



Wheatgrass – Nature's Wonder Medicine and Food Supplement

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ABSTRACT

Triticum aestivum has high amount of chlorophyll, amino acids, minerals, nutrients, and chemicals. Fresh juice is a predominant option to disease action, against ulcer movement, soothing, cancer prevention, joint movement, and blood building action in Thalassemia. It has been contended that wheat grass helps blood flow, absorption, and general detoxification of the body because of the presence of organically dynamic mixtures and minerals in it and because of its cell reinforcement potential which is obtained from bioflavonoids like apigenin, quercetin, luteoline. The presence of 70% chlorophyll in this nature's herb is identical to hemoglobin. The solitary distinction is that the principal component in chlorophyll is magnesium and in hemoglobin it is iron. Wheat grass is more valuable in different clinical conditions including hemoglobin inadequacy and other ongoing issues and is clinically considered as green blood

Keywords: *Triticum aestivum*, Thalassemia, green blood.

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INTRODUCTION

T*riticum aestivum* Linn. usually called wheat grass, belongs to the family Graminae. Triticum is a variety of yearly and biennial grasses. In early development places the wheat plant comprises of a much packed stem or crown and various barely direct or linear lanceolate leaves, yielding different kinds of wheat, local to southwest Asia and the Mediterranean area and generally developed practically everywhere in the world where 15-20 species are recognised. Wheat grass is a decent wellspring of mineral supplements. It contains critical measures of iron, phosphorous, magnesium, manganese, copper and zinc. Wheatgrass is a rich wellspring of tocopherols with high vitamin E strength.

The presence of 70% chlorophyll in the wonder herb is identical to hemoglobin. Both chlorophyll and hemoglobin share a comparative particle design to make their separate atoms¹. The only distinction is that the principal component in chlorophyll is magnesium and in hemoglobin it is iron. Wheat grass stimulates digestion, reestablishes alkalinity to the blood, its plentifulness of antacid minerals diminishes over sharpness in the blood. Wheatgrass is additionally a detoxificant and reestablishes healthy cells².

Wheat grass, young grass of the basic wheat plant, is freshly squeezed or dried into powder for human utilization. Both juice and powder give chlorophyll, 17

amino acids, eight of which are fundamental minerals, nutrients and catalysts. Wheat Grass Juice (WGJ) is an extract crushed from the developing sprouts of wheat seeds. Wheatgrass has been generally utilized to treat different infections and disorders.

It was additionally announced that youthful grasses and other chlorophyll-rich plants are protected and viable therapy for ailments like hypertension, a few tumors, obesity, diabetes, gastritis, ulcers, pancreas and liver issues, weakness, iron deficiency, asthma, dermatitis, hemorrhoids, skin issues, halitosis, personal stench and blockage. Logical reports on dietary examination of wheatgrass have been distributed oftentimes³. Wheatgrass is plentiful in chlorophyll, minerals like magnesium, selenium, zinc, chromium, cancer prevention agents like beta-carotene (supportive of nutrient A), vitamin E, nutrient C, against weak elements like nutrient B12, iron, folic acid, pyridoxine and numerous different minerals, amino acids and chemicals, which have critical nutritious and therapeutic worth. Clinically it was demonstrated that various varieties of wheatgrass extracts are utilized in therapy of iron deficiency, thalassemia (major), malignancy and bacterial infections⁴.

CHEMICAL CONSTITUENTS OF WHEATGRASS

Vitamin A: It upgrades the skin shine and gives glow to the external skin and makes it illness free. It makes a difference to remove the dark spots and imperfections underneath the eyes and improves the visual perception. It is likewise useful in checking the eyes, nose, and throat problems. It nourishes hair and is useful in battling the issues of contamination. Vitamin A is fundamental for typical development and advancement, great vision, and proliferation.



Vitamin B: It helps assimilation. It is useful in the treatment of stomach related problems, depression, wretchedness, a sleeping disorder, untimely maturing, and anorexia.

Vitamin C: Vitamin C is normally connected with citrus natural products, lemons, limes and oranges. Wheatgrass contains more vitamin C than orange. Vitamin C is an amazing cell reinforcement and is useful for recovering from various disorders (counting the normal cold) and forestalling illness. It is a fundamental substance for sound gums, teeth and support of bones. It is vital for wellbeing, imperativeness and healing of injuries and wounds. It is a characteristic hotspot for anti-toxin components.

