



Nutrese powder- Helps & supports the prevention & treatment of various life style disorders

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ABSTRACT

Nutrients present in Nutrese powder plays an important role in maintaining the normal functions of the human body. The major nutrients present in Nutrese powder include Natural carbohydrates, proteins, lipids, vitamins, and minerals. Besides these, there are some bioactive food components known as “phytonutrients” that play an important role in human health. They have tremendous impact on the health care system and may provide medical health benefits including the prevention and/or treatment of disease and various physiological disorders. Phytonutrients play a positive role by maintaining and modulating immune function to prevent specific diseases. Being natural products, they hold a great promise in clinical therapy. Phytonutrients in Nutrese powder are the plant nutrients with specific biological activities that support human health. Some of the important bioactive phytonutrients in Nutrese powder include polyphenols, terpenoids, resveratrol, flavonoids, isoflavonoids, carotenoids, limonoids, glucosinolates, phytoestrogens, phytosterols, anthocyanins, and probiotics. They play specific pharmacological effects in human health such as anti-microbial, anti-oxidants, anti-inflammatory, anti-allergic, anti-spasmodic, anti-cancer, anti-aging, hepatoprotective, hypolipidemic, neuroprotective, hypotensive, diabetes, osteoporosis, CNS stimulant, analgesic, protection from UVB-induced carcinogenesis, immuno-modulator, and carminative. This article reviews the current available scientific literature regarding the effect of Nutrese powder as an effective supplementation for a daily energy need in various life style disorders.

INTRODUCTION

Overproduction of oxidants (reactive oxygen species and reactive nitrogen species) in the human body is responsible for the pathogenesis of some diseases. The scavenging of these oxidants is thought to be an effective measure to depress the level of oxidative stress of organisms. It has been reported that intake of vegetables and fruits is inversely associated with the risk of many chronic diseases, and antioxidant phytochemicals in vegetables and

fruits are considered to be responsible for these health benefits. Antioxidant phytochemicals can be found in many foods and medicinal plants, and play an important role in the prevention and treatment of chronic diseases caused by oxidative stress. They often possess strong antioxidant and free radical scavenging abilities, as well as anti-inflammatory action, which are also the basis of other bioactivities and health benefits, such as anticancer, anti-aging, and protective action for cardiovascular diseases,

diabetes mellitus, obesity and neurodegenerative diseases.

Chronic diseases such as cardiovascular diseases (CVD), diabetes and cancers are global health problems, and cause death and disability to millions of people. It has been demonstrated that fruits, vegetables and grains exert a protective effect against the development of these chronic diseases [1–4]. This protective role can be mainly attributed to the phytochemicals in them, which are defined as bioactive non-nutrient compounds in fruits, vegetables, grains, and other plants [5]. So far, about 10,000 phytochemicals have been identified, and still a large percentage remains unknown. These identified phytochemicals include tannins, flavones, triterpenoids, steroids, saponins, and alkaloids [6].

The protective role of phytochemicals may be associated with their antioxidant activity, since overproduction of oxidants (reactive oxygen species and reactive nitrogen species) in the human body is involved in the pathogenesis of many chronic diseases. In order to provide an extensive and deep understanding of antioxidant phytochemicals in human health and diseases,

Sources of Antioxidant Phytochemicals

Antioxidant phytochemicals exist widely in fruits, vegetables, cereal grains, edible macrofungi, microalgae, and medicinal plants [7–9]. Common fruits, such as berries, grape, Chinese date, pomegranate, guava, sweetsop, persimmon, Chinese wampee and plum are rich in antioxidant phytochemicals [10–12]. In addition, wild fruits, such as the fruits of *Eucalyptus robusta*, *Eurya nitida*, *Melastoma sanguineum*, *Melaleuca leucadendron*, *Lagerstroemia indica*, *Caryota mitis*, *Lagerstroemia speciosa* and *Gordonia axillar* also have high antioxidant capacities and total phenolic contents [13]. Besides, fruits wastes (peel and seed) also contain high contents of antioxidant phytochemicals, including catechin, cyanidin 3-glucoside, epicatechin, gallic acid, kaempferol, and chlorogenic acid [14]. Some vegetables, such as Chinese toon bud, loosestrife, penile leaf, cowpea, caraway, lotus root, sweet potato leaf, soy bean (green), pepper leaf, ginseng leaf, chives, and broccoli are found to have high antioxidant capacities and total phenolic contents [15]. Among cereal grains pigmented rice, such as black rice, red rice and purple rice, possess high contents of antioxidant phytochemicals (flavones and tannins) [16]. Among selected Chinese

medicinal plants the highest antioxidant capacities and phenolic contents are found in *Dioscorea bulbifera*, *Eriobotrya japonica*, *Tussilago farfara* and *Ephedrasinica* [17], and several flowers including edible and wild ones also have high contents of antioxidant phytochemicals [18].

