PHARMACEUTICO-ANALYTICAL STUDY OF GAGANAPARPATI

1Dr Vijaykumar B. Chavadi 2Dr Reshma Begum
1Associate Professor, 2PG Scholar, Dept. of Rasashastra & Bhaishajya Kalpana, B.V.V.S. Ayurvedic Medical College & Hospital, Bagalkot, Karnataka-India.

INTRODUCTION

In Ayurveda system of medicine, the Rasashastra branch which deals with the herbal, mineral and herbo-mineral formulations with the different method of preparations like Khalviya, Parpati, Pottali and Kuppipakwa Rasayana. As Rasaushadhi is gaining importance in this modern era due to the low dosage form, potent in action and easily absorbed in the body due to its minute form, here the Parpati which has the different method of preparation based on the amount of Agni given during the preparation and based on the number of ingredients used. Parpati is the kind of Murchana of Parada. It is the Agnisthayi Murchita Avastha of the Parada Bandha, as Kajjali is the base for the preparation of the Parpati by the application of the proper quantum of Agni it makes the preparation Laghu in nature. Hence the name indicates Parpati-Lightness.

Parpati Rasayanas have the high therapeutic value, potency, less toxicity and cost effective preparations. Here the materials required for the preparation are easily available, cost effective. The Parpati prepared is having the longer shelf life as explained in the classics, the Rasaushadhi older the better in the context of the Saviryata Avadhi.

MATERIALS AND METHOD

To evaluate the pharmaceutico-analytical activity of Gaganaparpati, following materials are used:

Materials:
A) Pharmaceutical Part:

Preliminary procedure includes-
1. Parada Shodhana
2. Gandhaka Shodhana
3. Abhraka Bhasma preparation

**Final procedure includes-**
Preparation of Gaganaparpati

B) Analytical Part:
Organoleptic analysis
Physico chemical analysis

**Preliminary procedure includes-**

Methods:
1) **Parada Shodana**

**Instruments:** Tula Yantra, Khalva Yantra, Darvi/ Palika Yantra.

**Procedure:**
1. Ashuddha Parada of 240gms was taken in a clean Khalva Yantra

**Changes during Parada Shodana-**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Parada changes</th>
<th>Before Shodana</th>
<th>After Shodana</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Touch</td>
<td>Smooth</td>
<td>Smooth</td>
</tr>
<tr>
<td>02.</td>
<td>Colour</td>
<td>Silver</td>
<td>Silver, black</td>
</tr>
<tr>
<td>03.</td>
<td>Luster</td>
<td>Dull</td>
<td>Shiny</td>
</tr>
</tbody>
</table>

2) **Gandhaka Shodhana**

**Equipment:** Tula Yantra, Khalva Yantra, Cloth, Spoon, Utensil, Pan, Source of fire, Stirrer.

**Procedure:**
1. Ashuddha Gandhaka was taken in the Khalva Yantra and powdered coarsely.
2. Godugdha is taken in a vessel and tied with the cloth.
3. A vessel was kept on Mandagni and slightly heated, 500ml of Sarshapa Taila was added later the Ashuddha Gandhaka was poured and kept for melting.
4. Proper stirring was done till all the Ashuddha Gandhaka gets melted. This liquefied Gandhaka was poured immediately to the vessel containing Godugdha through the cloth.
5. Later the Shuddha Gandhaka was collected at the bottom of vessel containing the Godugdha- one liter.
6. Shuddha Gandhaka was washed with the luke warm water dried, powdered and stored in a air tight container.

**Results and changes during Gandhaka Shodhana:**

**Quantity**

<table>
<thead>
<tr>
<th>Before Shodhana: 500gms</th>
<th>After Shodhana: 480gms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss: 20gms</td>
<td>Total Shuddha Gandhaka: 480gms</td>
</tr>
</tbody>
</table>

**Changes during Gandhaka Shodhana**

<table>
<thead>
<tr>
<th>Gandhaka</th>
<th>Before Shodhana</th>
<th>After Shodhana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luster</td>
<td>Bright</td>
<td>Shiny</td>
</tr>
<tr>
<td>Touch</td>
<td>Rough</td>
<td>Smooth</td>
</tr>
<tr>
<td>Color</td>
<td>Dull yellow</td>
<td>Bright yellow</td>
</tr>
</tbody>
</table>
3) Kajjali Nirmana:

**Equipment:** Tula Yantra, Khalva Yantra, Spoon

**Procedure:**
- Shuddha Parada about 150gms, Shuddha Gandhaka about 300gms was taken in the Khalva Yantra, Slowly and constant trituration was carried out.
- The trituration was carried out till the Shuddha Parada and Shuddha Gandhaka gets completely mixed, attains the jet black color and till it attains the Kajjali Lakshanas.

