

A REVIEW ON POTTALI KALPANA: CONCISE AND POTENT PHARMACEUTICAL FORM

Amol Sawant^{1*}, Chatragun Lagad² and Dilip Wadodkar³

¹P.G.Scholar, ²Professor, ³Professor & HOD,

Department of Rasashastra and Bhaishajya Kalpana, Govt. Ayurved College, Nanded,
Maharashtra.

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***Correspondence for
Author**

Amol Sawant

P.G.Scholar, Department
of Rasashastra and
Bhaishajya Kalpana,
Govt. Ayurved College,
Nanded, Maharashtra.

ABSTRACT

Herbo-mineral drugs have a comprehensive therapeutic value since decade and are still serving many of the health need. They contain several types of formulations with much varieties. Maximum potency with minimum dosage is the philosophy of these drugs. Rasa-shastra is the science which deals with such types of formulations mainly containing Rasa (mercury). Mercurial formulations can be divided into Kharaliya Rasayana, Kupipakwa Rasayana and Parpati Rasayana etc. Pottali Kalpana is one of them which was invented with vision of compact and comprehensive size, convenience in transport, preservation and effective in low dosage, even in emergency also. This is a short review about the history, necessity, preparation and importance of Pottali Kalpana.

KEYWORDS: Kharaliya Rasayana, Kupipakwa Rasayana, Pottali Kalpana.

INTRODUCTION

Every medical science has found the importance of medicine production. So Rasa-shastra has high importance in Ayurveda. It's a science of preparing metallic compounds as well as salts (inorganic/organic) for medicinal use. Lesser dose, agreeable taste and faster relief are the specialties of Rasaaushdhis. Mercury is the heart of Rasa-aushdhis. Broadly mercurial formulations are divided into four categories.

- **Kharaliya Rasayana:** Kharal means mortal. Drugs prepared by mortal and pistal called Kharaliya drugs.

- **Parpati Kalpa:** Kajjali prepared in Kharaliya form melted at high temperature, distributed over leaves and after pouring melted Kajjali, it is pressed between two leaves and cooled.
- **Kupipakwa Rasayan:** The drugs which are prepared in glass bottle covered with seven layers of mud smeared cloth heated in Valukayantra at series of temperature ranges from 250⁰c-650⁰c.
- **Pottali Rasayan:** Pottali is the effective form of mercurial preparation in which ingredients are made into compact and comprehensive size/shape/technique which gives compactness to scattered material. It's a Murchita Parad Yoga in consolidated form. Minimization of dose and maximization of effect are the chief qualities of Pottali.

History of Pottali Rasayan.

- **Rasratnakar:** 12th A.D. first reference of Putpaka Vidhi of Pottali Kalpana is given.
- **Rasaprakash Sudhakar:** 13thA.D. Firstly prepare Pottali by Gandhaka Drava Paka in the context of Vajra Pottali.
- **Yogratnakar:** 18th A.D.mentioned Gandhaka Drava Paka in iron vessel.
- Also author of **Rasayan Sangraha** added five new Pottali preparation. **Rasayog Sagar** has compiled maximum numbers of Pottali Kalpas under the chapter of Pottali Rasayan.

AIMS AND OBJECTIVES

To review the importance of Pottali Kalpana with its pharmaceutical aspects.

MATERIALS AND METHODS

Definition: It can be define as “collection of scattered material into compact and comprehensive size.”

Necessity of Pottali Kalpana: The unavailability or scarcity of glass /Kupi bottles in the 13th century A.D. make a problem for making Kupipakwa Rasayan. Also mud pots are heavy to carry and cause havoc in transportation. As at that time its difficult task to carry these medicines during transportation.^[1] While Pottali Kalpanas are the drugs of compact size which makes them easy for carry and transportation purposes.

Classification of Pottali Kalpas

A) Based on

- Appearance – Churna, Bhasma, conical solid

- Presence/absence of Parada
- Presence/absence of Gandhaka
- Agnisanskara

B) based on the method of preparation

Bhavna method: In this method ingredients are triturated with desired liquid media in Khalva Yantra as we do in Khalvi Ras Kalpas.

