



HERBAL HILLS™
Back to Nature

HERBAL HILLS

WHEAT-O-POWER

Chlorophyll rich Superfood - A potent antioxidant



➤ Product Description

Herbal Hills Wheat-O-Power Powder

Ingredient : Organic Wheatgrass in the powder form



Presentation : Available in a pack of 100gms; 500 gms

Directions: Take one rounded teaspoon daily or as recommended by a Physician. It should ideally be taken on empty stomach. Mix with water, juice or smoothie.

Caution : Pregnant or lactating women are advised to consume herbal products under the advice of the Physician.

Herbal Hills Wheat-O-Power Tablet

Ingredient : Organic Wheatgrass in the tablet form



Presentation : Available in a pack of 60, 120 tablets

Directions: Take 2 tablets twice daily or as recommended by a Physician. It should ideally be taken on empty stomach.

Caution : Pregnant or lactating women are advised to consume herbal products under the advice of the Physician



➤ Certificates held by Herbal Hills



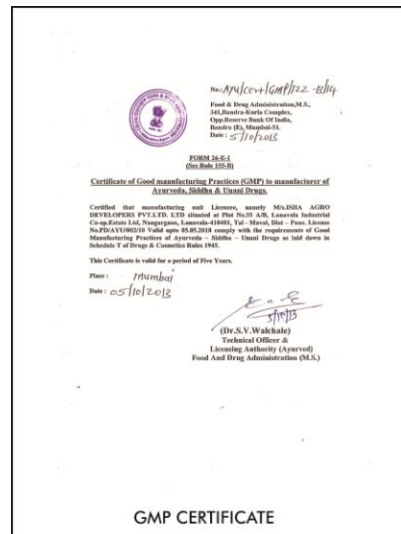
ISO CERTIFICATE



NPOP CERTIFICATE



USDA CERTIFICATE



GMP CERTIFICATE



HALAL CERTIFICATE

❖ What is Herbal Hills Wheat-O-Power?

It is a quality product containing wheatgrass as its ingredient. Wheat grass is a complete food containing :

- Chlorophyll
- 13 macro minerals
- More than 75 Trace minerals
- All the 20 Amino acids
- 13 Vitamins
- Enzymes
- Flavonoids
- Saponins
- Essential Fatty Acids (EFAs)





➤ Why Wheat-O-Power ?

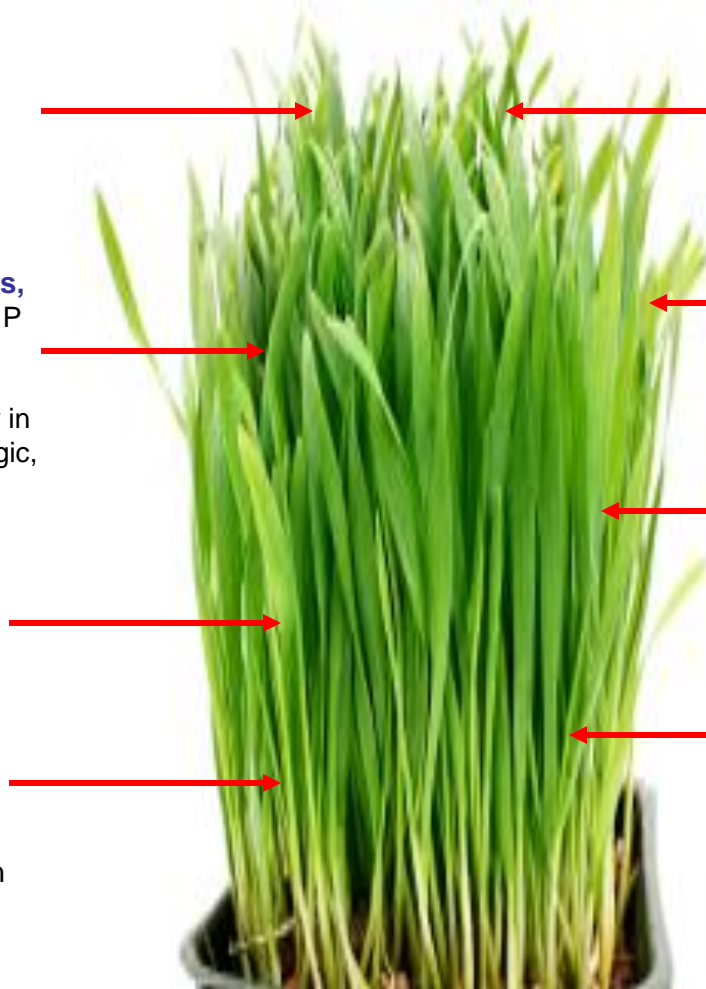
Wheatgrass is the Nature's best product containing group of multifunctional Nutrient such as Chlorophyll, Amino acids, Vitamins, minerals, enzymes, Flavonoids , Saponins. & Essential Fatty acids

1) Chlorophyll is a green pigment found in almost all the plants and is vital for photosynthesis, which allows plant to obtain energy through sunlight.

2) Flavonoids or Bioflavonoids, also collectively called as Vitamin P and citrin are a class of plant secondary metabolite. They are known for their antioxidant activity in addition to the anti-viral, anti-allergic, anti-inflammatory, anti-tumor activities.

3) Amino acids are the building blocks of protein and also play a vital role in the metabolism.

4) Enzymes are energized protein molecules found in the living cells. They catalyze and regulate all the biochemical reactions occurring in the human body.



5) Essential Fatty Acids (EFAs) are healthy fats or good fats which are essential for the human body, but the human body cannot synthesize and hence must be obtained through diet. These fatty acids support the cardiovascular, reproductive, nervous and immune systems.

6) Minerals: Just like Vitamins, minerals help the body grow, develop and stay healthy. They play a vital role in the biological processes.

7) Vitamin are essential for nervous system, building body tissues, good vision, wound healing, formation of red blood cells, building immunity....

8) Saponins are phytochemicals which are found in most vegetables and herbs. They help in improving the functions of the lymphatic system, in turn helping to detoxify the body. In addition to this, they demonstrate antimicrobial properties particularly against fungi and additionally against bacteria and protozoa.



