

PHARMACEUTICAL STUDY OF *DHATRI PALADI YOGA*Dr. V. Gnana Prasanna^{1*} and Dr. Ch. Sridurga²

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ABSTRACT

As per *Ayurveda* there are 7 types of *dhatu*. Depletion (or) decrease of these *dhatu* is termed as *kshaya*. *Shukra dhatu* is one among the seven *dhatu*. It gets nourishment by *majja dhatu*. Its depletion leads to (severe discomforts)(or)uneasiness to the body. Mainly leads to male infertility. *Shukra* also provides *Dhairya*, *Prasannata* (happiness), *Bala*(strength), *Praharsha* and *bija* for *garbhotpatti*. As a result of *dushita dhatu poshan*, *shukra dhatu* does not get nourished. Main aim of this article is to correct (or) to improve the quality of *shukra* through one of the classical *yogas* viz ***Dhatri Phaladi yoga* from *Basavarajeeyam***. The principal ingredients of this formulation are *Amalaki churna*, *Ikshu rasa*, *sita* and *madhu*. The preparation of the said *yoga* involves *Bhavana* of *Amalaki churna* using *Ikshu rasa* as *bhavana dravya* and q.s *madhu* for pill making. Sugarcane is beneficial for both male and female reproductive health restoration due to the

presence of essential nutrients and minerals etc. *Amalaki* is an excellent elixir and has got *rasayana* properties. It is *jeevanam*, *preenanam* and *dhatupustikaram*.

KEYWORDS: *Shukra kshaya*, *Dhatu*.

INTRODUCTION

Rasashastra and *bhaishajya kalpana* are the two pharmaceutical wings of *Ayurveda* and mainly deals with the study of drugs, their preparation and therapeutic uses. *Bhaishajya kalpana* mainly deals with herbal and its pharmaceutical preparations like *swarasa*, *kashaya*, *churma*, *guti*, *vati*, *asava-arista*, *avaleha*, *ghritam* and *tailam*. *Vati kalpana* is a procedure in

which the powder of raw drugs is triturated together with certain *kashaya/swasara*/any liquid media/even honey is used to make pills.

The main male factor which is responsible for *Garbotpadana* is *Shukra dhatu*. *Shukra dhatu* gets nourished by the *Majja dhatu*. Nourishment takes place by the intake of *vrishya padarthas*. *Shukra kshaya* is one of the commonest problems among the male individuals as it leads to Oligospermia, Azoospermia resulting to infertility. Oligospermia is a condition which is characterised by low sperm count in the semen. It is of mild moderate and severe types. This can effect the men of all ages including teenagers and adults. Life style (poor diet smoking, drug usage), age, any other serious medical conditions (infections, varicocle, hormonal disturbances) exposure to certain environmental factors (toxins, radiation, excessive heat) can increase the risk of developing above conditions.

Complete absence of sperm in the semen is termed as Azoospermia. It occurs due to the obstruction(or)inadequate sperm production. Through semen analysis it can be diagnosed. An effort is made in this article to improve the sperm count by application of one of the classical formulations "*Dharti paladi churnam*".^[1]

MATERIALS AND METHODS

Procurement of raw materials

Dried *Amalaki* fruits were procured from the local market Tirupati. The other ingredients required in this process like *madhu*(honey), *mishri*, sugarcane were also procured from Tirupati market.

Process

The preparation of *Dhatripaladi churnam* was done in the department of *Rasashastra & Bhaishajya kalpana*, S.V.AYURVEDA Medical college & Hospitals, TTD Tirupati. All the guidelines prescribed in the classical literature were strictly followed in this preparation process.

Apparatus

Stainless steel vessel/plate, *khalva yantra*, spatula. The details of the ingredients of the formulation are provided in table.

Table No. 1: Showing the ingredients of *Dhatripaladi Yoga*.

