ISSN: 2322 - 0902 (P)
ISSN: 2322 - 0910 (O)

International Journal of Ayurveda and Pharma Research

Research Article

PHARMACEUTICAL STUDY OF *KASISA BHASMA*

Amit Kumar Sharma[1]*, Reetesh Ramnani[2], Mukesh Chaudhari[3], Amit Mishra[4], Sanjay Kumar[5]

*[1]Assistant Professor, Baba Hira Das Ji Ayurvedic Medical College & Hospital, Badal, Punjab, India.

[2]Assistant Professor, Shiv Shakti Ayurvedic Medical College & Hospital, Bhikhi, Punjab, India.

[3]Ph.D Scholar, [5]Associate Professor, P.G. Department of Rasashastra & Bhaishajya Kalpana, NIA, Jaipur, India.

[4]Assistant Professor, Vijayshree Ayurvedic Medical College & Hospital, Jabalpur (M.P.), India.

ABSTRACT

Ayurveda is the science of life and longevity. Its main objective is to maintain the normal health of individuals and secondary is the cure of diseases. For maintaining health it advocates the wholesome diet and proper daily routine. If any disturbance occurs in health condition of individual it then advocates the medicines for cure. The medicines are of herbal, mineral and herbo-mineral in origin. *Bhasmas* are unique Ayurvedic preparations of metals/minerals formulated with herbal extracts or juices and used for the treatment of a variety of ailments. *Bhasma* is prepared by incinerating the metals and minerals. For incineration classical and modern methods are used. The Classical Method of *Bhasma* preparation is *Puta* and modern method is Electric Muffle Furnace. The herbal juices are used for levigation of powders of metals and minerals. Owing to their micro/ nano fineness, ease of administration and comparatively small dose, they have been known for their wide area of application and therapeutic value. *Kasisa* is mineral of Iron. It is placed under *Uprasa* in *Rasashastra*. Its *Bhasma* is widely used in different ailments. It is used in the treatment of *Agnimandya, Arsha, Kashtartava, Gudabhramsha, Pandu, Shotha, Rajorodha, Yonivyapada.* In the present study *Kasisa bhasma* was prepared as per the reference of *Rasamruta* and analysed using classical parameters.

KEYWORDS: *Bhasma, Kasisa, Shodhana,* Pharmaceutical Standardization.

INTRODUCTION

Since centuries the use of metals and minerals in therapeutics has been in practice in Ayurveda. Ayurvedic system of medicine is the only one out of all traditional system of medicine where importance of metals for curing ailments was probably first recognized[1]. However their use has been flourished only after the development of *Rasashastra* (Iatrochemistry). Although the roots of this science exist in the ancient texts of Indian civilization, its development as an independent system of therapy started around the 8th century A.D.

Bhasmas are prepared from purified minerals, metals and marine and animal products[2]. Properly incinerated metals may be absorbed and assimilated by body easily. Their proper uses eradicate all types of chronic ailments and their prolonged uses in proper dose provide strength and immunity to body.

Ayurvedic classical literature has documented several texts which make sure the suitable transformation of essential metal into bio-absorbable calcined (*Bhasma*) form[3]. *Bhasmas* are generally used in the healing of diseases because they have vast therapeutic value due to its easily assimilated, micro fineness, small dose and also free from disagreeable test. The preparation of *Bhasma* is a long process including purification of the drug, levigation with different herbal juices, and formation of pellet along with incineration (*Puta*)[4]. *Kasisa Bhasma* is an iron containing mineral used in the treatment of *Agnimandya, Arsha, Kashtartava, Gudabhramsha, Pandu, Pleeha roga, Hikka, Vrana, Visarpa, Switra, Netra roga, Shotha, Rajorodha, Yonivyapada*[5]. The crude form of *Kasisa* contains iron along with various other metals and minerals which if taken without purification may produce various toxic effects within the body like palpitation, insomnia, burning sensation etc.[6] So *Kasisa Bhasma* was used as a medicine for treatment of various diseases after proper *Shodhana* (purification) and *Marana* (incineration) process.