**Results of Kajjali Nirmana:**

<table>
<thead>
<tr>
<th>Kajjali</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shuddha Parada</td>
<td>150gms + 300gms</td>
</tr>
<tr>
<td>Shuddha Gandhaka</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>450gms</td>
</tr>
<tr>
<td>Loss</td>
<td>35gms</td>
</tr>
<tr>
<td>Total Kajjali</td>
<td>415gms</td>
</tr>
</tbody>
</table>

4) Abhraka Bhasma preparation:

**Shodhana:** The various media used for the Shodhana of Abhraka are as follows- Abhraka flakes are burnt and dipped in anyone or all of the following media for seven time each serially- Kanji, Gomutra, Triphala Kwatha and Godugdha.

**Dhanyabhraka:** Dhanyabhraka is the method of converting the stratified Abhraka in fine granular or fine powder form with the help of Dhanya and jute bag. This procedure is adopted only for the Abhraka. It is adopted after Shodhana and before Marana.

**Requirements:** Shuddha Abhraka- 4 parts, Sali Dhanya (Paddy)- 1 part, Jute bag/ Gunni bag, Kanji- Q.S

**Method of preparation:** Mentioned quantity of Shuddha Abhraka and Sali Dhanya are mixed well, kept in the jute bag tied with the thread and made in the Pottali form. This Pottali is immersed in the container with the Kanji for 3 days, later after 3 days the bag is taken out and rubbed/pressed with the hands. By this method the fine particles of the Abhraka will come out from the jute bag, it is collected and dried.

**Marana:**
- This procedure is adopted after the Dhanyabhraka Nirmana. Marana is a procedure where the metals and minerals after Shodhana, are subjected to grinding with Swarasa, Kwatha and heating at a specified temperature for a specific period.

**For the Abhraka Marana, mineral drugs used are Shuddha Gandhaka, Sarjakshara and Tankana. Maraka Gana of Abhraka mentioned are 64 drugs which are used for preparing Abhraka Bhasma.

**Procedure:** For the Dhanyabhraka, the Bhavana is given with the Maraka Gana Dravyas as mentioned in the classics, Chakrikas are prepared and dried. These Chakrikas are placed in the Sharava, Sandhibandhana is done. Later subjected to 24 Gajaputa till the Bhasma qualities are seen.

**Amritikarna:**

The word Amrita can be considered in the following ways-

Amrita- Nectar, antidote for the poison
Amritikarna is the nectar of immortality. As the drug gains the qualities of Amrita that is nectar, this procedure is named as Amritikarna. It’s a unique process done for Abhraka and Tamra.

According to Rasatargini- The specific method, which is adopted to eliminate the remaining Doshas (blemishes) from the Bhasma of metals and minerals, is known as “Amritikarna”.

**Procedure:** 10 parts of Abhraka Bhasma is taken in an iron pan, 16 parts of Triphala Kwatha and 8 parts of Goghrita mixed well and heated on a low temperature till the liquid gets evaporated. Later the container is covered with the earthen plate and allowed to cool.\(^1\)

**Lohitikarna:**
This procedure is done after Amritikarna. In spite of repeated Bhasmikarna, Abhraka Bhasma doesn’t attain the red color but it becomes brownish black in color to overcome this and to impart the color to the Bhasma, the Lohitikarna procedure is adopted.