S NO	Drug	Quantity
1	<i>Amalaki churnam</i>	100 g
2	<i>Ikshu rasa</i> (sugar cane juice)	Q.S
3	<i>Madhu</i> (honey)	Q.S
4.	<i>Sita</i> (Sugar candy)	Q. S

The pharmaceutical study was conducted as part of pharmaceutical research. It involves 3 stages as described below.

First Stage

Preparation of *Amalaki Churnam*.

Second Stage

Bhavana with *Ikshu rasa* (sugar cane juice).

Third Stage

Preparation of *vati* (pills) of 250 mg size.

The sequential process conducted while preparing *Dhartipaladi churna* are *churna nirmana*, *bhavana* and *vati nirmana*.

GMP guidelines of AYUSH have been followed during the preparation of the above formulation

To prepare the above drug, 100g of dried *Amalaki* were collected. Later it was ground & powdered. The powder was filtered through the cotton cloth (*vastragalitam*) of 300 mesh size to obtain micro fine powder.

In the next stage, sugar cane juice 120 ml was added & trituration was done for 3 days. {Since no. of *bhavanas* are not specified in the said classical reference, as per the general guidelines of *Bhaishajya Kalpana* 3 *bhavanas* have been done in this context} To this compound soon after *bhavana*, 50 gm *mishri* and honey was added and trituration was continued till the consistency of the substance was changed suitable for pill making. Later it was rolled and made into *varti*. The *varti* was cut into bits of 250 mg which were rolled manually into pills.^[2] Later, the pills were dried under controlled temperature, counted and stored in air tight glass container.



Image no. 1: Showing the preparation of *Dhatripaladi yoga*.

OBSERVATIONS

Amalaki churna was light green in colour. Due to addition of sugar cane juice & honey, the end product colour was turned to dark colour.

PRECAUTIONS

The raw materials used in the preparation were ensured for their genuinity and standard quality.

The equipment and vessels are made sterile before the preparation. The place of preparation was cleaned, kept free from contamination.

The hands involved in the preparation were ensured to be hygienic.

All the precautions were taken in all the stages of preparation duly following the guidelines

of GMP (Good Manufacturing Practices).

DISCUSSION

Male infertility is one of the burning issues now a days in the society and hence an effort was made as part of a solution for the said problem. *Shukra dhatu* is mainly comprised of *vayu*, *agni*, *Prithvi* and *jala*.^[3] According to *Acharya Charaka Shuddha shukra*(semen) is *Snigdha*(unctuous), *Ghana*(viscous), *Pichhila* (shiny), *Madhura* (sweet) and *Avidhahi*.^[4] Hence *Shukra kshaya* is a *vyadhi* in which *shukra* is vitiated quantitatively and qualitatively. As a part of *Shamana Chikitsa*, this provides *Balya*, *Rasayan*, *Shukra vardhak* and *Garbhapradha*.^[5]

Vitamin C supplementation demonstrably enhanced sperm count and motility, concurrently reducing the proportion of abnormal spermatozoa. Quercetin revealed improvements in sperm quality parameters (viability, motility, and concentration) and also Quercetin positively impacted plasma gonadotropin levels, particularly ICSH. ICSH stimulates Leydig cells to produce testosterone, and acts synergistically with FSH, which stimulates Sertoli cells to synthesize androgen-binding protein. This protein transports testosterone to target sites in the spermatogonia and epididymis, facilitating sperm development and maturation.^[6]

Amalaki churna has *vrushya*, *rasayana*^[7], anti-inflammatory and anti-oxidant properties and rich in Vitamin C. Classical texts identify *Amalaki* (*Emblica officinalis Gaertn.*) as possessing *Vrishya* (spermatogenesis-promoting) and *Rasayana* properties. *Amalaki*'s chemical composition includes gallic acid, flavonoids (quercetin), and chebulagic acid, it is also a notably rich source of Vitamin C. Oxidative stress arises when reactive oxygen species (ROS) accumulate to harmful levels in the body. Furthermore, evidence suggests a correlation between oxidative stress, excessively high ROS levels, and male infertility. Adequate intake of antioxidants, including vitamin C, may be beneficial.

