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"PHARMACEUTICAL STANDARDIZATION OF *ASHWAGANDHADI YOGA*"

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ABSTRACT:

Rasa Shastra and *Bhaishajya Kalpana* is a branch of Ayurveda dealing with the pharmaceutical processing of Ayurvedic Medicines using specialized techniques mentioned in classics. In the present study, the work done on Pharmaceutical study of *Ashwagandhadi Yoga* under the post graduate research program is being presented. *Ashwagandhadi Yoga* is a Herbo-mineral compound indicated in Sweta Pradara taken from the reference of *Rasa Tantra Sara Va Siddha Prayoga Sangraha* part-2, *Stree Rogadhikara*. The ingredients are *Ashwagandha, Vidari, Brihat Ela, Kukkutanda Twak Bhasma, Vanga Bhasma, Mishri*. The pharmaceutical processes involved are *Shodhana, Jarana, Marana, Bhavana, Swarasa Nirmana, Churna Nirmana*. The aim of present study is to standardize the Pharmaceutical preparation of *Ashwagandhadi Yoga* as per classics.

Key words: *Ashwagandhadi Yoga, Sweta Pradara, Shodhana, Jarana, Marana.*

Introduction:

Rasa Shastra is the pharmaceutical branch of *Ayurveda* which deals with the mercurial, mineral and metallic processing and their therapeutic applications. However, most of the drugs as such are not absorbed into the biological system, until and unless they undergo certain processing techniques. The integral part of *Rasa Shastra* lies in the successful pharmaceutical processing.

It has been stated in classics that strong poison could be the best medicine after proper detoxification and in proper therapeutic dose. By adopting specialized pharmaceutical procedures like *Shodana, Marana, Jarana, Murcchana* etc, they are converted into non-toxic, safe, efficacious, absorbable and potent therapeutic forms.

AIM & OBJECTIVES:

Pharmaceutical standardization of various steps involved in the preparation of *Ashwagandhadi Yoga.*

MATERIALS AND METHODS:

Collection of Drugs:

Kukkutanda Twak was collected from local fast food centres. The raw materials like *Vanga*, *Ashwagandha*, *Vidari*, *Brihat Ela*, *Mishri* were purchased from Vijaywada market, Andhra Pradesh. Drugs were identified macroscopically from PG Department of *Dravyaguna*, S. V. Ayurvedic College, TTD, Tirupati.

All pharmaceutical processes involved in the preparation of *Ashwagandhadi Yoga* were carried out in PG Department of *Rasa Shastra & Bhaisajya Kalpana,* S.V. Ayurvedic College, TTD, Tirupati.

Chief Reference:

The present formulation was taken from the reference –

Rasa Tantra Sara Va Siddha Prayoga Sangraha – Streeroga Adhikara, Part 2.

The entire pharmaceutical study was carried out in four stages

STAGE 1

Shodhana of *Kukkutanda twak*

Marana of *Kukkutanda twak*

STAGE 2

Shodhana of *Vanga – Samanya* and *Visesha*

Jarana of *Vanga*

Marana of *Vanga*

STAGE 3

Preparation of *Ashwagandha churna*

Preparation of *Vidari churna*

Preparation of *Brihat Ela churna*

Preparation of *Mishri churna*

STAGE. 4

Preparation of homogeneous mixture.

1.Kukkutanda twak Shodhana[1]

Reference: *Rasa Tantra Sara Va Siddha Prayoga Sangraha, Bhasma prakarana,* Part 1.

Materials: *Kukkutanda Twak* - 1000g, *Saindhava Lavana* - 90g, *Navasadara - 90g*, Water-3L.

Principle: Soaking

Apparatus: Stainless steel vessel, measuring jar.

Procedure

Kukkutanda twak was taken in a steel vessel and soaked in the solution of *Saindhava lavana* and *Navasadara* for three days.

On fourth day, the inner membranous layer of the eggshell was removed carefully, washed with hot water and dried under sunlight.

Observation

- After the completion of procedure, colour of eggshell become brighter and smooth.

Precautions

- Inner membranous layer was removed carefully to avoid the wastage.

Result:

Table No 1: showing the result of *Kukkutanda twak Shodhana*

Initial weight	Final weight	Loss in weight	Loss percentage
1000g	800g	200g	10%

Reason for loss: Loss is due to removal of inner membranous layer.