Wheatgrass is a group of Multifunctional Nutrient

1	2	3	4	5	6	7	8
Chlorophyll	Flavonoids	Amino Acids	Enzymes	Fatty Acids	Minerals	Vitamins	Saponins
Antioxidant	Antioxidant	*Lysine	*Peroxidase, Superoxide, dismutase, P4D1	*Linoleic Acid	*Selenium	*Vitamin A & C	
		Alanin	DNase	Conjugated Linoleic Acide	Calcium	Vitamin - B1 (Thiamine)	
		Arginine	Cytochrome Oxidase	Alpha Linolenic Acid	Cobalt	Vitamin - B2 (Riboflavine)	
		Asparagine	Catalase		Iodine	Vitamin - B3 (Niacin)	
		Aspartic acid	Hexokinase		Iron	Vitamin - B5 (Pantothetic Acid)	
		Cysteine	Lipase		Magnesium	Vitamin - B6 (Pyroxidine)	
		Glutamic acid	Malic Dhydrogenase		Molybdenum	Vitamin - B8 (Biotine)	
		Glutamine			Phosphorus	Vitamin - B9 (Folic Acid)	
		Glycine			Potassium	Vitamin - B12 (Cyanocobalamin)	
		Histidine			Copper	Choline (Lecithin)	
		Isoleucine			Sodium	Vitamin E	
		Leucine			Sulfur	Vitamin K	
		Methionine			Zinc		
		Phenylalanine					
		Proline					
		Serine					
		Threonine					
		Tryptophan					
		Tyrosine					
		Valine					

*** These act as Antioxidants**



Due to its multi-functional nutrients, Wheat grass has strong anti-oxidant properties alongwith additional benefits:

1) Chlorophyll

- ❖ **Antioxidant (free radical scavenger)**
- ❖ **Helps preventing Cancer**
- ❖ **Supports Blood circulation & increases Hemoglobin**
- ❖ **Helps combat body odour**
- ❖ **Helps in wound healing**
- ❖ **Anti-inflammatory**

2) Flavonoids

- ❖ **Antioxidant**
- ❖ **Delays or prevents the onset of diseases caused by Free radicals**
- ❖ **Anti inflammatory activity**
- ❖ **Improvement of endothelial functions**
- ❖ **Reduces risk of cardiovascular diseases**
- ❖ **Reduces high blood pressure**
- ❖ **Inhibits platelet aggregation**
- ❖ **Anti-viral, Anti-bacterial**



Due to its multi-functional nutrients, Wheat grass has strong anti-oxidant properties alongwith additional benefits:

3) Amino acids

- ❖ **Building blocks for protein.**
- ❖ **Energizes the body**

4) Enzymes

- ❖ **Antioxidant**
- ❖ **Regulation of biochemical reactions**
- ❖ **Cancer prevention**
- ❖ **Stimulates Cellular Repair**

5) Fatty Acids

- ❖ **Antioxidant**
- ❖ **Supports Cardiovascular, Reproductive, Nervous & Immune system**

6) Minerals

- ❖ **Antioxidant**
- ❖ **Plays vital role in biological processes**

Due to its multi-functional nutrients, Wheat grass has strong anti-oxidant properties alongwith additional benefits:

7) Vitamins

- ❖ **Antioxidant**
- ❖ **Beneficial for good vision**
- ❖ **Supports tissue growth**
- ❖ **Helpful in wound healing**
- ❖ **Helpful in formation of haemoglobin**
- ❖ **Essential for healthy functioning of Nervous system**
- ❖ **Supports Reproductive health**

8) Saponins

- ❖ **Builds Immunity**
- ❖ **Helps in Detoxification**
- ❖ **Cancer prevention**
- ❖ **Reduces Cholesterol level**

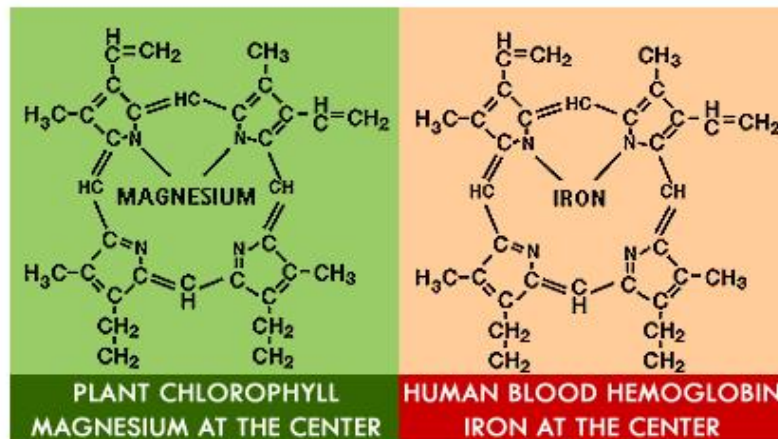


Product Benefits With Technical Explanation

1) CHLOROPHYLL

Herbal Hills Wheat-O-Poweris rich in **chlorophyll**, also called as **Green Blood**. This Chlorophyll plays a vital role in photosynthesis , which allows the plant to obtain energy through sunlight.

Its structure resembles to the structure of heme found in the hemoglobin. The only difference is with the Magnesium and the Iron molecule.



➤ **Chlorophyll supports Blood circulation and increases Hemoglobin in the human body**

“Wheat grass juice reduces transfusion requirements in patients with thalassemia major: a pilot study” -- *Dr. R.K. Marwaha et al. 2004.*

Conclusion

- All participants experienced lower blood transfusion requirements.
- 50% had at least 25% reduction in transfusion requirements
- The mean interval between transfusions increased by 29.5%
- Hemoglobin levels were not compromised by reduced transfusion volumes.

➤ **Role of Iron Chelation Activity of Wheatgrass in cases of Myelodysplastic Syndrome (Pre-leukemia)**

- The active compounds of a crude extract of wheatgrass may chelate catalytic iron in iron overload disorders when taking systematic dose. **Result: The mean serum Ferritin level of the patients was 2,250 (range 650-4,800) before the wheat grass treatment. The mean reduced to 950 (range 68-1680) after the wheat grass treatment.** The performance status **was improved from 60% to 80%** (Karnofsky) after wheatgrass treatment. The mean interval or time between needed transfusions was discovered to increase.

