International Journal of Applied Ayurved Research ISSN: 2347- 6362

A CONCEPTUAL REVIEW OF BHASMA PARIKSHA WITH A MODERN VIEW

Bhange P.V[1], Bhatambre Y.S.[2]

[1]Lecturer, Dept. of Rasashastra & Bhaishajya kalpana,MAM'S Sumatibhai Shah Ayurved Mahavidyalaya (SSAM), Hadapsar, Pune-28.

[2]Reader, Dept. of Rasashastra & Bhaishajya kalpana, MAM'S Sumatibhai Shah Ayurved Mahavidyalaya (SSAM), Hadapsar Pune-28,

ABSTRACT :

Bhasma is one of the unique preparations described in Rasashastra. *Bhasma* is prepared by incinerating the metals and minerals. In *Rasagrantha*, various *pariksha* (Tests) have been described to ascertain the complete preparation of *bhasma*. Specific *pariksha* like *Rekhapurna*, *Varitar*, *Unam*, *Niswadu*, *Apunarbhava*, *Niruttha*, etc. have been described for this purpose. Free metal remained in the *bhasma* after the *puta* procedure (Heating) could be fatal, so these *pariksha* are necessary to be carried out. Ancient *Rasacharya* were well aware regarding the side effects of the improper *bhasma*, so they have described these tests to ascertain the preparation of proper *bhasma*.Also while studying these *pariksha* with the modern view; it seems very important to test *bhsama* by applying these *pariksha*. Each *pariksha* has been described here with its modern view. It could be helpful to study and standardize the *bhasma pariksha* with classical and modern view.

Keywords : *Bhasma, Rekhapurna, Varitar, Unam, Apunarbhava, Niruttha*

INTRODUCTION: Rasashastra is the science which deals with the pharmaceutical study of metals and minerals. *Rsaushadhies* are supposed to be superior to other drugs on account of their effectiveness in low dosage, palatability and quick action. Treatment for curable diseases have been mentioned by ancient *acharyas*, but *rasaushadhies* can be effectively used in *Asadhya vyadhies* (incurable diseases) also.[1]

For the preparation of bhasma, shodhit (Purified) dhatu is triturated with specific plant juice and then the mixture is subjected to Agni sanskara (Heating).[2]

Thus, *Bhasma* is prepared by giving *puta* (Heat) to the *shuddha* (purified) metal/mineral. Number of *puta* differs as per the metal/mineral to be processed. It depends upon its consistency, hardness, etc. *Bhasma pariksha* have to be carried out during the puta procedure to ascertain the proper preparation of *bhasma*. After passing all *bhasma parikshas*, the prepared *bhasma* can be used safely for consumption.In *Rasagrantha*, following *Bhasma pariksha* have been described.

1. *Rekhapurna*[3]: When the particles of the *bhasma* are rubbed between thumb and index finger, they enter the grooves of the fingers and donot come out easily, then the *bhasma* is said to be *Rekhapurna*.

2. *Varitar*[4]: When the particles of the *bhasma* are spread over the water surface, they float on it, then the *bhasma* is said to be *varitar*.

3. *Unam*[5]: When a heavy grain floats on the *varitar* film of the *bhasma*, then the bhasma is said to be *Unam*.

4. *Apunarbhava*[6]: When the *bhasma* is heated along with *Guda*, *Gunja*, *Tankan*, *Madhu* and *Ghrita*, it does not degrades and regain its original metallic form, then it is said to be *Apunarbhava*.

5. *Niruttha*[7]: When the *bhasma* is subjected to strong heat along with Silver, it does not stick to Silver and the weight of Silver does not increase significantly as compared to its original weight, then it is said to be *Niruttha*.

For Niruttha pariksha of Rajat (Silver) bhasma, Tamra (Copper) is used.[8]

6. *Dantagre Kachkachaabhava*[9]: When *bhasma* does not feel gritty on chewing i. e. *Kachkachaabhava* and have consistency like pollen grains of Ketaki, then it is said to be proper for use.

