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PHARMACEUTICAL STANDARDISATION OF VANGA BHASMA: WSR TO RASATARANGINI

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ABSTRACT

In Ayurveda bhasmas are unique organometallic preparations used for medicinal purpose. Bhasmas are potent Ayurvedic medicaments, biologically active and powerful healing preparations in all aspects. Vanga bhasma is traditional Indian medicine which is classically prepared, titurated with plant extract and advised specially in genitourinary disorders. It is also especially used in the treatment of leucorrhoea and diabetes mellitus. However detailed characterization studies after synthesis are important which shows authenticity of product. Properly prepared bhasmas have not reported any serious untoward effects in clinical practice. Vanga Bhasma is an effective Ayurvedic medicine among various bhasmas. In the present work Vanga Bhasma prepared from Vanga, which comes under dhatuvarga as per rasa literature, given in Rasataragini path and studied for standardisation point of view. Pharmaceutical study was conducted to know the changes during the preparation. Bhasma Pariksha was done to prove the fitness of the Bhasma.

KEYWORDS: – Vanga, Vanga bhasma, Shodhana, Marana, Jaran, Rasatarangini.

INTRODUCTION

In Ayurveda Vanga is used extensively for the management of leucorrhoea, Prameha, Klaibya, etc. The science of *rasaśāstra* has two main objectives, i.e. *Dehavedha* and *Lohavedha*. vanga is the important loha which is main drug of this study. vanga is grouped

under puti loha and classified into two types khuraka and misraka. Inspite of that khuraka vanga has better therapeutic use.

In Rasashastra texts it is mentioned that Vanga be taken in the form of Bhasma for the medicinal use. Administration of ashudha Vanga leads to many untoward complcations. So Vanga should undergo Shodhana, Jarana and marana to made free from impurities, toxicity before use as medicine. To know the changes during the process of preparing Vanga Bhasma and also to bring the genuine product this study is undertaken.

The procedure adopted for the preparation of this medicine is very unique and involves combination of very important Āyurvedic pharmaceutical processes- *Bhasmīkaraṇa* and *Puṭa pāka*. *Agni* is an important factor which not only changes the Physico-chemical properties but also enhances the therapeutic efficacy of the drug; the extent of which depends upon the type and duration of heat application. While preparation of the present formulation the drugs like *bhasma nirmana* and subjected to pāka as required number of times till the vanga bhasma passes all the tests related to bhasm pariksha which help in better absorption and enhanced therapeutic efficacy of the final drug. All the procedure of making bhasma is done according to procedure given in Rasatarangini.

AIM AND OBJECTIVES

- To identify genuine raw material considering Graahyagrahyatwa lakshana.
- To carry out Vanga for samanya and vishesha shodhana,as per given in text.
- To carry out shodhita Vanga for Jarana.
- To carry out shodhita Vanga for marana.
- To conduct pharmaceutical, physico-chemical study & Bhasma Pariksha of Vanga Bhasm

MATERIALS AND METHODS

The raw material Vanga (tin) is procured from local market of nagpur and examined for Gr aahyagrahyatwa lakshana. Associated materials like TilaTaila, Takra, Gomutra, Kanji, Kulattha Kwatha, Nirgundi Patra Swarasa, Apamarga, Kumari and other materials Vanga Bhasma was prepared in the P.G dept. of Rasashastra and Bhaishajya kalpana shri Ayurvedic college c Nagpur.

Preparation of vanga bhasma

Preparation of Vanga Bhasma includes three stages viz.

a) Shodhana (Purification)
b) Jarana (Conversion of metal into powder form)
c) Marana (Incineration)

Shodhana[1]

Samanya shodhana[1]: (General purification) (r.t 18/9**)**

Materials: Raw Vanga 2 kg, Iron Pan, Pithara Yantra, churnodak.

Method: churnodak[2] was prepared in a ratio of 1:20 i;e raw lime and water, then Vanga was taken in a long handled iron ladle and kept over LPG furnace for heating. On melting it was immediately quenched in the liquid media churnodak and was immediately covered with lid so that Vanga may not rebound out of the Pitthar Yantra. This process was repeated 7 times in chunodak successively. Vanga got solidified in the liquid; it was taken out of the Pitthar Yantra, washed with clean water and subjected to next quenching process.

Vishesha shodhana[3,4](Specific Purification) (rrs5/156)

Materials: Samanya shodhita Vanga 1750 gm, Iron Pan, Nirgundi patra Swarasa 10 lits and Haridra Choorna-600gm, Long handled iron ladle, Measuring Cylinder, Spoons, L.P.G. Furnace, Pitthar Yantra.

Method

The vanga was melted or heated to red hot in a long handled ladle. On melting, it was immediately quenched in the liquid media of Nirgundi Swarasa with Haridra churna 3 times successively.