S. Mukhopadhyay, J. Basak, M. Kar, S. Mandal, A. Mukhopadhyay; Netaji Subhas Chandra Bose Cancer Research Institute, Kolkata, India; NRS Medical College, Kolkata, India; Central Institute for Research (Ayurveda), Kolkata, India. Journal of Clinical Oncology 27:15s, 2009 (suppl; abstr 7012)

➤ **The effect on experimental anemia of radioactive Co60 chlorophyllin .**

Tamura. 1959.

Conclusion : Chlorophyllin **increased the leucocyte count and hemoglobin content in rats** and directly or indirectly stimulated hematopoiesis (blood formation).

➤ **Chlorophyll as a Deodorant**

Chlorophyll is known to curb the bad breath (Halitosis) and bad odour of the body.

According to a July 1950 Time magazine article, Dr. Westcott noticed that when anemia patients took chlorophyll, **the odor of their urine was less offensive**, spurring the idea that perhaps chlorophyll could be used for bad breath and body odor. A small study using five medical professionals purportedly **yielded favorable results**, with little or no underarm odor noticed after 18 hours of ingesting chlorophyll. A study of 12 college women yielded similar results. Dr. Westcott noticed that after study participants drank onion juice, chlorophyll mouthwashes and tablets greatly curbed malodorous breath. **He concluded that chlorophyll was extremely beneficial, regardless of the cause of bad breath, be it food, smoking or upset stomach.**

➤ Chlorophyll as an antioxidant

- ❖ **Inhibitory effects of chlorophyllin, hemin and tetrakis(4-benzoic acid) porphyrin on oxidative DNA damage and mouse skin inflammation induced by 12-O-tetradecanoylphorbol-13-acetate as a possible anti-tumor promoting mechanism.**

Mutat Res. 2003;542(1-2):89-97. Park KK, Park JH, Jung YJ, Chung WY.

- ❖ **Scavenging of reactive oxygen species by chlorophyllin: an ESR study. Free Radic Res. 2001;35(5):563-574.**

Kumar SS, Devasagayam TP, Bhushan B, Verma NC.

- ❖ **Chlorophyllin as an effective antioxidant against membrane damage in vitro and ex vivo.**

*Biochim Biophys Acta. 2000;1487(2-3):113-127.
Kamat JP, Bolor KK, Devasagayam TP.*

- **Chlorophyll as a potent PREVENTION AID against CANCER**
- **Antimutagenic effects of several subfractions of extract from wheat sprout**

-- Peryt et al. 1988.

An aqueous extract from wheat sprout appears to contain two antimutagenic factors as assayed in laboratory bacteriological tests.

- **Antioxidant and Antimutagenic Activity of Dietary Chlorophyll Derivatives Determined by Radical Scavenging and Bacterial Reverse Mutagenesis Assays**

- M.G. Ferruzzi, V. Böhm, P.D. Courtney, S.J. Schwartz

These results demonstrate that dietary chlorophyll derivatives prevalent in both fresh and processed foods and dietary supplements have antioxidant and antimutagenic activities.

➤ **Wheat Grass Juice May Improve Hematological Toxicity Related to Chemotherapy in Breast Cancer Patients: A Pilot Study.**

Nutrition and Cancer 2007, Vol. 58, No. 1, Pages 43-48. Division of Oncology, Rambam Medical Center and Faculty of Medicine, Technion-Israel Institute Technology, Haifa, Israel. Bar-Sela Gil, Tsalic Medy, Fried Getta, Goldberg Hadassah.

It was found that drinking the green healing juice helped produce **healthier blood levels** while receiving the chemotherapy thus **decreasing the** need for blood building medications. Wheatgrass juice was found to **not** diminish effectiveness of chemotherapy.

➤ **Research studies have shown that derivatives of chlorophyll may also be an important aid in preventing or managing cancer. Chlorophyll derivatives have a high affinity for tumor tissue in comparison to normal tissue** (*Chernomorsky, 1999*).

➤ **Effect of Wheat Grass Juice in Supportive Care of Terminally Ill Cancer Patients -- A Tertiary Cancer Centre Experience from India .**

Journal of Clinical Oncology 2006 ASCO Meeting Proceedings Part I. Vol 24, No. 18s (June 20 Supplement), 2006: 8634. Dey S., Sarkar R., Ghosh P., Khatun R., Ghorai K., Choudhury R., Ahmed R., Gupta, P., Mukhopadhyay S., Mukhopadhyay A

Improvements in health of blood were noted. Also, performance status was improved from **50% to 70%**. It was concluded that wheatgrass juice is an effective **natural alternative** for blood transfusion. It's use in terminally ill cancer patients should be encouraged.

➤ **Inhibition of In Vitro Metabolic Activation of Carcinogens by Wheat Sprout Extracts.**

Nutrition and Cancer, 1 (1):27-30; CN Lai, B Dabney and C Shaw (1978)

➤ **Chlorophyll: The Active Factor in Wheat Sprout Extract Inhibiting the Metabolic Activation of Carcinogens In Vitro.**

Nutrition and Cancer, 1 (3):19-21. CN Lai (1979)



- **Chlorophyll possesses wound healing property**
- **Chlorophyll. An experimental study of its water soluble derivatives in wound healing.** *Smith & Livingston. 1943.*

Response in **rate of healing tended to be greater for chlorophyll** than with other agents tested. Conclusion: 'On the basis of these observations it is suggested that chlorophyll preparations should be used much more extensively in the treatment of wounds and burns.

- **Chlorophyll in the treatment of ulcers.** *Gahan, Kline & Finkle. 1943.*

Provides some historical information concerning the isolation of chlorophyll and its use in stimulating tissue growth. Ulcers of the skin were treated topically with chlorophyll ointment and aqueous solution. **19 of 25 patients responded favorably to the treatment**, with development of granulation tissue.

