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Pharmaceutical Standardization Of Amavatari Rasa

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***Abstract*:** In the present research paper the work done on pharmaceutical study of *Amavatari Rasa* conducted in Department of *Rasa shastra* and *Bhaishajya Kalpana* under the post graduate research program is being presented. There are two references available *for Amavatari Rasa*. In the present study reference from *Rasendra Chintamani* was taken. It contains *Erandamoola, Triphala, Shuddha Chitraka, Shuddha Vatsanabha* and *bhavana* is done with *Gomutra*. *Vatsanabha* is considered as *Maha visha*. A poisonous drug can become an excellent medicine if it is used after proper *shodhana. Vatsanabha* can act as nectar if it is administered properly. The pharmaceutical process of *Amavatari Rasa* was performed by following the scientific processes like shodhana of *Vatsanabha, Chitrakamoola, Churna nirmana, Bhavana*.

Key words: *Amavatari Rasa, Rasendra Chintamani,Vatsanabha, Gomutra, Bhavana.*

Introduction:

Vatsanabha is considered as *Maha Visha*[1]. Many Ayurvedic formulations contain *Vatsanabha* as an ingredient in it because of its fast action and therapeutic effectiveness. Present formulation is taken from *Rasendra Chintamani*[2]. The ingredients present in *Amavatari Rasa* are *Erandamoola, Triphala, Shuddha Chitrakamoola, Shuddha Vatsanabha* and bhavana is done with *Gomutr*a. The pharmaceutical process of *Amavatari Rasa* was performed by following the processes like *shodhana of Vatsanabha and Chitrakamoola, Churna nirmana, Bhavana*. *Amavatari Rasa* is indicated in all *Vata vyadhi*[2]. It is much effective in *Amavata*. In the present study Pharmaceutical work was done in *Rasa shastra* and *Bhaishajya Kalpana* department under post graduate research programme. Standardization of *Amavatari Rasa* was done in the present study.

Material and Methods:

This present study of *Amavatari Rasa* was carried out with reference from *Rasendra Chintamani*. For this study the required raw materials *Erandamoola, Triphala, Chitrakamoola* were collected from local market. *Vatsanabha* was collected from Chennai after authentication. *Sudha churna*

for *Chitrakamoola shodhana* was collected from local market. *Gomutra* was procured from Sri Venkateshwara Goshala, TTD, Tirupati.

The entire pharmaceutical study was carried out in four stages:

Stage – I

- *Vatsanabha Shodhana*
- *Churnodaka Nirmana*
- *Chitrakamoola Shodhana*

Stage – II

- Preparation of *Vatsanabha Churna*
- Preparation of *Chitrakamoola Churna*
- Preparation of *Erandamoola Churna*
- Preparation of *Triphala Churna*

Stage -III

- Preparation of homogenous mixture

Stage – IV

- *Bhavana* of homogenous mixture with *Gomutra* for 7 days.
- Dry it well under sunlight and made into fine powder
- Preparation of *Amavatari Rasa* in capsule form

1. *Vatsanabha Shodhana*

Reference : *Rasa Tarangini* [3]

Materials : *Vatsanabha moola* -150 g

Gomutra – Q.S Method / Principle : *Atapa soshana*

Apparatus : Earthern vessel, Cloth, *Khalwa yantra*

Procedure:

- *Vatsanabha* was taken and cut into small pieces i.e *chanaka matra* (size of Bengal gram)
- The pieces of *Vatsanabha* were taken in an earthern vessel.
- *Gomutra* was poured into it, until the pieces of *Vatsanabha* get completely immersed in *Gomutra*.
- The vessel was kept in hot sunlight.

- Next day morning pieces of *Vatsanabha* were taken out and were placed in an earthern vessel. Fresh *Gomutra* was added to these pieces.
- The procedure is continued for three consecutive days with fresh *Gomutra*.
- At night times, the container is covered with a suitable lid and during daytime it is kept open under hot sun.
- Fourth day *Vatsanabha* pieces were taken out, the outer layer is peeled off and washed properly with hot water and dried under hot sun.
- Dried *Vatsanabha* pieces were taken in a *Khalwa yantra* and pounded to make fine powder.

Observation:

- The colour of *Gomutra* changed from golden yellow colour to dark brown.
- The pieces of *Vatsanabha* became soft, brittle and pale.

Precaution:

- Every day *Gomutra* was changed.
- The vessel was exposed to proper sunlight.
- Daily new earthen vessel was used. Break and dispose used earthen vessel properly.

Table No 1: Showing the result of *Shuddha Vatsanabha Churna*

Initial weight	Final weight	Loss in weight	Loss in percentage
150 g	105 g	45 g	30 %

Probable reason for loss in weight:

- Removal of impurities in *Vatsanabha.*
- Removal of external skin of *Vatsanabha*.
- Spillage during pounding.