**Procedure**\(^2\): Abhraka Bhasma is grounded with the Gangeruki, Badara, Musta, Vata Ksheera, Vatamoola Swarasa, Haridra Swarasa, Manjistra and Lajjalu Swarasa, either juice or decoctions with Manjistra Kwatha. Chakrikas are prepared and dried. These Chakrikas are placed in the Sharava and Sandhibandhan is done. Later subjected to Gajaputa, same procedure is adopted for 3 times by this Abhraka Bhasma becomes Nischandra, smooth and obtains Isthika Varna (brick red) like color.

**Final procedure includes-**
Preparation of Gaganaparpati\(^3\)

**Equipment:** Tula Yantra, Khalva Yantra, Darvi/ Palika Yantra, Spoon

**Other requirements:** Kadali Patra, Ghrita, Gomaya

**RESULTS:**

**Organooleptic Character**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Shodhita Gandhaka</th>
<th>Shodhita Parad</th>
<th>Gagan Parpati</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>Creamish-yellow</td>
<td>Silvery white</td>
<td>Brown</td>
</tr>
<tr>
<td>Odour</td>
<td>Characteristic aromatic</td>
<td>Odourless</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Taste</td>
<td>-</td>
<td>-</td>
<td>Tasteless</td>
</tr>
<tr>
<td>Appearance</td>
<td>Agglutinated fine powder</td>
<td>Dense liquid</td>
<td>Amorphous</td>
</tr>
</tbody>
</table>

**Ingredients:** Kajjali and Abhraka Bhasma

**Procedure:** It is divided into three parts-

1. **Purva Karma:**
>Collection of the required equipments like Khalva Yantra, Darvi Yantra, Spoon.

2. **Pradhana Karma:**
Preparation of Gaganaparpati-
>Small quantity of Ghrita is taken in Darvi Yantra and kept on Mridu Agni (115\(^0\)c - 120\(^0\)c)\(^4\)

3. **Paschat Karma:**
The Parpati in the form of thin flake was collected, washed with hot water to take out excessive of Snigdhaamsa, wiped with the cloth, powdered and stored in the air tight container.
**Physico-chemical Parameters**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Shodhita Gandhaka</th>
<th>Shodhita Parad</th>
<th>Gagan Parpati</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss on drying at 105ºC</td>
<td>0.25%</td>
<td>Nil</td>
<td>2.33%</td>
</tr>
<tr>
<td>Total ash</td>
<td>1.09%</td>
<td>98.17%</td>
<td>47.06%</td>
</tr>
<tr>
<td>Acid insoluble ash</td>
<td>0.04%</td>
<td>97.47%</td>
<td>38.21%</td>
</tr>
<tr>
<td>Water insoluble ash</td>
<td>0.05%</td>
<td>98.10%</td>
<td>44.24%</td>
</tr>
<tr>
<td>Alcohol soluble extractives</td>
<td>0.03%</td>
<td>0.00%</td>
<td>3.98%</td>
</tr>
<tr>
<td>Water soluble extractives</td>
<td>0.00%</td>
<td>0.00%</td>
<td>2.44%</td>
</tr>
<tr>
<td>pH (10% aqueous solution)</td>
<td>4.21 ± 0.10</td>
<td>---</td>
<td>7.22 ± 0.10</td>
</tr>
</tbody>
</table>

**OBSERVATIONS AND DISCUSSION:**

**Parada Shodana:**

-> In the initial stage of trituration, Parada globules doesn’t get mixed up with the Sudha Churna, as the trituration is continued it was found that gradually the Parada globules mixed with the Sudha Churna. The change in the colour of Sudha Churna was observed, Churna had become too fine and smooth in nature and was getting adhered to the pestle during the trituration.

-> During the trituration of Parada with the Nistusha Lashuna and Lavana, first Lavana was finely powdered in Khalva Yantra than Lashuna and filtered Parada was added and slowly the trituration was done. The strong odor of the Lashuna was felt. In the beginning, whole of the Lashuna and Lavana combination was almost paste like due to the Lavana getting constant friction with the heat generated during the trituration and also because of the changes taking place in between the Parada and Lashuna. The Lashuna (Garlic) has the allicin- organo-sulphur content in it and with continues contact with the Parada it may undergo the oxidation and reduction process resulting in the changes. After the Prakshalana, the Parada is seen getting settled at the bottom of the container.