Polyphenols and carotenoids are the two main kinds of antioxidant phytochemicals, and they contribute the most to the antioxidant properties of foods/plants. For example, β -carotene, quercetin, myricetin and kaempferol are the main antioxidant phytochemicals found in Cape gooseberry [19], and anthocyanins and ellagitannins are the major antioxidant compounds among the phytochemicals of strawberry [20]. In addition, flavonoids isolated from *Euterpe oleracea* pulp present an important antioxidant activity measured by oxygen radical absorbance capacity [21]. Natural polyphenols are the most abundant antioxidants in human diets, and their radical scavenging activities are related to substitution of hydroxyl groups in the aromatic rings of phenolics [22]. The plant variety, geographic region, growing season, and storage can all influence the concentrations of polyphenols in food [23].

Dietary polyphenols could be classified into five classes: flavonoids, phenolic acids, stilbenes, tannins and coumarins. Flavonoids can be further categorized as flavonols, flavones, flavanols, flavanones, anthocyanidins, and isoflavonoids [24]. Total phenolic content and total antioxidant activity in phytochemical extracts of different fruits may have a direct relationship. When the fruits contain higher total phenolic contents, they possess stronger antioxidant activity [25]. For example, the scavenging activity of grape seed extract against ABTS radical was strongly linked with the level of phenolic compounds [26]. Carotenoids are a group of phytochemicals that are responsible for the yellow, orange and red colors of the foods. β -Carotene, α -carotene, lycopene, lutein and cryptoxanthin are the main carotenoids in the diet and human body, and fruits and vegetables are the major sources of carotenoids in human diet. For example, tomato is rich in lycopene, which is also responsible for its characteristic red color.

Prevention and Treatment of Antioxidant Phytochemicals for Several Chronic Diseases

Overproduction of oxidants in human body can cause an imbalance and lead to oxidative damage to large biomolecules such as lipids, DNA, and proteins.

This damage is responsible for the pathogenesis of several human diseases, including CVD, certain types of cancers, and aging [27,28].

Thus, antioxidant phytochemicals could play an important role in the prevention and treatment of chronic diseases [26,29]. Phytochemicals are demonstrated to have antioxidant abilities not only in vitro but in human studies. Consumption of fruits and vegetables with high contents of antioxidant phytochemicals is proven to increase the antioxidant capacity of serum/plasma. For example, the total antioxidant capacity of serum was increased significantly following consumption of red wine, strawberries, vitamin C or spinach in elderly women, and the plasma vitamin C levels and serum urate levels also increased significantly. However, the increased vitamin C and urate levels could not fully account for the increased total antioxidant capacity in serum [30]. The results were in agreement with results from another study, which found that plasma antioxidant capacity was significantly increased by consuming 10 servings of fruit and vegetables each day for 15 days [31]. This increase could not be explained by the increase of α -tocopherol concentration in the plasma. Perhaps, the increased total antioxidant capacity could be explained by increased polyphenols because a study found that 19 of the 25 anthocyanins present in the blueberries could be detected in human serum.

The appearance of total anthocyanins in the serum contributed to an increase in serum antioxidant capacity [32]. In addition, polyphenols may enhance the total oxidant-scavenging capacities of human blood by binding to red blood cells [33]. Furthermore, the antioxidant activity of apples may mainly come from phenolics and flavonoids because the vitamin C in apples with skin accounts for only 0.4% of the total antioxidant activity. The additive and synergistic effects of phytochemicals in fruit and vegetables could be responsible for their potent antioxidant activities [34, 35].

Chronic inflammation is another important factor that may cause or assist in the pathogenesis of many chronic diseases including CVD, cancers, and type 2 diabetes (T2D) [36–38]. Most antioxidant phytochemicals have been found to have anti-inflammatory action. Phytochemicals including resveratrol, anthocyanins, and curcumin, can reduce inflammation via inhibition of prostaglandin production and nuclear factor- κ B activity, enzyme inhibition, as well as increase of cytokine production [21,39]. Usually, antioxidant phytochemicals possess strong antioxidant and free radical scavenging abilities as well as anti-inflammatory action, which are also the basis of other bioactivities and health benefits [9,40].

Nutrese is a cornerstone supplement for any nutritional protocol with its unique formulation built to address nutritional gaps in the physiochemical spectrum related to refined food diet. 1 Serving (30 scoop) of mix provides 104 calories, 11.61g of proteins, 6.64g of fiber and 1.82g of sugar. Nutrese is Meal essential Shake mix that helps to provide daily nutritional support, improve metabolism and insulin sensitivity and to support effective weight management. With the pace of life continuously accelerating the global trend towards convenient and easy to prepare food continues. However, people around the world are increasingly affected by obesity and nutritional gap, which are the pressing challenges of today. It is mainly characterized by a decrease in energy expended and higher calories consumption through our diet and nutritional gaps in our average Indian diet to the recommended daily allowances making nutritional supplementation a mere necessity. Nutrese is a great tasty nutritional supplement for daily life to address the nutritional gap.