2.Kukkutanda twak Marana[2]

Reference*: Rasa Tantra Sara Va Siddha Prayoga Sangraha, Bhasma prakarana,* Part 1.

Materials: *Shodhita Kukkutanda twak - 800g, Changeri Swarasa* - Sufficient quantity

Principle: *Marana*

Apparatus: *Khalwa yantra, sharava,* spoon, fuller's earth, cloth, cow dung cakes.

Procedure:

- *Changeri Swarasa* needed for *Bhavana* was prepared according to classics[3].
- *Shuddha Kukkutanda twak* was taken in *khalwa vantra* and made into powder form.
- *Changeri Swarasa* was added to it and triturated well.
- Then uniform sized *Chakrika* were prepared and kept in *sharava*, another *sharava* having the same dimensions was placed over it in such a way that the mouth of both *sharava* come in contact and *sandhi badhana* was done with a cloth smeared with *multanimitti*. Then it was allowed for drying.

- After drying, it was subjected to *Gaja puta*. Complete procedure was keenly observed and the temperature pattern was noticed and noted.
- *Sharava* was collected after self-cooling. *Sandhi bandhana* was removed carefully and the drug was collected.
- The same procedure was repeated for one more time.
- White coloured *Kukkutanda twak bhasma* was obtained.

Observation

- Maximum temperature attained during the puta was 1003°c.
- The reduction in the weight of *Kukkutanda twak* was noticed.
- White colour *bhasma* was obtained after second puta.

Precautions

- *Sandhi* bhandhana should be done properly.
- Temperature should be noted at regular intervals

Result

Table No 2: Showing the result of *Kukkutanda twak marana*

Puta	**Weight of *Shodhita Kukkutanda twak***	**Quantity of *Changeri Swarasa* taken**	**Weight of *Chakrika***	**Weight of *Chakrika* after *Puta***	**Colour**	**Texture**
1.	1800g	1200ml	2400g	1100g	white	soft
2.	1100g	550ml	1500g	720g	white	soft

Reason for Loss :

The loss in weight was incurred due to procedures and handling

Table No. 3: Showing the values of temperature at regular time intervals during *Gajaputa*

Time (min)	**Temperature (^{0}c)**
0	29
60	295
120	660
180	967
240	1003
300	747
360	535
420	327
480	156
540	80
600	42

660	27

3.Vanga Samanya Shodhana [4]

Reference: *Rasaratna Samucchaya* 5/13

Materials: *Vanga* - 1000g, *Tila taila* - 5L, *Takra* - 5L, *Gomutra* - 5 L, *Kanji* - 5L, *Kulattha Kwatha* - 5L

Principle: *Dhalana*

Apparatus: Gas stove , *Pittara yantra* , steel vessels ,Weighing Machine , iron pan .

Procedure :

- Initially Kanji, Kulutta Kwatha were prepared according to classics and were kept ready[5,6].
- *Vanga* was melted in an iron pan . It was immediately poured into *Pittara Yantra* containing sufficient quantity of *Tila taila* . The procedure was repeated for 6 more times. *Note – Each time the *Tila taila* was changed.
- In the same way, the procedure was repeated with *Takra* , *Gomutra*, *Kanji* and *Kulattha Kwatha* subsequently.

Observations :

- Initially *Vanga* looked silvery white in colour.
- On quenching in *Tila taila*, cracking sound was produced. Later when *Vanga* was melted in iron pan , flame is produced with dense fumes. The colour of oil turned into dark black .
- Vanga melted in 4.50 minutes at the time of first *Dhalana* and it took 8 minutes to melt in 7th *Dhalana*
- On quenching in other liquids , bubbling sound was produced with liberation of vapour .
- On quenching in *Takra* , it turned to thin watery liquid , devoid of opacity.
- On quenching in *Gomutra* , it became dark red and turbid.
- The media became very hot after *Dhalana*
- *Vanga* turned into coarse powder by the end of the procedure.

Precautions :

- While pouring molten *Vanga* care should be taken so that it should not spill and cause burns.
- Before every quenching it must be ensured that *Vanga* should be heated till it melts completely .
- Amount of liquid taken for quenching should be sufficient for complete immersion of *Vanga* .
- Utmost care should be taken to prevent the loss of *Vanga* during *Dhalana*.

Reasons for Loss : Due to handling during *Dhalana*.