AIMS AND OBJECTIVES

The present study has been carried out designed with following aims and objectives.

- To develop Sstandard manufacturing procedure (SMP) of *Kasisa Bhasma.*
- To analyze sample of *Kasisa Bhasma* as per classical parameters.

MATERIALS AND METHODS

The Pharmaceutical and analytical study was conducted in departmental laboratory, Department of Rasashastra & Bhaishajya Kalpana, National Institute of Ayurveda, Jaipur, Rajasthan.

Pharmaceutical Study

All raw materials were procured from Pharmacy of National Institute of Ayurveda, Jaipur.

Preparation of *Kasisa bhasma* involved the following steps:

- *Shodhana* of *Kasisa*
- *Marana* of *Kasisa*

Kasisa Shodhana

Shodhana of *Kasisa* was done as per *Rasamruta*[7]. At first, *Bhringraj Swarasa* was prepared for *Kasisa Shodhan* as per *Sharangdhar Samhita*[8]. To extract fresh *Swarasa* in required quantity from *Bhringraj* was very difficult, So *Swarasa* was prepared by *Swarasaabhava* method illustrated by *Acharaya Sharangadhara*. *Swarasa* was prepared by adding 8 times of water in raw drug and reduced to 1/4th of its volume by heating.

Accurately weighed 600gm *Ashuddha Kasisa* was taken in *Khalva Yantra* and prepared fine powder. For the first *Bhavana* 400ml of *Bhringaraja Swarasa* was added into mortar. The mixture was subjected for trituration for three hours. After trituration it was left properly in *Khalva Yantra* to dry. Again the same process was repeated two times for 2nd and 3rd *Bhavana*. Every time fresh *Bhringaraja Swarasa* was used. *Ashuddha Kasisa* was green in colour, lusterous, crystalline in nature. After powdering, *Kasisa* became lusterless and pale green. When *Bhringaraja Swarasa* was added to *Kasisa, Kasisa* became liquid and after *Shodhana Kasisa* was found pale green in colour.

Kasisa Marana

Marana of *Kasisa* was done as per *Rasamruta*[9]*.* 846gm of *Shuddha Kasisa* was weighed and measured amount of *Nimbu swarasa* were put together in a *Khalwa* and triturated for 3 h. When the whole mass attained a paste like consistency, small amount of this doughy mass was transferred to a plastic sheet and spread using a spatula in to the shape of round, flat pellet. In this way the whole mass was transferred to the plastic sheet and pellets were made. Prepared pellets were kept on plastic sheet for drying. All the dried pellets were weighed properly. Two earthen *Sharava* were taken and rubbed over the floor to make their brim surfaces even, and then all the dried pellets were arranged in one *Sharava* and another *Sharava* was kept over it. *Sandhi bandhana* was done with the help of mud smeared cloth and dried. The *Sharava Samputa* was subjected for *Puta* in an Electric muffle furnace. The temperature was allowed to rise up to 750˚C and then it was maintained for 120 minutes. Thereafter the furnace was switched off and allowed for self-cooling. On the next day, when temperature of furnace came down below 50˚C pellets were collected and weighed. The same procedure was repeated 6 times until *Bhasma* passed the classical tests for *Bhasma*.

Analytical Study: All the classical parameters were carried out at Drug testing laboratory, Department of Rasashastra & Bhaishajya Kalpana, NIA, Jaipur.

Classical Parameters of *Bhasma*: Ancient scholars of *Rasa Shastra* have mentioned the various classical parameters for standard and quality production of *Bhasmas*. They have also mentioned the details procedures to analyze these parameters. All these parameters are dealt with different standpoint to test the perfectness of following parameters for *Bhasma Pariksha* are mentioned.