Vitamin E: It enlarges the vessels and allows free flow of the blood. It is useful for the women during pregnancy for prevention of abortion and is useful in the therapy of sexual impotency, diabetes, malignancy, heart problems and dysmenorrhea etc. Without enough of this fat-soluble vitamin, humans confront muscle degeneration, sterility, and more slow recuperating of wounds and diseases. Vitamin E, a cell reinforcement and richness nutrient is likewise a defender of the heart.

Vitamin K and B-complex vitamins: Wheatgrass contains various other significant nutrients. It is rich in vitamin K and B-complex nutrients. Wheatgrass is likewise a wellspring of vitamin B-17, also called amygdaline, which can assist with offing malignant growth. Wheatgrass contains 17 amino acids and 92 distinct minerals which are essential for the human body. The supplements in wheatgrass are additionally said to help with battling disease and fixing cell harm of the lungs.

MSM: MSM is a sulfur bearing particle found in all living life forms annihilated in prepared food. It helps our body to use nutrients, assists with decreasing hypersensitivities, detoxifies the body, increments oxygen, and takes out irritation.

Proteins and amino acids: Proteins are fundamental for solid strength and actual style. Plasma, chemicals and antibodies are acquired through proteins. Amino acids help processing, blood development and give power to the heart.

Enzymes: Catalysts are the stomach related components. The substances in the Wheat grass juice are useful for dyspepsia. These are useful for absorption, assembling a solid body and balance the untimely maturing.

Minerals

Iron: Iron is a fundamental component of human life. Iron inadequacy makes deficiency of hemoglobin in blood. It is useful in pregnancy, for unnecessary perspiring, pale composition, sluggishness and dormancy, and a sleeping disorder. Inorganic iron is frequently clogging, yet the iron salts in wheatgrass have no results.

Calcium: Calcium provokes essential movement. It reinforces the bones, it gives antacid to the youngsters and essentialness for old. It is useful in treatment of the

illnesses like draining of blood, distension of body, sluggish developments, frigidity and varicose veins. Wheatgrass is a decent wellspring of calcium, which helps assemble solid bones and teeth and controls heartbeat, not withstanding going about as a cushion to reestablish equilibrium to blood pH.

Potassium: Supportive for the brilliance and gloss of youth, hypertension, dementia, palpitation, sleepiness, self-destructive senses and wretchedness and so on. Potassium, called the adolescent mineral by certain nutritionists, keeps a smooth mineral equilibrium, and adjusted body weight. It tones the muscles, firms the skin, and advances general radiance.

Zinc: Accommodates in the prostate organ issues and nourishes hair.

Sodium: Sodium controls the extra cell liquid volume. It additionally directs the acid base balance and keeps up appropriate water balance in the body.

Nutrients and other substances: These give sustenance to the ligaments. These are the components which are impervious to the issues identified with jaundice, feminine cycle, hydrocele, diarrhea, mental weakness, tooth issues, departure of guts and the virus related issues.

Chlorophyll as green blood: The wheat grass juice is a rich source of the soluble components, prophylactic and healing components. It additionally supplements proteins, sugars and fat. The lacteal substances discovered in it are viewed as a viable component and the solitary solution for restoring malignant growth. Chlorophyll the main component of the wheat grass is contained in chloroplasts. Chloroplasts produce nutritious components with the assistance of daylight also known as "Concentrated Solar Energy." The pH factor of the human blood is 7.4. The pH factor of the wheat grass juice is likewise 7.4 that is the motivation behind its faster absorption in the blood⁵.

PHARMACOLOGICAL EFFECTS OF WHEATGRASS

Diseases related to blood and blood circulation system: Included among this classification are weakness, hypertension, atherosclerosis, internal haemorrhage and thickening. Customary admission of the wheat grass juice does something amazing particularly on account of paleness for which no other treatment has such speedy recovery. For this a daily dose of 200 ml squeeze twice a day is recommended.

