

**A RIVIEW ON POTTALI KALPANA WSR TO GANDHAKA  
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**ABSTRACT**

Pottali Kalpana is one among the chaturvidha Parada Murchita rasayana Kalpa is the one which is distinctive in nature because of its specific method of preparation, optimum potency and larger therapeutic applicability, Pharmaceutical preparation of this kalpa includes Bhavana, Putapaka, GandhakaPaka, method. In Gandhaka paka method when all the ingredients brought into homogenous condition and kept in complex form with suitable samskara to prepare compact and dense pottali.

**KEYWORDS:** Rasashastra, Pottali Kalpana, Gandhaka paka.

**INTRODUCTION**

Rasashastra is one of the key branches of Ayurveda, the traditional system of medicine in India. It primarily focuses on the alchemy, chemistry, and pharmacology of medicinal substances, with an emphasis on using minerals, metals, and herbs to create therapeutic formulations. The term "Rasa" in Sanskrit refers to the essence, or the vital energy, of a substance, while "Shastra" means a system of knowledge or science. Thus, Rasashastra can be understood as the science of essence, dealing with the transformation and refinement of substances to enhance their medicinal properties. In Rasashastra (the Ayurvedic science of alchemy and chemistry) that involves the process of purifying and preparing Parad (mercury) for medicinal use. Parad, considered one of the most powerful and important substances in Rasashastra, is revered for its therapeutic properties, but it must undergo careful processing

to render it safe and effective for human use.

Murchana refers to a process where Parad (mercury) is treated, usually with herbs or other substances, to alter its physical and chemical properties in order to make it suitable for medicinal purposes.<sup>[1]</sup> This process makes Parad less toxic, more stable, and increases its therapeutic potential. There are mainly four types of murchita Kalpana, 1) Kharaliya rasayana 2) Parpati Rasayana 3) Pottali Rasayana 4) Kupipakwa Rasayana Among these formulations Pottali Kalpana which is neglected part in the current practice, but which was invented with a vision of compact, comprehensive size and shape, convenient in preservation and transportation and its efficacy in the treatment of emergency conditions with minimum dosage.

### ❖ HISTORY

On the basis of available literature regarding pottali Kalpana, It may be derived during the early Ras shastric period. The first reference of Pottali Kalpana can be found in the text Rasa Ratnakara of 12th century and the first and foremost mention regarding Pottali Kalpana with respect to Gandhaka paka method is found in 13th century A.D. in the context of Vajra Pottali.<sup>[2]</sup>

### ❖ MATERIAL AND METHODS

Pottali Kalpana can be defined as giving compactness to scattered material. It is one of the unique preparation of Rasashastra with an insight of compactness of material, convenient for preservation, easy transportation and highly effective at minimal doses.<sup>[3]</sup>

विस्तारितस्य वस्तुनः अल्पो भवति पोट्टम् ।

पोट्टलति गृण्हाति इति पोट्टली ॥ ( पारद विज्ञानियम् )

Pottali paka is mainly prepared by 3 methods.

Mainly 1) Bhavana vidhi 2) Putapaka vidhi 3) Gandhak drava paka vidhi

1. Bhavana Vidhi: in this procedure all the ingredients should be purified, properly incinerated bhasmas are to be added and these fine powders are subjected to Bhavana in khalva yantra along with some herbal media. Where ever there is no clear mentioning of specific herbal media the pulp of Kumari or divya jala can be used. This Bhavana is to be continued till the mass attains viscous and semisolid state. After repeating this procedure for 3 to 5 times, by examining the Subhavitha lakshanas like drug mass turns into

homogenous semisolid mass without adhering to the khalwa or spoon, later whole mixture is to be collected, dried, powdered and preserved.

## 2. *Putapaka Samskara*

Putapaka is a specialized technique in which minerals, metals, precious stones and other substances are reduced to ashes by subjecting to appropriate quantum of fire repeatedly so that the subjected matter loses its original shape, colour, nature, lustre etc., and resembles the ash. From the literature of the Rasa Shastra, Putapaka is meant for Marana of Rasa, Maharasa, Dhatu, Ratna etc. But in this present context all the ingredients of Pottali viz., Sindhura, Dhatu, Bhasmas, Choorna etc, are subjected to puta paka. In the course of preparation of Pottali following points are taken into consideration especially for those prepared by Puta paka.

