

Therapeutic potential of *Triticumaestivum* Linn. (Wheat Grass or Green Blood Therapy) in the treatment and prevention of Chronic and Acute Diseases: An Overview



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Abstract

It is the shoot of *Triticum aestivum* Linn. And in Hindi it is called as *gehun kanak*, and in Sanskrit it is known as *gohuma* and in English it is known as wheat grass. It is unique therapy. It has got all the nutritional value that is required for the person to keep healthy. As it consists of fat, carbohydrate, sugar, protein, vitamin such that thiamine, riboflavin, niacin, pantothenic acid, folate, choline, Vitamin E, Vitamin K, amino acid, enzymes, minerals such that calcium, potassium, zinc, sodium, magnesium, choline, chlorophyll which is most important of the therapeutic activity of wheat grass, and some trace element. Wheat grass juice is close resemblance to haemoglobin in our blood so it is called green blood and known as green blood therapy. As it is recommended for the patient suffering from cancer, ulcer, disease related to joint such as gout, osteoarthritis, thalasemia, skin disease such as eczema, ache, disease related to digestive system, blood and circulatory system, reproductive system, respiratory system, tooth and gum, migraine. As it is easily absorbed in the bloodstream and gives energy. In empty stomach it is easily assimilated in blood in approximately 20 min. And their activity remains throughout the day. This review is concluded that wheat grass have highly curative value by easily available substance.

Keywords: *Triticumaestivum*, nutritional value, haemoglobin, green blood, bloodstream, resemblance, assimilated

INTRODUCTION

Shoot of *Triticumaestivum* Linn. (Hindi Name- *gehun, kanak*, Sanskrit name- *godhuma*) is called as a wheat grass, belonging to family: Gramineae.^[1] Wheat grass is a grass which consists of carbohydrates, vitamin, all essential minerals. As wheat grass juice bears a closer resemblance to the "haemoglobin" in our blood, the juice is often called as "green blood" and the therapy using it is called as "green blood therapy" wheat grass juice is complete food. It refers to the young grass of the common wheat plant, which is freshly juiced or dried into powder for consumption. Packed with chlorophyll, amino acids, minerals, vitamins, and enzymes, it is a powerhouse of nourishment. Wheatgrass or baby wheat juice is an extremely natural food. Since according to Dr. Anne Wigmore rediscovered the nutritional qualities of wheatgrass juice in 1960, the juice has helped hundreds of thousands of people around the world to overcome serious health problems.^[2]

However wheatgrass juice is not a panacea. If you continue to consume processed foods, drugs, alcohol, tobacco, burned foods and other toxic substances that can make you ill, a few milliliters of wheatgrass juice each day won't make much difference. Instead, try consuming a predominately (or entirely) raw food diet with organic wheatgrass juice. You will most likely experience a world of improvement.

The consumption of wheatgrass in the Western world began in the 1930s as a result of experiments conducted by Charles F. Schnabel, a food scientist who experimented with various mixtures of grain and feed and found that chickens fed on mixtures that contained a high proportion of wheat grass had grown better, were more healthy and had 150% better egg production than other hens. Further experimentation on other animals yielded the same results. Animals fed on wheatgrass were undoubtedly healthier than those fed on other grains.^[3] Wheat Grass Juice is an extract squeezed

from the mature sprouts of wheat seeds (*T. aestivum*).

The therapeutic activity of wheat grass is due to the presence of the nutritional content like chlorophyll, vitamin A, vitamin C and vitamin and iron biflavonoids mineral like calcium and magnesium.

it consist of sixteen amino acid in which eight of which are essential^[4] Although the therapeutic activity of wheat grass has approved for four decades before but it was not use before because of the lack of powerful clinical data to support the therapeutic activity. But the few experiment has been evaluate the efficacy of wheat grass in the form of powder or juice in the treatment of chronic disease like cancer^[5], rheumatoid arthritis^[6], and ulcer^[7].Etc.



Benefits

It is used in the treatment of various diseases as about approximately 350. Some of them are-

1. Weakness, anemia, malnutrition, insomnia, headache, joint pains, arthritis, kidney disorders, ear pain, dental pain.
2. Balancing fat in the body.
3. It has shown to be powerful impact on the treatment of different skin problems like burns Insect bites, wounds, psoriasis and much type cancers. Wheat grass paste is also used as a beautification.
4. It is also used to detoxify the body, strengthens immunity and improves the micro-flora ecology of the digestive tract.
5. It is also used to maintain the brain and all body tissues function at optimal levels only in a highly-oxygenated environment.
6. A one of the study at the University of California showed that wheat grass contains an enzyme P4D1 capable of repairing faulty DNA.