Deficiency of haemoglobin: Wheat grass juice is named as a substitute for normal red platelets. Wheat Grass has all the structures that hemoglobin has. It is otherwise called Green Blood as a result of its nearby underlying similitude to hemoglobin. Wheat Grass contains numerous nutritious and prophylactic substitutes.

Increase of uric acid in blood: The elevation of uric acid in the blood causes complexities like swelling of the body, assimilation inconvenience and sleep deprivation which can be relieved utilizing the juice of wheat grass.



Diseases related to the respiratory system: Normal cold, asthma, bronchitis and all the connected sicknesses get restored with the customary routine of this wheat grass juice treatment. Regular virus vanishes in few days. Wheat grass juice given twice is effective in Asthma which is an obstinate illness reacting to practical given treatment.

Digestive diseases: Wheat grass treatment is best on account of stomach related issues. Constipation, indigestion, flatulence, nausea, vomiting, acidity, ulcers in the stomach and intestines are a few complications. It is a superb diuretic in conditions of rectal bleeding. Wheat grass juice seemed viable and protected as a solitary or as added backing to treat ulcerative colitis. This extract is exceptionally useful in issues of the colon, mucous, ulcerative colitis and persistent clogging.

Teeth and gum related diseases:

Tooth disorders: Wheat is significant in the prevention and treatment of pyorrhoea. It takes time to eat wheat and as it is taken with different food sources, it forces the piercing of different food sources. Wheat grass juice acts as phenomenal mouth wash for sore throats and pyorrhoea. It prevents tooth ache and tooth decay.

Cure for tooth ache: The juice of wheat grass acts as a wonderful mouthwash for tooth decomposition and treats toothaches. It can be chewed with valuable outcomes.

Diseases of joints: Included in this class are swelling on the joints, torment in the joints, osteoarthritis, bone decaying etc. The viability of wheatgrass in the management of bone and joint problems is because of its anti-inflammatory effect. It helps to reduce pain, swelling, inflammation and check subcutaneous and cutaneous draining rapidly, consequently upgrading the regular healing process.

Osteoarthritis: Patients often report warmth in and around the joint a brief time after application. Normally this is followed by expanded mobility of the joint within 10 to 20 minutes. Like wise with any "normal" item, it pays to continue with constant conditions for at least three months prior to stopping treatment.

Fractures: Whenever fractures, apply promptly to suspected crack site prior to supporting. Apply around the injury if the skin is broken. Wheat grass can create reduction in swelling, wounding and torment.

Gout, acute and chronic: Maintains hyper uricemics treatment. Facilitates mitigating impact of hyper uricemics and shorten attack. Proceed with daybyday application to help anticipation of additional attacks.

Skin diseases: As the wheat grass juice is a functioning blood filtering agent, it is successful in the treatment of practically all skin diseases. It is used to treat dermatitis, acne, bubbles, cuts and wounds, chomps, burns and bites.

Gangrene: Pour the WGJ or powder over the injuries three times daily. Improvement and restoration will be observed in around 10 months time. The kidney capacity and

Hemoglobin level in the blood likewise improve up to typical.

Skin itching: Serious tingling on the skin everywhere on the body will cause wounds. Through Wheatgrass treatment, within a month the prickling will be diminished.

Reduce eczema symptoms: Wheatgrass juice is a superb decision for a beverage as it helps in blood refinement. Drinking wheatgrass consistently will likewise guarantee you of a normal circulatory pressure. Thus, wheatgrass is able to treat blood problems. Wheatgrass is additionally known to give the fundamental compounds that the body needs for ideal health. Proteins, thus, are useful in reinforcing the body's resistant framework and in battle against dermatitis.

Kidney related ailments: Included under this are the issue of stone, irritation of the urinary bladder, and kidneys inflammation. If wheat grass juice is taken consistently the outcomes are better and faster cure.

Disease connected with the reproductive organs: Sexual weakness and dysmenorrhea are the two illnesses which this treatment can treat effortlessly. Taking the wheat juice orally and applying the pieces of the delicate bit of the wheat grass on the private parts help enormously treat the disease.

Ear diseases: In soothing ear pain and restoring the issue of septic release from the ear wheat grass juice has indicated good outcomes. Taking the wheat grass orally, some juice ought to be dropped in the ears to cure ear infections.

