Pharmaceutical Standardization of Mayaphaladi Churna

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ABSTRACT

Rasa Shastra is the pharmaceutical branch of Ayurveda. As like any other medical system, success of Ayurvedic treatment also depends upon quality of medicine prescribed to the patient. The integral part of Rasa Shastra lies in the successful pharmaceutical process. Rasa oushadhis are the potent Ayurvedic preparations mainly containing metals and minerals. These oushadhis possess a wide range of therapeutic efficacy and are considered superior because of their qualities like small dose, quick action, palatability and longer shelf life. Mayaphaladi Churna is an important Rasa oushadi described in Rasa Tantra Sara Va Siddha Prayoga Sangraha- Part 2, Streerogadhikara indicated for the management of the diseases Swetaprada and Yonibramsha. The ingredients present in the ‘Mayaphaladi Churna’ are Kukkutanda twak bhasma (Egg Shell Ash), Shuddha Sphatikta (Alum), Mayaphala Churna (Quercus Infectoria Oliv.), Amalaki Churna (Emblica Officinalis Gearth), Ashwagandha Churna (Withania Somnifera Linn.,) and Sita Churna (Sugar Candy). The main pharmaceutical procedures involved in the preparation of Mayaphaladi Churna are Shodhana, Marana, Churna nirmana and preparation of Mayaphaladi Churna. The specific pharmaceutical blend of these contents can result in a more effective formulation. Therefore the present study has been planned to standardize the method of preparation of Mayaphaladi Churna according to the method explained in the classical literatures.

Keywords: Mayaphaladi Churna, Shodhana, Marana, Churna Nirmana, Standardization.

INTRODUCTION

Rasa Shastra is an independent and important branch of Ayurveda developed during the medieval period. It mainly deals with the knowledge related to Alchemy and pharmaceutical processes especially concerned with the drugs of metal and mineral origin. Metals and minerals are the integral part of Ayurvedic therapeutics and are in vogue since Vedic period. During Samhita Kalas, their use was limited in therapeutics when compared to herbal preparations. But, after the development of Rasa Shastra, the frequency of use of metals and minerals in treating diseases has been increased. Before their use, they should be subjected to specialized pharmaceutical processes like Shodhana, Marana, Amrutikarana etc. Their use in therapeutics occupied highest place and is called as Rasa Chikitsa. Kukkutanda twak (egg shell) mentioned under Sudha varga group possess various therapeutic properties. It is indicated in the management of several diseases like pandu (Anemia), Mutakrikra (Urinary disorder), Swetaprada (Leucorrhoea), Hrudroga (Heart disease), Rakta prada (Menorrhagia) etc.1

Mayaphaladi Churna is one of the Herbo-mineral formulation described in Rasa Tantra Sara Va Siddha Prayoga Sangraha, which contains 1 part of Kukkutanda twak bhasma (Egg Shell Ash), 1 part of Shuddha Sphatikta (Alum), 5 parts of Mayaphala Churna (Quercus infectoria), 2 parts of Amalaki Churna (Emblica Officinalis), 2 parts of Ashwagandha Churna (Withania Somnifera) and 11 parts of Sita Churna (Sugar Candy). Shodhana, Marana, Churna nirmana and preparation of Mayaphaladi Churna are the main pharmaceutical procedures adopted in the preparation of Mayaphaladi Churna. In the present study an effort has been made to highlight the significance of these pharmaceutical procedures and to standardize the method of preparation of Mayaphaladi Churna.

MATERIALS AND METHODS

Collection of Raw material

Kukkutanda twak was obtained from local restaurant, Tirupati. Sphatika, Mayaphala, Amalaki and Ashwagandha were obtained from the local market, Chennai, Tamilnadu. Sita was obtained from local market, Tirupati.
Methods

Entire preparation of Mayaphaladi Churna was carried out in Department of Rasa Shastra and Bhaishajya Kalpana, TTD's S.V. Ayurvedic College and Sri Srinivasa Ayurveda Pharmacy, TTD, Tirupati.

