



NOURISH NUTRI FUSION: THE HEALTH OF DAILY LIFE

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Abstract :

Nutraceutical are the current trends on the Pharmaceutical and medicine. Nutraceutical are the combination of Pharmaceutical and nutrition. Nutraceutical posses the biological active compounds which plays a significant role in the maintaining health but also very helpful for the treatment of chronic disease as well. Nutraceutical are helpful in maintaining the healthy daily life. Nourish Nutri fusion is an type of product which helpful for maintaining daily life help and prevent from the sedentary lifestyle diseases. Nutraceutical also provide extra support to the therapy for the chronic diseases. Increased awareness about the relationship between food and health are constantly persuading more people to incorporate the benefits of nutraceuticals into their health regimen. General health trends, lifestyle, disease status and aging population are among the major governing factor influencing the growth of the nutraceutical market.

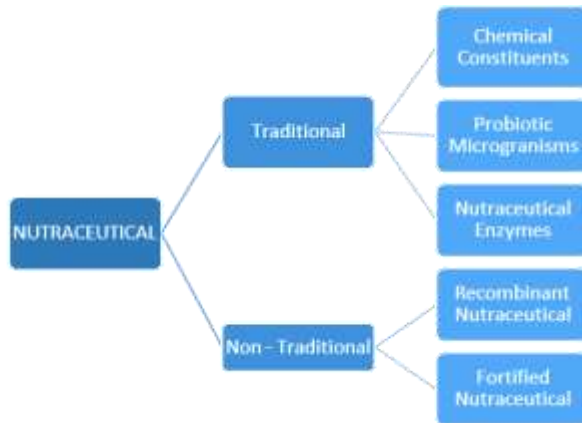
Index Words – Active compounds, Chronic disease, Lifestyle, Sedentary.

Introduction :

A nutraceuticals word is comprises of 'Nutrient' and 'Pharmaceuticals'. According to the Association of American Feed Control Officials (AAFCO) 1996, 'Nutrient' means a feed constituent in a form and at a level that will help, support a life of human being or animal while 'Nutraceutical' means any non-toxic food component that has scientifically proven health benefits including prevention and treatment of disease⁶. Products isolated or purified from food are sold in medicinal forms not usually associated with food (Praneetha KP, et al.).

Stephen L. DeFelice, the founder of the Foundation for Innovation in Medicine, coined the term "nutraceutical" in 1989 to describe a food or part of a food that provides health benefits, including disease prevention and treatment. Nutraceuticals can include isolated nutrients, dietary supplements, functional foods, herbal products, and processed food (Defelice SL. et al., 2000).

Classification of Nutraceutical :



(1) Traditional Nutraceuticals

These are natural with no changes in food. Food contains various natural components which provides nutrition to body.

(A) Chemical constituents –

- Nutrients - vitamins, Mineral, Amino acids.
- Herbal - It improve health, prevent from chronic disease.
- Phytochemicals - carotenoids, flavonoids etc.

(B) Prebiotics micro- organisms- It means live micro-organisms. When they consumed in accurate amount it gives health benefit. Ex - b- galactosidase

(C) Nutraceutical enzymes -Enzymes are the essential part of life without enzymes the body cannot function properly. The people with medical condition like hypoglycemia, obesity, digestive problem can treated only by enzyme supplement in their diet.

(2) Non -Traditional Nutraceuticals

They are artificial prepared with help of genetic engineering and biotechnology

(A) Fortified nutraceutical - It means we add extra vitamin or mineral in food these are of more nutrient value. Ex - milk with vitamin

(B) Recombinant nutraceutical- These are produced by fermentation technology, genetic engineering. Ex - yogurt, cheese (Singh J. Et al.,2012).

Content of Powder :

(A) Ashwagandha

Synonyms – Withania root ,Ashwagandha, Clustered Wintercherry.

Biological Source - It consists of the dried roots and stem bases of *Withania somnifera* Dunal, belonging to family Solanaceae.

Chemical Constituents -The plants contain the alkaloid withanine as the main constituent and somniferine, pseudowithanine, tropine and pseudotropine, hygrine, isopellelerine, anaferine, anahygrine and steroid lactones.

