



FUNCTIONAL COMPONENTS AND MEDICINAL PROPERTIES FOODS

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ABSTRACT

The famous phrase "Let food be the medicine" (attributed to Hippocrates) basis for both food science and nutraceuticals. Numerous bioactive substances can be found in food components, such as nutritional elements like proteins, carbs, vitamins, minerals, antioxidants, phenolics, and flavonoids, as well as primary and secondary metabolites. Functional foods have a greater importance for their health benefits above and beyond basic nutritional requirements. Demand for functional foods is rising as individuals become more conscious of how their diet affects their health. Prebiotics are short-chain carbohydrates that promotes the growth of healthy bacteria, are converted into fatty acids in the colon, and help the body absorb calcium and magnesium. Intestinal cancer risk is also reduced by them. However, animal products also include useful components such bioactive peptides, conjugated linolenic acid, long-chain omega-3, -6, and -9 polyunsaturated fatty acids, probiotics, and prebiotics. The review seeks to provide readers with a comprehensive perception of the potential applications of the functional food components present in food extracts. Furthermore, Research is necessary to develop novel functional foods, with exact health benefits from understanding these foods and functional elements in food play a vital role in preserving good health in the future.

Keywords: Functional Food, Medicine, Phytochemicals, Biomolecules.

Functional foods: Health is increasingly becoming a personal and social value. Because of the costs associated with treatment, it is very important to prevent health problems from occurring. A significant number of health complaints can be classified as diseases of civilization and can be prevented by living a healthier lifestyle. In addition to exercise, proper nutrition is an important factor affecting human health (Altgeld *et al.*, 2006). To sustain a healthy lifestyle, consumers are becoming more aware of the impact their food choices have on their health and concentrating more on the benefits of food. (Bachl, 2007; Chrysochou, 2010; Pech-Lopatta, 2007). Functional foods address issue by providing foods that can improve people's health. Several researchers have demonstrated that health is a significant motivator for active eating. (Bech-Larsen and Grunert, 2003; Chen, 2011a; Diplock *et al.*, 1999; Niva & Makela, 2007; Szakaly *et al.*, 2012). The most often utilized foods are those that have been supplemented with omega-3 fatty acids, probiotics, or prebiotics. Japanese coined the phrase "functional food" in the 1980s in reference to food items enhanced with particular components that have advantageous physiological effects. (Hardy, 2000; Kwak & Jukes, 2001a; Stanton, Ross, Fitzgerald, & Van Sinderen, 2005). Functional foods have the potential to

cure some diseases, lessen the chance of contracting others and even enhance general health conditions in the body (e.g., pre- and probiotics). As several demographic studies showed that the cost of the medical services needed by the aging population is rather high, it was determined that there is a need for these items. (Mark-Herbert, 2004; Menrad, 2003; Side, 2006). Japanese eating habits adapted to western cuisine after World War II. This explained why Americans and Europeans experienced identical deaths. Heart disease fatalities climbed but stroke deaths decreased. Chronic conditions include osteoporosis, diabetes, cancer, high blood pressure, cholesterol, and osteoporosis cause many individuals to live longer. Changes in dietary habits are to blame for many diseases. Foods and nutrients have been shown to contribute to physical and biological well-being. (Mitsuoka and Emeritus 2014). The development of medicine in the last fifty years has made people's lives better. Japan's death rates are resembling Western causes, with stroke deaths decreasing and heart disease increasing. Long-lived individuals suffer from life-related diseases like cerebrovascular, heart, high cholesterol, osteoporosis, diabetes, cirrhosis, and cancer due to changes in eating habits. (Mitsuoka and Emeritus 2014).

The Food with Particular Health Use (FOSHU) program was started by the Ministry of Health and Welfare in 1991. The meals used in this strategy are referred to as "functional foods" in Japan and are meant to help prevent and lessen the impacts of life-related disorders. Functional foods improve overall health by lowering disease risk and enhancing physical and mental well-being. (Mitsuoka and Emeritus 2014). Functional foods are not properly classed Apart from Japan, no regulatory authority has described or acknowledged the phrase "functional food" as a distinct product category (Brown and Chan 2009). It is therefore challenging to determine whether an innovative item belongs in the food, supplement, or pharmaceutical categories (Sun-Waterhouse 2011). In contrast to a nutrition claim, which suggests or implies that a food has specific beneficial nutritional properties, a health claim states, indicates that there is a relationship between a food category, a food, or each of its constituents and health.

