

A REVIEW ARTICLE ON PUTA

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ABSTRACT

Rasashastra, a specialized branch of *Ayurveda* that developed during the medieval period, primarily deals with medicinal substances obtained from metals and minerals. These substances often contain impurities and toxic components, making purification and controlled processing essential before therapeutic use. Classical procedures such as *Shodhana* (purification) and *Marana* (incineration) are employed to transform raw materials into a fine ash known as *Bhasma*, which is considered safe, effective, and easily assimilable. A central element in this transformation is *Puta*, a traditional controlled heating system that provides the precise amount of heat required to achieve *Samyak Paka*—the optimal stage of incineration. The selection of *Puta* depends on the physical and chemical nature of the drug, including hardness, density, and melting point. *Puta* involves repeated cycles of *Bhavana*

(levigation with herbal media) and *Putapaka* (heating), ensuring uniform heat distribution and gradual cooling. Proper application of *Puta* enhances particle size reduction, promotes desirable chemical reactions, and imparts important qualities to *Bhasma* such as *Doṣavinasha* (removal of toxicity), *Rekhaṣṭva*, *Varitaratva*, and *Apunarbhava*. Traditionally, heat is generated using cow dung cakes, husk, or sand, while modern practices increasingly utilize electric muffle furnaces for controlled, eco-friendly, and reproducible heating. Different types

of *Putā*—such as *Mahaputā*, *Gajaputā*, *Varahaputā*, *Kukkutaputā*, *Kapotaputā*, and *Balukaputā*—are described in classical texts, each producing varying intensities of heat suitable for specific drugs. The number of *Putā* cycles ranges from a single cycle for softer substances to several hundred cycles for *Rasayana* and *Vajikaraṇa* preparations. In conclusion, *Putā* is a scientifically significant heating methodology that ensures detoxification, enhances therapeutic potency, and converts metals and minerals into micro-fine, bioavailable *Bhasma*. The integration of traditional *Putā* principles with modern muffle furnace technology supports standardization, scalability, and quality control in contemporary *Ayurvedic* pharmaceuticals.

KEYWORDS: *Rasashastra*, *Ayurveda*, *Putā*, *Shodhana*, *Marana*, *Bhasma*, Muffle furnace, Traditional heating methods.

INTRODUCTION

Rasashastra, a specialized field within *Ayurveda* that emerged during the medieval era, focuses primarily on medicinal substances derived from minerals. These minerals often contain various contaminants and harmful elements. To purify these substances and render them safe and effective for internal use, specific purification techniques such as *Shodhana* and *Marana* are employed.

Marana refers to the transformation process where metals and minerals are converted into a fine ash known as *Bhasma*. A crucial component in this conversion is the application of "*Putā*," which signifies the precise amount of heat necessary to achieve the ideal chemical transformation, or *Paka*, of the *Rasadi Dhatus* (herbal and mineral materials). This heat must be carefully controlled—not too intense, nor too mild—to ensure the proper formation of *Bhasma*.

The concept of *Putā* serves as a practical measure to determine whether the drug has undergone the correct degree of processing. Traditionally, the heat required for *Putā* is generated by burning cow dung cakes, which provide a consistent and controlled source of fire essential for this delicate procedure.

Putā refers to the controlled heating system employed during *Marana* (incineration) to transform metals and minerals into *Bhasma*.^[1] The selection and regulation of *Putā* are advised according to the nature of the drugs (Hardness, density, melting point etc.).^[3] During this

process, substances undergo repeated *Bhavana* and *Putapaka* treatments, as both excessive and insufficient heat can render the *Bhasma* harmful. Properly prepared *Bhasma* possesses high therapeutic value and is easily absorbed due to its micro-fine nature. The primary purpose of *Putapaka* is to attain *Samyak Paka*, the optimal stage of incineration at which the substance becomes therapeutically effective and safe for internal use. Etymologically, the term is derived from “*Putati*,” meaning “to purify” or “to unite,” indicating the interaction of heat and substance within a sealed container (*Śarava Saṃpuṭa*). The sources of heat traditionally include cow dung cakes (*Upala*), dried husk, solar energy, and in modern practice, electric furnaces.

