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REVIEW ARTICLE

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A Review on Pottali Kalpana w.s.r. to Kaparda Purana Putapaka method of preparation

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ABSTRACT

Pottali Kalpana is one of the unique Kalpana mentioned in our classics. It is one among the four Moorchita Parada Yogas. Kaparda Purana Putapaka method is one the methods mentioned for preparation of this Kalpana. It brings in the compactness of the Dravyas. Pottali Kalpana are a blend of extremely important trace elements which form the crux of the immune system. Various Kaparda Purana Method of preparation of Pottalis have been compiled here which have been mentioned in classical Rasashastra texts along with its ingredients and other variations. The alkalinity of the Kaparda Purana method of preparation owing to calcium probably has a significant role to play in the management of Atisara and Grahani. This Kalpana can be used in emergency care as well.

Key words: Moorchita Parada Yogas, Putapaka, Pottali Kalpana.

INTRODUCTION

Rasashastra is a branch of Ayurveda which mainly deals with the usage of metals, minerals in therapeutics. It mainly has importance in Lohavada i.e., converting lower metals to higher metals and Dehavada i.e., therapeutics. It is said Rasoushadhis have immediate action on the desired site with very minimal dosage.

Murcchana is one of the important Adharabhuta Siddhanta of Rasashastra, wherein it increases the therapeutic efficacy of Parada. It makes Parada safe for ingestion.

During the bygone age, people had to move from one

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place to another due to which there was difficulty in carrying medicines or to prepare medicines on the run, there by giving a way for Pottali Kalpana to come into existence in which the drugs were made into compact form, rubbed with a media administered. Pottali Kalpana is one among the Moorchita Parada Yogas.

When people had to travel long distances where there was inadequate availability of emergency medicines, Pottali Kalpana played an important role as it is administered sublingually and has fast absorption. May be, this was one of the reasons for the growth of Pottali Kalpana as it gives compactness to the medicines and also increases its bioavailability. During the travel, it was difficult to carry Kupi or any pots with medicines as it was more prone to damage and there is loss of the medicine, Pottali due to its compactness is easy for transportation.[1]

Historical Review

The first reference of Pottali Kalpana can be found in the text Rasa Ratnakara of 12th century where in Putapaka method of preparation was explained in the context of Ratnagarbha Pottali and Shankhagarbha Pottali Rasa. [2] First reference for Kaparda Purana and Putapaka can be found in the text Rasendra Sara

Sangraha and Rasa Prakasha Sudhakara of 13th century. Gandhaka Drava Paka method of preparation was first found in the text Rasa Prakasha Sudhakara of 13th century. Pottali prepared from Bhavana Vidhi was first found in the text Rasendra Sara Sangraha of 13th century.

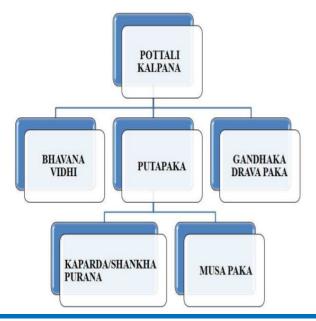
MATERIALS AND METHODS

Pottali Kalpana can be defined as giving compactness to scattered material. It is one of the unique preparations of Rasashastra with an insight of compactness of materials, convenient for preservation, easy transportation and highly effective at minimal doses.

विस्तारितस्यवस्तुनो अल्पीभावानाम् पोट्टम्।

पोट्टला इति गृह्णाति इति पोट्टलि॥[6]

Most of the *Pottalis* are *Sagandha Sagni Murcchana* of *Parada*. Some of them include *Niragni* method of preparation by giving *Bhavana*. *Rasakalpas* can be classified into 4 types based on their method of preparation as: *Khalwi Rasayana, Kupipakwa Rasayana, Pottali Kalpana, Parpati Kalpana*. Among these, *Pottali Kalpas* are rarely used by the clinicians due to its elaborate method of preparation. This *Kalpana* is prepared by giving intense amount of heat, so the bond of *Pottali Kalpana* may be more potent than *Kajjali* or *Parpati Kalpana*. Hence, it might get absorbed instantly at smaller doses. *Pottali Kalpana* is mainly prepared by 3 methods.