7. Varna (Colour) [10]: Colour of the *bhasma* of different metals and minerals has been described specific as follows. It is also one of the *pariksha* to identify the specific *bhasma*.

Name of *Dhatu* **Colour of *Bhasma***

Suvarna…….*Champak Varna* i.e. brick red

Rajat……..*Krishna* i.e. black

Tamra…….*Krishna* i.e. black

Naag……*Paravatprabha* i.e. blackish grey

Vanga… *Shubhra* i.e. white

Tikshna…*Jambuphala Varna* i. e. purple

Abhrak…*Ishteekabha* i.e. brick red

In *Parada Samhita,* while quoting the reference from *Rasaraajsundar*, colours of *Bhasma* are described as follows.[11]

Name of *Dhatu* **Colour of *Bhasma***

Suvarna……*Kapotkanthabha*

Pittal……..*Kapotkanthabha*

Tamra……*Mayurkanthabh* i.e.bluish green

Rajat……..*Ujjwal* i.e.white

Vanga……..*Ujjwal*i.e.white

Naag……….*Krishnasarpanibha* i.e.black

Tikshna……..*KajjalSannibha* i.e.black

Along with these *pariksha*, some other *pariksha* are also carried out practically though these have not been described in *rasagranthas.* These *pariksha* are as follows.

8. *Niswadu*: When a small pinch of the *bhasma* is tasted, it is tasteless i.e. *Niswadu*.

9. *Awami*: *Bhasma* when swalloweddoes not produce *vaman* i. e. vomiting.

10. *Nishandra*: is *Nishandra* i.e. it does not have any luster. This test is specially described anddonefor *Bhasma Abhrak* (Mica) *bhasma*.

11. *Nishkalanka/AmlaPariksha*: When *bhasma* is kept mixed with any *amladravya* (Dadhi/Nimbu,etc),no discoloration of the *amla dravya* is seen. It is the specific test described for *Tamra* (Copper) *bhasma*. Above *pariksha* are to be carried out during the *puta* procedure. Out product from the puta is tested for these various *pariksha*. When the *bhasma* completes all the *pariksha*, then it can be declared as the proper one, which can be consumed for treating various indicated diseases. The material and method of these various *bhasma pariksha* can be described as follows-

1. *Rekhapurna*: (Figure 1): *Bhasma* is pinched between thumb and index finger and rubbed well. Then the fingers are released, the ridges of the fingers are observed for how many particles entered in them. When all the particles of *bhasma* enter the ridges of the fingers and do not easily come out, then it is said to be *Rekhapurnabhasma*.

2. *Varitar*: (Figure 2) :A clean glass beaker is filled to the brim with tap water and the water is allowed to stand. Then a pinch of *bhasma* is slowly spread over the surface of water and observations are made.Whenall the particles of the *bhasma* float on the water surface, then it is called *Varitar*.

3. *Unam*: (Figure 2): It is the supportive test to the *varitarpariksha*. When a heavy grain (Rice/Wheat, etc.) is placed on the

varitar film of the *bhasma* floats over it and do not sink, then the *bhasma* is said to be passing the *Unampariksha*.

4. *Apunarbhava:* (Figure 3)

MATERIAL: *Bhasma*, *Guda (*Jaggery), *Gunja* (Abrus seed), *Madhu* (Honey), *Ghrita*(Ghee), *and Tankan*(Borax). (Rasaratnasamucchaya)

In ParadSamhita, while quoting the reference from Rasaraajsundar, *Guda* in the above reference is replaced by *Guggulu* (CommiphoraMukul).[12]