4. *Visesha Shodhana of Vanga*[7]

Reference: Rasa Tarangini 18/11-12

Materials: *Vanga - 850g, Nirgundi Swarasa* - quantity sufficient, *Haridra churna* - quantity sufficient

Principle: *Dhalana*

Apparatus: Gas stove , Iron pan, *Pittara yantra* ,Weighing machine, Steel vessel.

Procedure :

- *Nirgundi Swarasa* was prepared and *Haridra* was added to it[8].
- *Samanya Shodhita Vanga* was taken in a clean iron pan and heated to melt.
- The molten *Vanga* is poured through *Pithara yantra* into a vessel containing *Haridra yukta Nirgundi Swarasa*.
- The solidified *Vanga* is collected back, melted again and poured in fresh *Haridra yukta Nirgundi Swarasa.*
- This process is repeated for 3 times to obtain the *Shodita Vanga*.
- Later it was dried and stored as *Shuddha Vanga.*

Observations :

- Vanga melted in four minutes at the time of first *Dhalana* and it was seven and half minute at the time of 3rd *Dhalana* .
- The *Haridra yukta Nirgundi Swarasa* became hot but do not spill over.
- Smell of *Haridra* is observed after *Dhalana.*

Results :

TableNo 4: Showing the result of *Vanga Shodhana*

Procedure	Initial weight	Final weight	Loss in weight	Loss percentage
1.Samanya Shodhana	1000g	735g	185g	18.5%
2.Visesha Shodhana	735g	700g	35g	4%

Reasons for loss : Due to handling during *Dhalana*

5. Jarana of Vanga[9]

Reference: Rasa Tarangini 18/29

Principle: *Shuddha Vanga* – 790 , *Aswattha Twak Yavakute Churna*

Time taken for completion : 17 hours

Equipments : Iron fry pan (*Loha kadhai*), Iron ladle, Double burn gas stove, Weighing machine, *Sharava*, Spatula, Cotton cloth.

Procedure:

- *Ashwatta Yavakuta Churna* was prepared and kept ready[10].
- The *Shodhita Vanga* was taken in the *Loha Kadhai* and heated to melt.
- *Ashwatta twak Yavakuta Churna* was added to the molten *Vanga* repeatedly and rubbed continuously with iron ladle till *Vanga* gets converted into powder form.

- When *Shodhita Vanga* completely transformed into powder form, it was collected at the centre of *kadhai* and closed with a *sharava* and intense heat was given till the bottom of the vessel became red hot .
- When the powder at centre of *kadhai* became red hot , then *kadhai* was kept for self -cooling .
- After self-cooling the powder was sieved through cloth, metal particles left on it were separated and again subjected to the same procedure .
- Powder which was obtained was washed repeatedly with water for complete removal of alkali content.
- For washing, powder was dissolved in water and left undisturbed for 3 hours and the clear supernatant liquid was removed.
- After complete reduction of alkaline content of Vanga, it was dried and stored.

Observations :

- *Vanga* gradually converted to ash coloured powder .
- While adding *Aswattha twak yavakuta churna*, fumes are observed.

Precautions :

- *Ashwatta twak yavakuta Churna* should be added little by little throughout the procedure.
- Continuous stirring of the contents should be done.
- Care should be taken to avoid spilling.

Results :

Table No 5: Showing the result of *Vanga Jarana*

Initial weight	Final weight	Gain in weight	Gain percentage
700g	740g	40g	6%

Reason for Gain : Gain in weight was due to addition of *Ashwattha twak Yavakuta Churna*..

6. Vanga Marana[11]

Reference : Rasamrutham 3/88-94

Materials : *Jaritha Vanga* – 740g, *Kumari Swarasa* – sufficient quantity

Principle: *Marana*

Apparatus: *Khalwa yantran , Sharava* **,** Spatula , Cloth, multtani mitti , Cow dong cakes.

Procedure :

- *Kumari Swarasa* was prepared initially and kept ready[12].
- *Jaritha Vanga* was taken in *Khalwa yantra* , sufficient quantity of *Kumari Swarasa* was added to it and triturated .
- *Chakrika* of uniform size were prepared, dried and were kept in a *sharava*. *Sandhi bandhana* was done.
- *Sharava samputa* was kept in sunlight for drying

- After drying, it was subjected *to Ardha Gaja puta.*
- Whole procedure was repeated until all the *Bhasma lakshana* were attained as mentioned in the classics .

