Preparation Of Rajat Bhasma

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ABSTRACT: Bhasma means conversion of metal in such irreversible form that one cannot derive the original state (Apunarbhava) by the various pharmaceutical processes i.e. Shodhana, Jarana, Marana, Murchana, Amrutikarana etc. It is concept of reduction in particle size of metal and mineral up to micron or nano-particle size through Mardana process (herbal Sawrasa, Kwath, Jala, Gomutra or other DravDravya for Bhavna) and then exposed for certain quantum of heat as per Puta method for managing certain diseases. Rajat Bhasma is an important one amongst the metallic Bhasma, prepared by using Aloevera pulp as levigating media. Rajat Bhasma is prepared by applying Laghupta by seven Puta. For each Puta 2.5kg cow dung cake is used. After 4th Puta RajatBhasma fulfil the Ayurvedic parameter for test of prepared Bhasma. After this three Puta apply for increase the fineness of the Bhasma.

Keywords-Bhasma, Puta, Sharava, Particle size, Mardana, cow dung cake.
INTRODUCTION:

Ayurveda is a holistic and divine life science. As the word “Veda” suggests knowledge which is eternal. For well-being of the human race our Rishis documented their knowledge & experience in the form of Samhitas. Earlier in Samhita Kala main source for therapeutics were Herbal preparation. However in Samhita Kala usage of metal & minerals were less and their use was more as external than internal. But later period, there was a development of unique science called as Rasashastra, which mainly explained the practical approach to convert metals and minerals with the help of herbs into therapeutically suitable compound. The unique contribution of Rasashastra includes preparations of various types of Bhasma, Sindura, Parpati, Pottali and Khalwi Rasayanas etc.

Silver is a noble metal which has a wide range of references in various Rasa shastra books. Rajat is used in many of the Yogas, there are many of the Yogas found in the classics either one of the main ingredient or main ingredient. It’s mainly indicated in Jwara, Grahani, Rajayaksha, Unmada, Vatavyadhi, Prameha, Rasayana and Vajeekarana. It is used in the form of Bhasma. Rajat Bhasma is a pharmaceutical preparation, and prepared by basic materials like Parada and Gandhaka, etc. Here Rajat Bhasma preparation is done by Sharava method by adopting Laghuputa by cowdung cake weight 2.5kg by Rasa Tarangini.

AIMS AND OBJECTIVES-

To Prepare Rajat Bhasma by cow
dung cake heat(2.5Kg)

**MATERIAL-**

The Raw Rajat(certified,99.9% fine silver) was procured from goldsmith. 
*Parada,Gandhaka* procured from CharakAyurvedic Pharmacy Paprola. Other herb like *Nimbu* and materials used during *Shodhna*(purification) were Procured from Govt. Herbal Garden. The samples of these material were authenticated and indentified from accrediated institutes.

**Apparatus Required-** Granite *KhalvaYantra*, Cow Dung Cake, Pyrometer, Weighing machine, Measuring cylinder, Knife ,Spoon, Stainless steel vessel *Sarava*, Cotton cloth.

**Rajat Bhasma Nirmaan-**

Process-
(1) Parad Shodhan(*Rasatarangini*)³
(2)Gandhaka Shodhan (*Ayurved Prakash*)⁴
(3)Rajat Shodhan (*Rasatarangini*)

**METHOD-**

**Preparation of RajatBhasma-**

1. Rajat Vishesh Shodhan⁵-

**Procedure:**RajatPatra was placed in iron ladle and heated on L.P.G flame till it became red hot and quenched in *NimbuSwarasa*. Then, it was washed with warm water and process was repeated for seven times. RajatPatra was washed with warm water and collected. It was kept in air tight container.

**Observations:** Reddish colour of RajatPatra was observed during heating. Hissing sound was observed after dipping in *NimbuSwarasa*.There was no change regarding its shape.After heating , shiny appearance of RajatPatra was changed.

2. Rajat Marana⁶-Rajat Pishti Nirmaan

*ShudhaRajatPatra* - 39.5gms

*ShudhaParada* - 39.5gms

**Procedure-**

*Shudha Rajat Patra* were cut into very small pieces in *KhalvaYantra*. It was mixed with equal quantity of *Shudha Parada* and triturated till its conversion into semi solid lustrous form.

**Observations-**

In initial stage of trituration, material was found blackish in color, gradually it was converted into steel grey color. The size reduction of RajatPatra was found due to continuous trituration and final it was converted into. semi solid lustrous form.
The material was found adhered with mortar with less lusture.

**Precautions**

Trituration should be done carefully for minimum loss.

