



International Journal of Applied Ayurved Research ISSN: 2347- 6362

A CRITICAL REVIEW ON *POTTALI KALPA* WITH RESPECT TO *GANDHAKA PAKA VIDHI*

Mudigere Deepthi¹,

Angadi Ravindra²,

Honwad Sudheendra³

¹PhD Scholar, ²PhD (Ayu)HOD &Professor, Department of *Rasa Shastra* and *Bhaishajya Kalpana* Shri Dharmasthala Manjunatheshwara College of Ayurveda, Kuthpady, Udupi-574118

³PhD (Ayu) HOD &Professor, Department of Agada Tantra, Adichunchanagiri Ayurvedic Medical College, Nagarur.

ABSTRACT

Rasashastra is one of the very important offshoots of Ayurveda, mainly deals with inorganic pharmaceutical preparations like metallic, non-metallic compound of Ayurvedic material medica. Mercury exhibits different therapeutic merits after undergoing *Moorchana*, with different pharmaceutical preparations such as *Khalveeya Rasayana*, *Parpati Rasayana*, *Kupipakwa Rasayana* and *Pottali Rasayana*. *Pottali Rasayana* is a specified pharmaceutical technique which is intended for a unique complex formulation after appropriate purification, processed or incinerated form of multiple ingredients, for better therapeutic efficacy. There are three types of method of preparation are mentioned in classics they are, *Bhavana*, *Putapaka* and *Gandhaka Paka* method. In *Gandhaka Paka* method when all ingredients brought into homogenous condition and kept in a complex form with suitable *samskara*, dose can be minimized with wide spectrum of therapeutic actions. In the pharmaceutical research studies of *pottali* it is observed that the weight of the *pottali* is relatively increased after the *paka* without much change in its organoleptic properties. *Pottali Kalpana* can be taken as most potent medicine which can be used in an emergency condition with least dose.

Key Words: *Rasa shastra*, *Pottali Kalpana*, *Gandhaka paka* method

INTRODUCTION: *Rasashastra*, the miracle mercurial system deals with minerals, metals, precious stones and certain poisonous drugs for manufacturing special formulations to combat chronic diseases difficult to treat. *Parada* is an important element of the Indian Alchemy and plays an important role in *Rasayogas*. Mercury exhibits different therapeutic merits after undergoing *moorchana*, with different pharmaceutical preparations viz., *Khalveeya Rasayana*, *Parpati Rasayana*, *Kupipakwa Rasayana* and *Pottali Rasayana*. *Pottali Kalpana* is a variety of *Murchita Parada yoga* which was invented with a vision of compact, comprehensive size and shape, convenience in preserving and its efficacy

in the treatment of emergency conditions with minimum dosage.

*Pottali*¹ can be defined as to collect scattered materials, into a compact and comprehensive size, *kalpana* means processing. So *Pottali Kalpana* means a technique or processing which gives compactness to the scattered materials. *Pottali Rasayana* is a specified pharmaceutical technique which is intended for a unique complex formulation after appropriate purification, processed or incinerated form of multiple ingredients, for better therapeutic efficacy. It was thought that mercurial drugs if treated with liquid sulphur may become therapeutically efficacious than any other methods. It has many advantages like least product

wastage, minimal drug requirement when compared to other *Rasayogas*

History

On the basis of available literature regarding *Pottali kalpana*, it may be derived during the early *Rasa Shastric* period. Acharyas were using the metals, the minerals, gemstones etc., in either purified or incinerated form. During medieval period a special methodology was derived to keep the Herbal, Mineral, Ratna, constituents into a single formulation known as *Pottali kalpana*.

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*².

***Pottali Kalpana* with respect to *Gandhaka paka* method mentioned in classics are as follows;**^{3,4,5,6}

1. *Vajra Pottali* 2. *Hema garbha Pottali*(1)
3. *Hemagarbha Pottali* (3)
4. *Hema garbha Pottali* (4) 5. *Hiranya garbha Pottali*, 6. *Tara garbha Pottali*
7. *Tamra garbha Pottali* 8. *Loha garbha Pottali*(1) 9. *Loha garbha Pottali*(2)
10. *Malla garbha Pottali* 11. *Tala garbha Pottali*
12. *Shila garbha Pottali* 13. *Visha garbha Pottali*
14. *Rasagarbha Pottali* (1)
15. *Rasa garbha Pottali* (2) 16. *Rasa garbha Pottali* (3)
17. *Rasa garbha Pottali* (4) 18. *Tridhatu garbha Pottali*
19. *Ratna garbha Pottali* 20. *Abhra garbha Pottali*
21. *Makshika garbha Pottali*
22. *Pravala garbha Pottali*

Methodology of *Pottali Paka*

Pottali kalpana should be considered as separate *kalpana* of metallo-mineral drugs evolved in order to keep multiple components like *Bhasma*, *Dhatu*, *Ratna* etc., into a compactly processed one. *Pottali kalpas* are having three different basic pharmaceutical procedures. This was

systematically achieved by three basic procedures viz.,

1. *Bhavana Samskara*
2. *Putapaka Samskara*
3. *Gandhaka Paka*

1. *Bhavana Samskara*:

In this procedure all the ingredients should be purified, properly incinerated (if *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.

