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Review Article

Nutraceutical And Its Impact On Healthcare

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ABSTRACT

In the present day script humans are deeply involved approximately their fitness because of cultures have modified significantly because of increase in running hours and colourful Cerebral pressures, which have caused an increased occurrence of colourful life-striking conditions. Similarly to this they're pissed off with the precious, high-tech, grievance-treatment and operation method. The call for nutraceuticals and phytonutrients has elevated over the as soon as often and they may be being utilized by people for colourful remedial problems. The nutraceutical products are honoured not simplest for his or her health advantages to reduce the hazard of most cancers, coronary heart conditions and different affiliated affections, but additionally to assist or deal with high blood pressure, high cholesterol, inordinate diabetes, degeneration, cataracts, menopausal signs, insomnia, reduced memory and attention, digestive dislocations nutraceuticals weight, osteoporosis, arthritis, macular and constipation. Have also installation full-size believe in treating headaches and migraines acting from stress. Other affiliated nutraceutical products are touted as remedies for lacing hair, loss of confidence, bad complexion, varicose modes, drunkenness, despair, and languor. On this bankruptcy we made an try to classify all sorts of nutraceuticals with exemplifications observed by way of their operations in likewise, the perpetration of the designing and development of lozenge paperwork for providing better transport provider Of the nutraceuticals, the importance and demanding situations have additionally been enumerated.

INTRODUCTION

Described as any substance that may be keep in mind as a food or a part of the food which offers clinical and health advantages including the forestalment and treatment of criticism. The name

nutraceutical become chased by way of Stephen Defelice writer and president of the muse for invention in drug in 1989. The time period nutraceutical contains the phrase nutrient (dietary food or food element) and medicinal (a scientific

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remedy). US FDA do not assist time period nutraceutical and is normally appertained as a food deduced product which upload some redundant fee to the introductory nutritive detail found in that specific meals. Every other term that is regularly used as a misnomer for nutraceuticals is “purposeful foods”. It could defined as any food that is being cooked or organized the usage of “clinical intelligence” with or without information of ways or why it's getting used Nutraceuticals. Include a huge product bouquet starting from insulated vitamins, factory merchandise, eating regimen supplements, reused cereals drinks to genetically modified products. Piecemeal from lifestyles-style illnesses nutraceuticals are used in one of a kind array of clinical conditions like irritation, immuno- insufficiency, arthritis, malice, indigestion, despair, sleep dysfunctions, high blood pressure and blood cholesterol manipulate. Significantly nutraceuticals are related to further than clinically beneficent goods and this makes them greater seductive to clients. A remedy traverses a sequence of clinical trials involving expenditure in each time and plutocrat before accomplishing the request however nutraceuticals are exempted from comparable nonsupervisory issues. Therefore it's a main magnet for numerous manufacturers indeed although they can not assert that their product can cure/help a grievance. Synthetic Nutraceuticals some nutraceuticals are synthesized in laboratories to mimic naturally

being composites, similar as synthetic vitamins. It's important to note that the effectiveness and Safety of nutraceuticals can vary extensively, and not all products on the request have experienced rigorous testing. Before adding any nutraceutical to your diet, it's judicious to consult with a healthcare professional, especially if you have specific health enterprises or are taking other specifics. They can give guidance on choosing the right nutraceuticals for your individual requirements.

Classification of Nutraceutical :

Based on chemical constituent –

I. Nutrients –

Those are substance such as nutrients mineral amino acid fat acid with hooked up dietary cost. Eg. Mineral found in plant life and animal and dairy product are beneficial is osteoporosis anaemia and build sturdy bones and teeth.

II. Herbsals-herb as a extract/concentrate –

These are the herbs for botanical product which are used as concentrates are in the form of extract. They give therapeutic effect on body. Eg.

- a Ginger act as carminative.
- b Garlic act as Anti diabetic and lower cholesterol level.
- c Liquorice act as expectorant.
- d Carotenoids present in fruit vegetable and egg york are anti carcinogenic boost natural killer immune cell and antioxidant.

