



Research Article

THE EFFECT OF WHEATGRASS JUICE ON HEMOGLOBIN LEVEL W.S.R. TO SAMANYA-VISHESHA SIDDHANTA

Pawar Kiran Bhikaji^{1*}, Thakare Mangala P², Meshram Dnyaneshwar Sudhakar³, Jadhao Manju Namdev⁴

*¹Assistant Professor, Department of Kriya Sharir, Government Ayurved College, Osmanabad, Maharashtra, India.

²Assistant Professor, Department of Kriya Sharir, Government Ayurved College, Nagpur, Maharashtra, India.

³Assistant Professor, Department of Rachna Sharir, Government Ayurved College, Osmanabad, Maharashtra, India.

⁴M.S. Scholar, PDEA'S College of Ayurved And Research Centre, Nigdi, Pune, Maharashtra, India.

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ABSTRACT

W.H.O. guideline denotes hemoglobin level in healthy male below 13 g/dl is abnormal and in female below 12g/dl is abnormal. This condition refers as 'Anaemia'. There are several types of anaemia. It develops mainly because of lack of proper food habits. Wheat grass juice is rich source of minerals, vitamins, antioxidants, amino acids and many enzymes. It is significant nutritious and medicinal value with rich source of chlorophyll. Chlorophyll resembles with hemoglobin as both are chromo protein. Chemical component of both compounds are nearly same. Also the vital component of wheat grass helps in building hemoglobin in our body. The presence of 70% chlorophyll, which is almost chemically identical to hemoglobin. The only difference is that the central element in chlorophyll is magnesium and in hemoglobin it is iron. Chlorophyll in wheat grass is more useful in various clinical conditions involving hemoglobin deficiency and other chronic disorders ultimately considered as green blood.

This study aims to evaluate the effect of wheatgrass fresh juice on hemoglobin level. Here 30 subjects were selected in the study and divided into 3 groups on basis of their hemoglobin level. Group A having Hb%, 13gm% to 16gm%, group B having Hb% 10gm% to 13gm% and group C having Hb% below 10gm%. After 21 days the symptomatic improvement and increase in hemoglobin level in group C was noticed as compared to group A and group B. No significant therapy is there for chronic anaemias in modern science. So an attempt has been made to evaluate the efficacy of wheat grass juice on hemoglobin level in the subjects having normal as well as abnormal hemoglobin level.

KEYWORDS: Antioxidant, Wheat Grass juice, Anaemia, Haemoglobin, Enzymes, Vitamins, Chlorophyll.

INTRODUCTION

Nutritional or vitamin deficiency anaemia refers to a reduced red blood cell count due to poor diet habit, which is deficient in iron, proteins, vitamins like vitamin c, vitamin b₁₂ along with folic acid.^[1] Deficiency of above nutrients can affect production and life expectancy of red blood cells. Anaemia is a wide spread public health problems associated with an increased risk of morbidity and mortality, especially in pregnant woman and children. India is among the countries with highest prevalence of iron deficiency anemia (IDA) in the world. ^[2] As India is a billionaire country accounts for the largest number of anaemic persons in the world.

Data from NNMB and DLHS surveys have shown that prevalence of anaemia is very high (ranging between 80% to 90%) in preschool children, pregnant and lactating woman and adolescent girls.^[3] NNMB survey in 2006 showed that prevalence of anaemia

among adult was 55% and among adult woman (non pregnant non lactating) was about 75%.^[4]

According to data of National Family Health Survey (NFHS) III, the incidence of any anemia in urban children is 63%, among rural children is 71.5%, among wealthiest household is 56%, and overall is 69%.^[5] Nutritional iron deficiency is the most common cause of anemia in India.

Wheat grass is rich source of vitamins, minerals, amino acids, enzymes and chlorophyll. It is a natural source of iron. Chlorophyll and hemoglobin both are structurally very similar. p^H of blood and wheat grass juice are same i.e. 7.4. That is the reason for quickly absorption of juice in blood. According to the *Ayurveda* blood and wheat grass juice both are similar in the form of *Dravyataha* (substance), *Gunataha* (qualities) and *Karmataha* (action) ^[7].

