetic effects. Its capacity to reduce blood glucose levels has been demonstrated in animal investigations(27).Both the antioxidant action of *Withania somnifera* and a decrease in cholesterol levels were noted in hypercholesterolemia(28).

5) *Ocimum sanctum* (Tulsi)

Synonyms: *Ocimum sanctum L,* Gauri.
Biological Source:It consists of dried leaves of the plant *Ocimum sanctum* L.
Family:Lamiaceae
Chemical Constituent: Oleanolic acid, ursolic acid, Linolenic acid, rosmarinic acid, Chlorophyll, Eugenol, etc.
Geographic origin: Holy basil, *Ocimum sanctum* L., is an herbaceous perennial that is regarded as one of the most significant sources of medications and medicines due to its numerous secondary metabolites and essential oils. Malaria, diarrhoea, bronchial asthma, bronchitis, skin conditions, arthritis, a high temperature, and ocular disorders can all be treated with Tulsi extract.

Fig. no. 6: *Ocimum sanctum* (Tulsi)(29).

Role of *Ocimum sanctum* (Tulsi)

Earlier reports highlighted the therapeutic importance of Tulsi's Function in nutraceuticalsantimicrobial characteristics. Hexane, acetone, and ethanol extracts found in Tulsi leaves show antibacterial properties against a variety of bacterial infections. A respiratory condition. An essential component of cough syrup and expectorants is Tulsi. Tulsi leaf chewing helps those with the flu and colds.Boiling water and basil leaves are used as a remedy for sore throats.

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Heart condition basil helps prevent heart disease and the frailty that results from it by lowering cholesterol levels (29).A kidney stone the effect on the kidneys has been enhanced by a kidney stone. Regularly consuming honey and basil leaf juice for six months will help the urinary tract get rid of kidney stones (30).

6) *Trigonella foenum-graecum* (Fenugreek)

Synonyms:Greek hay, Greek clover, Methi.

Biological Source:The biological source of fenugreek is the dried seeds of *Trigonella foenum-graecum*.

Family:Fabaceae

Chemical constituents: Alkaloids (trigonelline), steroidal saponins (diosgenin), flavonoids, amino acids (4-hydroxyisoleucine), mucilage (galactomannan), fixed oil, vitamins, and minerals.

Geographic origin: *Trigonella foenum-graecum* is thought to have originated in the Mediterranean region and portions of Western and Central Asia, including North Africa, southeast Europe, and regions that stretch from modern-day Iran to Afghanistan. Fenugreek was first cultivated widely from this main center of origin due to trade and human migration. Since ancient times, fenugreek has been widely grown and utilized for culinary, medicinal, and agricultural purposes in the Indian subcontinent, which is regarded as a secondary center of diversity and cultivation. Nowadays, fenugreek is grown all over the world, especially in parts of Europe, North Africa, the Middle East, and India.

Fig. no. 7:*Trigonella foenum-graecum* (Fenugreek)(31).

Role of *Trigonella foenum-graecum* (Fenugreek)

Research has shown that the flavonoids in fenugreek extract have antioxidant properties(31). According to a recent study, fenugreek seed extract inhibits haemolysis and lipid peroxidation in red blood cells.to decrease liver peroxidation and increase antioxidant levels(32). In the mitochondria of rat liver cells, the seed extract demonstrated hydroxyl radical scavenging and hydrogen peroxide-induced Liquid peroxide inhibition.The extract's ability to scavenge OH was proven using the deoxyribose system and pulse radiolysis. Antioxidants found in fenugreek seed extract shield cellular components from oxidative damage. This type of framework, the antiradical and fenugreek,was examined. The outcomes of several techniques reveal some crucial elements that contribute to fenugreek seeds' antioxidant capacity(33).

7) *Persea americana* (Avocado)

Synonyms**:**Laurus persea L., Avocado pear

Biological Sourc**e:**The biological source of the avocado tree is *Persea americana Mill,* an evergreen tree native to Mexico and Central America.

Family**:** Lauraceae

Chemical constituents: Monounsaturated fatty acids (oleic acid), phytosterols, carotenoids (lutein, β-carotene), tocopherols (vitamin E), vitamins (A, C, K, B-complex), minerals (potassium, magnesium), dietary fiber, and phenolic compounds.

