

NUTRITIONAL SUPPLEMENTS FROM GREEN LEAFY VEGETABLE

IDENTIFYING OUT-LICENSING PARTNERS



**INSTITUTE OF INTELLECTUAL PROPERTY
RESEARCH & DEVELOPMENT**

About Phytabolites and Founders/Inventors

Phytabolites Nutraceutical Pvt Ltd, a knowledge based company having four Directors, who are technocrats themselves –

- Dr. Chitra Savangikar is M.Sc. Ph.D. in Botany and also a registered Patent Agent.
- Dr. Meena Shelagaonkar is M.Sc. Ph.D. in Pharmacology.
- Mrs. Ashwini Adawadkar is M.Sc. In Microbiology.
- Mrs. Ashwini Deshmukh is M.Sc. In Pharmacology.

One of the main objectives of the company comprises commercialization of the technology of products for health benefit made from Green Leafy Vegetables by a modern technology.

The technology and the products have been licensed from Drs. V. A. Savangikar and Dr. Chitra Savangikar. Both of them have about 25 years of R&D experience in this field. Their expertise has been acknowledged by International Research Journals by publishing their research articles/papers.

PRODUCT OVERVIEW:

Following products are released or close to be released and few more products are in pipeline:

- **Plezzant:** A natural antacid, patents granted in UK, France, Germany and India
- **Green 100:** A breakfast cereal mix fortified with anti-oxidant extract from 100 gram green leafy vegetable per 10 gram. An immunity booster, for eye health and for iron supplementation.
- **High fiber nutritious soups in two tastes** – Plain and Sweet OR sugar free sweet syrups: For cholesterol reduction, lowering post-meal sugar level, anti-constipation, immunity booster.
- **High fiber biscuits** – sweet and salty: For same health benefits as for 3, and they can be carried to workplace as well as in travelling so that daily compliance is ensured.
- **High fiber anti-constipation soup or s a sugar free syrup:** a mild laxative, once a week for those who have tendency to constipate.
- **Enriched flax oil:** As a salad oil or as soft-gels. For immunity boosting, internal cleansing, eye health.

Products In Pipeline

- Some cosmetic products are also in pipeline for skin nourishment, sunscreen and skin lightening.
- Some therapeutic external application products are also in pipeline as anti-microbials for skin for rash.

Genesis of Invention

- A finding from a surprising observation that less than one gram of nutrient concentrate prepared for nutritional purpose actually relieved habitual back ache and headache that used to be experienced by the inventor Dr. V.A. Savangikar in actions such as study, table work on computer, late night work etc.
- This effect was later reproduced on all subsequent occasions by Dr. V.A. Savangikar, Dr. Chitra also confirmed it whenever she got feeling of acidity.
- This led to investigating various aspects of the nutrient concentrate for antacid action. Encouraged by this finding, the product was given to an elderly diabetic relative who had nausea arising from antibiotic treatment during two consecutive surgical operations for cellulites on right leg. Her nausea was relieved with the first dose itself.
- Followed by similar relief for nausea in first dose itself in a case of breast cancer after completion of chemotherapy.
- In course of time, experiments on rat model confirmed that its effect may be **anti-secretory for acid secretion in stomach when compared with Ranitidine control.**

PRODUCTS PORTFOLIO AND THEIR USPS:

1. PLEZZANT :

A natural and safe OTC product.

- Natural antacid
- Quick onset of action
- Dosage 1.5 gram at a time, normally three times a day or as required when acidity related discomfort is experienced
- Safely even up to 50 grams per day and for any number of days in a year
- No drug interactions possible because active ingredient is a nutrient concentrate

Relief From:

- Mild acidity related indication such as headache, backache, restlessness
- Nausea induced in long term antibiotic treated patients, who have undergone surgery
- In case of patients who are recovering from a treatment of anesthesia
- Nausea in cancer patients after chemotherapy treatment.

Relief from some cases of migraine are also reported; to some extent, the product is also useful to control craving for a couple of hours in those who are on a diet, and also useful for the confirmed acidity patients.