Functional Components: Inorganic active compounds, biomolecules in food that can modify the process of metabolism in the body, leading in improved health and well-being (Swanson, 2003). The relationship among the functional characteristics of food, health, and well-being has been verified by research. (Shibamoto *et al.*, 2008). Active ingredients include phytochemicals, non-nutrients and biologically active substances that prevent the development of some chronic diseases in the body (Murano, 2003). Food contains over 900 phytochemicals. Fruits and vegetables can include up to 100 distinct phytochemicals per serving (about 120 g). (Srividya *et al.*, 2010). The majority of today's foods and medicines are either naturally derived or derived indirectly from sources, particularly terrestrial food plants and aquatic species. (Shahidi, 2009; Venugopal, 2009). Due to the abundance of water diversity, marine organisms are excellent source of nutrients and a new reservoir of biologically active compounds, especially bioactive peptides, and antibiotics, anti-inflammatory and anticancer drugs (Venugopal, 2009; Blunden, 2001).

Dietary fibers: Dietary fiber (DF), which can be digested or not digested, is a non-starch polysaccharide that is the structural component and the portion of plant food that cannot be digested by humans and are made up of lengthy, branching chains of carbohydrate molecules linked by chains. Chemically, DF are glucose polymers with a variety of (1, 3: 1, 4) or (1, 3: 1, 6) linkage combinations. Soluble fiber is mainly β -glucans, gum, pectin, mucilage and arabinoxylan, while soluble fiber is lignin, cellulose and hemicellulose (AACC 2001; Andlauer and Furst 2002; Charalampopoulos *et al.*, 2002).

Fucoidan: Fucoidan functional food is found only in brown algae. This is a functional food that prevents the growth of cancer cells, inhibits blood vessel formation and supports immunity. Functional food is considered to

provide health benefits and a great deal of interest has been paid by the trades towards natural bioactive. Sulfated polysaccharide, or fucoidan, is not starchy. Fucozapyranose sugar subunits of polymeric α (1 \rightarrow 3). Galactose, xylose, and glucuronic acid residues are also present in fucoidan. (Becker and Lowe 2003; MSKCC, 2011). The absence of a hydroxyl group at the sixth position (C-6) of the L-configuration distinguishes fucose from other mammalian six-carbon sugars. (Becker and Lowe 2003).

Functions: Dietary fiber's lengthy fibrous structure allows it to absorb damaging chemicals and toxic substances in the gastrointestinal system. Cereal-glucan, a kind of dietary fiber, has attracted significant consideration for its several health advantages, including the reduction of blood cholesterol. They are thought to retain good water, water flow, and hydrocolloid retention, which has impacted their use as a fat alternative (Izydorczyk and Dexter 2008). β -glucans, distinct types of family observed in yeast and mold cell walls, influence the immune system in fungi by raising the activity of leukocytes, which are responsible for enhancing the body's defensive mechanism. Soluble fiber dissolves or dissolves in water and binds toxic substances as well as saturated fat effectively in the digestive tract. In contrast, fiber does not dissolve in water and increases the bulk of the stool and increases the speed of food through the intestines. Nutrition also reduces the contact of toxins and cancer-causing substances in the digestive tract and facilitates their elimination from the body (Havrlentova *et al.*, 2011; Ahmad *et al.*, 2012). Likewise, fucoidan prevents cancer cell growth by reducing cell adherence to the extracellular matrix and produces apoptosis or autophagy that is created in T-cell leukemia virus type I (HTLV-1) that affects adults early myeloid leukemia. Fucoidan has been proven to promote macrophage phagocytic activity and the development of different immune cells, hence increasing disease resistance (Akramiene *et al.*, 2007; Chan *et al.*, 2009; Ahmad *et al.*, 2012). Polysaccharides boost the immune system by promoting phagocytosis, which is the development by which white blood cells tackle and eliminate pathogens. By increasing the body's supply of developed white blood cells, fucoidan strengthens the body's main defense mechanism against disease and infection. (Babal and Gionta 2010).