➤ **Chlorophyll shows body cleansing property**

Scientific investigation indicates that *Chlorophyll* promotes body cleansing from carcinogenic and mutagenic agents.

➤ **Gruskin B. Chlorophyll-its therapeutic place in acute and suppurative disease.**

Am J Surg 1940;49:49-56.

➤ **Porphyrins as potential inhibitors against exposure to carcinogens and mutagens.**

Hayatsu H, Negishi T, Arimoto S, et al. Mutat Res 1993;290:79-85.

➤ **Chlorophyll as an Hepatoprotective**

Chlorophyll exhibits liver protective effect.

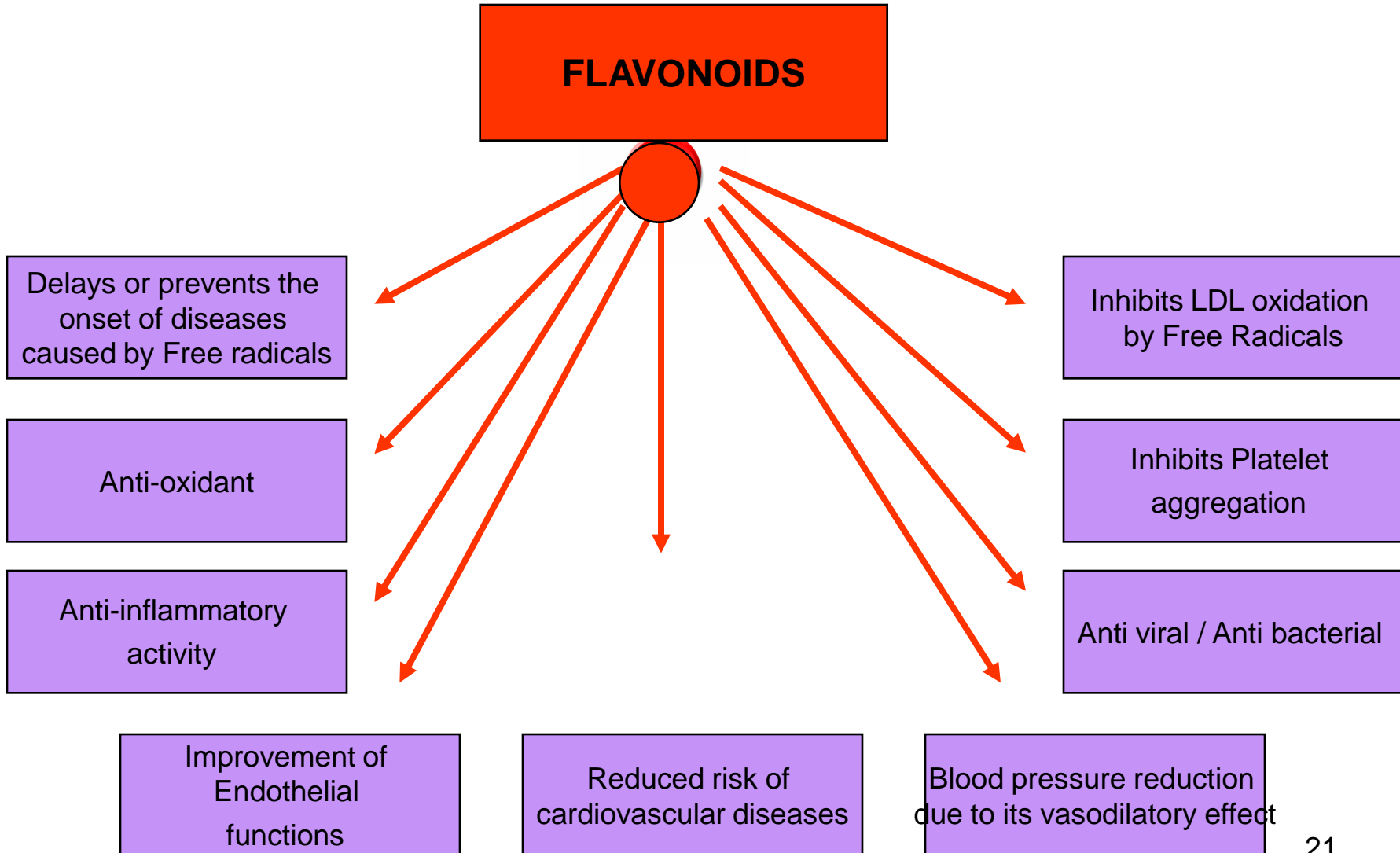
➤ **Chlorophyllin intervention reduces aflatoxin–DNA adducts in individuals at high risk for liver cancer**

Patricia A. Egner, Jin- Bing Wang, Yuan-Rong Zhu, Bao-Chu Zhang, Yan Wu, Qi-Nan Zhang, Geng-Sun Qian, Shuang-Yuan Kuang, Stephen J. Gange, Lisa P. Jacobson, Kathy J. Helzlsouer, George S. Bailey, John D. Groopman and Thomas W. Kensler.

Thus, prophylactic interventions with chlorophyllin or supplementation of diets with foods rich in chlorophylls may represent practical means to **prevent the development of hepatocellular carcinoma or other environmentally induced cancers.**



2) FLAVONOIDS....



➤ **Flavonoids as antioxidant agents: Importance of their interaction with biomembranes**

Antonella saija, Mario Scalese, Maria Lanza, Daniela Marzullo, Francesco Bonina and Francesco castelli. - Free Radical Biology and Medicine , Vol. 19, No. 4, pp. 481-486, 1995.

In conclusion, **the antioxidant activity of flavonoids** appears to be dictated not only by their structural features but also by their location in the membrane. This result must be taken into consideration in further developments of these protective flavonoids, which could have important applications in human diseases accompanied by free radical injury. *J Nat Prod. 2000 Jul;63(7):1035-42.*

➤ **Flavonoids as antioxidants.**

Pietta PG. Institute of Advanced Biomedical Technologies, National Council of Research Via F.lli Cervi 93, 20090 Segrate (MI), Italy.

This review presents the current knowledge on structural aspects and **in vitro antioxidant capacity of most common flavonoids as well as in vivo antioxidant activity** and effects on endogenous antioxidants.

