



Some Basic about Nutraceuticals in Human Health

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Abstract :- India is the house of various number of medicinal, plants, herbs and spices. Any substance which is in our food or part of food gives medicinal use, such a substance or product called nutraceuticals. Nutraceuticals has very large global market. It is useful in condition of Cancer, Osteoporosis, Cardiovascular disease, Arthritis, Alzheimer, Parkinson's disease, etc. The chairman and founder of foundation for innovation in medicine was given by Stephen Defelice in year 1989. This review included some sources of nutraceuticals, history of nutraceuticals, dietary supplements containing in it, prebiotic and probiotics.

Keywords:- nutraceuticals, dietary supplement, prebiotic, probiotic, antioxidant.

Introduction:-

In Asia, India and China have largest population ever which are totally dependent on herbal remedies for common disorder. India is the house of various number of medicinal plants, herbs and spices. They try to prevent or protect from from disease by their herbal remedies. After the United State, Japan is the second most largest market for nutraceutical product. The leading countries having nutraceutical market include USA, UK and Japan. Nutraceutical is the term which was coined by the Defelice and the the foundation for innovation in medicine in 1989. "Any substance which is our food or part of food gives medicinal use, such a substance or product called as nutraceuticals." It can be distinguished into plant, microbial and animal groups. It can be classified in certain type like,

- 1) Potential nutraceuticals.
- 2) Establish nutraceuticals

Nutraceuticals consists of nutrients like vitamins, minerals, amino acids and fatty acids, etc. It also containing the phytochemicals like herbs and botanical products. Nutraceuticals are very useful for regulating a good human health. It is use as anti arthritic agent in case of rheumatoid arthritis, also use in sleeping disorder, cholesterol lowering condition, neurological disorder and also helpful in diabetes mellitus.

History of nutraceuticals:-

The nutraceutical concept was given 3000 years ago from the time of hypocrate (460-377 BC) stated " let food be thy medicine and medicine be thy food". The chairman and founder of the foundation for innovation in medicine was given by Stephen Dafelice in year of 1989. As stated by defelice, nutraceuticals are considered to be "a food which can provide

medical or health benefits together with prevention or treatment of a disease", Although no regulatory definition forward nutraceuticals has commonly used in marketing. Nutraceuticals are already becoming part of dietary view in the England, Japan and other countries. Further the Canada state nutraceuticals as "a product prepared from foods but sold in form of pills or powders. In this drugs nutraceutical are most increasing or growing segments with annual growth rate of 7.5% and the global market is approximate as USD 117 billion. Countries leading nutraceuticals markets are USA, UK and Japan.

Sources of nutraceuticals:-

Nutraceuticals are natural substance which can be extracted from numerous sources(as fruits and plants) while taken into food or pharmaceutical formation or preparation are beneficial for health. Various nutraceuticals substance when involve in food matrix as (eg. antioxidant) can act as food additives. Consumer are well known about the diet related health problems and needs to increase consumption or intake of fruits or vegetable on daily diet basis. Nutraceuticals involve extensive categories as functional food, dietary supplement and herbal product. Fruits and vegetables with their main constituents, sources waste residue, which have positive impact on human health. Daily intake of fruits and vegetable can reduce risk of chronic disease and beneficial for health. Many among the fruits have nutritional properties. On the basis of natural sources, various nutraceutical component are classified from which they are extracted. As a source of potential phytochemicals vegetable debris uses as the olive pomace which can be used as controlling agent. In the world about 3 billion peoples are hungry due to imbalanced diet. For proper balance diet vegetables are important part as they are good source of nutraceuticals and phytochemicals compound. Phytochemicals are organic compound obtained from plants having health and disease protective effect. Vegetable with other leafy vegetable how much importance in

