



DISCUSSION ON A HARDER RASA DRAVYA 'LOHA' (IRON): A REVIEW

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ABSTRACT

Rasa Shastra is the Pharmaceutical branch of *Ayurveda* which deals in detail about the preparation of various metals and minerals to achieve their utmost therapeutic effect. *Loha* (iron) is one among the most important *Rasa Dravya* which is known for its hardness. As free molecule of *Loha* (iron) is non homologous and very toxic to the human body, it must be converted into homologous form called *LohaBhasma* [bio-metallic(iron) medicinal powders]. *Bhasmas* are nanoparticles in nature and are well known for their lower dose, quick action, and a longer shelf life. *Lohabhasma* is widely used for the treatment of wide range of diseases like *Pandu Roga* (anaemia), *Kamala* (jaundice), *Shwetpradara* (Leukaemia), *Ganda mala* (goitre), *Anartava* (Amenorrhoea), diseases of liver, *Hrudroga* (cardiac diseases), *Vishamajvara* (fever), all types of *Shosha*(emaciation) etc. Hence an attempt has been made to give the detailed description about *Lohadhatu* available in *Ayurvediya Rasa Shastra* classics like *Loha* synonyms, classifications, sub-classifications, Detoxo-purification (*shodhana*), *Marana* (incineration), *Amruteekarana*, Dosage, adjuvants, Pharmacological actions, therapeutic indications, adverse effects and management of adverse effects, etc.

Keywords: *Loha*, *Loha Shodhana*, *Loha Marana*, *Loha Bhasma*.

INTRODUCTION

The first reference of *Loha* is found in *Yajurveda*. *Loha* is one of the important metals used in *Ayurvedic* classics which is known for its hardness. In *Samhitas* references are available about the uses of *Loha* in powdered form called as *Ayaskruti*. But in *Rasa Shastra* detailed descriptions available about the preparation of *LohaBhasma* and their therapeutic uses. Iron supplementation is required for the formation of hemoglobin in blood. The majority of iron in the body is contained within hemoglobin, an erythrocyte protein that transfers oxygen from the lungs to the tissues. The iron contained in hemoglobin is also responsible for the red color of blood. Iron is an essential component of myoglobin, a protein that provides oxygen to muscles. And also, it is most essential component for maintaining various physiological conditions like metabolisms, encompassing full range of cellular processes, energy production, biosynthesis, replication and locomotion¹. Despite being so important, it has toxic properties when presented on its free form. Hence it should be converted into *Bhasma* wherein chemically it will be in oxidized form of Fe_2^+ and Fe_3^+ , to mediate its regular activity of electron transfer. To prepare *Loha Bhasma* a series of pharmaceutical procedures are explained like *Shodhana* (Detoxification), *Marana* (incineration), *Amruteekarana*, so that its therapeutical benefits can be achieved in various disease conditions.

Synonyms²: *Loha*, *Shastraka*, *Teekshana*, *Pinda*, *Kaalayasa*, *Ayasa*

Vernacular names:

Sanskrit- *loha*; Kannada- *kabbina*; Hindi- *lohaa*; Gujarati- *lodhan*; Marathi- *lokhand*; Telugu- *demmu*, *chumu*; Malayalam- *Irumbu*; Oriya- *luha*; Urdu- *loha*, *ain*.

Classifications:^{3,4,5}

- 1) *Munda Loha* (Cast Iron)
- 2) *TeekshnaLoha* (Iron turnings)
- 3) *KaantaLoha* (Magnetic ore of Iron)

Among three types⁶;

1. *Kaanta Loha* is best therapeutically (*Kaantaloha* is 1000 times better than *TeekshanaLoha*)
2. *Teekshna Loha* is better (*TeekshanaLoha* is 100 times better than *Munda Loha*).

3. *Munda Loha* is less useful therapeutically (*Munda Loha* is ten times better than *Mandura*).

Sub Classifications⁷:

Munda Lohabheda:

There are three subtypes of *Munda Loha*

1. *Mrudu*- it melts quickly, when attempts to break it doesn't break and it possess a glassy surface.
2. *2)Kuntha*- when hammered expands with difficulty.
3. *3)Kadara*- when hammered breaks easily with black surfaces.