E.g. Hamsa Pottali

Putpaka method: In this method ingredients for preparing Pottali are triturated with extract of Kumari(*Aloe vera*), Nimba(*Citrus acida*), Dattura(*Datura stramonium*), Nagvelli(*Piper betle*), Jayanti(*Sesbania sesban*) etc. and Puta is given as like we do in Bhasma Nirman. Divya Jal also has been mentioned as Bhavana Dravya to make the Pottali very hard and glossy.^[2] Siddha Samprdaya mentioned white portion of Krishna Kukkutanda to increase the potency of pottali.^[3] Type of Puta varies from Kukkuta Puta to Gaja Puta. Duration also varies from 3hours to 3days.eg. Rasapottali (Rasprakash Sudhakar), Mriganka Pottali (Rasratna Samucchya)

Varatika Puran method: All the ingredients are filled in Varatika (cowrie shell)/Shankha (conch shell) and closed with paste of Tankan (borax) mixed with Gomutra/Godugdha (cow's urine/milk) and subjected to Puta.

e.g. Lokeshwara Pottali Ras, Rasagarbha Pottali^[4] Similarly Musha is prepared of Shankhanabhi Bhasma and Godugdha is also mentioned e.g. Shankhagarbha Pottali^[5], Mriganka Pottali Rasa.^[6]

Gandhaka Drava method

The whole process can be divided into three major parts.

1. Poorva karma (pre-process): it includes

A) Identification and collection of raw materials.

- a. Raw material- Parada (mercury), Gandhaka (sulphur) and Lohadi Varga (metals) etc.
- b. Binding agents- like isabgol, Babula (*Acacia nilotica*), Tulasi(*Ocimum sanctum*), Kanak(*Datura stramonium*), Adrak Swaras (juice of *Zingiber officinale*).^[7]
- c. Shape : Puga Phala Akar(half-moon shape), Shikhara Akar(cone shape) etc.^[1]
- d. Container: iron vessel^[8], mud pot^[9], china clay^[2]

- e. Cloth :1-4 folds of silk cloth^[2]
- f. Quantity of Gandhaka for Paka: it varies from equal, double or six times to the weight of Pottali^[8] or it may be 2 inches as base and 1 inch of Gandhaka after placing Pottali.
- g. Nature of heat: it is given through Valuka Yantra/Lavan Yantra indirectly on Mandagni(low heat)

B) Shodhana of raw materials: It includes Shodhana of Parada and Gandhaka.

C) Preparation of Kajjali

Firstly requisite amount of Kajjali is prepared from mercury and sulphur by triturating them together till mixture turns to lusterless black powder. If metals like gold and silver are used as medicine, then at first amalgam of mercury with those metals are prepared and then triturated with sulphur.

D) Arrangement of Valuka Yantra

Pottali is mainly prepared in Valuka Yantra or Lavan Yantra. Apart from usual process it is also prepared by heating drug inside closed Samputa (enclosed container) and subjecting to Puta as like in Vaishwanar Pottali Rasa.

E) Collection of thread, silk cloth, mud pot etc.

F) Firing apparatus

2. Pradhan Karma (main process): Preparing shape of Pottali:

All the ingredients of Pottali are mixed well and triturated with Kumari Swarasa or Babbula nirryasa to consolidate them to cone or half-moon shape and dried in shade to avoid cracks, after drying they are wrapped in silk cloth to prepare Pottali for Paka.

Paka of Pottali

Stainless steel/iron vessel is taken and rod is placed on the wall of container to hang Pottali. The total Pottali apparatus is kept in sand bath to prepare Valuka Yantra. Shuddha (pure) Gandhaka is added to iron vessel and Valuka Yantra is heated. Temperature of molten sulphur is maintained 110-120⁰c. Sulphur get melted at 119⁰c. The boiling is continued till melted sulphur get turns to blue color. This stage is achieved up to 8 hours. Pottali is tied so that it is immersed in to molten sulphur without touching or sides of vessel. Pottali is constantly heated with gradual step rise of temperature.

Paka Kala: 1-8 hours^{[8],[9]}

Paka Lakshanas(signs of completion of process): Neela Shyama Varna^{[5],[8]}, (Vyoma Varna.^[8]

3. Paschat Karma (After process)

After completion of Paka Kala, Pottali is to be removed before the molten sulphur temperature is 110°C . After cooling of Pottali, silk cloth is removed carefully and excess of sulphur is scrapped out with sharp edge.