Putapaka Vidhi: Putapaka is one of the important procedures of Rasashastra where in the drugs are subjected to intense heat and converted into nanoparticles. In this method, the ingredients are triturated in prescribed media till attainment of Subhavita Lakshanas. It is then made into Chakrikas, dried, placed in Musha or Sharava. Sandhi Bhandana is done and subjected to Puta. The final product will be in the form of Bhasma. This method of preparation is extensively found under the heading Pottali.

Kaparda/Shankha Purana: In this method, the ingredients are triturated with prescribed media and later filled in Shodita Kaparda or Shodita Shankha. Lepana to the Mukha of Kaparda or Shankha is done. It is then placed in Sharava and subjected to Puta.

Gandhaka Drava Paka: In this method, the ingredients are triturated with prescribed media and made into Shikarakara or Puga Phala Sadrusha. After drying, it is wrapped in a silk cloth. This Pottali is suspended in a vessel containing molten Gandhaka which is in turn placed in a Valuka Yantra and Agni is given. The Gandhaka starts liquifying and Paka begins. The quantity of Gandhaka should be maintained throughout the procedure. It should be carried out till the attainment of Siddha Lakshanas like burning of silk cloth, Vyoma Varna of Sulphur, Metallic sound.

Bhavana Vidhi: In this method, the ingredients are triturated with specified liquid media in a *Khalwa Yantra* till the attainment of *Subhavita Lakshanas*. Later, this is rolled into pills of prescribed dose, dried and stored. This method is similar to preparation of *Khalwi Rasayana*.

Various references of Kaparda Purana Putapaka Pottali Kalpana

Text	Pottali	Ingredients	Kapard a Lepana	Puta
Rasendra Sara Sangraha	Lokanath a Rasa ^[7]	Rasa Sindoora – 1p Shuddha Gandhaka – 4p	Tankan a	Gaja Puta

	Rajamrug anka Rasa ^[8]	Rasa Sindoora – 3p Swarna Bhasma – 1p Rajata Bhasma – 1p Shuddha Silajatu – 2p Shuddha Gandhaka – 2p Shuddha Haratala – 2p	Tankan a + Ajakshe era	Gaja Puta
	Lokeshw ara Pottali Rasa ^[9]	Rasa Sindoora – 1p Swarna Bhasma – 1/4 th P Shuddha Gandhaka – 2p	Tankan a	Gaja Puta
	Ratnagar bha Pottali Rasa ^[10]	Vajra Bhasma - 1p Swarna Bhasma - 1p Rajata Bhasma - 1p Naga Bhasma - 1p Loha Bhasma - 1p Tamra Bhasma - 1p Shuddha Mukta - 1p Shuddha Vidruma - 1p	Tankan a + Arka Dugda	Gajapu ta
	Hemagar bha Pottali Rasa ^[11]	Shuddha Makshika - 1p Shankha Bhasma - 1p Shuddha Tutta - 1p Rasa Sindoora — 3 P Swarna Bhasma — 1p Tamra Bhasma — 1p Shuddha Gandhaka — 1p	Tankan a	Gajapu ta
Rasa Prakasha Sudhakara	Hemagar bha Pottali	Shuddha Parada — 4 Tola Shuddha Swarna —	Tankan a + Naga	Gajapu ta

	Rasa 1 ^[12]	1 Tola Shuddha Gandhaka – 6¼ Tola	Bhasma + Snuhi Dugdha	
	Lokanath a Rasa ^[13]	Shuddha Parada — 2p Shuddha Gandhaka — 2p Shuddha Kaparda — 8p Tankana — 1p Shankha Bhasma —	Tankan a + Arka Dugda	Gajapu ta
	Rajamrug anka Rasa ^[14]	Shuddha Parada – 3p Swarna Bhasma – 1p Abhraka Bhasma – 1p Shuddha Manashila – 2p Shuddha Gandhaka – 2p Shuddha Haratala – 2p	Tankan a + Ajadugd a	Varaha Puta
Rasa Ratna Samuccha ya	Rajamrug anka Rasa ^[15]	Rasa Bhasma – 3p Swarna Bhasma – 1p Tamra Bhasma – 1p Shuddha Manashila – 2p Shuddha Gandhaka – 2p Shuddha Haratala – 2p	Tankan a + Aja Ksheera	Gaja Puta
	Shankesh wara Rasa ^[16]	Shankha Bhasma — 1 Niska Kaparda Bhasma — 4 Niska Shuddha Tutta - ½ Niska Shuddha Gandhaka - 5½	Tankan a + Aja Ksheera	Gaja Puta