Table No. 1 Health benefits of herbs used as Nutraceuticals

Sr. No.	Herbal (Botanical Source)	Health Benefits
1.	Aloe Vera Gel (Aloe Vera)	Dilates capillaries anti-inflammatory, emollient, wound healing properties
2.	Asparagus Racemosus	Weight loss, reduce high BP
3.	Turmeric (Curcuma Longa)	Anti-inflammatory, anti-cancer and antioxidant
4.	Garlic (Allium Sativum)	Antibacterial antifungal, anti-thrombotic hypertensive and anti-inflammatory
5.	Ginger (Zingiber Officinale)	Carminative, antiemetic, positive inotropic
6.	Wheat grass (Triticum Aestivum Juice)	General tonic
7.	Ginseng (Panax Ginseng)	Adaptogen

III. Dietary supplement –

These are the products that contain dietary ingredients intended to add something to body. It provides nutrition helps in weight loss and knee replacement. Dietary supplements are available in different dosage form such as tablet capsule powder extract and concentrate

Food available in market –

I. Traditional Nutraceuticals –

These are natural foods which contain natural component that gives benefits beyond basic nutrition such as lycopene in tomatoes vitamin A and carotenes in carrot and Omega 3 fatty acid in fish oil, almonds.

II. Non-Traditional Nutraceuticals –

a. Fortified Nutraceuticals –

Components of Nutraceuticals :

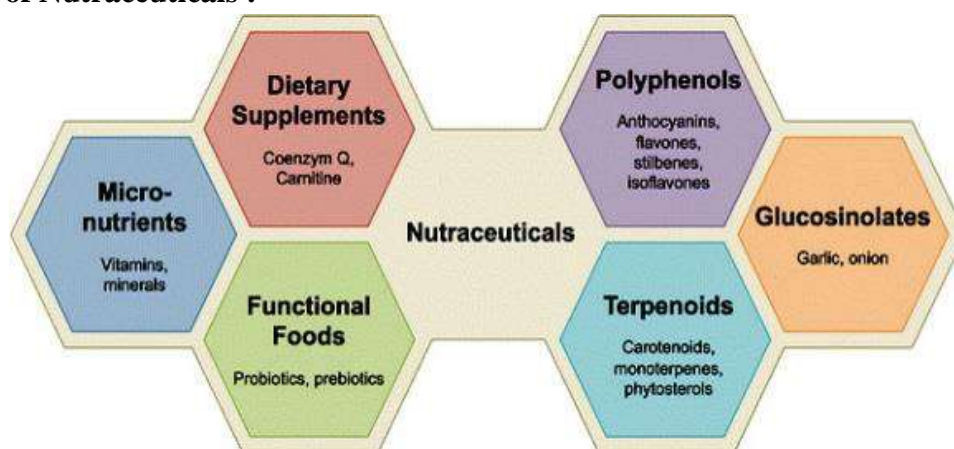


Figure No. 1 Components of Nutraceuticals

1. Antioxidant –

This are the impediments of oxidation. Oxidation is a chemical response that produce Reactive oxygen species. This reactive oxygen motives reply with the electron of other patch of the body and colourful enzyme system which leads to condition similar as cancer, aging, respiratory pattern and rheumatoid arthritis. The body difference system against the oxidative cycle performing into colourful problems. Naturally being antioxidant, Tocopherol (Vitamin E) present in fish liver oil painting. Ascorbic acid (Vitamin C) present in Amla etc. Lactopherine reducing agent. Carotenoids present in carrot.

This are artificial food prepared with help of biotechnology. It constitute fortified food and designer food made by adding nutrients and ingredients for enhancing effectiveness and nutritional value. Eg. Orange juice fortified with calcium. Milk fortified with cholecalciferol and flour with added folic acid. Prebiotic and probiotic fortified milk with Bifido bacterium lattice use in diarrhoea and respiratory infection in children.

b. Recombinant Nutraceuticals –

These are formed by enzyme fermentation technology as well as genetic engineering technology. Eg. Gold kiwi fruit and multi vitamin corn.

2. Prebiotics and Probiotics –

a Probiotics –

Probiotics are the living microorganism which ameliorate essential microbial balance. Eg. Bifido bacterium lactobacillus.

b Prebiotics –

This are substance which reach to the colon in the complete form without getting depleted by GIT, PH and acid. They widely promote of colonic probiotic bacteria and act as toxin. Eg. Inulin(poly fructose) attained from roots.