7. The three most important effects of wheat grass on the human body are: blood purification, liver detoxification and colon cleansing.

8. According to Dr Bernard Jensen, it only takes a few minutes to digest wheat grass juice and doing so uses up very little of the body's energy.

Source



Classification:

Kingdom	: Plantae
Division	: Magnoliophyta
Class	: Liliopsida
Order	: Cyperales
Family	: Gramineae
Genus	: Triticum
Species	: aestivum
Sub family	: pooideae
Tribe	: Triticeae

Wheat (*Triticum* spp.)^{[8][9]} is a cereal grain, originally from the Levant region of the Near East but now cultivated worldwide. This grain is grown on more land area than any other commercial food. Wheat is the leading source of vegetable protein in human

food, having a higher protein content than other major cereals, maize (corn) or rice.^[10] Wheat grain is a staple food used to make flour for leavened, flat and steamed breads, biscuits, cookies, cakes, breakfast cereal, pasta, noodle, couscous^[11] and for fermentation to make beer,^[12] other alcoholic beverages,^[13] and biofuel.^[14]

NUTRITIONAL VALUE RELATED TO WHEAT GRASS

Nutritional value per 100g (3.5oz)

1. Energy	1,368 kJ (327 Kcal)
2. Carbohydrate	71.18g
-sugar	0.41g
-Dietary fiber	12.2g
3. Fat	1.54g
4. Protein	12.63g
5. Vitamin	
Thiamine (B1)	(33%) 0.383mg
Riboflavin (B2)	(10%) 0.115mg
Niacin (B3)	(36%) 5.464 mg
Pantothenic acid (B5)	(19%) 0.954 mg
Vitamin (B6)	(23%) 0.3mg
Folate (B9)	(10%) 38µg
Choline	(6.0%) 3.12mg
Vitamin E	(7%) 1.01mg
Vitamin K	(2%) 1.9µg
6. Trace element	
Calcium	(3%) 29mg
Iron	(35%) 126 mg
Magnesium	(190%) 3.985mg
Phosphorus	(41%) 288mg
Potassium	(81%) 363mg
Sodium	(0%) 2mg
Zinc	(28%) 2.65 mg
7. Other constituent	
Selenium	70.7µg

Health concern

Several screening studies in Europe, South America, Australasia, and the USA suggest that approximately 0.5–1% of these populations may have undetected coeliac diseases.^[15] Coeliac which is also written as celiac disease, is a condition that is caused by an adverse immune system reaction to gliadin, a gluten protein found in wheat. Upon exposure to gliadin, the enzyme tissue transglutaminase modifies the protein, and the immune system cross-reacts with the bowel tissue, causing an inflammatory reaction. That leads to flattening of the lining of

the small intestine, which interferes with the absorption of nutrients. The only effective treatment is a lifelong gluten-free diet.

Cause of disease due to wheat grass

There are many wheat diseases, mainly caused by fungi, bacteria, and viruses.^[16] Plant breeding to develop new disease-resistant varieties, and sound crop management practices are important for preventing disease. Fungicides, used to prevent the significant crop losses from fungal disease, can be a significant variable cost in wheat production. Estimates of the amount of wheat production lost owing to plant diseases vary between 10-25% in Missouri.^[17] A wide range of organisms infect wheat, of which the most important are viruses and fungi.^[18]

The main wheat-disease categories are:

- Seed-borne diseases: these include seed-borne scab, seed-borne stagonospora it was previously known as Septoria, common bunt (stinking smut), and loose smut. These are managed with fungicides.
- Leaf- and head- blight diseases: Powdery mildew, leaf rust, Septoriatritici leaf blotch, Stagonospora (Septoria) nodorum leaf and glume blotch, and Fusarium head scab.^[19]
- Crown and root rot diseases: Two of the more important of these are 'take-all and Cephalosporium stripe. Both of these diseases are soil borne.
- Stem rust diseases: Caused by basidiomycete fungi e.g. Ug99.
- Viral diseases: Wheat spindle streak mosaic (yellow mosaic) and barley yellow dwarf are the two most common viral diseases. Control can be achieved by using resistant varieties.