It is a mango flavored, protein blend (soya, pea and whey) powder with easily digestible fibers, plant-based vitamins and minerals, botanicals, anti-oxidant and plant enzymes.

COMPOSITION OF NUTREASE POWDER

| Serving Size : 30g (1 Scoop) | | Serving per container : 20 |
|------------------------------|-----------------|----------------------------|
| Supplement Facts | Per 100g Approx | Per 30g Approx |
| Energy | 349.86 Kcal | 104.96 Kcal |
| Protein | 38.723g | 11.61g |
| Total Carbohydrate | 53.05g | 15.91g |
| Dietary Fiber | 22.17g | 6.648g |
| Sugar | 6.093g | 1.82g |
| Total Fat | 3.00g | 0.902g |
| Saturated Fats | 2.62g | 0.78g |
| Mono Unsaturated Fats | 0.133g | 0.040g |
| Poly Unsaturated Fats | 0.116g | 0.034g |
| VITAMINS | | |
| Vitamin A | 2000IU | 600IU |
| Vitamin C | 40mg | 12mg |
| Vitamin E | 10mg | 3mg |
| Thiamine | 0.075mg | 0.03mg |
| Riboflavin | 0.05mg | 0.015mg |
| Niacin | 0.21mg | 0.063mg |
| Pantothenic Acid | 0.24mg | 0.072mg |
| Pyridoxine | 0.1mg | 0.03mg |
| Folic Acid | 0.002mg | 0.0006mg |
| MINERALS | | |
| Calcium | 100mg | 30mg |
| Iron | 5mg | 1.5mg |
| Phosphorus | 200mg | 60mg |
| Selenium | 100mcg | 30mcg |
| Copper | 5mg | 1.5mg |
| Chromium | 100mcg | 30mcg |
| Potassium | 50mg | 15mg |
| Sodium | 50mg | 15mg |
| Choline | 15mg | 4.5mg |
| Manganese | 2mg | 0.6mg |
| Zinc | 5mg | 1.5mg |
| Magnesium | 100mg | 30mg |

INGREDIENTS :

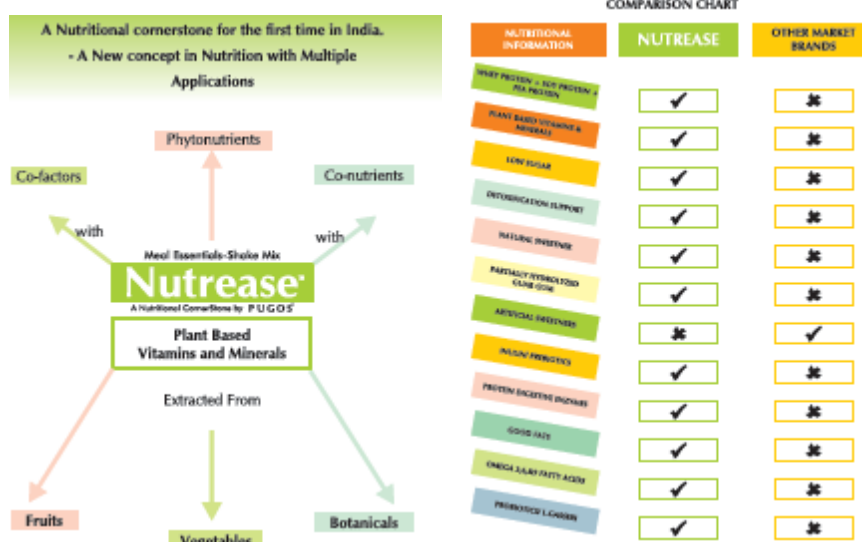
Inulin, Soya Protein Isolate, Pea Protein Isolate, Whey Powder, Cyclodextrin, Partially Hydrolyzed Guar gum, Guava Leaf Extract, Moringa Extract, Sesbania Extract, Annatto Extract, Green Tea Extract, Holy Basil Extract, Amla Extract, Lemon Peel Extract, Citrus Bioflavonoids, Flax Seed Powder, Brassica, Lactobacillus Gasseri, Papaya Fruit Latex, Pine Apple Extract, Steviol Glycosides (Rebaudioside A), Ginger Powder, Curcuminoids, Banana Leaf Extract, β -Carotene, Di Calcium Phosphate, Choline, Copper Sulphate, Manganese Sulphate, Fructose, Riboflavin, Skimmed Milk Powder, Xanthum gum, Apple Fiber, Sodium Carboxymethyl Cellulose, Mango Powder and Mango Flavor.