2. Preparation of *Churnodaka*

Reference : *Rasa Tarangini* [4]

Materials : *Churna* – 3g , Jala – 720 ml Method / Principle : *Nimajjana*

Apparatus : Beaker , Cloth

Procedure :

- 3g of *Sudha churna* was added in 720 ml of water.
- It was kept stable for 12 hours.
- After 12 hours, the supernatant water was filtered through cotton cloth.
- *Churnodaka* was obtained.

Observation:

- When *Sudha churna* was added to water, water turns to white color.
- *Churnodaka* looks like clear water.
- pH of water was 7 which turned to 11 after it was converted into lime water.

Precautions:

- Care was taken while filtering to avoid spillage.

Result:

- *Churnodaka* obtained =710 ml

3. *Chitrakamoola Shodhana*

Reference : *Rasa Tarangini* [5]

Materials : *Chitrakamoola* – 150 g

Churnodaka - 710 ml

Method / Principle : *Nimajjana*

Apparatus : Beaker

Procedure :

- *Chitrakamoola* was cleansed to remove external impurities if any.
- *Chitrakamoola* were cut into smaller pieces.
- It was soaked in *Churnodaka* for 24 hours.
- Later *Chitrakamoola* were taken out, washed with lukewarm water and dried in sunlight.

Observation:

- Clear liquid consistency and white colored lime water turned to turbid consistency and had dark red color after purification process.
- pH of lime water changed to 6 from 11 after *chitrakamoola shodhana*.

Precaution:

- It was left undisturbed for 24 hours.
- *chitrakamoola* was washed and dried properly after the shodhana.

Result:

Table No: 2 Showing the result of *Chitrakamoola Shodhana* :

Initial weight	Final weight	Gain in weight	Gain in percentage
150 g	140 g	10 g	6.25 %

Reason for weight loss:

- Loss was incurred due to removal of impurities

4. Preparation of *Chitrakamoola churna*

Reference : *Sharangadhara Samhita*[6]

Materials : *Shuddha Chitrakamoola* – 150 g

Method / Principle : Pounding , Filtering

Apparatus : *Khalwa yantra*, Stainless steel vessel, Cloth , Weighing machine.

Procedure :

- Purified *Chitrakamoola* was taken
- It was taken in *Khalwa yantra* and pounded.
- Pounded material was sieved through a cloth to obtain very fine powder.

Observation :

- Fine powder of *Chitrakamoola* was obtained.

Precaution :

- While pounding there should not be any spillage.
- Sieving was done properly to get fine powder.

Result :

Table No. 3: Showing the result of preparation of *Chitrakamoola churna* :

Initial weight	Final weight	Loss in weight	Loss in percentage
150 g	120 g	30 g	20 %

Reason for weight loss :

- Loss was incurred due to spillage during pounding.

5. Preparation of *Erandamoola churna*

Reference : *Sharangadhara Samhita* [6]

Materials : *Erandamoola* – 120 g

Method / Principle : Pounding , Filtering

Apparatus : *Khalwa yantra*, Stainless steel vessel, cloth , Weighing machine.

Procedure :

- *Erandamoola* was collected, checked for any external impurities, worms and insects.
- It taken in *Khalwa yantra* and pounded.
- Pounded material was sieved through a cloth to obtain very fine powder.

Observation :

- Fine powder of *Erandamoola* was obtained.

Precaution :

- While pounding there should not be any spillage.
- Sieving was done properly to get fine powder.

Result :

Table No. 4: Showing the result of preparation of *Erandamoola churna* :

Initial weight	Final weight	Loss in weight	Loss in percentage
120 g	100 g	20 g	16.66 %

Reason for weight loss :

Loss incurred due to spillage during pounding.

6. *Triphala Churna*

Reference : *Sharangadhara Samhitha* [6]

Materials : *Amalaki - 40 g Haritaki - 40g Vibhitaki - 40 g*

Method / Principle : pounding , filtering

Apparatus : *Khalwa yantra*, Stainless steel vessel, cloth , weighing machine

Procedure :

- *Amalaki, Haritaki, Vibhitaki* were collected and checked for any external impurities, worms and insects.
- They were taken in *Khalwa yantra* and pounded separately.
- Pounded material was sieved through a cloth to obtain very fine powder.

Observation :

- Fine powder of *Triphala* was obtained.

Precaution :

- While pounding there should not be any spillage.
- Sieving was done properly to obtain fine powder.

Result :

Table No. 5: Showing the result of preparation of *Triphala churna*:

Initial weight	Final weight	Loss in weight	Loss in percentage
120 g	100g	20 g	16.66 %

Reason for weight loss:

- Loss was incurred due to spilling during pounding.