THE MAJOR CHEMICAL CONSTITUENT PRESENT IN *TRITICUMAESTIVUM* WHICH MAKES THE WHEAT GRASS VALUABLE IN BOOSTING THE HEALTH AS VITALITY ARE EXPLAINED BELOW-

Vitamin A

It enhances the skin luster and provides fair glow to the outer skin and makes it free from disease. It helps to cure the black spots and blemishes below the eyes and improves the eyesight. It is also helpful in checking the eyes, nose, and throat disorders. It nourishes hair and is helpful in fighting the problems

of pollution. It is also used for the beautifying material. Vitamin A is essential for normal growth and development, good eyesight, and reproduction.

Vitamin B

It aids digestion. It is responsible for the treatment of, mental, digestive disorders, depression, insomnia, gastric, premature aging, and anorexia.

Vitamin C

Vitamin C is usually associated with citrus fruits, such as lemons, limes and oranges. However, ounce for ounce, wheatgrass contains more vitamin C than an orange. A powerful antioxidant, vitamin C is helpful for recovering from sickness including the common cold and preventing disease such as scurvy it is a vital substance for healthy gums and teeth and maintenance of bones. It is essential for health and vitality and healing of sores and wounds. It is also a natural source for antibiotic elements.

Vitamin E

It dilates the capillaries and help in the free flow of the blood. It is helpful for the women during pregnancy, it prevents abortion and it is a helpful substance in the treatment of sexual impotency, diabetes, cancer, heart disorders and dysmenorrheal etc. Without enough of this fat-soluble vitamin, we would face muscle degeneration, sterility, and slower healing of wounds and infections. Vitamin E, an antioxidant and fertility vitamin is also a protector of the heart.

Protein and amino acid

Proteins are essential for physical elegance and muscular strength. Plasmas, hormones, and antibodies are obtained through proteins. Amino acids aid digestion, blood formation and provide potency to the heart.

Enzymes

Enzymes are the digestive elements. The substances in the wheat grass juice are helpful for dyspepsia. These are helpful for digestion, building a healthy body and counteract the premature aging. Protease, amylase, lipase, cytochrome oxidase, transhydrogenase, superoxide dismutase (SOD) are the enzyme which is also found in wheat grass therapy.

Mineral

- **Iron:** Iron is an essential element for life. Iron deficiency creates shortage of hemoglobin in blood. It is helpful in pregnancy, for excessive sweating, pale complexion, laziness and lethargy, and insomnia. Inorganic iron is often constipating, but the iron salts in wheatgrass have no side effects.

- **Calcium:** Calcium is the prime instigator of vital activity. It strengthens the bones, it provides alkaline for the children and vitality for old. It is helpful in treatment of the diseases like hemorrhage, distension of body, slow movements, coldness, varicose veins, etc. Wheatgrass is a good source of calcium, which helps build strong bones and teeth and regulates heartbeat, in addition to acting as a buffer to restore balance to blood pH.

- **Potassium:** Helpful for the radiance and luster of youth, hypertension, dementia, palpitation, tiredness, suicidal instincts, depression, etc. Potassium called the youth mineral by some nutritionists, helps maintain a smooth mineral balance, and balanced body weight. It also tones the muscles, firms the skin, and promotes overall beauty.

- **Zinc:** It is Helpful in the prostate gland disorders and nourishes hair.

- **Sodium:** Sodium regulates the extracellular fluid volume. It also regulates the acid–base equilibrium and maintains proper water balance in the body.

- **Magnesium:** We will find about as much magnesium in wheatgrass as in broccoli, Brussels' sprouts, beets, carrots, or celery. Magnesium is important for good muscle function and for bowel health, as it aids eliminative functions. I believe that this mineral is also responsible for drawing fat out of the liver, in cases of fatty infiltration there.

MSM

MSM is a sulfur bearing molecule found in all living organisms destroyed in processed food. It helps our body use vitamins, helps to reduce allergies, helps detoxify the body and increase oxygen, and takes out inflammation. That also contains in wheat grass juice.

