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PHARMACEUTICAL STUDY OF *SHILAGARBHA POTTALI*

Sivakumar B.[1*] and M. S. Krishnamurthy[2]

[1]PG Scholar, Department of PG studies in Rasashastra and Bhaishajya Kalpana, Alva's Ayurveda Medical College, Moodubidire, D.K, Karnataka.

[2]Professor and HOD, Department of PG studies in Rasashastra and Bhaishajya Kalpana, Alva's Ayurveda Medical College, Moodubidire, D.K, Karnataka.

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***Corresponding Author**
Sivakumar B.
PG Scholar, Department of PG studies in Rasashastra and Bhaishajya Kalpana, Alva's Ayurveda Medical College, Moodubidire, D.K, Karnataka.

ABSTRACT

Pottali is a preparation that developed as a result of *Parada Murchana*. The act of imbibing definite therapeutic properties in purified mercury in any of the compound formulations (with or without Sulphur) through various pharmaceutical procedures is known as *Murchana*. *Pottali* can be characterised as the process of gathering dispersed materials into a compact and comprehensive size, or as the medicine known as *Pottali*. It possesses qualities like excellent potency, minimal dosage, rapid blood circulation, absorption, rapid onset of the desired effect, portability, and long shelf life. *Shilagarbha Pottali* is mentioned in the classical text *Rasayogasagara*, in which the ingredients are *Manashila*, *Parada*, *Gandhaka*, and *Suvarna Tanushalaka Khanda*. The indications for this formulation include *Jwara*, *Shwasa* and *Kasa*. The pharmaceutical preparation of *Shilagarbha Pottali* is performed in the present study. **Aim:** An attempt has been made to do the pharmaceutical study of *Shilagarbha Pottali*. **Method:** *Shilagarbha Pottali* was prepared by the *Gandhakadrava* method and evaluated for its organoleptic characteristics. **Results:** The final product of *Shilagarbha Pottali* was having the desired consistency and quality. **Discussion:** The pharmaceutical observations while carrying out the practical and the significance of *Agni* will be emphasized. **Conclusion:** The pharmaceutical study of *Shilagarbha Pottali* was successful, and the final product's quality was as anticipated.

KEYWORDS: *Shilagarbha Pottali*, *Rasayogasagara*, *Gandhakadrava*, *Jwara*, *Shwasa*, *Kasa*.

INTRODUCTION

In Rasashastra, the *Rasayanas* are primarily divided into four categories. They are mainly 1) *Kharaliya Rasayana* 2) *Parpati Rasayana* 3) *Pottali Rasayana* 4) *Kupipakwa Rasayana*. *Pottali* is defined as follows in the textbook *Parada Vignaneeyam*.[1] "*Vistaaritasya Vastunaha Alpo Bhavanam Pottam, Pottalati Gruhnati Iti Pottali*". *Pota, Potta*, and *Pottam* all imply bringing together, gathering, and consolidating. *Pottali* is the name given to such a consolidated form of medication.[2]

Based on various preparation techniques, *Pottali Kalpanas* can be made by different methods by packing the drugs inside an oyster or conch shell and incinerating them (*Putapaka* Method), or it can be made by boiling the *Pottali* in molten sulphur (*Gandhaka*) until it reaches a compact form (*Gandhaka Dravita Pottali*). Simple grinding can be employed to make *Pottali* (*Bhavana Vidhi*).

The author of *Rasayogasagara* has explained *Garbha Pottali* in depth in a separate chapter called *Pottali Rahasya*.[3] This chapter mentions around 18 distinct *Garbha Pottali* that are indicated in various acute and chronic illnesses. *Shilagarbha Pottali* is *Sagandha, Saagni, Murchita Parada Yoga*, consists of ingredients *Shodhita Parada, Shodhita Gandhaka, Shodhita Manashila, Shodhita Suvarna Tanushalaka Khanda*. In this preparation, *Suvarna Makshika Bhasma* was substituted since *Swarna* was inaccessible. The goal of the current study was to make the *Shilagarbha Pottali* preparation, which is recommended for the *Jwara, Shwasa*, and *Kasa* diseases.

