PHARMACEUTICAL AND ANALYTICAL EVALUATION OF TALSINDURA RASA

Pendse Vandana Khushalrao*1

1. Professor, post graduate department of Rasashastra and B.K. Ashvin rural Ayurved college, Manchi Hills, Sangamner, Tal. Sangamaner Dist. Ahemadnagar (M.S.)

* Corresponding Author: Email: Pendse_vandana@rediffmail.com, Mobile No. 9096487911

ABSTRACT:

Rasashastra is a science of minerals and these mineral products are toxic in nature. These are subjected to process to shodhana, marana, jarana, murchchna, kajjali, kupipakwa rasayana to convert into nontoxic and absorbable. In Rasashastra various methods are available to convert mercury in the form of which is beneficial to our body for curing the diseases in certain dose. Talsindura-rasa is Herbo-mineral preparation.1 It is important to mention that sindura group of kalpas are named on the basis of their red colour like that of sindura. Prepared by Kupipkwa method. This method is unique, efficacious, potent, difficult and gandhak jarana plays an important role in it. The ancient scholars of Rasashastra have mentioned various parameters to evaluate the kupipkwa rasayana. Some modern analytical tools can also adopted to assess these method. Here an attempt is made to evaluate and prepare talsindura – rasa by traditional method and do analytical study of obtained sample.

KEYWORDS: Kupipkwa, murchchna, shodhana, jarana, kajjali. Marana.

INTRODUCTION:

Ayurveda has interacted with various medical systems from time to time and this interactions along with updated research has facilitated its growth. The importance of herbo-mineral-metal preparations emphasizing towards chikitsa in which all principles is laid down in acute condition for better and quicker results.1 These preparations are suppose to be harmful to our body as per western medicine, but in
Rasashastra text the adverse effects are mentioned already. Rasa-shastra has played a major role in popularizing Ayurveda in masses. Ayurvedic physicians are of the view that various pharmaceutical processes in ayurveda like shodhana (purification), marana (incineration), murchchna, jarana, kupipkwarasayana etc. converts metallic preparations into non-toxic. In current kinetic era rasaushadhis have given Ayurveda a complete novel health care look. Talasindura-rasa is a haerbominaral preparation prepared by kupipkwa method which is made in valukayantra. In talsindura-rasa kajjali prepared of shuddha parada, Shuddha gandhaka, shuddha haritala and shuddha gouripashana. Gandhak jarana plays an important role in enhancing the potency of mercury and arsenic. This jarana process claimed many pharmacological and therapeutic properties in mercury. So dhatu yukta kupipkwa-rasayana has its importance in Rasashastra.

A standard operative procedure in the preparation of talsindura-rasa, along with certain analytical methods helps to reveal out the chemical composition of formulation with there concentration and also ensure safety limits and accuracy of drug. In the present era in order to establish the safety concern the prepared drug should be understood well and interpreted with the help of modern technology and must be supported by proper scientific validation. Physio-chemically talsindura-rasa is HgS and AS₂O₃ but after doing XRD test (X-Ray diffraction). Iron (Fe₂O₃) found in the upper part of medicine in trace amount.

Aims and Objectives:

- To prepare Talsindura-rasa by kupipkwa rasayana vidhi.
- Pharmaceutical study of talsindura rasa according to siddha bhaishajya manimala.
- To Evaluate the ancient and modern parameter in analytical studies.

MATERIAL AND METHODS:

Materials:
Rasabhaga rasata:
punraiakstalmallagandhakta:
Kupyam dwayham
paripchetpwankaffuw hanti talsindura
: // - r.yog.s & s.b.m.m.
Shuddha parada(H₈).
Shuddha gandhaka (S)
Shuddha haritala (AS₂S₃),
Shuddha gauripashana (AS\textsubscript{2} O\textsubscript{3})

Method:
Preparation of Talsindura rasa
Ref: siddha bhaishajya manimala

Materials:
- shuddha parada – 600 gm
- shuddha gandhaka – 100 gm
- Shuddha haritala – 100 gm
- shuddha gauripashana – 100 gm

Methods: kupipkwa rasayana

Equipments:
- Valuka yantra, prepared kanchkupi, cork,
- shalakas, copper coins, bhatti, thermometer etc.

Procedure:
The whole procedure was divided into 3 phases:
1) purva karma  
2) pradhan karma 
3) paschat karma

Purva karma:
Collection of necessary equipments:
- Mortar and pestle, Kanchkupi – (A Glass of bottle which is wrapped with rag and mud of 7 layers and dried.) the thickness of rag and mud sealing is quoted to be of 0.75 inch. Valuka yantra (earthen vessel filled with sand at the bottom upto 8” – 9 thickness. Bhatti (for fire) 
- Thermometer (to monitor the amount of heat)““ Cork, Iron shalakas ,torch etc .“shodhana is done as per reference text."