➤ **Flavonoids: Antioxidants Against Atherosclerosis**

Nutrients 2010, 2(8), 889-902; Davide Grassi ,Giovambattista Desideri and Claudio Ferri, Italy

3, 6 & 7) AMINO ACIDS, MINERALS & VITAMINS

➤ **Wheatgrass as an Energizer**

Wheat grass acts as an energizer owing to the presence of Vitamins , Minerals and all the Amino acids (essential and non essential ones) , which are the building block of proteins.

➤ **It is a concentrated Nutrition Superfood**

Wheat grass is thought to be superior to other vegetables in its contents.

15 pounds of wheatgrass is equal in overall nutritional value to **350 pounds of ordinary garden vegetables.**

--Claimed in 1940s



Ratio of 1:23



***Nutrient comparison of 3.5 gm of Herbal Hills Wheat-O-Power, Broccoli & Spinach**

Nutrient	Herbal Hills (Wheat-O-Power) Powder / tablet	Broccoli	Spinach
Energy	13.3 kcal	1.19 kcal	0.80 kcal
Protein	1040 mg	98.7 mg	100 mg
Dietary fiber	1210 mg	91 mg	77 mg
Vitamin A	1200 IU	21.8 IU	328.1 IU
Vitamin C	6 mg	3.12 mg	0.98 mg
Folic acid	0.03 mg	0.0 mg	0.0 mg
Niacin	0.14 mg	0.022 mg	0.025 mg
Calcium	4 mg	1.65 mg	3.46 mg
Iron	1.31 mg	0.025 mg	0.095 mg

Data on Broccoli and Spinach from USDA Database
Data on Herbal Hills Wheat –O-Power on analysis

****Comparison of Vitamins A & C in 3.5 gm of well known fruits and Herbal Hills Wheat-O-Power**

Vitamins	Vitamin C (mg)	Vitamin A (IU)
Herbal Hills Wheat-O-Power	6 mg	1200 IU
Orange Raw with peel	2.5 mg	8.75 IU
Grapes, American Raw with slip skin	0.14 mg	3.5 IU
Pomegranate, raw	0.36 mg	0.0 IU
Cranberry, Orange relish canned	0.63 mg	2.45

Data on fruits from USDA Database
Data on Herbal Hills Wheat –O-Power on analysis

Herbal Hills Wheat-O-Power has more nutrients than common vegetables such as Broccoli and Spinach*. Also, it has more Vitamin C and Vitamin A than the common fruits.**

Dr. G.H. Earp-Thomas, scientist and soil expert at Bloomfield Laboratories in Massachusetts isolated **over 100 elements** from fresh wheatgrass and concluded that it is a **complete food**.

4) ENZYMES....

➤ **Wheatgrass stimulates Cellular Repair**

Wheatgrass contains an enzyme P4D1 that is known to **help repair damaged DNA**. This compound was isolated by a biologist, Dr. Yasuo Hotta, from UC San Diego & he discovered its healing properties.

Furthermore, in laboratory tests, P4D1 has been shown to **eat the protein sheath off a cancer cell** so that the white blood cells can attack and destroy them.

➤ **Wheatgrass has potent Anti-inflammatory property**

The enzyme P4D1 present in wheatgrass exhibits potent anti-inflammatory effect. In addition to it, the anti-inflammatory effect of Super Oxide dismutase also is seen.

According to Dr. K. Kubota of the Science University of Tokyo, the glycol-proteins D1G1 and P4D1 and Super Oxide Dismutase have more potent anti-inflammatory effect than aspirin.

➤ **The anti-inflammatory effects of superoxide dismutase**

*Xiong Y, Ye S, Liang Y, Song P, Zhou S.
Department of Pharmacology, School of Basic Medical Sciences, Chengdu.
Hua Xi Yi Ke Da Xue Xue Bao. 1997 Mar;28(1):58-61.*

The experimental results have shown that **SOD has significant anti-inflammatory effects.**

8) SAPONINS....

Herbal Hills Wheat-O-Power contains Saponins, which are a class of nutrient molecules associated with alkaloid, sterol, or triterpenoid compounds.

They have 3 unique features :

- **Binding Cholesterol & Pathogen molecules** : They have the ability to bind with cholesterol and pathogens entering the body forming large molecules, which cannot be absorbed through the intestinal wall. Thus this reduces Cholesterol.
- **Nonsystemic** : That means they act within the intestinal tract and do not enter the rest of the body. So there is no damaging side effect seen on the liver and other vital organs.
- **Immunity Booster** : It acts favorably on the flora organisms in the intestines and encourages the growth of friendly bacteria and decreases harmful bacteria.

➤ **Blood Cholesterol lowering properties of Saponins:**

One of the most prominent research programs on this subject was that of Dr. Rene Malinow at the Oregon Regional Primate Center, whose research (published in the American Journal of Clinical Nutrition in 1997) **demonstrated unequivocally the cholesterol-lowering** properties of saponins.

➤ **Cancer prevention from Saponins**

Saponins bind the primary bile acids , which are an important step **in preventing colon cancers .**

Saponins can bind cholesterol and thus interfere with cell growth and division. While drugs have side effects, many of them serious, saponins are safe.

*Mary Clarke, Ph D Extension Specialist, Nutrition Education
Department of Human Nutrition, Kansas State University*

➤ **Saponins and toxins → Cleansing the colon.**

There is strong evidence that some forms of arthritis may be caused or worsened by toxic substances in the intestines and these toxins may be absorbed by the body.

Saponins are not absorbed in the blood, but works within the small and large intestines. Saponins act favorably on **flora organisms of the intestines, encouraging growth of friendly bacteria and decreasing harmful bacteria.**

Dr. Robert Bingham, Arthritis News TODAY Vol. 4, No.9

Saponins can help humans fight fungal infections, combat microbes and viruses, boost the effectiveness of certain vaccine and knock out some kinds of tumor cells, particularly lung and blood cancers. They can also lower blood cholesterol thereby reducing heart disease. Their natural tendency to ward off microbes may prove to be especially useful for treating those difficult to control fungal and yeast infections.