Agni and their importance

- *Acharya Arkaprakasha* has described six types of *Agni*: *Dhumagni*, *Mandagni*, *Dipagni*, *Madhyamagni*, *Kharaagni*, and *Bhutagni*
- *Agni* is the fundamental principle in pharmaceutical and therapeutic processes.
- It is one of the *Panchamahabhutas*.
- It plays a vital role in the preparation of all types of medicines.
- It brings about transformation and conversion of substances, making them suitable for therapeutic use.

AIM AND OBJECTIVES

Putapaka is employed to ensure a controlled and uniform temperature pattern, avoiding both insufficient and excessive heating. It facilitates the reduction of particle size and provides a suitable environment for desirable chemical reactions to occur. Through this process, the material becomes ductile, smooth, and homogeneous. *Putapaka* also enhances the therapeutic potency of the substance and converts it into an absorbable, colloidal, adaptable, and assimilable form.

As a result of *Putapaka*, *Bhasma* acquires several important qualities such as *Doṣavinasha* (elimination of impurities and toxicity), *Guṇaprakaraṣa* (enhancement of properties), *Nirutthatva*, *Dipana*, *Varitaratva*, *Apunarbhava*, *Laghutva*, *Sighravyapti*, *Rekhaṇatva*, and *Vicitraguṇadīpti*. These qualities make *Bhasma* more therapeutically effective than *Jarita Parada*.^[3]

Putapaka Sankhya

The number of *Putapaka* required mainly depends on the nature of the drug, such as its hardness, density, and melting point. Classical *Ayurvedic* texts generally recommend 10 to 100 *Putapaka* for

the purification (*Shodhana*) or incineration (*Marana*) of many *Rasa Dravyas*. For the preparation of *Lauha Bhasma*, 10 to 100 *Putra* are advised. In *Vajikarana karma*, 10 to 500 *Putra* are prescribed, while for achieving *Rasayana* quality, 100 to 1000 *Putra* are recommended.^[4]

Drugs with lower hardness may require only a single *Putra*. Calcium-containing substances such as *Sankha*, *Sukti*, and *Kaparda* usually need three *Putra* for complete incineration. In contrast, metals like gold and copper and similar substances may require up to 40 *Putra* for effective incineration.^[5]

Components of *Putra*

The three elements that make up *Putra* are *Chakrikas*, *Upala*, and *Samputa*. Pellets are stored in *Samputas*, which go by several names such as *Kamsya Samputa*, *Suranakanda Samputa*, *Lavana Samputa*, and *Sharava Samputa* etc. Heat stability and inertness are essential for *Samputa*. *Upala* produces heat in the *Putras*, which include *Karisa*, *Upala*, *Utpala*, *Chagana*, *Girinda*, *Chana* and *Pistka*.^[6] In *Putra* processing, the uniform spherical pellets are referred to as *Chakrikas*. To prevent rapid moisture loss and subsequent cracking, these *Chakrikas* should be dried in the shade.

Putra Vidhi

- ❖ *Dravya Sangrahana*-First, the raw drug is carefully collected and examined to ensure its authenticity and suitability for pharmaceutical processing.
- ❖ *Shodhana*-To eliminate both physical and chemical impurities present in the raw material, *Shodhana* is performed using prescribed media according to classical texts. This step enhances the safety and therapeutic efficacy of the drug.
- ❖ *Churnikarana*-After purification, the material is subjected to *Churnikarana* in order to reduce the particle size and increase the surface area, which facilitates further processing.
- ❖ *Bhavana*-The finely powdered drug is then triturated with suitable herbal juices or decoctions through the process of *Bhavna*. *Bhavna* not only helps in achieving uniform consistency but also imparts specific therapeutic properties of the liquid media to the drug and enhances its potency and bioavailability.
- ❖ *Chakrika Nirmana*- Subsequently, the triturated mass is shaped into small, flat, and circular pellets known as *Chakrikas*.
- ❖ *Dry*- These pellets are dried in shade properly to remove moisture and prevent cracking during heating.