Polyphenols: Polyphenols are one of the most active and ubiquitous molecules and are a broad category of plant chemicals. They are often combined with one or more types of added sugar. Flavonoids are the most prevalent kind of polyphenol. There are over 8,000 additional recognized polyphenols, such as catechins, theaflavins, thearubingens, and more. (Lobo *et al.*, 2010). Polyphenol content varies involving foods and among dietary groups. Some foods and fruits have been shown to contain the following quantities of polyphenols: Blueberries,

strawberries, and raspberries have polyphenol concentrations that range from 37 to 429 mg/100 g dry matter, while fresh leeks and onions (20–22 mg/100 g dry), Brussels sprouts (6–15 mg/100 g dry), and blueberries and strawberries have similar concentrations. (Bravo, 1998).

Phytosterols: Phytosterols are plant-based alternatives to animal cholesterol. They have a similar appearance. On the other hand, plant sterol side chains feature two extra bonds in addition to a methyl and/or ethyl group. The three phytosterols with the highest levels of activity are beta-sitosterol, campesterol, and stigmasterol. A vegan diet encompasses around 250 mg of harmful plant sterols per day, whereas a vegan diet contains more than 500 mg. Plant stanols like sitostanol are called plant sterols. (Swanson, 2003; Anon, 2013).

Tocopherol and Tocotrienol: Nutraceuticals called tocopherols and tocotrienols both have a saturated phenol-chromanol ring connected with an isoprenoid side chain. Tocopherols and tocotrienols are classified into four categories based on the number and location of the methyl group in the phenol-chromanol ring: alpha, beta, gamma, and delta. In addition, tocopherols have three asymmetric three carbons in the second, fourth, and eighth positions of the isoprenoid side chain. Consequently, tocopherols exist in eight distinct isomeric forms, the most frequent of which is RRR-atocopherol, which has the greatest bioactivity and is found in human blood and tissues (Lobo *et al.*, 2010; Srividya *et al.*, 2010).

Organo-sulphur compounds: Typically, organosulfur compounds are found in cruciferous plants like broccoli and cauliflower, and Brussels sprouts, as well as allium crops such as leeks (which are related to onions and garlic). A sulfur atom is bonded in a cyclic compound, to a cyanate classify or a carbon atom or acyclic structure in organosulfur compounds. Only when chopping, eating has shattered the cells and so set them free are the active elements of food containing organic sulfur compounds recovered. Myrosinase in cruciferous vegetables converts glucosinolates into isothiocyanates. Allicin is synthesized from alliin in Allium and swiftly transformed to diallyl sulfide, diallyl trisulfide, or diallyl trisulfide by allinase. These hydrolyzed breakdown products are active compounds that enhance health in equally cruciferous and allium vegetables. (Swanson, 2003; Anon, 2013).

Functions of antioxidants: The main function of antioxidants is to regulate the redox energy of the cell and reduce the energy that causes cell death and cancer formation. Therefore, antioxidants are carcinogenic. Redox most likely corresponds to the proportion between oxidative and redox effects that take place inside the cell. Redox changes in cells can trigger different reactions in cells, such as causing apoptosis (cell death) and signaling (transfer of information between and within cells). Redox

regulates normal and abnormal processes is crucial for the promotion and prevention of health. (Lobo *et al.*, 2010; Kumar, 2011). Other active antioxidant chemicals, such as N-nitroso compounds from polyphenols in tea, can attach to toxins or carcinogens in the intestine, preventing them from being transformed or even being absorbed. The phytosterol/stanol lipid-lowering mechanism works by binding to cholesterol and reducing its absorption in the digestive tract. Epidemiological and experimental evidence suggests that plant sterols in the diet can safeguard against a range of cancers in Western countries, including colon, breast, and prostate cancer. (Booth, 1978). Phytosterols may provide this protection through a variety of methods, including impacts on skin structure, brain and host tissue, signaling pathways that drive tumor growth and cell death, industrial defense mechanisms, tolerance, and cholesterol metabolism. (Akramiene *et al.*, 2007).