MECHANISM OF ACTION OF NUTREASE POWDER

Nutrase contains standardized plant-based vitamins and minerals which include a diverse mixture of substances including dozens of closely related vitamins and phytonutrients to help potentiate insulin action and thus influence carbohydrate, lipid and protein metabolism. Targeted botanicals and antioxidants like curcuminoids, sulforaphane glucosinolate from Broccoli Extract and Ginger Extract to help regulate metabolism, stimulate digestion and to provide long-lasting cell protection from free radical damage. Probiotics and prebiotics like Lactobacillus gasseri and Inulin to help balance intestinal flora, reduce waist circumference and

reduce adipocyte size through inhibition of leptin levels. Good fats like omega 3,6& 9 from Flaxseed and Medium Chain Triglycerides (MCT), help to maintain healthy levels of blood sugar and triglycerides, enhance metabolism to burn more calories. Optimum fibers like alpha cyclodextrins, partially hydrolyzed guar gum, and oat fiber to help promote intestinal regularity, to increase the satiety and improve glycemic effect of meal. Plant enzymes like bromelain and papain for better digestion and absorption of proteins. Premium blend of protein concentrate and pea protein isolate to meet the daily protein requirements and to maintain lean muscle mass. Added with natural sweetener to maintain healthy blood sugar levels.

PHARMACOLOGICAL ACTION OF EACHINGREDIENTS OF NUTREASE POWDER



**Nutrese contains plant based broad spectrum
Vitamins & Minerals which includes a diverse mixture of
substances including dozens of closely related
Vitamins and Phytonutrients**

BANANA LEAF EXTRACT:

- ▶ Banana leaves are standardized for **Sodium** and **Potassium**.
- ▶ Promotes healthy digestion & contains large amounts of polyphenols (natural antioxidants) such as epigallocatechin gallate, or EGCG, a potent antioxidant and skin rejuvenator.
- ▶ Helps to promote fat oxidation and lowering body weight.



MORINGA EXTRACT:

- ▶ Natural energy booster, standardized for **Chromium**.
- ▶ Contains massive amounts of antioxidants like vitamin C, beta-carotene, quercetin, and chlorogenic acids. It is also rich in Protein, Vitamin A, Vitamin B6, and Minerals.
- ▶ Essential nutrient that potentiates insulin action, and thus influences carbohydrate, lipid, and protein metabolism.

MUSTARD SEED EXTRACT

- ▶ Mustard seed extract standardized for **Selenium**, along with the co-factors and co-nutrients.
- ▶ Helps to support thyroid hormone production, function as part of many enzymes, has antioxidant effects, can help in lowering blood pressure, moderate blood sugar levels, maintain healthy skin, and maintains immune system.



CURRY LEAF EXTRACT

- ▶ Curry leaf extract is standardized for **Iron** and is also a good source of antioxidant.
- ▶ Has shown to have medical properties such as anti-diabetic, antioxidant, antimicrobial, anti-inflammatory and hepatoprotective.
- ▶ Helps to reduce bad LDL cholesterol levels and maintains hemoglobin levels.
- ▶ It also contains various nutrients like vitamin A, C, B, E, Calcium, Phosphorus, Magnesium and copper.

GUAVA LEAF EXTRACT:

- ▶ Guava leaves extract is standardized for **Zinc** & it contains flavonoids, polyphenols, ursolic acid, essential oils and tannins.
- ▶ Helps to maintain growth, the immune system, cell growth and division.
- ▶ Helps in breakdown of carbohydrates.



AMLA EXTRACT

- ▶ Amla extract standardized for **Vitamin C**, contains polyphenols and bioflavonoids.
- ▶ It is also rich in anti-oxidants, fibre and minerals like calcium and phosphorus.
- ▶ Helps in speed metabolism, especially that of proteins.

ANNATTO EXTRACT:

- ▶ Annatto extract standardized for **Vitamin E**.
- ▶ Helps to limit the liver's ability to produce LDL (Low Density Lipoprotein) cholesterol.
- ▶ Helps to improve digestion.



BLEND OF GUAVA, SESBANIA, HOLY BASIL, LEMON PEEL EXTRACT AND CITRUS BIOFLAVONOIDS:

- ▶ This extract standardized for all **Natural B-Complex Vitamins** (except B-12), along with its co-nutrients and co-factors that help to support the activity and stability of the B-Complex vitamins.
- ▶ Guavas are rich in nutrients including vitamins, carotenoids, polyphenols and antioxidant pigments & lemon peels are rich in vitamins, including folic acid and folates, and phytonutrients.
- ▶ Tulsi is a sacred plant for Hindus, and a very well documented medicinal plant in Ayurveda. Modern science has confirmed that it has many healthy nutrients like ursolic acid & rosmarinic acid that provide a wide range of health benefits.

SOLUBLE AND INSOLUBLE FIBERS

HEALTH BENEFITS OF FIBER

- ▶ Normalizes bowel movements & maintain bowel health.
- ▶ Helps control blood sugar levels & lowers cholesterol levels.
- ▶ Aids in achieving healthy weight.



