

STUDY ON PHARMACEUTICAL MANUFACTURING OF PANCHAMRITA RASA  
PREPARED BY DIFFERENT MODIFIED METHODS

[Amit Kumar Sharma](#)<sup>1</sup>, [Reetesh Ramnani](#)<sup>2</sup>, [Amit Mishra](#)<sup>3</sup>

<sup>1</sup>Associate Scientist, Transformative Learning solutions Gurugram, Haryana, India

<sup>2</sup>Assistant Prof. Dept. of R.S.& B.K. National Institute of Ayurveda Jaipur, Rajasthan, India

<sup>3</sup>Assistant prof. Dept. of R.S.& B.K., Vijayshree Ayurved Medical college Jabalpur, Madhya Pradesh, India

Corresponding Author: [dr.amitmishra8269@gmail.com](mailto:dr.amitmishra8269@gmail.com)

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## ABSTRACT

**Introduction:** “Panchamrita Rasa” is a Herbo-mineral formulation mentioned in the management of Shotha, Jalodara, Sannipatik diseases, and Twenty types of Kaphaja Roga, Jwaratisara, Galagraha, Shirasula, etc. Panchamrita Rasa is selected for the present study and comes under 'Khalveeya Rasa yoga Kalpana'. Panchamrita Rasa is also a ‘Sagandha Niragni Murchana’. In Bhaishajya Ratnawali written by Acharya Govind das Sen, ‘Panchamrita Rasa has been mentioned under Shotha Chikitsa. There are two other references found in Bhaishajya Ratnawali in Kasa roga and nasa roga dhikar. **Method:** - In the present study Panchamrita Rasa was prepared by three different methods. The Panchamrita Rasa was prepared in 3 different samples with levigation by water. Sample 1 had Kajjali, Sample 2 had Hingula and sample 3 had Rasasindura as one of the major ingredients. **Results:** Maximum output was obtained in sample 1. Sample 1 had kajjali as one of the ingredients and Sample 2 had Hingula as one of the ingredients which yielded comparatively less. **Conclusion:** Here in Panchamrit Rasa each herbal and mineral ingredient is used after proper shodhan procedures. Moreover, it is prepared with three modified methods using Kajjali, Hingula, and Rasa Sindura. For Panchamrita rasa preparation, Kajjali should be preferred over Hingula and Rasasindura as an ingredient.

**Keywords:** *Panchamrita Rasa, Herbomineral, Khalveeya, Bhaishajya Ratnawali, Shotha.*

## INTRODUCTION

An immense valuable and powerful medicine in the form of metals, minerals & plants is found in nature. But most of the drugs as such are not absorbable into the biological systems until & unless they have certain modifications. The specialized techniques to make these drugs absorbable therapeutically or clinically viable is called the pharmaceutical process. It is a clear fact that theory and Practice are two essential aspects of knowledge. A man can't become perfect with theoretical or practical knowledge alone. Thus, in nutshell, it can be stated that pharmaceuticals especially in the field of *Ayurveda* has one of the supreme importance.

In the present study, *Panchamrita Rasa* has been prepared by three different methods.

### Objectives:

The present pharmaceutical study was planned with the following aims & objectives -

- ❖ To validate the standard method of preparation of *PanchamritaRasa*.
- ❖ To know the difference in *PanchamritaRasa* prepared by three different methods at pharmaceutical grounds.

**Materials:** Materials and methods used in this preparation are based on availability, feasibility in the classical indication of *Rasashastra*, traditional value, and expert opinions.

All the raw materials were procured from the N.I.A. pharmacy.

### Methods:

The pharmaceutical was carried out after obtaining permission from the institutional ethics committee (Approval number – IEC/ACA/2015/61) Pharmaceutical processes carried out during the study were as follows –

- ❖ Purification (*Shodhana*) of raw materials
- ❖ *Kajjali Nirmana*.
- ❖ *Rasasindura Nirmana*.
- ❖ Preparation of powders of crude drugs.
- ❖ Mixing of powders and *Kajjali/Rasasindura/Hingula*.
- ❖ Preparing *Panchamrita Rasa* by three different methods.