Pharmacological action -anti-stress, neuroprotective, antitumor, anti-arthritic, analgesic and anti-inflammatory.

Nutraceutical use -Reducing strain and fatigue , Calming the nervous system ,Boosting body functions ,Supporting vitality , Enhancing immunity ,Curing sleeplessness ,Curing constipation ,Controlling cholesterol levels ,Treating erectile dysfunction ,Fighting diabetes.



Figure 1 Stem of Ashwagandha

(B) Carrot

Synonyms- Ortel

Biological source - Edible taproot of *Daucuscarota* family Apiacea

Chemical constituents - β -carotene Phenolics or polyphenols -hydroxycinnamic acids & para-hydroxybenzoic acids.

Pharmacological action -Antioxidant, antibacterial, sedative, anti-inflammatory, antifungal, anthelmintic, anticancer, antidepressant, anti-cholesterol, gastric anti-ulcer, and kidney protection.

Nutraceutical use - Anti-inflammatory, antibacterial, antioxidant, immune-boosting, cholesterol-lowering, anti-diabetic, anti-hypertensive, renoprotective, hepatoprotective, and eye health.



Figure 2 Root of Carrot

(C) Ginger

Synonyms - Rhizomazingiberis, Zingibere

Biological Source - Ginger consists of the dried rhizomes of the *Zingiber officinale* Roscoe, belonging to family Zingiberaceae.

Chemical Constituents - Ginger contains 1 to 2% volatile oil, 5 to 8% pungent resinous mass and starch. The pungency of the drug is due to the yellowish oily body called gingerol which is odourless. Volatile oil is composed of sesquiterpene hydrocarbon like α -zingiberol; α -sesquiterpene alcohol α -bisabolene, α -farnesene, α -sesquiphellandrene. Less pungent components like gingerone and shogaol are also present.

Pharmacological action - Anti-cancer effects, Anti-Inflammatory Effects, Antinociceptive Effects, Antioxidant Effects, Gastrointestinal Effects, Antitussive Effects, Immunomodulatory Effects, Lipid Effects, Weight Loss Effects, Antiarthritic Effect, Antimicrobial Activities, Radio Protective Activity.

Nutraceutical use- Antioxidant,arthritis, rheumatism, sprains, muscular aches, pains, sore throats, cramps, constipation, indigestion, vomiting, hypertension, dementia, fever, infectious diseases and helminthiasis.



Figure 3 Rhizome of Ginger

(D) Black Turmeric

Synonyms - Kali haldi

Biological source - It is a rhizome of *Curcuma caesia* Roxb., Family – Zingiberaceae

Chemical constituents - The multiple phytoconstituents like curcuminoids, oil content, flavonoids, phenolics, amino acids, protein and high alkaloids, found in the rhizome Camphor, Ar-turmerone, (Z)- β -ocimene, Ar-curcumene, 1,8-cineole, β -elemene, Borneol, Bornyl acetate, Tropolone, and Ledol. Curzerenone (18.09%), epicurzerenone (12.47%), eucalyptol (11.57%), camphor (5.94%), and germacrone (4.47%).

Pharmacological action - Antioxidant, Antibacterial, Antipyretic, Larvicidal, Insecticidal, Antimicrobial, Antifungal, Anti-asthmatic, Smooth muscle relaxant, Analgesic, Locomotor depressant, Anticonvulsant, Muscle relaxant, Anti-inflammatory, Antiproliferative and anticancer, and Anti-ulcer.

Nutraceutical use- has anti-inflammatory properties that can help with arthritis, inflammatory bowel disease, and respiratory conditions . Pain reliever: relieve toothaches, stomach aches, and rashes .Weight control: Black turmeric can help break down dietary fat and regulate blood sugar .Antioxidant , Brain tonic , Anti-aging.



Figure 4 Rhizome of Black Turmeric

(E) Papaya

Synonyms - Papayotin, vegetable pepsin, tromasin, arbuz, caroid, *Carica papaya* Linn.

Biological Source-It is a tropical fruit *Carica papaya* belongs to Family Caricaceae

Chemical Constituents-Vitamins - Ascorbic acid, β -carotene, vitamin E, vitamin A, vitamin C, riboflavin, thiamine, and niacin

Other compounds - Flavonoids, tannins, phenols, alkaloids, proteins, glycosides, saponins, tocopherols, carotenoids, benzyl glucosinolates, and benzyl isothiocyanate (BITC).