This product uses four types of specialty fibers from:

- ▶ SUNFIBER FROM TAIO (Partial hydrolyzed guar gum)
- ▶ INULIN FROM FIBRULINE, BELGIUM (Inulin- Chichory extract)
- ▶ GAMMA CYCLODEXTRIN FROM WACKER, US
- ▶ APPLE FIBER FROM VITACELL

SUNFIBER FROM TAIO (Partial hydrolyzed guar gum)

- ▶ Helps aid satiety (feeling of fullness) and improves glycemic effect of a meal.
- ▶ Easily digestible, prevents gas and bloating which is often experienced with a high fiber supplement
- ▶ Helps to improve mineral absorption.
- ▶ Helps to promote intestinal regularity & maintain digestive health.

INULIN FROM FIBRULINE, BELGIUM (Inulin- Chichory extract)

- ▶ Helps to provide the energy source for the beneficial bacteria living in the gut.
- ▶ Helps to relieve from constipation.
- ▶ Helps to increase calcium absorption and possibly magnesium absorption.
- ▶ A natural prebiotic

CYCLODEXTRIN FROM WACKER, US

- ▶ Water soluble, non-digestible fiber.
- ▶ Cyclodextrin helps to coat fat molecules in the food making them incapable to absorb.

APPLE FIBER FROM VITACELL, INDIA

- ▶ Helps to remove toxic substances from the digestive tract.
- ▶ Helps to remove unhealthy fats before they are stored in the body.
- ▶ Helps to reduce your risk for heart problems & enhance bowel function.



TARGETED BOTANICALS

BROCCOLI EXTRACT

- ▶ Sulforaphane glucosinolate extracted from Broccoli is a potent anti-oxidant.
- ▶ It is rich in calcium, iron & vitamin A, C & E.
- ▶ Provides long-lasting cell protection from free radical damage.
- ▶ Helps to exert a fat burning effect by triggering the breakdown of fat cells.
- ▶ Helps to prevent colon cancer, reduce blood pressure and heart disease.
- ▶ Helps to improve digestion.



CURCUMINOIDS FROM MOTHER TURMERIC EXTRACT

- ▶ Potent anti-oxidant, anti-inflammatory & cancer preventive molecule.
- ▶ Helps to assist the liver's detoxification activity.
- ▶ Controls appetite & increases the production of an adiponectin hormone.
- ▶ Increases the body's natural defense against allergens by increasing antibody response.
- ▶ Helps to lower bad cholesterol and improves digestion.



GINGER EXTRACT

- ▶ An anti-inflammatory
- ▶ Improve blood sugar levels & leptin levels
- ▶ Helps to regulate metabolism, stimulate digestion and reduces cortisol production.
- ▶ Helps to regulate cholesterol and increase energy level.



PRO-BIOTIC SUPPORT

(LACTOBACILLUS GASSERI)

- ▶ Lactobacillus gasseri helps to inhibit increase in body weight and white adipose tissue weight & help in reducing waist circumference. (Seun-Pil jung. Et al., K.J. F.M. 2013; 34: 80-89)
- ▶ Lactobacillus gasseri helps to reduce adipocyte size through inhibition of energy input and the level of leptin. (Essam M. Hamad. Et al., B.J. Nutrition (2009), 101, 716-724)
- ▶ Lactobacillus gasseri helps to reduce the serum and hepatic cholesterol and increase excretion of faecal fatty acids and total neutral faecal sterols. (Essam M. Hamad. Et al., B.J. Nutrition (2009), 101, 716-724)

GOOD FATS

FLAXSEED POWDER WITH OMEGA 3, 6, 9 FATTY ACIDS

- ▶ Helps to maintain healthy levels of blood sugar and triglycerides.
- ▶ Helps to promote healthy insulin response & reduces cholesterol.
- ▶ Supports colon detoxification, fat loss, increase metabolism and fat burning potential.

MEDIUM CHAIN TRIGLYCERIDES (MCT)

- ▶ Helps to enhance metabolism to burn more calories.
- ▶ Good source of energy and preserves muscle glycogen.
- ▶ Helps to suppress appetite.



PLANT ENZYMES FOR BETTER ABSORPTION PAPAIN FROM PAPAYA FRUIT LATEX AND BROMELIN FROM PINEAPPLE EXTRACT

- ▶ Protein digestion enzymes.
- ▶ Helps to break large protein molecules into smaller and easing their absorption.
- ▶ To help to reduce Irritable Bowel Syndrome (IBS)



The enzymes help to breakdown any toxin molecules that have a neutral pH. Hence, the stomach is able to break down proteins that are normally absorbed and transferred to fat, which is known as enzyme digestion. This stops the digestive system from malfunctioning.



One and only supplement with standardized plant based Vitamins & Minerals

Synthetic Vitamins & Minerals



"Natural" Vitamins & Minerals



Plant - Based Vitamins & Minerals



Figure 1. Most "natural" vitamin supplements are chemically stripped down to a single vitamer, which are more closely related to synthetic vitamins than true plant-based vitamins.