Nutrients and other substances:

These provide nutrition to the tendons. These are the elements which are resistant to the disorders related to jaundice, menstruation, hydrocele,

dysentery, mental debility, tooth problems, evacuation of bowels and the cold related problems.

Chlorophyll

It is the chlorophyll, most wheatgrass advocates claim, that detoxifies the body, strengthens immunity and improves the micro-flora ecology of the digestive tract.

The benefits of chlorophyll known till date are as follows:

- Is the basis of all plant life
- Is a blood builder
- Oxygenates the blood
- anti bacterial in nature
- as healing properties
- Neutralizes toxins in the body
- is alkalinizing in nature
- improves blood sugar problems

Chlorophyll also called as 'concentrated sun power' positively impacts the function of the heart, the vascular system, the intestines, the uterus and the lungs. According to Dr. Bircher, a research scientist nature uses chlorophyll in wheatgrass as a body cleanser, re-builder and neutralizer of toxins. The pH value of human blood and Wheatgrass both is about 7 (alkaline) and wheat grass is therefore quickly absorbed in the blood and is highly beneficial. Most wonder effects exerted by wheat grass can mainly be attributed to the benefits of chlorophyll. . The lacteal substances found in it are considered to be an effective element and the only remedy for curing cancer.^[20]

Internal rejuvenation

Wheat protein, which comprises up to eight % of the grain, has a special benefit as it has eight of the essential amino acids in delicately balanced proportions. A complete internal rejuvenation takes place when Wheat protein is metabolized into health-building amino acids.

DISEASE AND THEIR PHARMACOLOGICAL TREATMENT WITH THE WHEAT GRASS

Cancer

The wheat grass therapy is an integral part of the macrobiotic diet under the complementary and alternative medicine approach of anticancer therapy, due to its high antioxidant content. The wheat grass is a highly placed source of chlorophyll, laetrole, and

antioxidant enzyme superoxide dismutase. Wheatgrass intake enhances hemoglobin synthesis as chlorophyll bears a structural analogy to haemoglobin. The prospective matched control study on patients with breast carcinoma on chemotherapy to evaluate the beneficial effect of wheat grass revealed that wheat grass juice taken during FAC (5-fluorouracil, doxorubicin and cyclophosphamide) chemotherapy may reduce myelotoxicity, dose reduction and need for granulocyte colony stimulating factors (GCSF) support, without diminishing efficacy of chemotherapy.^[21] It appears beneficial include antioxidant activity preventing oxidative damage to deoxyribonucleic acid (DNA) and lipid peroxidation, stimulation of gap junction communication, effects on cell transformation and differentiation, inhibition of cell proliferation and oncogene expression, effects on immune function and inhibition of endogenous formation of carcinogens.^[22]

It is also used in Myelodysplastic Syndrome because the effect of wheat grass juice in reducing Ferrite (Iron) level in myelodysplastic syndrome .And when there is breast cancer treatment When there is deep X-ray for the treatment and there will be complication and adverse effect such as skin becomes inflamed ,tends to blister and break down leading to pain, difficulty in management and wound infection so by the use of wheat grass therapy these all problem can be eradicated and also well treated.

Anti-ulcer activity

During research it was found that the wheat grass has efficacy in ulcerative colitis. And in a randomized, double-blind, placebo-controlled study on wheat grass Ben-Arye et al^[23] observed that the use of wheat grass juice is very effective and safe as a single or adjuvant treatment of active distal Ulcerative colitis. The wheat grass juice has a therapeutic role and offers a genuine therapeutic advantage in patients with active left colon ulcerative colitis.^[23]

Anti -oxidant

The antioxidant activity of wheatgrass, which is taken as a dietary supplement, was estimated at different levels. Aqueous and ethanol extracts of wheatgrass grown under different conditions over a period of 6, 7, 8, 10 and 15 days were used. Lipid per

oxidation and oxygen radical absorbance capacity (ORAC) were determined and utilized to check the potency of a few selected extracts. Different conditions used for growth were (1) tap water, (2) tap water with nutrients, (3) soil and tap water, and (4) soil with nutrients. Wheat grass contains antioxidant enzyme super oxide dismutase (SOD) which converts dangerous free radical reactive oxygen species (ROS) into hydrogen peroxides (having extra oxygen molecule to kill cancer cells) and an oxygen molecule.^[24]

Disease related to joint

Included in this category are swelling on the joints, pain in the joints, osteoarthritis, bone rotting, etc. It has created powerful impact on treatment and management of bone and joint disorder due to its powerful Anti-inflammatory effect. However, this much is assured that this therapy gives positive results.^[25]

It can significantly responsible for reducing pain, swelling and inflammation, and check subcutaneous and cutaneous bleeding quickly, thereby enhancing the natural healing process. When it is given to osteoarthritis patients it frequently report warmth in and around the joint a short while after application. And when it is given to the gouty patients it facilitates the anti-inflammatory effect of hyperuricemics and shortens attack. Continue daily application to assist prevention of further attacks.