Pharmacological action - Antibacterial, Antiparasitic, Antioxidant, Hypoglycemic, Hypolipidemic, Cardioprotective, Contraceptive.

Nutraceutical use - Digestion, anti-inflammatory, antiparasitic, detoxification, antioxidant, anti-hypertensive, hypoglycemic, and hypolipidemic action.



Figure 5 Fruit of Papaya

(F) Banana

Synonyms- kela

Biological source - It is a fruit of *Musaparadisiaca* Family : Musaceae

Chemical Constituents – Carotenoids , phenolic compound , Energy 371 kJ (89 kcal), Water 74.91 g ,Carbohydrates 22.84 g ,Sugars 12.23 g Dietary fibre 2.6 g. Vitamins - Pantothenic acid (B5) 0.334 mg, (7%) ,Pyridoxine (B6) 0.4 mg, (31%) ,Choline 9.8 mg, (2%) Vitamin C 8.7 mg, (10%).Minerals – Magnesium 27 mg, (8%) ,Phosphorus 22 mg, (3%) ,Potassium 358 mg, (8%) ,Sodium 1 mg, (0%) ,Zinc

Pharmacological action - Antioxidant, Anti-diabetic, Anti-cancer, Anti-inflammatory, Anti-microbial, Immunomodulatory, Hypolipidemic, Anti-ulcer, and Radical scavenging.

Nutraceutical use - lower your blood pressure , reducing your risk of hypertension,Energy, Minerals, Vitamins, Antioxidant, Fibers, Antacid.



Figure 6 Fruit of Banana

(G) Kiwi

Synonyms- Chinese gooseberry, Wood berry

Biological source - It is a woody vine and edible fruit of the *Actinidia deliciosa* belonging to family Actinidiaceae.

Chemical constituents - Vitamins and minerals: Kiwifruit contain high levels of vitamin C, vitamin E, folate, and potassium. ,Polyphenols: catechin, anthocyanin, chlorogenic acid, and gallic acid. , Alkaloids: aconitine, safranin, and actinidine , Terpenoids: ursolic acid and oleanolic acid , Other components: carotenoids, polysaccharides, amino acids, essential oils, and microelements.

Pharmacological action- Anti-inflammatory, Anti-diabetic, Anti-hypertensive, Diuretic, Anti-hepatotoxic, Mild laxative, Anti-oxidant, Anti-tumor, Anti-cancer, Anti-asthmatic, and Anti-platelet and anti-thrombin. immunoregulatory activity, hypolipidemic activity, cardiovascular protective effect.

Nutraceutical use –Digestion, Immunity, Heart health, Prevent DNA damage, Eye health (prevent macular degeneration),Diabetes prevention , Inflammation and swelling reduction , Blood clot formation prevention , Fungi growth prevention ,Liver protection ,Kidney stone formation risk reduction , Vitamin D and iron absorption ,Sleep improvement.



Figure 7 Fruit of Kiwi

(H) Cucumber

Synonyms - Starchier fruit

Biological source-It is obtained from the fruits of *Cucumis sativus* belonging to family Family Cucurbitaceae

Chemical constituents-It contains vitamins A ,C , K , thiamine riboflavin niacin and vitamin B-6

Pharmacological action - Antidiabetic, lipid lowering and antioxidant activity, Antioxidant, Anti - inflammatory, Antimicrobial, Hydrating, Antidiabetic.

Nutraceutical use - Helpful in Hydration, Digestion, Weight loss, Reducing Blood sugar, Maintain blood pressure, keep bones healthy, help with vision.



Figure 8 Fruit of Cucumber

(I) Orange Peel

Synonyms- Orange cortex.

Biological sources -The orange peel is the fresh or dried outer part of the pericarp of *Citrus aurantium* Linn, belonging to Family Rutaceae.

Chemical constituents- Peel is a rich source of rough dietary fibre also known as NSP (non soluble polysaccharides) , such as hemi cellulose, pectin tennins and gums, peels is low in calories, sugar and fats and free from cholesterol. it adds bulk to the food and helps cut down overall calories intake .The citrus peels and seed are very rich in phenolic compound such as phenolic acid and flavonoids. peel also contain limonene, citral, neohesperidin naringin, rutin ,rhamnose ,eriocitrin and vitamin C.

