

A Physico-Chemical Analysis of Saardhanishka Variety of Varatika Bhasma

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Abstract

Rasa literature is taken up and studied from physic -chemical analysis of varatika bhasma. Varatika is the external shell of sea animal Cyprea monneta linn. Chemically Varatika is identified as Carbonate of Calcium. Varatika Bhasma was prepared as per standard classical methods chemically analysed at the final product of varatika. Analyses were carried out employing sophisticated instrumentation techniques such as XRD, NPST and Physico-chemical standards were determined for saardhanishka variety of varatika. The data of the results of the prepared sample are discussed in this papered.

Keywords: -Shodhana, Bhasmikiranana, Bhasma pariksha

INTRODUCTION

Bhasmas are unique formulations belonging to Ayurveda a leading and popular traditional Indian system of medicine. This group of medicines can work even in smaller doses and may even control incurable diseases effectively. Bhasmas essentially contain minerals and metals as integral part of formulations and used after adopting proper purification

process employing various purifying agents.

Theses detoxification processes remove the toxic potentials from minerals and metals and impart a very high grade therapeutic efficacy. It is very clear and evident from long history of usage of herbomineral and metallic preparations in Ayurveda and Siddha medical system that properly processed herbomineral

preparation can contribute significantly to the health care of the society.

To understand the science involved in the purification processes a simple preparation Varatika Bhasma was selected and studied. Varatika, is categorised under Sadharana Rasa varga¹ and also under Sudhavarga by Rasa scholars. Varatika is identified as the external shell of sea animal *Cypraea moneta* linn. It occurs in the coastal areas of the sea. *Cypraea moneta*, commonly known as the money cowry, because the shells were historically widely used in many Pacific and Indian Ocean countries as a form of exchange. Chemically, Varatika is identified as Carbonate of Calcium².

Since ancient days Varatika is used for playing as well as for medicinal purposes. Dharana (amulet) of Varatika is practiced for the treatment of Balagraha (viral infections of children). In the present paper Varatika Bhasma whose main indications are in Agnimandya (Loss of appetite), Parinamasula (Duodenal ulcer), Grahani (Malabsorption syndrome), Rajayakshma (Tuberculosis), Karnasrava (Otorrhoea), Netraroga (Diseases of the eye) and Sukraksaya (Oligospermia) was prepared.

Grahya Varatika – Salient features of Acceptable variety:

Based on colour -The Varatika which is having yellowish tinge and has nodules on the back and oval in shape is praised as varatika³. Based on weight is saardhanishka bhara variety of varatika is good for medicinal. This varatika is often recommended in the preparation of varatika bhasma.

METHOD AND MATERIAL

Varatika (Cowrie shells) were procured from Rawdrug from local Market. The drug was purified as per the methods mentioned in Standard Ayurvedic texts. Collected the Kulamasha, Dhanya, Kulatha, Mulika, Jeeraka, Shunthi, Mudga, Haridra, Sarsapa, and mand all these drugs are collected in a big vessel and kept for 10day for fermentation than collected kanji for purification of varatika by swedan in dolayantra for one yama kala. Fresh Aloe vera was collected and its juice was used for making cakrikas or pellets to be used in the incineration process of Varatika. Chemical analysis was carried out employing modern XRD and NPST.

Ingredients of Varatika Bhasma:

1. Raw Varatika
2. Kanji (for Purification)

3. Kumari svarasa (Aloe vera juice for grinding during incineration)

Dosage: 250 mg⁴

Anupana (Vehicle)

Vasa swarasa (Adhatoda vasica juice),
Nimbu svarasa (lemon juice),
trikatu kashaya (decoction prepared with equal quantity of Piper longum, Piper nigrum and Zingiber officinale).

