Brief Review of literature on Puti Lohas

Gajendra D. R.,¹ Lakshmi B. Kurle,² M. S. Doddamani.³
¹Post Graduate Scholar, ²Guide & Associate Professor, ³Professor and Head, Dept. of Rasashastra and Bhaishajya Kalpana, Govt. Ayurveda College, Ballari, Karnataka, India.

ABSTRACT

Rasashastra is a science which deals with the pharmaceuticals of medicines out of mercury, minerals, metals, gem stones and animal products etc. Loha and Dhatu are consider as one and the same. Puti Lohas are those drugs which emits bad smell while they are melting. Many references of Puti Lohas is available in Ayurvedic classics since Vedakala to modern texts. Puti Lohas cannot be degraded since they are having their own identity in mineralogy and clinical practice of Ayurveda.

Key words: Putilooha, Dhatu, Shodana, Jarana, Marana.

INTRODUCTION

The Sanskrit word “Dhatu” comes from Veda “Dha” meaning to support. There are 7 basic Dhatus (tissues) which support the living body. The Sanskrit word “Loha” derived from a root “Iuha” meaning to pull. Thus ores, from which metals are extracted were known as ‘Loha’.

In context of Rasashastra the word Dhatu denotes a metal, Loha and Dhatu considered as one and the same in ancient scriptures of Ayurveda. Almost all metals are derived from ores which means concentrations of appropriate minerals accessibly situated at or near the earth’s surface. The word ‘Puti’ means bad, obnoxious or dirty. The metals mentioned in this group are supposed to emit obnoxious smell, while they are melting, so these are called as Putilohas. There are 3 Putilohas viz., Naga, Vanga, Yashada.

Address for correspondence:
Dr. Gajendra D. R.
Post Graduate Scholar, Dept. of Rasashastra and Bhaishajya Kalpana, Govt. Ayurveda College, Ballari, Karnataka, India.
E-mail: gajudevigere@gmail.com
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HISTORICAL BACKGROUND[1]

In Indian history, mercury was the first metal used for medicinal purpose, numerous mentions have been made about various metals and minerals since Vedic period.

Vedic Periods

1. In Rigveda mention of Gold has been made denoting its usage for Ornaments and the Gold smith was called as Karmar in those days.
2. In Yajurveda there are many references of Gold, Silver, Copper, Lead, Tin, and Iron are present.
3. In Atharvaveda there are many references of metals present they called Swarna as Harita, Chadi as Rajata, Loha as Shyamamaya Loha, Tamra as Lohithamaya Loha.
4. Various references about metals are found in ancient scriptures like Ramayana, Mahabharata, Agnipurana and Vishnu Dharmottara Purana.
5. In Yagnavalka Smriti[2] also explain the 6 dhatus and he explain the loss of the individual metals when heating on fire (Agni).
6. In Manu Smriti also explain 8 Dhatus they are Swarna, Rajata, Tamra, Loha, Kansya, Riti, Naga, and Vanga. In that explanation about Shodana of Dhatus with the Jala, Ksara, and Amla.

REFERENCES

[1] [2]
Samhita Period

After knowing about the medicinal importance of the Dhatus they have explained in our Chikitsa Granthas. In Charaka Samhita\(^3\) also explain the 8 Dhatus, Swarna, Rajata, Tamra, Trapu, Pittalam, Kansya, Sisa and Ayas (iron). In Susruta Samhita\(^4\) also explain about 6 Dhatus, Swarna, Rajata, Tamra, Krishna Loha, Trapu, Sisam they are used as Aushadha, Sastra and Upakarana. In Astanga Sangraha\(^5\) the Marana of metals have been explained, he also explain Swarna, Rajata, Tamra, Kansya, Trapu, Sisa, Krishna Loha.