Synthetic Vitamins & Minerals

- ▶ Are made up of industrial chemicals like petroleum derivatives (hydro carbons).
- ▶ Chemical structure varies compared to Natural and plant based vitamins & minerals.
- ▶ Doesn't contain broad spectrum of closely related vitamins, minerals and phytonutrients co-factors and conutrients.
- ▶ Has failed to protect against diseases.
- ▶ Less Bioavailable.
- ▶ They are less absorbed and have more risks of Side effects.

Plant-Based Vitamins & Minerals

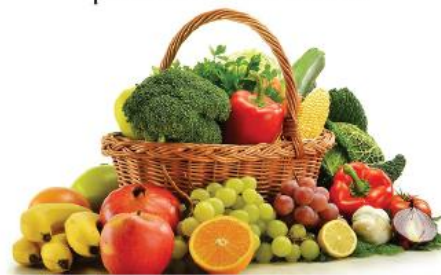
- ▶ Extracted from fruits vegetables, herbs, fungi and other natural sources.
- ▶ Chemical structure and chemical diversity of vitamins and phytonutrients are naturally retained.
- ▶ contains broad spectrum of closely related Vitamins, Minerals, Phytonutrients, Co-factors, and Co-nutrients.
- ▶ Has shown effective protection role against diseases.
- ▶ Bioavailability is purely high.
- ▶ Highly absorbed and have very less side effects.

Synthetic /
isolated vitamins



VS.

Broad-spectrum
plant-based vitamins



SUPPLEMENT FACTS

- **Presentation:** POWDER

- **Usage:** As a food supplement. It is a combination of Natural vitamins and minerals antioxidants to improve health and vitality.

Provides specific support for healthy blood sugar levels, insulin sensitivity and satiety.

- **Contra-indications:** Product is contra-indicated in persons with Known hypersensitivity to any component of the product hypersensitivity to any component of the product.
- **Recommended usage:** Once or twice a day along with portion controlled nutritious meals and exercise.
- One Serving (30g- 1 Scoop) provides 104 Calories, 11.61g of proteins, 6.64g of Fiber and 1.82g of Sugar per day.
“Do not exceed the recommended daily dose”.
- **Directions for Use:** Take one level scoop (30g) with skimmed milk or water to make a cup of 200ml. Gently shake well in shaker or stir well until the powder is evenly dispersed and drink immediately.
- **Administration:** Taken by oral route at any time with food.
- **Precautions:** Food Supplements must not be used as a substitute for a varied and balanced diet and a healthy lifestyle. This Product is not intended to diagnose, treat, cure or prevent any diseases. Do not exceed the recommended daily dose.
- **Warnings:** If you are taking any prescribed medication or has any medical conditions always consults doctor or health care practitioner before taking this supplement.
- **Side Effects:** Mild side effects like nausea, headache and vomiting in some individuals have been reported.
- **Storage:** Store in a cool, dry and dark place.

REFERENCES

- [1]. Yamada, T.; Hayasaka, S.; Shibata, Y.; Ojima, T.; Saegusa, T.; Gotoh, T.; Ishikawa, S.; Nakamura, Y.; Kayaba, K. Frequency of citrus fruit intake is associated with the incidence of cardiovascular disease: The Jichi Medical School cohort study. *J. Epidemiol.* 21, 2011, 169–175.
- [2]. Mursu, J.; Virtanen, J.K.; Tuomainen, T.P.; Nurmi, T.; Voutilainen, S. Intake of fruit, berries, and vegetables and risk of type 2 diabetes in Finnish men: The kuopio ischaemic heart disease risk factor study. *Am. J. Clin. Nutr.* 9, 2014, 328–333.
- [3]. Kruk, J. Association between vegetable, fruit and carbohydrate intake and breast cancer risk in relation to physical activity. *Asian Pac. J. Cancer Prev.* 15, 2014, 4429–4436.
- [4]. Kyro, C.; Skeie, G.; Loft, S.; Landberg, R.; Christensen, J.; Lund, E.; Nilsson, L.M.; Palmqvist, R.; Tjonneland, A.; Olsen, A. Intake of whole grains from different cereal and food sources and incidence of colorectal cancer in the Scandinavian HELGA cohort. *Cancer Causes Control* 24, 2013, 1363–1374.
- [5]. Wang, L.F.; Chen, J.Y.; Xie, H.H.; Ju, X.R.; Liu, R.H. Phytochemical profiles and antioxidant activity of adlay varieties. *J. Agric. Food Chem.* 61, 2013, 5103–5113.

SUMMARY & CONCLUSION

Chronic diseases are the leading causes of death and disability. Reactive oxygen or nitrogen species under certain conditions can cause an imbalance and lead to oxidative damage to large biomolecules such as lipids, DNA and proteins. Overproduction of oxidants and chronic inflammation are responsible for the pathogenesis of many chronic diseases. Thus, antioxidant phytochemicals are among the most potential agents to treat chronic diseases. They possess many biological activities and health benefits, such as antioxidant and free radical scavenging abilities, anti-inflammatory action, anticancer, anti-aging, and protective action for cardiovascular diseases, diabetes mellitus, obesity and neurodegenerative diseases. Especially, many antioxidant phytochemicals are found to have more than one property, for example, resveratrol has a protective role in CVD, cancers, aging, obesity, diabetes and AD. It is recommended to consume fruits, vegetables, and grains as well as some medicinal plants more frequently because they contain many antioxidant phytochemicals.