Eg: *Hamsa Pottali Rasa*, *Gandhakadi Pottali Rasa (I)*, *Gandhakadi Pottali Rasa (II)*

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 *Putapaka*.

i. Ingredients: In maximum number of *Pottalis* that are prepared by *Putapaka* 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., *Gaja puta*, *Kukkuta puta*, *Bhudhara puta*, *Bhanda puta* etc. Apart from the general *putapaka* procedures some special techniques are adopted to the purpose of *putapaka* of *Pottali*.

a) 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 *Gaja puta* and after *Swanga sheeta* the burnt and bloomed *kaparda* are macerated to fine powder and preserved.

Eg: *Ratna garbha Pottali*, *Lokanatha Pottali*, *Hema garbha Pottali*. (I&II)

b) 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 Paka⁷:

In the course of preparation of *Pottali*, the following points are taken into consideration especially for those prepared in the medium of molten sulphur.

1. Ingredients
2. Binding agent (*Swarasa* for *bhavana*)
3. Shape of *Pottali*
4. Drying of *Pottali*
5. Container
6. Cloth
7. Quantity of sulphur for *paka*
8. Preparing *pottali* for sulphur bath
9. *Agni pramana*
10. *Paka kala*
11. *Paka lakshana*
12. *Paschat karma*

Ingredients:

In maximum number of *Pottalis*, *Swarna* and *Parada* are taken as one of the ingredients. Gold is used in two forms for therapeutic use, either in *Bhasma* form or in foil form. Some authors opine the use of *Swarna varka* (thin flakes of gold) in the preparation of *Pottali*, whereas others prescribed gold in the form of *bhasma*.

As per the opinions of different authors in case of *Parada*, *Astasamskarita Parada*, *Hingulottha Parada*, *Parada bhasma*. Also, instead of *Parada bhasma*, *Rasa sindhura* can be used in the preparation of *Pottali*.

Binding agent⁸:

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 Niryasa*, *Tulasi swarasa*, *Chitraka* is advised by some authors as per the indication in disease, pure water is an optional.

As per *Siddha sampradaya* egg yolk need to be used as a binding agent.

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 “Shikhararambhika akara”⁹ 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.

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 Ayasapatra¹⁰ (Iron container) for the same.

Cloth:

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

Quantity of sulphur:

Some texts prescribe the quantity of sulphur to be equal with the weight of Pottali taken where as others opine 2 to 6¹¹ 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 Sulphur bath

Silk cloth is taken varies from 1 to 4 layer¹² 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.



Image1. Shikhararambhaakara Image2. Gandhaka smeared Agni pramana¹³:

All the authors mentioned Pottali paka by indirect heat application and in mandagni.

Paka kala:

Different views are mentioned in Rasa shastra text regarding the duration of paka

Image3. Pottali Image 4 Valuka Yantra of Pottali. They are Yamardha¹⁴, Dwiyamaka¹⁵, Chiram¹⁶, Dwighatika¹⁷, Chatur ghatika - Ashta ghatika¹⁸ or up to the attainment of Vyomavarna of Gandhaka.



Immersion of Pottali

After 1 hr

After 3 hrs

After 6hrs

After 9hrs

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)^{19,20}



After swangasheeta



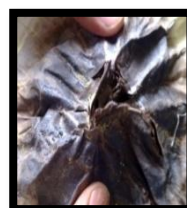
Opening of pottali

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*²¹



Burnt silk cloth

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.

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 dose²² 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, mode of administration, quick in action, high therapeutic efficacy with minimum dose and easy for transportation. *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*. It was thought that mercury if treated with liquid sulphur may become therapeutically efficacious. This hypothesis might have given the idea for formulating *Pottali Kalpana*. When heated, sulphur undergoes a series of

changes in colour, form and viscosity at various temperatures. At 165-185⁰C sulphur starts forming long polymer chains and thus its viscosity increases slightly and it appear with thick yellow fumes which gradually on heating turns to *vyoma varna*. The reason for such a viscosity is that sulphur rings open and combine to form long polymeric chains with more than 500,000-800,000 sulphur atoms per chain²³. In this preparation Sulphur may react with organic matters present in the silk cloth as well as in *Pottali* to form sulphur associated functional group which may later added to compound formation of *Pottali* with functional group formation for maximum bioavailability.