According to "Samanya-Vishesha Siddhanta"^[7] of Ayurveda, 'Samanya' substances are the cause for union. Samanya is of three types- Dravya samanya (substance), Guna samanya (quality), and Karma samanya (action).^[7] Thus to increase blood (Raktadhatu), one will have to eat blood (Raktadhatu) which is less practical, but as blood and wheat grass juice both are under Samanya (similar), consumption of wheat grass juice promotes significant increase in hemoglobin level.

OBJECTIVES

The study aims at determining the effects of wheat grass juice on hemoglobin level with special reference to Ayurveda "Samanyam vrudhikaranam siddhantha".

MATERIAL AND METHODS

30 Subjects were randomly selected among students and adults from premises of Government Ayurved College and hospital Nagpur in 2006. Out of 30, 15 were male and 15 were female subjects. These 30 subjects were divided in 3 groups on the basis of their hemoglobin level. Each group was of 10 subjects.

Group A: Having Hb% in range between 13 gm% to 16 gm%.

Group B: Having Hb% in range between 10 gm% to 13 gm%.

Group C: Having Hb% below 10 gm%.

Certified species of wheat were grown in 12×18 inch area on ground on every day, as per standard procedure described by wigmore, in 1985. 7 days old wheatgrass collected and fresh juice was prepared by standard procedure described by wigmore.^[8]

Inclusion Criteria

- Age group- Age between 18 to 30 years.
- Sex- Both male and female.

- Subject ready to 21 days wheat grass juice therapy.
- Subjects having sign and symptoms of anaemia (Rakta dhatu kshaya).

Exclusion Criteria

- Age group- Age below 18 years and above 30 years.
- Pregnant and lactating women.
- Subject having any acute or chronic illness.
- Subjects having Hb% lower than 6 gm%.

Dose: 100 ml per day (empty stomach in the morning) for 21 days.

Investigation

Hb% was estimated using by Sahli's haemoglobinometer before starting the course of wheat grass juice therapy and after the completion of 21 days course.

Criteria for assessment

The improvement in the subject was assessed mainly on the basis of following points.

- 1) Increasing percentage of the hemoglobin.
- 2) Improvement in general health and immunity.

Statistically analyzed

The obtained data were analyzed statistically. The values were expressed as Mean ± SD. The data were analyzed by paired 't' test. The level P < 0.01 and P < 0.001 was considered as statistically significant and highly significant respectively. Level of significance was noted and interpreted accordingly.

RESULTS AND DISCUSSION

The mean effect of wheat grass juice on Hb% in each group after the completion of wheat grass juice course for 21 days was shown in graph no 1. Statistical analysis before and after treatment was shown in table no 1.

