

AN EXPERIMENTAL STUDY ON STANDARD OPERATING PROCEDURE OF MUD SMEARED KANCHKUPI NIRMAN (GLASS BOTTLE) USED FOR KUPIPAKWA RASAYANA (SINDUR KALPANA)

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Article Received on
03 February 2024,

Revised on 23 Feb. 2024,
Accepted on 14 March 2024

DOI: 10.20959/wjpr20246-31707



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ABSTRACT

In *Ayurveda Parada murchita rasaushadis* is broadly categorised into *kharliya rasayana*, *parapti kalpana*, *kupipakwa rasayana* and *pottali kalpana*. Amongst 4 of them *kupipakwa* method of preparation is most potent form. *Kupipakwa kalpas* prepared in glass bottle with longer duration of heat. So, to prepare such *kalpas* there is need of such *yantra* that can sustain longer duration of heat without any breakage of *kupi*. Also, in ancient text detail description about *kanchkupi nirman* was insufficient. So present experimental practical research work is an effort to throw light on detail description of preparation of mud smeared *kanchkupi nirman*.

KEYWORDS: *Kachkupi nirman*, *mud smeared glass bottle*, *Kupipakwa rasyan*, *Sindur Kalpana matkappad*.

INTRODUCTION

Kupipakwa rasayan definition

‘‘कुप्याम अग्निनाम पक्वं यद् रसायनं तद् कुपिपक्वम् रसायनं’’

The *rasayana* which is prepared in *kupi* by application of heat to the *kach- kupi* is called as *kupipakwa rasayana*.^[1] All *Kupipakwa rasayana* are prepared in *kupi* (Glass bottle) and it requires long duration of heat pattern, so there is need of *yantra* which can sustain even highest grade of temperature. The main principle behind *kupipakwa* preparation is gradual heating pattern which may vary from 12 hrs to even 48 hrs, 72 hrs and even more.^[2] So, to

withstand such temperature there is requirement of *yantra* that can sustain for longer duration of heat with high temperature. Also, it should provide gradual heating and cooling pattern of heat. So ancient literature described the *valuka yantra* for this purpose.^[3] *Kachkupi* is one of the important parts of *valuka yantra* which holds the basic drug material to be prepared. As the *kupi* is made of glass it should be smeared with *Multani mitti* as per *Samhita* literature.^[4] But the actual practical and detail procedure of mud smeared *kach kupi nirman* is not mentioned, so this article is the small effort to provide the basic and practical knowledge about the preparation of mud smeared *kachkupi*.

So, preparation of mud smeared *kupi* plays a keen role in *kupipakwa* preparation.

MATERIAL AND METHODS

This article will provide following scientific experimental data:

To prepare *kupi* following materials are required-;

1. Glass bottle (Beer bottle, chemical bottle)
2. *Multani mitti* (Fine powdered)
3. Cotton cloth (Smooth and washed) and
4. *Kupi* stand (To hold the bottle in centre)

- **Glass bottle**

The beer bottle is made of thick glass. It has narrow body and long neck with uniform capacity upto 750 ml. Its base is round and thick with height of 27 cm, width of *kupi* base is 6 cm, neck of *kupi* is 9 cm and weight of bottle is 388g. Thick base of *kupi* provide adequate space for preparation of *kajjali*, so that prepared product accumulates at base and remaining product gets accumulate at narrow neck. Due to narrowing of neck it also provides space for gases to escape.

- ***Multani mitti***^[5]- It is also called as fullers earth. It is high in minerals and water and with light lemon-yellow color. It has no odour or flavour. It consists of aluminium silicates magnesium chloride calcium bentonite. Its paste is made to cover up glass bottle because of its sealing property.
- **Cotton cloth**- It is used for wrapping of glass bottle. Its 14 small strips were cut according to the length of bottle. The breadth of each strip was taken as 4 angula.

- **Kupi stand**-It is a stand used in laboratory made up of iron or plastic used to hold a flask. It eases the process of *matkapad* and prevent breakage of *kupi*.

➤ **References related to mud smeared kupi from ancient texts**

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Procedure

1. Empty beer bottle (Green or amber colour) was taken and stickers were scraped off from it.
2. Then bottle was washed with water and placed on *kupi* stand as shown in fig 1.
3. After that cotton cloth was taken and it is stripped into 14 pieces according to the size of bottle and these strips were soaked in water as shown in fig 2 &3.
4. Then fine powdered *Multani mitti* was taken and water was added to prepare fine paste as shown in fig 4.
5. Next, strips of cotton cloth were taken and these were dipped into paste of *Multani Mitti* to smear cotton cloth properly.
6. Then one by one strip was adhered to the glass bottle firstly which covers the vertical half portion of *kupi* as shown in fig 5.
7. Then remaining half portion was covered with another strip which completes the one-layer smearing.
8. Then, it was allowed to dry completely as shown in fig 6.
9. After drying of one layer, in the same pattern second layer was applied.
10. In this way one by one layer of cotton strip with *Multani mitti* was applied and allowed to dry.
11. Total seven layers were applied and allowed to dry separately.

