A Study on the Impact of Wheat Grass Juice as a Supplement in Anaemic young Girls

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Iron deficiency Anaemia is the most common nutritional disorder in developing countries. It effects the lives of many millions of human beings throughout their cycle especially young children and women of reproductive age. It is one of the most serious health problem related to nutrition during adolescence; especially in school children (Sanghi,1998) Iron deficiency is the most common problem affecting more than 2 billion people globally and widely prevalent in severe forms in pregnant mothers, young children and women of reproductive age. In India over 80 percent pregnant mothers and over 50% pre-school children and adolescent girls are reported to be anaemic. Its prevalence is highest in developing countries (WHO, 1975).

General efforts have been made by WHO to develop method of supplementation to combat iron deficiency anaemia. Various prophylaxis programmes launched by government of India is aimed to improve the health status of pregnant women and children. Recognizing the gravity to the situation the present ingestigation carried out a study to combat anaemia in adolescent girls.

Under these circumstances, one can view the supplementary feeding programmes, as a compassionate measure to face the iron deficiency problem. It can be prevented by increasing the iron intake in population wheat grass as one of the supplements which is of high nutritional value containing more of protein and iron. Wheat grass is used in the present study as a supplement.

Wheat grass is a source of iron, folic acid and vitamin B12 all are necessary for healthy red blood cells and immunity. It also contains 20 percent vegetable protein and other trace minerals of which are vital to immune health. The chlorophyll content of wheat grass makes it a good tonic for building redblood cells in the body to alleviate anaemia. Various result showed that blood content returned to normal after receiving what grass for 4-5 days in anaemic animals. Wheat grass contains iron, as well vitamin C which facilitates the absorption of Iron. Red blood cells carry oxygen to the cells, so normalizing these levels will help to reduce fatigue and increase your endurances during physical exercise, So wheat Grass Juice is selected to treat anaemic individuals .

Methodology

For this study a preliminary survey was conducted to see the prevalence o anaemia by Sahils Haemometre Method 37% were found to be anaemic with Hl levels below 8 gm/dl.

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Among 100 girls and adult women 5 percent (n=30) of subjects were ... further study. These were divided into two groups experimental group ... subjects, where as in control group consists of subjects. The first ... supplemented Wheat Grass Juice and the second group was considered ... group. Questionnaire was used to collect the information from the subjects ... general information,eating habits,health status, Menstrual cyle, clinical ... and awareness about Anaemia.

Results and Discussion:

Anaemia is a major public health problem of the world today. Recent ... studies have revealed that 5 to 75% of the under privileged adolescent girls ... are anaemic (Kanani 1995). Nutritional anaemia is caused due to lack ... dietary iron or high quality protein or by a lack of vitamin pyridoxine or ... vitamin C or by lack of vitamin E, or due to the absence of any dietary ... that are involved in haemoglobin formation or by poor absorption of any ... essentials.

Nutritional cause of anaemia effect more than 70 million persons ... the world (Demaeyer ,1989).Anaemia affects all age groups in general and ... young children 43% and women of child bearing (51%) in particular (Bhatia, ... Under these circumstances, one can view the supplementary feeding progr... as a compassionate measure to face the iron deficiency problem. It can be pre... by increasing the iron intake in population wheat grass is one of supplements ... is of high nutritional value containg more of protein and iron. Wheat grass is ... the present study as a supplement.

Age is one of the most important factor with out which nutritional ... cannot be assessed (Vijayalakshmi, 1998). The sample selected in the presen... was categorized into two age groups i.e 17-19 years and 20-24 years as they ... same age group. Equal percentage of the samples are surveyed for better compa...

According to the income levels 50 percent of the subjects belonged ... low income levels and 30 percent belonged to middle income group where... percent belonged to high income group.

Prevalence rate of Anaemia

Table No.1: Percentage Distribution of the sample According to prevalence Rate of Anaemia

Category	Total Sample (n=100)
Anaemia	37(37)
Non -Anaemia	63(63)

( ) numbers in parenthesis represents percentage

Regularity of Menstrual Cycle

According to **Koinc (1998)** menarcheal girls are more prone to anaemia than menarcheal girls. Blood loss through menstruation is a major cause of anaemia adolescent and Menstruation women (Kanani,1990)

Table No.4: Distribution of the sample according to the regularity of

S.No	Regularity	Sample size (n=30)
01	Regular	19(63.3)
02	irregular	11(36.6)

Table represents the sample according to the regularity of cycle. It is clear that 63.3 percent of subjects had regular percent had irregular menses.

Biochemical Analysis

Haemoglobin level

Nutritional anaemia is caused by the absence of any dietary essentials that is in haemoglobin formation or by poor absorption of these dietary essentials

Table No.5: Distribution of the sample according to the haemoglobin

S.No	Degree of Anaemis	Haemoglobin Levels	Sample size (n=30)
01	Severe	< 7	08(26.7)
02	Moderate	7 - 9	12(40.0)
03	Mild	9 - 11	10(33.3)
04	Normal	< 11	—

Source: (Srilakshmi, 2000)

Table 5 shows that the distribution of the sample according to the haemoglobin levels, majority of the subjects having very low haemoglobin levels i.e <7 mg (26.7 percent) and 7-9 mg/dl (40 percent). 10 subjects having the haemoglobin 9-11 mg/dl (33.3 percent).

