

THE SAGA OF POTTALI KALPANA

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ABSTRACT :

Pottali is one of the *Parada yogas* with Mercury and Sulphur being the principle ingredients and is grouped under *Moorchita Parada Yoga*. It is a specialized pharmaceutical technique invented with the vision of compact in size, Convenience in preservation and ease in transportation. It has wide therapeutic applications as well as methods of preparation. The word *Pottali* has been used in Ayurvedic classical books for different purposes. *Pottali*, as a structure keeps resemblance with a pouch having some herbal or other drugs in it. Various *Pottali kalpas* have been mentioned and described in *Rasa Shastra* literature with variation in their shape, size, appearance, ingredients, method of preparation and therapeutic indications. *Pottali Rasayan* is a milestone in the history of Ayurvedic Emergency and Critical Care.

Key words: *Pottali; Bhavana; Putapaka; Varatika Poorana; Gandha Drava Paka*

INTRODUCTION: *Pottali kalpana* is a variety of *Murcchita Parada Yoga* in a consolidated form. It was invented with a vision of compact & comprehensive size & shape, convenience in preserving, easy transportation and its efficacy in treatment of emergency conditions with a minimum of dosage. It has wide therapeutic applications and methods of preparation.

As per the nomenclature, the name *Pottali* denotes a bag. Because this preparation is made in a *pottali* and the shape of the medicine resembles a bag, it is called *Pottali*. The drug which is prepared by giving compactness to the scattered raw material is termed *Pottali*.¹ The *Pottali rasayan* is one among the mercurial compounds processed with the help of Sulphur. The word *Pottali* has been used in Ayurvedic classical books for different purposes. *Pottali*, as a structure keeps resemblance with a pouch having some herbal or other drugs in it. But from the point of view of *Rasa Shastra*, *Pottali Kalpana* should be considered as separate *Kalpana* of Metallo-Mineral drugs evolved in order to keep multiple scattered compo-

nents into a compactly processed form. In ancient time, the physicians attending the patients were supposed to carry the medicine in the containers and during transportation, the medicine usually destroyed due to breakage of containers. Therefore there was a need of a form of medicine which is as effective as other forms, and it should be convenient to carry with no danger of destruction.² So the *Pottali kalpana* came in to existence in which the medicine were hard and in solid form, where the Physicians used to carry the *Pottalis* with them comfortably and were able to administer it when and wherever required. Enhancement of properties of *Pottali kalpana* was an additional achievement in the process of formation of *Pottali*.

Even though *Pottali kalpana* is a rare, unique, potent, time tested, novel molecule and clinically proved to be good, it is not freely available in the market owing to its complexity in preparation procedure and as a result of this, its usage has been relegated to oblivion. Keeping the said facts in view, an attempt has been made to unravel the lost glory of this novel

medicine.

DEFINITION: *Pottali* = **concise; minimize; compact**

Word *Pottali* means to minimize, to concise and to make compact. It can be defined as to collect scattered materials in to compact and comprehensive size. Otherwise the *kalpana* or the processing which give compactness to scattered materials is defined as *Pottali kalpana*.³The definition of word *Pottali* suggest the meaning of to concise, to compact or to minimize a substance making it into a bundle, pocket or to put different substances into a bundle or pocket which resembles the process similar that of *Pottali kalpana*.

HISTORY: Reference of *Pottali* preparations is un-available in Vedic literature. In *Brihatrayee*, the term of *Pottali* is used with reference to *Swedana*, *Avapeedana Nasya* etc.^{4, 5, 6, 7} but reference for *pottali* preparations is not available. The first reference of *Pottali Kalpana* is found in 12th century *Rasa Shastra* text book *Rasa Ratnakara* and it was explained in *Putapaka Vidhi*.⁸ *Rasa Prakasa Sudhakara* of 13th century has mentioned the preparation of *pottali Kalpana* by *Gandhaka Drava Paka* in the context of *Vajra Pottali*.⁹ The author of *Yoga Ratnakara* of 18th century has mentioned *Gandhaka Drava Paka* in an Iron vessel.¹⁰ *Rasa Shastra* works of 18th & 19th century has extensively quoted different *Pottali Kalpa*.