Useful to:

Students preparing for competitive exams, housewives and professions, such as IT professionals working for long hours.

LIMITATIONS OF CURRENTLY AVAILABLE ANTACIDS (that are absent in PLEZZANT):

- Patients who suffered from a massive upper GI hemorrhage should not take **antacids containing aluminum hydroxide** without consulting their doctor.
- Patients who have impaired kidney function should not take **antacids containing magnesium hydroxide** without their doctors' knowledge.
- Extended heavy use of **antacids that contain calcium** (20 grams or more daily for a prolonged period) may cause excess calcium in the blood, which can lead to kidney stones and reduced kidney function. People who already have impaired kidneys may develop milk-alkali syndrome (symptoms include nausea, vomiting, mental confusion, and loss of appetite) when taking as little as 4 grams a day of these antacids.
- Overuse of **antacids that contain aluminum** can weaken bones, especially in people with impaired kidney function, leading to osteomalacia (softening of the bones, which causes tenderness, muscular weakness, and weight loss).

- The most common side effect of antacids is a chalky taste left in the mouth. Antacids containing magnesium may cause diarrhea and those containing aluminum may cause constipation.
- Prolonged use of antacids may result in nausea, headache, muscle weakness, or loss of appetite.
- Antacids can affect the way number of prescription medicines work or used by the body. Finally, with many medications, antacids must be taken one to two hours before or after the other drug.
- Most of the allopathic medicines out there are to be used for no longer than 14 days, three times a year. Unless instructed otherwise by your doctor, for those that sufferers from GERD.
- For pregnant women with GERD, herbal solutions may be viable alternatives if they are efficacious.
- Calcium Carbonate: Can cause constipation or in some people the production of more acid (acid rebound)

- Magnesium: Diarrhea, people with kidney problems may end up with too much magnesium in the blood stream
- Aluminium: Constipation, if used too often with kidney problems, expect to have too much aluminum in the blood stream
- H2 Blockers (H2 receptor antagonists) and Proton Pump Inhibitors (PPIs) (anti-acid secretory medicines of “New Chemical Entity type such as Cimetidine, Ranitidine, Famotidine, Nizatidine Omeprazol, Lansoprezol, Ranitidine type) are for short-term use (2 to 8 weeks)
- Side effects for H2 Blockers include hypotension. Rare ADRs include: headache, tiredness, dizziness, confusion, diarrhea, constipation, and rash. In addition, Cimetidine may also cause gynecomastia in males, loss of libido, and impotence, which are reversible upon discontinuation. In a longitudinal study of elderly African Americans published in 2007, long-term use of H2 blockers appeared to increase the risk of cognitive decline
- Side effects of PPIs include headache, diarrhea, constipation, abdominal pain, nausea and rash

- It has been observed that gastric acid suppression, using H₂-receptor antagonists and proton pump inhibitors, is associated with an increased risk of community-acquired pneumonia and Clostridium difficile infection by 1.7X with once daily use and 2.4X with more than once daily use
- Long-term use of proton pump inhibitors in a study of 135,000 people 50 or older, are exposed to risk of a hip or bone fracture which increased with the length of time taking PPIs

In view of above facts and the fact that Plezzant gives quick onset of relief and its active ingredient is a nutrient concentrate that can not have conceivable side effects and also, is known to be safe at least 50 times its recommended unit dose. It is set to become an antacid of first choice for limited time use as well as long time use.

Plezzant: REGULATORY ASPECTS/APPROVALS:

Product approval: In US FDA all the actives from Green Leafy Vegetables would come in GRAS list and the same shall also be approved in India as safe. In Europe, actives of Plezzant and Green 100 would come in GRAS list under certain conditions that are observed by us. In Europe, fiber of Green Leafy Vegetables may perhaps be considered as “Novel food”. However, approval for the same is not likely to meet un-surmountable difficulties since the process of production is based on physical methods and does not involve any chemical change. A product of physical separation process that does not involve chemical treatment is considered as safe by EFSA in other cases; same principle can be applied here. Hence, product approvals are not considered as a challenge/a risk.