Research has shown that metals and minerals is not absorbed in its elemental state from alimentary tract to produce any systemic effects. But when it undergoes different processes like *paka* in *gandhaka* media in *mandagni* for longer period of time, it gets converted into organometallic compound and definitely gets absorbed in the system and attains the disease curing property. More research works has to be carried out on clinical evaluation of *Pottali Kalpana* to know its efficacy in emergency conditions.

CONCLUSION:

In a nut shell, *Pottali Kalpana* can be understood as a specific pharmaceutical technique which is intended for keeping different constituents in their processed, purified, incinerated form into unique complex formula. This specific technique developed for potentiating the constituents, stabilizing firm bonding between the constituents forming a coordinating complex with high therapeutic efficacy. When the constituents are individually prescribed,

naturally the quantum of medicaments becomes enormous. When all these constituents kept in a complex form with suitable samskara dose can be minimized with wide spectrum of therapeutic actions.

REFERENCES:

1. Vaidya Vasudev Moolashankar Dwivedi, Parada Vijnaneeyam, Chowkambha vidyabhavan, Varanasi:1997, Chapter 10, p168.
2. Acharya Yashodhara, Rasa Prakasha Sudhakara, edited by Siddinandana Mishra, Chaukhamba Orientalia, Varanasi:1998, Chapter 7/36, p139.
3. Anonymous, Yogaratnakara, Commentary of Vaidya Lakshmiapati Shastri, edited by Brahmashankar Shastri, Chaukhamba Sanskrit Sansthan, Varanasi:1997, Kasa chikitsa,verse/1-7, p418.
4. Acharya Shankara, Rasa Chandamshu, translated by Dr.A.Hasleekar edited by Dattaram vaidya, Hubli, Ganesh pet,Atreya sadana,1850,Uttara khanda, 43-48,365-366pp
5. Pandit Shyamsundaracharya Vaishya, Rasayanasara, Chowkhamba Krishnadas Academy, Varanasi: 2005, Volume 1:938-100, p371.
6. Vaidya Hariprannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume1: p577-582
7. Vaidya Hariprannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume1: p577-582
8. Vaidya Hariprannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume1: p577-582
9. Vaidya Hariprannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume2: p 580
10. Vaidya Hariprannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume2: p 579

11. Vaidya Hariprapannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume2: p 579
12. Vaidya Hariprapannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume2: p 580
13. Vaidya Hariprapannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume2: p 580
14. Anonymous, Yogaratnakara, commentary by Vaidya Lakshmipati Shastri, edited by Brahmashankar shastri, Chaukhamba Sanskrit Sansthan, Varanasi:1997, Kasa chikitsa, 1-6, p419
15. Vaidya Hariprapannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume2: p 579
16. Anonymous, Yogaratnakara, commentary by Vaidya Lakshmipati Shastri, edited by Brahmashankar shastri, Chaukhamba Sanskrit Sansthan, Varanasi:1997, Kasa chikitsa, 1-3, p 420
17. Pandit Shyamsundaracharya Vaishya, Rasayanasara, Chowkhamba Krishnadas Academy Varanasi:2005, Volume1:101, p372
18. Vaidya Hariprapannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume1: p 580-582
19. Vaidya Hariprapannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume1: p 577-582
20. Acharya Yadavji Trikamji, Rasamritham, translated by Dr.Damodhar Joshi, Chaukhamba Sanskrit Bhavan. Varanasi:2003, Chapter5/218-222, p250
21. Vaidya Hariprapannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume 2, 1977-1980, p 531
22. Vaidya Hariprapannaji, Rasa yoga sagara, Krishnadas Academy, Varanasi:1998, Volume1: p 581-582
23. Dr.Deepthi.M(2014), Pharmaceutico-Analytical study of Taara Garbha Pottali, Department of Rasa shastra and Bhaishajya Kalpana, Tharanath Government Ayurvedic Medical College, Bellary, Karnataka.

Corresponding Author: Dr Deepthi Mudigere, PhD Scholar, ²Phd (Ayu)HOD & Professor, Department of Rasa Shastra and Bhaishajya Kalpan, Shri Dharmasthala Manjunatheshwara College of Ayurveda, Kuthpady, Udupi-574118
Email: drdeepthi10@gmail.com

Source of support: Nil Conflict of interest:
None Declared

Cite this Article as : [Mudigere Deepthi et al : A Critical Review on Pottali Kalpa With Respect To Gandhaka Paka Vidhi] www.ijaar.in : IJAAR VOL V ISSUE VI JAN-FEB 2022 Page No:403-409