The author of *Rasendra Sara Sangraha* has added 5 new *Pottali* formulations during 20th century.¹¹ Texts like *Brihat Rasaraja Sundara*,¹² *Rasa Yoga Sagara* and *Siddha Prayoga Sangraha* etc. have compiled many new *Pottali yogas*. *Rasa Yoga Sagara* has compiled maximum number of *Pottali yogas* under the chapter '*Pottali Rahasyam*'.¹³

In *Rasa Raja Sundara*, the preparation procedures of 3 *pottali* were given. They are *Hamsa Pottali*, *Ratnagarbha Pottali* and *Nrisimha Pottali*. The first two *pottali kalpanas* were described as in the previous texts. But *Nrisimha pottali* might be a primary contribution of this author. *Vaikrantagarbha Pottali* which was mentioned in *Rasa Raja Siromani* was a modification of *Nrisimha Pottali*. In *Rasa Raja Shankar* Seven *Pottali kalpanas* were described. *Mukta garbha Pottali* is a special contribution of the book *Rasa Raja Shankar*. Books like *Rasa Prabodha Chandrodaya*, *Rasa Pradipika*, *Bhaishajya Saramrit*, *Rasa Raja Parijata*, *Chikitsa Rahasya*, *Chikitsabharan*, *Yoga Maharnav*, *Chikitsakrama Kalpavalli* etc also mentioned *pottali kalpanas* but they were copied from the earlier works. Ten types of *pottali kalpanas* were mentioned in *Rasayana Sara Sangraha*. Five out of these ten were taken from the earlier books, while the other five were of his own contribution.

Even before *Rasayan Sara* which was a work of 20th century, the *pottali kalpanas* were described in many of the books. Of these, *Bharat Bhaishajya Ratnakar (unjha)*, *Rasayoga Sagara*, *Siddha Bhaishajya Manjusha*, *Ras Tantra Sara Va Siddha Prayoga Sangraha*, *Rasaamritam* are some of the books where *pottali kalpanas* were mentioned¹⁴.

Most number of *kalpanas* can be found in *Rasa Yoga Sagara*. The importance of *pottali kalpanas* of *Rasa Yoga Sagara* is that, the procedures were modified and suits the present day conditions. These *kalpanas* were a result of the contribution of eminent scholars and experienced *Vaidyas*. The book called *Rasamritam* which was written by *Ayurveda Martanda Vaidyaraj Shri Yadavji Trikamji Acharya* con-

tains a *pottali kalpana* called *Hemagarbha Pottali Ras*¹⁵. This procedure in this book is considered to be the best one.

SIGNIFICANCE:

1. In older days Physicians used to keep medicines in glass vessels or mud vessels and there was every chance of breakage of vessels and the medicine becoming waste through spilling. In the case of *Pottali*, there is no chance of wastage even after the breakage of vessel because of its hard constituency.
2. These *kalpanas* are the best examples for *Sagandha Rasa yogas*.
3. *Pottali* medicine has easy and quick absorption due to their sub-lingual administration.
4. These drugs can be administered in case of unconscious patients also.

5. It is also easier to administer for children.

6. It is one of those preparations of *Rasa yogas* which take short time and little equipment to prepare the final medicine.

ADVANTAGES:

1. Compactness ,2. Portability
3. Palatability ,4. Easy to dispense
5. Longer shelf-life
6. Faster absorption due to sub-lingual administration
7. Quicker therapeutic effect
8. Shorter time & minimal equipment for preparation
9. Easy administration to all categories of patients from *Paediatrics to Geriatrics* and also in patients with terminal illness.