Probiotic as Functional foods: The universal market for processed food and beverages grew from US\$ 33 billion in 2000 to US\$ 176.7 billion in 2013, accounting for 5% of the total food marketplace and driving the development of the food industry (Granato *et al.*, 2010; Hennessy, 2013). Probiotics are identified as live microorganisms that, whilst used in sufficient amounts, which have helpful effect on the health of the host (FAO/WHO, 2001). Elie Metchnikoff proposed the concept of probiotics around 1900 when he discovered beneficial lives of Bulgarian farmers were due to the consumption of fermented milk. It was later discovered that the yogurt contains substances necessary to protect the intestines from other harmful bacteria and their competence to prevent and treat diseases (Lee *et al.*, 1999).

Eating probiotics from food products is the most widespread method right now. Many probiotic foods are part of the functional food category and are an important part of it. The demand for probiotic active foods is increasing promptly due to the increase in the number of consumers. (Granato *et al.*, 2010; Hennessy, 2013). It is projected that probiotic foods will account for 60-70% of the functional food market (Holzapfel, 2006; Kołozyn-Krajewska and Dolatowski, 2012; Stanton *et al.*, 2001). There are several inventive traditional cuisines that function by combining food and herbal therapy. Traditional plant products are utilized as medicine, dietary supplements, everyday foods, and functional foods in several nations to support and enhance health. The idea is related to strengthening the immune system, improving blood circulation, preventing disease and controlling aging (Shi, *et al.*, 2011). Clinical trials and epidemiological research have suggested many of the health advantages of functional foods. Health advantages like lowering the risk of cancer, enhancing heart health, boosting the immune system (Shahidi, 2004)., reducing menopause, improving digestive tract health,

maintaining urinary tract health, combating inflammation, lowering blood pressure, protecting vision, combating bacteria and viruses, preventing osteoporosis, and combating obesity (Shahidi, 2004). Active foods include: (i) normal foods with bioactive ingredients (eg, whole grains), (ii) foods with added bioactive ingredients (eg, probiotics, antioxidants) and (iii) derived foods added to traditional foods - nutrients (e.g. prebiotics). Spear and apple fiber, raffinose extracted from lupine seeds, fiber and polysaccharides from *Mangifera pajang* improved the capacity and activity of probiotics (Al-Sheraji *et al.*, 2012b; Al-Sheraji

et al., 2012a; Kourkoutas *et al.*, 2006 ; Martinez-Villaluenga *et al.*, 2005; Perez-Conesa, 2005).

Probiotic foods maintain their potency during food processing and in the final product that they are made from (Tripathi & Giri, 2014). Therapeutic uses of probiotics include prevention of diarrhea in children, urinary tract infections, osteoporosis, food allergies, and allergies; reduce diarrhea caused by antibiotics; reduces constipation and hypercholesterolemia; controlling heartburn; and protection against colon and bladder cancer (Lourens-Hattingh and Viljoen, 2001; Mattila-Sandholm *et al.*, 2002; Salminen, 1996; Venturi *et al.*, 1999).