Observations :

- Maximum temperature attained during the puta was 700^0 c.
- The reduction in weight of *Vanga* has been noticed throughout the process.
- *Nischandratwa* was obtained after 4^{th}puta.
- *Rekhapurnatwa* was obtained after 2^{nd}puta.
- *Varitaratwa* was obtained after 7^{th}puta.

Precautions :

- *Chakrika* of uniform size and shape must be prepared.
- *Sandhi bandhana* should be done properly .
- Cow dung cakes should be placed uniformly on all sides.
- Temperature should be noted at regular intervals.

Results :

Table No 6: **Showing the change in weight of *Vanga Bhasma* with respect to puta**

Puta No.	**Weight of *Chakrika* after *Bhavana* (g)**	**Weight of *Chakrika* after *puta* (g)**	**Loss in weight(g)**	**Loss percentage**
1	740	690	21	2.83%
2	731	709	22	3.0%
3	722	698	24	3.32%
4	711	691	20	2.81%
5	693	674	21	3.03%
6	687	663	24	3.49%
7	675	651	24	3.55%

Table No 7: Showing the result of *Vanga Marana*

Initial weight	**Final weight**	**Loss in weight**	**Loss percentage**
740g	651g	89g	12.02%

Table No 8: Showing the temperature at regular time intervals during *Ardha Gaja Puta*

Time in minutes	Temperature
0	**49°c**
60	**700°c**
120	**349°c**
180	**94°c**
240	**26°c**

Table No 9: Showing the colour of *Vanga Bhasma* during Puta

***Puta* Number**	**Colour**	**Consistency**
1	Grey	Hard
2	Grey	Slightly hard
3	Grey	Soft
4	Whitish Grey	Soft
5	Remained as the same	Soft
6	Remained as the same	Soft
7	Creamy white	Very soft

Table No 10: Showing *Varitaratwa*

No of *Puta*	***Varitaratwa***
1 to 4	-
5th	+
6th	++
7th	++++

Table No 11: Showing *Rekapurnatwa*

No of *Puta*	***Rekhapurnatwa***
1st to 2nd	**No change**
3rd	+
4th	++
5th	+++
6th	++++
7th	++++

Reason for Loss :

The loss in weight was incurred due to procedures and handling.

7. *Churna Nirmana of Ashwagandha, Vidari, Brihat Ela, Mishri*[13].

Reference: *Sharangdhara Samhitha Madhyama Khanda* 6/1

Materials: *Ashwagandha* – 500g, *Vidari* – 500g, *Brihat Ela* – 150g, *Mishri* – 500g.

Principle: Pounding, sieving

Apparatus: *Khalwa yantra,* Stainless steel vessel, spoon.

Procedure:

- Dried *Ashwagandha* roots, *Vidari* tubers, *Brihat Ela* seeds, *Mishri* were taken, checked for any external impurities, worms and insects then cleaned and dried.
- Then they were taken in *Khalwa yantra* and pounded individually.
- Pounded material was sieved through a clean cloth to obtain very fine powder.
- Then they were stored in an airtight containers seperately.

Observations:

- Very fine powders of cream coloured *Ashwagandha, white coloured Vidari, brown coloured brihat ela, white Mishri* were obtained.

Precautions:

- While pounding care should be taken to avoid spillage.
- Sieving should be done properly to get fine powder.

Result:

Table No 12: Showing the result of preparation of *Ashwagandha churna*

Ingredient	Initial weight	Final weight	Loss in weight	Loss in percentage
1. *Ashwagandha*	500g	480g	20g	4%
2. *Vidari*	500g	480g	20g	4%
3. *Brihat ela*	150g	140g	10g	6%
4. *Mishri*	500g	480g	20g	4%

Reason for loss: Loss was incurred due to spillage during pounding and seiving

8. Preparation of Homogenous mixture[14]

Reference: *Rasa Tantra Sara Va Siddha Prayoga Sangraha* - part-2 *StreeRogadikara.*

Materials: *Ashwaganda Churna* – 300g, *Vidari Churna* – 300g, *Brihat Ela Churna* – 75g, *Kukkutanda Twak Bhasma* – 75g, *Vanga Bhasma* – 37.5g, *Mishri* – 300g.

Principle: Mardhana /Mixing

Apparatus: *Khalwa yantra,* spoon.

