

To Evaluate the Efficacy of Tanduliyaka (Amaranthus Viiridis) and Mandoor Bhasma in Garbhini-Pandu (Anaemia in Pregnancy)

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Abstract—Aims and objectives: To evaluate the efficacy of Tanduliyaka (Amaranthus Viridis) and Mandoor Bhasma in the management of anaemia during pregnancy.

Material and methods: The present study was conducted in 100 clinically diagnosed patients of Garbhini Pandu i.e. Iron Deficiency Anaemia during pregnancy of 12 to 24 weeks gestational age (Hb% 7-10gm%, pallor in mucous membranes (Pandu), rough and dry skin (Raukshya), dyspnea (Shwas), fatigue (Shrama), palpitations (Hridspandan), oedema (Shoth), anorexia (Aruchi) for clinical evaluation of Amaranthus on the various Ayurvedic and scientific parameters. For this purpose, Ghan Kalpna of Tanduliyaka, filled in capsules (500mg 1BD) was provided to 50 patients and they were asked to consume it with lemon water. Second group of 50 patients was treated with Mandoor Bhasma (250mg 1BD).

Results: It was observed from this research project that the patients of Garbhini pandu (Iron deficiency Anaemia in pregnancy) treated with Tanduliyaka ghan capsules in group-A, showed significant results ($P < 0.001$) where as in group-B significant results were observed ($P < 0.01$) in Haemoglobin% and subjective parameters (Aruchi, Daurbalya, Hridrava, Shwas, Pandutva, Shoth). Only significant results appeared in other investigating parameters i.e. RBC PCV MCV MCHC etc. during treatment. No side/toxic effects or adverse effect were noted in any patient and her foetus during the treatment and after completion of treatment. The outcome of labour was also good.

Conclusion: These findings indicate that Tanduliyaka Ghan capsule and Mandoor bhasma are the classical and potent haematinic drug that demonstrates significant efficacy in the management of Garbhini Pandu (anemia in pregnancy).

Index Terms—Amaranthus viiridilis, Tanduliyaka ghan, Garbhini Pandu., Panduta., Mandoor Bhasma.

I. INTRODUCTION

Pregnancy can mean the beginning of a new stage in a woman's life. Pregnancy is a demanding stage. The growing foetus is completely dependent on the mother for its nutrition. Due to this dependency mother faces many deficiencies.

Anaemia is defined as a decrease in the total amount of red blood cells or haemoglobin in the blood. It can also be defined as a lowered ability of the blood to carry oxygen.

Anaemia is a blood disorder, characterized by the reduction in-

1. Red blood cell (RBC) count
2. Haemoglobin content
3. Packed cell volume (PCV).

Generally, reduction in RBC count, Haemoglobin content and PCV occurs because of-

- Decreased production of RBC
- Increased destruction of RBC
- Excess loss of blood from the body.

All these incidents are caused either by inherited disorders or environmental influences, such as nutritional problem, infection and exposure to drugs or toxins.

According to standard laid down by WHO, anaemia in pregnancy is present when the haemoglobin concentration in the peripheral blood is 11gm/100ml or less and haematocrit of less than 0.33gm/dl. Anaemia during pregnancy is a major public health problem throughout the world, particularly in developing countries. Iron deficiency anaemia has been claimed to be predominant cause of anaemia in pregnant women. According to WHO, prevalence of anaemia in pregnant women is estimated at about 14% in developed & 51% in developing countries. In India it is 65-75%, when compared to other developing

countries prevalence of anaemia in all the age groups is higher in India. In South Asian countries India alone contributes 38-89% of maternal death due to anaemia. Anaemia can cause many complications in mother during antenatal, intra-natal & postnatal period. Due to anaemia chances of pregnancy induced pre-term labour & foetus may suffer with low birth weight & sometimes intrauterine death.