Evidence acceptable for “Health claims” as Label Claims :

US FDA has given detailed advisory in this matter, which is applicable in principle in EFSA (European Food Safety Authority) and should be applicable in matters relating to FSSAI (Food safety and Standards Authority of India).

In general:

- If the health claims are based on authoritative information published by reputed research and public institutions, no clinical evidence is required. Based on such “Significant Scientific Agreement”, US FDA has published certain “Authorized Health Claims”, which can be printed in label without requirement of clinical evidence to support them.
- If a health claim is not backed by “Significant Scientific Agreement”, clinical evidence is required to support a label health claim.

Evidence acceptable for “Health claims” as Label Claims (continued..):

- If the health claim is new to science, there is also some evidence available to support it, but it is considered as not conclusive enough to support the claim, a “Qualified Health Claim” can be made having a wording that meets approval of US FDA.
- In case of health claims that are new to science and need acceptable evidence, following are considered as an “acceptable evidence” :
 - Sub-acute toxicity studies are required to verify basic safety
 - Results of a double blind placebo trial on human beings is considered irrefutable evidence. However, US FDA acknowledges that in nutraceuticals, double blind placebo control trials on human beings may actually be unethical. Hence, sufficient number of “Well documented Case studies” on human beings are also considered as evidence enough to support health claims in absence of double blind placebo controlled clinical trials
 - Animal studies are considered as a good supporting evidence. However, results on human being are considered as fundamental and indispensable.

Clinical Investigation and Animal Experiments, PLEZZANT :

- Clinical investigations and animal experiments have been carried out at Bombay Veterinary College, Mumbai, a reputed and **FDA approved center for clinical trials and animal experiments.**
- Preclinical sub-acute toxicity trials have been conducted on rats with active **ingredient of Plezzant** and the same has been found to be safe.
- Several Case reports are recorded by well informed patients themselves or their relatives of relief from symptoms that arise from acidity such as GERD. Some reports are from patients of migraine, long term antibiotic treatment and cancer patients treated with chemotherapy.
- An experiment on rats comprising comparative study of H2 Blockers and active of the “First Product” on pylorus ligation induced ulcer model in rats showed efficacy of the active for reduction in acidity and for protection it afforded to the lining of the stomach against acidity.

2. Green 100 - A nutritional formulation: INTRODUCTION

This is a purely vegetarian product that is very special in global nutritional market.

- Most of the products in the current global market are based on soy protein, milk protein, whey protein, fortified cereals and mixed cereals. They serve as protein, energy, minerals and vitamin supplements
- However, there is a special group of essential nutrients that are normally supplied exclusively by a 100 gm portion of green leafy vegetables, which must be consumed every day to maintain immunity, general health and vigor, vitality, to avoid rapid ageing and to maintain beauty from within. This requirement is not seen to be fulfilled by currently available supplements in global market.
- This is an area where there is a direct need of food supplements in addition to or to complement the presently available dietary supplements / supplemented food products. If there is no awareness about this requirement, it is only because nobody ever contemplated that this need can be even practically fulfilled.

Green 100 - A nutritional formulation (continued...)

- Green 100 is the only product in market which contains nutrients from Green Leafy Vegetables in a form that is released from plant cells, is better bioavailable and is combined with other nutrients to augment a synergistic benefit. It has natural agreeable flavour, that helps in intake of otherwise unpalatable nutrient concentrate from Green Leafy Vegetables
- Dietary protein quality is better than meat protein, high in dietary fiber, zero cholesterol. Essential Amino Acid balance is close to the FAO Reference Protein (1966)
- About 10 gm of the Green 100 mix contains: essential nutrients such as carotenes, xanthophylls, chlorophylls, alpha-linolenic acid, highly bio available calcium and iron, and other lipid soluble constituents in a quantity that are extractable from about 100 gm of green leafy vegetables and are valuable for balanced human nutrition. 20 gram consumption per day is recommended for better results.

Green 100 - A nutritional formulation (continued...)