- i. **Ingredients:** In maximum number of Pottalis that are prepared by Puta paka consists of Sindhooras, Dhatus in Shodhita form or in bhasma form, Bhasmas of Sudha varga and Ratna Varga dravyas. Usually these are metallo-mineral in nature.
- ii. **Bhavana:** All the ingredients are properly triturated with suitable herbal media as told by classical references until a uniform homogeneous mixture obtained and is allowed to dry either in Powder form or Gutika form depending upon the Marana procedure.
- iii. **Marana:** For the purpose of incineration various putas are mentioned viz., Gajaputa, Kukkuta puta, Bhudhara puta, Bhandaputa etc. Apart from the general putapaka procedures some special techniques are adopted to the purpose of putapaka of Pottali.
  - a. **Kaparda Purana method:** These prepared mixture in fine powder form filled in the kaparda and the ventral cleft is closed with the paste made of Tankana and Cow's milk. This paste is again smeared around kaparda and left for drying. These kapardas are subjected to Gajaputa and after Swanga sheeta the burnt and bloomed kaparda are macerated to fine powder and preserved.
  - b. **Eg: Ratna garbha Pottali, Lokanatha Pottali, Hema garbha Pottali. Musha Paka Method:** The mixture after Bhavana is filled into the Moosha prepared from the Shankha Bhasma and sealed with Tankana Bhasma paste made with Cow's milk and coated thickly all around the Moosha and allowed for drying. This Musha is to be subjected to Gajaputa by keeping it in sharava samputa. After Swanga sheeta entire Pottali along with Moosha macerated into fine powder. Eg: Shankha garbha Pottali.

### 3. Gandhaka Pak method<sup>[4]</sup>

During preparation of pottali by Gandhaka paka method following points are taken into consideration,

- Ingridients
- Binding Agent
- Shape of pottali
- Drying of pottali
- container
- Cloth
- Quantity of Gandhaka for paka
- Preparing pottali for Gandhaka Paka
- Paka kala
- Paka lakshana
- Paschat Karma

Ingridients: Ingridients mentioned in pottali Kalpana usually sudhha parad and sudhha Gandhaka along with few other Bhasma Dravya, Here Swarna is used in two forms either in Bhasma or foil form, As per opinion of different authors in case of parada, Astasamskarita Parada, Hingulottha Parad, Also Instead of Parada Bhasma Ras sindhura can be used in preparation of pottali.

Binding agent: During the rubbing and mixing of the ingredients, liquid media is used to bind the materials and to give shape of the Pottali to it. Mainly Ghritha kumari swarasa is used for trituration and binding of Pottali. Besides Isabgol, Babbula Nirryasa, Tulasi swarasa, Chitraka is advised by some authors as per the indication in disease, pure water is an optional.<sup>[5]</sup>

Shape of Pottali: Pottali is prepared after proper trituration and attainment of consistency. Regarding the shape of the Pottali different opinions are encountered in Rasa shastra text. Some texts opine the shape “Shikhara-arambhika akara” means the base being wide with narrowly pointed towards the top resembling the shape of the pyramid, another text mentions the shape as “Pugakara”. Further a text mentions the shape as “karsya manasca vartika” means Pottali should be in the shape of varti and approximately weighing of one karsha (12grams). The Pottali should look like Puga phala(fruit of Areca catechu nut) in shape and size.<sup>[6]</sup>

Container: The container in which pottali is to be boiled in the molten sulphur media should be of earthen pot, and it should be smeared with ghee properly before to the Gandhaka Paka where as some other text mentioned Ayasapatra (Iron container) for the same.<sup>[7]</sup>

Cloth: Most of the authors opine to use the silk cloth to tie the Pottali for Gandhaka Paka.

Quantity of Gandhaka: Some texts prescribe the quantity of sulphur to be equal with the weight of Pottali taken where as others opine 2 to 6<sup>[8]</sup> times to the weight of the Pottali, Shuddha Gandhaka should be taken. Author has mentioned 2 inches of Gandhaka as base and 1 inch of Gandhaka after placing the Pottali.

Preparing Pottali for Gandhak Paka: Preparing Pottali for Sulphur bath Silk cloth is taken varies from 1 to 4<sup>[9]</sup> layer according to different Acharyas, each layer is to be sandwiched with powder of sulphur, some authors mention the quantity taken should be equal to the weight of the pottali taken. And this is wrapped tightly with the thread and iron shalaka is placed to suspend the pottali.

Agni Pramana:<sup>[10]</sup> For pottali paka Mandagni with indirect heat method has mentioned by all authors.

