

RASAKALPAS & POTTALI KALPANA IN RASASHASTRA**Dr. Sarita Kothari*¹, Dr. Ravi Prakash Singh², Dr. Prashant D. Math³, Dr. Komal Motghare⁴, Dr. Deepak Soni⁵**¹M.D. Scholar, Dept. Rasashastra & Bhaishjyakalapna,²Principal & Professor, M.D.(Ayu.) HOD of Dept. Rasashastra & Bhaishjyakalapna,³Reader, M.D. (Ayu.) Dept. Rasashastra & Bhaishjyakalapna,^{4,5}Lecturer, M.D. (Ayu.) Dept. Rasashastra & Bhaishjyakalapna, Rani Dullaiya Smriti Ayurveda P.G. Mahavidyalaya
Evam Chikitsalaya, Bhopal, Madhya Pradesh, India.***Corresponding Author: Dr. Sarita Kothari**

M.D. Scholar, Dept. Rasashastra & Bhaishjyakalapna, Rani Dullaiya Smriti Ayurveda P.G. Mahavidyalaya Evam Chikitsalaya, Bhopal, Madhya Pradesh, India.

Article Received on 21/02/2019

Article Revised on 11/03/2019

Article Accepted on 31/03/2019

ABSTRACT

Indian system of medicine is a treasure of spectacular and peculiar pharmaceutical dosage forms. Ayurvedic herbo-mineral drugs contain several types of formulations with vivid varieties. Maximum potency with minimum dosage is the philosophy of these drugs. Pottali kalpana is one of such, highly potent, concise and embossed dosage form in Ayurveda. The main ingredients of it, is the amalgam of mercury and sulphur, which is treated with different plant materials and ultimately given a compact form by the application of natural binder. This short review describe about the history, necessity, preparation and mode of application of the Pottali kalpana, an unique Ayurvedic pharmaceutical dosage form.

KEYWORDS: Pottali kalpana. Avurveda. Dosage form.**INTRODUCTION**

Subject dealing with mercury, allied substances and their therapeutics is Rasashastra.

**“Alpamatropayogitvad aruchedaprasangatah
kshipramarogyadyitvad ausadhebyo adhiko rasah
na doshanam na roginam samyageva pareekshanam
na deshasysa kalasya kriyam rasa cikitsite”**

Rasa kalpas are popular during past and present because of lesser dosage palatability and quickness in combating disease pathology. Rasashastra deals with Indian Alchemy. The nucleus of Rasashastra is mercury. Sulphur is used for pacifying the toxic effects of mercury and also to enhance the therapeutic effect of mercury.

Rasakalps Definition

Rasakalps are Mercurial compounds, They are prepared from shuddha parada, samskarita parada or hingulottha parada, and these are classified as-

- 1) Sagandha murchana and Nirgandha murchana.
- 2) Sagni murchana and Anagni murchana.
- 3) Anthar - dhuma, Bahir - dhuma and Nirdhuma.
- 4) Gandhapishti, Gandhabaddha, Gandhajeerna, Gandhakajalli and Dhadhupishti.

Parada is most important among rasa substances. But parada is not therapeutically used in its natural form. Rasa formulations are prepared from shuddha parada, samskarita parade or hingulottha parada (parada

extracted from hingula). To add the therapeutic qualities to parada, it is processed with different substances. Based on procedure, processing of parada is of four types:-

Based of their method of preparation classified into:-

- Kharaleeya Formulations
- Kupipakva Formulations
- Parpati Formulations
- Pottali Formulations

1) Kharaleeya Formulations

Here all the processing of parada is done with the help of khalva yantra. It is the basic processing techniques. Here shuddha parada or parada bhasma is triturated with herbs/ rasa substances.

Ex: Kajjali, Arogyavardhini vati etc.

2) Kupipakva Formulations

This term is composed of four words:- kupi, pakva, ras and ayana. A rasayana product from parada, gandhaka etc. is prepared in a glass bottle by applying mild, moderate and intense heat. Based on preparation method it classified into:- Antardhooma and Bahirdhoom.