AIM AND OBJECTIVES

Aim: The study aimed to perform the practical preparation of *Shilagarbha Pottali.*

Objectives: The present study was carried out with the following objectives.

1. To prepare the *Shilagarbha Pottali* according to the *Anubhoota* method.
2. To observe the organoleptic characters of *Shilagarbha Pottali*.

MATERIALS AND METHODS

Table 1: Ingredients and their quantity.

Sl no	Ingredients	Chemical formula/ Latin name	Parts	Quantity taken
1	*Shodhita Manashila*	As_2S_2	6 *Pala*	100 g
2	*Shodhita Parada*	Hg	2 *Karsha*	8 g
3	*Shodhita Gandhaka*	S	1 *Tanka*	1 g

4	*Suvarna Makshika Bhasma*	$CuFeS_2$	6 *Ratti*	250 mg
5	*Kumari Swarasa*	*Aloe barbadensis* Mill.	Quantity sufficient	120 ml

All the ingredients were procured from the market and authenticated by the Rasashastra and Bhaishajya Kalpana department experts, Alva's Ayurveda Medical College, Moodubidire, Dakshina Kannada, Karnataka. All the data were found strictly as per guidelines.

The pharmaceutical study was done in the Post-Graduation Department of Rasashastra and Bhaishajya Kalpana, Alva's Ayurveda Medical College, Moodubidire, Karnataka, India. Equipment used.

Tula Yantra, *Khalwa Yantra*, thread, silk cloth, mud pot, gas stove, spoon, *Valuka*, *Loha Patra*.

Method of preparation

Practical:1

Preparation of *Kajjali*

The method of preparation was based on *Anubhoota.* Initially, *Shodhita Parada* and *Shodhita Gandhaka* were taken in a *Khalwa Yantra* and *Mardana* has carried out. The *Parada* found difficult to mix completely with *Gandhaka*. So *Shodhita Manashila* and *Suvarna Makshika Bhasma* were added and *Mardana* was done. Then complete mixing of the *Parada* has observed. Later, *Kumari Swarasa* was added to this and *Bhavana* has done, until it dries up to the consistency where *Kajjali* can be rolled into shapes. *Pottali* was made into different shapes that are *Dandakriti*, *Golakriti*, *Gutikakriti*, and *Lingakriti*. It has been kept for complete drying in shade for another five days. The *Pottali* one which was shaped *Dandakriti* was used for this Pharmaceutical study. Reaming *Pottalis* were kept for separate practicals.

Practical:2

Name of the Practical: Preparation of *Shilagarbha Pottali* for *Gandhaka Paka.*

Purva Karma

1. Preparation of *Pottali* for *Gandhaka Paka*

Procedure: *Shilagarbha Pottali* shaped *Dandaakrithi* was taken in silk cloth. At the center of the silk cloth, *Pottali* was placed and neatly wrapped in silk cloth then tied with a thread. The opposite end of the *Pottali* has been tied to an iron rod to allow for perpendicular hanging and immersion in *Ghata*.

2. Placing of *Ghata* in *Valuka Yantra*

Procedure: A Semilunar shaped *Pathra* (iron vessel) was used. After spreading a small layer of sand uniformly, the *Shodhita Gandhaka* filled *Ghata* was firmly and centrally placed. The remaining portion of *Yantra* was filled with sand up to the neck of the *Ghata*.

Pradhana Karma

Procedure: The *Pottali* was hung in the *Gandhaka* containing *Ghata* without touching the bottom of the *Ghata* because doing so could cause the burning of the silk cloth. *Mriduagni* was given throughout the procedure. If *Gandhaka* starts to emit fumes from the surface, the stove will be left off to prevent boiling and maintain *Mriduagni*. The stove was re-ignited to maintain *Agni* if the smoke had diminished. This was continued until the *Paaka Lakshanas* were observed.