Pharmaceutical study was carried out in four stages

Stage 1: Shodhana and Marana of Kukkutanda twak

Stage 2: Shodhana of Sphatika

Stage 3: Mayaphala, Ashwagandha, Amalaki and Sita Churna Nirmana

Stage 4: Preparation of homogenous mixture of Mayaphaladi Churna.

Kukkutanda twak Shodhana

Ingredients: Ashuddha Kukkutanda twak-380g, Saindhava lavana-30g, Navasadara-30g, Water-1 liter

Procedure: Kukkutanda twak was taken in a stainless steel vessel and subjected to Shodhana by soaking in the solution of Saindhava lavana and Navasadara for three days. On fourth day inner membranous layer of the egg shell was removed carefully, washed with hot water and dried under sunlight.

Observation: After completion of procedure the colour of egg shells became white.

Kukkutanda Twak Marana

Ingredients: Shoditha Kukkutanda twak-350g, Changeri Swarasa- Q.S (Quantity Sufficient)

Procedure: Shuddha Kukkutanda twak was taken in Khalwa yantra and sufficient quantity of Changeri Swarasa was added to it and triturated well. Chakrika of uniform size and shape were prepared and kept in an earthen saucer and were allowed to dry. Then it was subjected to Sandhi bhandhana and Sharava samputa was kept for drying. Then it was subjected to Gaja puta. After self-cooling the Sharava Samputa was taken out and opened. The material was collected and ground. Again this procedure was repeated for one more time.

Observations: White coloured Kukkutanda twak bhasma was obtained after second Pata. Maximum temperature attained during the Pata was 1003°C. Reduction in the weight of Kukkutanda twak has been noticed in the whole process.

Sphatika Shodhana

Ingredients: Ashuddha Sphatika- 250g

Procedure: Sphatika was taken in Khalwa yantra made into coarse powder and placed in a sharava. Then it was subjected to Nirjalikarana (de-watering) by giving mild heat. Then it was taken in a Khalwa yantra and made into fine powder.

Observations: On heating weight of Sphatika was reduced. White coloured Sphatika was obtained.

Mayaphala Churna

Ingredients: Mayaphala-800g

Procedure: Dried Mayaphala were thoroughly checked for external impurities. Later they were taken in khalwa yantra and pounded. The pounded material was sieved through a clean cloth to obtain very fine powder.

Observations: Light yellow coloured Mayaphala churna was obtained.

Ashwagandha Churna

Ingredients: Ashwagandha Root- 400g

Procedure: Dried root of Ashwagandha were taken in khalwa yantra and pounded. The pounded material was sieved through a clean cloth to obtain very fine powder.

Observations: Cream coloured Ashwagandha churna was obtained.

Amalaki Churna

Ingredients: - Dried Amalaki-400g

Procedure: Dried Amalaki were taken in khalwa yantra and pounded. The pounded material was sieved through a clean cloth to obtain very fine powder.

Observations: Brown coloured Amalaki churna was obtained.

Sita Churna

Ingredients: - Sita- 1400g

Procedure: Sita was taken in khalwa yantra and pounded. The pounded material was sieved through a clean cloth to obtain very fine powder.

Observations: White coloured Sita churna was obtained.

Mixing all the components of Mayaphaladi Churna

Ingredients: Kukkutanda Twak Bhasma-135g, Shuddha Sphatika-135g, Mayaphala Churna-780g, Ashwagandha Churna-390g, Amalaki Churna-390g and Sita Churna-1380g.