METHOD: *Bhasma* is mixed with equal quantity of *Mitrapanchak* [13]i. e. *Guda*, *Gunja*, *Madhu*, *Ghrita* and *Tankan*. This mixture is taken in a *musha* (crucible) and it is heated on a gas burner till all organic matter burns. After self-cooling the mixture inside the *musha* is taken out and observed. If it does not contain any free metal, then the *bhasma* is said to be *Apunarbhava*. The terms *Apunarbhav* and *Niruttha* are correlating with eachother. *Bhasma* passing the *Apunarbhav pariksha* is said to be *Niruttha* means not getting its original metallic form back. One reference regarding the *Niruttha Pariksha* of *Louha Bhasma* is found in Rasatarangini. Here, *Louhabhasma* is mixed with *Ghrita* (Ghee), *Madhu* (Honey), *Guggulu* (Commiphora Mukul), *Gunja* (Abrus Seed) and *Tankan* (Borax) and this mixture is heated in *puta*. After the *puta*, if *bhasma* remains in its proper original form, then it can be said *Niruttha* and can be used in various formulations. If after puta, any metallic part of *Louha* is found in solid lump form in the *bhasma*, then the *bhasma* is not considered the proper one.[14]From this reference, it can be said that *Apunarbhav pariksha* can be performed using *Puta*.

5. *Niruttha*: (Figure 4)

MATERIAL: *Bhasma*, Silver

METHOD: *Bhasma* is mixed with equal quantity of KDM free Silver.It is taken in a graphite crucible and it is heated using a burner connected with a blower. As soon as Silver gets liquefied, heating is stopped. After self-cooling, weight of Silver is recorded. It should not be increased as compared to its original weight. Then the *bhasma* is said to be Niruttha. For this test strong heat is required so it can be performed at Goldsmith's refinery.

For the *Niruttha pariksha* of *Rajat bhasma*, it is heated with *Tamra*. After the *pariksha*, weight of *Tamra* is compared with that of its original weight.

6. *Dantagre Kachkachaabhava*: For this test, simply a small amount of *bhasma* is chewed. If it does not felt gritty, then the bhasma can be said to be having fine particles.

7. *Varna*: Colour of different metals/minerals is specific. The prepared *bhasma* is observed for its indicated specific colour.

8. *Niswadu*: A small pinch of *bhasma* is tasted,

if it is tasteless, then it is said to be proper *Niswadu bhasma*. It should not taste *amla, madhur* (Sweet), etc.

9. *Awami*: When the bhasma swallowed in its mentioned dose does not produce any vomiting sensation, thenit is called Awami.

10. *Nishandra*: Prepared bhasma is taken in a petri dish and observed under sunlight using a magnifying glass. When it does not contain any luster, then it is said to be Nishandra.

11. *Nishkalanka/AmlaPariksha*: A small amount of prepared *bhasma* is mixed with an *amla dravya* like *Dadhi/Nimbuswaras* and this mixture is kept aside for about 24 hours. Then it is observed for any change in its colour. The colour of the *amla*

dravya should not change to greenish or bluish. Then it is said to be passing the *amla pariksha*.

OBSERVATIONS: All the above stated *pariksha* are carried out after each *puta*. When the *bhasma* passes all these *pariksha*, then it can be declared as the proper one. Such *bhasma* can be then used to consume in the given dose.

DISCUSSION: *Bhasma* are the unique preparations of the Rasashastra. For preparing *bhasma, maran* procedure is done. The procedure of *maran* should be performed stepwise i.e. firstly *shodhan* of the metal and then its *maran* till it possesses all the qualities of *bhasma*. For this purpose, the *bhasma* should pass all the *bhasma parikha*. When any work has to be performed scientifically, it needs to follow a definite sequence of processes involved in it, by which one can obtain the expected definite output. Acharya Vagbhat has well stated that the science cannot be called as a science, if it does not follow definite sequence of procedure. On the other hand, sequence does not owe any significance if it is not scientific. Hence the person who knows the science including the sequence of procedure is only worthy for success.[15]While preparing *bhasma*, its *pariksha* must be carried out. The scientific co-relation of these bhasma pariksha can be described as follows-

1. *Rekhapurna*: This *Pariksha* directly relates to the particle size of the *Bhasma*as well as tothe softness of the particles. The *bhasma* can pass this *pariksha* only when the diameter of the particles is less than the breadth of grooves on finger surface. Moreover, consistency of the particles is also indicated. The particles remain entangled only if they are smooth and soft. If they are hard in consistency then they will not adhere to finger surface though sufficiently small.

