



PHARMACETICO-ANALYTICAL STUDY OF VANGA BHASMA

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Abstract

The drugs obtained from nature are used for the treatment of various diseases in *Āyurveda* - the science and art of happy living. The three main sources of drugs are plants, animals and minerals. . Initially due to abundant availability, plant materials were used for preparation of medicines. vanga is one omni the metal and has imperative or both Dhaturvadha and Lohavadha. vanga bhasma is traditional Indian medicine which is an ordanometallic preparation teated with plant extract it is used in the treatment of prameha krimi, mutrakriccha, shweta pradar, rakta pradar, vrana.

Keywords —vanga, vanga bhasma, shodhana, Marana, jarana,

INTRODUCTION

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 having alchemical as well as therapeutic importance.

The vanga is classified as puti loha and vanga two types khuraka and misraka, khuraka vanga has better therapeutic use, but metal and minerals should be made free from impurities, toxicity before use vanga shodhana process which is the initial step for bhasma preparation.

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 bhasm passes all the tests related to bhasm pariksha which help in better absorption and enhanced therapeutic efficacy of the final drug.

Aim and objectives:-

1. To Carry out Vanga samanya and vishesha shodhana.
2. To carry out shodhna of Vanga using Nirgundi swaras and Hridra churna as per Rasa Trangni.
- 3.To carry out Physico - Chemical Analysis of vanga.

Preparation of vanga bhasma:

Main Processes

Vanga Shodhan
Vanga Jaran
Vanga Maran

Shodhan

Samanya Shodhan

Apparatus used:

Long handled iron ladle, Measuring Cylinder, Spoons, L.P.G. Furnace, S. S.Tray, Pitthar Yantra.

METHOD

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 viz.Tila taila, Takra, Gomutra, Kanji ,Kulatha kwatha and was immediately covered with lid so that Vanga may not rebound out of the Pitthar Yantra. This process was repeated 7 times in each media, 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. Thus, Vanga was subjected to a total of 35 times for Dhalan process.

Vishesh shodhan:

Ingredients	-	Samanya Shodhit Vanga	-548 gms.
		Nirgundi Svarasa	- 4 L
		Haridra powder	-400gm (10 th of Nirgundi swarasa)
Apparatus used	-	S.S. Container, Pitthar Yantra, Iron ladle, L.P.G. stove, Match box, Spoon, Stray etc.	

Methods:

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	548 gms	534 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

Apparatus used - Iron pan, L.P.G. stove, Spoon, ladle, SS Tray, 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.

Approximate quantity of Ashvatha twak churna ranging between 10gm to 15gm 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 - Jarit Vanga

Vanga Marana:

Ingredients:- Jarita Vanga, Shudha Hingula, fresh Aloe vera pulp
Apparatus Used:- Pestle and Mortar of granite stone, Weighing machine, Knife, spatula, Cotton, Earthen plates, Stainless steel plate, Cotton cloth, Electric Muffle Furnace etc.

Sub-Processes

Bhavna (levigation) and Chakrika preparation (caking)
Calcination
Reprocessing the calcined material for subsequent puta

Procedure

The weighed amount of the material to be calcined was taken in a clean mortar. Shuddha Hingula 1/8th of the amount of Vanga to be calcined was mixed with Vanga. A weighed and measured amount of Aloe vera leaf pulp was added to this material slowly, simultaneously mixing it with the pestle to form a homogenous paste. The mixture was levigated with proper, constant pressure and frequency. 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. This paste was made into small pellets of uniform size and thickness (chakrika) with the help of knife and kept for drying in sunlight (Atapa Shoshita). After complete drying, these pellets were kept inside a *sarava* and another *sarava* was kept inverted over it. The joint between the two earthen plates was sealed with mud (gachani mitti) smeared cloth so as to seal away any visible opening or gap between the two earthen plates and left for drying in sunlight.

After drying, the *sarava samputa* was placed in an Electric Muffle Furnace at the specified temperature which was maintained for 45 minutes.

First seven puta were given at temperature of 800⁰C. Subsequent puta were given at temperature of 750⁰C & 700⁰C.

After this the EMF was switched off and allowed to self-cool.

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 10 times using the end product of previous puta.

