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Review Article

A CLASSICAL REVIEW ON PHARMACEUTICAL AND ANALYTICAL STUDY OF *ABHRAK BHASMA*

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ABSTRACT

Abhrak bhasma is an important traditional preparation which possesses higher therapeutic value and is widely prescribed for skin disorders, respiratory ailments and other chronic conditions. In order to ensure the quality of *Abhrak Bhasma*, needs a critical study of its pharmaceutical aspects such as quality of raw *Abhraka, Shodhan* process*, Dhanyabhrak Nirman* and *Maran* of *Abhraka* as well as *Abhrak Bhasma* tested on the basis of organoleptic characteristics and classical *Bhasma pariksha*. Hence the present study reviewed classical literature on pharmaceutical aspects of *Abhrak Bhasma.* **Aim and Objectives:** To review classical literature on Pharmaceutical study of *Abhrak Bhasma* with the objective to evaluate pharmaceutical aspects of *Abhrak Bhasma* critically on various factors such as *Shodhana* process, *Marana* process, temperature pattern, no. of *Putas* etc. **Methods and Materials:** All the classical literature in *Rasagrantha, Samgraha Grantha,* textbooks of Ayurveda and *Rasashastra* regarding pharmaceutical and analytical processing of *Abhrak Bhasma*. **Observation and Result:** The classical literature revealed that the pharmaceutical studies of *Abhrak Bhasma* like *Shodhana, Dhanyabhraka,* and *Marana* were done with specific guidelines in order to obtain the quality of *Bhasma*. Most of the literature followed *Triphala Kwatha* as a *Shodhana* media and *Kanji* for *Dhanyabhraka* process. The range of *Puta Pramana* observed was from 3 to 100 to ensure the quality of *Bhasma*. *Abhrak Bhasma* tested on the basis of organoleptic characteristics and classical *Bhasma pariksha* specifically *Nishchandratwa pariksha*. **Conclusion:** In this review, it is concluded that the classical guidelines regarding *Abhraka Shodhana, Dhanyabhraka,* and *Marana* were stated which set some important features in terms of temperature pattern, number of *Puta* etc. Repeated practical studies on *Abhrak Bhasma* will help to establish standard operating procedure of it as well as fix its analytical parameters.

INTRODUCTION

Ayurveda is the divine knowledge in which the holistic ancient Indian system of medicines is recited. Ayurvedic medicines are prepared from plants, animals and metals/minerals origin. *Rasashastra* is a branch of Ayurveda in which detailed knowledge of metals and minerals have been explained. However, due to requirement of higher dosage, non-palatability and less shelf-life, the herbal medicines have their limitations. To overcome this, *Bhasmas* are the best alternatives as they can be prepared from the natural minerals and metals along with herbs by the process of *Bhasmikarana* in which toxic compounds are converted into nontoxic and bio-acceptable form Moreover, they can be easily acceptable, palatable, fast acting and effective in small dosages and have long shelf life without losing their potency.[1] *Abhrak* (mica) *Bhasma* is an excellent cellular regenerator and nervine tonic. It is indicated in various chronic diseases such as tuberculosis, COPD and many types of cardiac diseases[2]. All classical literature on pharmaceutical study of *Abhrak Bhasma* and involves the procedures *Vajrabhrak Shodhan* (purification)*, Dhanyabhrak Nirman* and *Maran* of *Abhrak bhasma*. *Abhrak Bhasma* tested on the basis of organoleptic characteristics and classical *Bhasma pariksha*.

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AIM AND OBJECTIVE

To review the classical literature on pharmaceutical and analytical study on *Abhrak Bhasma*. Also to evaluate the pharmaceutical aspects of

Abhrak Bhasma on various factors such as *Shodhana* process, *Marana* process, temperature pattern, no. of *Putas* etc.

MATERIAL AND METHOD

Original classical literature of Ayurveda and *Rasashastra* were reviewed. Various *Sangraha Grantha* (Reference books) have also been appraised for this study.

Pharmaceutical findings of *Abhraka bhasma* observed during survey on classical literature.

Method of *Abhraka Shodhana*

Table 1: Showing various methods of *Abhraka Shodhana*

Process	Frequency	References
Nirvapa [3]	7	R.Chu, R.P.S, RRS, Ay. Pr, R.Chi, R.T, R.R. Su., R.S.S.
Nirvapa [4]	8	RRS
Nirvapa [5]	1	S.S.
Swedana [6]	3 & 2 days	Rasarnava
Swedana [7]	1 day	R.P.S.
Bhavana [8]	8 *Yama* (24 hours)	S.S.
Peshna/Mardana [9]	1 day	R.T.
Peshna / Mardana [10]	3 day	R.T.

In *Shodhana* process of *Abhraka* both animal drugs and animal products are used as media.