NUMBER OF POTTALI KALPAS MENTIONED IN RASA SHASTRA LITERATURE

S. No.	Name of the text	Period(cent.A.D.)	No. of Yogas Mentioned
1.	Rasa Ratnakara	12 th Cent.	02
2.	Rasendra Sangraha	13 th Cent.	05
3.	Rasa Prakasa Sudhakara	13 th Cent.	07
4.	Rasa Ratna Samucchaya	14 th Cent.	06
5.	Rasendra Chudamani	14 th Cent.	03
6.	Rasa Chintamani	14 th Cent.	05
7.	Rasa Kankaliya	14 th Cent.	05
8.	Rasaavataara	14 th Cent.	03
9.	Sarngadhara Samhita	14 th Cent.	03
10.	Rasa Kaumudi	16 th Cent.	02
11.	Rasa Kamadhenu	17 th Cent.	08
12.	Yoga Ratnakara	18 th Cent.	06
13.	Bhaishajya Ratnavali	18 th Cent.	05
14.	Brihatyoga Tarangini	18 th Cent.	02
15.	Nighantu Ratnakara	19 th Cent.	07
16.	Rasayana Sangrha	19 th Cent.	05
17.	Siddha Bhashaja manimala	19 th Cent.	03
18.	Rasa Chandanshu	19 th Cent.	06
19.	Rasaraja Shankar	19 th Cent	07
20.	Brihat Rasaraja Sundara	19 th Cent	03
21.	Rasayana Saara Sangraha	19 th Cent	10
22.	Rasayana Saara	20 th Cent.	03
23.	Rasayoga Saagara	20 th Cent.	23

CLASSIFICATION: Various *Pottali kalpas* have been mentioned and described in *Rasa Shastra* literature with variation in their shape, size, appearance, ingredients, method of preparation and therapeutic indications. The basic classification of *Pottali kalpa* has been depicted in the following charts.

DIFFERENT METHODS OF PREPARATION OF POTTALI KALPA: All *Pottali* preparation are not made in one particular method, some are prepared by boiling a midst liquefied Sulphur, while some are processed through incineration and some more with *Bhavana vidhi* (trituration). The classics of *Rasa Shastra* have mentioned a variety of processing methods in the preparation of *Pottali kalpa* and of those the following four methods stand out prominently¹⁶

1. *Bhavana* method (09)
2. *Putpaka* method (60)
3. *Varatika purana* method (19)
4. *Gandhaka drava paka* method (31)
5. Other methods (10)

The method of boiling amidst molten Sulphur was introduced by *Yashodhara* in the context of *Vajra Pottali*

POTTALI KALPA PREPARED THROUGH BHAVANA METHOD

S. No.	POTTALI KALPA	REFERENCE	PERIOD
1.	Hemagarbha Pottali	Rasendra Sangraha	13 th Cent.
2.	Hamsa Pottali	Rasendra Sangraha	13 th Cent.
3.	Gandhaka marda Pottali – 1	Rasa Ratna Samucchaya	14 th Cent.
4.	Gandhaka marda Pottali – 2	Rasa Ratna Samucchaya	14 th Cent.
5.	Hamsa Pottali	Rasendra Chudamani	14 th Cent.
6.	Hamsa Pottali	Rasayana Sangraha	19 th Cent.
7.	Hamsa Pottali	Rasayoga saagara	20 th Cent.
8.	Gandhakadi Pottali rasa	Rasayoga saagara	20 th Cent.
9.	Rasagarbha Pottali - 3	Rasayoga saagara	20 th Cent.

II. PUTAPAKA METHOD¹⁸: It is a specialized technique in *Rasa Shastra* where the drugs of metallic, mineral and animal origin are reduced to fine ashes

in around 13th cent. The author of *Yogarathnakara* of 18th century described the method of preparing *Hemagarbha Pottali* by boiling in molten Sulphur. Krishna Rama Bhatta, the author of *Siddha Bhesaja 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.

I. BHAVANA METHOD¹⁷: In this method, the ingredients are triturated with the prescribed liquid media in a *Khalwa Yantra* (Mortar & Pestle) for a specific period of time. The process of *bhavana* is to be continued till the final product attains viscous and semi-solid state. Juices or decoctions of different drugs specified for the particular formulae depending on the indication are used as a liquid media for the purpose of trituration. The pulp of *Kumari* is used as media for triturating where ever the specific media is not mentioned. Later on the final product is rolled into pills of recommended dose or dried and stored in powder form. This method of preparation is equal to other *Khalwiya Rasayanas*.

through oxidation by subjecting them to appropriate quantum of heat repeatedly so that the substance loses its original shape, colour, texture and luster etc.