Blood building activity in Thalassemia major

Whether green blood method cannot completely cure the disease problem. What we have found among patients taking this therapy is that the interval between blood transfusions has increased to 25-30 days. Earlier, thalassaemia patients had to have a transfusion once in two weeks. Marwaha et al conducted a research study to scientifically evaluate the effect of wheat grass juice therapy in patients with transfusion dependent Beta-Thalassemia and it was observed that consumption of wheat grass juice was found to have beneficial effect on the transfusion requirements in 50% of patients in this pilot study. The study suggested that wheat grass juice has the potential to lower transfusion requirements in thalasseemics.^[25-26]

Skin disease

From the Wheatgrass extract there is known product Dr. Wheatgrass Skin Recovery Cream. It is a topical anti-inflammatory immunomodulator, substance P inhibitor, topical haemostatic agent, and stimulant of fibroblastic activity which has the wide range of healing properties, has been attracting attention^[27]. It has been scientifically proved that the chlorophyll present in wheat grass which is responsible for arresting growth and development of harmful bacteria. It is also used for ulcerative wounds, curing eczemas, ache (pimples), boils, cut and wounds, bites and burns. It is also used as blood purifying agents.

Digestive system disorder

Wheatgrass therapy is most effective in the case of digestive disorders, i.e. it shows its quick effect. Constipation, indigestion, flatulence, nausea, vomiting, acidity, ulcers in the stomach and intestines, smelling on the intestines, and worms are some of the prominent diseases and disorders which wheatgrass can cure without much ado. However it is an excellent laxative in the severity of rectal bleeding. The general procedure is to given an enema with lukewarm water. After waiting for 20 min, 100 to 125 ml of wheat grass juice enema is given. This should be retained for 15 min. And the patients suffering from constipation are advised to chew wheatgrass well at first and then swallow the residual lump also afterward. If cabbage juice is added to the wheat grass juice it yields quicker and better results in the complaint of ulceration in the stomach and intestines. This enema is very helpful in disorders of the colon, mucous and ulcerative colitis, chronic constipation and bleeding piles.

Disease related to blood and circulatory system disorder

The chlorophyll present in wheat grass enhances heart and lung function. Capillary activity is also increase, while toxemia is reduced. It increases iron content of the blood and thereby hemoglobin and lungs function better as well as oxygenation also improves and the effect of carbon dioxide is also minimized.

It is also used in the treatment of anemia, high blood pressure, atherosclerosis, internal hemorrhage, clotting. Regular intake of wheat grass juice wonders especially in the cases of anaemia for

which no other therapy has such quick cure. Having 200 ml juice twice a day is recommended. In Deficiency of Hemoglobin, Wheat grass juice is termed as a substitute for natural red blood cells. The wheat Grass possesses all the compositions that Haemoglobin possesses. And it is also used for increment of uric acid in the blood caused which complications such as swelling of the body, digestion trouble, insomnia.

Teeth and gum related diseases

Wheatgrass is a very much effective remedy for all t complaints of gums and teeth. However it is also used in the tooth disorder for curing of pyorrhea. It takes more time to eat wheat and as it is generally taken with other substituent such as foods, it compels the chewing of other foods also. Its juice acts as an excellent mouth wash for sore throats and pyorrhea. It also prevents tooth decay and tooth aches. It is also used for toothache and decay. If wheat grass is chewed it gives beneficial result.

Disease related with the reproductive organs

Sexual debility and dysmenorrhea are the two disease disorders which this therapy can cure with comparative ease. Taking the wheat juice orally and applying the parts of the soft portion of the wheatgrass on the private parts help greatly cure the disease.

