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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 upto 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 *Putamethod* for managing certain diseases. *Rajat Bhasma* is an important one amongst the metallic *Bhasma*, prepared by using Aloe vera pulp as levigating media. *Rajat Bhasma* is prepared by applying *Laghupta* by seven *Putas*. For each *Putas* 2.5kg cow dung cake is used. After 4th *Putas* *Rajat Bhasma* fulfil the Ayurvedic parameter for test of prepared *Bhasma*. After this three *Putas* apply for increase the fineness of the *Bhasma*.

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

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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*, *Rajayakshma*, *Unmada*, *Vatavyadhi*, *Prameha*, *Rasayana* and *Vajeekarana*¹. It is used in the form of *Bhasma*. *RajatBhasma* is a pharmaceutical preparation, and prepared by basic materials like *Parada* and *Gandhaka*, etc. Here *RajatBhasma* preparation is done by *Sharava* method by adopting *Laghuputa* by cowdung cake weight 2.5kg.by *RasaTarangini*².

AIMS AND OBJECTIVES-

To Prepare *RajatBhasma* 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 accredited 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 Shodhan*⁵-

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 Marana*⁶-*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*⁷

Ingredients-

<i>RajatPishti</i>	- 79gm
<i>ShudhaGandhaka</i>	- 39.5gm
<i>GhritkumariSwarasa</i>	- 200ml

Procedure-

ShudhaGandhaka was added to *RajatPishti* and trituration was done in *KhalvaYantra*. For *Bhavna* was process, *GhritkumariSwarasa* was added and trituated for 12hours or till dried the content.

Observations -

In the initial stage of trituration, material was found Greenish yellow in color and converted to greenish grey color. The *Bhavna* was done with *Ghritkumari Swarasa* and lustrous blackish grey color was found.

Procedure:

1. The *RajatPatrawere* taken in the *Khalva*, for this added *Parada* and trituration was done vigorously with pressure. To above mixture *Gandhaka* was added and *Mardana* was continued. After proper mixing of *Gandhaka*, it was trituated 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 10minutes.
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 *Putra*.

Observations

1. Total time taken for burning of cow dung cakes was 3 hrs and for completes self-cooling 12hours.
2. The maximum temperature recorded

was 650^oC.

3. Weight of *RajatBhasma* after 1st*Putra*Gms.

Result- Obtained *Rajat Bhasma* after 7th*Putra* - 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-smear 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*) floats on water (*Varitara*), Tasteless (*Niswadu*) and Irreversible (*Apunarbhav*)

OBSERVATIONS AND RESULTS-

Putra	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
(1) Initial weight-							
a) Weight of <i>Shudha Rajat</i>	39.5 gms	50.20 gms	52.42 gms	49.34 gms	40.28 gms	36.20 gms	30.28 gms
b) Weight of <i>Shudha Parada</i>	39.5 gms	50.20 gms	52.42 gms	49.34 gms	40.28 gms	36.20 gms	30.28 gms
c) Weight of <i>Shudha Gandhak</i>	39.5 gms	50.20 gms	52.42 gms	49.34 gms	40.28 gms	36.20 gms	30.28 gms
(2) Ghritkuai Swarasa	Q.S	Q.S	Q.S	Q.S	Q.S	Q.S	Q.S
(3) Colour of dried Chakrika	Greyish	Greyish	Greyish	Greyish	Blackish	Black	Black
(4) Weight of Chakrika-							
a) Before <i>Putra</i>	118.5 gms	150.6 gms	157.26 gms	148.02 gms	120.84 gms	108.60 gms	90.84 gms
b) After <i>Bhavna</i> , weight gain	2gms	1gms	2gms	2gms	2gms	3gms	2gms

c) After <i>Putra</i>	50.20	52.42	49.34	40.28	36.20	30.28	32.6
	Gms	Gms	Gms	gms	gms	gms	Gms
d) Change in weight in <i>Rajat</i>	10.5	2.22	3.08	9.06	4.08	5.92	2.32
	gms	gms	gms	gms	gms	gms	gms +ve
	+ve	+ve	-ve	-ve	-ve	-ve	
5) Odour	Sulphur like	Sulphur like	No specific	Odourless	Odourless	Odourless	Odourless
6) Touch	Rough	Rough	Rough	Soft	Soft	Soft	Soft
7) <i>Nishchandrika</i>	-ve	-ve	-ve	-ve	+ve	+ve	+ve
8) <i>Rekhapurna</i>	-ve	-ve	-ve	+ve	+ve	+ve	+ve
9) <i>Varitara</i>	-ve	-ve	-ve	+ve	+ve	+ve	+ve

RESULT-

Obtained *Rajat Bhasma* after 7th*Putra* - 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 occurred 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 *Putra*

(*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 *Putra* to 6th *Putra* due to 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 *Putra* there was gain in *Rajat Bhasma* quantity. Change in colour of *Bhasma* due to chemical reactions that takes place inside the *Shrava* during the Cow dung cake heat. There was greyish in colour in every *Putra*. But after 5th *Putra* 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 *Putra* also increase property and potency of *Bhasma*. There was loss and gain in every *Putra* 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 *Putra* there was loss during procedure so 32.6gms *Rajat Bhasma* was obtained. There was percentage loss 17.46%.

CONCLUSION-

By using Cow dung cake *Rajat Bhasma* was easily prepared. The heat of cow dung cake washelp in decrease the particle size of *Rajat Bhasma* than muffle furnace heat. So in 4th *Putra* *Rajat Bhasma* float on the water (*Varitara* help in decrease the particle size of *Rajat Bhasma* than muffle furnace heat. So in 4th *Putra* *Rajat Bhasma* float on the water (*Varitara*).

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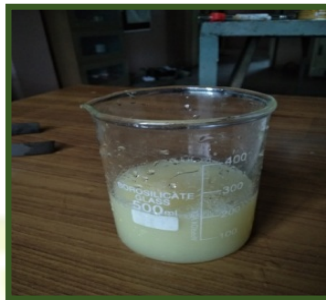
Financial Assistant:- Nil

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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