Teekshna Loha Bheda:

There are 6 subtypes of *TeekshnaLoha*

1. *Kharaloha*- rough, breaks easily on bending, on breaking gives mercuric luster, does not have hair like lines.
2. *Saara loha*- when hammered breaks by side, has hair like lines.
3. *Hrunnalal oha*- blackish white color, shows beak like hair lines, very difficult to break.
4. *Taaravatt loha*- color like sky, glossy, shows clear hair lines on the surface.
5. *Vaajira loha*- smooth, blue in color, glossy, very fine hair like lines on the surface and does not rust.
6. *Kaala loha*- bluish black in color, slimy, heavy, and does not break on hammering.

Kaanta loha Bheda:

There are 5 subdivisions of *kaanta loha*

1. *Bhraamaka Kaantaloha*- makes to move all kinds of iron on attraction (produces magnetic attraction).
2. *Chumbaka Kaantaloha*- attracts iron scraps and catches them.
3. *Karshaka Kaantaloha*- attracts other pieces of iron.
4. *Draavaka Kaantaloha*- melts at once other pieces of iron without applying heat.
5. *Roma Kaantaloha*- on breaking shoots forth hair like filaments.

Ashuddha Loha Dosha⁸:

In *Ayurveda Prakash* 7 types of *Loha Dosha* are mentioned.

1. *Gurutaa* (heaviness)
2. *Drudata* (Stiffness)
3. *Utkleda/ Utklesha* (Nausea)
4. *Glani* (timidness)
5. *Dahakarita* (burning sensation)
6. *Ashmadosha* (undigestiveness)

7. *Durgandhata* (bad smelling)

Ashuddha Loha Sevana Dosha⁹:

Ashuddhaloha is not good for health. It destroys *Aayu*, *Bala* and *Kaanti* and Causes *Shandatva*, *Kushtha*

(skin diseases), *Hrudroga* (cardiac pain), *Shoola* (various types of pain), *Ashmari* (calculus), and *Apaatavroga* in *Shareera* and even *Mrityu*.

Table 1: Samanya Loha Shodhana (Detoxo-Purification):

Sl.No	Procedure	Duration	Reference
1.	<i>Nirvaapa</i> (heating and quenching) in the following <i>Drava Dravyas</i> respectively. 1. <i>Taila</i> 2. <i>Takra</i> 3. <i>Gomutra</i> 4. <i>Aranal</i> 5. <i>Kulattha kwatha</i>	7 times in each liquid	R.R.S 5/13 R.Chi 6/3-4 R.Sa.San 1/245-246
2.	<i>Nirvaapa</i> (heating and quenching) in <i>Kadalmoolajala</i> .	7 times	R.Sa.San 1/296

Table 2: Vishesha Loha Shodhana (Detoxo-Purification):

Sl.No	Procedure	Duration	Reference
1.	<i>Loha</i> is heated red hot and quenched in <i>Triphalakashaya</i> .	7 times	R.T 20/15, A.P 3/241-243
2.	<i>Lohachurna</i> is taken in iron vessel, heated to red hot and Quenched in <i>Kadali moola jala</i> for 7 times. Each time fresh <i>Kadali moola jala</i> is taken	7 times.	R.T 20/17
3.	All types of iron follicles are applied with <i>Shasha rakta</i> (rabbit's blood) then heated to red hot.	3 times	R.R.S 5/101
4.	5 pala of iron follicles are added into iron pan containing <i>TriphalaGomutra Kwath</i> and boiled. It is stirred continuously till it gets dried to such an extent that when dried grass is put on this <i>Churna</i> should get burnt. This procedure is repeated for 5 times. Now it should be triturated with <i>Aamlaki Swarasa</i> or <i>Triphala Kwatha</i> and subjected to 4 <i>puta</i> . <i>Vaaritara Lohabhasma</i> .	5 times.	R.R.S 5/107
5.	If any drug is unavailable then, <i>loha</i> is heated red hot and quenched in <i>Dugdha</i> , <i>Ghruta</i> , <i>Taila</i> and <i>Gomutra</i> .	-	Ayu.Pra 3/ 247

LohaTrividhaPaaka: *ShodhitaLoha* is subjected to *TrividhaLohaPaaka* to obtain best *Bhasma*. (R.T 20/22-31)

1. BHAANUPAAKAVIDHANA: *Shuddha loha Choorna* is washed with water, mixed with *Triphalakashaya* and dried under sunlight. When *Triphalakashaya* evaporates, again it should be added, this is repeated for 7 times.