3. Poly Unsaturated Fatty Acid (PUFA)

These are essential adipose acid because they aren't form in body and are attained through salutary products.

a. **Omega 3 PUFA –**

nascence linoleic acid, eicosapentaenoic acid and docosahexaenoic acid (DHA) present in fish oil painting, flax seeds soya bean and some nuts.

b. **Omega 6 PUFA –**

Linoleic acid, arachidonic acid present in sludge, soya bean, sunflower, meat and eggs.

c. **PUFA –**

Omega 3 adipose acid reduce low viscosity lipo protein and high viscosity lipo protein position, reduce cholesterol position. Help thromboxane conformation and useful in forestalment of several conditions.

4. **Dietary fibres –**

Portion of factory deduced foods that a on injection can not be fully broken down by mortal digestive enzyme are called salutary fibres. It consists of two types :

a. **Soluble fibre –**

They get dissolve in water instigated in the colon into feasts and by product similar as short chain adipose acid produce in the colon by gut bacteria. It detainments gastric evacuating time and affect in wholeness of stomach. Source – Oats, sap and Legumes.

b. **Insoluble fibre –**

They don't dissolve in water. The digestive enzyme give bulking, it correspond of cellulose, bounce dextrin, etc. Source – Banana, Brown rice, Wheat, Oats, slightly (Bajara).

5. **Polyphenols –**

These are naturally occurring phytochemical compounds which prevents the oxidation. Two main classes of polyphenols are :

a. Hydroxy benzoic acid derivative,

b. Hydroxy cinamic acid derivative

Source – Berry fruits, kiwi fruit, cherry fruit, Apple, pear, coffee contents high amount of phenolic acid.

6. **Carotenoids –**

It known as pro vitamin A. It's far useful in prevention and remedy of photograph sensitization in this is like dermatitis.

Source – Carrot (carotenes), Tomatoes (lycopene) and Saffron (Safranal).

MARKET / GROWTH OF NUTRACEUTICALS :

Nutraceuticals products in the request are available in the form of probiotics, fortified, energy drinks, vitamins and minerals. The assiduity grew at composite periodic growth rate (CAGR) at 7. In 2010 it got doubled to 14, it's projected to reach US bones 57823 billions by 2025. In USA and Japan the nutraceuticals assiduity has developed a remarkable increase and grow up to 10 billion US bone in 2022. Keep players in Indian request are transnational companies i.e. GSK, Amway Nestle. Developing countries have a high frequency of non transmissible complaint like cancer diabetes cardiovascular rudiments etc. Their for the demand of nutraceuticals is anticipated to rise in this nation. Nutraceuticals are also gaining global significance and have come a part of diurnal diet due to increase rich of this is due to in proper life and people purposely conforming preventative Healthcare measures. The Gradationally adding healthcare queen are also stimulating the demand for nutraceuticals. Developed Countries like United State and Europe have seen and first arising member of client is product especially functional foods and potables. Nutraceuticals have come an openings for profitable growth of numerous development countries which have a reach source of medicinal sauces and traditional knowledge of similar factory especially India China and South American countries.

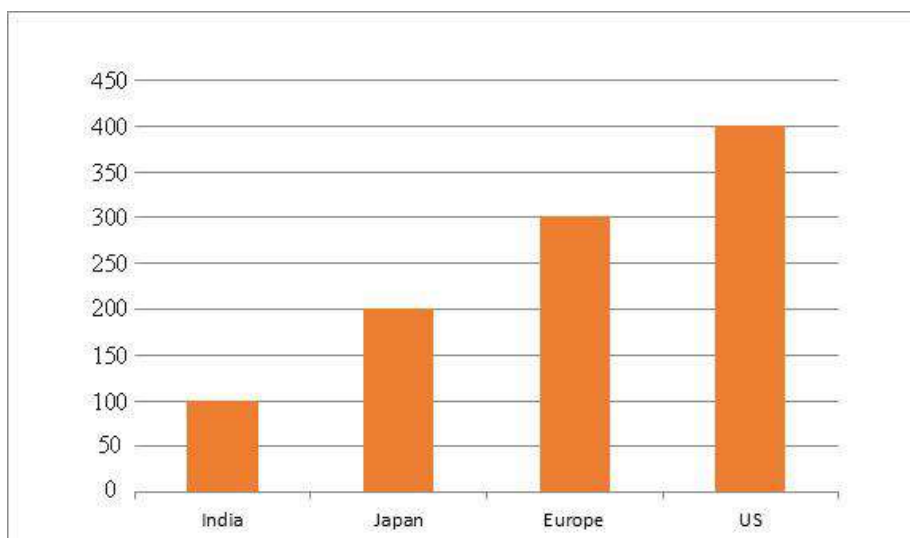


Figure No. 2 Nutraceuticals Market in Different Countries

Regulatory requirement for Nutraceuticals :

