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HERBO-METALLIC FORMULATION IN RASASHASTRA, W.S.R. TO PREPARATION AND STANDARDIZATION OF BHASMA; A REVIEW

Dr. Shailendra K. Pund*[1], Dr. Tushar Kakar[2] and Dr. Ganesh Belorkar[3]

[1]Associate Professor, Ras Shastra and BK Department, Dr VJD Gramin Ayurved Mahavidyalaya, Patur, Maharashtra, India.
[2]Assistant Professor, Rasa Shastra and BK Department, Dr VJD Gramin Ayurved Mahavidyalaya, Patur, Maharashtra, India.
[3]Assistant Professor, Shalya Tantra Vibhag, Dr VJD Gramin Ayurved Mahavidyalaya, Patur, Maharashtra, India.

***Corresponding Author: Dr. Shailendra K. Pund**
Associate Professor, Ras Shastra and BK Department, Dr VJD Gramin Ayurved Mahavidyalaya, Patur, Maharashtra, India.

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ABSTRACT
Ayurveda the science of longevity and healing described different modalities for the management of optimum health status and Rasashastra is one of such modality of Ayurveda. Rasashastra described use of various herbs and herbo-metallic formulation for enormous health benefits including rejuvenation, longevity, intellect, memory, strength, immunity and sexual strength, etc. Bhasma is one of the common herbo-metallic formulation comes under category of Rasa drugs and described as nanomedicine in modern formulary. The efficacy of such types of Rasa drugs depends upon their methods of preparation therefore appropriate formulary approaches should be adopted to prepare herbo-metallic formulation (Bhasma). The characterization of such formulation also prerequisite in modern scenario of quality concern thus characterization of such formulation must be done to establish their quality and inherent properties. Present article deals with various aspects related to Rasashastra w.s.r. to Bhasma.

KEYWORDS: Ayurveda, Rasashastra, Bhasma and Herbo-Metallic.

INTRODUCTION

Rasashastra is one of the unique therapeutic approaches of Ayurveda which involves use of different drugs for the management of various diseases, *Bhasma* is one such formulation described in different classical texts of Ayurveda. The modern formulary described *Bhasma* as a nanomedicine which not only helps in acute condition but also imparts health benefits in chronic conditions. *Bhasma* generally prepared by incorporating herbs with nano-sized metal converted from non compatible to compatible forms. *Bhasma* possess specific properties such as; efficacy against many health ailments, long shelf life, smaller dose and palatability. The processed involves in the preparation of *Bhasma* coverts toxic metals to non-toxic compatible forms. The reduction in particle size of metals/minerals in *Bhasma* imparts good pharmacokinetic profile therefore achieve therapeutic response in low dosing. Some common examples of *Bhasmas* used for various therapeutic purposes depicted in **Figure 1**.

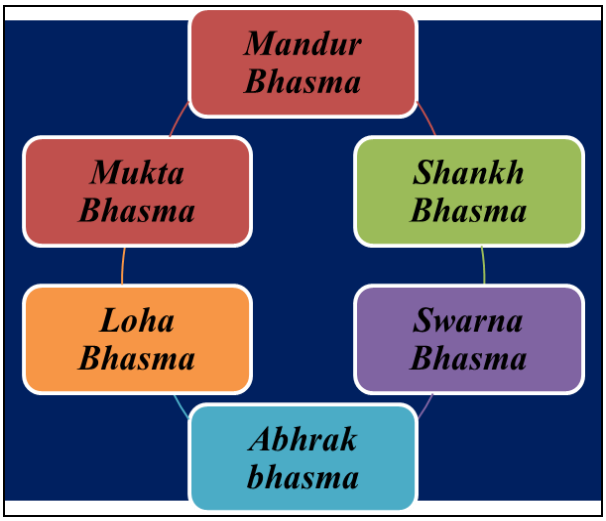

Figure 1: Some common *Bhasmas* used in Ayurveda science.

The method of preparation of *Bhasma* and their characterization to establish characteristics integrity is important considerations must be taken care while preparing and dispensing such types of formulation for health benefits. It is believed that inappropriate conduct

of preparatory method or avoidance of analytical approaches can leads formation of improper *Bhasma* and if prescribed to the patients then severe harmful effects may occurs. Considering these all aspects here we are presenting some specific methods to prepare *Bhasma* and their characterization along with medicinal importance.