Diseases related to the Respiratory System

Asthma, Common cold, bronchitis and all the related disease get cured with the regular intake of this wheat grass juice therapy. Common cold generally disappears in a some days only. Asthma is a dreadfully stubborn disease responding to almost no given therapy. But wheat grass juice taken twice a day creates wonders in this case also.

Treatment of migraine

Migraines are severe, recurrent headaches that can cause debilitating pain for hours on end. As there is no any treatment that can cure migraine, home remedies, life-style changes in some extent reduce symptoms. A highly concentrated source of nutrients, digestible wheatgrass is a commonly used supplement for natural healing for all kinds of illness, including migraines. Wheatgrass contains chemicals shown to have antioxidant and anti-inflammatory

properties helpful for overall health and migraines problem.

HOW TO GROW USE WHEAT GRASS

Wheat grass can be grown in any residential area where direct rays of sun cannot reach from about 11 am to 3 pm and where the temperature is mild. If the direct rays of sun fall on the grass it will may sap the strength from the grass.

For the purpose of growing wheat grass a good variety of wheat soaked for eight to ten hours. After that the water should be drained and the grain allowed sprouting for 15 hours. Earthen pots or wooden trays can be used to grow the wheat grass. They should fill with compost manure and the wheat sprouts should be spared. If it is possible they should be covered with dark cloth or kept away from the rays of sun in a room. They should be sprinkled with water once or twice day according to the requirement and allowed to stand for six to seven days after that the grass will grow five to six inches high.

After that the grass can be cut with carefully washed scissor. It should be immediately wash and the juice of the ground pulp can be extracted through a fine piece of cloth. To obtain maximum advantage, the pulp should be ground and the juice extracted for two or three times.

PRECAUTION SHOULD BE TAKEN BEFORE INITIATION OF THERAPY

1. One should take only juice for two days before initiation of the therapy. As a result all toxic elements would be eliminated from the body. Initially for some people there may be a problem of nausea or diarrhoea. If you observe such problems discontinue the therapy until you recover.
2. The juice should be taken early in the morning on empty stomach. Don't eat or drink for the next half an hour. You can see the positive results within three weeks of starting the wheat grass therapy. We can Use enema to empty the bowels.
3. Pregnant women and nursing mothers should avoid wheatgrass-containing supplements.
4. Wheatgrass supplements may contain high amounts of vitamin K. Those on warfarin should exercise caution in the use of wheatgrass supplements.

Method:

1. Take fresh wheat grass, wash it and blend it in a juicer. For keeping the nutrients intact it is better to pound the grass manually.
2. Add de-ionized water for better results
3. Sugar or salt in this juice should not be mixed; there may be a loss of therapeutic activity.
4. It must be consumed within 20 minutes as delaying results chances of oxidation of essential nutrients
5. Intake juice should be gradually increased from 10 ml to 200 ml per day.

Pharmacokinetics

The carbohydrates, protein and lipid in wheatgrass are digested, absorbed, and metabolized by normal physiological process.

Contraindications

Wheatgrass is contraindicated in those who are hypersensitive to any component of a wheatgrass containing supplement or allergy toward any constituent that belongs to it.

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Adverse Reactions

wheat grass juice is very safe and the chance of the side effects is very low or minimum. It may cause nausea and headache if excessive quantities are taken. Throat swelling may occur in hyper sensitive to individual.

CONCLUSION

This review was concluded that the wheat grass juice is a one of the important natural product that has higher degree of curative index and which is responsible for the treatment of different diseases such as asthma, atherosclerosis, Parkinson's disease, joint pains, tuberculosis, constipation, hypertension, diabetes, bronchitis, insomnia, eczema, sterility, hemorrhage, obesity, flatulence, and cancer as well as thalasemia, migraine. As it does not contain any constituent that can cause harm to any individual. And one of the main advantages is that it is easily available.