Period of Rasa Shastra

Almost all the Rasa Shastra texts explain the Dhatus. In Rasarnava\(^6\) explain 6 Dhatus Swarna, Rajata, Tamra, Tiksna Loha, Vanga and Sisa and he explain types of each Dhatus. In Rasahrudaya Tantra,\(^7\) Dhatus are classified into 3 groups, Sara Loha, Satva Loha and Puti Loha. In Rasaratna Samucchaya\(^8\) also classified Dhatus into 3 groups, Shudda Loha, Puti Loha, and Mishra Lohas. In Rasa Tarangini also explain 7 Dhatus. Yogaratnakara also explain 7 Dhatus in that he added Parada. In Rasamrutam also explain about Lohas in 2\(^{nd}\) chapter and below an attempt is made to describe the name, synonyms, types, Grahy Swaroopam, methods of Shodhana, Jarana, Marana, Guna, Karma, Matra, Anupana and Yoga in brief tabular form of Puti Lohas.

1. Naga (Lead)

<table>
<thead>
<tr>
<th>Character</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Sanskrit - Naga, English - Lead, Hindi - Sisa, Latin - Plumbum, Symbol - Pb</td>
</tr>
<tr>
<td>Synonyms(^9)</td>
<td>Sisa, Sisaka, Naga, Nagaka, Bhujanga, Ashivisha, Kuveduka, Kuranga, Sarpa, Sindurkarana, Vabra, Yogesta.</td>
</tr>
<tr>
<td>Chemical Name</td>
<td>Plumbum (Pb)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Varga</th>
<th>Dhatu (Putiloha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types(^10)</td>
<td>Kumara and Shabala/Shamala</td>
</tr>
<tr>
<td>Grahy Swaroopam(^11)</td>
<td>Lead is a bluish grey, heavy metal, the freshly cut surface shows a bright metallic luster, which is however quickly lost on exposure to air due to oxidization, it is soft may be scratched with the finger nail and makes a black streak on paper, when heated it emits a foul odour.</td>
</tr>
<tr>
<td>Agrahya Swaroopam(^12)</td>
<td>Opposite to above said qualities.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>7</td>
</tr>
<tr>
<td>Hardness</td>
<td>1.5</td>
</tr>
<tr>
<td>Melting Point</td>
<td>327.5°C</td>
</tr>
</tbody>
</table>

Shodhana

Samanya Shodana:\(^{13}\) Naga is to be melted and poured in a Pithara Yantra containing Tila Taila, Takra, Gomutra, Kanji and Kulattha Kwatha for 7 times each.

Vishesha Shodana:

1. Lead is heated in an iron vessel with the fuel of Khadhira wood, on melting it is quickly poured into the Triphala Kwatha, Kumari Swarasa or Karavira Swarasa for 7 times, the lead gets purified.\(^{14}\)

2. Melted Lead is poured into Churnodaka for 7 times, the lead gets purified.\(^{15}\)

3. Melted Lead is poured into Nirgundi Swarasa containing Haridra Churna for 3 times to purified lead specifically.\(^{16}\)
Jarana [17] Pure lead is melted over fire in an iron pan and added ¼ th part mercury then Ahiphena Churna (Papaver Somniferum Linn.) little by little is added and go on rubbing with iron ladle, when lead converts into powder form, it should be collected at the center of an iron pan and strong heating may be applied for few hours and allowed for Swanga Sheeta (self cooling).

Marana [18] Equal quantity of Manashila powder is added to Jarita Naga and triturated it with Atarusa Swarasa (Vasa Swarasa) and apply Laghu Puta by Puta system, from 2nd Puta onwards add 1/4th part of Manashila and repeat the procedure for 7 times, by this method lead certainly converts into Bhasma form.


