

An Analytical Review on *Mandura Bhasma* in Classics

Uthamsha. V. P¹, T. V. Sreeni²

¹PG Scholar from Govt Ayurveda College Trivandrum.

²Associate Professor, Govt Ayurveda College Trivandrum.

Corresponding Author: Uthamsha. V. P

ABSTRACT

Mandura (Iron oxide) is one such drug which has been used since olden days. The reference about mandura bhasma can be seen in many of the rasa texts. It is evident from the Ayurvedic classics that the therapeutic use of mandura has been in practice since the medieval period of Rasasastra. AMandura has a unique place in the treatment of yakrith vikaras.

Key words- mandura, sodhana, marana

INTRODUCTION

Rasa Shastra can be described as Ayurvedic Pharmaceutics, which deals with the drugs of mineral origin, their varieties, characteristics, processing techniques, properties and their therapeutic uses. It is clear from the literature that the metals and minerals were used in treatment in various combinations.

After the development of Rasa Shastra metals like Swarna (Gold), Rajata (Silver), Tamra (Copper), Loha (Iron) etc were found therapeutically useful after processing them by various pharmaceutical processes such as Sodhana, Marana, Amritikarana etc. Rasaushadies gained importance because of their smaller doses and quick relief as compared to herbal drugs in various ailments.

Powder of a substance obtained by calcinations is called bhasma. It is applied to the metals and minerals which are, by special processes, calcined in closed crucibles in pits and with cow dung cakes (Putra).¹

About the mineral drug mandura

Derivation:

(Mandate *Lauham Vestate*) - means which covers the *Lauha*.²

Vernacular names of Mandura

Mandura is the popular name used and other vernacular names are tabulated below.

Table 2.1 Different names of Mandura in other languages³

Sl.no	Languages	Names
1.	English	Rusted iron, Slag
2.	Hindi	Mandura, Lohakitta, Singhanaka
3.	Malayalam	Irumbinkittam
4.	Tamil	Manturam, Irumbukittam
5.	Kannada	Lohakitta
6.	Telugu	Lohakittam
7.	Marathi	Mandura
8.	Gujarati	Mandura

Table 2.2 Synonyms of Mandura and their possible meaning⁴

sl.no	Synonyms	Meaning
1.	Ayaslishtam	Waste of ayas
2.	Kittam	Waste
3.	Lohabhavam	Created from loha
4.	Lohakittam	Residue of loha
5.	Lohamalam	Waste of loha
6.	Lohaniryasam	Exudates from loha
7.	Lohochishtam	Waste produced from loha
8.	Lohotha	Originated from loha
9.	Malodbhavam	Formed from waste

Origin of Mandura:

After severe heating of *Lauha*, when it is hammared some parts are separated.

These separated parts after so many years turn into mandura.⁵ Chemically mandura is iron oxide which is formed when the red hot iron is beaten, it sheds pieces which over a period of time, become a hardened mass in the earth.⁶

Mandura in vedic literature

Even though other metals and minerals are mentioned in different contexts, reference about mandura or its synonyms were not available in Vedas.

Mandura in samhitas

Among the classical texts, the word 'lauhakittamandura' and its use in therapeutics was first mentioned in Caraka samhitha.⁷ Sodhana of mandura was also first mentioned by Caraka Samhitha. Importance of sodana of mandura was first mentioned in Rasendra Chudamani(12th century A.D)⁸. Preparation of mandura bhasma was first mentioned by Rasatarangini. in 20th century A.D.⁹

Mandura kalpas are alternative iron formulations mentioned in samhitas. Literary search of different Ayurvedic classics like Bhaishajya Ratnavali, Charakasamhita, Ashtangahridaya, Chakradatta etc reveals many formulations containing mandura as the main ingredient. Majority of formulations are mentioned in the contexts of pandu, kamala, etc which reveals its haematinic effect. Most of the formulations are prepared by Rasakriya or khalviya method and by using gomutra as the processing medium.

Review of Mandurakalpa

Ayurveda is gifted with vast array of therapeutic formulations, which vary in their pharmacological preparation and drug combinations, due to which they possess multisite action and disease indications. These drugs have wide range of dosage forms which are adopted considering different factors related to the patient and the disease. Mandurakalpas are the promising iron containing herbo-mineral formulations of Ayurveda. Researches had

been done on Satavarimandura, Trayushanadimandura, Koladimandura, Kshiramandura, Vajravatakamandura, Punarnavadimandura.

Types of Mandura

There are two types of classification for describing varieties of mandura which are based on type of loha from which mandura is originated and time of mandura collected from the earth.