Before and after quenching the weight of vanga was recorded. The whole procedure was observed keenly.

Observations of Vanga Before & After Dhalan in Haridra + Nirgundi Swarasa

Characteristics	Before dhalan	After dhalan
Weight	1750 gms	1650 gms
Colour	Silvery white, shiny black particles	Silvery white, shiny with more black particles.
Structure	Amorphous along with powdered mass	Amorphous along with increased powdered mass
Brittleness	Present	Increased

Vanga- Jaran[5,6]**(**r.t18/29-33**)**

Material- Sudha vanga1650 gm, Aswatha churna 500gms.

Apparatus used - -Iron pan, L.P.G. stove, Spoon, ladle, weighing machine.

Procedure:- Ashvatha twak was dried under sunlight and pulverized to form churna and was collected in an enamel tray. The shodhit Vanga was taken in an Iron pan and allowed to melt over the L.P.G. stove.

Ashvatha twak churna was added gradually over the molten Vanga.

The stirring was kept continuous with simultaneous imparting of pressure and friction until it was reduced to ash.

The Ashvatha twak churna was allowed to burn away completely leaving no trace of unburnt material and then the next quantum of churna was added.

After whole of visible Vanga particles were converted to powder form, it was covered with a *sarava* and the heat was increased to as much as possible so that the bottom of the *karahi* was visibly red.

After two hours, the heating was stopped and the whole material was left for self-cooling.

The next day, after complete self-cooling the jarit Vanga was collected and sieved by the sieve.

Final product – 1kg Jarit Vanga**.**

Vanga Maraan:[7,8]**(ayu prak3/170) (incineration) Materials:** Jarita Vanga, Khalwa Yantra, Ark patra Swarasa500ml, Shodhit Hartal 250gms, Sharava, cow dung cakes and camphor balls. Hartal shodhan was done according to procedure given in Rasatarangini (11/18)

Method: Jarita Vanga was kept in water properly and allowed the mixture for sedimentation. After 12hr when the entire Vanga particle was sediment at the bottom, the upper part was decanted carefully. This kshara nirmoolana procedure was repeated until pH of the water became neutral i.e. around 7. This material was mixed with hartal and subjected to bhavana with ark patra Swarasa. After triturating for about four and a half hours, as the paste became tough in consistency due to loss of moisture, it was transferred to a stainless steel plate and

spread uniformly on it with the help of stainless steel knife, and then made into round pellets of equal size. These were dried under shade and taken in an earthen sharava and aswatha churna was addaed, later on covered with another earthen sharava with interface between them sealed with a clay smeared cloth. Then it was subjected to heating through kukkut put using 25 no. of cow dung cakes.

Subsequent puta were given at temperature of 750 C & 700 C.

After puta the sharaw was allowed to self cooldown for a whole day.

After the puta became swanga sheeta, the earthen plates were removed and opened cautiously. The material kept between them was weighed and other observations like colour, taste, odour etc. were recorded.

This whole process was repeated for 13 times using the end product of previous puta.

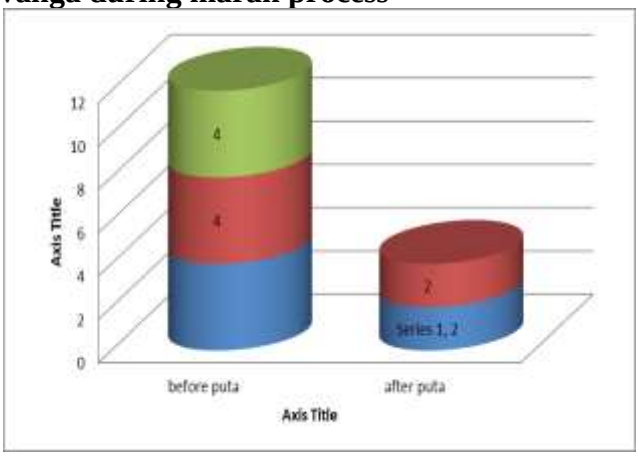
Parameters	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th
Colour	Off White	Off white	Off white	Off white	Off white	Off white	Off white	Off white	Off white	Off white	Off white	White	White
Odour	Odour less	Odour less	Odour less	Odour less	Odour less	Odour less	Odour less	Odour less	Odour less	Odour less	Odour less	Odour less	Odour less
Taste	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less
Nischandra pariksha	-ve	-ve	-ve	-ve	-ve	-ve	-ve	-ve	-ve	-ve	Positive	Positive	Positive
Rekhapurnata	-ve	-ve	-ve	-ve	-ve	-ve	-ve	-ve	-ve	-ve	Positive	Positive	Positive
Varitar test	Approx. 1-2%	Approx. 1-2%	Approx. 5%	Approx. 10%	Approx. 25-30%	Approx. 50%	Approx. 50%	Approx. 70-80%	Approx. 90%	Approx 92%	Approx 95%	98% positive	100%