Matra [21] ¼ - 1 Ratti (30-120mg)

Anupana [22] Madhu


2. Vanga (Tin)

<table>
<thead>
<tr>
<th>Character</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Names</td>
<td>Sanskrit - Vanga, English - Tin, Hindi - Ranga</td>
</tr>
<tr>
<td>Latin Name and Symbol</td>
<td>Stannum (Sn)</td>
</tr>
<tr>
<td>Synonyms [24]</td>
<td>Vanga, Vangaka, Ranga, Rangaka, Sukraloha, Kurupya, Trapu, Trapusa,</td>
</tr>
<tr>
<td>Varga</td>
<td>Dhatu</td>
</tr>
<tr>
<td>Types [25]</td>
<td>Khuraka (best) and Misraka</td>
</tr>
<tr>
<td>Grahya Swaroop [26]</td>
<td>White, soft, smooth, heavy, quick melting and without any sound.</td>
</tr>
<tr>
<td>Agrahya Swaroop [27]</td>
<td>Blackish white, hard, not melt easily and associated with other metallic impurities.</td>
</tr>
<tr>
<td>Specific Gravity [28]</td>
<td>7.3</td>
</tr>
<tr>
<td>Hardness [29]</td>
<td>6.7</td>
</tr>
<tr>
<td>Melting Point [30]</td>
<td>232°C</td>
</tr>
<tr>
<td>Shodhana</td>
<td>Samanya Shodhana - Vanga is to be melted and poured in a Pithara Yantra containing Tila Taila, Takra, Gomutra, Kanji, and Kulattha Kwatha for 7 times each.</td>
</tr>
</tbody>
</table>
### Vishesha Shodhana[^33] - Melted Vanga

is poured in the pot containing *Nirgundi Swarasa* and *Haridra Churna* for 3 times.

#### Jarana[^32]

Pure Vanga is kept in an Iron Pan and heated, while melting, powder of *Apamarga* 1/4<sup>th</sup> part is sprinkled over it little by little rubbing with an Iron ladle, till it becomes powder form completely.

#### Marana[^33]

*Jarita Vanga* powder is triturated with *Kumari Swarasa* or *Satavari Swarasa* or milk cream and prepare its *Chakrikas*, dry them and close in a *Sarava Samputa* and apply *Ardha Gajaputa* heat such 7 *Putas* certainly convert *Vanga* into *Bhasma* form.

#### Gunas[^34]

- **Guna** - Ruksa, Laghu, Sara, Usna, Teeksna.

#### Vyadhi Prabhava[^35]


#### Matra[^36]

1 - 2 Ratti

#### Anupana[^37]

- Honey, Ghee, Milk, *Guduchi Swarasa*, *Haridra Rasa*.

#### Yogas[^38]


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### 3. Yasada (Zinc)

<table>
<thead>
<tr>
<th>Character</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name[^39]</strong></td>
<td>Sanskrit - <em>Yasada</em>, English - Zinc, Hindi - <em>Jasta</em></td>
</tr>
<tr>
<td><strong>Latin Name and Symbol</strong></td>
<td>Zincum (Zn)</td>
</tr>
<tr>
<td><strong>Synonyms[^40]</strong></td>
<td><em>Yasada, Jasada, Ritihetu, Kharpuraa, Ranga Sankara</em></td>
</tr>
<tr>
<td><strong>Varga</strong></td>
<td>Dhatu (<em>Putiloha</em>)</td>
</tr>
<tr>
<td><strong>Grahya Swaroopa[^41]</strong></td>
<td>White, shiny, smooth, soft, heavy and quickly melts on fire.</td>
</tr>
<tr>
<td><strong>Agrahya Swaroopa[^42]</strong></td>
<td>Hard, not melts easily and <em>Ruksa Prabhram</em></td>
</tr>
<tr>
<td><strong>Specific Gravity</strong></td>
<td>7.15</td>
</tr>
<tr>
<td><strong>Melting Point</strong></td>
<td>419°C</td>
</tr>
</tbody>
</table>
| **Shodhana** | *Samanya Shodhana* - *Yasada* is to be melted and poured in a *Pithara Yantra* containing *Tila Taila*, *Takra*, *Gomutra*, *Kanj* and *Kulattha Kwatha* for 7 times each.  
*Vishesha Shodhana[^43]* - Melted *Yasada* should be poured in *Choornodaka/Snuhi Ksheera/Nirgundi Swarasa* for 7 times, or *Goksheera* for 21 times |
| **Jarana[^44]** | *Shodhita Yasada* is melted on fire, put *Bhanga* and *Ahipena* (*Papova Somniferum* Linn.) powder on little by little and rub it carefully with an Iron ladle till *Yasada* completely converts into powder form. |
| **Marana[^45]** | *Jarita Yasada* powder is sieved through cloth and subject it to *Kumari Swarasa Bhavana* then prepare its *Chakrikas* and allow them to dry then apply *Gajaputa* heat by *Puta* system, In this |

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[^33]: Vishesha Shodhana - Melted Vanga is poured in the pot containing *Nirgundi Swarasa* and *Haridra Churna* for 3 times.