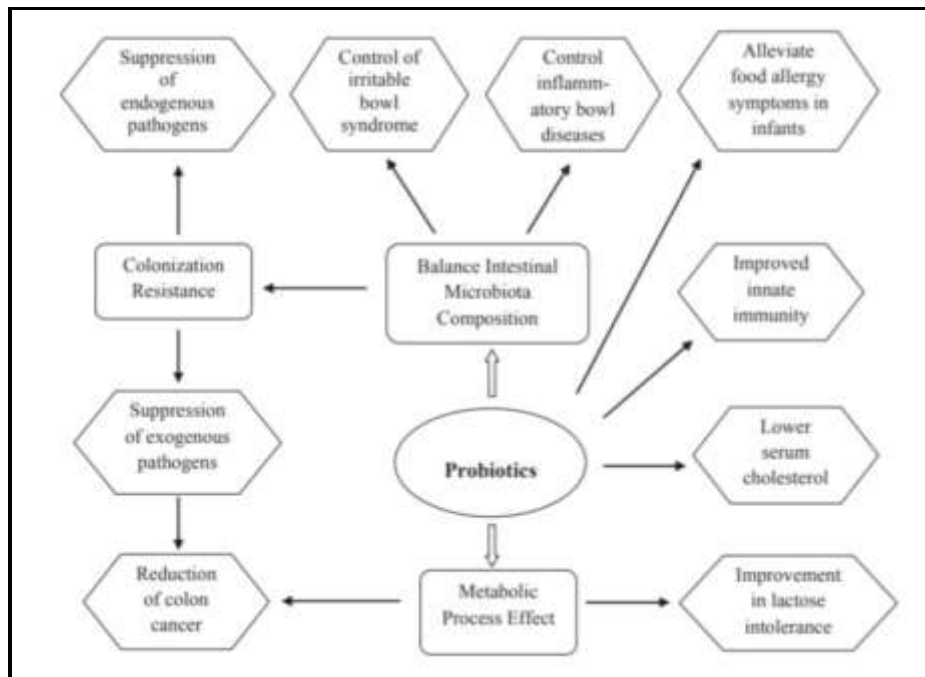


Figure.1. Probiotics consumption and health benefits (Parvez, *et al.*, 2006).

Functions of probiotics: There are two ways that probiotics are believed to protect humans. The first is their function in the human digestive system. A healthy balance of beneficial and bad microorganisms is required by the human digestive system. However, our way of life, such as unhealthy eating, psychological stress, and sleep deprivation, as well as the use of antibiotics and other pharmaceuticals, and environmental effects, can all harm us. A healthy digestive system removes destructive bacteria that can harm the digestive system. It facilitates the absorption of (nutrients from food and water) and the transportation of those nutrients to the cells where they are needed. The goal is not to eliminate all microbes. The human body wants both bad and good things. The problem is when the balance is tipped that it's more bad than good. Another significant advantage of probiotics is their effect on the immune system. Viruses are protected by the immune system. If

it isn't functioning properly, you may encounter allergic reactions, autoimmune conditions (ulcerative colitis, Crohn's disease rheumatoid arthritis, etc.), infections (infectious diarrhea, *Helicobacter pylori*, physical ailments, epilepsy, and so on) as well as other health issues if it isn't functioning properly. Probiotics' particular techniques for eliminating undesirable microbes include antibiotic synthesis, adhesion site inhibition, nutrition competition, toxic receptor removal, and immunological activation. Up to 70% of the world's population suffers from lactose intolerance, caused by low-galactose activity in the colon and lactose's insoluble nature. Probiotics have been shown to enhance delayed digestion and reduce intolerance symptoms, thus improving lactose digestion.

Immune enhancement: Infants receiving supplements of *Lactobacillus casei* strains exhibited higher levels of mixing immunoglobulin A (IgA), which was linked to rotavirus diarrhea lasting less time. Additionally,

ingestion of *L. acidophilus* and *Bifidobacterium bifidum* raises the non-specific immunophenotypic activity of circulating blood granulocytes. The development of intestinal IgA immune responses in newborns may help to partially explain this later impact. In fact, phagocytosis plays a role in innate immunity, and macrophages are known to act as antigens and participate in the human immune response. Finally, it has been shown that drinking yogurt stimulates the making of cytokines in mononuclear blood cells.

Hypocholesterol emic effect: The cholesterol-lowering effect of probiotics is controversial, and studies published in the 1970s and 1980s often claimed that there was a 5-17% reduction in serum cholesterol after consuming fermented milk products every day for 2-4 weeks; these data were collected through questionnaires. No significant side effects were reported. As recently reported by Jackson *et al.* As mentioned, the main restrictions of these preliminary studies are:

- 1) eat a lot of yogurt per day in a healthy amount (0.5-8.4)
- 2) failure to investigate or control the nutritional and physical activity patterns of students.
- 3) failure to randomize the confounding group.
- 4) lack of lead-time for individuals to adapt to food.
- 5) does not have many points of measurement and
- 6) It is conclude that cholesterol-lowering properties of probiotics when used in rats are not supported by experimental data. Probiotic *Lactobacillus* and *Bifidobacterium* strains reduce fecal microbial enzymes such as β -glucuronidase, β -glucosidase, nitro reductase, and urease, lowering mutagen and carcinogen activation as well as mutagenicity in healthy people who consuming roast ground beef.

Reduction of risk disease: There is evidence that probiotics reduced the risk of Rotavirus diarrhea and possibly colon cancer conditions. Summary of groups studying rotavirus diarrhea in different settings. Consistently report that those who consume fermented milk products containing probiotics have a shorter period of symptoms or a reduced risk of disease. The only evidence available is that *Lactobacillus* and *Bifidobacterium* reduce the number of aberrant crypts, a marker of cancer risk, after treatment with chemical carcinogens.