*Mary Clarke, Ph D
Department of Human Nutrition
Kansas State University*



➤ Saponins boost the Immunity system

Saponins have a **direct stimulatory effect** on the immune system.

*Peter R. Cheeke, Ph D
Professor of Comparative Nutrition
Linus Pauling Institute, Oregon State University*

Saponins natural tendency to ward off microbes makes them good candidates for treating fungal and yeast infections. These compounds **serve as natural antibiotics, helping the body fight infections and microbial invasions.**

*Manuel F. Balandrin, Chemist
Science News, Vol 148*

➤ Saponins Inhibit Cancer Cells

Dr. Rao and his colleagues believe the saponins **may even help prevent colon cancer.** Normally, bile acid pours into the stomach to help absorb fats from foods. Some bacteria in the large intestine turn the bile into a substantive that is highly carcinogenic. That's why a high-fat diet increases the risk of colon cancer. Research suggests that when saponins travel through, they stop the toxic material from forming.

*READERS DIGEST, August, 1996,
Jennifer Reid Holman*

Saponins and saponin-like compounds have shown evidence that they can buttress the body's ability to **thwart cancer and heart disease.**

Dr. Venket Rao, chemist, University of Toronto, Ontario

GENERAL CLINICAL REFERENCES OF WHEATGRASS

Wheat-O-Power as a potent Antioxidant

Along with chlorophyll as a potent antioxidant, Herbal Hills Wheat –O-Power also contains Vitamin A, Vitamin C , Vitamin K and Selenium which exhibit antioxidant property.

- ***Evaluation of the antioxidant activity of wheatgrass (*Triticum aestivum* L.) as a function of growth under different conditions.***

Phytother Res. 2006 Mar;20(3):218-27.

*Kulkarni SD, Tilak JC, Acharya R, Rajurkar NS, Devasagayam TP, Reddy AV.
Department of Chemistry, University of Pune, Pune 411 007, Indi*

--These extracts of wheatgrass were also found to **inhibit significantly ascorbate-Fe²⁺ induced lipid peroxidation** in rat liver mitochondria. The **ORAC values** of aqueous and ethanol extracts of day 10 with condition 4 were found to be 39.9 and 48.2, respectively, **being higher than those** reported for many natural extracts or vegetables.

- ***Wheat grass supplementation decreases oxidative stress in healthy subjects: a comparative study with spirulina .***

J Altern Complement Med. 2007;13(8):789-791. Shyam R, Singh SM, Vats P, et al.

Study Shows Wheat Grass to be Better Antioxidant than Spirulina.

➤ **Wheatgrass on Gastro-intestinal Health**

Wheat grass juice in the treatment of active distal ulcerative colitis: a randomized double-blind placebo-controlled trial.

Ben-Arye E, Goldin E, Wengrower D, Stamper A, Kohn R, Berry E. Scand J Gastroenterol. 2002 Apr;37(4):444-9.

Treatment with wheat grass juice was associated with **significant reductions** in the overall disease activity index (P=0.031) and in the **severity of rectal bleeding**.

➤ **Wheatgrass on Brain Health**

Neuroprotective effects of *Triticum aestivum* L. against beta-amyloid-induced cell death and memory impairments.

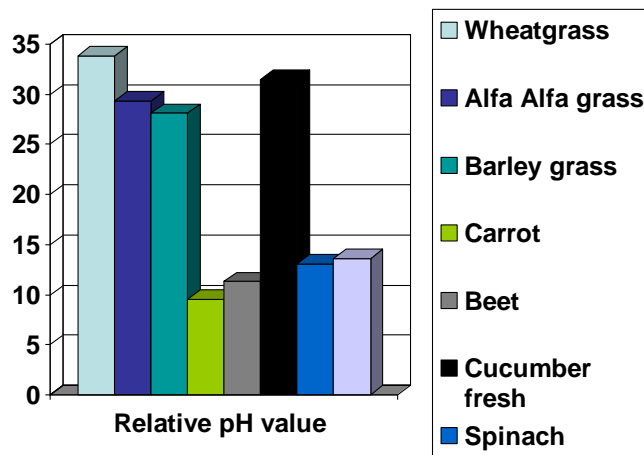
Jang JH, Kim CY, Lim SH, Yang CH, Song KS, Han HS, Lee HK, Lee J. Phytother Res. 2010 Jan;24(1):76-84. College of Oriental Medicine, Daegu Haany University, Sang-dong, Suseong-gu, Daegu 706-060, Korea.

These results suggest that Wheatgrass extract may have **preventive and /or therapeutic** potential in the management of Alzheimer's Disease.

➤ Wheat-O-Power as a **KING OF ALKALINE** Food

The Human blood is slightly alkaline , pH level being between 7.35 & 7.45. This alkaline environment is best for all the enzymatic, immunological and repair mechanisms to function in the best way. But many of the biochemical functioning and many other fundamental processes produce lots of acid. So to balance this, it is good to have alkaline food.

Wheatgrass is a potent alkaliser. Due to its very high Relative pH value , it is considered as the King of Alkaline food.*



*Source: Back to the House of Health (Redford-Young, S)

➤ Growing condition of Wheat Grass at Herbal Hills

International Quality standards adhered to give the best quality of Wheat Grass.

Location: In the POLLUTION FREE Sahyadri Mountain range in Lonavala, Maharashtra, India. The Wheat Grass is Organically grown and is Certified Organically processed as per Indian Standard & in accordance with the organic standards of the U.S Dept. of Agriculture.

Water :

Filtered water used for cultivation of Wheatgrass is sourced from Indrayani River.

Soil :

Fertility of the Soil is maintained though the usage Organic Inputs, Vermicompost, Biofertilisers, produced inhouse

Production of Wheatgrass

Ancient knowledge with modern cultivation is practiced in soil conditioning, seed treatment, sowing & harvesting to get best results.

Method of growing: Outdoor

Harvesting: It is done on the 8th day of sowing when it is about 6-8 inches in height.

Drying: Upon harvest, the wheatgrass is dried immediately at low temperature to ensure that the maximum nutrient contents are retained at Hi-tech processing Unit near Cultivation farm.