Nutraceuticals works under sanctioned panels similar as FMHG (Fast Moving Healthcare Goods), FDA regulated salutary supplements insure the safety and probity of the product. The Nutraceuticals food and salutary supplement are regulated by FSSAI (Food Safety and Standard Act). The Nutraceuticals regulations are governed by FSSAI (Food Safety and Standard Authority of India). Numerous agencies like HFDSA (Health Food and Dietary Supplement Association), NIN (National Institute of Nutrition), FDTRC (Food and Drug Toxicology Research Center), NNMB (National Nutrition Monitoring Bureau). NLEA (Nutritive Labelling and Education Act), FDA (Food and Drug Administration) regulate salutary supplement in USA, according to DSHEA (Salutary supplement Health And Education Act). Still, the absence of harmonious enforcement by the Food and Medicine Administration (FDA) and Globalization of force sources has contributed to comprehensions of significant safety loopholes maybe not unexpectedly, it was the nutraceutical assiduity that pushed both FDA and the Department of Health and Human Services (DHHS) to apply Good Manufacturing Practices (GMP).

Health Benefits of Nutraceuticals :

Nutritive remedy is a mending system that uses salutary rectifiers or nutraceuticals as a reciprocal remedy. This remedy relies on the belief that foods can't only be sources of nutrients and energy, but can also give the following benefits :

- a. Give medicinal benefits,
- b. Avoid side goods,
- c. Increase the health salutary goods,
- d. Due to their natural salutary supplement, they don't have unwelcome side goods,
- e. Increase the health value, diet and ameliorate medical condition of humans and
- f. Fluently available and economically affordable.

Utmost of the nutraceuticals retain multitudinous remedial benefits and are claimed to parade physiological benefits or give protection against colourful conditions. Some of these products are

- a. Cardiovascular agents,
- b. Anti-obese agents,
- c. Anti-diabetic agents,
- d. Anti-cancer agents,
- e. Immune boosters,
- f. Substance that manage habitual seditious complaint,
- g. Expression to cure degenerative complaint.

Nutraceuticals in Management of Disease :

Nutraceuticals are the expression of nutrient/nutrients which helps in forestalment and treatment of some conditions, in addition to a supplement diet. Nutraceuticals play an important part in remedial areas similar as arthritis, cancer, diabetes digestion, cholesterol, blood pressure, pain killers, depression and colourful other diseases.

Nutraceuticals in Management of Diabetes –

Treatment of diabetes is challenging not because of lack of an available, safe, and effective system; rather, incognizance and denial of this complaint add to the treatment challenge. The good news is the prevalence of people who were preliminarily ignorant or denying they've diabetes has dropped from 30 to 25 over a two- time period. This suggests that sweats to increase mindfulness are working and people are more set to manage the complaint and its complications. DM is a habitual condition that results from an shy capability or failure to Metabolize carbohydrates, fats, and proteins. The pancreas produces insulin, an important peptide hormone released from the beta cells of the islands of Langerhans in response to high glucose situations. The medium by which insulin facilitates mileage- capability and application of glucose may be pictured as “cinch and key” interplay. Insulin serves as the key that opens the doors of the cell and allows entry of available glucose from the bloodstream for cellular energy (ATP) or energy operation. Inadequate quantities or the absence of insulin in the body, thus, causes a failure to unleash the cells. Performing in increased glucose in the bloodstream, performing in hyperglycaemia. The incapability of the cells to admit and use any glucose sources from the bloodstream causes the cells to be exceedingly deprived of energy or glucose sources.

Types of Diabetes Mellitus –

Type I – Insulin dependent diabetes mellitus –

Type I, or insulin-dependent DM (IDDM), accounts for 10 of our population and individualities with IDDM are unable of producing any insulin before the age of 40. It's treated with insulin injections, diet change and regular exercise.