### Pharmaceutical Steps involved

- 1) *Shodhana of Parada*
- 2) *Shodhana of Gandhaka*
- 3) Preparation of *Kajjali*
- 4) *Shodhana of Vatsanabha*
- 5) *Shodhana of Tankana*
- 6) Preparation of Fine Powder of *Maricha*
- 7) *Shodhana of Hingula*
- 8) Preparation of *Sama guna Rasasindura*
- 9) Preparation of *Panchamrita Rasa*

Procedure:

#### 1. Sodhana of Parada:

*Shodhana of parada* was done as per *Rasa Tarangini* [1]. 100 g of *Parada* and 100 g of *Sudha churna* were taken in the *khalwa yantra* and *Mardana* was done for 24 hrs. Then Separation of *Parada* from *Sudha* was done with cloth and water. Total *Parada* obtained was 90 g. Loss in this procedure was 10g (10 %). Then 90 g *Lashuna paste* and 45g *Saindhava lavana* were taken and *Mardana of Parada* was done with it. *Mardana* was stopped when the color of *Kalka* turned blackish. The separation of *Parada* from *Kalka* was done with hot water. In the end, *Parada* obtained 75g. and 15 g was lost. The total loss of weight of *parada* was 25 g (25 %).

#### 2. Sodhana of Gandhaka:

*Sodhana of Gandhaka* was done as per *Rasa Ratna Samucchaya* [2]. A total of 160 g of *Gandhaka* was taken. An Iron vessel containing adequate amount of milk (200ml) was taken so that all *Gandhaka* can be immersed in it and a white thin cloth was covered on its mouth and tied. Coarse powder of *Gandhaka* was spread on the cloth. Then another stainless-steel vessel of equal dimensions was taken. It was put in inverted position over the first vessel and *Sandhibandhana* was done. *Agni* was given for ½ hour and allowed for self-cooling. The same process was repeated three times.

#### 3. Kajjali Preparation:

*Kajjali* was prepared as per *Rasa Tarangini* [3]. *Sodhita Parada* and *Suddha Gandhaka* were taken in *Khalva Yantra* and *Mardana* was started. During trituration, a Few drops of water was sprinkled over the

powder to prevent spilling it. *Mardana* was done in working days for 2-3 hours. When the powder became black like *Kajjali*, soft, lustreless and it fulfilled all criteria of *Kajjali*, *Mardana* was stopped. When a pinch of *Kajjali* was added to a drop of water and rubbed gently, there were no forming *Parada* globules, so the *Nischandratvam* test passed, and *Kajjali* was prepared. The total weight of *Kajjali* was 30 g and the color was black. Total loss in this process was 4g.

#### 4. Shodhana of Vatsanabha:

Shodhana of *Vatsanabha* was done as per A.F.I<sup>[4]</sup>. Total 250 g of *Vatsanabha* was taken. *Ashuddha Vatsanabha* was made into small pieces and the same were immersed in fresh *Gomutra* by making cotton cloth Pottali within a steel container. Thereafter *Gomutra* was taken in that quantity which was sufficient for immersing those pieces. Here, it was taken at 500 ml. The container was kept directly under sunlight. On the next day covering of *Vatsanabha* was removed and kept again in the container. After it old *Gomutra* was replaced by a fresh one. The same procedure was repeated two times more for constant three days. After three-day pieces of *Vatsanabha* were collected and washed with the help of hot water. Then, it was allowed to be dried completely. The total weight of *Vatsanabha* was 116 g and the color was black. Total loss in this process was 134g. The Dried *Suddha Vatsanabha* became fine Powder. The total weight of *Vatsanabha* Powder was 109.5 g.

#### 5. Shodhana of Tankana:

Shodhana of *Tankana* was done as per A.F.I<sup>[5]</sup>, Total of 250 g of *Tankana* was taken. Pieces of *Ashuddha Tankana* were first grounded to powder. This powder was taken in an open enamel container and was subjected to heat. Constant roasting and stirring with spatula were done. After a diminishing crackling sound, which was the indication of crystalline water evaporation then, the roasting was stopped. After self-cooling, the puffed material was powdered with the help of a mortar & pestle and kept airtight in plastic pet jars. The total weight of *Suddha Tankana* was 150 g.

#### 6. Preparation of Fine Powder of Maricha:

*Marich* was powdered separately with the help of a grinder and sieved in a glass pot through the mesh (80N). After it, the powder took in a closed glass jar separately. Fine powder 272.6 g. and coarse powder 11.60 g of *Maricha* was obtained.