- ❖ *Shrava Samputikarana*- The dried *Chakrikas* are placed inside an earthen saucer called *Sarava* and covered with another similar earthen plate to form a closed container (*Sarava-Samputa*). The junction of the two earthen plates is sealed using strips of cloth smeared with clay. This sealing ensures an airtight environment and prevents contamination or loss of material during heating
- ❖ *Dry*- The sealed *Sarava-Samputa* is then allowed to dry completely.
- ❖ *Putra*- Finally, the dried and sealed earthen container is subjected to controlled heating using cow dung cakes in a traditional heating system known as *Putra*.

***Samanya Putra Krama*^[7]**

The application of heat should be such that, the heat uniformity reaches every particle of the drug placed inside '*Sarava Samputa*'.

Types of Putra: *Putra* improves the qualities of *Dhatu* while assisting in the removal of *doshas*.^[8] Additionally, because of *Putra*, *Bhasma* passes the anticipated *Bhasma Pariksha*, such as *Niruttha*, *Varitar*, and *Rekhapoorna*, and because of *Putra*, metal's *Dosha* is eliminated and its *Guna* is enhanced.

Putra is classified into many categories based on the fuel source, the source of heat, the direct and indirect application of heat, and, of course, their own dimensions.

There are three varieties of *Putra* based on the source of heat: ***Agni, Surya, and Chandra Putra***. *Chandra Putra* uses the moon's rays for heating, *Surya Putra* uses sun light, and *Agni Putra* uses fire. Drug compounds in *Chandra Putra*^[8] are exposed to *Bhavana* with a certain liquid and left in the moonlight. Using this procedure, *Praval Bhasma* can be made. In *Agni Putra*, artificial heat sources are employed for *Putra* based on the desired heat intensity, but in *Surya Putra*,^[9] material is exposed to sunlight after being subjected to *Bhavana*. *Ayurvedic Prakash* mentions *Surya Putra* in order to prepare *Loha Bhasma*, citing the traditional *Grantha Rasapaddhat*.^[10]

Agniputra is further divided into many varieties by variations in the temperature.^[11]

Basis	Type of Agni (Heat intensity)	Types of Putra
Direct Heating	<i>Mridu Agni</i> (Mild heat)	<i>Lavaka Putra, Kapota Putra</i>
	<i>Madhyama Agni</i> (Moderate heat)	<i>Kukkuta Putra, Varaha Putra</i>
	<i>Tivra Agni</i> (Intense heat)	<i>Maha Putra, Gaja Putra</i>
Indirect Heating	Indirect method of heating	<i>Valuka Putra, Lavana Putra, Gorvara Putra</i>

CLASSIFICATION OF PUTA: According to different Classical Texts

- (1) Mahaputa
- (2) Gajaputa
- (3) Varahaputa
- (4) Kukkutaputa
- (5) Kapotaputa
- (6) Gorvarputa
- (7) Bhandaputa
- (8) Balukaputa
- (9) Bhudharaputa
- (10) Lavakaputa

These all types of *Puta* are mentioned in *Rasa Ratna Samuchhaya*, *Rasa Tarangini*, *Rasamrita*, *Rasprakashsudhakara*, *Rasenderchudamani*. One more Type of *Puta* that is *Surya Puta* only referenced in *Rasa Tarangini*. *Ayurveda Prakasha* only describe about *Gajaputa*. The *Ardhagaja Puta* is only mentioned by *Yadavji Trikamji* in *Rasamrita*. it is used for *Marana* of *Vanga*, *Tamra*, *Loha*, etc., but detailed description was not found regarding it. A total of 500 cow dung cakes were used.