2. *Varitar*: '*Varitar*' means 'to float on water '. The probable cause behind floating the *Bhasma* on water can be described as – The atoms of water are bounded with each other due to the attractive force between them due to which they remain in contact with each other forming a flat surface. So the surface of water always remains flat. When any fine powder is spread on this surface, the surface tension of water does not allow the particle to enter i.e. to sink in water, keeping them floating on the surface. This is possible only with the considerable *Laghu* (Having light weight) particles. *Bhasma* particles which are that much *Laghu* to float on water surface will remain floating on water surface and if the *Bhasma* contains any unconverted heavy particles of metal, these particles will sink in the water indicating the need of further more *Puta*s. Acharya Vagbhat has stressfully mentioned its essentiality as the bhasma becomes ready for consumption when and only when it is *varitar*.[16]

3. *Unam*: It is an additional test to confirm the *Varitar Pariksha*. Above three *Parikshas* are easy to practice and these are based on naked eye observations. *Apunarbhav* and *Niruttha, parikha* can grossly detect the presence of free metal in the *Bhasma* if any. But these are bit difficult due to the lack of their detailed description in *Rasagranthas*. The difficulty or variation in opinion is found regarding the amount of heat to be provided during these *Parikshas*.

4. *ApunarbhavPariksha*: The *Dravya*s used for this *Pariksha* i.e. *Guda, Gunja, Madhu, Ghrita* and *Tankan* are togetherly called as '*Mitrapanchak* '. *Mitrapanchak Dravyas* are from the '*Dravak Gana* '. The property of *Dravak Gana* is described as 'Dhatunamdravakogana' i.e. they help to

acquire the melting rapidly, which in turn help to separate the metallic traces from the *Bhasma* if any. In the text *Rasendrachintamani*, following reference is found regarding the action of *Mitrapanchak* during the *Satvapatana* of *Abhrak.* The *Abhrak Satva* obtained after *Dhamana*, which is in crystal form when subjected to heat along with *Mitrapanchak*, the crystals are combined together which appears like *Kansya.* This reference gives clear idea regarding the action of the *Mitrapanchak.* Similar action may be happening during heating the *Bhasma* along with *Mitrapanchak.* If the *Bhasma* contains any free metal then due to the action of *Mitrapanchak*, the crystals of free metal will gather together and form a single mass, which can be clearly observed after the *Pariksha*.

5. *Niruttha Pariksha*: It is observed that market silver is commonly adulterated with K.D.M., so for getting pure silver, it has to be made free from K.D.M. by refining with conc. Nitric acid.[17]*Bhasma* and pure silver are heated in a *Musha* i.e. Graphite crucible on a gas burner. Heat is given till the silver gets liquefied. Probably the purpose behind this is that liquefied silver will combine with the free metal in the *Bhasma* if any. But heating on gas burner could not provide sufficient heat to melt the silver. So this *Pariksha* can be performed at Goldsmith's refinery where a high-pressure gas burner connected along with a blower is available. Weight of silver after the *Pariksha* is the criterion for the assessment of *Bhasma*. The metal Silver, when melted, it absorbs 25% Oxygen to that of its weight and it liberates the absorbed Oxygen when it is cooled. This property of Silver is known as Spitting of Silver.[18] This property may have been taken into consideration while using Silver for *Niruttha pariksha*. The absorbed Oxygen by Silver may be being useful for melting the free metal in the *bhasma* if any. The importance of *Niruttha* is well described in Rasayansaar as-As the improperly cooked food does not gets properly digested and does not give its benefits, likewise, the *bhasma* which has not passed the *Niruttha pariksha*, does not give its qualities.[19]

6. *Dantagre Kachkachaabhava*: This *pariksha* directly indicates the particle size and hardness of the particles of *bhasma*. When the particle size and hardness of the particles are more, then obviously it can be felt by chewing the small amount of *bhasma*.