2. STHAALIPAAKAVIDHANA: *Bhanupaakita Loha Churna* is boiled with *Triphalakashaya/ Shatavari*,

Hastikarnaka, *Palash moola swarasa* taken in equal quantity to that of *Lohachurna* and *Sthalipaaka* is done in an iron pan (*sthaali*) till the water part evaporates.

3. PUTAPAAKA VIDHAANA: After *Sthalipaaka* of *Lohachurna*, required *Doshahara* drugs *Swarasa*, *Kashaya* etc are added, triturated, pallets prepared, dried and enclosed in *Sharaavasamputa*. Subjected to 60/100/1000 *Put*.

Table 3: Loha Marana (Transfer Mechanism Of Quantum Of Heat/Incineration):

Sl.no	Procedure	Putra	Reference
1.	<i>Shuddha loha churna</i> is triturated with <i>Tinduka rasa</i> for 1 day. Then it is triturated with <i>Triphala</i> , <i>Bhrungaraj</i> and <i>Kanthakari rasa</i> and subjected to <i>Putra</i> . <i>Loha Jalatara bhasma</i> is obtained	3Gaja Putra	Ayu.Pra3/248-254
2.	<i>Shuddha Loha churna</i> is triturated with one among the following: <i>Triphalakashaya</i> or <i>Raktapunarnavpatra rasa</i> or <i>Girikarnikarasa</i> or <i>Changeri rasa</i> or <i>Salila rasa</i> or <i>Jalavetasa rasa</i> and subjected to 30 <i>putas</i> . <i>Jamuna varna Bhasma</i> is obtained which should be <i>jalatara</i> .	30 Putra	Ayu.Pra 3/ 261
3.	<i>Loha</i> heated to red hot and quenched in <i>Triphalakwaatha</i> for 100 times. If it doesn't turn into powder again it is heated to red hot and quenched in <i>Triphalakashaya</i> . Then it is boiled in <i>Gomutra</i> . Again, triturated with <i>Triphalakashaya</i> and subjected to <i>Putra</i> till <i>Nirutthalohabhasma</i> is obtained, then it is triturated with <i>Ghruta</i> and honey and used.	Till <i>Niruttha LohaBhasma</i> is obtained.	Ayu.Pra3/ 270
4.	<i>Shodhita Loha churna</i> should be triturated with <i>Aamlaki Swarasa</i> or <i>Triphala Kwatha</i> and subjected to <i>puta</i> . By this <i>Vaaritara Loha bhasma</i> will be obtained.	4 Gajaputa	R.R.S 5/107
5.	<i>Lohachurna</i> triturated with <i>Triphalakwath</i> , <i>Chakrikas</i> are prepared. Enclosed in <i>Sharaava samputa</i> Subjected to <i>putas</i> . By this method red colored <i>Bhasma</i> is obtained.	5 Putra	R.R.S 5/119-120
6.	<i>Loha puta paka</i> : Depending on the vitiated <i>Doshas</i> or disease condition, <i>Lohachurna</i> is processed with particular <i>Aushadhis</i> . If the specific <i>Aushadhi</i> is not available than <i>Triphalakashaya</i> is used and subjected to 100 or 1000 <i>Putas</i> . This <i>Lohabhasma</i> is used for various disease conditions.	100 or 1000 Putas.	R.T 20/50-51
7.	<i>Bhanupakita</i> and <i>Sthalipakit Lohachurna</i> is taken with equal quantity of <i>shuddha hingula</i> and <i>Ghrutakumari swarasa</i> , triturated and dried under sunlight. Enclosed in <i>Sharaava samputa</i> subjected to <i>Gaja puta</i> . After <i>Swaang sheet Lohachurna</i> is taken mixed with 1/20th part of <i>hingula</i> and triturated with <i>Triphala kashaya</i> or <i>Bhrungaraj rasa</i> . <i>Chakrikas</i> are prepared, enclosed in <i>sharaavasamputa</i> and subjected to <i>Gajaputa</i> . Like this 1/20th parts of <i>Hingula</i> mixed and processing is done for 40 <i>Gajaputa</i> . Red lotus like (<i>Rakta Varna</i>) <i>Bhasma</i> is obtained.	40 Gaja puta	R.T 20/53-55

