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An evidence based comparative study on the efficacy of *Carica papaya* Q and 30 C in treating iron deficiency anemia

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Abstract
This study evaluates the pathophysiological as well as dynamic action of homoeopathic medicine *Carica papaya* Q and 30 C in treating iron deficiency anemia. 30 individuals with iron Deficiency anemia were selected and divided into 2 groups (group A and group B) of 15 individuals each. Group A and B were given *Carica papaya* Q and 30 C respectively twice daily for 2 months. The Hb%, MCV and MCH were assessed twice, once before medication and once after 2 months of medication. The data was observed and analyzed using ANOVA. After 2 months of medication of *Carica papaya* Q and 30C, the Hb% showed an increase of 0.6 gm/dl and 0.4 gm/dl of mean value respectively, the MCV showed an increase of 2.5fl and 2.2 fl of mean value respectively and the MCH showed an increase of 1.6pg 1.7pg of mean value respectively. So *Carica papaya* 30C proved to be more efficient in treating iron deficiency anemia.

Keywords: *Carica papaya* Q, *Carica papaya* 30 C, iron deficiency anemia, HB%, MCV, MCH

1. Introduction
Anemia is functionally defined as the presence of insufficient red blood cell (RBC) mass to adequately deliver oxygen to peripheral tissue [1]. The Iron deficiency anemia is the most common type of nutritional disorder in developing countries [2]. It occurs due to loss of iron or when its requirement exceeds the absorption [3]. In this condition there will be microcytic hypochromic anemia and the blood indices (MCV, MCH and MCHC) will be reduced [4]. India has the highest prevalence of anemia in the world among which iron deficiency is the most common type [5]. There is persistently high incidence of this condition in the females in India. (53% of women have anemia, as per National family health survey 2015-16) [6]. The women in reproductive age group who have excessive menstrual flow, low socioeconomic status and vegetarians are commonly prone to iron deficiency anemia [7]. The relevance to this study relates to the status of Iron deficiency anemia in the individuals of age 15-50 years.
Papaya is known to increase the hematocrit and hemoglobin level in pregnant women with anemia [8]. Papaya is also considered to be useful due to its iron content (although it is not a good source of it) [9]. It is a rich source of Vitamin C [10, 11], which enhances the absorption of iron [12, 13]. Homeopathically *Caricapapaya* is known to improve digestion [15]. So, in this study of iron deficiency anemia, *Carica papaya* Q and 30C was administered to the individuals who were suffering with the iron deficiency anemia and studied.

2. Materials and Methods
Ethical committee clearance was obtained from institutional ethical committee before the start of study. Informed consent form as per WHO guidelines was also obtained from volunteers.
Carica papaya Q and 30c was procured from St. George homoeopathy with batch numberB1225 and H22348 respectively.

Study design
A camp was conducted in Alva's Homoeopathic Medical college Hospital, Mijar for females (15- 50 years of age) presenting with signs of pallor or anaemia. These patients were screened for iron deficiency anemia.

On shortlisting patients with iron deficiency anemia, volunteers were considered, screened and selected for this study based on inclusion and exclusion criteria.
Informed consent form was obtained from selected volunteers. Volunteers were then randomly divided into 2 groups of 15. The participants of study were blinded.
The *Carica papaya* Q and 30 was distributed among group A and Group B respectively. The medicine was continued for a period of 2 months with a dosage of twice daily. The patients were monitored and blood indices were investigated by the end of 2 months.

Inclusive criteria
- Female patients of age group 15 – 50 years.
- Only iron deficiency anemia was considered.

Exclusive criteria
- Individuals suffering from chronic disease.
- Individuals who were having complications of anemia

4. Results and Discussion
4.1 Observations:

Table 1: Group A

Sl. No	Before			After		
	Hb (g/dl)	MCV (fl)	MCH (pg)	Hb (g/dl)	MCV (fl)	MCH (pg)
1	9.9	73	22.3	10.2	73.8	21.9
2	7.9	65.5	19.8	8.2	65.5	19.8
3	6.3	62.7	17.8	6.4	62.7	17.9
4	10.2	80.8	26	10.7	81.8	25.8
5	7.6	60.3	17.1	7.2	60.1	16.2
6	10.2	64.2	18.2	11.3	77.9	23.8
7	10.4	69.9	21			
8	10.9	77.8	23.6	10.9	77.9	24.2
9	10.6	65.6	18.8	10.8	67.5	19.6
10	10.6	80.2	24.1	11.5	80.4	24.9
11	10.6	73.8	22.1	13	74.5	21.6
12	10.4	65.6	20	11.6	77.4	24.4
13	7.8	57.3	17.6	8.2	56.5	15.4
14	10.4	80.3	17	10.2	80.3	19.4
15	10.9	74.3	22	11	79.4	35.5

Table 2: Group B

Sl. No	Before			After		
	Hb (g/dl)	MCV (fl)	MCH (pg)	Hb (g/dl)	MCV (fl)	MCH (pg)
1	9.5	67.3	20.3	9.6	67.4	20.2
2	9.5	78	19.9	11.9	79.7	24.7
3	8.6	61.8	18.8			
4	8.6	54	15			
5	8	62	17.7			
6	9.2	61.2	18.7	9.2	63.1	26.6
7	10	75.2	21.8	10.6	77.4	22.6
8	10	67.2	20.1	9.5	68.1	20
9	8.3	76.5	22.6	11.4	79.4	22.6
10	8	59.9	16.8	8.2	61	17.2
11	10	74.8	22.4			
12	8.6	63.3	18.5	8.5	64.1	17.4
13	8.3	66.2	18.3	8.5	65.4	18.6
14	9.7	73.1	22.2	9.9	75.5	23.4
15	8.2	65.2	19.1	8.1	64.2	19

The analysis has been done using ANOVA -SPSS version 26.