Pharmacological action - Antioxidants, anticancer agents, and antimicrobials, as well as anti-inflammatory and anti- osteoporosis agents.

Nutraceutical use - Antimicrobial, antioxidant, and anti-cancer properties.fight colds, flu, and infections.prevents problem like constipation and maintain the blood sugar level. Asthma, Heart Health etc.



Figure 9 Peel of Orange

(J) Giloy

Synonyms - Amrita or Guduchi in Hindi.

Biological source – *Tinosporacordi foliais* a climbing shrub that grows on other trees, from the family Menispermaceae.

Chemical Constituents - Alkaloids, Diterpenoid lactones, Glycosides, Steroids, Sesquiterpenoids, Phenolics, Aliphatic compounds, Polysaccharides, Lignans, and Chalcones.

Pharmacological action - Anti-inflammatory, anti-oxidant, anti-spasmodic, anti-allergic, anti-HIV, and anti-cancer properties, stomachic, diuretic, and increases bile secretion, which can help heal jaundice Enhances the activity of macrophages, Antipyretic.

Nutraceutical use - Giloy can help treat flu, colds, and fever, Giloy's antioxidant and anti-inflammatory properties can help heal and aid the body's recovery process Diabetes, Anti - inflammatory, Anti – histaminic.



Figure 10 Stem of Giloy

(K) Perilla

Synonyms - Purple mint, Japanese basil, Bhanjeera

Biological sources - Perilla is a genus consisting of one major Asiatic crop species *Perilla frutescens* and a few wild species in nature belonging to the mint family Lamiaceae.

Chemical composition- The main phytochemical compounds found in this species are phenolic compounds, flavonoids, phytosterols, tocopherols and fatty acid. Perilla seed oil is also full of essential fatty acids like - linolenic acid (54–64%) and linoleic acid (14%). Perilla seeds and oils have been used for a long time in traditional foods and medicines.

Pharmacological Action - Antioxidant, antimicrobial, anti-allergic, antidepressant, anti-inflammatory, anticancer, and neuroprotective actions.

Nutraceutical uses - Manages Cholesterol, Prevents heart disease, It helps with depression and is good for the brain, Boosts immune system, Reduces oxidative damage, Stops tooth decay, Stops tooth decay.



Figure 11 Seeds & Leaves of Perilla

(L) Bael Patra

Synonyms- Begal-quince, golden apple, and stone apple

Biological source - Dried leaf of *Aegle marmelos* tree of the family Rutaceae,

Chemical Constituents - γ -sitosterol, rutin, β -sitosterol, glycosides, marmeline, aegelin, marmesinin, halfordioliol, phenyl ethyl cinnamamides, and lupeol. bael leaves contain alkaloids, flavonoids, and phenolics. Bael leaves also contain bioactive compounds like coumarin, xanthotoxol, imperatorin, aegeline, and marmeline.

Pharmacological action - anti-inflammatory, antimicrobial, anticancer, hypoglycemic, radioprotective, chemopreventive, anti-oxidative, astringent, laxative, digestive, and febrifuge.

Nutraceutical use - ever, Nausea, Vomiting, Swellings, Dysentery, Dyspepsia, Seminal weakness, Intermittent fever, Jaundice, Asthma, Conjunctivitis, Constipation, Deafness, Leucorrhoea, Bowel syndrome, Beriberi, High blood pressure, Menstrual problems, Cough.



Figure 12 Leaves of Bael Patra

Material and Methodology :

Figure 13 consist of –

- | | | | |
|---------------------|------------------|-----------------------|-------------------|
| 1.Kiwi powder | 2.Banana powder | 3.Cucumber powder | 4. Papaya powder |
| 5.Bael patra powder | 6.Perilla powder | 7.Ashwagandha powder | 8.Carrot powder |
| 9.Ginger powder | 10.Giloy powder | 11.Orange peel powder | 12.Black turmeric |

Procedure for preparation of Nutraceutical powder –

1. All the herbs should be shed dried.
2. All the shed dried herbs is grind in mixer one by one to obtain powder.
3. All the powder is passed through sieve no.100 to obtain uniform particle size.
4. Accurately weighed all the powders and labelled them.
5. Mixed all the weighed powders in mortar pestle to obtain uniform homogenous mixture.