		Niska Shuddha Naga - 5½ Niska Rasa Sindoora - 5½ Niska Shuddha Tankana – 5½ Niska		
	Hemagar bha Pottali Rasa ^[17]	Parada Bhasma – 2 Niska Swarna Bhasma – 1 Niska	Tankan a + Aja Ksheera	Gaja Puta
	Lokanath a Rasa ^[18]	Rasa Bhasma – 1p Swarna Bhasma - ¼ P	Tankan a + Dugdha	Varaha Puta
	Laghu Lokeshw ara Rasa ^[19]	Shuddha Gandhaka – 2p Shuddha Parada – 1p Shuddha Gandhaka – 4p	Tankan a + Dugdha	Laghu Puta
Rasa Chintaman i	Kanchan a Pottali Rasa ^[20]	Shuddha Swarna Patra – 480 Ratti Shuddha Swarnamakshika – 480 Ratti Shuddha Parada – 240 Ratti Shuddha Gandhaka – 240 Ratti Shuddha Kaparda	Wheat Flour + Water	Varaha Puta
	Lokesha Pottali Rasa ^[21]	Shuddha Gandhaka – 480 Ratti Shuddha Parada – 480 Ratti Shankha Bhasma – 480 Ratti		Kapota Puta

	Laghu Pottali Rasa ^[22]	Shuddha Gandhaka – 2 Tola Shuddha Parada – 2 Tola Sveta Abhraka Bhasma – 2 Tola Shuddha Kaparda	Dagdha shma Churna	Gaja Puta
Saranghad hara Samhita	Lokanath a Rasa ^[23]	Shuddha Parada – 2p Shuddha Gandhaka – 2p Shuddha Kaparda – 8p Shuddha Shankha – 8p	Tankan a + Godugd ha Tankan a – 1/8 P	Gaja Puta
	Hemagar bha Pottali Rasa 1 ^[24]	Shuddha Parada – 1p Swarna Bhasma - ¼ P Shuddha Gandhaka – 2p	Vatsana bha – 1/16p with Snuhi Ksheera	Gaja Puta
Rasa Manjari	Ratnagar bha Pottali Rasa ^[25]	Rasa Bhasma -1p Vajra Bhasma -1p Swarna Bhasma - 1p Roupya Bhasma - 1p Loha Bhasma -1p Tamra Bhasma -1p Mukta Bhasma -1p Makshka Bhasma - 1p Vidruma Bhasma - 1p Shankha Bhasma -	Tankan a + Arka Dugdha	Gajapu ta
	Lokeshw ara Pottali Rasa ^[26]	Rasa Bhasma – 1p Swarna Bhasma - ¼P Shuddha Gandhaka – 2p	Tankan a	Gajapu ta

	Rajamrug anka Rasa ^[27]	Rasa Bhasma – 3p Swarna Bhasma – 1p Tamra Bhasma – 1p Shuddha Shilajatu – 2p Shuddha Gandhaka – 2p Shuddha Haratala – 2p	Tankan a + Aja Ksheera	Gajapu ta
Rasa Kamadhen u	Lokanaya ka Rasa ^[28]	Shuddha Parada – 5 Karsha Shuddha Gandhaka – 7½ Karsha	Arka Dugdha + Kumari Rasa Bhavita Tankan a	Laghup uta
	Lokeshw ara Rasa ^[29]	Rasa Bhasma – 1p Swarna Bhasma - ¼ P Shuddha Gandhaka – 2p	Tankan a	Varaha puta
	Ratnagar bha Pottali Rasa ^[30]	Parada Bhasma — 1p Vajra Bhasma — 1p Swarna Bhasma — 1p Rajata Bhasma — 1p Naga Bhasma — 1p Loha Bhasma — 1p Tamra Bhasma — 1p Maricha — 7p Mukta Bhasma — 1p Vidruma Bhasma — 1p Makshika Bhasma — 1p Shankha Bhasma — 1p	Tankan a + Arka Dugdha	Gajapu ta