a. ***Rekhapoornata*:** This is the test to find out the fineness of the prepared *Bhasma*. A pinch of *Bhasma* when taken and rubbed in between index finger and thumb, the *Bhasma* should enter the papillary ridges of the fingers.
b. ***Varitara*:** This test indicative of relative density of the *Bhasma* prepared in comparison to water. Some will consider it as relative density while some others will equate with the property of wet ability of *Bhasma*. As per the procedure, water was taken in clean glass beakers and allowed to make free from water currents. Then very small amount of *Bhasma* was sprinkled from a short distance on the surface of current free water in beaker and behaviour of *Bhasma* was observed.
c. ***Unama*:** This test is an extension of *Varitrara* in which a grain of rice kept carefully over the floating *Bhasma*. In spite of the weight applied over the surface the *Bhasma* should not sink to the bottom and continued to float.
d. ***Apunarbhava*:** This test is also very reliable test to ensure that the metal is properly converted into *Bhasma* or not. To conduct this test, *Guda* (Jaggery), *Gunja* (*Abrus Precatorius*), *Tankana*, *Madhu* (Honey), *Ajya* (Ghee) and *Bhasma* were taken in equal amount and triturated till it became a homogenous paste, then *Chakrika* were prepared from this and subjected for heating in Electric muffle furnace. Same pattern of heating was given as Marana process. On next day it was taken out and triturated. If *Bhasma* does not convert into metal that means the *Bhasma* is properly prepared.

RESULT

After *Shodhan*, the weight of *Kasisa* was 846gm *Kasisa* gained 246 weight due to its *Bhavana.*

Table 1: Showing observation during *Bhavana* process in *Bhringaraja Swarasa*

Bhavana	**Initial weight of *Kasisa***	**Amount of *Bhavana dravya***	**Duration of *Bhavana***	**Weight of *Kasisa* after *Bhavana***
1	600 g	400ml	3 h	736 g
2	736 g	220ml	3 h	804 g
3	804 g	180ml	3 h	846g

After *Marana*, *Kasisa Bhasma* was obtained 290.5 gm, loss of weight of *Kasisa Bhasma* was 555.5 gm (65.66%).