Type II – Non Insulin dependent diabetes mellitus –

Type II, or non-insulin-independent DM, accounts for 93 of all cases of diabetes. This group can generally produce some insulin; still, it could be shy or ineffective because of insulin resistance. This type is associated with being fat, frequently fat and generally occurs after one reaches 40 times of age.

Nutraceuticals In Management of Cardiovascular complaint (CVD) –

- Cardiovascular conditions (CVD) rank among the most common health related and profitable issue worldwide. CVD comprise group of diseases of the heart and blood vessels and include hypertension (high blood pressure). Coronary heart complaint (heart attack), cerebrovascular complaint (stroke), heart failure, supplemental vascular complaint, etc.
- CVD includes arrhythmia (problems with the twinkle, irregular twinkle), angina (casket pain, discomfort or miserliness), coronary roadway complaint (narrowing of the blood vessels. Heart and blood vessel complaint include multitudinous problems, numerous of which are related to a process called atherosclerosis. Atherosclerosis occurs when the roadway walls are damaged from oxidized low- viscosity lipoproteins (LDL).
- Numerous exploration studies have established that diet rich in fruits and vegetables showed protection against CVD. Nutraceuticals in the form of antioxidants, salutary fibres, omega- 3 polyunsaturated adipose acids, vitamins and minerals are

salutary together with physical exercise for forestalment and treatment of CVD.

Nutraceuticals In Management of Cancer –

- Cancer is a abnormal growth of the cells or unbridled growth of the cells are called as cancer. Botanicals are in use in cancer treatment since a long time. Chemotherapeutic medicines are deduced from shops, like the alkaloids of Vinca species (vincristine and vinblastine) and Taxus brevifolia (Taxol). In the ancient societies, a wide range of ways were used for treatment and forestalment of conditions and for maintaining health.
- Besides these medical advances, cancer still is a worldwide health problem, and colourful factory excerpts are used for its treatment and forestalment. Attestations suggest that foods low in simple carbohydrates and moderate quantities of high- quality protein, fibre and fat (especially, fats of omega- 3 adipose acid series) are salutary for cancer cases.
- Nutraceuticals are also helpful in reducing toxin associated with chemotherapy and radiotherapy, therefore lead to better life conditions by reducing cancer cachexia. Phytochemicals have shown different medium of conduct at different cellular situations. Cancer is a rising health issue around the world particularly with the steady rise in life expectation, adding urbanization and the posterior changes in environmental conditions and life.

Nutraceuticals In Management of Irritable Bowel Syndrome (IBS) –

Perverse bowel pattern is a habitual functional gastrointestinal complaint and is one of the most generally diagnosed gastrointestinal conditions. The worldwide frequency of IBS ranges from 10 to 12 with an estimated prevalence of 1.4 to 1.5. IBS is an intestinal complaint which may do at any age.

The common symptoms are bloating, abdominal pain, constipation and diarrhoea, changes in bowel habits, fatigue, headache, dropped appetite and increased conveyance. IBS is caused by factors like altered gastrointestinal motility, increased gut perceptivity and increased intestinal condensation. Treatment of IBS –

The most common remedial approaches for the IBS include :

- a. Education and consolation.
- b. Life (especially nutrition grounded interventions).
- c. Peripherally acting specifics (which generally target motility).
- d. Centrally acting specifics (which target visceral acuity and pain).
- e. Cerebral interventions (which reduces the effect of stress/anxiety).

Nutraceuticals In Management of Gastrointestinal Disease –

Gastritis, i.e. inflammation of stomach filling, is the most common complaint of stomach that occurs due to infection caused by Helicobacter pylori or the effect Of NSAIDs. It can also be caused by vexation due to inordinate alcohol, smoking, cocaine, severe illness, autoimmune problems, radiation remedy and Crohn's Disease. Gastrointestinal complaint includes diseases of gastrointestinal tract videlicet the oesophagus, stomach, small intestine, large intestine and rectum and the appurtenant organs of digestion similar as liver, Bitterness bladder and pancreas. In stomach there's a massive product of Reactive Oxygen Species (ROS). Their attention being 1000 fold advanced than that in other napkins or tube.