		Tuttha Bhasma – 1p		
	Hiranyag arbha Pottaliras a ^[31]	Parada Bhasma – 1 Pala Swarna Bhasma – 1 Karsha Shuddha Gandhaka – 2 Pala Tankana – 1 Masha	Tankan a + Snuhi Ksheera	Gajapu ta
	Hemagar bha Pottali Rasa ^[32]	Shuddha Parada – 1p Shuddha Swarna – 1/4p Shuddha Gandhaka – 2p	Tankan a	Gajapu ta
	Lokeshw ara Pottali Rasa ^[33]	Parada Bhasma – 1p Swarna Bhasma – 1/4p Shuddha Gandhaka – 2p	Tankan a+Godu gda	Gajapu ta
	Lokanath a Rasa ^[34]	Shuddha Parada – 2p Shuddha Gandhaka – 2p		Gajapu ta
Yoga Ratnakara	Ratnagar bha Pottali Rasa ^[35]	Rasa Bhasma -1p Vajra Bhasma -1p Swarna Bhasma - 1p Roupya Bhasma - 1p Naga Bhasma -1p Loha Bhasma -1p Abhraka Bhasma - 1p Shankha Bhasma - 1p Mukta Bhasma -1p Makshika Bhasma - 1p Vidruma Bhasma - 1p	Tankan a + Arka Dugdha	Gajapu ta

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		Rajavarta -1p Vaikranta -1p Gomeda -1p Pushparaga -1p		
	Rajamrug anka Rasa ^[36]	Rasa Bhasma – 3p Swarna Bhasma – 1p Tamra Bhasma – 1p Shuddha Shilajatu – 2p Shuddha Haratala – 2p Shuddha Gandhaka – 2p	Tankan a + Aja Ksheera	Gajapu ta
	Lokeshw ara Pottali Rasa ^[37]	Rasa Bhasma – 1p Swarna Bhasma - ¼P Shuddha Gandhaka – 2p	Tankan a	Varaha Puta
Bhaishajya Ratnavali	Ratnagar bha Pottali Rasa ^[38]	Shuddha Parada -1 Tola Heeraka Bhasma -1 Tola Swarna Bhasma -1 Tola Rajata Bhasma -1 Tola Loha Bhasma -1 Tola Tola Tamra Bhasma -1 Tola	Tankan a + Arka Dugdha	Gajapu ta
	Hemagar bha Pottali Rasa ^[39]	Rasa Sindoora – 3 Tola Swarna Bhasma – 1 Tola Tamra Bhasma – 1 Tola Shuddha Gandhaka – 1 Tola	Tankan a + Jala	Gajapu ta
	Lokeshw ara Pottali	Rasa Sindoora – 4p Swarna Bhasma –	Tankan a	Gajapu ta

	Rasa ^[40]	1p Shuddha Gandhaka – 8p		
	Rajamrug anka Rasa ^[41]	Rasa Bhasma – 3p Swarna Bhasma – 1p Tamra Bhasma – 1p Shuddha Manashila – 2p Shuddha Haratala – 2p	Tankan a + Aja Ksheera	Gajapu ta
	Lokanath a Rasa ^[42]	Shuddha Gandhaka – 2p Parada Bhasma – 1p Shuddha Gandhaka – 4p	Tankan a	Gajapu ta
Yoga Tarangini	Ratnagar bha Pottali Rasa ^[43]	Parada Bhasma Vajra Bhasma Swarna Bhasma Rajata Bhasma Loha Bhasma Tamra Bhasma Mukta Bhasma Swarnamakshika Bhasma Vidruma Rajavarta Vaikranta Gomeda Pushparaga Sankha Bhasma	Tankan a + Arka Ksheera	Gajapu ta
	Rajmruga nka Rasa ^[44]	Parada Bhasma - 3p Swarna Bhasma - 1p Tamra Bhasma - 1p Shuddha Manahshila - 2p Shuddha Haratala - 2p Shuddha	Tankan a + Aja Dugdha	Gajapu ta