- Green Leafy Vegetable at 100 gram per day for daily consumption is not available globally for most part of the year. A 20 gram portion of this product, thus provides next best alternative for daily quota of consumption of Green Leafy Vegetables

APPLICATIONS

Wide scope for marketing this product, since it is useful for general health care applications as well as for highly specialized healthcare applications listed in the following:

- Relevant to people of all ages and all stages of development except infants.
- For strict vegetarian people this is the only nutritional product that has and dietary protein quality of which is better than meat protein, almost equal to or better than milk protein and only just next to egg protein. Egg protein is rated as best dietary protein which having 100% digestibility and 100% assimilation of the absorbed digested protein (i.e. 100% Biological Value).
- For people who need to avoid cholesterol in the diet but need to consume high biological value proteins.

- For people who have lactose intolerance
- For people suffering from gout or who have had episode of gout and require to avoid food high or moderate in purines and yet has high biological value protein
- This product has also been developed further for specialized application for tube feeding of patients in Intensive Critical Care Unit

Green 100 - A nutritional formulation

Key Ingredients:

Beta-Carotene -

- Pro-vitamin A and an Anti-oxidant.
- One mg of beta-Carotene - chemically equivalent to 1666 IU of vitamin A.
- Biologically, this potency may not get fully realized if beta-Carotene contained in food is not fully released from the plant cells and is not fully absorbed in the digestive tract.

- Green 100 contains beta-carotene in released form, from cells and is associated with the natural anti oxidants of the leaf and further protected by added permitted antioxidants during the process. Hence, all of it that is determined chemically is available for absorption and being associated with anti-oxidant protection, is available for its primary functions as needed by the body.

Beta-Carotenes offer several health benefits which are peculiar to themselves:

- Beta-Carotene is superior as well as safer than synthetic Vitamin A consumption. Excess consumption of synthetic Vitamin A is toxic; a normal excess consumption of beta-carotene shall be safely stored in the body without causing toxic effects, such stores are believed to be utilized whenever there is need to convert beta-Carotene to Vitamin A.
- Green 100 consumed in normal amounts provided beta-Carotene in optimum amounts and does not lead to excess consumption of beta-Carotene.

- Beta-Carotene is known to be an immuno-enhancer, enhances production or activation of “Natural Killer cells” that discharge the function of detecting foreign bodies in the body, engulf and eliminate them; thus providing very valuable “non-specific immunity”.
- This mechanism provides immunity against new pathogens against which there is no immunity in the blood, such as in case of Sars virus, or new pathogenic E. coli bacteria, bird-flu virus, Dengue virus, Chikungunya virus, super-bug bacteria (immune against all known antibiotics) etc.
- This mechanism also provides protection against cancer cells because they are also detected as “foreign bodies” and destroyed.
- An excellent anti-oxidant to combat ageing, providing protection from cancer (except in smokers), and may have cholesterol lowering effect.
- Beta-Carotene is important for skin health and fertility.

Xanthophylls -

- Lutein is an important constituent for macula in the eye and in cases of Age related Macular Degeneration (AMD), is thought to achieve regeneration too.
- Anti-oxidants:
 - to combat ageing.
 - for providing protection from cancer.
 - may be useful for cholesterol lowering.

Chlorophylls:

- for “internal body cleansing” and deodorization effect
- known for their antibacterial effect to avoid tooth decay and other purposes
- are accompanied with magnesium which is known to relax blood vessels and lower blood pressure

Alpha tocopherol (Vitamin E):

- Use as a nutrient
- Protects other components in a nutritional composition that are more oxidation sensitive than themselves
- Vitamin E combined with other antioxidants, like zinc and Vitamin C, has indicated:
 - a protective effect against the onset and progression of AMD (Age Related Macular Degeneration),
 - help protect against the damaging effects of free radicals which contribute to the development of chronic diseases such as cancer.
 - Vitamin E also may block the formation of nitrosamines, which are carcinogens formed in the stomach from nitrites consumed in the diet
 - It also may protect against the development of cancers by enhancing immune function

Vitamin K:

- Levels of Vitamin K have not been determined in this product. However, since all fat soluble constituents are extracted and added in this product, this may be one constituent of the product.
- Vitamin K1 is found chiefly in leafy green vegetables is believed to play a role in bone growth and the maintenance of bone density.
- Important in osteoporosis.