Procedure: All the ingredients were added one by one in a Khalwa yantra and mixed well till a homogeneous mixture was obtained.
IMAGES SHOWING THE PREPARATION OF MAYAPHALADI CHURNA

1. Ashuddha Kukkutanda twak
2. Kukkutanda twak soaking in solution of Saindhava lavana and Navasadara
3. Removed inner membraneous layer of Kukkutanda twak and dried under sunlight
4. Shuddha Kukkutanda twak Churna
5. Changeri Swarasa
6. Shuddha Kukkutanda twak Churna Bhavana with Changeri Swarasa
7. Chakrika Nirmana
8. Sharava Samputa
9. Gajaputa
10. Kukkutanda Twak Bhasma
11. Ashuddha Sphatika
12. Heating of Sphatika
13. Nirjalikarana (De-watering)
14. Shuddha Sphatika
15. Mayaphala
16. Mayaphala Churna
17. Ashwagandha
18. Ashwagandha Churna
19. Amalaki
20. Amalaki Churna
21. Sita
22. Sita Churna
23. Homogeneous mixture of Mayaphaladi Churna
RESULTS:

Table No 1: Showing the result of Kukkutanda twak Shodhana

<table>
<thead>
<tr>
<th>Initial weight</th>
<th>Final weight</th>
<th>Loss in weight</th>
<th>Loss in percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>380 g</td>
<td>350 g</td>
<td>30 g</td>
<td>7.89%</td>
</tr>
</tbody>
</table>

Table No 2: Showing the result of Kukkutanda twak marana

<table>
<thead>
<tr>
<th>Initial weight</th>
<th>Final weight</th>
<th>Loss in weight</th>
<th>Loss in percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>350 g</td>
<td>135 g</td>
<td>215 g</td>
<td>70%</td>
</tr>
</tbody>
</table>

Graph No 1: Showing the heating pattern of Gaja Puta

Table No 3: Showing the heating pattern of Gaja puta

<table>
<thead>
<tr>
<th>Time</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 min</td>
<td>24°C</td>
</tr>
<tr>
<td>30 min</td>
<td>125°C</td>
</tr>
<tr>
<td>60 min</td>
<td>300°C</td>
</tr>
<tr>
<td>90 min</td>
<td>540°C</td>
</tr>
<tr>
<td>120 min</td>
<td>776°C</td>
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<tr>
<td>150 min</td>
<td>843°C</td>
</tr>
<tr>
<td>180 min</td>
<td>975°C</td>
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<tr>
<td>210 min</td>
<td>1003°C</td>
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<tr>
<td>240 min</td>
<td>820°C</td>
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<tr>
<td>270 min</td>
<td>770°C</td>
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<tr>
<td>300 min</td>
<td>640°C</td>
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<tr>
<td>330 min</td>
<td>547°C</td>
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<tr>
<td>360 min</td>
<td>450°C</td>
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<tr>
<td>390 min</td>
<td>343°C</td>
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<tr>
<td>420 min</td>
<td>241°C</td>
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<tr>
<td>450 min</td>
<td>215°C</td>
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<tr>
<td>480 min</td>
<td>151°C</td>
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<tr>
<td>510 min</td>
<td>120°C</td>
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<tr>
<td>540 min</td>
<td>80°C</td>
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<tr>
<td>570 min</td>
<td>50°C</td>
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<tr>
<td>600 min</td>
<td>42°C</td>
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<tr>
<td>630 min</td>
<td>38°C</td>
</tr>
<tr>
<td>660 min</td>
<td>27°C</td>
</tr>
</tbody>
</table>
DISCUSSION

The Pharmaceutical procedures adopted in this study are Shodhana, Bhavana, Marana, churna nirmana.

Shodhana is done for Kukkutanda twak and Sphatika.

Marana was done for Kukkutanda twak.

Sphatika Shodhana

Shodhana of Sphatika was carried out according to the reference of Ayurveda Prakasha 2/258. During Sphatika Shodhana, Nirjalikarana was done. In this procedure, the water content present in Sphatika was evaporated by giving continuous heat and weight of Sphatika was reduced upto 46 percent. After purification Sphatika was obtained in White colour.