7. Varna (Colour): Specific colours are mentioned of specific metals/minerals. The colour may be indicating the specific chemical configuration of the *bhasma*. So it seems important to co-relate the colour of the prepared *bhasma* with the classical reference.

8. *Niswadu*: As *bhasma* is expected to float on water, it is clear that no (or least) fraction of *bhasma* should be soluble in water. The taste of water insoluble materials is not experienced intensively as compared to that of water soluble materials.

9. *Awami*: Presence of free metal in the *bhasma* or intolerable taste of the *bhasma* can cause vomiting sensation when swollen. So the *bhasma* should be tasteless and it should not contain any free metal.

10. *Nishchandra* (Lustreless): This test is also carried out for the presence of free metal in the *bhasma*. If free metal is present, it shows its lustre in the *bhasma*.

11. *Nishkalanka/AmlaPariksha*: If any free conjugated metal is persistent in the *bhasma* or the conversion process is not complete then such *bhasma* reacts with the *amla dravya* (e.g. curd, lemon juice, etc.)

and some salt compounds are formed which may be changing the colour of the *amladravya*. Thus this *pariksha* indicates presence/absence of free metal in the prepared *bhasma*.

CONCLUSION:

From the above references of *bhasma parikha* along with their modern correlation, it can be concluded that *bhasma pariksha* are very important to be carried out. After passing all these *pariksha*, the *bhasma* can be declared as free from its free metal and it can be consumed in its given dose without any ambiguities.

REFERENCES:

1. Gopal Krishna Bhatta, Rasendra Saar Sangraha, with savimarsha 'Rasavidyotini'Hindi commentary by Dr. Indradev Tripathi, II edition, Chaukhamba Orentalia, Varanasi, Year-1998.

2. Anonymous, 'The Ayurvedic Formulary of India'Part-1, II Revised English Edition, Published by the Controller of Publication, Civil Lines, Delhi-110054 Year-2003.

3. Vagbhatacharya, Rasaratna samucchaya, edited with 'Suratnojjvala 'Hindi commentary by Shri Ambikadatta Shastri IX edition, @ Chaukhamba Amarbharti Prakashan, K-37/130, GopalMandir Lane, Varanasi-221001.Year-1995.Chapter 5, Verse 28.

4. Anonymous, 'The Ayurvedic Formulary of India' part-1, II revised English edition, published by The Controller of Publication, Civil lines Delhi-110054 Year-2003

5. Vagbhatacharya, Rasaratnasamucchaya, edited with 'Suratnojjvala'Hindi commentary by Shri Ambikadatta Shastri,IX edition, @ Chaukhamba Amarbharti Prakashan, K-37/130, Gopal Mandir Lane , Varanasi-221001.Year-1995.Chapter 8, Verse 31.

6. Vagbhatacharya, Rasaratnasamucchaya, edited with 'Suratnojjvala'Hindi commentary by Shri Ambikadatta Shastri,IX edition, @ Chaukhamba Amarbharti Prakashan, K-37/130, GopalMandir Lane , Varanasi-221001.Year-1995.Chapter 8, Verse 30.

7. Vagbhatacharya, Rasaratna samucchaya, edited with 'Suratnojjvala'Hindi commentary by Shri Ambikadatta Shastri,IX edition, @ Chaukhamba Amarbharti Prakashan,K-37/130, GopalMandir Lane , Varanasi-221001.Year-1995.Chapter 8, verse 32.

8. Professor Siddhinandan Mishra, Anandkand, with Siddhiprada Hindi Vyakhya, @ Chaukhamba Orientalia, Varanasi, Year-2008, AmrutikaranVishranti, Chapter25,Verse-31-32.