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		Gandhaka - 2p		
Rasayanas	Lokanath a Rasa [45]	Shuddha Parada — 1p Shuddha Gandhaka - ½P	Tankan a + Gomutr a	Gaja Puta
	Rajamrug anka Rasa ^[46]	Rasa Sindoora – 3 Tola Swarna Bhasma – 1 Tola Rajata Bhasma – 1 Tola Shuddha Manashila – 2 Tola Shuddha Haratala – 2 Tola Shuddha Gandhaka – 2 Tola	Tankan a + Aja Ksheera	Gaja Puta
	Hemagar bha Pottali Rasa ^[47]	Rasa Sindoora — 1 Tola Swarna Bhasma — 3 Masha Mukta Bhasma — 3 Masha Shuddha Gandhaka — 3 Masha Tamra Bhasma — 1 Tola Naga Bhasma — 1 Tola Vanga Bhasma — 1 Tola	Tankan a + Mandar apayasa	Gaja Puta

Various Dosage Mentioned

- Most of the Acharyas have mentioned the dose of Pottali Kalpana as 2 Ratti and 4 Ratti.
- Acharya Yashodara in the text Rasa Prakasha Sudhakara has mentioned the dose as 1 Ratti for Rajamruganka Rasa, 2 Ratti for Hemagarbha Pottali Rasa and 4 Ratti for Lokanatha Rasa.
- Acharya Anantadev Suri in the text Rasa Chintamani has mentioned the dose as 12 Ratti

- for *Kanchana Pottali Rasa*, Lokesha Pottali *Rasa* and 6 *Ratti* for Laghu *Pottali Rasa*.
- Rasa Vagbhata in the text Rasa Ratna Samucchaya has mentioned the dose as 1 Ratti for Mruganka Pottali Rasa.
- Acharya Sharangadhara has mentioned the dose as 1 Ratti for Hemagarbha Pottali Rasa and 6 Ratti for Lokanatha Rasa.
- Acharya Chudamani in the text Rasa Kamadhenu has mentioned the dose as 6 Ratti for Lokanayaka Rasa.
- Acharya Govind Das in the text Bhaishajya Ratnavali has mentioned the dose as 1 Ratti for Ratnagarbha Pottali Rasa and Hemagarbha Pottali Rasa.
- Acharya Trimalla Bhatta in the text Yoga Tarangini has mentioned the dose as 5 Ratti for Rajamruganka Rasa.

Various Anupana mentioned

- Most of the Acharyas have mentioned Madhu or Pippali Churna with Madhu or Maricha Churna with Ghrita.
- Acharya Yashodara in the text Rasa Prakasha Sudhakara has mentioned Guduchi Rasa + Jala or Guda + Ardraka Rasa for Hemagarbha Pottali Rasa.
- Acharya Anantadev Suri in the text Rasa Chintamani has mentioned Ushnodaka or Sheetodaka for Kanchana Pottali Rasa.
- Acharya Sharangadhara has mentioned Maricha + Ghrita in Vatatisara, Navaneeta in Pittatisara, Madhu in Kaphatisara for Lokanatha Rasa.
- Shyamasundaracharya in the text Rasayana Sara has mentioned Sitopaladi Churna for Rajamruqanka Rasa.

Various Indications mentioned

 Most of the Pottalis have been described in the context of Kshaya or Atisara or Grahani Roga.

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- Apart from these diseases, it can also be administered in Kasa, Shwasa, Mandagni, Jwara, Prameha etc.
- Acharya Yashodara in the text Rasa Prakasha Sudhakara has indicated Hemagarbha Pottali Rasa for Kasa, Shwasa, Agnimandya etc.
- Acharya Anantadev Suri in the text Rasa Chintamani has indicated Kanchana Pottali Rasa for Kusta, Mandagni, Atisara etc. Lokesha Pottali Rasa for Jwara, Sangrahani and Laghu Pottali Rasa for Prameha, Vatavyadhi, Mandagni, Jwara etc.
- Rasa Vagbhata in the text Rasa Ratna Samucchaya has indicated Lokanatha Rasa for Kasa, Hikka, Mandagni etc. and Laghu Lokeshwara Rasa for Mutrakricchra.
- Acharya Sharangadhara has indicated Lokanatha Rasa for Kasa, Shwasa, Gulma, Mandagni etc. and Hemagarbha Pottali Rasa for Kasa, Shwasa, Aruchi etc.
- In the text Rasa Manjari, Acharya has indicated Lokeshwara Pottali Rasa for Kasa, Pittavikara etc.
- Acharya Chudamani in the text Rasa Kamadhenu has indicated Lokanayaka Rasa for Kasa, Sula, Shotha, Mandagni etc.
- In the text Yoga Ratnakara, Rajamruganka Rasa is indicated for Kasa, Shwasa, Pandu etc. and Lokeshwara Pottali Rasa for Jwara, Bhrama, Mada, Unmada etc.
- Acharya Govind Das in the text Bhaishajya Ratnavali has indicated Ratnagarbha Pottali Rasa for Ashmari, Vatavyadhi, Kusta, Prameha, Udararoga, Arsha, Shwasa, Kasa, Jwara etc. and Lokeshwara Pottali Rasa for Kasa, Pandu, Jwara etc.