This is the popular method of preparing *Pottali kalpa*. In this procedure, the ingredients are triturated with fresh juices of *Nagavalli* (*Piper betel*), *Dattura* (*Datura stramonium*), *Kumari* (*Aloe vera*), *Nimbu* (*Citrus acida*), *Nirgundi* (*Vitex negundo*), *Jayanti* (*Sesbania sesban*) or *Chitrmula* (roots of *Plubago zeylanica*) decoction etc. and subjected incineration to obtain the final product which is usually in the form of *Bhasma*.

In *Rasayoga Sagara*, *Divya jala* has been mentioned as *Bhavana dravya* to make the *Pottali* very hard and glossy. *Siddha Sampradaya* mentions the usage of white portion of *Krishna-Kukkutanda* to increase the potency of *Pottali*. The type of *puta* varies from *Kukkuta puta* to *Gaja puta* and the duration from one *yama* (3 Hrs.) to Three days depending on the nature of the ingredients used as raw material.

POTTALI KALPA PREPARED THROUGH PUTAPAKA METHOD

S. No.	POTTALI KALPA	REFERENCE	PERIOD
1.	Ratnagarbha Pottali	Rasa Ratnakara	12 th Cent.
2.	Sankhagarbha Pottali	Rasa Ratnakara	12 th Cent.
3.	Taaragarbha Pottali (vartika)	Rasendra Sangraha	13 th Cent.
4.	Lokeshwera Pottali	Rasendra Sangraha	13 th Cent.
5.	Grahani kapharda Pottali	Rasendra Sangraha	13 th Cent.
6.	Mrigaanka Pottali	Rasa Prakaasa Sudhakara	13 th Cent.
7.	Raja Mrigaanka Pottali	Rasa Prakaasa Sudhakara	13 th Cent.
8.	Hemagarbha Pottali-1 (Bhudara)	Rasa Prakaasa Sudhakara	13 th Cent.
9.	Hemagarbha Pottali-2 (Gaja Puta)	Rasa Prakaasa Sudhakara	13 th Cent.
10.	Mrigaanka Pottali	Rasa Ratna Samucchaya	14 th Cent.
11.	Pottali Rasa	Rasa Ratna Samucchaya	14 th Cent.
12.	Visesha Varna Pottali	Rasa Ratna Samucchaya	14 th Cent.
13.	Hemagarbha Pottali (vartika, Gaja Puta)	Rasa Ratna Samucchaya	14 th Cent.
14.	Ratnagarbha Pottali	Rasendra Chudamani	14 th Cent.
15.	Lokesh Pottali	Rasa Chintamani	14 th Cent.
16.	Laghu Pottali	Rasa Chintamani	14 th Cent.
17.	Kanchana Pottali	Rasa Chintamani	14 th Cent.
18.	Shankha Pottali	Rasa Chintamani	14 th Cent.
19.	Hiranyagarbha Pottali	Rasa Chintamani	14 th Cent.
20.	Kanka Pottali Rasa	Rasa Kankaliya	14 th Cent.
21.	Mrigaanka Pottali	Rasa Kankaliya	14 th Cent.
22.	Lokanatha Pottali	Rasa Kankaliya	14 th Cent.
23.	Shankhagarbha Pottali	Rasa Kankaliya	14 th Cent.
24.	Hiranyagarbha Pottali	Rasa Kankaliya	14 th Cent.
25.	Mrigaanka Pottali	Rasaavataara	14 th Cent.
26.	Ratnagarbha Pottali	Rasaavataara	14 th Cent.
27.	Lokanatha Pottali	Rasaavataara	14 th Cent.
28.	Mrigaanka Pottali	Sarngadhara Samhitha	14 th Cent.
29.	Ratnagarbha Pottali	Rasa Kaumudi	16 th Cent.