Geographical origin: Avocado is native to Central America, particularly southern Mexico and Guatemala, India.

Fig. no. 8: *Persea americana* (Avocado) (34).

Role of *Persea americana* (Avocado)

Unlike earlier findings,which have indicated Avocado "rich supply of minerals and vitamins".People control their weight. A food's overall nutritional contribution was of greater significance to individuals thanits calorie count. One helpful statistic is minerals per calorie. The results

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of various analyses of avocados have been rather inconsistent(34).The avocado has small levels of phosphate, zinc, calcium, and vitamin B12. Its relative calorie content is roughly equal to its half-a-fruit allowance of riboflavin and thiamine for youngsters, which are approximately 9.5 and 8%, respectively. The remarkable aspect, however, is that a 2:1 calorie ratio appears to contain at least eight important elements(35).

8)*Actinidia deliciosa* (Kiwi)

Synonyms**:** Chinese gooseberry, Yang Tao.

Biological Source**:** The most sold in stores is the fruit of the species *Actinidia deliciosa.*

Family**:**Actinidiaceae

Chemical constituents: Vitamin C, vitamin K, vitamin E, dietary fiber, organic acids, polyphenols, carotenoids, minerals (potassium, calcium), sugars (glucose, fructose), and the proteolytic enzyme actinidin.

Geographical origin: In India, kiwi is grown in temperate hilly regions such as Himachal Pradesh and Uttarakhand.

Fig. no. 9: *Actinidia deliciosa* (Kiwi)(36).

Role of *Actinidia deliciosa* (Kiwi)

Earlier studies have provided substantial evidence supporting the role of kiwifruit. The National Nutrient Database for Standard Reference and the New Zealand Food Composition Database (NZFCD) provide thorough or impartial information on the nutritional makeup of kiwifruit(36).Kiwifruit contributes both soluble and insoluble fiber to the diet because itcontains 2–3% fresh weight non-starch polysaccharides that form the fruit cell walls(37). Although kiwi fruit contains significantly less total fiber than green, dietary fiber analysis of both types of kiwifruit has revealed that they contain roughly one-third soluble fiber and two-thirds insoluble fiber (38). While the insoluble fiber is mostly composedof pectin monomers make up almost all the water-soluble portion of cellulose, and hemicelluloses are similar. Throughout development and ripening, kiwi fruit cell walls undergo structural and compositional changes(39).

These small substances, along with the numerous nutrients mentioned earlier, are associated with beneficial physiological processes; food recommendations and biological processes have been thoroughly documented(40).

9) *Cinnamomum verum*(Cinnamon)

BiologicalSource**:**Dried inner bark of *Cinnamomum verum.*

Synonyms**:** Ceylon cinnamon, Dalchini, Kalmi-dalchini, and Cortex cinnamoni.

Family**:** Lauraceae

Chemical constituents: Volatile oil (cinnamaldehyde – major, eugenol), tannins, flavonoids, phenolic compounds, resins, mucilage, carbohydrates, and minerals.

Geographical origin: Cinnamon is native to Sri Lanka (Ceylon).

Fig. no. 10: *Cinnamomum verum*(Cinnamon) (41).

Role of *Cinnamomum verum*(Cinnamon)

Several researchers have extensively studied thecinnamoncontinues to be utilized by conventional treatment(41).The bark of cinnamon is spice that is typically used in cooking.This is known as a cinnamon stick once the bark has been removed.For centuries, it has also been used as a medicine in conventional healing structures. Crushed fresh cinnamon stick are used to make tea, sauté, or scatter over cereal, toast, or pastries. It is important to examine other medications before using cinnamon because it may interact with certain of them (42). Cinnamon is a flavorful spice that contains manganese, calcium, and iron. It can help with toothaches and indigestion. This makes it perfect for both cooking and healing. Because of its

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high phenolic content, which makes it a great mouthwash and toothache cure, cinnamon is also very disinfectant. Additionally, chewing a cinnamon stick helps to relieve toothaches and improve breath quality. It can be used as a mouthwash if pulverized and mixed with fresh water mint. Additionally, cinnamon helps with sluggish digestion, muscle discomfort, arthritis, and rheumatism. Therefore, those who suffer from any of these conditions can benefit by chewing a cinnamon stick, using it to make tea, or crushing it and adding it to food (43).