Iron Deficiency Anaemia

Iron is involved in a spectrum of biochemical reactions and is therefore essential to all life. Iron when complexed with porphyrin forms heme. This heme binds with globin to form haemoglobin, which binds to oxygen reversibly. Under normal circumstances, iron homeostasis is well maintained, but at times it can be altered leading to either iron overload. IDA has traditionally been defined as a microcytic, hypochromic anaemia secondary to a total body iron deficit. The anaemia is a result of iron store depletion, secondary to an imbalance between normal physiological demand such as body growth, menstrual blood loss, pregnancy and the levels of dietary iron intake. Iron deficient erythropoiesis indicates limitation in red blood cell production and IDA with microcytosis and hypochromia indicates a prolonged period of negative iron balance. The lower limit of physiological anaemia during the second half of pregnancy should fulfil the following haematological values:

- Hb-10gm%
- RBC- 3.2million/cu.mm
- PCV-32

According to Charak Samhita Pandu Rog is a disease of *Rasavaha Srotas*. There is no direct reference of Garbhini Pandu i.e., anaemia in pregnancy is available among them in Ayurvedic texts. Acharya Kashyap in context of Rakt Gulma, has described similar description during Garbhavastha which refers to Garbhavasthajanya Pandu. Acharya Harit has described eight Garbhopdrav in Harit Samhita & included Vivarnatva which appears to be pallor that accompanies anaemia. The growing foetus is nourished by the Aahar Ras of mother. So that the pregnant mother, needs a better and more nutritious diet. Acharya Charak in Sharir Sthana has explained about Bal-Varn Hani of Garbhini in 6th month of pregnancy which means feeling of tiredness and loss

of strength & complexion. Mamsa Shonit Kalantama in 7th month which means more loss of flesh & blood. All these symptoms are present in 2nd trimester of pregnancy and may be due to anaemia. To fulfil the demands of pregnancy, a comprehensive Garbhini Paricharya is described in Ayurveda. Due to Apathyakar Aahar-Vihar abnormal Ras Dhatu gets formed. It further causes Uttrottar Vikrit Dhatu Utpatti & this may lead to pathology of Garbhini Pandu.

Subjective parameters- signs & symptoms of Pandu Rog as Aruchi (anorexia), Daurbalya (Generalized weakness), Hridhrava(Palpitation), Pindikodweshtan (Leg Cramps), Pandutva (Pallor), Shrama (Fatigue), Shwasa (Dyspnoea), Shoth (oedema)

Objective parameters- o Complete blood count (CBC),
o Haemoglobin percentage (HB%), o Haematocrit (Hct/PCV)

- Mean corpuscular haemoglobin (MCH),
- Mean corpuscular haemoglobin concentration (MCHC)

II. MATERIAL AND METHODS

The material and method section are the heart of any research work because it shows the credibility and validity of work. The material and method section are the section in the research work containing the experimental design of the study.

The information collected on the basis of observations was analyzed using appropriate statistical test to evaluate the significances at different levels i.e. at 0.05, 0.01 and 0.001 levels. The obtained results will be interpreted as follows:

Insignificant or not significant (NS) - $p > 0.05$

Significant (S) - $p < 0.05$

More or very significant $p < 0.01$

Highly significant (HS) - $p < 0.001$

Intra Group Test: Subjective parameters – Wilcoxon Sign Rank test

Objective parameters – Wilcoxon Sign Rank test

Inter Group Test: Inter group comparison of subjective parameters and objective parameters were analyzed by Mann Whitney U Test.

III. AIMS AND OBJECTIVES

- To see the efficacy of Mandoor Bhasma in Garbhini Pandu (Iron deficiency anaemia in pregnancy)
- To evaluate the efficacy of Tanduliyaka [*Amaranthus viridis*] in Garbhini Pandu (Iron deficiency anaemia in pregnancy)
- To evaluate the comparative effect of Mandoor Bhasma & Tanduliyaka in in Garbhini Pandu (Iron deficiency anaemia in pregnancy).