#### 7. Shodhana of Hingula:

Shodhana of *Hingula* was done as per *Rasa Ratna Samucchaya*<sup>[6]</sup>. A total of 45 g of *Hingula* was taken. *Hingula* was powdered with the help of a mortar and pestle. Thereafter *Nimbu Swarasa* was added in that quantity which soaks the powder fully well and was used for *Bhavana*. The mixture was subjected to trituration till the whole *swarasa* has somewhat dried up. The same process was repeated six times more. After seven *Bhavana* dry *Hingula* powder was collected and washed with the help of hot water. Then, it was allowed to be dry completely. The total weight of *Suddha Hingula* was 45.4 g.

#### 8. Preparation of Samaguna Rasasindura:

*Rasasindura* was prepared as per *Rasa Tarangini*<sup>[7]</sup>. Total 150 g of *Kajjali* was taken. *Kajjali* was cautiously filled up in the *Kacha Kupi* which had seven layers of *Kapada Mitti*. The *Kacha Kupi* containing *Kajjali* was placed in *Baluka Yantra* on Gas Bhatti and fixed in proper position with the help of fire brick blocks. Heat of the Bhatti was started from room temperature and was gradually increased. The temperature of Bhatti was recorded after an interval of ½ hr. During heating, the red-hot *Shalaka* (iron rod) was repeatedly inserted into the mouth of *Kacha Kupi* to burn the accumulated sulphur at the neck of the bottle to prevent blocking. With the rise in temperature, the fumes increased, and finally, it was replaced by flame, which gradually decreased in size. After the disappearance of the blue flame, the bottom of *Kacha Kupi* becomes red hot, at this point, *Sheeta Shalaka Pariksha* was done. The mouth of *Kacha Kupi* was corked and sealed after confirming *Gandhaka Jarana* completion and presence of mercury particles by copper coin test. After sealing *tivra Agni* was given gradually to sublime *sindhur* on the neck of the *Kupi*. The apparatus was then allowed for self-cooling by switching the Gas Bhatti. After 12 hours when the

gas Bhatti became *Swangshita*, *Kupi* was removed from the Bhatti. The layer of *Kapada Mitti* which was blackened was removed by scrapping out with the help of a knife and the external surface of the *Kupi* was cleaned. A string soaked in kerosene was tied 1 inch below the level of the compound on the external surface of *Kupi* and set to fire. When the string was burnt & throw water drop on the *Kupi*. The *Kupi* was broken exactly at the level of string. The bottle was broken and the sublimate rasa Sindoor deposited at the neck of Kacha Kupi was collected and weighed. The total weight of *Rasa Sindura* obtained 81 g and the Total weight of residue obtained 4 g.

#### ◆ SAMPLE 1.

Samaguna Kajjali	30g.
Shuddha Vatsanabha Churna	45g.
Maricha	45g.
Shuddha Tankana	45g.
Total Wt.	165g.

#### ◆ SAMPLE 2.

Shuddha Hingula	30g.
Shuddha Vatsanabha Churna	45g.
Maricha	45g.
Shuddha Tankana	45g.
Total Wt.	165g.

#### ◆ SAMPLE 3.

Samaguna Rasasindura	30g.
Shuddha Vatsanabha Churna	45g.
Maricha	45g.
Shuddha Tankana	45g.
Total Wt.	165g.

The mixing of the ingredients was done as described earlier. Then, the above mixture of 165gm. was triturated with Water for making pills. These three samples were made by the same procedure for standardization purpose.

**Observation of results:** Maximum output was obtained in sample 1. Sample 1 had *kajjali* as one of the ingredients and Sample2 had *Hingula* as one of the ingredients which yielded comparatively less.