**Gandhaka Shodhana:**

-> Equal quantity of Sarshapa Taila and Gandhaka were taken. Melted on Mandagni and poured immediately in the Godugdha through the cloth. Some of the physical impurities like black particles were seen on the cloth. The excess of the Taila was seen floating on the surfaces of the Godugdha and Gandhaka settled down in the vessel acquiring the shape of the vessel.

-> The change in colour was observed in the Gandhaka during the melting process. The strong odor of the Sarshapa Taila was sensed. Prakshalana with the hot water to get rid of the excess of the Taila and to remove fat content of the Godugdha over the Gandhaka. Repeated washing of the Gandhaka was required as the Sarshapa Taila was too thick and sticky in nature.
**Kajjali Nirmana:**

During the Kajjali preparation, the Shodhita Gandhaka was powdered in Khalva Yantra then the Shodhita Parada was added and Mardana was done slowly with due care without adding any Drava Dravya. Gradually the change in the colour was observed in the Gandhaka from greenish yellow to light grey and so on. Due to the continuous Mardana in Khalva Yantra the following changes were observed.

**Gaganaparpati preparation:**

The melting of the Kajjali and Abhraka Bhasma took some extra time when compared with the Rasa Parpati preparation. It may be because of addition of Abhraka Bhasma as one among the ingredient. During the liquefaction, the excess of Ghrita produced too much Mrudu nature of Parpati and was not getting prepared properly.

When liquefied material was poured on the Ghritalipta Kadali Patra, the change of colour was seen on the Kadali Patra it maybe because of the absorption of the active principles or the main essence from the Patra and Gomaya. The Patra also acts as the media to cool down the liquefied material and to attain the shape of the Pappad like thin flake form. Kadali Patra margins were seen on the surface of Gaganaparpati.

**Patra (Leaves)** - Used as a media between the Gomaya and Parpati. mostly the Kadali Patra is preferred because it is easily available, broad in width and is having Kashaya Rasa helps in adsorption, is coolant in nature and helps in absorption of moisture. The green leaves contain the chlorophyll which acts as the natural anti-oxidant.

**Gomaya** - when the liquefied Parpati is poured on the Kadali Patra which is kept on the Gomaya, it immediately absorbs the active principles through it and enhances the therapeutic efficacy of the Parpati. Gomaya has the bile salts and bile pigments it is passed in the Parpati. The Parpati is given in the Mandagni and Pittaja Vikara here the bile pigments and bile salts acts in regulating the biliary disorders. Helps increasing the potency and solidifies easily because of its coldness.

**CONCLUSION**

The Parpati Rasayana, is the Agnisthayi Murchita Avastha of Parada. Also one among the Parada Bandha.

Gaganaparpati is prepared by adopting the general method of preparation of Parpati Kalpana and has achieved the Siddhi Lakshana of Madhaya Paka.

The quantum of the heat given during the preparation of the Parpati plays an important role, if the amount of the heat...
given becomes more then the Parpati attains the Khara Paka stage, this is discarded and considered to be of no use. So the pattern of the heat to be given is considered of prime importance.

-> Analytical parameters are found to be within normal limits of API.

REFERENCES:
1. Murali Krishna c, Et.al, Review Article, International Journal Of Ayurvedic Medicine, Vol 1, No 3(2010); ISSN: 0976-5921
5. Vagbhattacharya Virachita, Rasaratnasamuchaya, with Rasaprabha teeka by Dr.Indradev Tripathi, Chaukamba Sanskrit Sansthan Varanasi, Edition: Reprint, 2009, 8th Chapter, Verse 05, Pg No 87-88, 418pp
CORRESPONDING AUTHOR
Dr. Vijaykumar B. Chavadi
Associate Professor, Dept. of Rasashastra &
Bhaishajya Kalpana, B.V.V.S. Ayurvedic
Medical College & Hospital, Bagalkot,
Karnataka-India.
Email: drvbc05@gmail.com

Source of support: Nil,
Conflict of interest: None Declared

Cite this article as
Vijaykumar B. Chavadi: Pharmaceutico-Analytical Study of Gaganaparpati;
ayurpub; IV(4): 1310-1317