S.no	Herbs	Quantity
1.	Kiwi powder	6 gm
2.	Banana powder	3 gm
3.	Cucumber powder	1 gm
4.	Papaya seed powder	0.1 gm
5.	Baelpatra leaves powder	2 gm
6.	Perilla seed powder	0.1 gm
7.	Ashwagandha powder	0.1 gm
8.	Carrot powder	1.7 gm
9.	Ginger powder	2 gm
10.	Giloy powder	2 gm
11.	Orange peel powder	1 gm
12.	Black turmeric rhizome powder	1 gm

Table 1 Formulation Table Nutraceutical Powder



Figure 14 Prepared Nutraceutical Powder

Procedure for preparation of Effervescent powder –

1. Accurately weighed all the chemicals.
2. Place the porcelain dish on a water bath till the porcelain dish gets heated.
3. Place all the powders in the hot porcelain dish on boiling water bath.
4. Stirred the mixture by a spatula until the mixture has formed either a loose cake or a damp coherent mass.
5. Mix the mixture continuously.
6. Spread the granules out in a tray in a warm place and dry for 1 hour.

S.no	Chemical	Quantity
1.	Sodium Bicarbonate	8.16 gm
2.	Tartaric acid	6.51 gm
3.		3 gm

Table 2 Formulation Table of Effervescent Powder



Figure 15 Prepared Effervescent Powder

Procedure for preparation of Effervescent Nutraceutical Powder –

1. Mix the both powder in mortar pestle to obtain a homogenous mixture.
2. Keep the powder in airtight container.



Figure 16 Prepared Effervescent Nutraceutical Powder

Results :

The Nutraceutical Effervescent Powder entitled – “*Nourish Nutri Fusion: The Health of Daily Life*” was prepared and evaluated and results of evaluation parameters are as follows –

Table 3 Evaluation Parameter

Parameter	Reading 1	Reading 2	Reading 3
Bulk density	0.4 g/ml	0.4 g/ml	0.4 g/ml
Tapped density	0.5 g/ml	0.5 g/ml	0.5 g/ml
Hausner's ratio	1.25	1.25	1.25
Carr's index	20	20	20
Angle of repose	36*	36*	35*
Total Ash value	8.5%	8%	8.5%



Figure 17 Tapped Density



Figure 18 Angle of Repose



Figure 19 Ash value

Effervescent chart –

Main power	Effervescent powder	Water	Effervescent time
2 gm	2 gm	Normal water 5ml	20 sec
2gm	2gm	Hot water 10 ml	30 sec
2gm	2gm	Hot water 20 ml	45 sec
5 gm	5 gm	Hot water 50 ml	50 sec

Table 4 Effervescent Chart



Figure 20



Figure 21



Figure 22

Figure 20,21, 22 shows working demonstration of Nutraceutical Effervescent Powder

Nourish Nutri Fusion: The Health of Daily Life taken 10 gm with 50 ml hot water in morning.

Conclusion :

Quality healthcare is the foundation of the world. The fundamental need of a person is nutrition. Most of us fail to eat a well-balanced diet regularly but at certain times and for some people (Infants, pregnant woman, chronic patients and adults) certain nutrients are required in higher amounts than their diets can provide. Many people report a feeling of general wellbeing when they are taking their regular daily multivitamins. Nutraceuticals are the fastest growing field in human health and disease prevention. The market for natural products in nutraceuticals has explored in the recent years. The technological advances are another driving force in the market for natural products in nutraceuticals. In the recent year there is a growing interest in nutraceutical which provide health benefits and are alternative to the modern medicines. Nutraceuticals hold great potential for the future because there are convenient for today's lifestyle. Consumer interest in the relationship between the diet and the health has increased the demand for information on nutraceuticals all the nutraceuticals have significant promises in the promotion of human health and disease prevention long term clinical studies are required to scientifically validate the nutraceutical in the various medical condition.

“State is not far where nutraceutical will be our preferred prescription of tomorrow.”

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