

CLINICAL TRIAL TO EVALUATE EFFICACY OF DAADIMPHALA (PUNICA GRANATUM LINN.) AS RAKTAVARDHAK AAHAR IN FEMALE VOLUNTEERS WITH LOW HEMOGLOBIN LEVELS

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ABSTRACT

Ayurveda is a science of life. There are three *Upasthambha* described in *Ayurved* (*Aahar*, *Nidra*, *Brahmacharya*). *Aahar* is one of the important *upasthambha*. In this era, different food habits are generating deficiencies of vital nutrients and lead to various nutritional diseases like iron deficiency, which lead to anaemia. Around 25% of total world population is anemic. *Daadim* is an important source of potassium, fiber, folic acid, iron, vitamin C (enhances iron absorption), vitamin K and some amount of tannin. Considering properties of *Daadimphala* (*Punicagranatum* Linn.) as per *Ayurveda* and modern science. *Daadim* is suggested to females having low Haemoglobin.

KEYWORDS: *Aahar*, *Nidra*, *Brahmacharya*.

INTRODUCTION

According to *Ayurveda* if *Vata*, *Pitta* and *Kapha* are the *Tristambha* (pillars) of *Ayurveda*, then the *Aahar*, *Nidra* and *Brahmacharya* are the three *Upasthambha* explained in Samhitas. To acquire ultimate health one should have to follow the three *Upasthambha* properly. Under the title of '*Aahar*' *ayurveda* explained divine knowledge about food consumption, where they focused on what to consume, how to consume and when to consume. Iron is an important micronutrient which is essential for various functions in human body. *Acharya*

Vagbhta explain that though *Daadim* is mentioned in *Amla Rasatmaka Dravya*; it doesn't elevate *Pitta Dosha* in body in harmful way. Also, to nourish *Saptadhatu* including *Rakta* they suggested improving *Dhatvagni* in body. *Daadim* is an important source of potassium, fiber, folic acid, iron, vitamin C (enhances iron absorption), vitamin K and some amount of tannin. Hence given the nature and severity of iron deficiency or *Raktakshaya* and considering properties of *Daadim Phala* to improve *Rakta Dhatu* in body, it was necessary to evaluate *Dadimphala* (*Punicagranatum Linn.*) 100gm/day at morning, for 45 days in female volunteers with low haemoglobin level effective as *Raktavardhak Aahariya Dravya*.

MATERIALS AND METHODS

DAADIMPHALA (PUNICAGRANATUM LINN.)

RASA	MADHURA, KASHAYA, AMLA
VIRYA	ANUSHNA
VIPAK	MADHURA/AMLA
GUNA	LAGHU, SNIGDHA

Karma –Graahi, Dhaturvruddhikar, Truptikar, Deepan, Hrudyā, Ruchi-prada, Pathyakara, Balya, Medhya, Rasayan, Shukrala, Tarpana, Mukhakantharoganashak, Dāha Trushna Nashaka, Shramavataahar, Varchovibandhan, Chardinashana.^[1]

Doshakarma – Sweet fruit – Tridoshaghna, Sweet & sour fruit – Slightly pittakar, Sour fruit - Kaphavatshamak, Pittaprapakopak.

Chemical constituents of *Daadim* (in gm /100gm of seed)

- Moisture – 78.0gm
- Fat – 0.1gm
- Protein – 1.6gm
- Fibers – 5.1gm
- Carbohydrate – 14.5gm
- Calcium – 10mg
- Phosphorus – 70mg
- Iron-1.7mg.
- Minerals- 0.7gm.
- Energy- 65Kcal.

RAKTA

प्रीणनं जीवनं लेपः स्नेह धारणपूरणे। (अ.ह.सू.11/4)

Vagbhata explained in *Ashtanga Hridaya* that *Jeevan* (survival) is prime task of *Rakta Dhatu* in human body. On this *Shloka Hemadri* elaborate in his *Teeka* that the exact meaning of *Jeevan* is to hold on vitality of human body.

