PREPARATION AND PHYSICOCHEMICAL ANALYSIS OF MANDOOR PARPATI

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ABSTRACT

The name of Ahcarya Chakradatta will always be remembered with gratefulness by all physicians as he started using amalgamation of Metallic medicines with herbal medicines for e.g. Parapati. Parapati is an important preparatory method which mostly acts on Grahani. There are number of Parpatis like Ras parpati, Panchamrut parpati, Tamra parpati, Kshar parpati, Gagan parpati, Loh parpati, Bol parpati etc. are mentioned in Rasashastryi samhitas. Mandoor parpati is prepared from Mandoor bhasma. Which acts on Grahani as well as can enhance Raktavardhak property of Mandoor bhasma explained in Siddhayogsangraha but somehow its get ignored by Ayurvedic physicians so here detailed study related with preparatory method and physicochemical properties of Mandoor parpati for the first time has been carried out.

Keywords: Mandoor, Parpati, Maran, Kajjali, Puta.

INTRODUCTION

Rasa Chikitsa is the best therapy among others due to quicker recovery from diseases and effective in even very small doses. In present era Ayurvedic physicians profusely use minerals, metals, gems and some of animals as well as vegetable products. While our modern counterparts rarely accept metallic preparation for internal use, as modern pharmacology does not recommend such type of preparation for therapeutic purposes. Ayurvedic physicians are of the view that different Ayurvedic pharmaceutical processing's like Shodhana, Marana, Samskara, Jarana, Parapati etc. convert metallic preparations into non-toxic. The name of Ahcarya Chakradatta will always be remembered with gratefulness by all physicians as he started using amalgamation of Metallic medicines with herbal medicines for e.g. Parapati. In today's Lifestyle hurry, worry is part of life including faulty eating habit's which leads to Agnimadya which is root cause of all diseases and Parapati is specially targeted for Agnisthan i.e. Grahani. Thus Parapati form of medicine is more beneficial than Bhasma form. In present study, three samples of Mandoor parpati was prepared and its detailed study regarding physical and chemical properties was carried out for the first time. Traditional and Modern analytical methods also employed during study.

Aims and objectives

1. Preparation of Mandoor parpati.
2. To study its physicochemical analysis.
3. Analytical study based on ancient and modern analytical parameters.

MATERIALS AND METHODS

Materials

It includes raw Mandoor, Parada, Gandhak and associated drugs needed for Shodhana and Maran procedures. Various types of equipments along with fuel are included under this caption.

Methods

It included all the pharmaceutical study carried out in current context. Shodhana of raw Mandoor, Parada and Gandhak was

carried out. Then the Shodhit Mandoor was subjected to maran procedure.

Procedure

Mandoor Shodhan

First Triphala kwath (*Terminalia cebula*, *Embolia officinalis*, *Terminalia Belerica*) in Gomutra (cows urine) is prepared by standard kwath preparation method. 1 kg Triphala bharad was taken and 16 lit Gomutra is added to it, then mixture is subjected to heat on Mandagni and reduced to 2 lit. Then vastragalit Kwath is collected in a vessel. The Mandoor Churna (500 g) was taken and was kept in a big loh palika. Then it was subjected to heat until churna turned red hot (Susantapt), after that this red hot Mandoor was carefully poured into kwath filled vessel. The Mandoor was kept in kwath for 2 h for swagshitata. Then kwath was removed and the Mandoor was washed with koshana jal and kept in sunlight for drying. The above procedure was repeated for 21 times.¹

Mandoor Maran

Shuddha Mandoor was taken in Khalwayantra and to that the prepared Kumari (*Alo vera*) swaras was added until Madoor was totally dipped in swaras. It was subjected to trituration (Mardan, Bhavana process) for 7-8 h. In the process of Bhavna, when it attains paste like consistency Chakrikas were made of whole mixture. The dried Chakrikas were then placed in Sharava and Sandhibhandhan was done with the help of Kappadmitti. Dried Sharava were placed in Puta containing 100 Vanopalas (approx. Average wt. 230 g. each) below and 50 Vanopalas above the Sharava. Then fire was ignited and time and temperature was recorded. After Swangshitikaran the Sharava was removed from Puta on third day.² After giving 7th puta, the obtained bhasma had metallic consistency and also didn't pass Bhasma pariksha. Further putas were given till it passed Bhasma parikshas. After twelfth puta the Bhasma passed all parikshas.

Parad Samanya Shodhan

Step one: Trituration with Rasone Kalka and Saindhava Lavana by using Tapta Khalwa (Loh Khalwa kept on Gas)³.

- Rasone Kalka and half the quantity of Saindhava Lavana.
- Trituration was continued till the mixture attains black colour.
- Thus obtained Parada is then triturated well with equal quantity of; then it was washed thoroughly for several times with hot water to obtain Shuddha Parada.

Gandhak Shodhan

- Raw Gandhak was pounded in Khalwa Yantra to form coarse powder.
- Godugdha (1 lit.) was taken in an earthen pot with wide mouth and suti vastra was tied to it.
- Then Loha Palika was taken and 2 spoon Goghрут was added to it then heat was given when Gogruta starts melting Gandhak powder is added.

When Gandhak Gets liquefied it was poured in to Godugdha⁴.