Figure 1: Showing Temperature and Time relationship

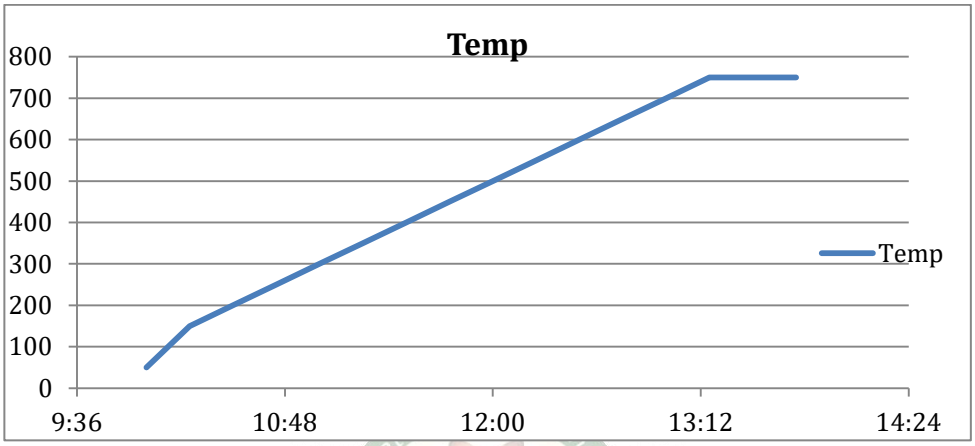

Figure 2: Showing Temperature and No. of Puta relationship

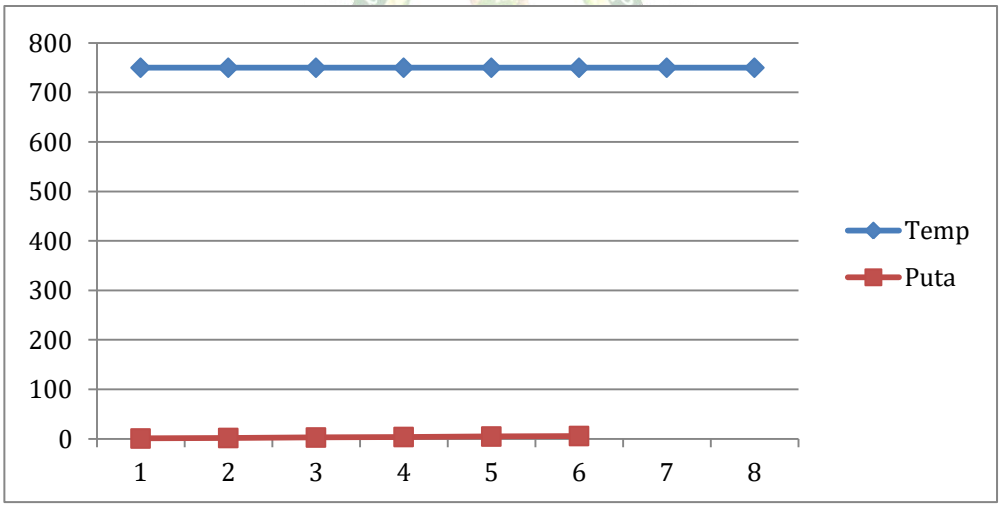

Table 2: Showing various observations during the preparation of *Kasisa bhasma*

No of *Puta*	**Initial weight of *Kasisa***	**Amount of *Bhavana Dravya***	**Weight of *Chakrika***		**Temperature of *Puta***	**Colour of *Chakrika***	**Consistency**
			Before *Puta*	**After *Puta***			
1	846 g	360ml	1024g	308.6g	750ºc	Blackish red	Hard
2	308.6g	270ml	356.6g	286.2g	750ºc	Blackish red	Hard
3	286.2g	220ml	337g	282g	750ºc	Blackish red	Hard
4	282g	214ml	335g	298g	750ºc	Blackish red	Soft
5	298g	210ml	321g	299g	750ºc	Red	Soft
6	299g	208ml	321.2g	290.5g	750ºc	Red	Soft

Pharmaceutical Procedures of *Kasisa Bhasma*

Images of *Kasisa Bhasma* Preparation

Organoleptic Characters

Table 3: Showing the Organoleptic parameters of *Kasisa Bhasma*

Sr. no.	Tests	*Kasisa Bhasma*
1.	Appearance	Fine powder
2.	Colour	Brick Red
3.	Odour	Odourless
4.	Taste	Tasteless

DISCUSSION

Sodhana of *Kasisa* was done according to *Rasamrita,* three *Bhavana* of *Bhringaraja Swarasa* were given to *Kasisa.* In this process, it was observed that 246gm gain occurred in *Bhavana* method. It may also be due to evaporation of water content from the *Kasisa*, when it was subjected to sunlight for drying.

Marana of *Kasisa* was done according to the reference of *Rasamrita* where *Nimbu swarasa* was used as the *Bhavana dravya*. For 846gm of *Shudha kasisa* 360ml of *Nimbu swarasa* was needed. The quantity of *Bhavana dravya* was added which was sufficient enough for giving *Bhavana* as mentioned in the table no. 2. The *Puta* was given in electric muffle furnace, which was set at temperature 750˚C. After the first *Puta* colour of *Bhasma* was blackish red, which turned to red after 6 *Puta*. Final *Bhasma* was soft in consistency and passed the classical *Bhasma pariksha.*

Pharmaceutical procedures carried out in the preparation of *Bhasma* are unique to the Ayurvedic system. *Acharyas* have taken due care in making the final product effective and safe, free from toxicity. They also have devised methods for assessing the qualities of the final *Bhasma*. Though these are time tested, but in the present era more stringent methods are needed to ensure their safety and efficacy for a wider acceptance.

In concern with organoleptic tests of the *Bhasma*, it was tested for *Shabda, Sparsha, Rupa, Rasa* and *Gandha Pariksha*. The *Bhasma* appeared smooth powder, lusterless, dull yellow, and produced no perceptible sound during chewing.