30.	Shankhagarbha Pottali	Rasa Kaumudi	16 th Cent.
31.	Ratnagarbha Pottali	Rasa Kamadhenu	17 th Cent.
32.	Mrigaanka Pottali	Rasa Kamadhenu	17 th Cent.
33.	Hiranyagarbha Pottali	Rasa Kamadhenu	17 th Cent.
34.	Hemagarbha – 1	Rasa Kamadhenu	17 th Cent.
35.	Hemagarbha – 2	Rasa Kamadhenu	17 th Cent.
36.	Lokeshwera Pottali	Rasa Kamadhenu	17 th Cent.
37.	Lokanath Pottali	Rasa Kamadhenu	17 th Cent.
38.	Shankhagarbha Pottali	Rasa Kamadhenu	17 th Cent.
39.	Ratnagarbha Pottali (Gaja Puta)	Yoga Ratnakara	18 th Cent.
40.	Lokeshwer Pottali (Varaha Puta)	Yoga Ratnakara	18 th Cent.
41.	Hemagarbha – 1 (Gaja Puta)	Yoga Ratnakara	18 th Cent.
42.	Hamsagarbha Pottali	Bhaishajya Ratnavali	18 th Cent.
43.	Hiranyagarbha Pottali	Bhaishajya Ratnavali	18 th Cent.
44.	Ratnagarbha Pottali	Bihatyoga Tarangini	18 th Cent.
45.	Mrigaanka Pottali	Nighantu Ratnakara	19 th Cent.
46.	Ratnagarbha Pottali	Nighantu Ratnakara	19 th Cent.
47.	Mrigaanka Pottali	Rasaayana Sangraha	19 th Cent.
48.	Shankhagarbha Pottali	Rasayoga Saagara	20 th Cent.
49.	Lokanath Pottali	Rasayoga Saagara	20 th Cent.
50.	Lokeshwer Pottali	Rasayoga Saagara	20 th Cent.
51.	Rasagarbha Pottali - 1	Rasayoga Saagara	20 th Cent.
52.	Rasagarbha Pottali – 2	Rasayoga Saagara	20 th Cent.
53.	Rasagarbha Pottali – 3	Rasayoga Saagara	20 th Cent.
54.	Rasagarbha Pottali - 4	Rasayoga Saagara	20 th Cent.
55.	Hemagarbha Pottali – 1 (Bhudara Puta)	Rasayoga Saagara	20 th Cent.
56.	Hemagarbha Pottali – 6	Rasayoga Saagara	20 th Cent.
57.	Hemagarbha Pottali – 10	Rasayoga Saagara	20 th Cent.
58.	Hiranyagarbha Pottali (Gaja Puta)	Rasayoga Saagara	20 th Cent.
59.	Shankhagarbha Pottali (Bhudara Puta)	Rasayoga Saagara	20 th Cent.
60.	Panchamrita Pottali (Laghu Puta)	Rasayoga Saagara	20 th Cent.

III. VARATIKA / SANKHA PURANA METHOD¹⁹: This is a special technique, where all the ingredients after thorough processing, are filled into a *Varatika* (Cowry – shell) or *Sankha* (Conch – Shell). The groove or opening of the shell is closed and sealed with the paste made up of mixing *Tankana* (Borax) in either

Go-Mutra / *Go – Dugdha* (Cow's Urine / Milk) and the filled in shells are subjected to *Putra*. On cooling, the final product is finely powdered and stored. Similarly, *Musha* (crucible) prepared of *Sankhanabhi Bhasma* and *Go-dugdha* is also used for incineration.

POTTALI KALPA PREPARED THROUGH VARATIKA POORANA METHOD

S. No.	POTTALI KALPA	REFERENCE	PERIOD
1.	Hemagarbha Pottali - 1	Sarngadhara Samhitha	14 th Cent.

2.	Hemagarbha Pottali - 2	Sarngadhara Samhitha	14 th Cent.
3.	Ratnagarbha Pottali	Bhaishajya Ratnaavali	18 th Cent.
4.	Likeshwera Pottali	Bhaishajya Ratnaavali	18 th Cent.
5.	Hemagarbha Pottali	Bhaishajya Ratnaavali	18 th Cent.
6.	Lokeshwer Pottali	Brihatyoga Tarangini	18 th Cent.
7.	Lokanath Pottali	Nighantu Ratnakara	19 th Cent.
8.	Shankhagarbha Pottali – 1	Nighantu Ratnakara	19 th Cent.
9.	Shankhagarbha Pottali - 2	Nighantu Ratnakara	19 th Cent.
10.	Hemagarbha Pottali - 1	Nighantu Ratnakara	19 th Cent.
11.	Hemagarbha Pottali – 2	Nighantu Ratnakara	19 th Cent.
12.	Ratnagarbha Pottali	Rasaayana Sangraha	19 th Cent.
13.	Hemagarbha Pottali	Rasayoga Saagara	20 th Cent.
14.	Ratnagarbha Pottali	Rasayoga Saagara	20 th Cent.
15.	Narasimha Pottali Rasa	Rasayoga Saagara	20 th Cent.
16.	Kanka Pottali	Rasayoga Saagara	20 th Cent.
17.	Kashyapa Pottali rasa	Rasayoga Saagara	20 th Cent.
18.	Muktagarbha Pottali	Rasayoga Saagara	20 th Cent.
19.	Vajragarbha Pottali	Rasayoga Saagara	20 th Cent.