<i>Puta</i>	Classical Dimensions ^[12]	Metric System(cm ³)	Quantity of Fuel used	Maximum Temperature for <i>Puta</i>
<i>Mahaputa</i>	pit measuring 2 <i>Hasta</i>	91	1500 <i>Upala</i>	1000°C for 1 hr
<i>Gajaputa</i>	1 <i>Rajahasta</i>	57	1000 <i>Upala</i>	1000°C for 1 hr
<i>Varahaputa</i>	1 <i>Aratni</i>	42	500 <i>Upala</i>	1000°C for ½ hr
<i>Kukkutaputa</i>	2 <i>Vitasti</i>	46	100 <i>Upala</i>	1000°C for ½ hr
<i>Kapotaputa</i>		23	8 <i>Upala</i>	800°C for ½ hr
<i>Gorvarputa</i>	1 <i>Vitasti</i>	23	<i>Uppala Churna</i>	400°C for 4 hrs
<i>Bhandaputa</i>	<i>Brihat Bhanda</i>	-		400°C for 4 hrs
<i>Balukaputa</i>	<i>Brihat Bhanda</i>	-		400°C for 6 hrs
<i>Bhudharaputa</i>		20		140°C for ½ hr
<i>Lavakaputa</i>				

The *Puta* mentioned in different classical text are described as follows

1. Mahaputa

- Acc. to *Rasendrachudamani*, *Rasa Ratna Samuchaya* (pit of dimension of 2 *Hasta*) *Rasprakashsudhakar* 1500 (1000+500) 1000 at the base and 500 above the enclosed medicine in the *musha*.
- Acc. to *Rasa Tarangini* Total no. of Cow Dung cake: 1500 (750+750) dimensions of Pit

is 2 x 2 x 2 (*Rajhastha*).

- Acc. to *Sharangdhara* 30 *Vanyopala* are used for making *Swarna* and *Rajata Bhasma*.

2. *Gajaputa*

- Acc. to *Rasa Ranta Samucchaya*, *Rasatarangini* pit prepared with the dimensions of 1 *Rajhastha* (22 inches). Total no. of cow dung used: 1000 (500 + 500).
- Acc. to *Rasendrachudamani* & *Rasaprakashsudhakar* 1000 (700 + 300) cow dung. Some examples where *Gajaputa* used:

NAME OF ACHARAYS	GAJAPUTA USED IN
<i>Rasa Prakasha Sudhakar</i>	<i>Lauha Bhasma</i> , <i>Pittal Bhasma</i> , <i>Kansya Bhasma</i>
<i>Rasa Tarangini</i>	<i>Abhraka Bhasma</i> , <i>Lauha Bhasma</i>
<i>Ayurveda Prakasha</i>	<i>Bhasma of Hartala</i> , <i>Abhraka</i> , <i>Pittal</i> , <i>Kansaya</i> , <i>Tamra</i> , <i>Naga</i> and <i>Rajata</i>
<i>Sharangadhar Samhita</i>	<i>Bhasma of Pittal</i> , <i>Tamra</i> , <i>Manahshila</i> , <i>Vanga</i> , <i>Swarnamakshika</i> , <i>Abhraka</i> , <i>Vaikranta</i> , <i>Mandoor</i> , <i>Parada</i>

3. *Varahaputa*

- Acc. To *Rasa Ratna Samuchaya* and *Rasatarangini*: Dimensions of pit is 1 x 1 x 1 *Aratni* (42cm). Pit is filled with dry cow dung cake up to neck. Over that *Samputita Dravya* is firmly placed. Over that half of the earlier placed cow dung cake is heaped and ignited.
- Acc. to *Rasa Prakash Sudhakar*: *Varahaputa* is used for making *Swarna Bhasma* and *Naga Bhasma*.

4. *Kukutaputa*

- Acc. To *Rasa Ratna Samuchaya*: 2 *Vitasti* (cubic pit)
- Acc. to *Rasendrachudamani*, *Rasatarangini* 2 x 2 x 2 *Balista*. 100 (70+30) *Vanyopala* are used also in between and ignite fire.
- Acc. to *Rasa Prakasha Sudhakara*: Use of 300 (200+100) *Vanyopala* and used for making *Bhasma* of *Swarna*, *Rajata* and *Tamra*.
- Acc. To *Ayurveda Prakasha* & *Sharandhara Samhita*: Used for making *Tutha Bhasma*.