Myelodysplastic syndrome (preleukemia): Wheat grass juice is powerful in decreasing Ferrite (Iron) level in myelodysplastic condition (Preleukemia). Wheatgrass juice is a MUST for Cancer patients of any sort whether done Chemo/Radiation or with no Allopathic therapy. SOD, Selenium, laetrile (B17) present in Wheatgrass kills Cancer cells and Chlorophyll (a green blood) builds the WBC and RBC counts for quicker cure.

Breast cancer: Bone marrow (where fresh blood cells are made) damage brought about by chemotherapy can become dangerous. White platelet count and red platelet count can turn out to be low. There are medicines to help fabricate the platelet count, yet they accompany negative results and increase in cost. It was discovered that drinking the green juice gives better blood levels while accepting the chemotherapy decreasing the requirement for blood building drugs. Wheatgrass juice was found to reduce the viability of chemotherapy. Wheat grass assists with killing poisons and ecological contaminations in the body⁶. This is due to that wheat grass contains proteins that help to shield us from cancer-causing agents, including superoxides dismutase (SOD) that lesser the impact of radiations consequently digest poisons in the body⁷. Cancer flourishes in low oxygen conditions, in this way preventing cancer disease because of antioxidant content chlorophyll, laetrile and cancer prevention agent protein



super oxide dismutase (SOD) which changes dangerous free revolutionary receptive oxygen species (ROS) into oxygen particle. In another examination, it is found that wheat grass juice assisted with improving the wellbeing status and life expectancy in critically ill disease patients⁸. The concentrate of wheat grass when applied to synthetic mutagens diminished their cancer causing capacity by 99 percent which recommends that wheat grass may have property of cancer prevention. The clinical investigations led on human breast malignant growth have indicated that chlorophyllin, a compound that is like chlorophyll produced artificially, has capacity to diminish the danger of breast disease.

Reduces skin toxicity in X-ray: Profound X-beam treatment for the therapy of breast malignancy can be loaded with confusions and unfavourable responses called "skin harmfulness". Basically, this implies that after treatment, the skin gets worse, tends to sore and occurs pain, trouble in administration and wound contamination. In light of skin harmfulness, the patient needs to stand by any longer between medications for the skin to recover adequately to permit the following treatment. This thus will in general decrease the patient's chances of recuperation.

Treatment of migraine: Headaches are serious, intermittent migraines that can cause weakening torment for quite a long time. While there is no solution for headache, home cures and way of life changes can go far to decrease the side effects. A profoundly edible, concentrated wellspring of supplements, wheatgrass is a usually utilized enhancement for regular mending for a wide range of sickness, including headaches. Wheatgrass contains synthetics appeared to have cell reinforcement and mitigating properties (supportive for wellbeing and headaches). Wheatgrass treatment generally includes every day utilization of a modest quantity of newly squeezed wheatgrass.

Thalassemia: Regardless of whether green blood strategy is a solution for thalassemia, the regular discoveries are that, among patients taking this treatment the transfusion of blood has been expanded upto 25-30 days. Prior, thalassemia patients needed to have a bonding once in at regular intervals. The grass juice removed from the mash of wheatgrass has been utilized as a broadly useful wellbeing tonic. Wheat grass can possibly build the hemoglobin levels, increment the span between blood bonding and decrease in the measure of absolute blood bonded in the thalassemia. A pilot study was conducted to experimentally assess the impact of wheat grass juice treatment in patients with bonding subordinate Beta-Thalassemia and it was seen that utilization of wheat grass juice was found to give helpful impact on the bonding prerequisite in half of patients in this pilot study. It has been demonstrated that wheat grass helps blood stream, assimilation, detoxification of the body and so forth⁹. The indole exacerbates present in wheat grass may be liable for the deactivation of cancer-causing agents by expanding the

action of xenobiotic metabolic compound in the liver and intestinal mucosa¹⁰.