Prebiotics as Functional Food: The definition of prebiotics is closely related to the definition of dietary fiber; except that it is selective against many bacterial cells or species. Currently, only non-digestible carbohydrates (CHO), some di-, oligo- and polysaccharides, resistant starch and sugar polyols are said to have synthetic properties. (Al-Sheraji *et al.*, 2013). In fact, a combination of probiotics and prebiotics is often used to exploit their synergistic effects in food. That is why these compounds are called symbiotic. When mixed with *Lactobacillus rhamnosus*, *Bifidobacterium* spp., *Lactobacillus acidophilus*, and *Lactobacillus casei*,

prebiotics like RaftilosesP95 enhance their efficacy when kept at 4°C for four weeks (Capela *et al.*, 2006). Many studies have been done on the strength of active drinks and prebiotics. Prebiotics are defined as non-digestible food substances that have a beneficial effect by stimulating the development or activity of a specific type of bacteria living in the gut, thereby promoting health. of the host is better. Prebiotics can alter the gut microbiome by expanding the quantity of bacteria present and thus altering its composition (Pravst, 2012). Prebiotics promote the development of probiotics, which strengthen the body's defenses against infection by growing in the gut. The prebiotic effect refers to the beneficial effect of prebiotics in their constant form in the human stomach. Such prebiotic effects, however, occur when the number and action of probiotics increases. Eating functional meals containing prebiotics causes this effect. The term "prebiotics" does not refer to any specific type of microbe.

Effect on mineral absorption: Indigestible carbohydrates (fiber) are shown to interfere mineral absorption in the intestine through combining or sequestering effects. However, minerals that were connected or hidden in the small intestine are freed and can be absorbed in the large intestine. Short-chain carboxylic acids are created during intestinal fermentation of indigestible carbohydrates. These acids make it easier to absorb minerals, particularly Ca^{2+} and Mg^{2+} . By pushing water into the colon and facilitating mineral dissolution, inulin-type indigestible carbohydrates enhance mineral absorption and balance. It may increase the amount of liquid that can be made. In addition, these extensively fermented carbohydrates acidify the colonic contents, resulting in increased concentrations of ionized minerals, particularly Ca^{2+} and Mg^{2+} , facilitating passive diffusion. Finally, an ileostomy study discovered that inulin-type fructans did not interfere the small intestine's ability to absorb minerals. With an ileostomy, the sum of calcium, magnesium, and iron ions retrieved did not change significantly over time.

Effect on the metabolism of lipids: The insulin type effect of fructones on triglyceridemic are animal and plant and humans. Several studies consistently report decreased serum triglyceridemic (both fed and fasted) in rats. Fasting triacylglycerols were only measured in healthy people and corrected in only one study. Data on patients with hypertriglycemia have not been published. Two effects have been postulated to describe the possible effects of inulin-type fructans on regulating triacylglycerol metabolism. The first impact is a change in the levels of glucose or insulin. This is due to the fact that dietary modulation of lipogenesis is frequently connected with such physiological alterations. In fact, insulin promotes the activation of lipogenic enzymes via increasing gene transcription. Resistant starch has also

been proven to lower blood triacylglycerol concentrations and fatty acid synthase activity by 20% in rats, as well as postprandial insulinemia. Rats managed oligofructose showed a two-fold rise in portal vein concentrations of both acetate and propionate, indicating that the colon produces short-chain carboxylic acids as a secondary consequence.

Reducing disease risk: Concerning inulin-type fructans, declares that they decrease disease risk are speculative and have not yet been supported and verified by additional research. Cancer is the final field of research which investigates inulin and oligofructose's potential to reduce sickness risk. In two experiments, inulin-fed rats showed reduced inappropriate crypt foci caused by colon carcinogens like azoxymethane and dimethylhydrazine. In strategies for developing functional foods, the first step is to find anticancer effects in experimental animals. This means identifying effects that need to be carefully evaluated for potential impact on human health, including relevant human studies.