IV. GANDHAKA DRAVA PAKA METHOD ²⁰: This method was first introduced by Yashodhara in 13th Century in his work *Rasa Prakasa Sudhakara* in the context of *Vajra Pottali*. Though not that

popular when compared to that of *Putapaka* method, *Gandhaka Drava Paka* method is considered to be the best one in the preparation of *Pottali kalpa* due to its high therapeutic efficacy.

POTTALI KALPA PREPARED THROUGH GANDHKA DRAVA PAKA METHOD

S. No.	POTTALI KALPA	REFERENCE	PERIOD
1.	Vajra Pottali	Rasa Prakaasa Sudhaakara	13 th Cent.
2.	Hiranyagarbha Pottali	Rasendra Chintamani	16 th Cent.
3.	Hemagarbha – 4	Yoga ratnaakara	18 th Cent.
4.	Hemagarbah Pottali – IV	Yoga Ratnaakara	18 th Cent.
5.	Hemagarbha Pottali	Siddha Bheshaja Manimala	19 th Cent.
6.	Hemagarbha Pottali - III	Rasa Chandamshu	19 th Cent.
7.	Swarnagarbha Pottali	Rasaayana Saara	20 th Cent.
8.	Vaikranta Pottali Rasa	Rasayoga Saagara	20 th Cent.
9.	Hemagarbha Pottali – 2	Rasayoga Saagara	20 th Cent.
10.	Hemagarbha Pottali – 3	Rasayoga Saagara	20 th Cent.
11.	Hemagarbha Pottali – 4	Rasayoga Saagara	20 th Cent.
12.	Hemagarbha Pottali – 5	Rasayoga Saagara	20 th Cent.
13.	Hemagarbha Pottali – 7	Rasayoga Saagara	20 th Cent.
14.	Hemagarbha Pottali – 8	Rasayoga Saagara	20 th Cent.
15.	Hemagarbha Pottali – 9	Rasayoga Saagara	20 th Cent.
16.	Hemagarbha Pottali – 11	Rasayoga Saagara	20 th Cent.
17.	Hemagarbha Pottali – 12	Rasayoga Saagara	20 th Cent.

18.	Hemagarbha Pottali – 13	Rasayoga Saagara	20 th Cent.
19.	Taraagarbha Pottali	Rasayoga Saagara	20 th Cent.
20.	Tamragarbha Pottali	Rasayoga Saagara	20 th Cent.
21.	Lohagarbha Pottali - 1	Rasayoga Saagara	20 th Cent.
22.	Lohagarbha Pottali – 2	Rasayoga Saagara	20 th Cent.
23.	Mallagarbha Pottali	Rasayoga Saagara	20 th Cent.
24.	Talaagarbha Pottali	Rasayoga Saagara	20 th Cent.
25.	Shilagarbha Pottali	Rasayoga Saagara	20 th Cent.
26.	Vishagarbha Pottali	Rasayoga Saagara	20 th Cent.
27.	Tridhatugarbha Pottali	Rasayoga Saagara	20 th Cent.
28.	Ratnagarbha Pottali	Rasayoga Saagara	20 th Cent.
29.	Abhragarbha Pottali	Rasayoga Saagara	20 th Cent.
30.	Makshikagarbha Pottali	Rasayoga Saagara	20 th Cent.
31.	Pravalagarbha Pottali	Rasayoga Saagara	20 th Cent.