Test of completion of Pottali

- Complete burning of cloth and cloth color changes to black color in Puta method.
- The Pottali attains luster and metallic sound is heard on tapping Pottali over metal object, in Puta and in Gandhak Paka method.

Mode of administration of Pottali

- Pottali should be rubbed over a stone by applying Ghrita or honey and whole paste is administered orally.
- Adraka or Nagvelipatra Swaras are used as Anupana in Sannipataj Avastha.
- Pathya- Ghrita, Dadhi, Shali, Shaka Seven
- Apathya-Amla Dravya, Taila, Bilwa, Kanji, Kakarashtak, Stree and Krodha Seven.



Figure I: Kajjali



Figure II: prepared Pottali

DISCUSSION AND CONCLUSION

Pottali Rasayana is specified pharmaceutical technique which is intended for unique complex formulation, for better therapeutic efficacy. Tablets and capsules are the modern days compact and unit dosage form, causes saving transportation costs in comparison with medicaments within glass bottles. The idea of compact dosage form and their benefits was prevalent in medieval India in the form of Pottali Kalpana. As they were easy to carry and embossed just like modern day tablet with the name of medicine/type of disease it can cure. But preparation of Pottali is costly, probably due to this reason Pottali Kalpana is not in regular practice.

Pottali Kalpana has 4 different methods of preparation like Bhavna method, Puta method, Varatika Purana and Gandhaka Drava method. Each method differs in shape, consistency and form, but they are included in Pottali Kalpana probably for drugs efficacy after complete processing. Though maximum numbers of Pottali preparations are of Putpaka Vidhi, Gandhaka Drava Paka method gained more importance and hence of these are explained in detailed in texts.

The options for using silk cloth to tie Pottali either with one or four folds was explained in context of Gandhaka Drava Paka, where silk cloth prevents the adhesion of molten Gandhaka in space between particles of Dravya and is occupied by molten sulphur where as in Putpaka there are no such chances and hence cotton cloth of two folds may be used.

Valuka Puta employs slow, gradual, uniform, indirect and mild heat for longer duration and so aid gradual processing of drug Paka Lakshanas like burning of cloth and metallic sound on tapping are apt for Putpaka Pottali. In Gandhaka Drava method Pottali Paka Lakshanas describes Vyoma Varna that might suggest the color of Paka Vidhi where in the process is continued till Gandhaka turns to Vyoma Varna. Heat pattern of Paka is slow, uniform and indirect heat. Temperature of molten sulphur is maintained at 120°C-130°C during Paka. So the properties of sulphur might be imbibed in this method. Sulphur has property of allotropies. Its various ingredients are made into solid form which facilitates easy administration, enhances the properties of drug, thereby decreasing dosage. Target activity is on Koshthgata (abdomen) and Sarva Shareer (whole body). Some of them are given even in Maharogas (dreadful diseases) as they have great therapeutic potential.

REFERENCES

1. Rasayansar, Chikitsa prakaran, 113.
2. Rasayogsagar by Vaidya Pandit Hariprapanna Sharma, 2nd edition, Krishna Das Academy, Varanasi, 1983; 705.
3. Paradvignyanium by Vasudeva Mulshankar Diwedi, 2nd edition, Chukhambha Sanskrita Publication, Varanasi, 1997; 323.
4. Rasendrasangraha by Gopal Krishna Bhatt, tran.By Dr.Parimi Sureh, 1st edition, Chukhambha Sanskrita Publication, Varanasi, 2004, Atisara chikitsa 13-15, Rajyakshma Chikitsa 14-19, page 714.
5. Brihat rasraj sundar by Choube Dattaram, Krishnagadh, Srinivas Krishnalalji, 1929; 552.
6. Rasa jala nidhi by Bhudeb Mukharji, Avani publication, Ahmedabad, 1984; 350.

7. Rasayogsagar by Vaidya Pandit Hariprapanna Sharma, 2nd edition, Krishna Das Academy, Varanasi, 1983; 705
8. Yogaratnakar Poorvardha by Shastri Bramhashankara, tran.by Shastri Lakshmipati, 6th edition, Chukhambha Sanskrita Publication, Varanasi, 1997; 504.
9. Rasamruta by Yadavji Trikamji Acharya, tran. by Dr. Joshi Damodar, 1st edition, Chukhambha Sanskrita Publication, Varanasi., 315.