R.S. = Rasarnava, R.Chu. = Rasendra Chudamani, R.P.S = Rasa Prakash Sudhakara

R.R.Su. = Rasa Raj Sundara,R.R.S. = Rasa Ratna Samuchchaya, R.Chi = Rasendra Chintamani, R.S.S.= Rasendra Sara Sangraha, Ay. Pr. = Ayurved Prakash, R.T. = Rasa Tarangini, S.S. = Sharangadhara Sanhita, Rm = Rasamritam

Table 2: Plant drugs used as media in *Shodhana* process of *Abhraka*

S.No.	Plant drugs used	*R.S*	*R.Chu.*	*R.P.S*	*R.R.S.*	*R.S.S.*	*Ay.Pr.*	*R.T.*
1.	*Agastya Puspha*	+	-	-	-	-	-	-
2.	*Kumuda Puspha*	+	-	-	-	-	-	-
3.	*Kapitinduka*	+	-	-	-	-	-	-
4.	*Jambeeera*	+	-	-	-	-	-	-
5.	*Meghanada*	+	-	-	-	-	-	-
6.	*Punarnava*	+	-	-	-	-	-	-
7.	*Yava*	+	-	-	-	-	-	-
8.	*Chincha*	+	-	-	-	-	-	-
9.	*Aranamla*	+	-	-	-	-	-	-
10.	*Raktopala*	+	-	-	-	-	-	-
11.	*Vanasuran*	+	-	-	-	-	-	-
12.	*Boodhatri*	+	-	-	-	-	-	-
13.	*Amalavetasa*	+	-	-	-	-	-	-
14.	*Bhindimula*	+	-	-	-	-	-	-
15.	*Mesashringe*	+	-	-	-	-	-	-
16.	*Shami*	+	-	-	-	-	-	-
17.	*Vajravalli*	+	-	-	-	-	-	-
18.	*Ksheerakunda*	+	-	-	-	-	-	-
19.	*Sumukha*	+	-	-	-	-	-	-
20.	*Maricha*	+	-	-	-	-	-	-
21.	*Tanduliya*	+	-	-	-	-	-	+

22.	*Kanjika*	-	-	+	-	-	-	-
23.	*Kanji*	-	-	+	-	-	-	-
24.	*Triphala*	-	+	+	+	+	+	+
25.	*NirgUndi*	-	-	+	-	-	+	-
26.	*Kulatha*	-	-	+	-	-	-	-
27.	*Amaladravya*	-	-	-	-	-	-	+
28.	*Matulanga*	-	-	-	-	-	-	+
29.	*Badarikwath*	-	-	-	-	+	+	+

Table 3: Animal Origin Products used for *Shodhana* media of *Abhraka*

	Rasanava	***R.P.S***	***R.R.S***	***R.Chi***	***Sd.Sm.***	***Ay. Pr.***	***R.T.***
Shashka Vasa	+	-	-	-	-	-	-
Shringa Taila	+	-	-	-	-	-	-
Gomutra	-	+	+	+	-	+	-
Godudha	-	-	+	+	+	+	+
Ksheera	-	-	-	-	+	-	-
Takra	-	+	-	-	-	-	-

Dhanyabhraka Preparation

The aim of *Dhanyabhrakikaran* is to convert *Abhraka* in to fine, homogenous particle so as to increase the surface area as well as removal of impurities. This process also removes the physical impurities as well as sand particles from the *Abhraka*.

Dhanyabhraka Process

- *Shodhita Abhraka* and paddy are tied in a gunny bag, immersed in a vessel containing sour gruel, rice wash or plain water and kept overnight. Next morning the bag is massaged inside the liquid so that fine powder of *Abhraka* exudes out through the pores of the bag and collects in the vessel. This is later taken out and dried in sun. Fine shining powder of mica thus obtained is called *Dhanyabhraka.*[11]
- According to *Rasa Ratna Samucchaya* one part *Shodhita Abhraka* should be added with one fourth part of *Dhanya* (paddy) wrapped in a cloth/jute bag and made it to a *Pottali* and immersed in a vessel containing *Kanji* for three days.[12]
- According to *Rasa Tarangini* has mentioned that *Churnabhraka* should be added with *Shali dhanya* and made in to *Vastrabaddha pottali* and soaked in Water for one day.[13]

Table 4: Showing drugs used in *Abhraka Marana* process as per classical reference