Nutrase powder just 1 serving (1 scoop) twice daily provides specific support for healthy blood sugar levels, insulin sensitivity and satiety. Nutrase powder supports effective weight management, reduces hunger and cravings, promotes Cardiovascular health provides energy and positive mood, promotes loss of fat and preservation of lean body mass, improve metabolism and insulin sensitivity.

- [6]. Barbosa, A.; Silveira, G.D.; de Menezes, I.; Neto, J.; Bitencurt, J.; Estavam, C.D.; de Lima, A.; Thomazzi, S.M.; Guimaraes, A.G.; Quintans, L.J.; et al. Antidiabetic effect of the *Chrysobalanus icaco* L. aqueous extract in rats. *J. Med. Food* 16, 2013, 538–543.
- [7]. Deng, G.F.; Xu, X.R.; Guo, Y.J.; Xia, E.Q.; Li, S.; Wu, S.; Chen, F.; Ling, W.H.; Li, H.B. Determination of antioxidant property and their lipophilic and hydrophilic phenolic contents in cereal grains. *J. Funct. Food* 4, 2012, 906–914.
- [8]. Guo, Y.J.; Deng, G.F.; Xu, X.R.; Wu, S.; Li, S.; Xia, E.Q.; Li, F.; Chen, F.; Ling, W.H.; Li, H.B. Antioxidant capacities, phenolic compounds and polysaccharide contents of 49 edible macro-fungi. *Food Funct* 3, 2012, 1195–1205.
- [9]. Wu, S.; Li, S.; Xu, X.R.; Deng, G.F.; Li, F.; Zhou, J.; Li, H.B. Sources and bioactivities of astaxanthin. *Int. J. Mod. Biol. Med* 1, 2012, 96–107.
- [10]. Fu, L.; Xu, B.T.; Xu, X.R.; Gan, R.Y.; Zhang, Y.; Xia, E.Q.; Li, H.B. Antioxidant capacities and total phenolic contents of 62 fruits. *Food Chem* 129, 2011, 345–350.
- [11]. Manganaris, G.A.; Goulas, V.; Vicente, A.R.; Terry, L.A. Berry antioxidants: Small fruits providing large benefits. *J. Sci. Food Agric* 94, 2014, 825–833.
- [12]. Xia, E.Q.; Deng, G.F.; Guo, Y.J.; Li, H.B. Biological activities of polyphenols from grapes. *Int. J. Mol. Sci* 11, 2010, 622–646.
- [13]. Fu, L.; Xu, B.T.; Xu, X.R.; Qin, X.S.; Gan, R.Y.; Li, H.B. Antioxidant capacities and total phenolic contents of 56 wild fruits from south China. *Molecules* 15, 2010, 8602–8617. 21149 *Molecules* 20, 2015, 21138–21156
- [14]. Deng, G.F.; Shen, C.; Xu, X.R.; Kuang, R.D.; Guo, Y.J.; Zeng, L.S.; Gao, L.L.; Lin, X.; Xie, J.F.; Xia, E.Q.; et al. Potential of fruit wastes as natural resources of bioactive compounds. *Int. J. Mol. Sci* 13, 2012, 8308–8323.
- [15]. Deng, G.F.; Lin, X.; Xu, X.R.; Gao, L.L.; Xie, J.F.; Li, H.B. Antioxidant capacities and total phenolic contents of 56 vegetables. *J. Funct. Food* 5, 2013, 260–266.
- [16]. Deng, G.F.; Xu, X.R.; Zhang, Y.; Li, D.; Gan, R.Y.; Li, H.B. Phenolic compounds and bioactivities of pigmented rice. *Crit. Rev. Food Sci. Nutr* 53, 2013, 296–306.
- [17]. Song, F.L.; Gan, R.Y.; Zhang, Y.A.; Xiao, Q.; Kuang, L.; Li, H.B. Total phenolic contents and antioxidant capacities of selected Chinese medicinal plants. *Int. J. Mol. Sci* 11, 2010, 2362–2372.
- [18]. Li, A.N.; Li, S.; Li, H.B.; Xu, D.P.; Xu, X.R.; Chen, P. Total phenolic contents and antioxidant capacities of 51 edible and wild flowers. *J. Funct. Food* 6, 2014, 319–330.
- [19]. Zhang, Y.J.; Deng, G.F.; Xu, X.R.; Wu, S.; Li, S.; Li, H.B. Chemical components and bioactivities of cape gooseberry (*Physalis peruviana*). *Int. J. Food Nutr. Saf* 3, 2013, 15–24.
- [20]. Giampieri, F.; Tulipani, S.; Alvarez-Suarez, J.M.; Quiles, J.L.; Mezzetti, B.; Battino, M. The strawberry: Composition, nutritional quality, and impact on human health. *Nutrition* 28, 2012, 9–19.
- [21]. Costa, A.; Garcia-Diaz, D.F.; Jimenez, P.; Silva, P.I. Bioactive compounds and health benefits of exotic tropical red-black berries. *J. Funct. Food* 5, 2013, 539–549.
- [22]. Rokayya, S.; Li, C.J.; Zhao, Y.; Li, Y.; Sun, C.H. Cabbage (*Brassica oleracea* L. var. capitata) phytochemicals with antioxidant and anti-inflammatory potential. *Asian Pac. J. Cancer Prev* 14, 2013, 6657–6662.
- [23]. Hyson, D.A. A comprehensive review of apples and apple components and their relationship to human health. *Adv. Nutr* 2, 2011, 408–420.
- [24]. Yang, J. Brazil nuts and associated health benefits: A review. *LWT-Food Sci. Technol* 2009, 42, 1573–1580.
- [25]. Sun, J.; Chu, Y.F.; Wu, X.Z.; Liu, R.H. Antioxidant and antiproliferative activities of common fruits. *J. Agric. Food Chem* 50, 2002, 7449–7454.
- [26]. Sung, J.; Lee, J. Antioxidant and antiproliferative activities of grape seeds from different cultivars. *Food Sci. Biotechnol* 19, 2010, 321–326.
- [27]. Poulouse, S.M.; Miller, M.G.; Shukitt-Hale, B. Role of walnuts in maintaining brain health with age. *J. Nutr* 144, 2014, 561S–566S.