9. Madhav, AyurvedPrakash, by ShriGularaj Sharma, IV edition @ Chaukhamba Bharati Acadamy, Varanasi-210011, Year 1994 , Chapter 1, Verse 55.

10. Anonymous, Yogratnakar with Vidyotini Hindi Commentary by Vd.Laxmipati Shastri, VIIIedition, edited by Vd. Brahmashankar Shastri, Chaukhamba Sanskrit Sansthan,Varanasi, Year-2004.

11. Niranjandas Gupta, ParadSamhita, with Hindi Commentary @Khemraj Shrikrishna das Publication, Mumbai-04, Year -2003, Chapter 58, Verse-23-24.

12. Niranjandas Gupta, ParadSamhita, with Hindi Commentary @ Khemraj Shrikrishna das Publication, Mumbai-04, Year-2003, Chapter 58, Verse-28.

13. Sadanand Sharma, Rastarangini, by pandit Kashinath Shastri@ Motilal Banarasidas, Banglow Road, Jawahar Nagar Delhi,-7, 11th edition, 1979, Chapter 2, Verse- 37.

14. Sadanand Sharma, Rastarangini, by pandit Kashinath Shastri@ Motilal Banarasidas, Banglow Road, Jawahar Nagar Delhi,-7, 11th edition, 1979, Chapter 20, Verse- 82.
15.Vagbhatacharya, Rasaratnasamucchaya, edited with 'Suratnojjvala'Hindi commentary by Shri Ambikadatta Shastri,IX edition, @ Chaukhamba Amarbharti Prakashan, K-37/130, GopalMandir Lane , Varanasi-221001.Year-1995.Chapter 6, verse 2.
16.Vagbhatacharya, Rasaratnasamucchaya, edited with 'Suratnojjvala'Hindi commentary by ShriAmbikadatta Shastri,IX edition, @ Chaukhamba Amarbharti Prakashan, K-37/130, GopalMandir Lane , Varanasi-221001.Year-1995.Chapter 28, verse 17.
17. Dr.Yogesh Shivmurti Bhatambre, 'Study of Bhasma parikshas with special reference to Naagbhasma',AyurvedPatrika, Bhasmavisheshank, 2012, Page-47.
18. Dr.Siddhinandan Mishra, Ayurvediya Rasashastra, Chaukhamba Oriyantalia,Varanasi, 15th edition, Year-2005, Page No. 430.
19.Pandit Shyamsundaracharya Vaishya, Rasayansaar, Vol. 1, Chaukhamba Krishnadas Acadamy, Varanasi Publication, Dhatushodhanmaran – Prakaran, Verse 64.

Corresponding Author: DR.Bhange P.V,Lecturer, Dept. of Rasashastra & Bhaishajya kalpana,MAM'S Sumatibhai Shah Ayurved Mahavidyalaya (SSAM), Hadapsar, Pune-28.
Email: E mail-pybhatambre@gmail.com

Source of support: Nil
Conflict of interest: None Declared

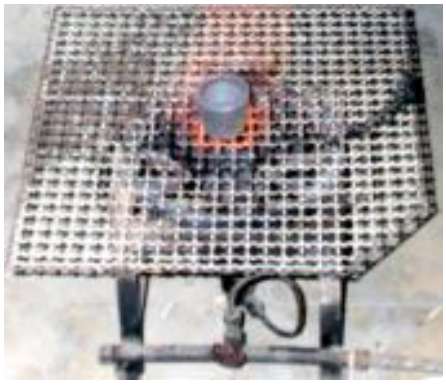
Cite this Article as: *Bhange P.V et al : A Conceptual Review of Bhasma Pariksha with A Modern View*

Figure 1 -Rekhapurna Pariksha

Figure 2- Varitar and Unam Pariksha

Figure 3- Apunarbhav Pariksha

Mitrapanchak



Heating of bhasma with Mitrapanchak

Figure 4-Niruttha Pariksha

Silver

Heating of bhasma with Silver