Pharmacological Properties⁵

Rasa (Taste) – Katu (Pungent)

Guna (Property) – Ushna (Hot)

Virya (Potency) – Ushna (Hot)

Vipaka (Post digestive effect) – Katu (Pungent)

Karma (Action) – Agnidipana (increases appetite), Pachana (improves digestion),

Preparation of Varatika Bhasma

Sodhana [Method of purification]

Varatika is subjected to Swedana in Dola yantra with Kanji for 1 yama kala (3 hours) 6. The observations made during sodhana process are given in Table no – 1. Dola yantra⁷ is an earthen vessel which has two holes at the opposite sides of its edge and filled with prescribed liquid. It has a rod inserted through these holes across the mouth of the vessel. The mineral substance undergoing the process of svedana, were tied in to pottali (bundle) and suspended with the help of a thread in to the liquid, so that it is completely immersed. The other end of the thread was tied to the rod. The pot is then kept on the stove and heated. This instrument is called Dola yantra. Here the liquid used was Kanj



During shodhana



After shodhana

Table no- 01: Observations made during Sodhana process with Kanji

Sample	Colour	Weight
Raw Drug	Yellowish white	500gm
Purified	Grayish	457 gm

METHOD OF MARANA – INCINERATION

The Kanji⁸ treated Varatika was directly placed in sarava samputa after bhavana with kumari swarasa 400ml for 4 hours (earthen plate), sealed with another earthen plate and dried. After drying it was subjected to Gajaputa and the sarava samputa was collected after cooling. Gajaputa⁹ means a pit which measures one Rajahastha (about 30'') in length, width and depth was made and cow dung cakes are filled up to brim of this pit. Then properly sealed sarava samputa containing mineral drugs was placed upon the heap of

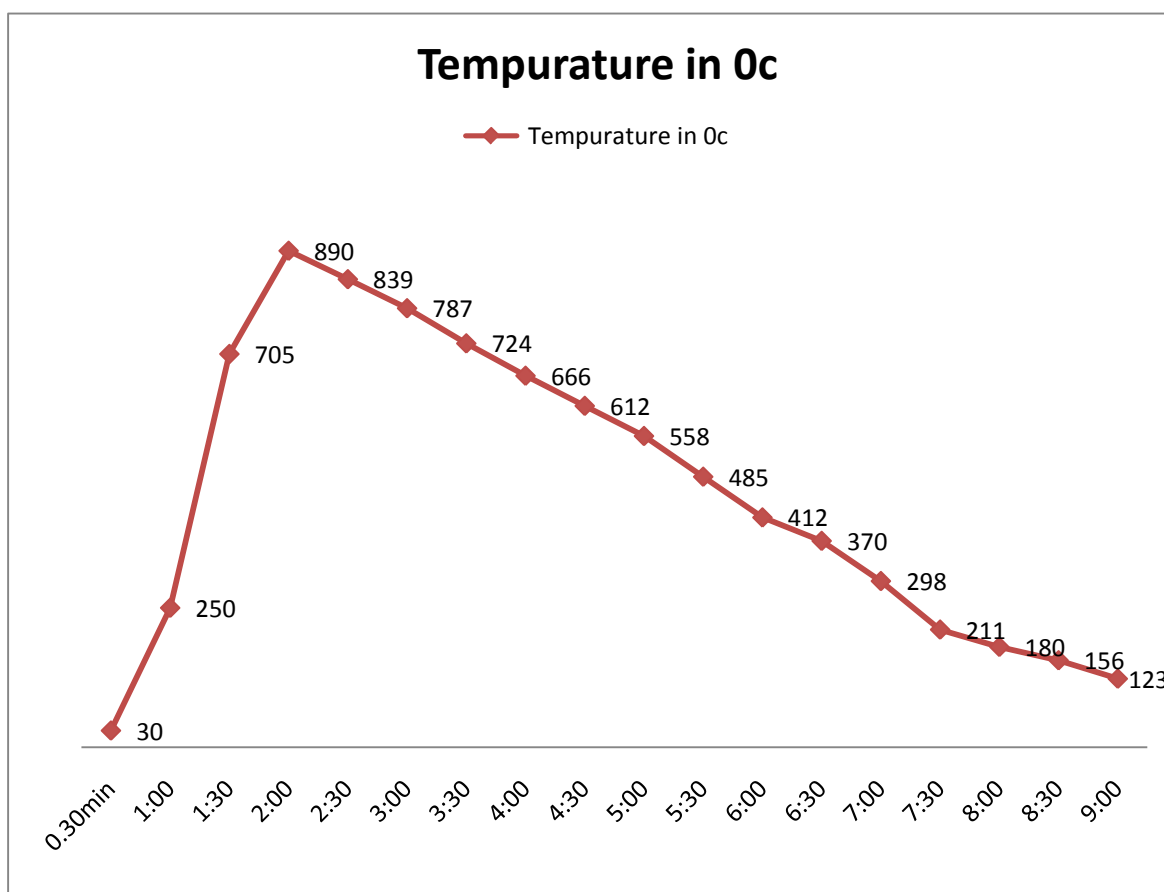
the cow dung cakes and half the number of cow dung cakes were spread upon the sarava samputa and the fire was lit. The Varatika which became brittle were collected and powdered. The powdered Varatika is given bhavana (trituration) with 400 ml of kumari swarasa (Aloe vera juice) for 4 hours. Then Cakrikas (pellets) were prepared and dried. After drying these pellets were subjected to second puta. The process was repeated for three times. Third time, 400 ml of Kumari swarasa was used and it was ground for 4 hours. After cooling white coloured Varatika Bhasma was obtained¹⁰. Here

