ABSTRACT

The Bhasmas are the unique preparations of metals and minerals commonly used in Ayurveda for the treatment of various ailments. Marana (incineration) process converts the native form of metal and minerals into stable and assimilable form called Bhasmas (calx). Bhasmas are said to be the most ancient application of nanomedicine. After the Marana process Bhasmas of Abhraka, Louha and Tamra are subjected to a special process called 'Amrutikarana'. The process is performed to remove the remnant Doshas (impurities) which might be present in the Bhasma and also claimed that it enhances the therapeutic efficacy. In the present paper, an attempt is made to review and put forth the concept of Amrutikarana.

KEY WORDS: Amrutikarana, Shodhana, Abhraka, Louha, Tamra, Marana.

INTRODUCTION

Rasashastra is Ayurvedic Pharmaceutics dealing with the Rasashadhis (herbo-mineral-metallic compounds). The master drug of this ancient science is Parada (mercury), while the other drugs are used along with Parada Bhasmas (calx) are one among such preparations which are prepared after various Samskaras (processing) like Shodhana (purification), Jarana (digestion), Marana (incineration), Amrutikarana (nectarization) etc. The metals and minerals used in therapeutics are recognized for possessing impurities which are likely to bring about certain toxic effects.

Samskaras can bring certain changes in properties of the drug. Hence ancient seers developed the procedures like Shodhana, Marana, Amrutikarana etc., which abolish the toxicity of the drug, bring about the physical and chemical changes in the drug, thus enhance their therapeutic efficiency. Shodhana is a process in which different drugs are subjected to various procedures like, Mardana (grinding), Swedana (vapourising) Prakshalana (performing frequent ablutions), Galana (straining fluids) etc., by treating them with Dravyas (plant juices/decoctions or animal products) those are specifically mentioned for the purpose of eliminating impurities. Shodhana does the detoxification of the drugs and makes them brittle thereby helping in the further process like Marana. Marana is literally means to kill. It is a process in which the metals and minerals are triturated with the specified drugs and Svarasa/Kvatha (juice/decoction), then subjected to Puta (specific quantum of heat) to obtain Bhasma.

Sometimes the Bhasma, although prepared carefully cannot get rid of properties or ingredients which prove harmful and toxic to the body. In such circumstances the Bhasma is subjected to further processing termed as Amrutikarana. Amrutikarana is claimed to induce nectar like properties in a Bhasma by nullifying the trace impurities expected to be present in the Bhasmas. This is specifically mentioned only to Abhraka, Loha and Tamra bhasmas. The references of Amrutikarana are available in Rasatarangini, Rasamrutha, Anandakanda, Rasendra Chintamani, Rasayanasara, Ayurveda Prakasha, Bruhat Rasaraja Sundara, Rasa Jala Nidhi.

Sri Sadanand Sharma, author of Rasatarangini defines Amrutikarana as a process in which, remove the remnant/traces of impurities present in the Lohadi bhasmas after the Marana process. Anandakanda has included this under the 5 Samskaras of Abhraka. Madhava upadhyaya, author of Ayurveda Prakasha opines about Amrutikarana in context of Abhraka bhasma as, the process by which the aruna (red coloured) bhasma loses its colour, but the properties get enhanced. Yadavaji Trikamaji Acharya, author of Rasamruta opines that it removes the eight bad effects of Tamra.

Table 1: Amrutikarana of Abhraka, Tamra and Loha in Different texts.

<table>
<thead>
<tr>
<th>Text</th>
<th>Abhraka</th>
<th>Tamra</th>
<th>Loha</th>
</tr>
</thead>
<tbody>
<tr>
<td>R.R.S</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>A.K</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>R.T</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Rsm</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>R.Chi</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>B.R.R.Su</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>R.Sara</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>A.P</td>
<td>+</td>
<td>-</td>
<td>+</td>
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<tr>
<td>R.J.N</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

+ mentioned - not mentioned
Table 2: Amrutikarana of Abhraka mentioned in various texts