Anti ulcer activity: In a randomized, twofold visually controlled examination on WGJ found that the utilization of wheat grass juice is exceptionally compelling and protected as a solitary or adjuvant treatment of dynamic distal Ulcerative colitis (UC). Green squeeze and parts from green juice of young grain leaves containing water solvent proteins natural mixes demonstrated enemy of - stomach ulcer movement in focused on rodents. The clinical examinations propose that chlorophyll might be the best specialist known for or any place incitement of tissue repair is required¹¹. studies are in advancement to assess WGJ as conceivable treatment for ulcerative colitis as it is rich in bioflavonoid which are accepted to have both reduce in inflammation and antioxidant agent properties. one of these bioflavonoid, programming interface genin, has been appeared to restrain tumor putrefaction factor (TNF) incited transactivation¹².

The examinations identified with the utilization of chlorophyll in stimulating tissue development have demonstrated that chlorophyll balm and fluid arrangement is extremely compelling in the treatment of skin ulcer¹³. Further more, chlorophyll subsidiaries have additionally been appeared to show injury recuperating and smell diminishing abilities. Chlorophyllin has bacteriostatic properties helping in injury recuperating, and refreshes the creation of hemoglobin and erythrocytes in anaemic creatures. It has been utilized to treat different sorts of skin injuries, injuries and ulcers where it goes about as a wound curing agent, stimulating granulation tissue and epithelization¹⁴.

Antioxidant activity: The fluid and ethanol concentrates of wheat grass has a capacity to restrain the development of leukemia cells and furthermore development in CAT, SOD and ADA exercises were determined in the cell lines treated with extracts of wheatgrass¹⁵. The concentration of nutrient C and E, beta carotene, ferulic corrosive and vanilic corrosive present in wheat grass increases with the germination time of wheat grass¹⁶. An examination done on MCF-7 bosom malignancy lines with various concentrates show most elevated free revolutionary searching action and the most elevated cell executing property^{17,18}. The cancer prevention agent movement of wheat grass has been estimated under various condition (1) faucet water, (2) tap water with supplements, (3) soil and tap water, (4) soil with supplements, it has been discovered that the ethanol concentrate of wheat grass has maximum FRAP standards day 15 of development under condition 4¹⁹. Wheat grass contains cancer prevention agent protein super oxide dismutase which changes over dangerous free extremist responsive oxygen species into hydrogen peroxides, which isn't dangerous as superoxides atom and an oxygen particle²⁰.

Anti arthritic activity: In rheumatoid patients randomized into diet and control gatherings, it has been seen that an uncooked vegetarian diet rich in lactobacilli, decreased



symptoms of rheumatoid joint pain. The investigations showed that the accompanying gathering of dietary variables was somewhat (48%) liable for the noticed diminishing in the illness action file: matured wheat drink, wheat grass drink, dietary fiber and iron. Further the examinations indicated huge reaction in ligament patients²¹.

Anti inflammatory activity: It was seen that wheat grass cream reduces irritation and skin harmfulness from radiotherapy. In any case, another investigation indicated that the effective utilization of wheat grass has been used to treat ulcers and bones.

Pharmacokinetics: The proteins, lipids and sugars in wheat grass are processed, assimilated and utilized by typical physiological cycles.

Contraindications: Wheat grass is contraindicated in the individuals who are touchy to any part of a wheat grass containing supplement.

Precautions: Pregnant ladies and nursing mothers must stay away from wheat grass containing supplements. Wheatgrass enhancements may contain high measures of nutrient K. Those on warfarin should practice alert in the utilization of wheat grass supplements²².

Adverse reactions: Wheatgrass juice is protected and the rate of result is low. It might cause queasiness and migraine when taken in unnecessary amounts. Throat expanding may happen in overly sensitive people.

CONCLUSION

To accomplish, wheatgrass an extremely encouraging homegrown medication, broad work is required to investigate its curative application in different infections. Wheatgrass contains no destructive substances except for a potential hypersensitive response. Wheatgrass is known to help limit tiredness, improve rest, increase in strength, normally manage circulatory strain and glucose, support well skin, teeth, eyes, muscles and joints, improve the capacity of our heart-lungs and regenerative organs, recover ulcers and skin wounds, moderate cell maturing, improve mental capacity and is helpful in joint pain and muscle infolding. It is demonstrated to be useful under different conditions, for example, paleness, diabetes, malignant growth, dermatitis, obstruction, kidney inflammation, and basic virus. Consequently, it ought to be made part of day by day dietary admission to investigate its most extreme advantage.

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