Paka kala: Different views are mentioned in Rasa shastra text regarding the duration of paka of Pottali. They are Yamardha,<sup>[11]</sup> Dwiymaka,<sup>[12]</sup> Chiram,<sup>[13]</sup> Dwighatika<sup>[14]</sup>, Chatur ghatika, Ashta ghatika<sup>[15]</sup> or up to the attainment of Vyomavarna of Gandhaka.

Paka Lakshana:

Some signs have been mentioned in the Rasashastra text for the determination of perfect paka of Pottalis. They can be categorized under the following headings.

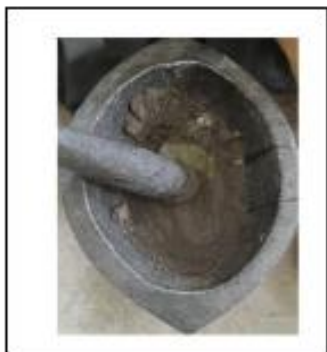
a) Color of the Gandhaka:

The paka of Pottali is considered perfect or completed when the colour of the sulphur becomes Vyoma varna (sky colour).<sup>[16],[17]</sup>

b) Metallic sound: It is produced by the Pottali when banged against the container or any hard substances.

c) Burning of cloth: During the process when the cloth containing Pottali is burnt, that sign is

considered as one of the paka lakshanas of Pottali.<sup>[18]</sup>



**Bhavana with kumari swaras  
Paka**



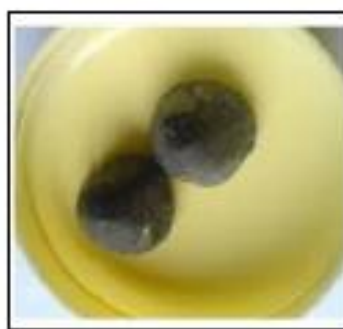
**preparation of pottali for  
Gandhaka dravapaka**



**Gandhak Drava**



**Burnt silk cloth**



**Final product**

### **Paschat karma**

The Pottalis are taken out after attaining paka lakshanas and the silk cloth is removed by cutting it with a sharp instrument. When the Pottali became cool it is polished with a knife to remove the superficial coating of Gandhaka adhered to it and kept in suitable containers for therapeutic uses.

Standardization parameters for the quality assessment of Pottali Kalpana

1. Identification-Organoleptic characteristics like colour, shape, odour, consistency, taste
2. Hardness
3. Disintegration time
4. Melting point
5. Loss on drying at 105°C
6. Ash value / acid insoluble ash
7. Water soluble / alcohol soluble extractives

8. Test for heavy metals / toxic elements
9. Assay of elements - Mercury, Sulphur and other compounds

Analytical parameters

XRD

FTIR

Mode of administration:

This Pottali should be rubbed over a rough surfaced stone for desired number of rotations by applying madhu or ghritha as a medium and whole paste is administered orally. In most of the pottalis, the dose<sup>[19]</sup> is mentioned as Ardha ratti to 1 ratti along with the proper anupana as per diseased condition can be administered. As pottali is a compound medicinal formulation that which is prepared from molten sulphur method, is highly potent and can be administered with minute dosage.

## DISCUSSION

Among the 4 types of Rasayanas, Pottali Rasayana is unique in terms of its preparation, Pottali kalpana is easy to handle, long shelf life & it has been life-saving remedy. Easy administration of drug, easy to transportation, easy to dose fixation, and preservation. Pottali is a Sagni and Sagandha Murchhna of Parada along with other Dhatu. Because of its sustained heat pattern and media used for its Paka, it is a unique preparation. In Pottali formulations sulphur bath is used to Pottali Paka. The author of Rasa Chintamani of 14th cen.AD had mentioned the Pottali Paka method of sulphur bath for the first time. The Paka Kaal is also very important in these formulations and Paka has been done on Mridu Agni. Pottali Kalpana has required more temperature and use sulphur in liquid media for maintain this temperature up to 250°C compare than other media. Heat can be maintained for longer duration by using sulphur.<sup>[20]</sup>

## CONCLUSION

Pottali kalpana is an unexplored sector of Rasashastra, even though it has many advantages like least product wastage, minimal drug requirement when compared to other Rasayogas. Pottali can be prepared by using different methods and Pottali Yogas are mainly described in Rajayakshmaand Grahani chapters, each Yoga has its own dosage, method of preparation and therapeutic utility. The formulation facilitates easy carrying and low dosage form. Though many classical preparations are available in texts, only a few of them are practiced clinically. More researches and documentation are required to be done for analytical and clinical



evaluation of Pottali Kalpanas.

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