Organoleptic characters of the product obtained during the process of marana of vanga parameter

Quantitative observations during process of preparation of vanga bhasma

		Putas												
Parameters		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th
Wt of vanga	Before puta	1200 gm	1150gm	1120 gm	1105 gm	1095 gm	1080 gm	1070 gm	1065 gm	1055 gm	1050 gm	1035 gm	1025 gm	1015 gm
	After puta	1150 gm	1120 gm	1105 gm	1095 gm	1080 gm	1070 gm	1065 gm	1055 gm	1050 gm	1035 gm	1025 gm	1015 gm	1000 gm
Wt of aswath churna added		30G	30 gm	30 gm	30 gm	30 gm	30 gm	30 gm	30 gm	30 gm	30 gm	30 gm	30 gm	30 gm
Amt of ark patra swaras		500 Ml	500 Ml	500 Ml	500 Ml	500 Ml	500 Ml	500 Ml	500 Ml	500 Ml	500 Ml	500 Ml	500 Ml	500 Ml
Duration of levigation(hrs)		4 hrs	4 hrs	4 hrs	4 hrs	4 hrs	4 hrs	4 hrs	4 hrs	4 hrs	4 hrs	4 hrs	3hrs	3hrs
Maximum temp of puta (^{0}c)		800^0c	800^0c	800^0c	800^0c	800^0c	800^0c	700^0C	700^0	700^0	700^0	700^0	700^0	700^0
Wt. Loss/gain of vanga (gm)		-50	-30	-10	-5	-10	-10	-5	-10	-5	-15	-10	-10	-15

Change in weight of vanga during maran process



Showing classical parameters for vanga

Parameter	Observation after last puta
Colour	Off white
Odour	Odourless
Touch	Soft , Smooth
Nischandra test	Positive
Varitar test	Positive
Rekhapurantva	Positive
Taste	Tasteless

Table showing Physicochemical Result (table showing physicochemical analysis of vanga Bhasma)

Parameter tested	Vanga Bhasma
Total Ash	99.55%W/W
Loss On Drying	0.24%W/W
Water Soluble Extractive	0.64%W/W
Loss on Ignition	0.45%W/W
Iron as Fe	0.34%W/W
Calcium as Ca	1.54%W/W
Tin as Sno2	89.80%W/W
Chloride as Cl	0.01%W/W
Sulphur as S	0.04%W/W
Sulphate as So4	0.24%W/W
Arsenic as AS	0.14%W/W

DISCUSSION

Vanga is classified as a Puti loha. Here, the several therapeutic properties have been stated. Much importance has been given to its efficacy as Vrishya and as a therapy for Meha Roga.

***Shodhana* process** was done with churnodak**,** nirgundi swarasa and haridra churna. The alternate heating and quenching in these acidic and basic media may lead to corrosive

changes in the metal and also may cause removal of acid and alkali soluble impurities from the metal.

Jarana of vanga the weight of Vanga was increased after Jaran and the molten metal got converted into powder form. In other words Vanga got transformed from liquid state to solid state. Gain in weight of Vanga after Jaran can be attributed to the fact that Ashvatha twak churna was added in equal quantity for the process. This churna also got converted to ash form on getting heated at a very high temperature along with the fine powdered Vanga. This ash reflected as gain in final weight of Jarit Vanga.

After jaran of vanga **Sharprakshalan** is also one of the major procedure which was properly done as per text. After completion of Bhavana 15.7 % Weight of Vanga was gained. The gain in weight of *Vanga* was due to solid sediments from the Suddha Hartal and Ark patra swarasa. Due to parallel force applied to drug particles bond are broken and new organometallic compounds are formed which cause colour change of Vanga. Repeated levigation helps in reducing the particle size due to the action of comminution force.

According to text 7 putas were assigned for incerination of vanga but during this nirman of vanga bhasma 13 kukkut puta were given to obtain all siddhi lakshanas This shows that for proper incerination more heat is required. The process of marana provides an absolute extraordinary form of metal and minerals called Bhasma in which a metal and mineral can be administered internally, as it is in its most assimilatory form. Specific liquid media is advised for bhavana for different bhasma preparations.

CONCLUSION

Vang is one among the metal mixed with many impurities and vang Bhasma indicated in disease like leucorrhoea, pandu, prameha, rakta pradara, kasa, kashay & etc. Vanga has different pharmaceutical procedure for shodhana as well as Marana. All the procedures followed were accordingly to the ayurvedic textgiven in rasatarangini. Vanga bhasma prepared with total 13 putas respectively, all physic chemical test were performed in lab to get pure vanga bhasma.

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