- **Why Herbal Hills Wheat-O-Power?**
- **Organic Certified Wheatgrass**
- **Certified through USFDA, NOCA & NPOP**
- **Has good amount of Protein**
- **Has good amount of Chlorophyll**
- **Surety of Quality**
- **Tested for the Presence of Flavonoids** to be sure of its antioxidant effect
- **Tested for the Presence of Saponins** to be sure of its detoxification effect
- **Tested for pH Value**
- **Absence of Moulds**
- **Absence of Heavy metals**
- **Cost Effective** than the other wheatgrass products available in USA

Add **PROTECTION** to your **LIFE**

By

Adding **Herbal Hills Wheat-O-Power**
to your Diet

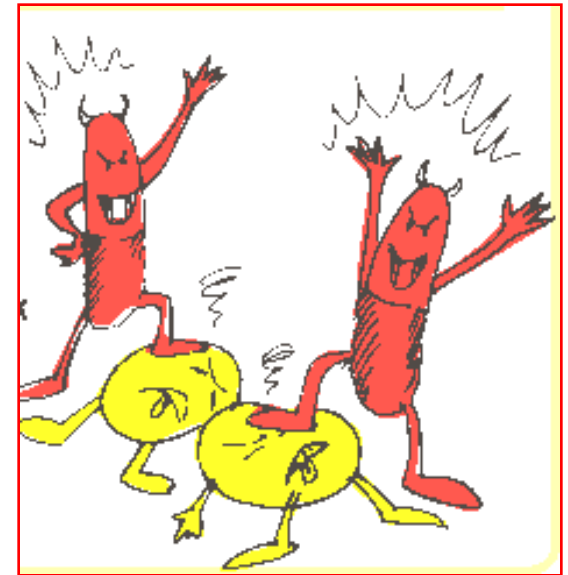


GLOBAL MARKET OVERVIEW OF ANTIOXIDANT & GROWING DEMAND OF WHEATGRASS

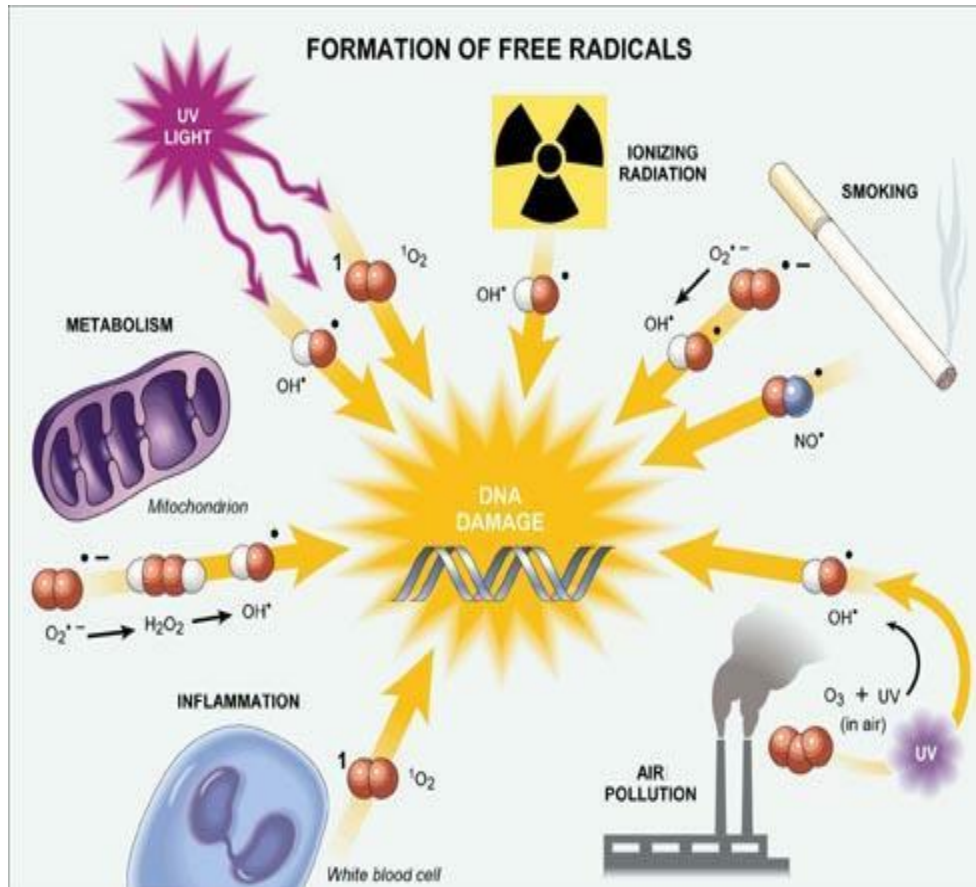
Overview of Antioxidants

➤ What are Free Radicals?

Free Radicals are atoms or group of atoms with an unpaired number of electrons and can be formed when oxygen interacts with certain molecules. These highly reactive free radicals can start a chain reaction and cause damage when they react with important cellular components like DNA or the cell membrane. Free radicals have been implicated in the progression of various conditions including Diabetes, Cardiovascular disease, Cancer, ageing and neurological disorders.



➤ Key Causes of Free Radicals



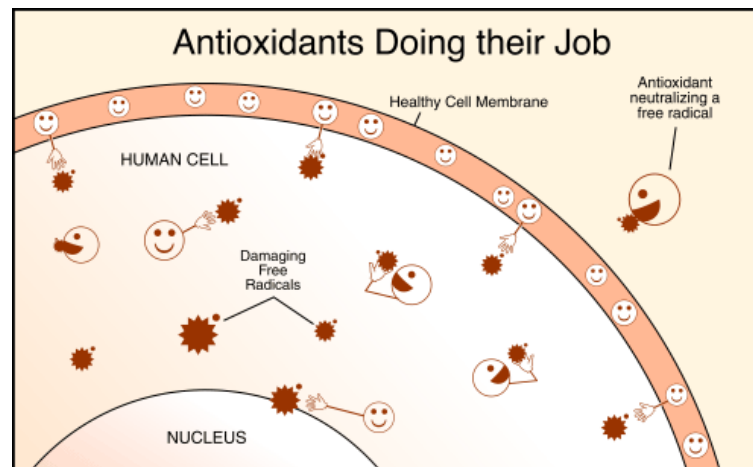
- UV Light
- Metabolism
- Inflammation
- Air pollution
- Smoking
- Ionizing Radiation
- Stress

➤ What are Antioxidants?