Calcium:

Calcium supplements are recommended to be taken with food. It is recommended to take supplements with food to aid in absorption.

- Calcium coming through natural supplements can be expected to be more efficiently utilized than inorganic supplements. Natural sources of calcium are safer than inorganic sources from the point of view of risk of kidney stone and alkalosis from consumption of inorganic calcium
- For the people who have lactose intolerance, green leafy vegetables are an excellent source of dietary calcium.

Iron:

- Extracts from Green leafy vegetables are very valuable source of preventing and treating anemia in view of the fact that inorganic supplements are poorly absorbed and create gastrointestinal problems for several people
- Iron coming through green leafy vegetables or their extracts is safer also because their over consumption as supplement of iron, that can potentially be toxic, is not possible.

Alpha Linolenic Acid:

- Fiber-less Protein-fat-minerals extract of Green Leafy Vegetables contains fats 50% of which are polyunsaturated fats, of which 50% is alpha-linolenic acid. α -Linolenic acid which is an Omega-3 fatty acid, is a member of the group of essential fatty acids. They are called essential fatty acids because they cannot be produced within the body and must be acquired through diet.

- Studies have found evidence that α -linolenic acid is related to a lower risk of cardiovascular disease. The weight of the evidence favors recommendations for modest dietary consumption of α -linolenic acid (2 to 3 g per day) for the primary and secondary prevention of coronary heart disease.

Green 100: REGULATORY ASPECTS:

- The key active, the water insoluble nutrient concentrate extracted from green leafy vegetable, Fenugreek has been subjected to pre-clinical trial for their sub-acute toxicity evaluation by animal trials in a FDA approved laboratory for clinical trials on rats. Conclusion is that this ingredient has been shown to be safe for consumption for rats up to maximum syringeable dose, which corresponds to upto 10 gram per day per person. Ten gram of the “Green 100” contains 1 gram of the active ingredient. Thus, the “Green 100” can be safely consumed up to at least 100 gram per day per person.
- Evidence is available in scientific literature on feeding trials of the active of Green 100 conducted in various countries on human beings and also by the inventors in the past in India. Several case studies on consumption of the “Green 100” that have shown benefit to the consumers are also available. **However, no clinical evidence is required since the product is eligible for two “Approved Health Claims” of US FDA described in the following.**

Evidence acceptable for “Health claims” as Label Claims :

- The product is eligible for “Approved Health Claim” of US FDA²⁴ (US FDA (see Title 21: Food and Drugs PART 101—FOOD LABELING, Subpart E—Specific Requirements for Health Claims, § 101.76. Accordingly: Green 100 is a food product that is low in fat, rich in fiber containing grain products and vegetables. Consuming Green 100 with low fat diets rich in fiber-containing grain products, fruits, and vegetables may reduce the risk of some types of cancer, a disease associated with many factors.
- The product is also eligible for “Approved Health Claim” of by US FDA²⁴ wherein no clinical evidence is required to support the claim (US FDA (see Title 21: Food and Drugs PART 101—FOOD LABELING, Subpart E—Specific Requirements for Health Claims, § 101.77. Accordingly: Diets low in saturated fat and cholesterol and rich in fruits, vegetables, and grain products that contain some types of dietary fiber, particularly soluble fiber, may reduce the risk of heart disease, a disease associated with many factors. Green 100 is low in saturated fat, has no cholesterol and is rich in vegetable extract and grain products that are rich in insoluble fiber.

3. Fiber based products:

- **Leaflex Ingredient**

A blend of soluble and insoluble fiber for supplementing fiber deficient diets. It is rich in protein and supplies Phytoestrogen Lignan which helps to correct hormonal balance.

- **Leaflex Soup**

Instant Soup form which is a blend of soluble and insoluble fiber for supplementing fiber deficient diets. It is rich in protein and supply Phytoestrogen like Lignan, which helps to correct hormonal balance.