5. *Kapotaputa*

- Acc. To *Rasa Ratna Samuchaya*, *Rasaprakashsudhakar*, *Rasendrachudamani* and *Rasa tarangini*: 8 number of *Vanyopala* are heaped up on the ground, around the enclosed *Samputit Dravya* and ignited.
- Acc. To *Rasa Prakasha Sudhakara* *Kapotaputa* is used for making *Swarna Bhasma*.

6. Gorvarputa

- Acc. to *Rasa Ratna Samuchaya* – *Gorvarputa* is also known as *Gobarputa*.
- The dried and powdered material that is crushed and trampled by the hooves of cows in the cowshed is also called cow dung.
- Acc. to *Rasatarangini*: it is also known as *Gomayaputa*. Use of dry cow dung powder or husk as a fuel to apply heat, instead of cow dung cake.
- Acc. to *Rasaprakasha Sudhakar*: it is called as *Gobarputa*. 2 *Manika* with the ratio of 40 *Tola* cow dung powder below and place *Shrava Samputa* above it, then place 24 *Tola* cow dung powder on it and ignite it.

NAME OF ACHARYAS	GORVARPUTA USED FOR
<i>Rasa Prakasha Sudhakara</i>	<i>Parada Bhasma, Swarna Bhasma</i>
<i>Rasa Ratna Samuchaya</i>	<i>Parada Bhasma</i>
<i>Sharangadhara Samhita</i>	<i>Parada Bhasma</i>

7. Bhandputa

- Acc. To *Rasa Ratna Samuchaya*, *Rasendrachudamani*, and *Bhavaprakasha*: half of the earthen pot is filled with the husk then enclosed medicinal drug is placed over it and the remaining vacant place of the pot is filled with husk and ignited and mouth of the pot should be closed.
- Acc. to *Rasatarangini* and *Acharya Bhavmishra*: The mouth of pot kept open, rest of the procedure is same as *Rasa Ratna Samuchaya*.
- Acc. To *Rasaprakasha Sudhakar*: this *Putra* is known as *Mridbhandha Puta* and mentioned use of black clay instead of husk.
- Acc. To *Rasa Ratna Samuchaya*: Used for making *Parada Bhasma*.

8. Balukaputa

- Acc. to *Rasa Ratana Samuchaya*, *Rasendrachudamani*, and *Rasatarangini*: The process of heating a drug filled crucible by placing it in hot sand is called *Balukaputa*
- Acc. to *Rasaprakasha Sudhakar*: Dig a small pit 8 *Angulas* deep and 8 *Angulas* in diameter. Place well- heated sand at the bottom of it. On that, keep the sealed vessel filled with the drug. Then cover it with hot sand from above and again place burning charcoal fire over it.
- Acc. To *Ayurveda Prakasha*: Used for making *Kaparada Bhasma*.

9. *Bhudharaputa*

- Acc. To *Rasa Ratna samuchaya*, *Rasendrachudamani*: 2 *Angula Pramana* of depth pit should be made. Put *Aushadhiyukta Sharava* inside pit, cover pit with *Vanyopal* and set fire.
- Acc. to *Rasatarangini*: A small pit is made in ground and enclosed medicinal drug is placed inside with 2 inches of sand on all the sides. Now heat is applied from above by heaping the dry cow dung cake
- Acc. To *Rasaprakashsudhakar*: use 8 *Vanyopala* and used for making *Rasa Bhasma*.

10. *Lavakaputa*

- Acc. to *Rasa Ratna Samuchaya*: the rough powder of natural cow dung cake of quantity 1 *Pala* (50gm) is heaped up on the ground, round the enclosed medicinal drug and ignited.
- Acc. to *Rasatarangini*: a heap of cow-dung cake or husk about 1 *Balitha* (23 cm) high and wide is made above the ground. The sealed crucible is placed in the centre of this heap and ignite.
- Acc. to *Rasaprakashsudhakar*, *Rasendrachudamani*: 4 *Tola Vanyopalachurna* or 4 *Tola Tusha*, *Sharava Samputa* placed in between and ignite fire.
- Acc. to *Rasa Prakasha Sudhakara* & *Rasa Ratna Samuchaya* *Lavakaputa* is used for *Mridu Dravya Paka*.