The colour of the finished product depends on the ingredients used.

Ex. Rasashindoor, Makardhawaja etc.

3) Parpati Formulations

Kajjali is melted and poured over leaf of banana or palash. Kept over cow dung cake and pressed with another plate to get a thin cake like formulations called Parpati.

Ex: Ras parpati etc.

4) Pottali Kalpana

Kajjali and other substances are triturated with kumari swarasa to get a bolus. it is given a shape of a betel nut, wrapped with silk cloth and one tola shuddha gandhaka. This mass is taken in a pot and subjected to intense heat to get pottali.

Ex:- Rasagarbha pottali etc.

Pottali Kalpana

Nirukti

“Vistaritasya vastuno alpibhavanm pottam pottam lati grihayti iti pottali”

Pottali can be defined as to collect the scattered materials to a compact and comprehensive size. The word pottali derived from Words- put, pot, pottali, pottalika. Pottali is more effective form of mercurial formulations. Minimization of the dose and also maximization of effect is pottali's importance. Word pottali means to minimize the shape of a drug into more compact and potent form. In other way, it can be defined as the kalpana or the processing which give compactness to scattered materials. Kajjali thus prepared in kharaliya form is melted at the temperature of 119°C (melting point of sulfur), then melted Kajjali is distributed over leaves of *Musa acuminata*, *Butea monosperma*, i.e. big leaves, covered square or rectangular shaped slabs made of cow dung cakes. After pouring the melted Kajjali, it is pressed by another slab made up of similar materials, and after self cooling, the crunchy black layers of Parpati is collected and powdered and stored in the bottle. There are about 75-80 formulations mentioned in various books by various names with slight variation. Pottali formulation with minimum ingredients & named it as Rasagarbha pottali.

History of Pottali Kalpana

The Pottali Kalpana was first described by Nityanatha Siddha of 13th cent. A.D, in his book *Rasaratnakar*. *Ratnagarbha pottali* and *Sankhagarbha pottali* are worth mentioning in this classic. Sharangdhar also developed some formulations of these Pottali preparations in his classic, *Sharangdhar Samhita*. Yashodhara, the author of *Ras Prakash Sudhakar* (13th century), had also mentioned about *Vajra Parpati* in which he adopted the process of Pottali Kalpana. It should be remembered that it is Yashodhar, who is also the pioneer in the preparation of *Kupipakwa mercurial preparation*. *Bhiksu Mayuru pada*, the author of *Yog Ratnakara* mentioned *Hemgarbha Pottali* which is done by boiling the medicament in sulphur. *Krishnaram Bhatt* the author of *Sidhyabhaishjya Manimala* has also used these technique. The maximum details about Pottali kalpana is mentioned in *Rasayansar* of *Shyam Sundar acharya*. It should be remembered that

the birth of Pottali kalpana and *Kupipakwa* preparation was in 12th century to 13th century.

Classification of Pottali Kalpana

1- Acc. To Nirmana Vidhi

- Bhavana
- Putapaka
- Pottali paka

2- Acc. To Appearance of Pottali

- Churna Rupavata
- Bhasmvata
- Conical solid

3- Acc. To Ingredients of Pottali

- With Parada
- Without Parada
- With Gandhaka
- Without Gandhaka

4- Acc. To Agni Samskara of Pottali

- Without agni samskara
- With agni samskara

Different Method of Preparation

- Bhavana vidhi
- Putapaka vidhi
- Pottali paka vidhi

All Pottali preparation are not made in one particular method, some are prepared by boiling liquefied Sulphur, while some are processed through incineration and some more with bhavana vidhi (trituration). The method of boiling, melted Sulphur was introduced by Yashodhara in the context of vajra pottali in around 13th cent. The paka kala also varies according to the pottali yogas, different references from 1 prahara to 3 days are available in rasa granths. Again the author of *Yogratnakara* of 18th cent. Described the method of preparing *Hemagarbha Pottali* by boiling in melted Sulphur. *Krishna Rama Bhatta*, the author of *Siddha bhashaja Manimala*, has also adopted the same technique for this compound. The further writers have preferred this method for the compounds given by the previous authors wherever it is possible.