Selection of Drug: Under nutrition and micro nutrients deficiencies are widespread and affect mainly women and children. To address these problems, increased consumption of leafy vegetables is promoted as sources of both micronutrients and bio active compounds. Amaranthus is one of the widely promoted leafy vegetables. Cooked amaranthus provides 25 calories and is an excellent source of protein, dietary fibres and some dietary minerals.

Nutritional Value- Amaranthus is highly nutritious, both grain amaranth and leaves are utilized for human as well as for animal food (Tucker, 1986). On a zero-moisture basis, 100mg of leaves of *Tanduliyaka* (*Amaranthus viridis*) contains:

Calories-283kcal	Fiber-6.6gm	Iron-27mg	Thiamine-0.07mg
Protein-34.2gm	Ash-16.4gm	Sodium-336mg	Riboflavin-2.43mg
Fat-5.3gm	Calcium-2243mg	Potassium-2910mg	Niacin-11.8mg
Carbohydrate-44.1gm	Phosphorus-500mg	Vitamin A-50mg	Ascorbic acid-790mg

Mandoor Bhasma is *Soumya*, *Sookshma*, *Vrishya*, *Ruchikar*, *Deepan* and *Pitt prashman* and *Raktavardhak*. These properties do *Aam Pachan*, corrects *Mandagni* and vitiated *Dosh* and ensure adequate nourishment to growing foetus by *Uttarottar Dhatu* formation. Due to its Hematogenic and Haematinic action, the red blood cells production is enhanced along with Haemoglobin level

IV. SELECTION OF THE PATIENTS

Out of all the Patients selected on the basis of the presence of classical symptomatology of Pandu from OPD & IPD of CRW District hospital, Haridwar.

V. CRITERIA FOR SELECTION OF PATIENTS

Inclusion criteria

- 1) Pregnant female with Hb percentage more than 7 and less than 11gm/dl.
- 2) Patient with age group 20-35yrs.
- 3) Patient in between 12-24weeks of gestational age diagnosed with Garbhini Pandu.

Exclusion criteria-

- 1) Patient suffering from acute and chronic medical and systemic diseases that interfere with course of treatment like thalassemia, sickle cell anaemia.
- 2) Severe anaemia (Hb < 7 gm/dl) or bleeding disorders.
- 3) Multiple pregnancy.
- 4) High risk cases of pre-eclampsia, gestational diabetes, metabolic disorders, jaundice etc.

VI. INTERVENTION

2 groups were made with minimum 50 patients in each group. GROUP A

Number of patients: 50

Drug: *Tanduliyaka ghan* capsule with lemon water

Route: Oral Dose: 1 tablets BD (500mg).

Duration: 3months after registration.

GROUP B: Number of patients: 50

Drug: *Mandoor Bhasma* with *madhu*

Route Oral Dose: 250mg BD Duration 3 months after registration.

Total no. of patients: 100.

Follow up: Total 6 follow ups were done, at 15days internal for 3months with medicine and last follow up of one month without medicine after completion of trail. Total study period: 4months

VII. ASSESSMENT CRITERIA

During the clinical trial and follow-up study the subjects were assessed on the basis of the following parameters-

Subjective parameters- signs & symptoms of *Pandu Roga as Aruchi* (anorexia), *Daurbalya* (General Weakness), *Hridrava* (Palpitation), *Pindikodweshtana* (Cramps), *Pandutava* (Pallor), *Shrama* (Fatigue), *Shwasa* (Dyspnoea), *Alasya* (Lassitude), *Shotha* (oedema)

Objective parameters.

- Complete blood count (CBC)
- Haemoglobin percentage (HB%),
- Haematocrit (Hct/PCV)
- Mean corpuscular haemoglobin (MCH), Mean corpuscular haemoglobin concentration (MCHC).