bhavana refers to the process of grinding the mineral drugs in the liquids like juices or decoction of herbs, cow’s milk, urines or any such specified liquids. The quantity of liquid should be sufficient to immerse the mineral powder. The grinding was

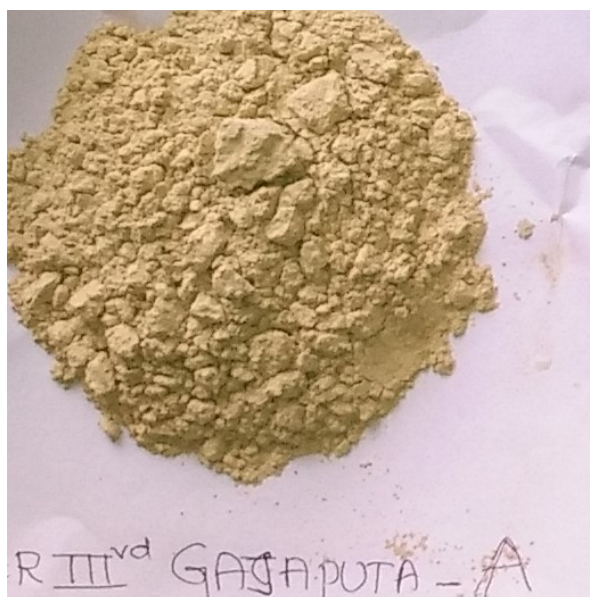
continued, until liquid added dried up and semisolid consistency was achieved. This makes on bhavana and the same process was repeated for three times. Observations made during Marana (incineration) process are shown in Table No – 02

Table No-02: Observations made during Marana

No.of puta	kumariswarasa	Grinding hrs	Weight before puta	Weight after puta
First	400ml	4hrs	470gram	464gram
second	400ml	4hrs	460gram	455gram
Third	400ml	4hrs	450gram	442gram



Temperature records



Final Varatika bhasma

Table no-03: Parameter tests of Bhasma

SL. No	Parameter	Varatika bhasma
01.	ph	9.48
02.	Loss on drying	3.5%
03.	Specific gravity	3.5
04.	Ash value	11.5%
05.	Water soluble extractive	12%
06.	Alcohol soluble extractive	16%

Table no -04: Classical bhasma pariksha

SL. No	Parameters	Varatika bhasma
01.	Rekhapurnatwa	+ve
02.	Varitara	+ve
03.	Sukshmatwa	+ve
04.	Niswadwata	+ve

X-ray Diffraction (varatika bhasma)