The *Kasisa Bhasma* passed classical parameters viz. *Varitaratva, Rekhapurnatva*, *Unama* and *Apunarbhava*. The *Bhasma* float on the stagnant water surface even when grain of rice is loaded (*Varitara* and *Unama*). Sound and touch indicate smoothness, softness and fineness of the *Bhasma*. Specific colour and tastelessness indicate formation of particular metallic compound. No luster implies absence of free metal in the *Bhasma*. *Varitara* and *Unama* indicate light weight and micro fineness. *Bhasma* did not come into metallic form after *Apunarbhava Pariksha*, which also indicates that the *Bhasma* was prepared properly.

Kasisa Bhasma was preserved in air tight glass to maintain their potency indefinitely. *Kasisa Bhasma* have no characteristic taste[10].

CONCLUSION

In the present study *Kasisa bhasma* was prepared as per the reference of *Rasamruta*. It took 6 *Putas* in Electrical muffle furnace at a maximum temperature of 750°C for the preparation of brick red coloured *Kasisa bhasma*. The *Bhasma* was found very fine and passed all the classical *Bhasma pariksha* which showed that proper use of SMP is necessary for preparation of quality *Bhasma*.

Funding Support- This article is of thesis study and funding for this thesis is done by National Institute of Ayurveda, Jaipur.

REFERENCES

1. Sarkar Prashant Kumar, Ancient concept of metal pharmacology based on Ayurvedic literature, Ancient science of life, vol. 29, Nov 2010, Pages 1-6.
2. Ayurvedic Formulary of India, Part- I, Part A, Formulation, Edition-2nd, Government of India, Ministry of Health And Family Welfare, Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha And Homoeopathy, New Delhi, 2003, Page no. 587.
3. Vajapeyi Rameshwar Dayal, *Rasendra Chudamani*, Edition 2004, Varanasi, Choukhamba Krishnadas Academy, Vol. l, Page no. 333.
4. B Santhosh, Analytical Study of *Yashada Bhasma* with Ayurvedic and Modern Parameters, International Ayurvedic Medical Journal, Vol. 1, Issue 2, Mar-Apr 2013, Pages 1-7
5. Ayurvedic Formulary Of India, Part- I, Part A, Formulation, Edition-2nd, Government Of India, Ministry of Health And Family Welfare, Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha And Homoeopathy, New Delhi, 2003, Page no. 601.
6. Vagbhatacharya, '*Rasa-Ratna-Samuchchaya*', with Hindi commentary by prof. D. A. Kulkarni, Vol. 1, New Delhi-2: Meharchand Lachhamandas Publications; Preprint, 1998. Adhyaya 3/52-55, p. 70.
7. TrikamJi YadavJi, *Rasamruta*, Edited by Devnath Singh Gautam, Edition 2018, Chaukambha Surbharti Prakashan, Varanasi, Verse -3/158, Page no. 63
8. Tripathi Brahmanand, *Sharandhar Samhita*, Hindi Commentary *Deepika* Edition 2016, Chaukambha Surbharti Prakashan, Varanasi, Verse- Madhayam Khand 1/4., Page no. 85,
9. TrikamJi YadavJi, *Rasamruta*, Edited by Devnath Singh Gautam, Edition 2018, Chaukambha Surbharti Prakashan, Varanasi, Verse -3/160, Page no. 63.
10. Ayurvedic Formulary Of India, Part- I, Part A, Formulation, Edition-2nd, Government Of India, Ministry of Health and Family Welfare, Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha And Homoeopathy, New Delhi, 2003, Page no. 588.

Cite this article as:
Amit Kumar Sharma, Reetesh Ramnani, Mukesh Chaudhari, Amit Mishra, Sanjay Kumar. Pharmaceutical Study of Kasisa Bhasma. International Journal of Ayurveda and Pharma Research. 2021;9(6):24-28.
Source of support: Nil, Conflict of interest: None Declared

***Address for correspondence**
Dr. Amit Kumar Sharma
Assistant Professor,
Baba Hira Das Ji Ayurvedic Medical College & Hospital,
Badal, Punjab.
Email:
dramitsharma2008@gmail.com