According to type of loha from which Mandura is produced.¹⁰

Table 2.3 Types of Mandura according to origin

Sl.no	Name of Mandura	Source(Name of loha)
1.	Mundakitta	Mundaloha
2.	Tikshnakitta	Tikshnaloha
3.	Kantakitta	Kantaloha

2. According to the Age.¹¹

Table 2.4 Classification of mandura according to Age

Sl.no	Name of mandura	No.years
1.	Sarvasreshtha mandura	100 years old
2.	Madhyama mandura	70 years old
3.	Adhama mandura	60 years old

Another reference of Bhaishajya Ratnavali opines that 80 years old mandura is madhyama. And those mandura which is below 60 years old is considered to be *harmful as poison*.¹²

Acceptable variety of Mandura

Many properties have been described for the grahya mandura by different classical texts.

Table 2.5. Physical properties of Mandura according to various texts.

Sl.no	Text books	Physical properties
1.	Ayurveda Prakasa ¹⁰	Guru, Snigdham, Nikotaram
2.	Brihat Rasa Rajasundaram ¹³	Guru, Snigdham, Akotaram, Dridam
3.	Rasendra sarasangraham ¹⁴	Akotaram, Guru, Snigdham, Dridam
4.	Rasa tarangini ¹⁰	Snigdham, Guru, Dridam, Krishnam, Kotaravarjitam, Nashtapurastham

The mandura which is smooth, heavy, hard, black, solid mass, without fissures which is very old and collected from the place where there are signs of ancient civilizations.

Table 2.6 Properties of Mandura according to variety of iron origin¹⁷

Sl.no	Name of mandura	Properties
1.	Mundaloha kitta	Slightly red, heavy and smooth
2.	Tikshnaloha kitta	Possess blackish colour like anjana, heavy, without cracks, holes and fissures.
3.	Kantaloha kitta	Yellowish, rough, more heavy, without fissures and cross section surface exhibits silver like shine.

Properties of Mandura

According to the Ayurvedic pharmacology.¹⁶

Rasa - Kashaya
 Virya - Sheeta
 Vipaka - Katu
 Guna - Ruksha, laghu
 Doshagnata - Pittakapha prasamana
 Karma - Vrisyam, sisiram, ruchiramparam, deepanam, pittasamanam, rakthavidhikaram param.¹¹

Rasaratnasamuchaya and Rasendrasarasangraha opines that all therapeutical qualities present in munda loha exist in mandura also.^{18, 19}

Indications - Pandu, sophia, kamala, krmi, arsas, grahini, and pliharoga with specific anupana.

Dosage - 1\4 ratti to 2 ratti¹¹

Therapeutic use of Mandurabhasma in Rasatarangini¹⁹

Mandura bhasma with punarnavashtaka quata can be used in sotha with ruja.

Mandura bhasma with katvi, triphala and nishadvaya churna can be used in kamala.

With vidanga, triphala, panchakola and abda in krmi, sophia, arsas, grahani, pandu and pliharoga.

Mandura bhasma with desired ratio of Rasasindhura administered daily for one month will act as rakthavidhikaramparam.

With Dasamula kashaya, mandura bhasma can be administered in pandu, atisaram, jwaram, sopham.

Shodhana of Mandura

Mostly nirvapa (heating up to red hot and quenching in liquid media) process is followed for Sodhana of Mandura. Commonly Gomutra is used as a liquid medium for mandura sodhana. Interestingly, mandura can be used after sodhana making it in churna form.²⁰

Table.2.7 Shodhana of mandura mentioned in various texts.

No.of process	Media	Procedure	Repetition	Reference
1	Gomutra triphala kwatha	Nirvapa		Rasaratna samuchaya ²⁵
2	Gomutra triphala kwatha	Abhisheka Pachana	7	Sarangadhara samhita ²⁶
3	Gomutra	Pachana		Caraka samhita ²⁷
4	Gomutra	Nirvapa	8 7 8 8 7	Cakradutta ²⁸ Rasaratna samuchaya ²⁹ Rasendra sara sangraha ³⁰ Ayurveda Prakasa ³¹ Rasatarangini ³²
5	Taila Takra Gomutra Kanjika Kulatha	Nirvapa	7 times in each	Rasendrasarasangraha ³³

Marana of Mandura

Different thought about marana are mentioned in classical text books. Some Rasasastra scholars like Sharangadharacharya, Madhavacharya and the author of Ayurveda Prakasha recommends sodhita mandura itself can be used for therapeutic purposes. They opines that after sodhana, mandura become fine powder, if features of bhasma are not attained then it should

process similarly till it becomes finely powdered.²⁸

For marana of mandura following techniques are used in general. Same methods and drugs for processing of loha may be used for marana of mandura. Drugs of lauha maraca gana are used for mandura marana. Thriphala qwatha is the most commonly used liquid media for bhavana.

Gajaputa is used mostly as heating grade for mandura.