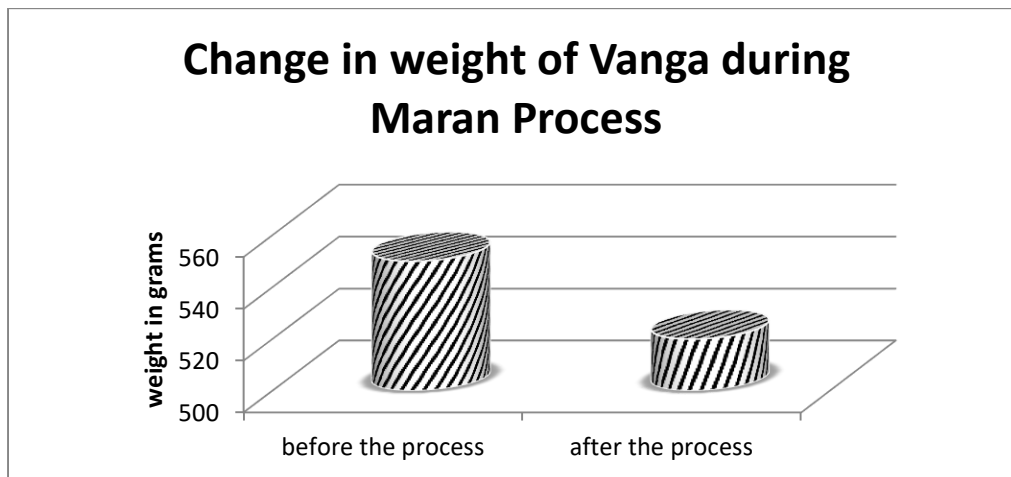
Organoleptic characters of the product obtained during the process of marana of Vanga

Parameter	Putra									
	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th
Colour	Off white	Off white	Off white	Off white	Off white	Off white	off white	off white	white	white
Odor	Odor less	Odor less	Odor less	Odor less	Odor less	Odor less	Odor less	Odor less	Odor less	Odor less
Taste	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less	Taste less
Nischandra pariksha	positive	positive	positive	positive	positive	positive	Positive	positive	positive	Positive
Rekhapurnata	positive	positive	positive	positive	positive	positive	positive	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%	100%

Quantitative Observations during process of preparation of Vanga Bhasma

		Putra									
Parameters		1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th
Weight of Vanga	Before puta	550	555	550	533	530	536	530	530	530	525
	After puta	555	550	536	530	536	530	530	532	525	520
Weight of Hingul added		69	70	68	65	65	67	65	65	65	63
Amt of Aloevera pulp added		300	280	250	240	250	260	265	250	250	250
Duration of levigation (hrs)		4.15	4.15	4.30	4.0	4.25	4.30	4.10	4.05	4.0	4.20
Max. temp. of puta (°C)		800	800	800	800	800	800	800	750	700	700

Wt. loss/gain of Vanga (gm)	+5	-5	-14	-3	+6	-6	0	+2	-5	-5
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Showing classical parameters for vanga

Parameter	Observation after Last Puta
Color	Off white
Odor	Odorless
Touch	Soft, smooth
Nishachandrika test	Positive
Varitara	Positive
Rekhapurnata	Positive
Taste	Tasteless

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

Parameter tested	Vanga Bhasma
Total ASH	97.10
Acid insoluble Ash	90.85
Water soluble extractive	1.10
Loss of Drying	0.47
pH	5.47

Discussion : The Sanskrit word “loha” derived from a root “luha”, meaning to pull. The ores, from which the metals are extracted, were known as loha. The ancient texts of Ayurveda have mentioned the classification of metals as follows:

Sara Loha –includes Swarna and Rajata

Shuddha Loha –comprises Swarna, Rajata, Tamra and Loha.

Sadharana Loha –contains Tikshna Loha and Tamra.

Putiloha – Naga, Vanga & Yashad.

Mishra Loha – consists of alloys like Kansya, Pittala, Varta

It is apparent from this classification that 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 *Maha Roga*.

Shodhana process *Takra, Kanji, Gomutra, Kulattha Kwatha and nirgundi swarasa*. Out of six liquid medias used during *Shodhana* procedure, four media were weak acids as 3 pH of in *Takra* 3.5 pH in *Kanji*, 4.6 pH in *Tila Tail*, and two were weak base with pH of 8.5 in *Gomutra* and pH 7 in *Kulattha Kwatha*. The alternate heating and quenching in these acidic and basic liquid 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 completion of *Bhavana* 15.7 % Weight of *Vanga* was gained. The gain in weight of *Vanga* was due to solid sediments from the *Suddha Hingul* and *Aloe vera swarasa*. Due to parallel force applied to drug particles bond are broken and new organometallic compounds are formed which cause colour change of *Vanga* from black to dark purple. Repeated levigation helps in reducing the particle size due to the action of comminution force. The amount of liquid media for levigation depends on season, vigour during levigation and particle size of the material.

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. A total of 10 ardha gaja puta were given to obtain all siddhi lakshanas.

CONCLUSION:

Vang is one among the metal mixed with many impurities and vang Bhasm indicated in disease like 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 text.

Vanga prepared with total 9-10 putas respectively

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