VIII. OBSERVATION AND RESULTS

Effect On Subjective Parameters of Intervention of Tanduliyaka Ghan (Capsule Amaranth) On Group A

roup A	Mean		SD		SE		Wilcoxon W	P-Value	% Effect	Result
	BT	AT	BT	AT	BT	AT				
PALLOR	2.74	1.95	0.60	0.46	0.10	0.07	-5.135 ^b	0.00000028	28.85	Sig
GENERALISED WEAKNESS	2.39	1.61	0.55	0.49	0.09	0.08	-5.112 ^b	0.00000032	32.56	Sig
DYSPNOEA	2.47	1.65	0.56	0.49	0.10	0.08	-5.292 ^b	0.00000012	33.33	Sig
FATIGUE	2.64	1.64	0.60	0.70	0.10	0.12	-5.109 ^b	0.00000032	37.93	Sig
PALPITATIONS	2.48	1.70	0.68	0.79	0.12	0.15	-4.413 ^b	0.00001021	31.56	Sig
ANOREXIA	2.35	1.35	0.80	0.75	0.16	0.15	-4.245 ^b	0.00002184	42.62	Sig
PERIORBITAL OEDEMA	2.58	1.76	0.56	0.44	0.10	0.08	-5.014 ^b	0.00000053	31.76	Sig
GIDDINESS	1.71	0.96	0.86	0.55	0.18	0.11	-3.626 ^b	0.00028741	43.90	Sig
LEG CRAMPS	2.75	1.75	0.75	0.59	0.14	0.11	-4.772 ^b	0.00000182	36.36	Sig

Effect On Subjective Intervention of *Mandoor Bhasma* on Group B

Group B	Mean		SD		SE		Wilcoxon W	P-Value	% Effect	Result
	BT	AT	BT	AT	BT	AT				
PALLOR	2.69	1.59	0.54	0.56	0.09	0.10	-5.152 ^b	0.00000026	40.70	Sig
GENERALISED WEAKNESS	2.43	1.50	0.57	0.51	0.10	0.09	-4.939 ^b	0.00000079	38.36	Sig
DYSPNOEA	2.46	1.50	0.65	0.51	0.13	0.10	-4.811 ^b	0.00000150	39.06	Sig
FATIGUE	2.33	1.30	0.68	0.78	0.13	0.15	-4.613 ^b	0.00000398	44.44	Sig
PALPITATIONS	2.42	1.54	0.70	0.58	0.14	0.11	-4.413 ^b	0.00001021	36.51	Sig
ANOREXIA	2.21	1.05	0.79	0.71	0.18	0.16	-3.640 ^b	0.00027268	52.38	Sig
PERIORBITAL OEDEMA	2.22	1.44	0.75	0.51	0.14	0.10	-4.185 ^b	0.00002856	35.00	Sig
GIDDINESS	1.63	0.95	0.76	0.52	0.17	0.12	-3.357 ^b	0.00078911	41.94	Sig
LEG CRAMPS	2.44	1.44	0.96	0.71	0.19	0.14	-4.291 ^b	0.00001778	40.98	Sig

Difference of Effect on Subjective Parameters Between Group A And Group B-

Variable	Group	N	Mean Rank	Sum of Ranks	Mann-Whitney U	p-Value
PALLOR	Group A	38	31.24	1187.00	446.000	0.014
	Group B	32	40.56	1298.00		
	Total	70				
GENEALISED WEAKNESS	Group A	38	33.50	1273.00	532.000	0.256
	Group B	32	37.88	1212.00		
	Total	70				
DYSPNOEA	Group A	38	34.92	1327.00	586.000	0.737
	Group B	32	36.19	1158.00		

	Total	70				
FATIGUE	Group A	38	35.45	1347.00	606.000	0.978
	Group B	32	35.56	1138.00		
	Total	70				
PALPITATIONS	Group A	38	34.54	1312.50	571.500	0.627
	Group B	32	36.64	1172.50		
	Total	70				
ANOREXIA	Group A	38	35.74	1358.00	599.000	0.908
	Group B	32	35.22	1127.00		
	Total	70				
PERIORBITAL OEDEMA	Group A	38	36.51	1387.50	569.500	0.597
	Group B	32	34.30	1097.50		
	Total	70				
GIDDINESS	Group A	38	36.09	1371.50	585.500	0.757
	Group B	32	34.80	1113.50		
	Total	70				
LEG CRAMPS	Group A	38	35.04	1331.50	590.500	0.816
	Group B	32	36.05	1153.50		
	Total	70				