Apart from these methods, Bhaishajyaratnavali (Galagandadhya) explains a particular method for preparing mandura bhasma., in which the sodhita mandura should be subjected to soaking in mahishi mooltra subjected to puta till it becomes bhasma for one month after that it should be subjected to puta till it becomes bhasma.²⁹

The number of putas mentioned by scholars of Rasasastra are tabulated below.

Table 2.8 Marana of Mandura mentioned in different texts

Sl.no	Name of text book	Bhavana dravya	No. of putas
1.	Rasatarangini ¹¹	Triphala quatha	30 puta
2.	Rasamritam ³⁰	Kumari swarasa	7 puta
3.	Rasaratnasamuchaya ²⁰	Not mentioning	
4.	Sharangadhara samhita ³¹	Not mentioning	
5.	Ayurveda Prakasa ²⁵	Not mentioning	
6.	Rasendra Chintamani ³²	Not mentioning	

Modern chemistry of Mandura

Definition: Mandura is a metallic oxide-cum-silicate of iron, generally having the composition FeSiO₄.

Broad classification: Metallic oxide cum silicate

Origin and occurrence:

Mandura is the by product of the metallurgical process during extraction of Iron (Fe) and copper (cu) from their respective ores. It occurs as lumps, boulders of aggregates at the areas where smelting activity is carried out for extraction of copper and iron. Iron is the main constituent of mandura followed by silica with minor amounts of Cu, S, Pb, Zn, Ag, Cd, Au. Mandura is known since ancient times in India and occurs over 500 years old slag dumps near village Singhana (Khetri), dist. Jhunjhunu (Rajasthan). Mandura of similar quality may occur at other places also in the country where smelting of copper was carried out in past.

Physical properties

Nature : Rough lumpy masses, exhibiting voids

Colour : Black
 Streak : Black
 Cleavage : None
 Fracture : Conchoidal
 Lustre : Dull
 Tenacity : Brittle but hard
 Transparency : Opaque
 Magnetism : Non-magnetic
 Hardness : 6 to 6.5
 Specific gravity: 3 to 3.8

Chemical assay of Mandura

1.Mandura should contain not less than 30% iron (Fe) when analysed by gravimetric method.

2.Mandura should contain not less than 30% silica when analysed by gravimetric method.

3. Mandura should show not less than 80% fayalite (FesiO₄) when studied through XRD method.

4.Heavy metals and arsenic:

Mandura should not contain more than the stated limits of the following

Arsenic -6 ppm and Cadmium - 8 ppm.

Other elements may contain the following with ±20% of the stated limits.

Copper - 0.45%. Zinc - 50 ppm and Silver - 7 ppm.⁴²

CONCLUSION

Classical references states that *Mandura* can be used for therapeutic purpose even after proper sodhana process. Analytical studies on mandura reveals that, it is a combination of silicates, iron compounds, etc. The concept of *sodhana* for *Mandura* may be aimed at reducing the silicate content and making it more iron oxide concentrated. Chemical assay on mandura reveals its presence of silica and iron content. Physical properties of mandura include magnetic nature and bhasma form it didn't possess magnetism. Classical reference shows the effect of mandura in various liver disorders which should be explored with proper research methods. Rasaratnasamuchaya and Rasendra-sarasangraha opines that all therapeutical qualities present in munda loha exist in mandura also which reveals the relevance of

munda loha in case of indications of mandura.