S.N.	***Bhavana* drugs**	**Type & no of *Putas***	**Reference**
1.	*DA+ Eranda patra Swaras + Guda + Vatapatra Samput* [14]	3 *Putas*	RRS (2/43)
2.	*DA + Kasmarda Swaras/Musta/Tanduliya Rasa* [15]	10 *Gajputa*	RRS (2/22)
3.	*DA + Peetamalak + Tankan* [16]	60 *Gajputa*	RRS (2/23)
4.	*Abhraka + Vatamula Tvacha/Tambulpatra Swaras/Vasa + Matsyakshi Swaras* [17]	20 *Gajputa*	RRS (2/24-25)
5.	*DA + Arkamula swaras + Arkapatra samput + Vatapraroha swaras* [18]	10 *Gajaputa*	R.Chi (4/18 20)
6.	*DA + Tankan* [19]	7 *Gajaputa*	R.Chi (4/21)
7.	*DA + Kasamarda swaras* [20]	100 *Varahputa*	Rr.Chu (10/29)
8.	*DA + Musta + Tanduliya swaras + Amalaki swaras Tankan* (1/8) [21]	60 *Varahputa*	Rr Chu (10/30-31)
9.	*DA + Vatamula tvacha Kwath + Tambulpatra swaras + Matsyakshi swaras* [22]	20 *Varahputa*	Rr Chu (10/32-33)
10	*DA, Tankan+Godugdha* [23]	30 *Varahputa*	Rr Chu (10/34-35)
11	*Abhraka + Hanspadi rasa + Punarnava swaras + 1/4 Tankan+ Tanduliya + Vasa swaras* [24]	28 *Ardh-gajaputa*	RPS (5/16-19)
12	*DA + Kasamarda swaras* [25]	100 *Gajaputa*	RPS (5/21)

13	*DA + Musta swaras + Tanduliya + Shiva rasa + Tankan* (1/4) [26]	60 *Puta*	RPS (5/22-23)
14	*DA + Tambul swaras + Vasa swaras + Brahmi swaras + Matsyakshi + Punarnava swaras* [27]	20 *Puta*	RPS (5/24-25)
15	*DA + Arka-kshira+ Vatajatakwatha* [28]	10 *Gajaputa*	S.S (11/61-63)
16	*DA + Musta + Shunthi + Chitrak+ Triphala + Bala + Gomutra + Tulsi + Musli + Surn*[29]	19 *Gajaputa*	S.S (11/66-68)
17	*DA* (1 part) + *Tankan* (2 part) kept in *Andhamusha→ Tivragni* [30]		A P (2/116-117)
18	*DA + Tankan*[31]		A P (2/118)
19	*DA + Arka kshira* or *Arkamula swaras + Vatajata kwatha*[32]	10 *Gajaputa*	A P (2/119-122)
20	*DA + Kasamarda swaras* or *Musta swaras* or *Tanduliya ras*[33]	10 *Puta*	A P (2/123)
21	*DA + Musta kwatha + Punarnava + Kasamarda+ Nagvalli + Surya kshira + Vatajata + Musli + Gokshur + Mocakanda + Kokilaksa + Lodhra swaras + Godugdha + Curd + Ghee + Madhu + Rock Sugar*[34]	41 *Puta*	A P (2/124-128)
22	*DA + Dugdha Traya + Kumari swaras + Musta + Narmutra + Vatashung + Ajarakt*[35]	100 *Puta*	A P (2/130 -131)
23	*DA + Kasamarda swaras*[36]	10 *Gajaputa*	R.T (10/30-32)
24	*DA + Ravi kshira* [37]	10 *Gajaputa*	R.T (10/31-32)
25	*DA + Naginidal swaras + Vasa swaras + Minakshi swaras + Vata dugdha* [38]	20 *Puta*	R.T (10/33-34)
26	*DA + Tanduliya swaras + Punarnava swaras + Vatashunga kashaya* [39]	30 *Gajaputa*	R.T (10/35-37)
27	DA + *Musta kwatha + Rambhanira + Tanduliya rasa + Bhrngraj swaras + Triphala kwatha + Gandhak* [40]	26 *Puta*	R.T (10/38)
28	*DA + Ravikshira* or *Ravipatra swaras + Nyagrodh mula kwatha + Rambha rasa* [41]	17 *Gajaputa*	R.T (10/39-42)
29	*DA + Kshira Traya + Kakmachi + Gokshur + Kharmanjari + Vatpraroha + Gomutra + Tulsi + Kadalishifa* [42]	100 *Puta*	R.T (10/43-45)
30	*Abhraka churna + Palandu + Vasarasa + Nirgundi rasa + Ardrak swaras + Guduchi swaras + Arkashira + Snuhi kshira* [43]	*Ardha-Gajaputa*	RM (3/ 176-178)

DA = *Dhanyabhraka*

Analytical Study Ayurvedic Parameters for *Abhraka Bhasma*

Organoleptic characteristics of *Abhraka bhasma* [44]

Sr.No.	Organoleptic characteristics	Characteristics
1.	Colour (*Rupa*)	*Sindurabha*
2.	Odour (*Gandha*)	Odourless
3.	Taste (*Rasa*)	Tasteless (*Niswadu*)
4.	Sound (*Shabda)*	-
5.	*Sparsha* (*Touch*)	Soft smooth powdered form