7. Preparation of Homogenous mixture

Reference : *Rasendra Chintamani* [7]

Materials : *Shuddha Vatsanabha churna* – 100g *Shuddha Chitrakamoola churna* – 100g *Erandamoola churna* – 100g

Triphala churna – 100 g

Principle : Mixing

Apparatus : *Khalwa yantra*, weighing machine , spoon.

Procedure :

- *Vatsanabha churna, Chitrakamoola churna, Erandamoola churna, Triphala churna* were taken in *khalwa yantra* and mixed well.
- Mixing was carried out till homogenous mixture was obtained.

Observation :

- Very fine homogenous mixture is obtained.

Precaution :

- Careful mixing of all *churna* has to be done to obtain a homogenous mixture.

Result :

Table no. 6 : Showing the result of mixing of component drugs of *Amavatari Rasa* :

Initial weight	Final weight	Loss in weight	Loss percentage
400g	390 g	10g	2.5%

Reason for weight loss :

- Due to spillage of drugs during mixing.

8. *Bhavana* of Homogenous mixture with *Gomutra*

Reference : *Rasendra Chintamani* [8]

Materials : Homogenous mixture – 390g

Gomutra – Q.S

Principle : *Mardana*

Apparatus : *Khalwa yantra*, Spatula .

Procedure :

- Quantity sufficient of *Gomutra* which was sufficient to immerse the homogenous mixture of *Amavatari Rasa* was added.
- It is triturated well until it became dry powder.

- This procedure was repeated for 7 days.
- Each time fresh *Gomutra* was used.
- After 7th *bhavana* it is dried completely, made into fine powder and stored in air-tight container.

Observation :

- After 3 hours of *Bhavana* almost all *Gomutra* was absorbed and the homogenous mixture turned to smooth paste.
- After 6 and half hours of *bhavana* it becomes powder.
- After *Bhavana* final product was smooth and light brown in color.
- For 1st *bhavana* the quantity of *gomutra* required was more than subsequent *bhavana*.
- There is increase in the weight of the drug.
- After complete drying the colour of product changed to Dark brown (Coffee) colour.

Precaution :

- The quantity of *gomutra* taken for every bhavana should be sufficient for making homogenous mixture wet.
- Each time fresh *Gomutra is* to be added.
- When the material gets totally dried by triturating then only next *bhavana* should be given.

Result :

Table no. 7: Showing the *bhavana* of homogenous mixture with *Gomutra* :

Initial weight	Final weight	Weight gain	Percentage of weight gain
390g	430 g	40 g	10 %

Reason for Weight gain:

- Increase in weight is due to addition of organic matter of *bhavana dravya* (*Gomutra*).

9. Preparation of *Amavatari Rasa* capsules.

Reference : *Rasendra Chintamani Amavata Adhikara*[8]

Materials : Fine Powder of final product

Principle : Capsule filling

Apparatus : Digital weighing machine

Procedure :

- Fine powder was filled into 125 mg capsules.
- *Amavatari Rasa* capsules were stored in air-tight container.

Observation :

- Fine powder was filled in the capsules.

Precaution :

- Capsule should be preserved in absolute sterile and moisture free glass container.
-

Result :

Table no. 7: Showing the result of preparation of capsules of *Amavatari Rasa* capsules :

Weight of homogenous mixture of Amavatari Rasa	**Total number of Capsules (each 125 mg)**	**Loss**
430 g	3434	750 mg

Reason for loss : Due to handling while filling capsules.

Vatsanabha Shodhana* and *Churna nirmana

Vatsanabha

Cut into *chanaka matra* size

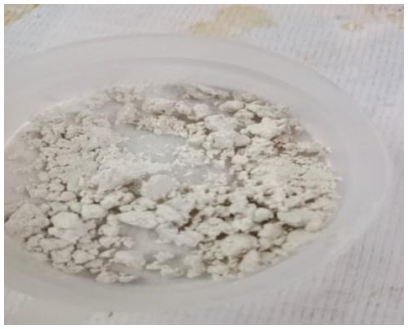
Vatsanabha Soaked in *Gomutra*

After removing external skin

Shuddha Vatsanabha after drying

Shuddha Vatsanabha churna

Churnodaka Nirmana



Sudha churna

Adding *Sudha churna* to water

Mixing of *Sudha churna* in water

Churnodaka left undisturbed for 12 hours

Churnodaka

Chitrakamoola Shodhana* and *Churna nirmana

Chitrakamoola out and washed with warm water

Chitrakamoola soaked *in Churnodaka*

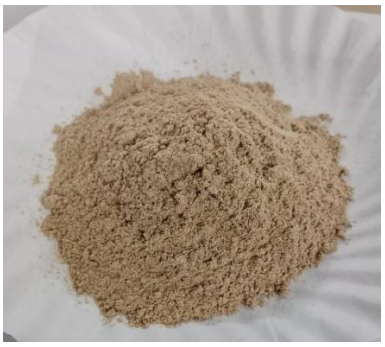
Chitrakamoola taken

Shuddha Chuitrakamoola

Chitrakamoola Churna

Erandamoola Churna nirmana

Erandamoola



Erandamoola Churna

Triphala Churna nirmana

Triphala *Triphala churna*

Amavatari rasa Nirmana

Churna of all 4 ingredients Adding gomutra to homogenous mixture Bhavana of mixture