ANUKTA MANA OF PUTA^[13]

When the "Putra" is not designated for burning medical medications, the doctor must use his own judgment to choose the appropriate "Putra" based on the drugs' hardness (*Yukti*).

PUTA PROYOJANA & PHALA^[14]

There are numerous advantages of using "Putra" appropriately during pharmaceutical manufacturing. Applying "Putra" correctly aids in the drug's purification (*Dravya Shodhana*). It eliminates all of the drug's negative effects (*Dosha*). It promotes the synthesis of more potent, novel molecules for medicinal use. The maximum therapeutic benefits are obtained from *Dhatu Bhasma* that is made by applying the appropriate *Putra*. Such "*Dhatu Bhasma*" is easily absorbed by the live bodily tissue and satisfy all of the "*Bhasma Pariksha*" (*Varitara*, *Rekhapurnata*, etc.).

Modern form of Puta (Muffle furnace)

The contemporary type of *Putra* that is frequently connected to muffle furnaces entails heating

Bhasma in electric muffle furnaces.

Compared to conventional *Putra* furnaces, muffle furnaces offer more consistent heat dispersion and simpler temperature control. They are useful for uniform, eco-friendly heating, which makes them appropriate for *Bhasma* production on a wide scale. The number of heating cycles and overall time needed can be decreased by using muffle furnaces, which enable more effective and repeatable heat management. This contemporary method promotes scalability and efficiency in the production of *Bhasma* while assisting in upholding *Ayurvedic* quality requirements. All things considered, muffle furnaces are a contemporary development of the age-old *Putra* process that improves *Ayurvedic* procedures' environmental sustainability and efficiency.

Similarities

Both *Putra* and the muffle furnace are used for high-temperature heating processes. In both systems, the material under treatment is kept separate from the fuel, allowing uniform and controlled heating. They also permit gradual cooling after completion of heating, which is essential for proper transformation of the substance. Various types of *Putra* or heating methods are selected according to the nature and hardness of the material to be processed.

Advantages and disadvantages of muffle furnace

The muffle furnace offers several advantages such as requiring less manual labour and providing uniform distribution of heat. It allows gradual increase and decreases in temperature, ensuring controlled heating conditions. The temperature can be accurately regulated and monitored with the help of a temperature indicator, and it is environmentally friendly. However, it also has certain disadvantages, including higher consumption of electricity and unsuitability for use in areas that are prone to frequent power cuts.

CONCLUSION

Putra is a specialized thermal processing technique in *Ayurveda* that plays a pivotal role in transforming metals and minerals into therapeutically acceptable *Bhasmas*. Through repeated and regulated heating cycles, the raw material undergoes profound physical and chemical transformations, resulting in ultra-fine or nano-sized particles with enhanced biological availability and therapeutic efficacy. The number of *Putra* cycles is directly associated with progressive particle size reduction, and the attainment of a properly prepared *Bhasma* depends on the accurate execution of the *Putra* process.

The principle of *Putra* is founded on the controlled application of heat, where different grades of thermal energy are employed according to the nature of the material and the desired pharmaceutical transformation. Beyond detoxification, *Putra* induces desirable physicochemical modifications that improve the absorption, assimilation, and pharmacological potential of the final product. Consequently, it is regarded as an indispensable step in the process of *Bhasmikaarana*.

In contemporary Ayurvedic pharmaceuticals, the muffle furnace has emerged as a technologically advanced alternative to the traditional *Putra* system. While retaining the classical concept of controlled heating, it offers superior precision in temperature regulation, uniform heat distribution, enhanced reproducibility, and significantly reduced processing time. These advantages contribute to the production of high-quality, standardized *Bhasmas* and facilitate their large-scale manufacture. Although the requirement for electricity and relatively higher operational costs may pose certain limitations, the muffle furnace provides substantial benefits, including reduced manual effort, improved environmental sustainability, and greater process consistency. Thus, it represents a harmonious integration of traditional Ayurvedic principles with modern pharmaceutical technology, ensuring efficient, reliable, and scientifically standardized *Bhasma* preparation.

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