Cinnamon prevents bleeding since it is a coagulant (44). Additionally, it improves the movement of blood within uterine and promotes tissue rejuvenation (45). These essential oils and other components have significant antifungal, antimicrobial, antidiabetic, antioxidant,anti-bacterial, pesticide, necrotic,antimicrobial, antibacterial, and insecticide, and anticancer properties in addition to their primary function as a spice (46).

II. DISCUSSION

The current review emphasizes the increasing value of plant-derived nutraceuticals, which offer a natural, safe, and effective solution to human health. Each of the chosen nutraceutical plants (Amla, Pomegranate, Guava, Ashwagandha, Tulsi, Methi, along with Avocado and Kiwi) is very rich in phytochemical categories such as polyphenols, flavonoids, tannins, alkaloid acts, and vitamins and minerals. These bioactive agents are accountable for the antioxidant, anti-inflammatory, antimicrobial, cardioprotective, and anticancer effects described in numerous investigations.

Amla and Pomegranate exhibited high levels of polyphenols with potent antioxidant activity. These fruits scavenge free radicals and protect cells from oxidative damage, which is responsible for a lot of chronic diseases like atherosclerosis, diabetes, and neurodegeneration. Guava and fenugreek also exhibited significant antioxidant effects because of their high content of flavonoids, thus being useful in retarding oxidative injury.

Likewise, the significant antimicrobial, immunomodulatory and anti-inflammatory potentials of Tulsi and ashwagandha endorse their applications in the treatment of infections, stress-conditioned disorders, and immune dysregulation. Some of the nutraceuticals covered in this review also have potential applications in chronic disease control.

For instance, Ashwagandha may possess neuroprotective benefits and be of use to treat conditions like Alzheimer's disease and Parkinson's disease. In general, the results from this review article seem to support that plant-derived nutraceuticals could be beneficial supplements tothe diet for disease prevention and health maintenance. Yet, despite encouraging laboratory findings from both *in-vitro* and experimental animal models, there is still a lack of well-designed clinical trials to confirm their benefits for cliniciansin humans.

Standardization of bioactive compounds, quality control, and regulatory guidelines are also crucial for safety and efficacy. In summary, nutraceuticals are a natural, convenient, and holistic approach to health. With growing scientific articles and technological innovations, these botanically derived products may assume further importance in preventive healthcare and functional food formulations to come.

III. FUTURE PERSPECTIVE OF HERBAL NUTRIENTS

Herbal nutrients are expected to gain greater importance in healthcare due to their natural origin, safety, and broad therapeutic potential. Future research will focus on isolating and standardizing active phytochemicals, improving their bioavailability through advanced technologies such as nanotechnology and biotechnology, and validating their efficacy through well-designed clinical studies.

Omics-based approaches (genomics, metabolomics, proteomics) will help clarify their mechanisms of action, while artificial intelligence may support the discovery of new herbal compounds and optimized formulations. Studies on herb–drug interactions may lead to novel combined therapies.Sustainable cultivation practices and conservation of medicinal plants will be essential to meet growing demand without harming biodiversity. Overall, the future of herbal nutrients depends on scientific validation, technological innovation, and strong regulatory standards, enabling their wider use in preventive medicine and clinical nutrition.

IV. CONCLUSION

According to a review of nutraceuticals, derived from natural food sources, they serve as a vital link between nutrition and medicine by providing therapeutic and preventive health benefits. The reviewed plant-based nutraceuticals—amla,pomegranate, guava, ashwagandha,Tulsi, fenugreek, avocado, kiwi, and cinnamon have many

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health benefits. They help protect the heart and brain, and some of them show anticancer effects.

These plants contain many useful natural compounds like polyphenols, flavonoids, alkaloids, tannins, and vitamins. These substances help remove harmful free radicals from the body, boost the immune system, and protect against long-term diseases such as diabetes, heart problems, and brain-related disorders. The review suggests that adding these nutrient-rich plants to our daily diet can be a safe and natural way to improve health and prevent diseases, offering an alternative to many synthetic medicines. With more research and proper clinical studies in the future, their role in developing functional foods and scientifically supported herbal treatments may become even stronger, helping improve overall public health and well-being.

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