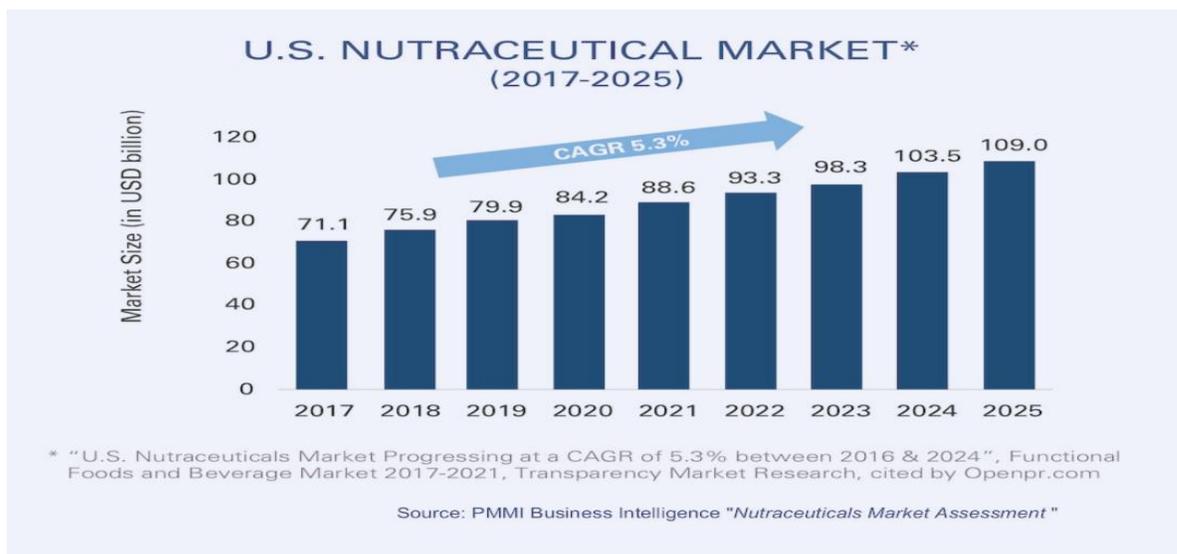


nutritional

diet.

Phytochemicals	Source Plant	Health Benefits
α -linolenic acid (ALA)	Flax seeds	Cancer preventive, reduce risk of coronary heart disease
Allicin	Garlic, onion	Antibacterial, anticancer, antifungal, anti-inflammatory, chemopreventive, hepato-protective, hypolipidemic, hypotensive, and neuroprotective
Anthocyanins	Blackberry, cherry, orange, purple corn, raspberry, red grapes	Anti-allergic, anti-inflammatory, antioxidants, and pigments
Apigenin	Apple, artichoke, basil, celery, cherry, grapes, nuts, parsley	Anti-inflammatory, antioxidant, Antispasmodic, chemo-preventive, induce apoptosis, and inhibits breast and ovarian cancers
Caffeic acid	Artichoke, pear, basil, oregano	Anti-inflammatory, anti-fatigue and anti-stress properties
Carotene	Carrots, Leafy greens and red, orange and yellow vegetables, pumpkin	Anti-carcinogenic, enhances release of immunogenic cytokines IL-1 and TNF-alpha, provide cornea protection against UV light, stimulate DNA repair enzymes
Catechins	Tea	Antioxidant, CNS stimulant, and Diuretic
Curcumin	Turmeric	Anti-hypertensive, anti-inflammatory, antioxidant, and cancer preventive
Diosgenin	Fenugreek seeds	Hypolipidemic
Ellagic acid	Cranberry, grapes, pecans, pomegranates, raspberry, strawberry, walnuts	Anticancer, and antioxidant
Ferulic acid	Oats, rice, orange, pineapple, peanut	Protect against cancer, bone degeneration, menopausal symptoms (hot flushes)
Gallic acid	Tea, mango, strawberries, soy	Cytotoxic and antioxidative activities, Anti-leukemic, antioxidant, anticancer, anti-neoplastic, anti-inflammatory, anti-diabetic
Genistein	Alpha-alfa sprouts, red clover,	acts as a phytoestrogens, antioxidant,

Organisational scheme for nutraceuticals:-



Dietary supplement in nutraceuticals:-

Nutraceutical and nutrition supplement are collectively referred to as "dietary supplement" intended to be taken. Orally some form of dietary supplement is taken by over 70% of Americans everyday and the supplement industry is currently big business with a gross of over \$ 28 billion. Nutraceuticals are not only supplement the diet but they are also aid or used in the avoid and cure the disease. Dietary Supplement Health and Education Act 1994 statute of United State- for the regulation of the dietary supplements.

Dietary supplement include,

1) Prebiotic, 2) Probiotic, 3) Antioxidant.