Mruta Loha Pariksha^{10,11}(Confirmation Test):

➤ Honey, ghee, *Loha Bhasma* and *Rajata* are enclosed in *Sharaava samputa* and subjected to *agni*. If the quantity of *Rajata* remains same as placed in *Sharaava* then the obtained *Lohabhasma* is *Ut-tama*. OR

➤ Prepared *Loha Bhasma* is mixed with *Mitrapanchaka* enclosed in *Sharaava samputa* and subjected to *Putra*, if the *Bhasma* remains in its same physical form without any changes then it indicates properly prepared *Bhasma* (*NirutthaBhasma*).

Apakawa Loha Bhasma Nirutthikarana^{12,13}:

If *Bhasma* is improperly prepared, then.

- *Lohabhasma* + *GoGhruta* + *ShuddhaGandhaka* are taken in equal parts and triturated with *Kumari swarasa* made into fine powder. It is enclosed in *Sharaava samputa* and subjected to *Gajaputa*. After 1 *Gajaputa Lohabhasma* becomes *Niruttha*.
- *Loha Bhasma* is added with equal quantity of *Shuddha Gandhaka* and triturated with *Kumari swarasa* for 1 day in *taptakhalwa yantra*, mixture is enclosed in *Sharaava samputa* and subjected to *Gajaputa*. *Lohabhasma* becomes *Niruttha*.

Pharmacological And Therapeutic Properties Of Loha^{14,15}:

- *Rasa- Tikta, Kashaya*
- *Guna- Guru, Rooksha, Lekhana and Sara.*
- *Virya- Sheeta*
- *Vipaka- Madhura*
- *Karma- Niruttha Lohabhasma* is considered as *Amruta* (nectar) and is *Rasayan* (immunity booster). It is *Vrushya* (aphrodisiac), *Balya* (improves physical strength,) *Netrya* (beneficial for eyes), *Varnya* (provides good body complexion), *Medhya* (promotes intellect), *Deepana* (carminative), *Lekhana, Vatala and Kapha Pitta Shamaka.*

Therapeutic Indications Of Lohabhasma¹⁶:

Pandu Roga (anaemia), *Kushtha Roga* (Skin diseases), *Gulmaroga, Pleeharoga* (spleen diseases), *Udara-ja KrimiRoga* (~ascariasis), *KshayaRoga* (~emaciation/tuberculosis), *Medoroga, Prameha* (diabetes mellitus), *Garavisha* (combats toxic effects), *Arsha* (hemorrhoids), *Chardi* (Vomiting), *ShwasaRoga* (respiratory conditions), *VisarpaRoga* (Herpes zoster), all types of *Shoola, Shotha* (inflammations), *Sthoulya* (obesity), *Atisara* (dysentery), *Gandamala* (goiter), *Rajoavarodh* (amenorrhoea), *Vrukkashotha* (nephritis), *Hrudroga* (cardiac ailments), *Vishamajvara* (fever), *Phiranga* (Syphilis), *Kamala* (jaundice), *Halimaka* (~chronic obstructive Jaundice), *Shwetpradara* (leucorrhoea), *Maamsataana* (diphtheria), *Madhumeha*, all types of *Shosha, sutikajwara* (puerperal diseases), *Aamavata* (rheumatoid arthritis), diseases of liver, *Bhagandara* (fistula), *Pinasa* (allergic rhinitis), *Am-*

lapitta (acid peptic disorders), It prevents the bleeding from ears, nose, uterus etc. of adolescent age, gastric and intestinal ulcer and there bleeding will be corrected by the use of *Loha bhasma*. It is helpful in managing bone deformity due to *Aamavata*, both physical and psychological disturbance of menopause. Its regular use strengthens the nervous system and helps in all types of *Vataroga*. It is beneficial in reinstating the physical strength after suffering with any of the chronic or acute ailments.

LOHA BHASMA MATRA (Dosage)¹⁷ :

1/4 to 2 *Ratti* as per *Rogarogibala*.

or

Dosage: 1 *Nishk* (3 grams)

Anupana (adjuvant)¹⁸: *Trikatu, Vayvidanga, honey* or *Ghruta*.