Paschat Karma

Procedure: *Shilagarbha Pottali* was taken out of the *Gandhaka Paka* after attaining *Pottali Paaka Siddhi Lakshanas*, allowed for *Swangasheeta*, adherent *Gandhaka* was scraped, and preserved in an airtight container.

OBSERVATIONS AND RESULTS

Table 2: Results showing the *Kajjali* preparation.

Time Duration	Observations	Quantity of *Kajjali*
24 hours	*Kajjali Nischandratva* test was carried out. *Nischandratva* tested positive; no sparkling particles were visible when exposed to sunlight.	109.25 g

Table 3: Result of *Bhavana* with *Kumari Swarasa.*

Particulars	Weight of *Kajjali*
Initial weight of *Kajjali*	109.25 g
Weight of *Kajjali* after *Bhavana*	101 g
Loss/gain of weight after *Bhavana*	8.25 g loss

Table 4: Weight of each *Pottali* of different shapes.

Shape of *Pottali*	Weight
Dandaakriti (used for current practical)	35 g
Golaakriti (it was kept as separate practical)	32 g
Lingaakriti (it was kept as separate practical)	27 g
Gutikakriti (it was kept as separate practical)	7 g

Table 5: Showing the time and observations during the preparation.

Time	Observation
07:35 am	Fire was given, 950 g of *Shuddha Gandhaka* was taken
08:12 am	*Gandhaka* started melting slowly
08:48 am	Complete melting of *Gandhaka*, *Pottali* was immersed in molten *Gandhaka*
09:00 am	Escaping of bubbles started from *Pottali*
09:10 am	The golden yellow colour of molten *Gandhaka* was observed
09:23 am	Molten *Gandhaka* started to emit fumes from the surface
09:24 am	Stove kept off
09:39 am	Fumes subsided completely
09:40 am	Stove kept on
10:03 am	Fumes started appearing
10:04 am	Stove kept off
10:25 am	Fumes subsided completely
10:26 am	Stove kept on
10:48 am	Molten *Gandhaka* turned to dark yellow
10: 52 am	Fumes started appearing
10:53 am	Stove kept off
11:14 am	Escaping of bubbles stopped
11:22 am	Fumes subsided completely
11:23 am	Stove kept on
11:37 am	Colour of *Gandhaka* similar to *Taila Varna*
12:15 pm	Fumes started appearing
12:16 pm	Stove kept off
12:55 pm	Fumes subsided completely
12:56 pm	Stove kept on
01:20 pm	The dark brown colour of *Gandhaka* is observed
01:24 pm	Fumes started appearing
01:25 pm	Stove kept off
02:12 pm	Fumes subsided completely
02:13 pm	Stove kept on
02:46 pm	Fumes started appearing
02:47 pm	Stove kept off
03:30 pm	Fumes subsided completely
03:31 pm	Stove kept on
03:42 pm	*Gandhaka* attained dark brown colour
04:05 pm	Metallic sound was heard, *Pottali* was removed from the *Ghata*.

Table 6: Final results of *Shilagarbha Pottali*.

Particulars	Result
The initial weight of *Shilagarbha Pottali* before *Paka*	35 g
Weight of *Shilagarbha Pottali* after *Paka*	36 g
Loss/Gain in weight	1 g gain
Total *Shuddha Gandhaka* required for *Paka*	950 g
Total duration of heat given	8 hrs, 30 minutes

Table 7: Organoleptic characteristics of *Shilagarbha Pottali*.

Organoleptic characteristics	Characteristics
Colour	Grey
Odour	Indistinct
Touch	Hard
Taste	Indistinct
Texture	Firm

INDICATION

The formulation *Shilagarbha Pottali* is indicated in the diseases *Jwara*, *Shwasa* and *Kasa*.