4.2 Statistical Analysis
Hb:
After 2 months of medication, *Carica papaya* 30 and *Carica papaya* Q showed an increase of 0.6g/dl and 0.4 g/dl mean value respectively. The RM ANOVA results showed a significant difference in Hb values before taking the medication and after two months of taking the medication with the statistic $F(1, 23) = 8.0$ with P value = 0.01. Also, the results has shown that, there is significance difference between 30th Potency and Mother tincture in change in the values of Hb with the statistic value $F(1, 23) = 1184.2$ with the P value <0.001

MCV
After 2 months of medication, *Carica papaya* 30 and *Carica papaya* Q showed an increase of 2.5fL and 2.2fL mean value respectively
The RM ANOVA results showed a significant difference in MCV values before taking the medication and after two months of taking the medication with the statistic $F(1, 22) = 6.46$ with P value = 0.019.
Also, the results has shown that, there is significant difference between 30th Potency and Mother tincture in change in the values of MCV with the statistic value $F(1, 22) = 2143.1$ with the P value <0.001

MCH
After 2 months of medication, *Carica papaya* 30 and *Carica papaya* Q showed an increase of 1.6 pg and 1.7pg mean value respectively

The RM ANOVA results showed a significant difference in MCH values before taking the medication and after two months of taking the medication with the statistic F(1, 22) = 4.70 with *P* value = 0.041.

Also, the results has shown that, there is significance difference between 30th Potency and Mother Tincture in change in the values of Hb with the statistic value F (1, 23) = 1184.2 with the *P* value <0.001

Conclusion

The final report after 2 months of medication indicated a statistically significant increase in the Hb%, MCV and MCH levels. The result in regard to *Carica papaya* 30 showed a significant increase in Hb% and MCV, whereas *Carica papaya* Q showed a significant increase in the MCH level. Therefore, Carica papaya 30 is more efficient in treating Iron deficiency anemia than *Carica papaya* Q

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Reference

1. API Text book of Medicine. 10th edition. Editor in chief Y P Munjal. 1:1253
2. Berger J, Dillon JC. Stratégies de contrôle de la carence en fer dans les pays en development [Control of iron deficiency in developing countries]. Sante 2002 Jan-Mar;12(1):22-30. French. PMID: 11943635.https://pubmed.ncbi.nlm.nih.gov/11943635/
3. Davidson's Principles and Practice of Medicine. Churchill Livingstone Elsevier. 22nd Edition. Page no.1021
4. Mohan Harsh. Text book of pathology. 7th edition. Foreword Ivan Damjanov. Jaypee brothers medical publishers 272-277.
5. Anemia prevalence nears 40% in India. GlobalData Healthcare. Adi BS, Adi GB, Jamadade AK. A Comparison of the Efficacy of Gymnema Sylvestre 6 Ch and Gymnema Sylvestre Mother Tincture in Cases of Type 2 Diabetes Mellitus. World Journal of Current Medical and Pharmaceutical Research. 2020;1:133-8.
6. Rai RK, Fawzi WW, Barik A, Chowdhury A. The burden of iron-deficiency anaemia among women in India: how have iron and folic acid interventions fared?. WHO South-East Asia J Public Health [serial online] 2018 cited 2020;7:18-23. Available from: http://www.who-seajph.org/text.asp?2018/7/1/18/228423
7. Muhammad Awidi, Contributing factors to iron deficiency anemia in women in Jordan: A single-center cross-sectional study. Ganganagar S. A clinical study of amoebic dysentery and its homoeopathic management. IOSR J Pharm Biol Sci. 2017;12(1):98-102.
8. Pramita. Kebutuhan Gizi PadaIbu Hamil Dan Menyusui Jakarta: Pramita Lab 2010.
9. Meredith Stanton. For Flavor and Vitamin C, Try a Papaya!. WebMD, 2009. Available from: https://www.webmd.com/diet/features/for-flavor-and-vitamin-c-try-a-papaya
10. Dr. Marakini Priyanka 11 health benefits of papaya. 29-november-2019. Available from: https://www.healthifyme.com/blog/11-health-benefits-of-papaya/
11. Park K. Parks Text Book of Preventive and Social Medicine. 23rd Edition. Published by M/s Banarsidas Bhanot Publishers 623
12. Birgit Teucher, Manuel Olivares, Hector Cori. Enhancers of Iron Absorption: Ascorbic acid and other organic Acids. Adi BS. Effective of Hydrastis in Treatment of Cholelithiasis–An Observation Study. International Journal for Advance Research and Development 2017;2(10):65-9.
13. Choralina Eliagita, Tjahjono Kuntjoro, Sri Sumarni, Ari Suwondo, Soeharyo Hadisaputro, Choralisa Eliagita et al. Effect of consuming Carica papaya (Carica papaya linn.) on the level of hemoglobin and hematocrit in pregnant women with anemia. Belitung nursing Journal. 2017. Available from: https://belitungraya.org/BRP/index.php/bnj/article/view/69
14. Iron and papaya. SF gate healthy eating. Available from: https://healthyeating.sfgate.com/iron-papaya-7437.html
15. Boericke William. Pocket Manual of Homoeopathic Materia Medica And Repertory. Comprising the Characteristics and Guiding Symptoms of all Remedies Including Indian Drugs, 1057.