Methods involves in preparation of *Bhasma*

- ***Shodhan***

The *Shodhan* procedure helps to remove toxic effects of metals/minerals, in this procedure metals/minerals is subjected with various material such as; *Tila Taila*, *Takra*, *Go-mutra* and *Kulattha*. The compatible, non toxic and purify metals/minerals further processed in steps of *Bhasma* formulation.

- ***Bhavana***

Bhavana helps to reduces sizes of metal and mineral, forms finer particles and change them into organo-metallic compounds. The metals/minerals after purification subjected to size reduction and treated with plant extracts.

- ***Marana***

Marana involves making of paste of metals and minerals with various drugs and juices. This step changes chemical form and state of metals/minerals thus metallic characteristics suppressed down.

- ***Jarana***

In this procedure metals are melted and mixed with plant materials and rubbed with an iron scoop to form powdered product.

- ***Putaka Method***

Metals/minerals are treated with plant extract to forms thick mass, pellets prepared in subsequent steps processed in crucibles sealed by mud smeared clothes. Heat is applied for a specific time period using heating furnace, this is known as *Putapaka*. After a particular time period heated material is cooled down and same process was repeated many times to obtain compatible incinerated forms of metals/minerals preparation.

- ***Kupipakwa Method***

Kupipakwa method utilizes for metals likes; gold and silver, etc. purified metals treated with mercury then triturated till black mass is prepared. This *Kajjali* preparation filled in a glass bottle (*Kachkupi*) covered by mud layers then subjected to sand bath (*Valukayantra*) for homogeneous heating to a certain period of time. After sometimes bottle is broken and product collected from bottom of bottle.

As per modern science the major methods of preparation of Bhasma are as follows

- Washing, cleaning and purification
- Grinding to fine powders
- Mixing with herbal juices or plant extracts
- Making paste and small pieces
- Drying of small pieces
- Subjected in earthen pots/ heated to high temperature to make ash/*Bhasma*.

Characteristics of *Bhasma* as per Ayurveda

- ***Niswadu***

Bhasma should not possess metallic taste means it should be tasteless.

- ***Nishchandratvam***

Bhasma must be *Nischandra* free from luster since incineration process supposes to remove lustiness of metal.

- ***Varitara***

Bhasma should be light and fine enough means possess floating character on stagnant water surface.

- ***Anjana Sannibha***

Bhasma should not produce any irritation and must be free from roughness.

- ***Nirdhuma***

It should not cause fumes over when sprinkled on the ignited charcoal means it should yields *Dhuma.*

Standardization of *Bhasma* as per modern science

- ***Total Ash***

Formulation incinerated at a temperature of 450 ºC crucible to check total ash value.

- ***Acid Insoluble Ash***

Total ash boiled with dilute HCl and insoluble matter collected, ignited and weighed to check total acid insoluble ash.

- ***Loss on Drying***

Samples in china dish placed in hot air oven and weight loss due to the removal of water and volatile ingredients is measured as loss on drying.

- **pH determination**

Aqueous solution of *Bhasma* prepared and pH is measured at room temperature using pH meter, particular *Bhasma* should possess their specific pH within range.

Uses of *Bhasma*

- Osteoarthritis, auto-immune diseases and anemia, etc
- Infertility, erectile dysfunction and other sexual problems
- Chronic gastritis and ulcerative colitis
- Skin diseases, psoriasis and eczema
- Depression, stress and bipolar disorder
- Diabetes, obesity and metabolic disorders

CONCLUSION

Ayurveda formulation *Bhasmas* comes under category of *Rasa Dravyas* and provides beneficial effects in various pathological conditions. *Bhasmas* exerted their effects in

low dose and having good stability. The purification and repeated incinerations are common steps involved in the preparation of *Bhasmas*. The manufacturing process helps to reduces sizes of metals/minerals therefore increases solubility and bioavailability of *Bhasmas*. It is believed that reduction in particle sizes imparts greater therapeutic potency in *Bhasmas*. Appropriate conduction of formulary methods helps to prepare *Bhasmas* with prerequisite properties however standardization is also recommended to establish authenticity of drugs. Improper method of preparation and avoidance of analysis of characteristics features of *Bhasmas* can leads inappropriate formulation which is harmful to body. Therefore it is recommended to follow correct method of preparation and standardization for preparing herbo-metallic formulations like; *Bhasmas.*

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