Effect On Objective Parameters Of Intervention Of *Tanduliyaka Ghan* (Capsule Amaranth) On Group A

Group A		Mean	N	SD	SE	t-Value	P-Value	% Change	Result
HB	BT	9.15	38	0.78	0.13	-8.439	0.000	8.42	Sig
	DT	9.92	38	0.78	0.13				
	DT	9.92	38	0.78	0.13	7.641	0.000	3.55	Sig
	AT	9.57	38	0.68	0.11				
RBC	BT	3.78	38	0.51	0.08	-5.118	0.000	4.05	Sig
	DT	3.93	38	0.57	0.09				
	DT	3.93	38	0.57	0.09	2.261	0.030	1.59	Sig
	AT	3.87	38	0.55	0.09				
PCV/HCT	BT	29.80	38	2.65	0.43	1.199	0.238	4.79	NS
	DT	31.22	38	2.34	0.38				
	DT	31.22	38	2.34	0.38	1.213	0.233	0.77	NS
	AT	30.98	38	1.93	0.31				
MCV	BT	85.29	38	6.27	1.02	-3.861	0.000	1.22	Sig
	DT	86.33	38	5.55	0.90				
	DT	86.33	38	5.55	0.90	1.010	0.319	0.30	NS
	AT	86.07	38	5.70	0.92				
MCH	BT	25.99	38	2.82	0.46	-2.926	0.006	4.83	Sig
	DT	27.25	38	2.87	0.47				
	DT	27.25	38	2.87	0.47	0.800	0.429	0.47	NS
	AT	27.12	38	2.58	0.42				
MCHC	BT	33.59	38	1.49	0.24	-1.495	0.144	0.99	NS
	DT	33.93	38	1.40	0.23				
	DT	33.93	38	1.40	0.23	-1.719	0.094	0.95	NS
	AT	33.60	38	1.42	0.23				

Effect On Objective Parameters of Intervention of *Mandoor Bhasma* on Group B

Group B		Mean	N	SD	SE	t-Value	P-Value	% Change	Result
HB	BT	9.12	38	0.85	0.14	-10.810	0.000	14.84	Sig
	DT	10.47	38	0.83	0.13				
	DT	10.47	38	0.83	0.13	4.237	0.000	2.56	Sig
	AT	10.20	38	0.77	0.13				
RBC	BT	3.80	38	0.55	0.09	-9.749	0.000	8.42	Sig
	DT	4.12	38	0.56	0.09				
	DT	4.12	38	0.56	0.09	2.255	0.030	0.80	Sig
	AT	4.08	38	0.56	0.09				

PCV/HCT	BT	30.06	38	2.48	0.40	-9.870	0.000	7.78	Sig
	DT	32.39	38	2.24	0.36				
	DT	32.39	38	2.24	0.36	1.649	0.108	0.79	NS
	AT	32.14	38	2.25	0.37				
MCV	BT	81.86	38	7.49	1.22	-4.613	0.000	2.98	Sig
	DT	84.30	38	5.37	0.87				
	DT	84.30	38	5.37	0.87	1.107	0.275	0.30	NS
MCH	AT	84.04	38	5.36	0.87	-5.582	0.000	6.49	Sig
	BT	25.03	38	2.82	0.46				
	DT	26.66	38	2.81	0.46	1.895	0.066	0.78	NS
	DT	26.66	38	2.81	0.46				
MCHC	AT	26.45	38	2.61	0.42	-5.211	0.000	2.54	Sig
	BT	33.09	38	1.24	0.20				
	DT	33.93	38	1.10	0.18	-1.870	0.069	1.28	NS
	DT	33.93	38	1.10	0.18				
AT	33.49	38	1.07	0.17					