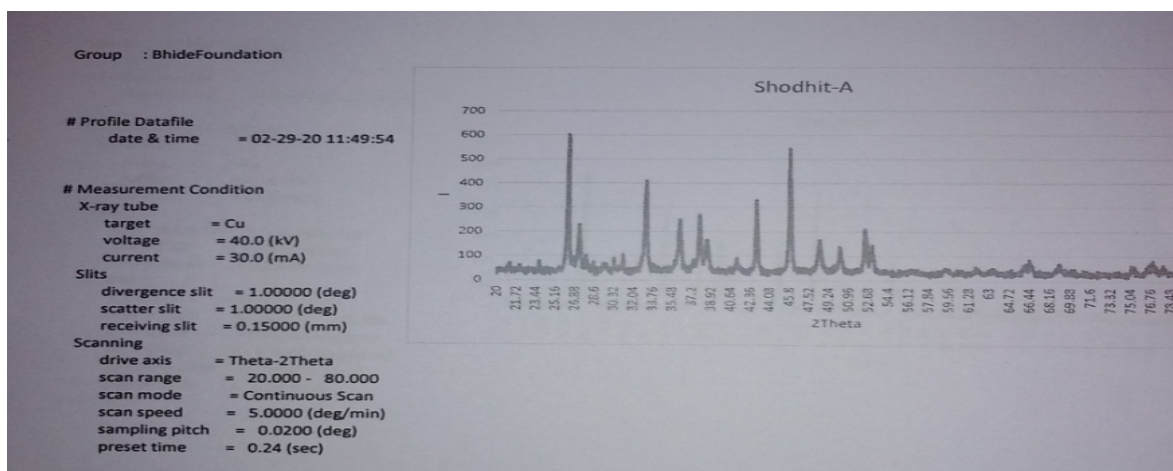


Table no: 05 showing NPST tests report:-

Stages	Varatika bhasma
Heat treatment	
1.Liberation of fumes	Nil
2.odour	Charred
3.Change of colour	Cream
Wet treatment	
1.Exothermic/Endothermic	Exothermic
2.colour of solution	Cream
3.Adsorption	Normal
4.Setting time	5 Min
NPST Observation	Dull pink periphery with deep pink central spots
1 Phase (0-5 min)	Dull pink periphery with deep pink central spots
2 phase (5-20 min)	Dull pink periphery with deep pink central spots
3 Phase (20-1 day)	Dull pink periphery with deep pink central spots

DISCUSSION

Varatika, a mineral drug of animal origin is used in Ayurvedic therapeutics in many diseases. Varatika is included in

compound preparations also such as Grahanikapatarasa, Pravalapamritarasa, Lokanatharasa etc. Varatika is the key ingredient in drugs prescribed in

gastrointestinal symptoms. In the present work on physico-chemical analysis of saardh nishka bhara variety of varatika bhasma was made and studied scientifically the significance of purification and incineration processes involved in the preparation of this herbomineral formulation. Standards were also determined for this preparation as per Indian Pharmacopeia. Preparation was analyzed using sophisticated instruments like NPST and XRD.

NPST (Namboori Phase Spot Test)

NPST carried out for saardhnishka variety of varatika bhasma respectively. The test is chemical reaction-based, with specific results for bhasmas, we can differentiate between bhasmas clearly. This technique is very helpful for quality assessment of Bhasma as per the standards of Rasashastra. In other words, bhasmas can be identified by their name given in Rasashastra by virtue of their quality differences, but not chemically. It is such a simple test that it can be carried out with minimum set up and requirements. NPST is a direct method by which we can differentiate easily by the pattern formed over the watta man filter paper. In this Varatika Bhasma shows similar pattern on watta man paper. By this we can say that there is no any difference in three phases.

XRD (X-Ray Diffraction) Method:

The X-ray diffraction pattern is of mixed phase, it indicates Calcium carbonate was converted into Calcium oxide. Also it indicates the majority presence of calcium oxide, and also shows the minute presence of Magnesium and Potassium oxide, it is due to Marana process. Also the sharp peak indicate the substance is well crystalline in nature, but the peak intensity is varied. By this we can say the influence of puta is very important to change form of a substance. The peak correspond to 2 theta which can be seen in the XRD pattern,

CONCLUSION

Present study is undertaken to prove scientifically the significance of purifying processes of this Herbo Mineral Formulation VARATIKA BHASMA. Following conclusions were arrived at:

1. Purifying plant agents helps in the formation of co-ordination complex. Nature of co-ordination complex formed can be determined only after carrying out some more chemical analysis,
2. XRD pattern confirmed the formation of more crystalline compound which is

again due to the impact of various purification and incineration processes.

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