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Ingredients</th>
<th>Procedure</th>
</tr>
</thead>
</table>
| A.K. kriyakarana vishranti 7/91-92 | \(Abhraka\) bhasma - 10 pala  
Goghrutha – 8 pala  
Triphala decoction (three myrobalams) – 16 parts | Heated in Lohapatra (iron vessel) on mild fire. |
| A.P.2/138 | \(Abhraka\) bhasma – 1 part  
Goghrutha (cow’s ghee) – 16 part | Heated on mild fire. |
| R.Chi.4/32-33; A.P.2/139 R.T.10/71 | \(Abhraka\) bhasma – 1 part  
Goghrutha – 1 part | Heated in Lohapatra. |
| A.P.2/136-137 | \(Abhraka\) bhasma – 10 parts  
Goghrutha – 6 parts  
Triphala decoction – 16 parts | Heated in Lohapatra on mild fire. |
| R.T.10/68-69 | \(Abhraka\) bhasma – 10 parts  
Goghrutha – 8 parts  
Triphala decoction – 16 parts | Heated in Lohapatra till all the Ghrutha and Kashaya part burnt off. |
| R.T.10/70 | \(Abhraka\) bhasma – 10 parts  
Goghrutha – 12 parts  
Kumari (Aloe vera Linn.) Svarasa – 16 parts | Heated on mild fire. |

Table 3: Amrutikarana of Tamra mentioned in various texts

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Ingredients</th>
<th>Procedure</th>
</tr>
</thead>
</table>
| R.R.S.5/54-55 | \(Tamra\) bhasma  
Amla-Q.S  
Suranakanda | Triturated with the Amla svarasa, kept in the Suranakanda (Rhizome of Amorphophallus campanulatus), wrapped with the mud smeared cloth, dried and subjected to Gajaputa. |
| R.T.17/37-39 | \(Tamra\) bhasma – 1 part  
Gandhaka – ½ part  
Panchamruta – 1 part | Triturated together, Chakrikas (pellets) are made, subjected to puta for 3 times. |
| R.T.17/40-42 | \(Tamra\) bhasma – 1 part  
Gandhaka – ½ part  
Nimbu (Citrus lemon) svarasa – Q.S  
Suranakanda – 1 | Triturated with Nimbu rasa-made into bolus – kept inside Suranakanda. It is covered with mud smeared cloth and subjected to Gajaputa. |
| R.T.17/43-44 | \(Tamra\) bhasma  
Kumari svarasa – Q.S | Bhasma triturated with Svarasa, dried in sunlight, kept in Sharava samputa, subjected to Varaha puta. This process is repeated for 8 times. |
| Rsm-lohavijnaniyam/45-46 | \(Tamra\) bhasma  
Nimbu svarasa | Triturated, kept in suranakanda, subjected to Gajaputa. |
| A.K.kriyakaranavishranti 4/55-56 | \(Tamra\) bhasma – 5 part  
Shveta kacha – 1 part  
Shuddha tankana – 1 part  
Abhraka patra | All ingredients triturated, kept in between Abhraka patras (mica sheets) – kept in musha and heated. |
| A.K. kriyakaranavishranti 4/57-58, R.Sara-dhatushodhanamarana prakarana | \(Tamra\) bhasma  
Nimbu svarasa – Q.S  
Suranakanda | Triturated with Nimbu rasa-made into bolus – kept inside Suranakanda. It is covered with mud smeared cloth and subjected to Gajaputa for 3 times. |
DISCUSSION

The process Amrutikarana is explained only by texts written after 13th century. The definition of Amrutikarana given by Ayurveda Prakash and Rasatarangini differ in their meaning but apparently means of enhancing the safety and efficacy of the Bhasma. The term ‘Amrutikarana’ is used by Rasatarangini, Ayurveda Prakash and Anandakanda only. Others have mentioned as a procedure in which Bhasma/mrita loha is to be taken. Rasaratn Samucchaya, though does not mentions the term Amrutikarana, in the context of Tamra Marana, a process involving the Mrita tamra is described which is claimed to remove the eight impurities of Tamra bhasma. The author of Rasatarangini opines this procedure to be extended for Lohadi bhasmas, but explained the procedure for Abhraka and Tamra only.

Amrutikarana is a special procedure described only for Bhasmas of Abhraka, Tamra and Loha; and also described by few authors only. It is evident that the process Amrutikarana is described for Bhasmas which require more number of Puta to attain Bhasma lakshanas. This excess Agnisomskara might increase the Ushna and Rukshata in the Bhasma which may hamper their Rasayana properties. Perhaps to retain the Rasayana properties, it is treated with Triphala (three myrobalans) and Goghruta (cow’s ghee). Triphala kvatha and Goghruta are mentioned in the Amrutikarana of Abhraka and Loha. It might assist to remove the remnant impurities and enhance the quality of Bhasma. Triphala is included under Lohamaraaka gana and also it is used as media for Shodhana and Marana of both Abhraka and Loha. Kumari svarasa along with Goghruta is used in the Amrutikarana of Abhraka as per Rasatarangini. Frying on mild heat is described for Abhraka and Loha bhasma; whereas for Tamra bhasma Puta is described.