Graph 1: Statistical analysis before and after treatment

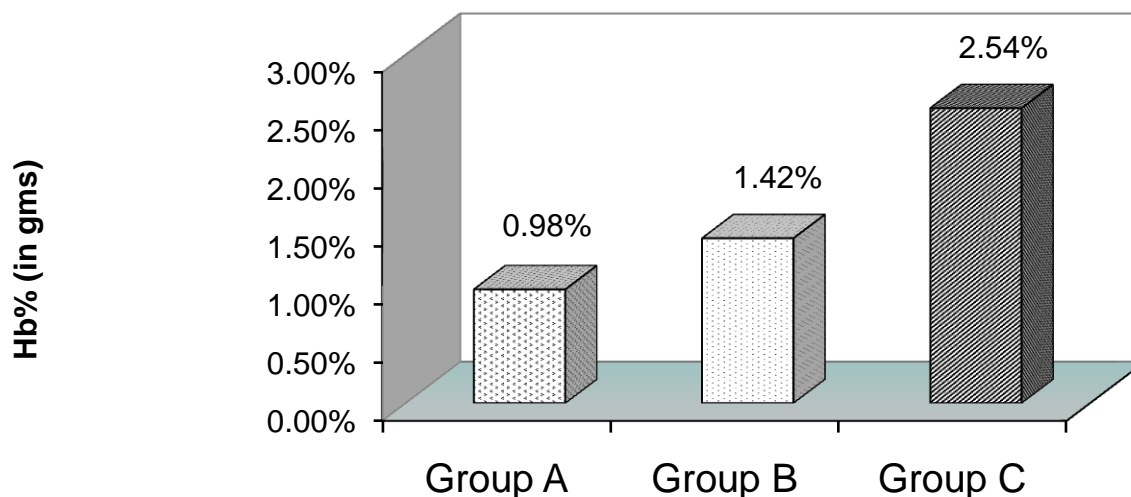


Table1: Statistical analysis before and after treatment

Group & No. of Volunteers	Hb% - Mean \pm SD		Mean of Diff \pm SD	SEd	t	p
	B.T.	A.T.				
Group 'A' n = 10	13.58 \pm 1.11	14.56 \pm 1.08	0.98 \pm 0.74	0.25	3.92	<0.01
Group 'B' n = 10	11.24 \pm 0.68	12.66 \pm 0.94	1.42 \pm 1.125	0.38	3.736	<0.01
Group 'C' n = 10	8.46 \pm 1.18	11 \pm 1.46	2.54 \pm 0.58	0.19	13.36	<0.001
Total n = 30	11.09 \pm 2.34	12.74 \pm 1.87	1.65 \pm 1.06	0.196	8.418	<0.001

Raktadhatu (blood) is a very important tissue (*Dhatu*) of our body, because the function of *Raktadhatu* is *Jivanam'* (oxygenation of every cell of body) [9]. *Dhatu*s (tissues) are the very important constituents of our body. If they are vitiated, it can produce many diseases. The metabolism of *Raktadhatu* takes place in the *Raktavahasrotas* (Channels). The *Raktaposhakansha* (nutrients which nourishes *Raktadhatu*) is present in *Aahararasa* (digested food material) in liquid state. Due to its liquidity it flows through *Raktavahasrotas*, where it digested by *Raktadhatwagni* (which converts nutritional food into tissue) and *Raktadhatu* (blood) is formed along with its *Upadhatu* (accessory tissue) and *mala* (waste material).^[10]

According to the "*samanya-vishesha siddhanta*" the basic concept of *Ayurveda*, any substance which resemblance to another substance in the form of *Dravyataha* (physical properties), *Gunatah* (qualities) and *Karmataha* (action) causes union (increase) in above mentioned properties. According to the *Panchbhoutik concept* (five basic elements- Ether, Air, Fire, Water, and Earth) of *Ayurveda* the wheat grass juice and blood (hemoglobin) both are *Samanya* (similar). According to *Panchabhoutik parikshan* (examination on the basis of five basic element) of wheat grass juice, the qualities of wheat grass juice are *Guru* (heavy), *Drava* (liquid) as in the form of *Swaras* (juice),^[11] and *Snigda* (oily). These qualities are similar with the qualities of *Raktadhatu* (Blood). So according to *Ayurvedas "Samanyam vrudhikaranam siddhanta"* the juice of wheat grass is helpful for the *Raktadhatu-pushti* (nourishment of blood),^[12] means it was helpful in hemoglobin synthesis.

Chlorophyll found in the field grown wheat grass juice is about more than 80%^[13]. Chlorophyll is similar to hemoglobin. Both have chemically nearly the same component. Chemical structure of both compounds depicts a striking similarity in having a tetrapyrrole ring structure. The only difference between the two being the nature of the central metal atom i.e.

magnesium (mg) in chlorophyll and iron (Fe) in hemoglobin.^[14] The apparent resemblance between the two is thus considered to be responsible for the therapeutic effects shown by chlorophyll in conditions involving deficiency of hemoglobin.

Diet plays an important role in nourishment of body. The diet, which provides all essential nutrients in adequate quantity and in proper proportion, to maintain good health and physical efficiency, is called as Balanced Diet. *Rakta dhatupushti* (blood formation) is depends on balanced diet. In the lack of balanced diet, wheat grass juice can be fulfill the nutritional demands of our body in very low cost.

CONCLUSION

The juice of wheat grass contains many vitamins, minerals, enzymes and also it is a rich source of chlorophyll. It shows significant effect on the improvement of hemoglobin level in 21 days therapy. It shows highly significant effect on the hemoglobin level in those subjects, whose hemoglobin level were below normal limits.

It also shows improvement in general health and immunity of subjects.

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***Address for correspondence**

Dr. Pawar Kiran Bhikaji

Surasa, Block No. 50,
Government Ayurved College
Campus, Madhuban,
Tuljapur Road, Osmanabad –
413501, Maharashtra, India.

Email: pawarkb640@gmail.com

Phone: 09764259589



Effect of wheatgrass juice on Hemoglobin level



Wheatgrass cultivation with day wise labeling



Wheatgrass taken for paste



Extraction of wheatgrass juice



Wheatgrass paste & its Juice