DISCUSSION

Pottali Kalpana is one of the unique Kalpana in Rasashastra. It is enlisted among the four Moorchita Parada Yogas. It has a distinctive and elaborate method of preparation. This Pottali Kalpana is known

for its quicker action in minimal dosage and compactness in the drug. Among the various methods of preparation of Pottalis, Kaparda Purana followed by Putapaka is one which is unique in its own way. When we go through the historical background of Pottali Kalpana, it is clear that Putapaka method of preparation was the first method that was introduced in 12th century. Later in 13th century, Gandhaka Drava Paka and Kaparda/Shankha Purana methods came into existence. Compactness, is one of the important points which has been concentrated while formulating these Pottali Yogas. Compactness, not only in its physical appearance but also the structure of each molecule was considered. Probably, this is the reason behind placing Putapaka, Bhavana Vidhi and Kaparda/Shankha Purana methods under the heading of Pottali Kalpana.

In the classics, various Pottali Kalpanas in various texts of Rasashastra is available. Most of them fall under the category of Putapaka method of preparation. Among them 41 Yogas are of Kaparda Purana Putapaka method of preparation. In this particular method, the Shodhita drugs are given Bhavana with prescribed Drava Dravya, later the mixture is filled into Shodhita Kapardas, sealed and subjected to Putapaka. Sealing of the open slit of Kaparda is done to avoid the spillage of the material filled inside. The drugs usually mentioned for sealing is Tankana alone or along with Goduqdha/Ajaksheera/Arkaksheera. There are few references which also mention the application of Sudha Churna over the Sharavas. This might contribute in enhancing the calcium content to some extent and thus there will be a proportionate increase in Kshara Guna/alkalinity, hence enhancing the efficacy of the formulation. Most of the Yogas have been mentioned to be subjected to Gajaputa, whereas few of them have been mentioned to give Laghu Puta or Varaha Puta as well. The variation in this is because of the fact that some require lesser heat while others require more. Usual dosage for each Pottali Kalpana is between 2 Ratti - 4 Ratti i.e, 250mg-500mg, which is a very minimal dosage. Most of these Yogas are mentioned under the Kshaya

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Roghadhikara, Atisara Rogadhikara, or Grahani Roghadhikara. The alkalinity of the formulation owing to calcium probably has a significant role to play in the management of Atisara and Grahani. But it's significance in Kshaya Roga doesn't seem to fit the bill. But on a deeper observation, these Pottali Kalpana are a blend of extremely important trace elements which form the crux of the immune system, and hence they help by strengthening it. Also recent studies [48] suggest that calcium plays a very important role in treatment of Kshaya by reducing a specific type of calcium channel activity and hence causing calcium influx, and thus fighting against mycobacterium tuberculosis, the causative agent in Kshaya. It is also indicated in Kasa and Shvasa.

CONCLUSION

Pottali Kalpana is one among the 4 Moorchita Parada Yogas. It is known for its compactness attained not only structurally but also in the molecular level. The use of Kaparda Purana Putapaka method of preparation of Pottali Kalpana has been mentioned to be effective in disorders of Gastro — Intestinal tract. It has also been mentioned to be effective in Kshaya Roga. Not much Yogas are available in the market. Further toxicological and clinical study should be carried out and this formulations need to be brought into the market for the benefit of the society.

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