तद्विशुद्धं हि रुधिरं बलवर्णसुखायुषा।

युनक्ति प्राणिनं प्राणः शोणितं ह्यनुवर्तते॥ (cÉ.xÉÔ.24/4)

Shuddha Rakta (pure blood) improves strength and *Varna* (skin tone) of the body, along with that it gives vitality to every animal on planet and happy life.

Rakta kshaya

रक्तेऽम्लशिशिरप्रीतिशिराशथिल्यरूक्षताः॥ (A.3/4û.xÉÔ.11/17)

When *Rakta Dhatu* gets reduced in body following signs can be noticed. Due to *Rakta Kshaya* as *Rakta* is one of the dhatu, *Dhatukshayjanya Vatprakopa* happens. Due to this *Vataprapoka* sharer *Rukshatwa* and to suppress that *Vata Dosha* person want to eat some bitter in taste. Also, along with *Rakta*, *Pitta Dosha* in body also suppresses. Due to loss of *Dravata* (liquidity) in *Rakta*, the *Ushna* (hot) property increases, as a result *Shishirpriti* (desire for cold) develops. Also due to loss of *Rakta* in body *Shira Shaithilya* (collapsing of veins) happens.

BLOOD

Blood is a connective tissue in fluid form. It is considered as the fluid of life because it carries oxygen from lungs to all parts of the body and carbon dioxide from all parts of the body to the lungs.

FUNCTIONS OF BLOOD

- a. NUTRIENT FUNCTION
- b. DEFENSIVE FUNCTION
- c. EXCRETORY FUNCTION
- d. REGULATION OF ACID-BASE BALANCE
- e. REGULATION OF WATER BALANCE

- f. TRANSPORT OF HORMONES AND ENZYMES
- g. REGULATION OF BODY TEMPERATURE
- h. RESPIRATORY FUNCTION
- i. STORAGE FUNCTION

HAEMOGLOBIN

Haemoglobin is a large, complex molecule containing a globular protein (globin) and a pigmented iron-containing complex called haem. Each Haemoglobin molecule contains four globin chains and four haem units, each with one atom of iron. As each atom of iron can combine with an oxygen molecule, this means that a single Haemoglobin molecule can carry up to four molecules of oxygen.

CASE STUDY

21year old female patient having complaints of *AmlaShitaPrarthana*, *Bhrama* (Vertigo), *Shirnalomata* (hair fall), *Panduta* (pallor), *Shwasakashtata* (Exertional Dyspnea), *Daurbalya* (weakness). Since, 30 days.

Patient came in our OPD.

No H/O HTN, DM or any major illness.

SAMANYA PARIKSHAN

<i>Nadi</i>	70/min	<i>Druk</i>	<i>Ishat Shwetha</i>
<i>Mala</i>	<i>Vibandha</i>	<i>Akruti</i>	<i>Krusha</i>
<i>Mutra</i>	<i>Samyak</i>	<i>Dehabhar</i>	46 kgs
<i>Jivha</i>	<i>Saama</i>	<i>Raktabhar</i>	120/80 mm of Hg.
<i>Shabdha</i>	<i>Prakruta</i>	<i>Dehoshma</i>	37.2 C
<i>Sparsha</i>	<i>Ruksha</i>	<i>Kshudha</i>	<i>Maandya</i>
<i>Trishna</i>	<i>Prakruta</i>	<i>Aahar</i>	Mixed
<i>Nidra</i>	<i>Alpa</i>	<i>Vikruta Strotas</i>	<i>Rasavaha, Raktavaha, Asthivaha.</i>

SAMPRAPTI GHATAK

Dosha- Pitta, Vata

Dushya- Rasa, Rakta

Updhatu- Sira, Kandra.

Strotas- Rasavaha, Raktavaha, Asthivaha

Strotodusti- Sangha

Adhithana- Hrudaya, Yakrut, Pleea, Grahani, Aamashaya.