Effect Of Percentage Difference Of Interventions In Group A And Group B

Parameter	% Effect	
	Group A	Group B
Pallor	28.85	40.70
Generalised Weakness	32.56	38.36
Dyspnoea	33.33	39.06
Fatigue	37.93	44.44
Palpitations	31.56	36.51
Anorexia	42.62	52.38
Periorbital Oedema	31.76	35.00
Giddiness	43.90	41.94
Leg Cramps	36.36	40.98
Average % Effect	35.43	41.04

OVERALL EFFECT OF INTERVENTIONS IN GROUP A AND GROUP B

Overall Effect	Group A		Group B	
	N	%	N	%
Marked Improvement	0	0.00%	0	0.00%
Moderate Improvement	0	0.00%	2	6.25%
Mild Improvement	34	89.47%	29	90.63%
No Change	4	10.53%	1	3.13%
TOTAL	38	100.00%	32	100.00%

It was observed from this research project that the patients of *Garbhini pandu* (Iron deficiency Anaemia in pregnancy) treated with *Tanduliyaka ghan* capsules in group-A, hemoglobin percentage, RBC count, PCV, MCV, MCH, MCHC before treatment was 9.15, 3.78, 29.80, 85.29, 25.99, 33.59 respectively which were increased to 9.92, 3.93, 31.22, 86.33, 27.25, 33.93 respectively after completion of treatment. The effect was (8.42%, 4.05%, 4.79%, 1.22%, 4.83%, 0.99% respectively) significant ($p < 0.05$) on all parameters except PVC and MCHC. After 1 month of follow up without intervention Hb

and RBC were showing significant result and PCV, MCV, MCH, MCHC were nonsignificant ($p > 0.05$). In group-B, haemoglobin percentage, RBC count, PCV, MCV, MCH, before treatment was 9.12, 3.80, 30.06, 81.86, 25.03, respectively which were increased to 10.47, 4.12, 32.39, 84.30, 26.66 respectively after completion of treatment. The effect was (14.84%, 8.42%, 7.78%, 2.98%, 6.49%, respectively) significant ($p < 0.05$) on all parameters. After 1 month of follow up without intervention Hb and RBC were showing significant

result and PCV, MCV, MCH, MCHC were non-significant ($p > 0.05$).

IX. DISCUSSION

The aim and objective of any research is to reach up to a definite conclusion, by understanding the concepts in their correct manner. Correct understanding and proper interpretation of the concept helps to achieve the determined target and it is possible only with the help of discussion. So, before concluding this work, it is necessary to discuss about the findings of all sections. The discussion is categorized into following ways for the ease of understanding. The present study was carried out with the title "Evaluation of *Tanduliyaka Ghan* and *Mandoor Bhasma* in *Garbhini Pandu* (Anaemia in pregnancy)". In the present clinical trial, 100 patients were registered in two groups. In Group-A 50 subjects were enrolled, out of them 38 patients completed the course of the treatment, and 12 patients were dropped out. In Group-B, out of total 50 registered subjects, 32 patients completed the clinical trial and 18 patients were dropped out from trial, before its completion. Group-A was given trial drug Capsule *Amaranth* and Group-B was given *Mandoor bhasma*. Trial was conducted for the period of 3 months and the patients were followed up after every 15 days.

Tanduliyak (Amaranthus viridis) ghan-Women and children are widely affected by deficiencies of micronutrients. Proper nutrition involves increased consumption of green leafy vegetables which are prompted as sources of both micronutrients and bio-active compounds e.g. *Amaranthus* spp. Species of this genus are used as pseudo-cereals in Europe and America, and planted as vegetable in Africa. *Amaranthus* has been rediscovered as a promising food crop mainly due to its resistance to heat, drought, diseases and pests¹⁴. It has high nutritional value, higher concentration of folic acid, fiber and minerals content in comparison to other cereals. *Amaranth* leaves, are rich in iron (5times that of wheat) that promote coagulation and increase haemoglobin content and red blood cell counts.