POTTALI KALPA PREPARED THROUGH OTHER METHODS

S. No	POTTALI KALPA	METHOD	REFERENCE	PERIOD
1.	Loknath Pottali	By only Mercury & Sulphur	Rasa Prakasa Sudhakara	13 th Cent.
2.	Rasa Pottali	By only Mercury & Sulphur	Rasa Prakasa Sudhakara	13 th Cent.
3.	Hemagarbha – 2	Sikatha Yantra Paka	Yoga Ratnakara	18 th Cent.
4.	Hemagarbha – 3	Paka in Bhugarta	Yoga Ratnakara	18 th Cent.
5.	Reto Rodhana Pottali	Swedana in Dugdha	Siddha Bshesaja Manimala	19 th Cent.
6.	Netra Pottali	Powdered & tied into Pottali	Siddha Bshesaja Manimala	19 th Cent.
7.	Reto Rodhana Pottali	Swedana in Dugdha	Rasayoga Sara	20 th Cent.
8.	Kapharda Pottali Ras	Lavana Yantra Paka	Rasayoga Sara	20 th Cent.
9.	Mriganka Pottali	Lavana Yantra Paka	Rasayoga Sara	20 th Cent.
10.	Hemagarbha Pottali - 14	Gandhaka Taila Paka	Rasayoga Sara	20 th Cent.

In all these four methods, final product differs in shape, consistency etc. but they all are included in *Pottali kalpana*. Maximum number of references found in classics belongs to *Putpaka* method but *Gandhaka drava paka* method is more popular because of its increased efficacy, compact shape and easy method of administration to provide quick absorption of medicine.

EXCEPTIONS: As per the definition, the *pottali* is the drug that is prepared by giving compactness to the scattered material

through a specialized pharmaceutical technique, but contrary to this definition, there are certain formulations mentioned in *Rasa Shastra* works which defy the definition. The method of preparation for these resembles that of *Pottali kalpana* but they are not considered and placed under *Pottali* group of drugs.

- Both *Hamsa Pottali Ras* and *Agnikumara Ras* are prepared in similar lines but *Agnikumara Ras* is not included under *Pottali* group.

• *Hemagarbha Pottali* and *Maha Hemagarbha Ras* resemble each other in terms of Ingredients and preparation method. But, *Maha Hemagarbha Ras* is not included under *Pottali* group of drugs.

• *Karsha Pottali* and *Lokanath Ras* also have similar composition and share same pharmaceutical technique. But *Lokanath Ras* is not considered as a *Pottali Kalpa*.

Dosage: The exact dosage of *Pottali* is not mentioned in any of the *Rasa Shastra* literature. It differs from ½ to 4 ratthies from one *Pottali yoga* to other.²¹

Method of Administration: It is usually administered by rubbing over stone for desired number of rotations with the juices of Ginger, stalks of Piper betel, honey or ghee either sub-lingually or orally.^{22,23} The number of rotations are to be decided by the physician according to the nature, severity of the disease and age of the patient.

Pathya: *Ghritha; Dadhi; Shali Dhanya* and *Shaka sevana*²⁴

Apathya: *Amla Dravya; Taila; Bilwa; Vrintaka, Kanji; Kakarashataka Gana; Hingu; Ratri Jagarana; Krodha; Vyavaya*²⁵;

DISCUSSION: *Pottali kalpana* can be understood as a specific pharmaceutical technique intended for keeping different constituents in their purified, processed and incinerated form into a unique complex formula. It designed to achieve the better therapeutic efficacy by its special method of preparation which potentiate and stabilize the bonding between its ingredients. The medicinal properties of *Pottali* were enhanced by the process of its preparation and it was an additional achievement.

CONCLUSION: *Pottali kalpana* is an unexplored sector of *Rasa Shastra* with more potent therapeutic efficacy. It was consid-

ered as a medicine which gives quick response even in emergency situations. It is unique in terms of its preparation, mode of administration, action, and transportation. It has also got most promising clinical indications. Even the dosage is least when compared to other *Rasa Yogas*. Prepared in different shapes, methods to suit different therapeutic indications, *Pottali kalpana* should be looked at as an advanced pharmaceutical technique of *Rasa Shastra* designed to enhance the shelf-life, therapeutic efficacy and safety of *Bhasmas*. *Pottali Rasayan* is a milestone in the history of Ayurvedic Emergency and Critical Care.

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