Classical Features *Abhraka Bhasma*

The following tests should be observed for *Bhasma Pariksha*

1. *Nischandratva* (Lusterless)
2. *Sindurabh Varnata* (Redness)
3. *Susukshmatwa* (Fineness)

- ***Varitaratva* (Floating on water)[45]**

  According to Rasa Prakash Sudhakar the term "*Jalaplava*" is also used for this. In this test a perfectly prepared *Bhasma* powder when sprinkled in a beaker full of water floats upon the surface i.e., the particles are so fine that the surface tension of water cannot be broken with the pressure of their fall.

- ***Lochanjana Sannibhavatva* (Collyrium like)[46]**

  This is another test for measuring the fineness. In the test the few particles of the *Bhasma* powder are

applied to the eyelids just like *Anjana*. If the *Marana* is complete and the *Bhasma* is of good quality the person should not feel any irritation in the mucous membrane of eyelids. This shows that the particles of metal/mineral have attained the desired state of fineness otherwise the process should be continued till the *Lochanjana Sannibhavatva* attains and then the Marana process will be considered complete. (Ay.Pr. 2/104)

4. *Unnama*
5. *Rekhapurnatva*
6. *Nirdhumatvam*
7. *Apunarbhavatv*
8. *Niruttha*

OBSERVATION AND DISCUSSION

Literature review on Pharmaceutical and analytical study of *Abhrak Bhasma* is an important area in order to provide standard operating procedures and quality control of it. So the present study has elaborated various pharmaceutical aspects of *Abhraka Bhasma* through various classical literature.

This study covered *Shodhana, Dhanyabhraka, Marana, Bhasma pariksha* of *Abhrak Bhasma*. Concept of *Shodhana* and its aim, procedures applied for *Shodhana* in different Ayurvedic classics which mentioned four methods i.e., *Swedan, Peshan, Bhavana, Nirvapan*. Out of these, *Nirvapan* is the most common method mentioned in literatures for *Shodhana* process. Almost 29 plant based drugs and six animal origin drugs are mentioned for *Shodhana* process. It was observed that most of the references used *Triphala Kwatha* as a *Shodhana* media this may be due *Tridhoshaghna* property of it. Also the other drugs mentioned for *Shodhana* may have its therapeutic importance for enhancing the properties of *Abhrak Bhasma*. For removing impurities and making homogeneous particles of *Shodhit Abhraka, Dhanyabhrakikarana* process is described. Mainly *Kanji* is mentioned for it; however water is also a media for *Dhanyabhraka*. For removing physical impurities like stone, sand etc and softening of *Abhraka* minimum 24hrs to 3 days *Nimmanjana* is essential for *Dhanyabhraka* process.

For *Marana,* more than 100 drugs are described for *Bhavana* process for different *Puta*. Also various steps involved in *Marana* process like *Bhavana, Chakrika Nirman, Sharav Samputikaran*, and various types of *Puta* is described in detail. Almost all references mentioned *Gajaputa* for *Abhrak Bhasma*. However few authors also stated *Varah Puta* for it. Organoleptic characteristics and *Bhasma Pariksha* like *Nischandratva*, *Sindurabh Varnata*, *Varitaratva, Unnama, Rekhapurnatva, Apunarbhavatva, Niruttha* has been described for *Abhrak Bhasma*. According to Ras Prakash Sudhakar the term "*Jalaplava*" is also used for *Varitaratva. Lochanjana Sannibhavatva* (Collyrium like) is the test for measuring the fineness. This test can be correlated with micro fineness i.e., *Shukmata* of *Bhasma.* This test shows that the particles of metal/ mineral have attained the desired state of fineness, otherwise the process should be continued till the *Lochanjana sannibhavatva* attains and then the Marana process will be considered complete. If the *Bhasma* is prepared with different media and different *Bhavana Dravya,* the characteristic features for *Bhasma Pariksha* will be the same but therapeutic properties will be different.

CONCLUSION

Abhraka Bhasma has given high importance in all the classical texts of *Rasashatra* due its use in various formulations as is used in the management of various diseases. Various *Samskara* which brings *Abhraka* in the form which could easily be absorbed and assimilated in the body like *Shodhana, Dhanyabhraka, Marana, Bhasma pariksha* of *Abhrak Bhasma*. Various selective methods are mentioned for *Shodhana* and *Marana* of *Abhraka*. The selection of the media and number of *Puta* depends upon the therapeutic uses of the *Abhraka Bhasma*. Comprehensive literature study on *Abhrak Bhasma* helps to follow the guidelines regarding various pharmaceutical aspects of *Abhrak Bhasma* critically.

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