[^32]: Jarana - Pure Vanga is kept in an Iron Pan and heated, while melting, powder of *Apamarga* 1/4<sup>th</sup> part is sprinkled over it little by little rubbing with an Iron ladle, till it becomes powder form completely.

[^33]: Marana - *Jarita Vanga* powder is triturated with *Kumari Swarasa* or *Satavari Swarasa* or milk cream and prepare its *Chakrikas*, dry them and close in a *Sarava Samputa* and apply *Ardha Gajaputa* heat such 7 *Putas* certainly convert *Vanga* into *Bhasma* form.


[^36]: Matra - 1 - 2 Ratti

[^37]: Anupana - Honey, Ghee, Milk, *Guduchi Swarasa*, *Haridra Rasa*.


[^39]: Name - Sanskrit - *Yasada*, English - Zinc, Hindi - *Jasta*

[^40]: Synonyms - *Yasada, Jasada, Ritihetu, Kharpuraa, Ranga Sankara*.

[^41]: Grahya Swaroopa - White, shiny, smooth, soft, heavy and quickly melts on fire.

[^42]: Agrahya Swaroopa - Hard, not melts easily and *Ruksa Prabhram*.

[^43]: Specific Gravity - 7.15

[^44]: Melting Point - 419°C

[^45]: Shodhana - *Samanya Shodhana* - *Yasada* is to be melted and poured in a *Pithara Yantra* containing *Tila Taila*, *Takra*, *Gomutra*, *Kanj* and *Kulattha Kwatha* for 7 times each.  
*Vishesha Shodhana* - Melted *Yasada* should be poured in *Choornodaka/Snuhi Ksheera/Nirgundi Swarasa* for 7 times, or *Goksheera* for 21 times.

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[^45]: Marana - *Jarita Yasada* powder is sieved through cloth and subject it to *Kumari Swarasa Bhavana* then prepare its *Chakrikas* and allow them to dry then apply *Gajaputa* heat by *Puta* system, In this

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way by repeating the process 7 times Yasada converts into Bhasma form.

**Guna**


**Vyadhi Prabhava**


**Matra**

½ - 1 Ratti

**Anupana**

Makkhana, ghee, milk, milk cream

**Yogas**

Trivanga Bhasma, Shilajatvadi Lauha, Laghuvasanta Malati Rasa, Swarnavasanta Malati Rasa, Yasadamruta, Malahara.

**DISCUSSION**

The word ‘Puti’ means bad, obnoxious or dirty. The 3 metals mentioned in this group are supposed to emit obnoxious smell while they are melting, so these are called as Puti Lohas. The knowledge of Puti Lohas was present science Veda Kala. The Puti Lohas are used in our classics as Instruments and Medicines to treat the disease. Puti Lohas are available in different alloy forms these alloys are used in our day today life. eg: Naga and Vanga are present in alloys like Solder, Tempemetal, Pewter, Wood Metal. Yasada present in alloys like Pittala etc. Many dissertation works are done over these Puti Lohas to prove their effect in treating many diseases.

**CONCLUSION**

Hence by considering all the discussion points we can conclude that Naga, Vanga and Yasada are called as Puti Lohas and they are mentioned in Indian classics since ancient days. Pharmacologically there are many formulations prepared by PutiLohas and shows its benefits over many diseases. Application of PutiLohas as been proved by many thesis works, hence puti lohas are having unique importance in Ayurvedic classics.

**REFERENCES**


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