In contrary to the opinion of all Acharyas, Bhudeva Mukharji, the author of Rasa Jala Nidhi, has opined that the Amrutikarana has to be done to the Abhraka Bhasma which is not red in colour; if done to red coloured Abhraka Bhasma it hampers the properties of the bhasma.8

### Table 4: Amrutikarana of Loha mentioned in various texts

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Ingredients</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.P.3/280</td>
<td>Loha bhasma – 1 part Triphala kvatha – 2 parts</td>
<td>Together heated on moderate fire till all liquid evaporates.</td>
</tr>
<tr>
<td>A.K. kriyakarana vishranti 5/56 B.R.R.Su</td>
<td>Loha bhasma – 1 part Goghruta</td>
<td>Heated in Lohapatra (iron vessel)</td>
</tr>
<tr>
<td>R.J.N. vol.3-1, A.K. kriyakarana vishranti 5/61-63</td>
<td>Loha bhasma – 5 pala Triphala decoction prepared with 5 pala of Triphala churna Goghruta = equal to Kashaya, Sita (sugar candy) = equal to bhasma</td>
<td>Loha bhasma is heated along with the kashaya and ghruta. When the liquid exhausts completely, equal quantity of Sita is added.</td>
</tr>
</tbody>
</table>

Suranakanda (elephant foot yam) is used to place the bolus of Tamra bhasma. It may be used in place of Shara va samputa (earthen vessel) because of its large surface area. Anandakanda has described a special method of Amrutikarana for Tamra using Shvetka Kacha and Shuddha Tankana. Here Kacha refers to glass or a type of Lavana is not clearly mentioned. The studies conducted on Amrutikarana of Tamra bhasma showed decrease in the percentage of copper, Mercury, Sulphur, Lead etc from raw sample, Shodita Tamra, Marita Tamra and Amrutikrita Tamra. There was also reduction of particle size and crystalline structure with Amrutikarana11.

Another study reveals that increase in weight of Tamra bhasma after Amrutikarana may be attributed to inorganic contents (mainly calcium oxalate crystals) of Suranakanda. Organic contents of Surana act as a source of carbon12. An unstable metallic compound (especially oxides) can be reduced to metallic state during this procedure by the carbon reduction process13.

![Carbon Reduction Process](https://example.com/carbon_reduction.png)

This metallic copper can be further reduced to sulfide in presence of sulfur. However, as metallic compound should not be changed on the particular temperature in which it is formed. Hence it can be inferred that the process of Amrutikarana removes any unstable compound (CuO in this case) and makes the product more stable (CuS).

Ayurveda Prakash has specifically mentioned Tamra Patra (copper vessel) for Amrutikarana of Loha, but heating a Dravyas in Tamra vessel is claimed to be poisonous. Few scholars opine that the Amrutikarana process should be carried out to Svarnamakshika (chalcopyrites) and Tuttha (blue vitriol) also as they are compounds of Copper.

### CONCLUSION

Amrutikarana is a special procedure advocated to remove the remnant impurities in the Bhasma. It is specifically described for Abhraka, Tamra and Loha bhasmas. It is claim to removes the toxicity thereby enhances the properties of Bhasma. Various
methods of Amrutikarana are described for a single Dravya by various authors. Few researches have provided evidence about the benefits of Amrutikarana with the support of analytical means. Further experimental and clinical studies are desirable for better perception of the process.

**Abbreviations**

RT- Rasatarangini  
RRS- Rasaratnasamucchaya  
AP- Ayurvedaprakash  
AK- Anandakanda  
R. chi- Rasendra chintamani  
Rsm- Rasamruta  
RJN- Rasajalanidhi

**REFERENCES**


**Address for correspondence**

Dr. T.V. Shalini  
Lecturer, Dept. of Rasashastra  
SAMC, Bangalore, Karnataka, India.  
Email: drshalfl4@gmail.com

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Process of Tamra Amrutikarana

Fig: 1 Tamra bhasma made into bolus,

Fig: 2. Suranakanda wrapped with mud cloth kept in Suranakanda

Fig: 3. Burnt Suranakanda

Fig: 4. After Amrutikarana