Acknowledgement: None

Conflict of Interest: None

Source of Funding: None

REFERENCES

1. Ayurveda pharmacopeia of India, part1, vol.7, 1stedn.the controller of publications,2001,Page No.25
2. RajaRadhakanta Deva, Sabdakalpadrumam, Chaukambha Sanskrit series, Varanasi, 2014, part 3, page.no.623
3. Ayurvedic Pharmacopoeia of India, Part I, Vol. 7, 1st edition, The controller of publications, 2001.p31
4. S. K. Kamat Dhanwanthari Nighantu by Dhanwantari, 1st edition. Chowkambha Sanskrit Pratishta (2002).p32 ,33.
5. Sharma. S,Rasatarangini, Hindi Commentary, ShastriKashinath, Motilal Banarasi das, Delhi.517 (2000).
6. Ayurvedic Pharmacopoeia of India, Part I, Vol. 7, 1st edition, The controller of publications, 2001.p.25
7. Sharma R.K. and Daksh B, Agnivesa, Charakasamhita, English translation. Chowkamba Sanskrit Series office varansasi, vol. IV 101 (2000), Sloka20/123 126.
8. Soma dev, Rasendrachudamani, Mishra SN, commentary, Chaukambha Orientatia, Varanasi, 262 (2004)
9. Sharma.S,Rasatarangini, Hindi Commentary, ShastriKashinath, Motilal Banarasi das, Delhi. 517 (2000).
10. MishraGularaja Sharma, Ayurveda Prakasha by UpodhyayaMadhava, Carith.Arthvidhyothi and Arthaprakashiniskrit and Hindi Commentary), 1st ed Varanasi, Chaukambaorientalia; 2008 sloka 3/287-289
11. Sharma. SRasatarangini, Hindi Commentary, ShastriKashinath, Motilal Banarasi das, Delhi.517 (2000).
12. LochanKanjiv,BhaishajyaRatnavali of GovindaDasji Bhisagratna, Reprint. Vol.1. Varanasi.Chaukambha Sanskrit sansthan, 2008 .2.49
13. DatturamChoumbe, Brhat Rasa Raja Sundhara (with hindi commentary)3rded., Varanasi Chowkambaorientalia2000 Manduraprakaranam. 65sz.
14. Gopalkrishna SatPrakashika, Rasendrasanasamgraham, (with Saty Prakashika commmentary) 1ed., Varanasi ChowkambhaKrishnadasAcademy, 1994. (1/355)
15. Mishra Gularaja Sharma, Ayurveda Prakasha by UpodhyayaMadhava, Carith. Arthvidhyothi and Arthaprakashiniskrit and Hindi Commentary), 1st ed Varanasi, Chaukambaorientalia; 2008 sloka 3/287-289
16. Ayurvedic pharmacopoeia ofIndia Part I, vol. 2, 1st ed., Delhi The controlleof publications 2001, Pg.5,26,47
17. Tripathiindradev.RasaratnasamuchayaofVag bhata.4thedition.Varanasi:Chowkhambha Sanskrit series office office ;2006.5. p60-62.
18. KrishnaGopalSatputeAsok.Rasendrasarasan graha.1stedition.Varanasi:ChowkhambhaKri shnadas Academy;1994.1. p104
19. Chaudhary A and Prakash. B, Scientific Validated approach for application of MadhuraBhasmaA Review, Electronic journal of Pharmacology and Therapy Vol. 3. (2010), Pg. 2
20. Sargadhara, Adamalla, Kasirama, Pandita ParasuramaSastry.Sargadharasamhitha by Sargadharacharya,Varanasi:ChowkambhaKr ishndas Academy; 2013. 11. p256
21. Agnivesa, Charakasamhita, Chaukambhaorientalia, Varanasi, 2008, suthrasthanam, chapter 28, verses 10
22. Prabhakar G Rao, Chakradatta of Acharya ChakrapaniDatta, 1sted. Varanasi: ChaukambhaOrientalia;2014.8.p121
23. Tripathiindradev. Rasaratnasamuchaya of Vagbhata.4thed.Varanasi:choukambha Sanskrit series office;2006.5.p60-62
24. KrishnaGopalSatputeAsok.Rasendrasarasan graha.1stedition.Varanasi:ChowkhambhaKri shndas Academy;1994.1. p108
25. Madhava .Mishra G .Ayurveda Prakasa of Acharya Sri Madhava .Varanasi: Choukamba VidyaBhawan ;2007. 3.p388-390
26. Sharma. SRasatarangini, Hindi Commentary, ShastriKashinath, Motilal Banarasi das, Delhi.517 (2000).
27. KrishnaGopalSatputeAsok.Rasendrasarasan graha.1stedition.Varanasi:chowkhambhaKris hndas Academy;1994.1. p107

28. Sargadhara, Adamalla, Kasirama, PanditaParasuramaSastry.Sargadharasamhit ha by Sarngadharacharya, Varanasi: ChowkambhaKrishnadas Academy; 2013. 11. p250
29. Lochan Kanjiv,BhaishajyaRatnavali of GovindaDasji Bhishagratna, Reprint. Vol.2, Varanasi.Chaukambha Sanskrit sansthan, 2008 .44.710
30. TrikamjiYadavji, Rasamritha, (Text book with English translation byDamodar Joshi and G. Prabhakar Rao). 1st ed., Varanasi, U.P Chowkambha Sanskrit Bhavan, 1998.3/150.
31. Sarangadhara, Adamalla, Kasirama, PanditaParasuramaSastry.Sargadharasamhit ha by Sargadharacharya, Varanasi: ChowkambhaKrishnadas Academy; 2013. 11. p256
32. SidhiNandhanaMisra,Rasendrachintamani of AcharyaDundukanath: Sidhiprada commentary. Varanasi: Chaukamba Orientalia; 2011. p128.

How to cite this article: Uthamsha VP, Sreeni TV. An analytical review on mandura bhasma in classics. *Int J Health Sci Res.* 2021; 11(11): 102-107. DOI: <https://doi.org/10.52403/ijhsr.20211111>