Specifications

Ingredients:- Parada, Gandhaka, Lohadi varga
 Binding agents:- Kumari swarasa, Babbula niryasa.
 Shape:- Pooga phala, Shikharakara, Karshmaan
 Container:- Loha patra, mrittika patra
 Cloth:- Silk cloth Qty of sulphur for paka
 Nature of heat:- Indirect heat
 Agni:- Mandagni
 Yantra:- Valuka yantra, Lavana yantra

Paka Lakshana

Varna:- Neelashyama varna, vyom varna
 Sound:- Metallic sound
 Cloth:- Burning of silk cloth
 Paka kala:- 1-8 hrs

Paschaat karma:- Polishing of pottali.

Procedure

- Poorva karma
- Pradhana karma
- Pashchaata karma

Poorva Karma

Identification and collection of raw materials

- Shodhana of raw materials
- Preparation of kajjali
- Arrangement of valuka yantra
- collection of thread and silk cloth, mud pot Firing apparatus

Preparation of Pottali

Ingredients:- First of made kajjali and triturated with kumari / babbula niryasa than shape it shikharakara or pooga phala sadrusha and dried in shade to avoid cracks than wrapped in silk cloth and pottali is ready to paaka.

Pradhaan Karma

Paaka:- take a stainless steel vessel and pottali is suspended on it, kept in valuka yantra and shuddha gandhaka is filled in stainless steel vessel containing pottali than valuka yantra heated on this process gandhaka liqifies and paaka starts, level of gandhaka should be maintained throughout the procedure and observed for siddhi lakshana.

Paschaat Karma

- After swangasheeta pottali is removed
- Gandhaka adhered to that pottali is scraped out
- Remove the silk cloth
- Polished with silk cloth

Examination of Final Product

- Metallic sound
- Hard
- Lustre
- Colour – Neel-shyama varna

Significance - Positive aspects

- Easy to administrate drug
- Life saving remedy
- Helps to tackle the acute condition
- Long shelf life
- Absorbs even from the tongue
- Easy to handle

Significance - Negative aspects

- Scarcity of Classical reference or research data.
- Occult preparation method.
- Administration method is also not revealed.
- Market is not demanding hence not using often.

Indications

- Kasa
- Shwasa
- Prameha

- Shukra dushti
- Pradara
- Rajayakshma
- Grahani
- Mootrakrichha
- Mootradaha
- Jwara
- Kaphaj & vataj rog

Anupana

- Breast milk
- Honey
- Jeeraka
- Poogaphala twak churna
- Ardraka swarasa
- Dronapushpi swarasa or kwatha

Mode of Administration of Pottali

Pottali which are having gutikakara should be rubbed over a scratch stone for desired number of rotation by applying ghrita or madhu and whole paste is administered orally.

- In Rasaamruta text, the author has told to rub the Pottali with ardraka rasa or Nagavalli swarasa.
- Hiranyagarbha Pottali is administered by rubbing this Pottali over a hole made in talu pradesh of patient or its powder is administered in the form of pradhmana nasya.

Pathya & Apathya During Pottali Sevana Kala

In the text of RasaKamdhenu, the author has mention the pathya, apathya ahara and vihara and also has mentioned treatments if any complications arise during Pottali sevana.

Pathya- Ghrita, Dadhi, Sali rice, Saka sevana without adding hingu etc.

Apathya- Amladravyas, Taila, Bilva, Kanji, Kakarashtakaghana dravyas, Ratrijagrana, Strisevana, krodha etc.