#### Preparation of Panchamrita Rasa:

*Panchamrita Rasa* was prepared as per *Bhaishajya Ratnavali* <sup>[8]</sup>. In the context of mixing powdered drugs, one traditional method has been used. The powdered *Shuddha Vatsanabha* and *Shuddha Tankana* was taken first in a mortar and *Mardana* was carried out. This process of grinding *Vatsanabha* with *Tankana* is also termed as “*Marana of Vatsanabha*”. After that, *Samaguna Kajjali* was added to the mixture and grinded well till it gets properly mixed. Then, another ingredient was properly mixed. To prepare three samples of *Panchamrita Rasa*, the ingredients were taken in each sample is given below: -

#### DISCUSSION

After Shodhana of Parada and Gandhaka, the preparation of *Kajjali* was carried out as per the reference of *Rasa Tarangini*, Trituration was continued till the *Kajjali* became completely black & *Nischandra*. The yield of *Kajjali* was 88.23 % and the loss of weight of 11.67 % (4 g) is due to handling loss during *Mardana*. As well as in relation to this, the Shodhana of *Vatsanabha* was done as per the reference of A.F.I., Here the process using *Gomutra* was adopted. After Shodhana process, the yield of *Shuddha Vatsanabha* was about 43.8% and loss was 56.2% as compared

with the weight of Ashuddha one. The loss could be attributed due to these reasons i.e. removing the covering of Vats Nabha, due to removing of Kita Dushti part, and washing out of soluble part of Vatsanabha while replacing Gomutra daily and at last, washing with warm water. Due to loss, we were unable to assess the amount of Gomutra extract obtained. The Shodhana of Maricha has been described also in Rasa-Shastra texts but is generally not practiced in the present time. The percentage loss for Maricha was 4.76%. This major loss was due to all the powder being sieved gently so that only very fine particles and those of the same size should be obtained. The Shodhana of Tankana was carried out as per A.F.I. reference. Tankana plays an important role in Vyadhividhwansana Rasa preparation, as it is said to be an antidote to Vatsanabha. Tankana has been used to decrease the harmful effects of Vatsanabha. The impurity of Tankana is its crystalline water content. Hence, after undergoing Shodhana, it would lose weight considerably. The yield of Shuddha Tankana is 60%. From this, we can say that the average water of crystallization was observed at 40% in this sample. In relation to this Shodhana of Hingulawas carried out as per the reference of Rasa Ratna Samucchaya. Prior to Shodhana, Hingula was converted into coarse powder then Hingula was triturated seven times with Nimbu Swarasa and washed with the help of warm water. Then, it was allowed to dry completely. After shodhana, the yield of Shuddha Hingula was 98% and loss of weight was 2%. The loss was attributed due to washing out the soluble extract of Nimbu swarasa and fine particle of Hingula during washing with warm water at last. The preparation of Rasa Sindura was carried out as per the reference of Rasa Tarangini. The yield of Rasa Sindura was 81 gm out of 150 gm kajjali. All the Shuddha Dravyas obtained after the Shodhana were powdered and used for the preparation of the drug. For this purpose, all the ingredients have been taken in powder form. In the context of mixing the powdered drugs, one traditional method has been used. According to this method took Samaguna Kajjali / Shuddha Hingula /Rasa Sindura, grinding of Shuddha Vatsanabha with Shuddha

Tankana and Fine Powder of Maricha has been carried out in mortar and pestle. The role of Bhawana in the making of the drug must not be underestimated. Bhawana Dravyas contributes an important share in the therapeutic efficacy as well as chemically and physically of the prepared drug.

## CONCLUSION

Preparation of any formulation can be standardized and validate at every step for safety and efficacy concerns. Here in Panchamrit Rasa also each herbal and mineral ingredient is used following proper shodhan procedures. Moreover, it is prepared with three modified methods using Kajjali, Hingula, and Rasa Sindura. For comparison of these three on the basis of validation and efficacy, further analytical and clinical study is awaiting.

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**Table 1:** Showing results of Gandhaka Shodhana

S.No.	Weight of Impure Sulphur	Weight of Purified Sulphur	Weight of loss during the process	% Weight loss
1.	160 g	153.8g	6.2g	3.9%
2.	153.8g	147.4 g	6.4g	4.2%
3.	147.4 g	141.2 g	6.2 g	4.2%
		Total	18.8g	12.3%

**Table 2:** Showing the results of three samples of Panchamrita Rasa after Bhavana with Water.

S.No	Sample Code	Weight of the total Ingredients before Bhavana (In g)	Weight of the final product (drug) after 7 Bhavanas	Total Weight decreased	Weight loss in %
1.	P <sub>1</sub>	165g	160g	5g	3.04 %
2.	P <sub>2</sub>	165g	158g	7g	4.25 %
3.	P <sub>3</sub>	165g	159g	6g	3.64 %

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