Selection and collection of raw material drugs as per grahya lakshnas as per reference text.

Parada shodhana was carried out by doing triturations in khalwa yantra. With( lime, rason kalka, saindhav lavana ). For 7 days.then it is washed to get back.

Gandhaka shodhana was done in heating gogruita and dissolved gandhak liquid is poured into godugha. we get solid slab of sulphur. Then washed with hot water. Dried and powered. procedure is repeated 3 times.

Haritala shodhana was carried out by doing swedana with the help of dola yantra in kushmand swaras.(benincasa hispida)

Gauripashana shodhana done with karavellak swaras is bitter guard (momordica charantia) by doing swedana with the help of dolyantra.

Preparation of Kajjli. Shuddha dravyas were weighted accurately.

Mixed together in stony khalwa yantra and triturations was started till the kajjali become black, slakshnatwa ,and completely nishchandra . bhasma pariksha done .the kajjali powder is then filled into a bottle(1/3 part) which is covered seven
times with kapda mitti. After drying, the kachkupi bottle is kept in valuka yantra and sand is filled up to the neck of bottle.

**Pradhan karma:**
In the pradhan karma gradual heating schedule is kramgni for 24 hours/ temp recorded.  
Mrudu agni: Room temp to 200°C (8 hrs) Madhyam agni; 200-400°C (8 hrs) Teevragni; 450-650°C (8 hrs) is given in valuka yantra. shalaka sanchalana – (the mouth of bottle is kept open with help of a red hot iron strirer) and observation of fumes and flames. Copper coin test done. appearance of redness at the bottom. Adherence of mercury particles. then closing of the bottle mouth should be done when extra sulphur is burn completely. The fumes stop coming out of the mouth of the bottle, the joints of the cork and the mouth should be sealed properly with molasses and lime powder made into paste with water, after this Teevr agni applied.

**Pashchat karma:**
The swangasheeta bottle (after cooling on its own) was broken tactfully and sublimate deposited Talsindur rasa at the neck and bottom of kanch kupi. (kanthstha / talastha) talsindura rasa. while taking out, it looks redish yellow black in colour. kanthastha and Talashta talsindur rasa shiny blakish red parpati rupa and was collected and weighted..

**RESULTS:**
Analytical evaluation;
This evaluation divided into two parts.
1. Ancient method

**Ancient Method:**
A) Analytical parameters for physical characters:
1. Varna (colour) - Redish black shiny.
2. Nishchandratwa – (lusterless) – present
3. varitaratwa - (flotness) - present
4. Unam test – properly present (excellent)
5. Rekhapurnatwa (furrow filling ness)- present(genuine)
7. sukshmatwa (fineness) – Present.
8. anjana sahni (softness) - present.9. physical state- churna powder form.
B.) Analytical parameters for chemical characters:
To assess the chemical changes as compound formation. Etc. the below mentioned parameters are to be considered.
1. Gatarasatwa (Tasteless) –present
2. Apunarbhavatwa (irreversibility) - present
Modern Methods:

1.) XRD – X–ray diffraction studies

X–ray diffraction methods are based on the scattering of x–rays by crystals. It is helpful to check product Qualitatively. And Identify a given sample. Evaluate different compounds with same chemical formula but different structure . For determine the arrangements of atoms in minerals and metals. Talsindura rasa sample on 10⁰–80⁰ at the scattering rate 4⁰/ mm of 6kw energy.xrd pattern is mercuric sulphide and AS₂O₃ . And Fe₂O₃ is in trace . this elements is either by raw material ,mortar or the plant extracts added during trituration.

2) Atomic Absorption Spectroscopy (AAS)

It can identify the trace elements present in kupipkwq rasayana bhasmas qualitatively .it is the best Analytical method to evaluate the presence of Arsenic and Iron.³

3) Differential Thermal Analysis (DTA)

It provides information on the chemical reaction , phase transformation ; structural changes etc, occurs in a sample during heat up and cool down cycle. Helpful in the probable chemical reaction that occurs at different stages of kupipkwq rasayanas process..

Analysis of Talsindura –rasa

The data (Table-1) pertaining to Organoleptic and physico- chemical are suggestive of sample is corrosive on sparsha , redish black crystals in rupa . the sample of parada churna was analysed for the total mercury and it was found 78.90% . the sample of residue was analyzed for estimation of mercury. The result of analysis was negative .It indicates there is absence of parada in residue sample obtained from kupi . so it may be inferred that mercury totally was converted in arsenic form and sublimated completely along with trace elements .

Black red shiny in varna .Ash value can be calculated in sample78.90% of mercury ,14.31% of sulphur and 13.28 % of haritala ,3.28% of gauripashana(malla),¹ Talsindur - rasa is shown to contain mercuric sulphide (Hg S)associated with AS₂S₃ several organic micro molecules derived from the plant extract used during the processing. Of the drug. Fe₂O₃ is found in this sample is in trace amount.