Description Of Herbs Used As Health Food –

a. Ginger –

Synonym :

Adrak, African Ginger, Amount Zingiber

Biological Source :



Ginger consists of fresh and dried rhizomes of *Zingiber & officinale*

Family :

Zingiberaceae



Figure No. 3 Plant of Zingiber Officinale

Chemical constituents :

Ginger contain 1-2% volatile oil, 5-8% resinous mucilage, matter, starch Volatile oil Monoterpenes camphene, (phellandrene, cineole, borneol), sesquiterpenes (zingiberene, bisabolene). The pungency of Ginger is due to presence of phenolic compounds known as gingerols. When subjected to heat alkali or treatment, gingerols are converted to a corresponding series of homologous shogaols. Lipids (6-8%): Triglycerides, lecithin, phosphatidic acid, free fatty acid (lauric, palmitic, stearic, oleic, linoleic)

Health Benefits :

- i) It has been widely used in Chinese, Ayurvedic, Tibb, Unani medicines since antiquity for variety of ailments that includes arthritis, rheumatism, sprain, muscular aches, sore throat, cramps, constipation, indigestion, vomiting, dementia, motion sickness, and fever.
- ii) It is used as domestic spice. Ginger is a strong antioxidant. The main pharmacological activities of Ginger include immunomodulatory, anti inflammatory, ant apoptotic, - antidiabetic, antilipidaemic and antiemetic.
- iii) It is used in gastrointestinal complications, indigestion, constipation, gastritis, ulceration, etc.

b. Garlic –

Synonym :

Lasuna, Lashan.

Biological Source :

It consist of bulbs of *Allium Sativum*.

Family :

Liliaceae



Figure No. 4 Bulbs of Allium Sativum

Chemical Constituents :

Organo sulphur compounds – Allicin, allyl methane sulfonate, S-allyl-L- cysteine sulfoxide, S-methyl-L-cysteine sulfoxide. Enzyme – Allinase, Peroxidase and ajoene and dimethyl ajoene. Miscellaneous – Volatile oil (0.2 – 0.3%), Protein (16.8% dry weight basis), Minerals, Vitamins (thiamine, riboflavin and niacin).

Health Benefits :

Garlic is used in treatment of high blood pressure, high cholesterol, Angina pectoris Coronary heart disease, heart attack and atherosclerosis. Fresh garlic and dried powdered garlic are widely used as herb health food supplement and as domestic spice. It is used in treating cough, cold, bronchitis, hypertension, arteria-sclerosis and cancer.

c. Spirulina –

Synonym :

Arthospira, Dihe, Cynobacteria

Biological source :

Spirulina refers to the dried biomass of *Arthospira platensis platensis*), (*Spirulina oxygenic* found an photosynthetic cyanobacteria worldwide in fresh and marine water.

Family :

Phormidiaceae.



Figure No. 5 Spirulina Microalgae

Chemical Constituents :

- It is rich source of protein, carbohydrates and vitamin supplements (Vitamin A, B1, B2, B12).
- It also contains minerals like calcium, magnesium, zinc and iron etc.
- It also contains fatty acids, i.e., omega 3 and omega 6.
- It is also rich in beta-carotene, phenolic acids and tocopherol.
- It lacks cellulose cell walls, therefore, can be easily digested.

Health Benefits :

- Spirulina became popular after it was successfully used by NASA as dietary supplement for astronauts on space mission. Spirulina has been promoted as “the food of the future” with exceptional constituents that contribute to high energy levels.
- It has the ability to modulate immune functions and exhibits anti-inflammatory properties by inhibiting release of histamine by mast cells.
- It is used in the management of HIV and other viral infections such as herpes, influenza etc.
- It is used in the treatment of arthritis, diabetes, aging and atherosclerosis.

d. Amla –

Synonym :

Amlaki, Indian gooseberry.

Biological Source :

It consist of fresh and dried fruits of Emblica officinalis.

Family :

Euphorbiaceae



Figure No. 6 Plant of Phyllanthus Emblica

Chemical Constituents :

Hydrolysable tannins – Emblicanin A and B, Chebulinic acid (Ellagitannin). Alkaloids – Phyllembin, Phyllantine. Phenolic compounds – Gallic acid, Ellagic acid. Flavonoids – Kaempferol, Quercetin. Miscellaneous – Vitamin C, Amino acids, Citric acid, Pectin and minerals like phosphorous, iron and calcium.