↓ REFERENCES

1. Wheatgrass (Online). Available from: URL: en.wikipedia.org/wiki/wheatgrass.
2. Wigmore A. The wheat grass Book, New York. Avery Publishing group 1986
3. Sean M. Wheatgrass, healthy for the body and the bank account. Australia's National Rural Affairs Weekly-Landline. 1310-2002, Retrieved 2006-1006.
4. Walters R. The Alternative Cancer Therapy Book. New York Avery Publishing Group, 299-308, 1992.
5. Dey S, Sarkar R, Ghosh P, Khatun R, Ghorai K, Choudhari R, Ahmad R, Gupta P, Mukopadhy S, Mucopadhy A. 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. 2006; 18(1), pp. 8634.
6. Nenonen MT, Helve TA, Rauma AL, Hanninen OO. Uncooked, Lactobacilli-rich, Vegan Food and Rheumatoid Arthritis. British Journal of Rheumatology 1998; 37(3); 274-281.
7. Ben-Arye E, Goldin E, Wengrower D, Stamper A, Kohn R, Berry E. Wheat Grass Juice in the Treatment of Active Distal Ulcerative Colitis: A Randomized Double-blind Placebo-controlled Trial. 2002; 37(4); 444-449.
8. Belderok, Robert 'Bob'; Mesdag, Hans; Donner, Dingena A; Bread-Making Quality of Wheat; Springer; 2000; pp. 3
9. Shewry Peter R; Wheat; Journal of Experimental Botany; 2009; 60 (6); 1537-1553
10. "Nutrient data laboratory". United States Department of Agriculture.
11. Cauvain, Stanley P. &Cauvain P. Cauvain. (2003) Bread Making. CRC Press; pp- 540
12. Palmer, John J.; How to Brew; Defenestrative Pub Co.; 2001; pp-233.

13. Neill, Richard; Booze: The Drinks Bible for the 21st Century; Octopus Publishing Group – Cassell Illustrated; 2002; pp. 112.
14. Department of Agriculture Appropriations for 1957: Hearings ... 84th Congress. 2d Session. United States House Committee on Appropriations. 1956. pp. 242.
15. Van Heel D., West J; Recent advances in coeliac disease; Gut; 2006; 55(7); 1037-1046.
16. ohioline.osu.edu/b631/b631_5.htmlField
17. Muextension.missouri.edu. Retrieved 18 May 2009.
18. Hogan C (2014). Wheat. Retrieved from [http:// www.eoearth.org/view/article/51cbf3547896bb431f6ac8f3](http://www.eoearth.org/view/article/51cbf3547896bb431f6ac8f3)
19. Gautam, P. and R. Dill-Macky; Impact of moisture, host genetics and Fusariumgraminearum isolates on Fusarium head blight development and trichothecene accumulation in spring wheat; Mycotoxin Research; 2012; 28(1); 45-48
20. Available from: naturalhealthcure.org/therapies/wheat-grassjuice-therapy-health-benefits-and-healing-properties.html, [Last Accessed on 2011 July 15].
21. Bar-Sela G, Tsailic M, Fried G, Goldberg H; Wheat Grass Juice may improve Hematological Toxicity Related to Chemotherapy in Breast Cancer Patients: A Pilot Study; Nutrition and Cancer; 2007; 58(1); 43-48.
22. Meyerowitz S; "Nutrition in Grass". Wheatgrass Nature's Finest Medicine: the complete guide to using grass foods and juices to revitalize your health; Sproutman Publications; 1999; Edn 6th; pp 53.
23. Ben-Ayre E, Goldin E, Wengrower D, Stamper A, Kohn R, Berry E. Wheatgrass juice in the treatment of active distal ulcerative colitis: A randomized double-blind placebo-controlled trial. Scand J Gastroenterol; 2002; 37(4):444-9.
24. Mates MJ, Jimenez S, Fransisca M. Role of reactive oxygen species in apoptosis: implication for cancer therapy. The International Journal of Biochemistry and Cell Biology 2000; 32(2):157-170.
25. Bálint G, Apáthy A, Blaszó G, Hidvégi M, Paksy A, Resetár A, et al. Effect of Avemar - a fermented wheat germ extract-on rheumatoid arthritis. Preliminary data. ClinExpRheumatol 2006; 24(3); 325-8.
26. Marwaha RK, Bansal D, Kaur S, Trehan A; Wheat Grass Juice Reduces Transfusion Requirement in Patients with Thalassemia Major: A Pilot Study; Indian Pediatrics; 2004; 41(7); 716-720.
27. Wheat J, Currie G, Coulter K; Wheatgrass extract as a topical skin agent for acute radiation skin toxicity in breast radiation therapy: A randomized controlled trial; J AustTrad Med Soc; 2006; 12(3); 135-137.