DISCUSSION

Sometimes these medicine were destroyed on way due to breakage of containers and were mixed with each other. So to avoid these all complications the pottali kalpana was invented with a vision of facility of transportation, administration, dose fixation, preservation and enhancement of properties. In pottali kalpana the ingredients are made into a compact and potent form. To conclude pottali kalpana is one of the special pharmaceutical technique which was invented for compactness of different ingredients in their process of medicine formulations. Debossing is the tablet identification, formed as a groove or indentation into the tablets face. Debossing creates a two dimensional appearance whereas in embossing the tablet identification protrudes above the tablet face or punch cup. Embossing creates a three-dimensional appearance⁴. Tablets and capsules are modern day's

compact and unit dosage form, with certain advantages. Tablets may be embossed or debossed for quick identification, whereas capsules have identification characters, printed over the capsule cover. Tablets and capsules cause huge savings in transportation costs in comparison to medicaments within glass bottles. The idea of compact dosage form and their benefits was prevalent.

in medieval India in the form of Pottali kalpana. Pottali kalpana has compact form, with high potency, they were easy to carry and were embossed just like modern day tablets with the name of the medicine or the type of disease it can cure. Thus we see the scientific aptitude and observation of the luminaries of Indian system of medicines was highly developed and advanced.

CONCLUSION

Pottali kalpana is Easy to handle, Long self 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 dhatus. 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.A.D. had maintained the pottali paka method of sulphur bath for the first time. The paka kaal is also very important in this formulations and paka has been done on mridu agni. Pottali kalpana has required more temp. and use sulphur in liquid media for maintain this temp. upto 250c compare than other media. Heat can be maintained for longer duration by using sulphur. Almost all the authours have mentioned the paka by indirect heat and (with valuka yantra and lavana yantra) on mandagni. Though pottali kalpana is a concise and potent medicament in indian system of medicines, but commercial availability of this type of medicines are negligible. Recently a reputed Ayurvedic company named, Shri Dhootapapeshwara from India had announced the availability of six types of pottali kalpanas in the eve of World Ayurveda Congress, Bhopal, december, 2012. the six types of pottali kalpanas are :-Hemagarbha pottali, Tara garbha pottali, abhra garbha pottali, Tamra garbha pottali, Ras garbha pottali, & Tridhatu garbha pottali. All these weigh one gram and shaped in such a way that the patient can administer correct dose by himself.

REFERENCES

1. Deva Raja Radhakanta, Shabda kalpadruma, Naga Publications, New Delhi, 2003; 3: 762.
2. Vaidya Pandit Sharma Hariprapanna, Rasayoga sagara; 2nd Edition; Krishna Das Academy, Varanasi, 1983; 705.
3. Acharya Yashodhara, Rasa Prakasha Sudhakara, Trans Dr. Mishra. Siddhinandan; Third Edition; Chaukamba Orientalia, Varanasi, 2004; 7/36: 277.

4. Sri Shastri Brahmashankara, Trans Sri Shastri Lakshmipathi, Yogaratnakara, Purvardha; Sixth Edition Chaukhambha Sanskrit Sansthan, Varanasi, 1997; 504.
5. Dvivedi Vasudev mulashankar, Parada vijnaneeyam, 2nd Edition; Chaukhambha Sanskrit sansthan, Varanasi, 1997; 323.
6. Vagbhatta Acharya, Rasa Ratna Samucchaya, Trans Dr. Tripathi Indra Deva; Edition Chaukamba Sanskrit Sanssthan, Delhi; Chapter, 2000; 14/20-22: 418.
7. Choube Dattaram, Brihat Rasaraja Sundara, Krishnagadh (Rajasthan), Srnivasa Krishnalalji, 1929; 552.
8. Mukherjee Bhudev, Ra sa jala nidhi, Avani Prakshan, Ahmedabad, 1984; 350.
9. Vysya Shyam Sundaracharya, Rasayana sara, Shyam Sundar Rasayana Shala Prakashan, Varanasi; Chikitsa Prakarana, 1: 471.
10. Sri Gopal Krishna Bhatt, Rasendra sara sangraham, Trans Dr. Parimi Suresh; first edition Chaukhambha Sanskrit sansthan, Varanasi, Atisara chikitsa13-15; Raja yakshma chikitsa, 2007; 14-19: 714.