12. After drying *kupi* was observed for any moisture which was left or any air bubble if gets trapped at base of *kupi*.
13. In summer season mud smeared *kupi* dries very fastly, while in winters it almost took one day for drying of one layer and in rainy season as there is lots of humidity and moisture in environment it almost took 2 to 3 days for drying of single layer of *kupi*.

Precautions

- Care was taken regarding total area mud smearing evenly.
- *Multani mitti* should be fine powdered.
- Cotton strips should be properly cut according to length of bottle.
- Mud smearing should be done when one layer completely dries.
- Care should be taken while putting mud smeared cloth, air bubbles were removed carefully and time to time. Otherwise, air get trapped and chances of breaking of bottle during *kupipakwa* preparation may happens. So proper and skill-full mud smearing is necessary to avoid any accidental emergency condition.

OBSERVATION AND RESULT

Table 1: Presents requirement of cloth, *Multani mitti*, water, and time required for drying of 1 layer (In the month of February).

| Sr. no. | Batches | Cotton cloth (2 Strips per layer required) | <i>Multani mitti</i> | Water to prepare paste | Time required for drying of 1 layer |
|---------|---------|--|----------------------|------------------------|-------------------------------------|
| 1 | Batch 1 | 60 cm × 2 | 98g | 128 ml | 7 hrs. |
| 2 | Batch 2 | 60 cm × 2 | 96g | 125 ml | 7 hrs. 25 min |
| 3 | Batch 3 | 60 cm × 2 | 100g | 130ml | 8 hrs. |



Fig. 1: Kachkupi placed on stand.



Fig. 2: Strips of cotton cloth.



Fig. 3: Cotton cloth dipped in water.



Fig. 4: Paste of Multani mitti was prepared.



Fig. 5: Layering of cloth on kupi.



Fig. 6: layered kupi kept for drying.



Fig. 8: Dried kupi.

DISCUSSION

Kupipakwa rasayana is one of the most potent forms of *Rasaaushadi Kalpana* as it requires minimum dose of administration. In *kupipakwa rasayana* final product is obtained at **Kanthastha** (Finished product is obtained at neck), **Talastha** (product is obtained from bottom of kupi), and **Ubhyastha** - final product obtained from neck as well as bottom. Therefore, it is crucial to cover the kupi from all sides with mud smeared cloth so that it withstands the specific heating pattern (*Mrudu*, *madhyam* and *tikshna agni*) and *Agni kala* (12hrs, 36 hrs, 72 hrs) for *aushada nirman*. The glass bottle may resist high temperature for a long period of time by being properly smeared with mud smeared cloth, and the finished product is made safely without any breaking of kupi.

The relevance of a very basic phase in the preparation of kupi is thus represented with the current experimental work. The length of one strip of cloth taken was, approximately, 60 centimetres. Two strips were required for one layer of *matkapad nirman*. Three batches of mud-smeared kupi were prepared and the observations were noted time to time regarding

length of the strips, water required, weight of Multani *mitti*, time required for one layer application till complete drying etc. It is observed that for one-layer *matkapad* required approx. 98 gm, 96 gm and 100g of *Multani mitti* respectively for batch 1, 2 and batch 3.

Quantity of water required for batch 1, batch 2 and batch 3 was 128ml, 125ml, 130ml of respectively. Time required for *matkapad nirman* of batch 1, batch 2 and batch 3 was approximately 7 hrs, 7 hrs 25 mins and 8 hrs respectively. It takes maximum 8 hours for complete drying of one layer, though this depends on the temperature of the surrounding air and atmospheric condition. Because of the high humidity and moisture content in the air during the rainy season, this time may be more than 8 hours and if prepared in the summer, when the temperature is around 40 °C, the duration required is even less than 2 hrs. So, depending on in which season mud smearing is done the duration of time varies. So as per these observations and finding one can prepare the mud smearing glass bottle with ease. This small observational study can provide the basic knowledge about the standard operating procedure for *kachkupi nirman* required for the preparation of *Sindur Kalpana* e.g. *Rasasindur*, *Swarnavanga*, *Tal sindur*. *Makardwaj* etc.

CONCLUSION

So, after understanding the role of *agni krama*, and *agni kala* in *kupipakwa* preparation it can conclude that *poorvakarma* i.e. preparation of mud smeared *kanchkupi* plays an important role in *kupipakwa kalpa* preparation. As if *poorvakarma* is not done properly there is chance of breakage of *kupi* which can lead to wastage of product or incomplete formation of product, also accidental damage can also occur. Also, different references regarding *mattakapad* are found in texts like *Rasyogasagar* etc. So, preparation of mud smeared *kanchkupi* plays an important role in *kupipakwa* preparation. From this study, it can be concluded that one bottle mud smearing requires.

The *kachkupi* with green/ brown colored glass was having the diameters like

- *Kachkupi* bottle having capacity upto 750 ml.
- Height of *kupi* is 27 cm, width of *kupi* base is 6 cm, neck of *kupi* is 9 cm.
- Weight of bottle is 388g.
- Approx 700g of *multani mitti* required for 7 layers of *matkapad*.
- Total 3-meter cloth required for 7-layer smearing.
- Total average time required for drying of 7 layers was 52.5 hrs.

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