Antioxidants are compounds which can safely interact with the free radicals and terminate the chain reactions before the vital molecules are damaged .

➤ Benefits of Antioxidants

- ❖ Help prevent Cardiovascular disease
- ❖ Help prevent Diabetes Mellitus
- ❖ Help prevent Cancer
- ❖ Help prevent other illnesses.





Market Overview of Antioxidants

- Wildly popular over the last few decades. Antioxidants are now **well known** by many consumers.
- According to Nutrition Business Journal, 2006 total antioxidant sales in the U.S. were \$3 billion, representing **4.5% growth from the year before.**
- Last year, the majority of growth came from sales of herbal/botanical antioxidants, **which shot up 43% in food, drug and mass market channels.**
- Consumer trends indicate shoppers are aware of antioxidants and associate them with discreet health benefits, such as:
 - Cancer prevention (63%)
 - Improved immunity (47%)
 - Improved heart health (44%)
 - Removing free radicals (35%)
 - Improved memory (28%)
 - Eye health (27%)
 - Clearer skin (26%)
 - Fewer wrinkles (21%)

- During the past two years, antioxidants derived from tropical fruits such as Açai, Acerola cherry, Mangosteen, Camu camu and coffee berry have received significant attention from consumers and researchers.
- Antioxidants have been successful from the point of “ **Protection / Prevention**”
- Target customer : The faces of antioxidant consumers are rapidly changing and becoming indistinguishable. In the past, lines were clearly drawn separating products targeted specifically to women and those targeted to men. Today, it is quite another story,- the antioxidant consumer is male, female, young and oldit is everyone.
- Plant-based polyphenols are growing much faster than isolated carotenoids because they are found naturally in functional foods, such as green tea, chocolate and red wine.

Currently : Marketing Focus shifted

Instead of marketing as a “ GENERAL ANTIOXIDANT” , the focus has been shifted very specifically to clinically supported ingredients where there is a defined, proven health benefit and claim that the manufacturer can communicate to the consumer.

The antioxidant market, particularly in the area of superfruits, is ripe for growth. Supplements incorporating botanicals like pomegranate, cranberry and red grapes are performing very well too.

Unfortunately, vitamin C and E face challenges in the marketplace with slow to declining growth and price erosion. The sales are flat, if not declining.

➤ Growth of this segment in USA

Growth has been seen in the NON-VITAMIN Antioxidant Category

Top 10 antioxidants in the U.S. market by sales(in USD Millions) in 2006 and changes in 2007 were:

Antioxidants	2006	2007	
• Vitamin C	: 863	884	(2% growth)
• Vitamin E	: 395	391	(- 4% growth)
• CoQ10	: 377	413	(8% growth)
• Vitamin A/beta-carotene	: 313	315	(9% growth)
• Noni juice	: 257	277	(8% growth)
• Green tea extract	: 228	139	
• Mangosteen juice	: 147	191	
• Plant oils (flax, etc.)	: 144	253	
• Soy isoflavones	: 69		
• Cranberry	: 68	77	
• Goji Juice		98	



- In 2007, antioxidant sales continued to grow **by about 6% overall**, reaching more than \$3 billion --- *National Business Journal (NBJ), Boulder, CO.*
- Most significant growth has been in the **non-vitamin antioxidant** category, **which saw an 11% sales increase**. The biggest standouts in this segment have been antioxidants from fruits and vegetables, which **witnessed an impressive 21% upswing**.
- Negative growth or barely single-digit growth was seen with Traditional antioxidant products like vitamins E and C, as well as selenium.
- Relative new Antioxidants cropped up to the upper levels. For example , while sales for selenium and soy isoflavones went down, 3% and 11%, respectively, goji juice jumped into the top 10 selling antioxidants for the first time, demonstrating explosive sales growth of 51%. Likewise, acai sales have grown 83%, according to *NBJ*.
- Some new entry in the area of Antioxidant : Mushroom extracts.
- Yerba maté- Rich in antioxidant polyphenols.

➤ **Gap analysis with respect to the existing products**

Antioxidants products available in the Market:

- ❖ Vitamins : A / Beta-carotene ; C & E
- ❖ Mineral based products: Selenium
- ❖ Fruits : Pomegranate, Grapes, Acai, Cranberry, etc.
- ❖ Vegetable products
- ❖ Common Phytochemicals like Flavonoids, Lutein, Lycopene, Lignan.
- ❖ Green Tea
- ❖ Vitamin Like Antioxidant : CoQ10; Glutathione
- ❖ Herbal preparations containing Antioxidant enzymes/ Vitamins / Minerals



Where is the Gap ?

- Body has **3 levels** of defense against the Free radicals attack :
 - **Preventative antioxidants** to inhibit the formation of free radicals e.g. metal binding proteins
 - **Scavenging antioxidants** to remove any reactive species once formed. e.g. superoxide dismutase, glutathione peroxidase, catalase, flavonoids, carotenoids, etc
 - **Repair enzymes** to repair damaged biomolecules e.g. DNA repair enzymes.
- **Limited Action on only one level :**

Usually the antioxidant products which are available in the market are targeted on only one of the levels of action on the Free radicals. If there would be a product which can cover all the three levels of actions of the antioxidants, then it can be a really effective and strong product.
- **Additional Benefits missing :**

The products available in the market are focused only towards the antioxidant activity. Along with this if we can come across a product having a potent antioxidant activity plus some other activity such as increasing hemoglobin; detoxification ; then it can be an added advantage.

➤ **HERBAL HILLS Wheat-O-Power** fulfills all the requirements

desired in a potent antioxidant, viz:

- **Preventative antioxidants**
- **Scavenging antioxidants**
- **Repair enzymes**

.....Alongwith additional benefits, thus making it

unique multifunctional antioxidant