From the above results it was revealed that 26.7 percent of the subjects were suffering with severe iron deficiency anaemia, 40 percent of the subjects were suffering moderate and 23.3 percent with mild anaemia.

Organoleptic evaluation of wheat grass juice

Quality is the ultimate criterion of the desirability of any food product. What quality food product is assessed by means of human sensoru organs the evalu is set to be sensory or subjective or organoleptic.

Table No.6:Mean and standard Deviation as obtained for the different attributes of Wheat Grass Juice

S.No	Attributes	Scores(Mean
01	Appearance	8.46 +_.0.61
02	Colour	7.73 + 0.76
03	Taste	8.1+_1.24
04	Flavour	7.3+_1.5
05	Texture	7.0+_2.4
06	Overall acceptance	8.3+_1.02

Organoleptic Evaluation was conducted on Wheat Grass. The results of the evaluation are presented in table No.6

Mean Score for appearance of wheat grass was 8.46,the mean value for the colour of wheat grass is 7.73 +_ 0.76.mouth feel mean value of wheat grass juice is 7.3+_1.5+_2.4 , Texture mean Score is 7.0+_2.4 .

Overall Acceptance the mean overall acceptance for wheat grass is 8.3+_1.02

Table No.7 shows the mean values of the organoleptic evaluatin of the developed profuct. It shows that the scores for wheat grass juice. Since the overall acceptance was not very less, the product was supplemented to the subjects.

Nutrient Analysi of Wheat Grass.

Table No.8 Nutrient Composition of Wheat Grass

Nutrients	amount
Protein (gm)	24.57
Fat (gm)	04.00
Carbohydrate (gm)	45.70
Energy (K Cal)	317.00
Vitamin A (mg)	72.20
Vitamin C (gm)	41.06
Iron (mg)	20.00
Calcium	6.8125

Table No 8 presents the nutritive value of 100 gms of Wheat Grass contains gm protein. 4.00 gm of fat. 45.70 gms of carbohydrate, 317 K cals of energy, A and Vitamin C are 72.20.41.06 respectively.Iron content of Wheat Grass to be 20mg.

Supplementation of Wheat Grass Juice on Haemoglobin levels

Table No 9: Effect of developed products on Hb levels, before and after supplementation of Wheat Grass Juice

S.No	Parameters	Before supplementation		t-Value	After Supplementation		t-Value
1	Hb Level	7.350 ±_ 0.541	7.340 ±_ 0.548	0.041NS	7.400 ±_ 0.822	10.070 ±_ 0.909	9.595**
2	RBC Count	3.170 ±_ 0.293	3.150 ±_ 0.291	0.153NS	3.025 ±_ 0.473	3.715 ±_ 0.263	5.699**

** Significant at 0.01 level

NS – Not Significant

The table results showed a significant difference in the RBC count and Hb le before and after supplementation of Wheat Grass Juice.

Table No.10: classification of the sample according to degrees of anaemia after supplementation

S.No	Degree of Anaemia	Hb levels(g/dl)	Percent prevalence		Chi -squa
			Experimental group (n=20)	ControlGroup (n=10)	
1.	mild	10-11.99	16(80)	—	22.8**
2	moderate	7 - 9	02(10)	08(80)	
3	Normal	>12	02(10)	—	

**- Significant at 0.05 level

Aftr stopping the supplementation of Wheat Grass Juice TABLE No10,

10 percent of subjects shifted to normal haemoglobine levels 10 percent of the subjects shifted to moderate hemoglobin levels 7-9 mg/dl) abd 80 percent of the s subjects in experimental group shifted to mild haemoglobin levels(712) . Where as control group none of them reached to nomal. The above table clears that there was very high significant difference in two groups after supplementation was observed. The heamoglobin levels of two groups were compared at Chi-Square (0.05)

Summary and conclusion

After supplementation of wheat grass Juice, there was statistical difference in the prevalence of aneamia in two group and the calculated chi-square is (22.8)

Anaemia constitutes an important social and economical problem because of its wide prevalence in adolescents which was also evident from the results of the study, 37 percent of the adolescents were suffering with this disorder. On supplementation with Wheat Grass Juice for two months, mean scores were increased in heamoglobin, RBC count. IF this treatment is continued for 3-6 months prominent results can be abtained.

Prepation of Wheat Grass Juice is easy and economical. It can be taken by any age group. This drink not only cure anaemia but also cures many other disease conditions like cancer, leg ulcers, prevent tooth decay. So the food industries must come forward to develop new products with Wheat grass.

References:

1. *Bhatia N (1992), "Iron deficiency Anaemia", New Delhi, NIPCCD, News Letter March 9.*
2. *Demaeyer E.M. (1989), "preventing and controlling iron deficiencyanaemia through primary health care" WHO Geneva,8-33.*
3. *Kananai (1995), "Strategies for combating anaemia in adolescent girls", Ind.J.Pediatrics, 62:375-377.*
4. *Kananai S,Counsul P (1990), "Nutritional – health profile and intervention strategies for under privileged adolescent girls in India" – A selected review, Ind. J. Maternal. Child. Health 129-133.*
5. *Srilakshmmi B (2000), "Nutritional Anaemia", Dietetics, chap – 10, New Age International Ltd., Publishers, New Delhi, Pg.109*
6. *Vijayalakshmi V, Sharada D and Venkataraman (1998), "A simple technique to measure the physical work performance of adolescence girls (13-15 years) ", Book let. 31st Indian Dietetic Association convention.*