DISCUSSION:
Kupipkwa method is very unique, and is best example of murchchna. Talsindur rasa is prepared by kupipkwa rasayana method satisfied the required criteria of traditional analytical techniques. Talsindur rasa should be considered as Mercuric sulphide as major constituent along with arsenic and iron as trace elements. The results conforms the presence of heavy metals as Fe, Ar and, S, and Hg in the prescribed pharma copeial limits. Shodhana is necessary for materials because of proven toxicity effects and converts these preparation into non-toxic and digestible and absorbable. In classical literature kupipkwa method has given more importance for gandhak jarana, it depends upon the quality of gandhaka and types of agni i.e. kramagni in valuka yantra on bhatti. (specialized heating pattern – indirect constant heat).

During preparation of nirgandha kajjali there was a loss of 5%. it may be due to process or human error. During talsidura rasa preparation 350 gm of kantastha part was obtained out of 900 gm of kajjali and talastha part was obtained 500 gm of kajjali. Weight of parada is not increased.

For murchchna of kajjali mixture tituration do not use metal khalwa use stone or porcelain khalwa to prevent the loss of kalpa.

REFERENCES:
1) Rasashastra, Dr. Damodar Joshi .. edited by Dr. Shreekumari Amma., Publication Division Ayurveda College Trivendrum, 1985 pages 320 -321.
4) Parameters on quality assessment of ayurveda & siddha drugs – part A. CCRAS , New delhi.
7) Shri Gopalcrishna Bhatt. Rasendra sar sangraha , motilal Banarasdas prakashan
8)Anonyms pharmacopoeial standards for Ayurvedic formulations , central council for research in ayurveda and siddha , new delhi 1987
9)Bhashajya ratnavali, pandit lalchand raj viidyai 1924 Hindi ,publishers motilal banarsidas , delhi ,India.

Table -1 : Observation and Results of Analytical Tests

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Parameters</th>
<th>Kajjali (in percentage)</th>
<th>Talsindura-rasa ( in percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Loss of Ignition</td>
<td>0.72</td>
<td>0.45</td>
</tr>
<tr>
<td>2</td>
<td>Loss of drying at 110 °c w/w</td>
<td>2.12</td>
<td>2.12</td>
</tr>
<tr>
<td>3</td>
<td>Ash value w/w</td>
<td>2.50</td>
<td>5.25</td>
</tr>
<tr>
<td>4</td>
<td>Acid insoluble ash w/w</td>
<td>0.05</td>
<td>0.27</td>
</tr>
<tr>
<td>5</td>
<td>Water soluble ash w/w</td>
<td>0.30</td>
<td>0.25</td>
</tr>
<tr>
<td>6</td>
<td>Mercury as Hg</td>
<td>53.65</td>
<td>78.90</td>
</tr>
<tr>
<td>7</td>
<td>Sulphur as S</td>
<td>38.70</td>
<td>14.31</td>
</tr>
<tr>
<td>8</td>
<td>Harital as AS_2S_3</td>
<td>24.11</td>
<td>13.28</td>
</tr>
<tr>
<td>9</td>
<td>Gauripashana as AS_2O_3</td>
<td>18.02</td>
<td>3.28</td>
</tr>
<tr>
<td>Sr.</td>
<td>parameters</td>
<td>Talsindura rasa</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------</td>
<td>----------------------------------</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Varna (colour)</td>
<td>Redish black shiny</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Nishchandratwa (lusterless)</td>
<td>present</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Varitaratva (flotness)</td>
<td>present</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Unam test</td>
<td>Properly present (excellent)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Rekhapurnatva (furrow filling ness)</td>
<td>Present (genuine)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Slakshanatwam</td>
<td>present</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Sukshmatwa (fineness)</td>
<td>present</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Anjana Sannibha (softness)</td>
<td>present</td>
<td></td>
</tr>
</tbody>
</table>

Table-2 Observation and Results of Analytical Tests (Ancient method)

<table>
<thead>
<tr>
<th>Series</th>
<th>A – Loss of ignition</th>
<th>B – loss on drying at 110°C</th>
<th>C – Total ash value</th>
<th>D – Gauripashan</th>
<th>E – water soluble ash %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series 1</td>
<td>Blue</td>
<td>Blue</td>
<td>Blue</td>
<td>Blue</td>
<td>Blue</td>
</tr>
<tr>
<td>Series 2</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
</tr>
</tbody>
</table>

Bar Diagram 1 Analytical Evaluation of Kajjali and Talsindura-rasa

Bar Diagram 2 Analytical evaluation of Kajjali and Talsindura-rasa

A – Mercurury as Hg B – Sulphur as S C– Harital AS₂S₃
D– Acid insoluble ash  E – Iron as Fe₂O₃ %
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