- **Composite Fiber**

A blend of soluble and insoluble fiber for supplementing fiber deficient diets. It can form a good fiber ingredient along with masala of the non-vegetarian dishes.

- **Composite Fiber Soup**

Instant Soup with a blend of soluble and insoluble fiber for supplementing fiber deficient diets. Good for non-vegetarians also before meal.

Advantages/ Importance of Fiber based Products:

- Adequate intake of dietary fiber containing proper proportion of insoluble and soluble fiber may be useful in lowering of blood sugar by lowering glycemic index of the consumed food (slower release of blood sugar in the digestive tract for absorption in blood) giving benefits for diabetic and Glucose intolerant people
- In Glucose Intolerant people in conjunction with modest exercise schedule, these products may help them to stop their progression to a diabetic state in course of time
- Modulation of blood sugar level by adequate dietary fiber intake may be safer and easier for:
 - Glucose Intolerant patients without a need of taking blood sugar level decreasing drugs.
 - Diabetic patients without the need of adjusting the dose of the blood sugar lowering drugs too near the normal values.

- With help of these products dangers of accidental hypoglycemia occurring from blood sugar lowering drugs can be avoided for patients of both types mentioned above. These products, thus would help to “Fine Tune” the blood sugar management.
- Even for diabetic patients on blood sugar lowering drugs, it is necessary that the dose is to be adjusted such that blood glucose level is to the higher side rather than being what is considered as ideally normal, so that accidental instances of hypoglycemia do not take place. In such cases, adding dietary fiber to their diet will provide a “fine tuning” effect that is within safe limits because the capability to lower glycemic index is limited and its consumption happens only with food and not in absence of food. What is more, this benefit of lowering glycemic index shall be concurrent to the benefits of gastrointestinal health available from routine use of the fiber based products described below.

- Insoluble dietary fiber is also noted for its cholesterol lowering effect although mechanism of this action is not known. In view of the fact of severe side effects of statins and about 10 to 15% people having hypercholesterolemia, this property is of special importance with dietary fiber sources that could be integrated in food supplements in a palatable way.
- Most of the currently available dietary fiber sources in market them have their own limitations related to palatability. Fiber from green leafy vegetables is basically soft and palatable, being made from a conventionally eaten vegetables and can be integrated into daily food in variety of ways and companies in health food segment have shown interest in marketing these products.

- Soups prepared from them are accepted very well. Three different types of soups have been prepared for two groups of applications;
 - one for overcoming constipation only,
 - Second for weight management through satiety inducing formulations plus cholesterol management plus glycemic index management (lowering the glycemic index of food eaten after its consumption) and as a source of alpha-linolenic acid, an Omega 3 fatty acid, through its flax seed component.
 - High fiber food bars can also be prepared from this product which can be consumed before or after taking food.
- All of these are market ready products. **Fiber isolated from Green Leafy Vegetable being a novel ingredient, safety of the same has been verified by conducting preclinical trials at Bombay Veterinary College, Mumbai.**

FIBER BASED PRODUCTS : APPLICATIONS:

Amongst many applications of this product, its use in lowering glycemic index of the food shall be very much useful to “fine tune” blood sugar levels:

- People who are glucose intolerant and wish to manage their blood sugar with lifestyle changes, and
- Diabetic patients who are on drugs and wish to achieve “fine tuning” of blood sugar level further close to normal without taking the risk of increasing dosage of blood sugar lowering medicines
- These two segments of population taken together may be more than 15% of the population.

FIBER BASED PRODUCTS: REGULATORY ASPECTS:

- Clinical investigations and animal experiments have been carried out at FDA approved center for clinical trials and animal experiments. Preclinical sub-acute toxicity trials on high fiber fraction from Fenugreek green leafy vegetable have been conducted on rats and the same has been found to be safe upto maximum syringeable dose.
- Some case studies are documented. However, no clinical data is required since these products satisfy “Approved Health Claim” of (US FDA (see Title 21: Food and Drugs PART 101—FOOD LABELING, Subpart E—Specific Requirements for Health Claims, § 101.78 . Accordingly, low fat diets rich in fruits and vegetables (foods that are low in fat and may contain dietary fiber, vitamin A, and vitamin C) may reduce the risk of some types of cancer, a disease associated with many factors. Fiber rich soups are very low in fat and contain dietary fiber, soluble as well as insoluble.