Health Benefits :

- It is an excellent source of vitamin C, hence, it helps to boost immunity, metabolism prevents viral and bacterial infections including cold and cough.
- It is beneficial in preserving eye sight. It has Amino shown antifungal, and antioxidant C in and activities.
- It is used as cosmetics in hair dyes and hair conditioner, and it also checks dandruff.
- It is used in the form of juice, aqueous extract and oil.

e. Honey –

Synonym :

Madhu, Madvika.

Biological Source

Honey is produced from the nectar of flower by Apis Mellifera.

Family :

Apidae



Figure No. 7 Honey

Chemical Constituents :

Major constituents of honey are the dextrose and fructose. It also contains sucrose, carbohydrates, volatile oil, pigments and pollen grains.

Health Benefits

- a It is used as nutrients and sweetener.
- b It is used as demulcent / linctus's in cough preparations.
- c It is used to improve digestion and wound healing activity.

Source of Nutraceutical :

Nutraceuticals are products that combine the benefits of nutrition and medicinal. They can be set up from colourful sources, including :

- i. Natural Foods numerous nutraceuticals are deduced from whole foods that are naturally rich in salutary composites.
- ii. Example include - Omega-3 adipose acids from adipose fish like salmon. Antioxidants like vitamins C and E set up in fruits and vegetables. Probiotics set up in fermented foods like yogurt.
- iii. ii) Dietary Supplements Nutraceuticals are generally available in the form of salutary supplements, including Multivitamins and minerals. Herbal supplements like ginseng and Echinacea. Nutrient-specific supplements like calcium or vitamin D.
- iv. iii) Functional Foods Some foods are fortified with specific nutrients or bioactive composites to enhance their health benefits.

- v. Example include - Calcium- fortified orange juice. Cereals amended with folic acid.
- vi. iv) Herbal Excerpts numerous nutraceuticals come from factory excerpts and botanicals. These include Turmeric (curcumin excerpt) for it Santi-inflammatory parcels. Green tea excerpt for its antioxidant benefits.
- vii. v) Pharmaceuticals - Some nutraceuticals are synthesized or uprooted from pharmaceutical sources, similar as Omega-3 supplements deduced from fish oil painting. Coenzyme Q10 synthesized for supplementation.
- viii. vi) Nuts and Seeds - Nuts like almonds and flaxseeds contain salutary composites like healthy fats, fibre, and antioxidants.
- ix. vii) Mushrooms - Certain mushroom kinds like rishi and shiitake are used for their implicit health benefits, similar as vulnerable system support.
- x. viii) Bee Products - Honey and royal jelly are considered nutraceuticals due to their implicit health-promoting parcels.
- xi. ix) Marine Sources - Nutraceuticals like marine collagen and fish oil painting are deduced from marine organisms.
- xii. x) Animal Derived Products - Collagen supplements, sourced from beast connective napkins, are used for skin and common health.

CONCLUSION :

There's a long history of nutraceutical use in the treatment of illness, and these chemicals have a position in current and unborn drug. Still, fresh exploration is demanded to insure the particulars ' safety, enhanced quality, chastity, effectiveness, health-promoting, and complaint-curing goods, as well as a Greater mindfulness of the colourful styles that go into item development. When taking

supplements, extreme caution is veritably essential. As a result, there is a need for introductory discussion and studies on the benefits, suggested, diurnal consumption, and implicit side goods of supplement use. After that, we can Replace the ancient adage “an apple day keeps the croaker down” with “nutraceutical day may keep the croaker down.” Nutraceuticals will be promoted in the future to promote healthy health. When ingested as part of a well- balanced and healthy diet, it has been demonstrated to be salutary for its intended Purpose. Expectation and treatment with nutraceuticals are now considered by public health authorities to be effective functional foods for maintaining Health and combating nutritionally convinced acute and habitual conditions, as well as for perfecting quality of life. Because nutraceuticals play such an important part in the creation and care of mortal health and complaint forestalment, health experts, nutritionists, biotechnologists, and industrialists should unite strategically to develop regulations that will insure high- quality health care.

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