Ikshu rasa (Sugarcane juice) is antioxidant and is rich in nutrients, essential vitamins and minerals like magnesium, potassium, zinc and folic acid.^[8] The above nutrients plays a vital role in healthy sperm production and motility. The oxidative stress is the main reason for the erectile dysfunction. This can be corrected by the antioxidant property present in the sugar cane juice.

Significance of *Bhavana*

The process of *Bhavana* represents a traditional technique in *Ayurveda*, involving the wet grinding or levigation of powdered substances with liquids such as juices / decoction / sara / animal / mineral sources.^[9] This method is not merely mechanical. This plays a crucial role in modifying or altering the characteristics or properties of the drug. There must be faster onset of action increased efficiency and with longer duration effect even taken in less dosage also. *Bhavana* procedure integrates properties of liquid media to the (powdered) *Bhavita* material. Thus it regulates the pharmacodynamic nature of the drug through various changes like by *Gunantara* (alteration in potency), *Gunadhana* (addition of new properties), *Gunotkarsha* (augmentation), (*Gunahani*) reduction or removal of properties^[10]., Homogeneous mixture was taken in khalwa yantra and *Ikshu rasa* was added and triturated continuously till it attains *subhavitha lakshana* and then allowed to dry. Then next day fresh *Ikshu rasa* was added and same procedure was repeated for 3 days. After 3 days and also after drying the drug / substance was grounded into fine powder. By *bhavana* procedure, mixture will become soft. Increase in weight of the formulation occurred. Liquid media (*Ikshu rasa*) might be contributed to the bulk of the formulation. Repeated and continuous *bhavana* facilitates the significance in particle size reduction, which may enhances the extraction of phyto-chemical constituents of the drug and its absorption. (pharmacokinetics of the drug) in the gastrointestinal tract (when administered orally). The addition of liquid media (*Ikshu rasa*) in *bhavana* further amplified the size reduction process.

Particle size reduction is supposed to have

1. Uniform mixing-uniform dose
2. More changes in active principles
3. Extraction of extractable principles in liquid media and their interactions with constituents of liquid media and their interactions with constituents of liquid media and other constituents of the formulation
4. Increased inter particle collisions thereby augmenting the rate of reactions and neo-formation of chemicals
5. Random dispersion in liquid media
6. Facilitation of impregnation
7. Increased particle surface area and this enhanced dissolution rate and absorption
8. Bioavailability of drug.

Wet grinding of drug powder with liquid media facilitates particle size reduction and homogenization leading to modification of the properties (*Gunantaradhana*) of the end product.

Vati kalpana

The preparation of pills/tablets is known as *Vati kalpana*^[11] which is essential for the safe and effective use of the medicines. This form improves the shelf life and stability of the drug. It allows the safe use of potentially toxic substances and enhances the absorption of active ingredients by using binders and excipients that aid in their delivery and bio availability.

The selected *yoga* is very simple, economical classical formulation containing very minimal no. of ingredients that are easy to procure and easy to make out the medicament. The *yoga* contains safe herbal ingredients, free from metals and minerals and hence no possibility of any adverse effects.

Churna Nirmana

Amalaki churna was prepared as per guidelines provided in classical *Ayurvedic* text *Sharangadhara samhita madhyama khand*(6th chapter)^[12]

CONCLUSION

Dhatri paladi churna is a classical preparation that comes under the category of *vati kalpana*. It is an easy and effective formulation meant for oral administration. The pill form is found very much suitable for therapeutic applications and also to explore the drug efficacy in patients of male infertility through well organised clinical study. During *bhavana*, the liquid media i.e., by sugar cane juice the therapeutic properties gets absorbed well into the *churna* for proper impregnation of the components of the formulation for attaining synergetic action therapeutically. This was used internally & beneficial in improving the quality & quantity of *shukra*. The aim of this study is to demonstrate that *Shukra kshaya* which is leading to Male Infertility can be effectively managed through *Ayurvedic* interventions.

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