Procedure:

- Fine powders obtained after practical No. 3, 4, 5, 6. 7, 8 were added one by one in *Khalwa yantra* and mixed well.
- Mixing was carried out till a homogeneous mixture was obtained.
- It was collected and preserved in an air tight glass container.

Observations:

- Very fine homogeneous mixture was obtained.

Precautions:

Careful mixing of all the *Churna* has to be done.

Results:

Table No. 13: Showing the result of mixing of component drugs of *Ashwagandhadi Yoga*.

Initial weight	Final weight	Loss in weight	Loss in %
1090 g	1070g	20g	2%

Reason for loss: Loss was incurred due to spillage while mixing.

Figure 1 *Kukkutanda Twak*

Figure2*:*Soaking in the solution of *Saindavam* and *Navasadara*

Figure 3 *Kukkutanda Twak washed with hot water and dried under sunlight*

Figure 4 *Shuddha Kukkutanda Twak Churna*

Figure 5 *Bhavana with Changeri Swarasa*

Figure 6 *Chakrika Nirmana*

Figure7: *Sharava Samputa*

Figure8: *Gaja Puta*

Figure9*: Kukkutanda Twak Bhasma*

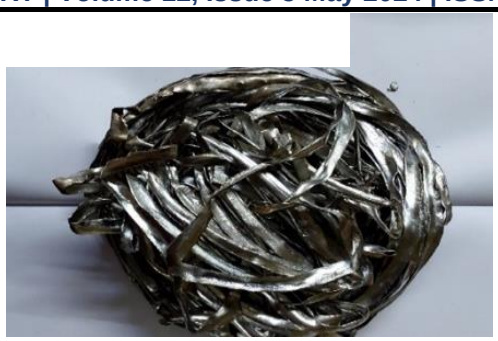

Figure10: *Ashodhita Vanga*

Figure11: *Samanya Shodhita Vanga*

Figure12: *Visesha Shodhita Vanga*

Figure13: *Jarana* using *Ashwattha Twak Yavakote Churna*

Figure14: Rubbing using Iron ladle

Figure 15: Bottom of Pan becomes red hot

Figure 16: Jaritha vanga After self cooling

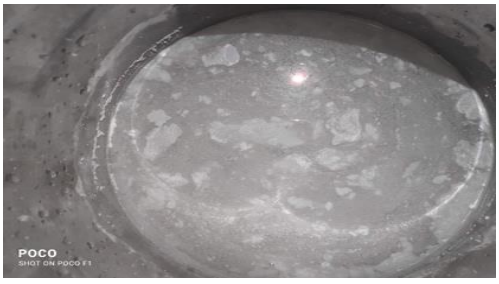

Figure 17: Washing with water

Figure 18: *Bhavana* using *Kumari Swarasa*

Figure 19:*Chakrika Nirmana*

Figure 20: *Sarava Samputikarana*

Figure21: *Ardha Gaja Puta*

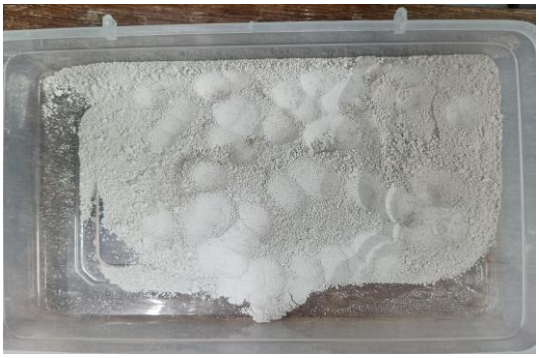

Figure22: *Vanga Bhasma*

Figure 23: *Ashwagandha* roots

Figure 24: *Ashwagandha Churna*

Figure 25: *Vidari* Tubers

Figure 26: *Vidari Churna*

Figure 27: *Brihat Ela* seeds

Figure 28: *Brihat Ela Churna*

Figure 29: *Mishri*

Figure 30:*Ashwagandhadi Yoga*

DISCUSSION:

The Pharmaceutical procedures adopted in this Study are – ***Shodhana (Samanya & visesha), Jarana, Bhavana, Marana, Swarasa Nirmana, Churna Nirmana.***

Shodhana

All the pharmaceutical procedures such as washing (*Kshalana*), trituration (*Mardana*), heating, dipping (*Nirvapana*) etc are carried out over a medicinal drug with the intention of getting it purified is called as *Shodana*[15].