Loha Upadrava Parihar¹⁹: *Vayvidanga* is triturated with *Agastyarasa* and advised to lick it with *Agastya rasa*, and patient is asked to sit under sunlight for certain period. This will detoxify the toxicity of *Loha*.

When the toxicity reduces patient feels lightness of body, *Mala pravrutti*, abdominal comfort, and relaxed mind. Along with *Vayvidanga* any *Shoolaghna Aushadha* can be mixed with *Agastya rasa*. *Virechana* is done with *Aaragvadh Majja*.

Loha Sevana Varjya Vastu²⁰: *Pumpkin, Tilataila, Masha, Madhya, Amla Rasa Dravyas, Mandoora* all these are Contra indicated during *Loha Sevana*.

Loha Bhasma Amrutikarana²¹: *Lohabhasma* is boiled in double quantity of *Triphala kashaya*. It is suitable to cure all diseases.

Loha Druti²²: *Gandhaka* is triturated with *Devadaali* for 7 days. When it's *Prativap* is given, *Loha* becomes thin like that of *Paarada*. *Devadaali bhasma* is sieved through *Naramootra* And *Prativap* is given for 21 times. *Loha Druti* is obtained.

Loha Dravana²³: *Gandhaka* is given *Bhavana* with *Devdalirasa* for 7 days and added into melted *Loha*. By this *Loha* gets liquefied like that of *Parada*.

DISCUSSION

Loha (iron) is one among the most important *Rasa Dravya* which is used in the treatment of various diseases either as a single drug or as an ingredient of

compound formulations because of its immense medicinal properties. The majority of iron in the body is contained within hemoglobin, an erythrocyte protein that transfers oxygen from the lungs to the tissues. The iron contained in hemoglobin is also responsible for the red color of blood. Iron is an essential component of myoglobin, a protein that provides oxygen to muscles^{24,25}.

Mainly *Loha* is of 3 types; *Munda Loha* (Cast Iron), *Teekshna Loha* (Iron turnings) & *KaantaLoha* (Magnetic ore of Iron) and Among these three types; *kaantaloha* is best therapeutically, *Teekshna Loha* is better, *Munda Loha* is less useful therapeutically. In short these are better in qualities in increasing order. But practically *Teekshana Loha* is used for the preparation of *Bhasma*, as *Kanta Loha* is rarely available.

As free molecule of iron is very toxic to the human body it must undergo a series of pharmaceutical procedures like *Samanya Vishesh Shodhana*, *TrividhaLoha Paaka*, *Marana*, *Amrutikarana* etc. to prepare *LohaBhasma* [bio-metallic(iron) medicinal powders] in order to achieve its utmost medicinal benefits. Tests for the confirmation of *Loha Bhasma* are given and in case if appropriate *Bhasma* is not prepared, procedures are explained to achieve required results. Dosage, adjuvants, Pharmacological actions, therapeutic indications, adverse effects and management of adverse effects, *Loha Amruteekarana*, *Loha Druti* and *Loha Dravana*, are discussed in detail.

CONCLUSION

Loha is hardest metal which is non homologous to the human body, it must be converted into homologous form called *Loha Bhasma*. *Loha samanya* and *Vishesh Shodhana* should be carried out followed by the specific methods of *marana* to obtain the good quality of *Bhasma*. And after the formation of *Bhasma* its *Amruteekarana* should be done in order to make it therapeutically more potent. As *lohabhasma* possesses the pharmacological properties like *Rasa- Tikta Kashaya*, *Guna -Guru*, *Rooksha*, *Lekhana*, *Sara*, *Sheetavirya* and *Madhura Vipaka* it is indicated in wide range of diseases like *Pandu Roga* (anaemia), *Kushtha Roga* (Skin diseases), *PleehaRoga* (spleen

diseases), *Udaraja Krimi Roga* (~ascarias), *Kshayaroga* (~emaciation/ tuberculosis), *Prameha* (diabetes mellitus), *Sthoulya* (obesity), *Atisara* (dysentery), *Anartava* (amenorrhoea), *Hrudroga* (cardiac ailments), *Vishamajvara* (fever), *Phiranga* (Syphilis), *Kamala* (jaundice), *Shwetpradara* (leucorrhoea), *Aamavata* (rheumatoid arthritis) etc.

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