Mandoor Parpati

100 g Shuddha Parada + 100 g Mandoor Bhasma + 200 g Shuddha Gandhak was taken in Khalwayantra. Then mixture was triturated until gradually, the white colour of Parada and greenish yellow colour of Gandhak disappeared and a black powder was formed. Iron frying pan filled with sand was placed on fire and heated. 25 g of prepared Kajjali was taken in a Darvi smeared with goghрут. This Darvi was placed over

the heated sand and mild fire was given to melt the Kajjali till the mixture turned into semisolid (Pankwat) form. In the mean time, cow dung was spread on an even surface and over it an intact Kadali patra smeared with Goghрут was placed. Kajjali was heated till the mixture turned into semisolid (Pankvat) form. The melted Kajjali was immediately poured on the smooth surface of Kadali patra (*Musa paradisiacal*) and covered with another Goghрут smeared Kadali patra. These leaves were then immediately compressed gently by using a steel plate. Thus, this obtained melted Kajjali which was solidified and flat in shape, was collected as "Mandoor parpati"⁵.

RESULT

Analytical study

This can be divided into two parts,

- Ancient methods
- Modern methods

Ancient Method

Raw materials required for the study were standardize and collected according to grahya agrahya lakshanas as mentioned in text. The final product – prepared was also subjected for examinations like pakapariksha, varnapariksha etc.

Table 1: Showing Physical Test of Parpati

Properties	Mandoor parpati
Colour	Brownish
Form	Hgsfe
Luster	Black
Odor	Mild odor of Gandhak
Structure	Smooth
Taste	Tasteless
Transparency	Opaque
Touch	Rough

Table 2: Pakapariksha for Parpati

Parpati	Mrudupak	Madhyapaki	Kharpak	Remark
Mandoor parpati 1	-----	Positive	-----	Good quality
Mandoor parpati2	-----	Positive	-----	Good quality
Mandoor parpati 3	-----	Positive	-----	Good quality

Modern Method

Mandoor parpati 1, 2 and 3 was subjected for quantitative test, XRD phase identification and AFM partical size analysis.

Table 3: Showing Result of Quantitative Test for Fe %, S % and Hg %

Sample	% of Hg	% S	% Fe Ferrous iron	% Fe Ferric iron
Mandoor Parpati 1	25.2	38.8	4.3	31.7
Mandoor Parpati 2	25.3	38.7	3.2	31.8
Mandoor Parpati 3	24.8	39.2	4.0	30.9

Showing Result of XRD Test

Samples	X-ray diffraction	
	Major phase	Minor phase
Mandoor parpati 1	69.7 Mercury praseodymium strontium iron oxide (0.3/0.57/4/2/9)Fe ₂ Hg _{0.3} O ₉ Pr _{0.57} Sr ₄	30.3 Mercury sulfide Metacinnabar Hg S
Mandoor parpati 2	55.8 Mercury praseodymium strontium iron oxide (0.3/0.57/4/2/9)Fe ₂ Hg _{0.3} O ₉ Pr _{0.57} Sr ₄	44.2 Mercury sulfide Cinnabar Hg S
Mandoor parpati 3	66.3 Dimercurey iron pentafluoride dihydroxide hydrateF ₅ Fe H ₄ Hg ₂ O ₃	33.7 Mercury sulfide Metacinnabar Hg S

Atomic Force Microscopy

It is an advance imaging technique for getting 3 dimensional images of given sample with particle size evaluation.

Table 4: Showing AFM of Mandoor Parpati

Sample	Particle size	
	Range	Average
Mandoor parpati1	Ht.- 4.493 (nm) to 29.986 (nm) Area- 1266.479 (nm ²) to 75210.570 (nm ²) Diameter- 40.156 (nm) 309.453 (nm)	Ht.- 12.542 (nm) Area- 25314.332 (nm ²) Diameter- 151.424 (nm)
Mandoor parpati2	Ht.- 4.497 (nm) to 29.986 (nm) Area- 1266.479 (nm ²) to 73210.570 (nm ²) Diameter- 40.136 (nm) 309.453 (nm)	Ht.- 12.303 (nm) Area- 25231.362 (nm ²) Diameter- 151.624 (nm)
Mandoor parpati3	Ht.- 4.493 (nm) to 29.986 (nm) Area- 1263.479 (nm ²) to 75200.570 (nm ²) Diameter- 40.156 (nm) 309.453 (nm)	Ht.- 12.742 (nm) Area- 25314.332 (nm ²) Diameter- 151.624 (nm)

Kadali Patra

DISCUSSION AND CONCLUSION

The study reveals that Pharmaceutical preparation of Mandoor parpati is possible by given reference in Siddhayogsangrah. To validate preparation of Mandoor parpati three parpatis were made and all these parpatis passes the traditional pak pariksha for parpati. Analytical study reveal that all Three parpatis which were analytically tested have almost equal quantity of Ferric iron (30 % to 35 %) and Ferrous iron (4 % to 5 %). Also equal quantity of Hg and S in all Three parpatis. XRD analysis of three samples of Mandoor parpati shows similarly major and minor phases present. Result of AFM shows that avg particle size of all tested parpatis was almost the same which again proves good quality of parpati.

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