- [28]. Singh, M.; Suman, S.; Shukla, Y. New enlightenment of skin cancer chemoprevention through phytochemicals: In vitro and in vivo studies and the underlying mechanisms. *Biomed. Res. Int.* 2014, 2014,243452.
- [29]. Soobrattee, M.A.; Neergheen, V.S.; Luximon-Ramma, A.; Aruoma, O.I.; Bahorun, T. Phenolics as potential antioxidant therapeutic agents: Mechanism and actions. *Mutat. Res. Fundam. Mol. Mech. Mutagen.* 579, 2005, 200–213.
- [30]. Cao, G.; Russell, R.M.; Lischner, N.; Prior, R.L. Serum antioxidant capacity is increased by consumption of strawberries, spinach, red wine or vitamin C in elderly women. *J. Nutr.* 128, 1998, 2383–2390.
- [31]. Cao, G.; Booth, S.L.; Sadowski, J.A.; Prior, R.L. Increases in human plasma antioxidant capacity after consumption of controlled diets high in fruit and vegetables. *Am. J. Clin. Nutr.* 68, 1998, 1081–1087.
- [32]. Mazza, G.; Kay, C.D.; Cottrell, T.; Holub, B.J. Absorption of anthocyanins from blueberries and serum antioxidant status in human subjects. *J. Agric. Food Chem.* 50, 2002, 7731–7737.
- [33]. Koren, E.; Kohen, R.; Ginsburg, I. Polyphenols enhance total oxidant-scavenging capacities of human blood by binding to red blood cells. *Exper. Biol. Med.* 235, 2010, 689–699.
- [34]. Liu, R.H. Health benefits of fruit and vegetables are from additive and synergistic combinations of phytochemicals. *Am. J. Clin. Nutr.* 78, 2003, 517S–520S.
- [35]. Liu, R.H. Potential synergy of phytochemicals in cancer prevention: Mechanism of action. *J. Nutr.* 2004, 134, 3479–3485.
- [36]. Dahlen, E.M.; Tengblad, A.; Lanne, T.; Clinchy, B.; Ernerudh, J.; Nystrom, F.H.; Ostgren, C.J. Abdominal obesity and low-grade systemic inflammation as markers of subclinical organ damage in type 2 diabetes. *Diabetes Metab.* 40, 2014, 76–81.
- [37]. Qiao, L.; Li, X. Role of chronic inflammation in cancers of the gastrointestinal system and the liver: Where we are now. *Cancer Lett.* 2014, 345, 150–152. 21150 *Molecules* 20, 2015, 21138–21156
- [38]. Steinberg, G.R.; Schertzer, J.D. AMPK promotes macrophage fatty acid oxidative metabolism to mitigate inflammation: Implications for diabetes and cardiovascular disease. *Immunol. Cell Biol.* 92, 2014, 340–345.
- [39]. Hutchins-Wolfbrandt, A.; Mistry, A.M. Dietary turmeric potentially reduces the risk of cancer. *Asian Pac. J. Cancer Prev.* 12, 2011, 3169–3173.
- [40]. Deng, G.F.; Xu, X.R.; Li, S.; Li, F.; Xia, E.Q.; Li, H.B. Natural sources and bioactivities of resveratrol. *Int. J. Mod. Biol. Med.* 1, 2012, 1–20.