Significance of *Shodhana :*

Most of the materials of *Rasa Shastra* are obtained from mineral sources containing various impurities which are responsible for causing toxic effects to body tissues. Therefore *Rasa dravya* are purified first by a specialized processing technique known as *Shodhana* before subjecting them for the main processing.

Here *Nimajjana* for *Kukkutanda twak Shodhana* and *Dhalana* for *Samanya* and *Visesha Shodhana* of *Vanga* was adopted.

Nimajjana is a process where any dravya is kept immersed in the prescribed in the prescribed liquid for specific period. *Kukkutanda twak* was soaked in the solution of *Saindhava lavana* and *Navasadara* for three days[16]. During S*hodhana* procedure, it was observed that the colour of solution was changed from translucent to opaque and hazy white. The remnant portions of egg yolk and egg albumin were found floating on the surface of water and foul smell was observed during *Shodhana* process.

After *Shodhana,* it was noticed that *Kukkutanda twak* pieces became brighter and smooth. The inner membraneous layer of egg shell could also be easily removed. The average weight loss observed was 30 percent. It may be due to removal of inner membraneous layer. Some small particles of eggshell get lost during washing with hot water.

Samanya Sodhana

Samanya Sodhana is common for all *dhatu* and it is aimed to eliminate specific, unwanted impurities along with enhancement of general properties.

Vishesa Sodhana

Vishesa Sodhana is specifically indicated for individual dhatu aimed to eliminate or to reduce toxic effects and eradicate the specific unwanted property and to promote specific therapeutic properties. It is aimed at preparing drug for next pharmaceutical procedures .

Dhalana is a process in which melted dravya is poured into prescribed liquids. Samanya Shodhana of Vanga was done using Taila, Takra, Gomutra, Kanji, Kuluttha Kwatha, each for 6times[17]. Visesha Shodhana of Vanga was done using Haridrayukta Nirgundi Swarasa for 3times[18]. *Pittara Yantra* was used in this procedure. By the end of this process, solid Vanga gradually turns into coarse powder. Loss of Vanga was more due to spillage during quenching.

Jarana[19] :

Jarana is an intermediate process between *Sodhana* and *Marana* where the low melting point metals are converted into powder form[1].

Significance of *Jarana* :

- To obtain powder form of *Putiloha*.
- Makes suitable for the further processing.

The *Shodhita Vanga* was taken in the *Loha Kadhai* and heated to melt. *Ashwatta Twak Yavakute Churna* was added to the molten *Vanga* repeatedly and rubbed continuously with iron ladle till *Vanga* gets converted into powder form. Increase in weight of Vanga was observed due to addition of *Ashwattha twak yavakuta Churna* during the process.

Swarasa Nirmana[20]

Swarasa is the juice extracted from freshly collected plant drugs by pounding and straining through cloth. Green coloured *Changeri Swarasa* required for *Bhavana* of *Shodhita Kukkutanda Twak* and translucent greenish tinge *Kumari Swarasa* for *Shodhita Vanga Bhavana were obtained through this process.*.

Marana[21]:

The process of converting the purified metals and minerals into *bhasma* form by triturating with specific liquids and subjecting to contact with fire is known as *Marana.*

Significance of *Marana:*

- The heavy, hard and rough substances get converted into light, soft and smooth forms.
- The metals and minerals get converted into ash form.
- Increases the therapeutic qualities and shelf life of drug.
- Elements get converted into compound form.
- Dose is reduced.
- The metals and minerals get converted into such forms that they are easily absorbable, adoptable, and assimilated in the body.

Marana includes four steps- *Bhavana, Chakrika Nirmana, Sharava samputikarana, Putapaka.*

***Bhavana*[22] :**

Bhavana is the process in which the powders of minerals and metals are added with prescribed liquids till they become completely wet and grinding is carried out in *Khalwa yantra* till the mass is suitable for *Chakrika Nirmana*.

Significance of Bhavana :

- Impregnation of properties of the media to the material .
- Transformation of the coarse powder to finer state .
- To facilitate the material for further processing .
- Induction of organic qualities into inorganic substances.

Shodhita Kukkutanda Twak was subjected to *Bhavana* using *Changeri Swarasa*. *Bhavana* was done with *Kumari Swarasa* in *Vanga Marana.*

***Chakrika nirmana* :**

In this phase *Bhavitha dravya* was made into uniform sized *chakrika*. Generally the *chakrika* are small, round and flat.