DOSE

Shilagarbha Pottali is suggested to be consumed in doses of 1/2 *Ratti* to 1 *Ratti*.

MODE OF ADMINISTRATION

Pottali is administered by drawing lines or rotations across a stone slab that has been smeared with *Dravadravya* such as honey, ghee, etc. The medications in the designated lines are then scraped off and administered to the patient internally in the recommended dose.

ADJUVANTS

The *Rasyogasagara* text suggests the adjuvants *Ativisha*, *Katurohini*, and *Madhu*.

Photographs showing the preparation of *Shilagarbha Pottali* are shown below.

Fig. 1 Ingridients

Fig. 2 Adding *Kumari Swarasa*

Fig.3 *Bhavana* done in *Kumari Swarasa*

Fig. 4 *Pottali* moulded into different shapes

Fig. 5 *Pottali* tied in silk cloth

Fig. 6 *Valuka Yantra* kept over stove

Fig. 7 Molten *Gandhaka* turns dark yellow colour

Fig. 8 Molten *Gandhaka* turns dark brown colour

Fig. 9 Final Product *Shilagarbha Pottali*

DISCUSSION

Shilagarbha Pottali is a *Sagandha, Sagni Murchita Parada Yoga* containing *Shodhita Manashila, Shodhita Parada*, *Shodhita Gandhaka*, and *Suvarna Tanushalaka Khanda*. Among the ingredients *Suvarna Tanushalaka Khanda* was inaccessible, So *Swarna Makshika Bhasma* was substituted. In classics, it is advised to use *Swarna Makshika* in the *Abhava* of *Swarna*.[4] The fact that this preparation only contains one-eighth as much *Gandhaka* as *Parada* may be because of the additional sulphur in arsenic di sulphide. Since *Ashtamsha Gandhaka* was present, it was difficult for the *Parada* to completely mix with the *Gandhaka*, but as soon as *Manashila* was added, the *Parada* blended thoroughly. Because of the *Bhavana* in *Kumari Swarasa*, *Pottali* was easily moulded into various shapes and served as a binding agent. As this is an *Anubhoota* method of preparation, only one layer of silk cloth was used to knot the *Pottali*, which may aid in the easy transmission of *Gandhaka* from outside to within the *Pottali*. When tying *Pottali*, a uniform layer of *Gandhaka* is usually laid inside the silk cloth. However, in this method, this is avoided, allowing us to see whether the *Pottali* is melting or not during the *Gandhapaka*.

If *Gandhaka* starts to exude fumes from the surface, the stove will be left off to prevent boiling and to maintain *Mriduagni*. Sulphur is notorious for its detrimental effects on the respiratory tract. Exposure to the toxic chemical may trigger severe respiratory tract irritation, coughing, and shortness of breath. Likewise, people who inhale sulphur may experience allergic reactions or asthma-like symptoms characterized by wheezing and chest tightness. An article posted on the toxicology data network website also cautions that excessive sulphur exposure may cause tracheobronchitis, upper respiratory tract catarrh, and severe lung damage. Experts have stressed the importance of using personal protective equipment to avoid sulphur inhalation.[4] So following this method of preparation can prevent the excessive inhalation of fumes from the molten sulphur. When *Gandhapaka* is performed in this method, considerably less *Gandhaka* is required for the preparation.

Among the *Pottali Paka Lakshanas*, *Vyoma Varna* was not observed; however, *Gandhapaka* took on a dark brown shade. When *Pottali* was touched, the specimen had a hard mass and made an audible metallic noise. The burning of the silk material was not observed since we kept *Mriduagni* going throughout the process.

CONCLUSION

Shilagarbha Pottali was prepared using the *Anubhoota* method in this pharmaceutical trial. The pharmaceutical study of *Shilagarbha Pottali* was successful, and the final product's quality was as anticipated based upon the physical features. In the future, an analytical investigation to identify the chemical compositions and an experimental study to demonstrate the effectiveness of the same formulation will be accomplished.

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