Kukkutanda twak Shodhana

In present study, Kukkutanda twak Shodhana was carried out according to the reference of Rasa Tantra Sara Va Siddha Prayoga Sangraha, part 1, by applying soaking principle in the solution of Saindhava lavana and Navasadara for three days. During Shodhana procedure, it was observed that the colour of solution was changed from transparent 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 white and smooth. The inner membraneous layer of egg shell would also be easily removed. The average weight loss observed 30 percent. It may be due to removal of inner membraneous layer. Some small particles of eggshell get lost during washing with hot water.

Marana of Kukkutanda twak

In present study Marana of Kukkutanda twak was carried out as per the reference of Rasa Tantra Sara Va Siddha Prayoga Sangraha, Part 1.

Kukkutanda twak marana includes four steps: Bhavana, Chakrika nirmana, Sharava samputikarana and putapaka.

Step I- Bhavana

- Bhavana was carried out till all the subhavitha lakshanas were obtained. Bhavana with herbal liquids helps to bring minute particles of material in contact with each other as well as with liquid media. During wet grinding process, mixture gets properly mixed and material becomes soft, smooth and sticky, which facilitates better binding of material. Wet triturations facilitates particle size reduction and homogenization leading to modification of properties (Gunantalradhana) of the end product. Thus Bhavana helps in increasing the therapeutic efficacy by converting the bhavyadravyas into smaller particles11.

Selection of Bhavana dravya:

- In present study Kukkutanda twak was subjected to Bhavana with Changeri Swarasa. The reason to select Changeri Swarasa as a bhavana dravya is that it has properties like Amla and Kashaya rasa, Laghu ruksha guna, Vatakaphahara, Deepana, Grahi12. To obtain these
qualities in *Kukkutanda twak bhasma*, *Changeri swarasa bhavana* is considered as best choice.

**STEP II- Chakrika Nirmana**

- In this phase *Bhavita dravya* was made into uniform sized *chakrikas*. Generally the *chakrikas* are small, round and flat. This helps to achieve homogenous heat pattern to whole of the mass with increased surface area.

- The *chakrikas* were milky white in colour.

**STEP III- Saravasamputikarana**

- Earthen *Sharavas* were used for incineration because of their inert nature, easy availability and uniform distribution of heat to the substance.

**STEP IV- Putapaka**

- In this phase, the *Sharava samputa* was subjected for *putapaka*.

- According to classics, *Gajaputa* is advised for *Kukkutanda twak Marana*. This heating pattern is specified depending upon the hardness of the *dravya*.

- 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.

- *Puta* is the heating system which indicates the quantum of heat required by *Rasadi dravyas* for their conversion into suitable form (*Bhasma*).

- The maximum temperature attained during the *puta* was 1003°C. After that gradual fall in temperature was noted.

- Finally white coloured *bhasma* was obtained.

- This indicates that the process of *marana* and media have direct influence and are responsible for *fineness* of the *bhasma*.

**Churna nirmana of herbal drugs**

*Mayaphala, Ashwagandha, Amalaki* and *Sita* were made into fine powders according to the reference of *Sharangadhara Samhitha*.

**Preparation of homogenous mixture of all component drugs**

In a *Khahwayantra Kukkutanda twak bhasma*, *Sphatika Bhasma*, and other herbal drug *churna* were mixed in the ratio as mentioned in reference.

**CONCLUSION**

*Mayaphaladi Churna* is one of the *Kharaliya Rasayana* in which *Kukkutanda twak Bhasma*, *Sphatika Bhasma*, *Mayaphala Churna*, *Ashwagandha Churna*, *Amalaki Churna* and *Sita Churna* are the main ingredients. The combination of all these drugs synergistically acts together to pacify the Swetapradara and *Yonibhrumashta*. All the ingredients of *Mayaphaladi Churna* are having *Vatakaphahara* properties.

Pharmaceutical standardization is the first step towards standardization of any drug. So it should be done with utmost accuracy. This leads to reproducibility of drug and production of safe and efficacious drug.

**CONFLICT OF INTEREST**

No conflict of interest.

**REFERENCES**