**Addition of Shudha Gandhaka and GhritkumariSwarasa**

**Ingredients**

- RajatPishti: 79gm
- ShudhaGandhaka: 39.5gm
- GhritkumariSwarasa: 200ml

**Procedure**

1. The RajatPatra were taken in the Khalva, for this added Parada and triturated was done vigorously with pressure. To above mixture Gandhaka was added and Mardana was continued. After proper mixing of Gandhaka, it was triturated with KumariSwarasa for 6 hrs, after obtaining proper consistency; Chakrikas were made and dried well in the shade.

2. The well dried Chakrikas were placed in a Sharava (earthen shallow pot) and it is covered by another same size Sharava inverted.

3. The thread which is dipped in the MultaniMitti was tied at the place between two Sharavas were contacted each other.

4. Over this thread, the Cora cloth (5cm width, 2m long) which is also dipped in Multani Mitti was covered around the Sharavaasa one layer and kept for drying under the shade. And this procedure is repeated for 6 more layers. Totally 7 layers of muddy cloth were applied over the Sharava.

5. The well dried Sharava was then placed in Laghu Puta pit so that from below
6. 2/3rd and above 1/3rd, it was covered by cow-dung cakes.
7. cow dung cakes were set on fire by camphor through matchstick.
8. Temperature was noted for every 10 minutes.
9. After SwangaSheeta of Sharava, it was taken out from the pit.
10. It was opened by scraping of muddy layers over the Sharava and Chakrikas observed.
11. This whole procedure was repeated for every Puta.

**Observations**

1. Total time taken for burning of cow dung cakes was 3 hrs and for completes self-cooling 12 hours.
2. The maximum temperature recorded was 650°C.
3. Weight of RajatBhasma after 1stPutaGms.

**Result**- Obtained Rajat Bhasma after 7thPuta - 32.6 gms.
Percentage Loss - 17.46%

**Precautions**-

- The Chakrikas were placed and spread in Sharava uniformly.
- The SandhiBandana was done with seven layers of mud-smeread cloth, and each layer was wrapped after the complete drying of the previous one.

**Characterization Of Bhasma**-

Description, Colour, Odour, Identification, Particle size, Total Ash, Acid insoluble Ash, Ayurvedic specifications, Lusterless (Nischandrica), fine enough to enter the crevices of finger (Rekahapurna) float on water (Varitara), Tasteless (Niswadu) and Irreversible (Apunarbhav)
OBSERVATIONS AND RESULTS -

<table>
<thead>
<tr>
<th>Puta</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Initial weight-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Weight of Shudha Rajat</td>
<td>39.5</td>
<td>50.20</td>
<td>52.42</td>
<td>49.34</td>
<td>40.28</td>
<td>36.20</td>
<td>30.28</td>
</tr>
<tr>
<td>b) Weight of Shudha Parada</td>
<td>39.5</td>
<td>50.20</td>
<td>52.42</td>
<td>49.34</td>
<td>40.28</td>
<td>36.20</td>
<td>30.28</td>
</tr>
<tr>
<td>c) Weight of Shudha Gandhak</td>
<td>39.5</td>
<td>50.20</td>
<td>52.42</td>
<td>49.34</td>
<td>40.28</td>
<td>36.20</td>
<td>30.28</td>
</tr>
<tr>
<td>(2) Ghritkuai Swarasa</td>
<td>Q.S</td>
<td>Q.S</td>
<td>Q.S</td>
<td>Q.S</td>
<td>Q.S</td>
<td>Q.S</td>
<td>Q.S</td>
</tr>
<tr>
<td>(3) Colour of dried Chakrika</td>
<td>Greyish</td>
<td>Greyish</td>
<td>Greyish</td>
<td>Greyish</td>
<td>Blackish</td>
<td>Black</td>
<td>Black</td>
</tr>
<tr>
<td>(4) Weight of Chakrika-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Before Puta</td>
<td>118.5</td>
<td>150.6</td>
<td>157.26</td>
<td>148.02</td>
<td>120.84</td>
<td>108.60</td>
<td>90.84</td>
</tr>
<tr>
<td>b) After Bhavna, weight gain</td>
<td>2gms</td>
<td>1gms</td>
<td>2gms</td>
<td>2gms</td>
<td>2gms</td>
<td>3gms</td>
<td>2gms</td>
</tr>
<tr>
<td></td>
<td>c) After Puta</td>
<td>d) Change in weight in Rajat</td>
<td>5) Odour</td>
<td>6) Touch</td>
<td>7) Nishchandrika</td>
<td>8) Rekhapurna</td>
<td>9) Varitara</td>
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</tr>
<tr>
<td></td>
<td>50.20 Gms</td>
<td>10.5 gms +ve</td>
<td>Sulpur like</td>
<td>Rough</td>
<td>-ve</td>
<td>-ve</td>
<td>-ve</td>
</tr>
<tr>
<td></td>
<td>52.42 Gms</td>
<td>2.22 gms +ve</td>
<td>Sulphur like</td>
<td>Rough</td>
<td>-ve</td>
<td>-ve</td>
<td>+ve</td>
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<tr>
<td></td>
<td>49.34 Gms</td>
<td>3.08 gms -ve</td>
<td>No specific</td>
<td>Rough</td>
<td>+ve</td>
<td>+ve</td>
<td>+ve</td>
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<td></td>
<td>40.28 gms</td>
<td>9.06 gms -ve</td>
<td>Odourless</td>
<td>Soft</td>
<td>+ve</td>
<td>+ve</td>
<td>+ve</td>
</tr>
<tr>
<td></td>
<td>36.20 gms</td>
<td>4.08 gms -ve</td>
<td>Odourless</td>
<td>Soft</td>
<td>+ve</td>
<td>+ve</td>
<td>+ve</td>
</tr>
<tr>
<td></td>
<td>30.28 gms</td>
<td>5.92 gms -ve</td>
<td>Odourless</td>
<td>Soft</td>
<td>+ve</td>
<td>+ve</td>
<td>+ve</td>
</tr>
<tr>
<td></td>
<td>32.6 gms</td>
<td>2.32 gms +ve</td>
<td>Odourless</td>
<td>Soft</td>
<td>+ve</td>
<td>+ve</td>
<td>+ve</td>
</tr>
</tbody>
</table>