Its high dietary fiber content improves digestive health and reduces constipation. It is easily digestible and good for both younger ones and elders

Probable mode of action: The effect of the drug leads to improvement of metabolism, RBCs production,

minerals consumption in body and relief from the disease. *Amaranthus* is *Madhur* in Ras, and *Laghu*, *Ruksha Guna*, with *Sheet Veerya* and *Madhur Vipak*. Due to these properties the drug becomes helpful in treating *Pandu*. *Pandu Rog* is *Pittaj Vyadhi*, and properties the of *Amaranthus* are *Pittashamak*. There is presence of other minerals drug has iron content, folic acid along with some other mineral contents like Ca, Na, K, Chromium, magnesium contents in it, which are very useful in *Garbhinijanya pandu* for maintaining general health of mother and foetus.

Mandoor Bhasma- Pandu Rog is a *Pitt dosh* predominant disorder of *Rasavaha Srotas*¹⁶. It leads to deficiency of *Rakt*, *Meda*, *Oja* and *Varna* (altered body colour). For treatment of *Pandu Rog*, the drug having the properties of *Tridoshashar* specially *Pittashamak*, *Agnideepana*, *Rasayana*, *Raktavardhan* etc are used. Many preparations have been mentioned in our texts for the treatment of *Pandu*. All these medications have certain common fundamental principles. Most of the preparations used in *Pandu-Rogadhikar*, are *Ushna* and *Tikshan*. But in Ayurvedic system of medicine, there is no any well establish medicine for treatment of Iron deficiency anaemia in pregnancy. But the basic fundamental for the treatment of any diseased condition described by Acharya Charaka i.e. "*Sarvada Sarva Bhavanam SamanyamVridhi Karnam*". For *Garbhini*, at the time of selection of drug, we should keep in mind that Acharya had described medicines for pregnant woman, should be *Mridu*, *Madhur*, *Sheet Veerya* and *Balya* etc.

Probable mode of action *Mandoor* acts possibly by its effect on *Srotas* (micro channels) and *Agni* (digestive fire mechanism) and thereby enhancing digestive capacity owing to *Deepan* (appetizer), *Pachan* (digestive) properties

X. CONCLUSION

In the developing countries, anaemia is a cause of serious concern, besides many other adverse effects on the mother and the fetus it contributes significantly high maternal mortality.

According to its sign and symptoms, anaemia can be compared to *Pandu*, which is described in detail in all the *Samhita*.

Garbhini pandu (IDA in Anaemia) can be considered as a *Rasapradoshaj Vikar*, which is common in *Garbhavastha* (Pregnancy).

In all types of Pandu, Pitt is the root cause. The Pitt predominant Dosh are vitiated in Dhatu and as a result of morbidity of Dosh and Dushya, complexion, strength, unctuousness, and other properties of Oja (Rakt, i.e., blood or Oja, i.e., immunity) itself get diminished.

Nutritional deficiency anaemia during pregnancy continues to be a major health problem in India. To eradicate it certain steps can be taken at individual and community level like education of the women as regards anaemia, its causes and health implication.

Modern haematinics are known to induce some adverse effects. They may develop gastrointestinal irritation causing nausea, vomiting, diarrhoea and abdominal pain are common side effect. Occasionally constipation may be associated with iron intake.

Normally during pregnancy, erythroid hyperplasia of the marrow occurs, and RBC mass increases. However, a disproportionate increase in plasma volume results in haemodilution.

Amaranth leaves are rich in easily absorbed calcium, on the teeth and bone growth it can play a catalytic role, and can maintain normal myocardial activity, prevent muscle spasms. While rich in iron, calcium and vitamin K, can promote blood clotting, increasing the oxygen capacity of haemoglobin content and improve, promote haematopoietic function.

Capsule Amaranth was administered with lemon water, as *Anupan*. Which enhances the medicinal qualities of the prepared drug, and also helps *Ghan* to reach the deeper tissues. Ascorbic acid is also a powerful enhancer of iron absorption.

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