Sources: Dietary supplements and fermented foods are promoted in a profitable culture. These cultures are now known as probiotics. Granola juice, frozen yogurt, granola, candy bars, and pastries have also been claimed to include probiotics. It may include probiotics, but there is no certainty that sufficient amounts are present. Only the product's manufacturer can confirm whether or not studies support a particular claim. Non-starchy carbohydrates like soluble fiber (-glucans, inulin, etc.) and other oligosaccharides like fructooligosaccharides (fructans) and galactooligosaccharides are the most popular and common types of prebiotics. Vegetables such as asparagus, garlic, leeks, onions, and artichokes are good sources of inulin. Many plants contain beta-glucans and inulin, as well as fiber and fructans. Prebiotic foods include soybeans, uncooked oats, unrefined wheat, and unrefined barley. Through its biotic connections, it is thought to play a crucial part in the formation of a healthy infant's immune system.

Medicinal Plants

Aloe vera: Aloe vera "king of herbs" and it stores water in its ample leaves, which is why it survives even in dry conditions. Therefore, growing aloe vera does not demand you to take special care of the plant from time to time. However, it can treat many health problems. These include:

- Constipation
- Satiety
- Acne
- The body's immune system is weak

Tulsi: Tulsi, also known as the Queen of Herbs, is a significant plant in Hinduism for its healing qualities and strong scent, which prevents germ formation. It requires only water for flourishing. Here is a list of Tulsi uses and medicinal properties:

- Provides strength to fight stress

- Contributes to longevity
- To treat cough
- Treats constipation
- against cancer
- It helps with diabetes, heart disease, hair loss and other conditions

Mint: This fresh aromatic plant serves many purposes. Mint can do everything from improving mood to treating constipation. This plant needs a lot of water to grow. So you have to plant your seeds and water them regularly. The best thing about mint is that it repels bugs and insects, making your home a cleaner place. Check the usage of this drug:

- Makes the food system work
- Strengthens the fight
- Improves mood
- Relieves cough
- Good for respiratory health
- Keeps mosquitoes away

Fenugreek: Among other plants, methi or fenugreek is wonderful due to its characteristics. The leaves and fruits of an evergreen tree are both beneficial. Check out the benefits of fenugreek:

- Regulates cholesterol levels
- Regulates hair loss
- Increases appetite
- Strengthens the selection process
- Purifies the blood
- Lowers blood pressure
- useful for joint pain and diabetes

Fennel: Fennel, commonly known as saunf, is a fragrant plant that is good for a variety of health conditions. Seeds were historically eaten after meals in India. Fennel cultivation takes no particular care and is simple in the garden. Below are the many advantages of fennel seeds:

- To treat cough
- Controls cholesterol
- Enhances vision
- Treats acidity
- Prevents breathing
- Boosts breast milk production in lactating women

Coriander: Coriander is rich in antioxidants. Coriander is a staple ingredient in Indian cuisine because of the health benefits it offers to consumers through its leaves, seeds, and seed powder, as well as its distinctive flavor and therapeutic properties. Here's how coriander makes you feel good:

- Prevents food spoilage
- Rich in antioxidants
- Treats water retention
- Enhances digestion
- Controls the menstrual cycle
- Used to treats acne

Ginger: Ginger root is a root remedy for a variety of health issues that grows rapidly in gardens. It is a key element in Indian cuisine, with a distinct flavor and

beneficial effects on general health. Planting ginger root in your yard can be beneficial to your health. Here's how ginger can improve your health:

- Treats constipation
- Reduces headaches
- Controls high blood pressure
- To treat cold, cough, flu and asthma
- Reduces aches and pains.

CONCLUSION

The relationship between food's functional ingredients and health has been substantiated by research. Food's functional components can therefore be effectively used in medicine to treat and prevent disease. Functional foods are not properly categorized and defined in a regulatory sense. We can draw the following conclusions about the advantages of medical functional foods and nutraceuticals: Medical functional foods and nutraceuticals are promising for good health when

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consumed as part of a well-balanced, healthy diet. However, more information and evidence are needed to assist consumers in selecting and using these products for optimal health benefits. Food has progressed beyond providing vital proteins and nutrients for life to become a scientific alternative to medication for diseases. In conclusion, functional foods could promote human health and protect against disease since they include an abundance of bioactive substances.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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