**RESULT-**

Obtained *Rajat Bhasma* after 7th *Puta* - 32.6 gms, Percentage Loss-17.46%

**DISCUSSION-**

The purified *Rajat* obtained after *Vishesh Shodhan* done by *Nimbu Swarasa* was 39.6gms. After *Vishesh Shodhan* there was loss in *Rajat* i.e (1.25%). That loss may be due to mishandling and may be some chemical and physical reactions occured between *Rajat* and atmospheric oxygen so there should be careful handling during every procedure. After that then addition of *Shudh Parad* and *Gandhank* in same quantity that of obtained purified *Rajat* was done. Then it was levigated with fresh *Aloevera* pulp help in reduction of particle size. In second and third *Puta*
(Laghuputa) there was gain in weight. Obtained Rajat Bhasm because of there was no optimum heat that help to evaporate Parada and Gandhak. Weight gained due to Parad and Gandhak. Weight loss occurred from 4th Puta to 6th Puta due Optimum heat reached to the material inside the Shrava that evaporated the Parad but Gandhak remains in little quantity (confirmed by elemental analysis done by EDX method). But in last Puta there was gain in Rajat Bhasma quantity. Change in colour of Bhasma due chemical reactions that takes place inside the Shrava during the Cow dung cake heat. There was greyish in colour in every Puta. But after 5th Puta colour was changed black from greyish colour due to oxidation process. This method of Rajat Bhasma preparation is best because of ghritkumari is best media for levigation and help in particle size reduction, accompanied by an increase in surface area. Since most solid – fluid interactions takes place at external surface of the solid, these interactions are promoted through increase in surface area by presence of smaller particle sizes. Increased no. Of Puta also increase property and potency of Bhasma. There was loss and gain in every Puta because of may be different heat pattern or may be due to different chemical reactions, and due to same procedure repeated seven time so in every Puta there was loss during procedure so 32.6gms Rajat Bhasma was obtained. There was percentage loss 17.46%.

CONCLUSION-

By using Cow dung cake RajatBhasma was easily prepared. The heat of cow dung cake washelp in decrease the particle size of RajatBhasma than muffle france heat. So in 4th Puta RajatBhasma float on the water (Varitara help in decrease the particle size of RajatBhasma than muffle france heat. So in 4th Puta RajatBhasma float on the water (Varitara).

Acknowledgement:- Nil
Financial Assistant:- Nil
Conflict of interest :- Nil
RAJAT SHODHAN

Rajat Coin
Nimbu Swarasa
Nimbu Swarasa

Rajat Quenching in Nimbu Swarasa
Shudha Rajat

RAJAT MARANA

Trituration with Mercury
Rajat Pishti
Rajat after Trituration
Addition of Shudh Gandhaka
Trituration with Aloevera Swarasa
Trituration with Aloevera
Chakrika Preparation
Shrava Samputta
Cow dung Cake
Melting by Cow dung Cake
Chakrika after 1st Puta
Rajat Powder
Varitara
Rekhapurna
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