The *Chakrika* should be made for below mentioned reasons:

- To facilitate uniform heat and helps in chemical reactions at the time of *Putapaka*.
- This helps to achieve homogenous heat pattern to whole of the mass with increased surface area.
- It makes easy collection of materials after *Putapaka*.
- In metallic *Bhasma*, *Chakrika* facilitates to examine the effect of Puta (whether it is soft or not).

Chakrikas were prepared after *Bhavana* and dried well. They were white in colour.

Sharava Samputikarana:

Earthern *Sharava* were used for incineration because of their inert nature, easy availability and uniform distribution of heat to the substance. Well dried *Chakrikas* were kept in a *Sarava* which was covered by another *Sharava* of same dimensions and *Sandibandhana* was done with mud smeared cotton cloth. After complete drying of first layer of mud smeared cloth, next layer of it was applied over it.

Putapaka:

Puta is the heating system which indicates the quantum of heat required by *Rasadhi dravya* for their conversion into suitable form (*bhasma*) .

- In this phase, the *Sharava samputa* was subjected for *putapaka.*
- In *puta* system of heating, there is gradual rise and fall of temperature which helps in making the material more *agnisthayi* (heat stable).It cannot regain its form back after complete procedure.

- According to classics, *Gajaputa* is advised for *Kukkutanda twak Marana and Ardha Gaja puta for Vanga Marana.*. This heating pattern is specified depending upon the melting point and hardness of the *dravya.*
- The maximum temperature attained during the *puta* was 1003^0c in Kukkutanda Marana and 700^oc in *Vanga Marana*. After that gradual fall in temperature was noted.
- Finally white coloured *Kukkutanda twak bhasma, cream coloured Vanga Bhasma* were obtained. Loss in Weight of *Bhasma* may be due to procedures and handling.

BHASMA PAREEKSHA[23]: The prepared *Bhasma* was subjected to the following tests to ascertain whether the *Bhasma* was prepared properly or not.

- *Rekhapurnatwa:* After trituration, small amount of *Bhasma* was taken between thumb and index finger. It filled into the fine lines of finger.
- *Varitaratwa*: After proper trituration, small amount of *Bhasma* was sprinkled on the surface of water. *Bhasma* being light floated on the surface of water.
- *Nischandratwa:* Small quantity of *Bhasma* was observed under bright sunlight for presence of any free shiny metal particle. There was no shining observed in the *Bhasma.*
- *Niswadu Pareeksha:* When a small amount of the *Bhasma* was kept on tongue, there was not any feeling of taste/ untoward sensation.

  All the above said *Bhasma Pareeksha* were positive for *Kukkutanda Twak Bhasma* and *Vanga Bhasma.*

Churna Nirmana[24]

The *Churna* is a fine powder of completely dried drug. Dried *Ashwagandha roots and Vidari tubers, Brihat Ela seeds and Mishri* were made into *Churna* seperately by pounding in *Khalwa yantra* and filtering through a clean cloth.

Creamish White *Ashwagandha Churna,* White coloured *Vidari Churna,* Brownish *Brihat Ela Churna* and White *Mishri Churna* were obtained and stored in air tight containers. Here reduction in weight was observed which was due to spillage while pounding and during filtration.

Preparation of *Ashwagandhadi Yoga*[25]

Ashwagandhadi Yoga was prepared according to ***Rasa Tantra Sara Va Siddha Prayoga Sangraha – Streeroga Adhikara, Part 2.*** 75g of *Kukkutanda Twak Bhasma,* 37.5g*Vanga Bhasma,* Churna of 300g Ashwagandha, 300g Vidari, 75g *Brihat Ela,* 300g *Mishri* were taken in *Khalwa yantra* and *Mardana* was done till homogenous mixture was formed. Creamy White coloured *Ashwagandhadi Yoga* was obtained and stored.

Conclusion:

The Beauty of *Rasashastra* mainly lies in the processing of *Rasaoushadis*. *Bhasma* shows good therapeutic efficacy and fast action in small dosage when prepared properly and effectively. *Ashwagandhadi Yoga*

containing *kukkutanda twak Bhasma, Vanga Bhasma* and other ingredients shows its significant effect in *Sweta pradara.*

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