Amavatari Rasa powder Capsules (125mg) of *Amavatari Rasa*

Discussion:

Amavatari Rasa contains *Erandamoola, Triphala, Gomutra, Chitrakamoola, Vatsanabha* [8]. The concept of *Shodhana* is not only for process of purification / detoxification[9] but also a process to enhance the potency and efficacy of the drugs.

Vatsanabha Shodhana:

Vatsanabha contain an alkaloid called aconite[10], which is toxic. *Shodhana* was done for *Vatsanabha* to remove impurities, reduce toxicity and to enhance the therapeutic properties. If *Vatsanabha* is administered without *Shodhana*, it may cause *Murcha* (syncope), *Hrut rodhana* (cardiac arrest) which may lead to *Mrutyu* (death)[11], so purification of *Vatsanabha* is necessary

before administration. Different methods of *Shodhana* for *Vatsanabha* are explained in classics. After *shodhana* process, the total alkaloid content decreases [12], but the concentration of less toxic substance such

as aconine, hypoaconine and benzylhypoaconine increases[13] possibly due to conversion of toxic aconitine into aconine or hydrolysis of alkaloids to their respective amino alcohols after *shodhana*[14].

***Chitrakamoola shodhana* :**

Shodhana of *Chitrakamoola* was done to remove visible and invisible impurities, to reduce *tikshnata* and to enhance the therapeutic properties. Water soluble component and impurities might have been transferred to lime water. The cells of the roots absorb the media and also lose some contents into the media which was responsible for the change in the color of media after *shodhana*. pH of lime water changed from 6-11 which indicates limewater neutralizes acididc contents of root. It infers that *Chitraka mula* purification reduces acidic substances from *Chitraka.* After the shodhana there is an increase in plumbagin content from 0.39 to 0.98%[15]

***Churna Nirmana* of herbal drugs:**

Vatsanabha, *Chitrakamoola*, *Erandamoola*, *Triphala* were made into fine powder according to the reference mentioned in *Sharangadhara Samhita Madhyama Khanda*.

Preparation of Homogeneous mixture of all component drugs:

Fine powders of *Vatsanabha*, *Chitrakamoola*, *Erandamoola*, *Triphala* were taken in equal quantity and mixed to get homogenous mixture.

***Bhavana* of Homogeneous mixture with *Gomutra* :**

It presumably regulates the quality/potency (*Guna*) level by change in potency (*Gunantara*), addition of new properties (*Gunadhana*), augmentation (*Gunotkarsha*), or reduction or removal of properties (*Gunahani*)[16].

Homogeneous mixture was taken in *khalwa yantra* and *Gomutra* was added and triturated continuously till it gets dry. Then next day fresh *Gomutra* is added and same procedure was repeated for 7 times. It was then dried properly in sunlight and made into fine powder[17].

Continuous and repeated *bhavana* helped in particle size reduction, which may influence the extraction of chemical components of the drug and absorption of its constituents (site, percent, and rate of absorption and metabolism) in the gastrointestinal tract (when administered orally). Wet grinding of drug powder with liquid media facilitates particle size reduction and homogenization leading to modification of the properties (*Gunantaradhana*) of the end product[16,18].

Preparation of *Amavatari Rasa*:

According to *Rasendra Chintamani* dosage of *Amavatari Rasa* was 1 *Ratti* (125mg). Homogenous mixture is filled in 125 mg capsules. To fix the dose properly and make comfortable (to avoid smell of *Gomutra*) and easy to patient it is filled in capsules.

Conclusion:

Pharmaceutical study of Ayurvedic formulations is very important requisite for the establishment of an efficient drug. The pharmaceutical procedures involved in this study are *Shodhana, Churna nirmana, Bhavana* and Preparation of *Amavatari Rasa* capsules. *Shodhana* reduces toxicity and increases therapeutic property of *Vatsanabha*, reduces *tikshnata* in *chitrakamoola. Bhavana* reduces particle size and increase the surface area of drug for better absorption. *Vatsanabha* is having a synonym as *Amruta* which denotes that if it is administered properly, it can act as nectar and can cure all the diseases.

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