1) Prebiotic :- the prebiotic are mostly consist the fibres that are non-digestible food ingredient that good affect on host. In 1995, the prebiotic concept was first introduced by Glenn Gibson and Marshal Roberfroid. The prebiotic are selectively stimulating the growth of microorganism and some activity of genera microorganism in colon, such as a lactobacilli, schrezenmeir and bifidobacteria. The FAO/WHO defines prebiotic, " a non-viable food component that confer health benefit on the host associated with modulation of microbiota." The sources of prebiotics that are include as breast milk, Soya beans, raw oats, unrefined wheat, inulin and unrefined barley, yacon, non-digestible carbohydrates and non-digestible oligosaccharides. The main sources and production of prebiotic is involve fructo-oligosaccharides (FOS) and galacto-oligosaccharides (GOS). Prebiotics have defensive effect on the gastrointestinal system, central nervous system, immune system and cardiovascular system. The prebiotics are the grouping of nutrient that is degraded the gut microbiota. Prebiotics are sunset of carbohydrate group and oligosaccharide carbohydrates (OSCs). Prebiotic are maintain the health such as protection against disorder, inchanged mineral bioavailability, hypercholesterolemic effect, laxation and regulation and Cancer prevention.

2) Probiotic:- These term deriver from the Greek word means "for life". Probiotics are improving gut flora and maintain digestive system. Albert Doderlein was suggested by beneficial association between microorganism and human host. Probiotics are live microorganisms that gives a health benefits to human. Probiotics are also called as good bacteria that maintain gut microflora. The term probiotic are used to define living non-pathogenic organism and the first introduced by vergin, he was studying the effect of antibiotics and gut microbial population. He observed that probiotika was beneficial to the guy microflora. The FDA and WHO are defined as the Probiotic, " live microorganism which when administered in adequate amount confer a health benefit to the host non pathogenic microorganism which when interested exert a negative influence on host." Probiotics are available is various form like powder form, liquid form, gel form, paste form, granual form or capsule form. Probiotics are used to treat the gastro intestinal condition like as lactose intolerance, acute

diarrhea and antibiotic. Probiotic agent possess the ideal properties such as, lactic acid producer, genetically stable, non-pathogenic, Anti-genotoxic property, short generation time, acid and while tolerant. Probiotic include the some categories of bacteria like lactobacilli, bifidobacterium and gram positive cocci.

Antioxidant:- Nutraceuticals antioxidant are dietary supplement. They produce the pharmacological effect on the selective disorder such as allergy, alzheimer, cardiovascular disease, cancer. The artificial drug that they are made in laboratory drug i.e. synthetic drugs have toxic properties but they nutraceutical substance are particularly herbal nutraceuticals. There is important confirmation for action of oxidative stress in the poison of a large variety of herbal drug. Antioxidant helps in boosts the immune systems. Antioxidant maintenance of healthy skin, vision and mucous membrane. Lycopene has the largest antioxidant capacity among carotenoids. Nutraceuticals effect of lycopene has been reported for patients with cancer, infertility, metabolic syndrome and liver damage. That's why it's supplementation can function as a proper causative treatment of disorder. Lipoic acid is universal antioxidant now used in Germany for cure of diabetic neuropathy. It is possible that lipoic acid may be effective as a long term dietary supplement aimed at prophylactic protection of diabetic form complications. In recent year, the interest of the scientific community and the general public in functional foods and nutraceutical has significantly increase due to the increase in the consumption of mostly inactive medication and the increased addition of chemicals of food products, there is a need to define compound occurring naturally unprocessed foods that can serve as active and potent health accelerators. Phytochemicals are a class a bioactive molecules that can be obtained form plants and then added to foods, supplementation of phytochemicals is known to combine both nutrition and health benefits.

Role of nutraceuticals in human health:-

Nutraceuticals are use to treat some of the major health disorder like cancer, osteoporosis, cardiovascular disease, obesity, diabetes mellitus, cholesterol, arthritis, alzheimer, Parkinson's disease, etc. It is a product or substance are prepare from foods but sale in the form of tablet, pill or powders. Nutraceuticals are also used in cold, cough, sleeping disorder, digestion problem. Also used as pain killer and use in depression. Nutraceuticals include three main classes like,

- 1) Herbal / natural products
- 2) Dietary supplement
- 3) Functional foods

Nutraceuticals are use as dietary supplement, which prevents from disease causing agent and it is also helpful in proper functioning of the human body. Nutraceuticals has very large global market. Each food have it's own nutraceuticals property which are useful to treat and prevent many more disease in human being like goat milk, bean seed, rice, edible mushrooms, etc.

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