Vyaktasthana- Netra, Twak,

SR.NO	LAKSHANA/SYMPTOMS	BT	FU1	FU2	FU3
1.	AMLASHITAPRARTHANA	+++	++	+	-
2.	BHRAMA (VERTIGO)	+++	++	+	-
3.	SHIRNALOMATA (HAIR FALL)	+++	++	++	+
4.	PANDUTA (PALLOR)	++	++	+	-
5.	SHWASAKASHTATA (EXERTIONAL DYSPNEA)	++	+	-	-
6.	DAURBALYA (WEAKNESS)	+++	++	+	-

HAEMOGRAM

Haemogram was checked before and after 45 days.

SR.NO.	INVESTIGATION	BEFORE TREATMENT	AFTER TREATMENT
1.	HAEMOGLOBIN %	9.5%	10.9%

RESULT

After consuming 100 grams of *Daadimphala* daily for 45 days, the patient observed no *AmlaShitaPrarthana*, *Bhrama* (Vertigo), *Panduta* (pallor), *Shwasakashtata* (Exertional Dyspnea), *Daurbalya* (weakness) and reduced *Shirnalomata* (hair fall). Haemoglobin increased to 10.9%.

DISCUSSION

As *Acharya Bhavprakash* explained that *Daadimphala* has *Tridoshshamak*, *Amla rasa* and specifically *Vata Kapha Shamaka* properties in it; it can fulfill the desire for *Amla rasa* and treat the *Vatprakopa* in body. Also, with *Trushna*, *Daah*, *Jwara Nashaka* properties in *Daadimphala*, it can cure the *Shishirpriti* and with little rising pitta property subsides the *Pittakshaya*. The *Vatanulomak*, *Snigdha*, *Truptikara* and *Shramanashak* properties of *Daadimphala* may have suppress the causing *Dosha* of *Bhrama*, which are *Pitta* and *Vata*. Also due to *Dhatu vrudhikar* and *Raktapittakar* qualities it may have increases *Rakta Dhatu* in body due to which *Bhrama* subsides.

As *Dadimphala* have properties like *Dhatuvrudhi*, *Deepan*, *Snigdha*, *Madhura* and *Tarpan*, the *Rakta dhatu* increases along with *Prakrut Pitta Dosha* and provide *Poshan* to next *Dhatu*. According to *Sushruta* at 15th day the *Meda dhatu* fullfil its *Dhatuposhana* and passes *Poshya* to next *dhatu* though *Meda* gets its *Poshana*, the *mala* of *Meda dhatu* (*kesha*) also increases. *Dadimphala* having *Dhatuvridhikar*, *Deepana*, *Laghu* and *Pittakara* property helps to reduce *Panduta* by improving blood quantity and removing *Strotasavrodh* by *Vatanuloman* quality. Though *Dadimphala* have *Vatashamaka*, *Snigdha*, *Deepana*, *Shrama nashaka*, *Truptikara*, *Dhatuvrudhikara*, *Vatanuloman* and *Rakapittakara* properties, it may treat *Daurbalya* and

Shwaskashtata after digested in body. This quality of *Daadimphala* of assimilating iron in to blood may comes due to *Deepana* property in it. According to this *Daadimphala* not just provide iron to body but helps to absorb more iron from daily food items.

CONCLUSION

Daadimphala (*Punicagranatum* Linn.) is effective in female volunteers with low haemoglobin level as *Raktavardhak Aahar*. Daily consumption of *Daadimphala* is effective in *Amlashitaprarthana*, *Bhrama*, *Shirnalomata*, *Panduta*, *Shwaskashtata*, and *Daurbalya* to decrease *Raktakshaya* in females. Daily consumption of *Daadimphala* is effective to increase haemoglobin in females. Since, *Daadim* is available abundantly and easily. Hence, it is cost effective. Being a natural form of treatment and devoid of any side effects, it can be used in *Raktakshaya* instead of consuming Iron-Folic acid tablets which have side effects.

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