FIBER BASED PRODUCTS: REGULATORY ASPECTS:

- All water soluble constituents of green leafy vegetables essential for good health get incorporated in this third fraction. They include folates, Vitamin C, Magnesium, Zinc and several other mineral and water soluble organic ingredients.
- Products from this fraction are in a development pipeline and include lifestyle health drinks (in a dilute or concentrated form) or in effervescent tablet forms or as capsules.

OTHERS PRODUCTS IN PIPELINE:

Edible oil Enriched with fat solubles (Enriched Oil) from natural antacid active:

- These are fat soluble constituents from the green leafy vegetables dissolved in edible oil, the constituents include oil soluble antioxidants, oil soluble vitamins, carotenes, xanthophylls and chlorophylls
- All these actives are known to be required for general maintenance of health and are also related to maintenance of immunity and details on their function are already discussed in case of Green 100
- Thus this product, while it is important for people of all ages and all stages except infants, people undergoing diet reduction and taking intensive exercise have special relevance since age as well as exercise may result in free radical formation and lowering of immunity. Diet reduction or taking diets that do not contain a source of actives available from green leafy vegetables may lead to development of deficiencies
- This product may also be especially useful in people for preventing or treating Age related Macular Degeneration

Edible oil Enriched with fat solubles (Enriched Oil) from natural antacid active: Continued.....

- This product is preferably made in flax oil. Flax oil being rich in alpha linolenic acid, it may prove to be additionally useful as a source of this Omega 3 Fatty acid with concurrent availability of the mentioned fat soluble and an antioxidant actives. This product will fulfill the Recommended Daily Allowance of alpha linolenic acid also (1.7 g for males and 1.1 g for females per day)
- Carotenes, xanthophylls and chlorophylls can be better absorbed through their oil solutions and they will be better useful to provide the respective health benefits better and more efficiently
- Cosmetic products made from this extract would be another range of products available, including fairness creams and sunscreen creams.
- This product is market ready as a soft gel capsules.

PATENT PORTFOLIO:

- **WO/2006/025072:** Compounds, Compositions, Formulations And Process For Preparation Thereof And Method Of Treatment And Management Of Acidity And Related Disorders.

Filed in India, USA and EPO. Pending in India and USA. EPO patent application: Main application granted as patent on 06/04/2011 as EP 1796696. Divisional application pending on alkaline derivative in EPO. Protects PLEZZANT – a Natural Antacid

- **WO/2008/081472:** Integrated Production Of Phytochemical Rich Plant Products or Isolates From Green Vegetation.

Filed and pending in India, USA and EPO. Protects high fiber fraction for human consumption, water soluble nutrients and oil extract.. Protects supplements containing high fiber , water soluble and oil soluble fractions of supplements made from Green leafy vegetables

- **WO2012029075:** Nutritional Supplements From Green Leafy Vegetables.

COMMERCIALIZATION STRATEGY /EXPECTATIONS:

To associate with stake holders globally

- For collaborative manufacturing and marketing.
- Non-Exclusive licensing/Exclusive Licensing of the Technology/Products.

Institute Of Intellectual Property Research & Development (IIPRD)

IIPRD

New Delhi Office

IFAIA Centre, S/20-22, Greater Noida Shopping Plaza
UPSIDC Site – IV, Greater Noida – 201 308, UP, India.

Pune Office:

305, Shubhashree, Sr. No. 78/6
Opp. New Poona Bakery,
Baner Road, Pune, India.
Contact Person: Tarun Khurana
Contact No.: **+91-120-2342010-11**

US Office

Suite 108G, 2000 Walnut Ave
Fremont CA 94538

E-Mail: iiprd@iiprd.com, info@khuranaandkhurana.com

Website: www.iiprd.com | www.khuranaandkhurana.com