A comparative study on the pharmaceutical preparation of Kalyanaka Ghrita and Ksheerakalyanaka Ghrita

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Abstract

Kalyanaka Ghrita is a commonly prescribed formulation in cases of diseases of psychiatric origin like Unmada, Apasmara etc. The reference of Kalyanaka Ghrita is available in Brihatrayees, Sharangadhara Samhita, Chakradatta, Sahasrayoga, Kashyapa Samhita etc. The reference of Ksheerakalyanaka is mentioned along with the reference of Kalyanaka Ghrita in Chakradatta and also in Sahasrayoga. The reference mentioned in Charaka Samhita for Kalyanaka Ghrita and in Chakradatta for Ksheerakalyanaka Ghrita is taken for current study. The only difference observed in the references of both the formulations is the addition of two parts of Jala and four parts of Ksheera as Drava Dravya in case of Ksheerakalyanaka Ghrita. In case of Kalyanaka Ghrita only Jala is taken as Drava dravya. It is aimed to throw light on the pharmaceutical preparation of Kalyanaka Ghrita and Ksheerakalyanaka Ghrita in order to understand the aspects related to preparation of medicated Ghrita when Dugdhu is mentioned as a Drava dravya.

Keywords: Kalyanaka Ghrita, Ksheerakalyanaka Ghrita, Ksheera, Drava Dravya.

Introduction

Kalyanaka Ghrita is one of the most commonly preferred drug in cases of diseases of psychiatric origin. It is known to possess actions such as Vishaghna, Hrudya, Tridoshahara etc along with its Medhya effect. Kalyanaka Ghrita is a complex formulation mentioned in which most of the drugs mentioned possesses antioxidant, antimicrobial and anti-venom properties.

The word meaning of Kalyanaka is ‘Kalyane shubhakarmani shreyaskara’ and this term conveys that the drug if administered brings auspiciousness, prosperity and wellbeing to humankind.

We get reference of Kalyanaka Ghrita in Brihat trayees, Bhaisajya Ratnavali, Sharangadhara Samhita, Chakradatta, Sahasrayoga etc. Along with reference of Kalyanaka Ghrita we get reference of Ksheerakalyanaka Ghrita in Chakradatta of Acharya Chakrapani and also in Sahasrayoga.

The reference mentioned in Charaka Samhita for Kalyanaka Ghrita and in Chakradatta for Ksheerakalyanaka Ghrita is taken for current study. The only difference observed in the pharmaceutical preparation of both the formulation is the addition of two parts of Jala and four parts of Ksheera as Drava dravya in case of Ksheerakalyanaka Ghrita, whereas in the case of Kalyanaka Ghrita only Jala is taken as Drava dravya.

Materials and Methods

Pharmaceutical study deals with the process of preparation of medicine starting from collection of drugs till attaining the final product. It is divided into following sections:

- Collection of Raw drugs according to classical reference.
- Authentification of the raw drugs
- Ghrita Murchana
- Preparation of Kalyanaka Ghrita
- Preparation of Ksheerakalyanaka Ghrita

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The raw drug required for the preparation of Ghrita Murchana, Kalyanaka Ghrita and Ksheerakalyanaka Ghrita were collected from the SDM Ayurveda Pharmacy, Udupi and were identified as genuine samples by Head, Department of Rasashastra and Bhaisajya Kalpana. Preparation of Kalyanaka Ghrita and Ksheerakalyanaka Ghrita was carried out in the laboratory, Department of Rasashastra and Bhaisajya Kalpana, S.D.M College of Ayurveda, Udupi.

Kalyanaka Ghrita and Ksheerakalyanaka Ghrita were prepared according to the reference given in Charaka Samhita and Chakradatta respectively.

### 1. Ghrita Murchana

The raw drugs for Murchana preparation were chopped into small pieces and dried under sunlight until they were dried thoroughly (Table 1). Matulunga for obtaining Swarasa to be used for preparing the Kalka Dravya was procured from local market.

**Table 1: Quantity of Each Ingredient Taken for Drying for Ghrita Moorchana**

| S. No. | Name of the ingredient | Quantity taken |
|--------|------------------------|----------------|
| 1      | Haritaki               | 120 g          |
| 2      | Vibhitaki              | 120 g          |
| 3      | Amalaki                | 120 g          |
| 4      | Mustha                 | 120 g          |
| 5      | Haridra                | 120 g          |

### 2. Preparation of Choorna of raw drugs for Kalka preparation

Name of the practical: Preparation of Choorna of raw drugs for Kalka preparation

Instruments used: Pulveriser, Weighing balance, cloth/sieve, steel vessels.

Principle Involved: Size Reduction.

Procedure:

The thoroughly dried raw drugs were powdered in the pulveriser separately and then sieved through number 85 sieve to obtain fine powders or Sukshma Choorna of ingredients.

### 2. Preparation of Kalka

Name of the practical: Preparation of Kalka for Ghrita Murchana

Reference: Sharangadhara Samhita

Principle involved: Peshana

Procedure:

- To it required quantity of Matulunga rasa was added when required and grinded to a smooth paste was obtained and the paste formed into a bolus. This Kalka was further used for the purpose of Ghrita Murchana Samkara.

### 3. The process of Ghrita Murchana

Name of the practical: Ghrita Murchana Samkara

Reference: Bhaisajya Ratnavali Jwaradhikara

**Ingredients:**

- Kalka : 625 g
- Ghrita : 2.5 litres
- Jala : 10 litres

**Procedure:**

- Initially plain ghee was taken in a big copper vessel and heated for some time.
- It was then allowed to cool down for few minutes and then Jala and Kalka were added and boiling was started.
- The boiling was continued until all the water content evaporated from the ghrita and all Sneha siddhi lakshanas were appreciated.
- Once the Sneha Siddhi Lakshanas were observed, the heating process was stopped and subjected to filtration.
- The filtration was done through a clean and thick double folded Kora cloth in order to avoid the seeping of Kalka into the ghrita. The retained Kalka was squeezed in order to strain as much oil as possible.
- The filtered ghrita was then allowed to cool down on its own and then stored.
- The Murchita Ghrita was further used for Kalyanaka Ghrita and Ksheerakalyanaka Ghrita. (Fig.1)

Results of this preparation are summarised in the Table 3 below.

**Table 2: Quantity of Each Ingredient Taken for Ghrita Moorchana**

| S. No | Name of the ingredient | Quantity taken |
|-------|------------------------|----------------|
| 1     | Haritaki               | 80 g           |
| 2     | Vibhitaki              | 80 g           |
| 3     | Amalaki                | 80 g           |
| 4     | Mustha                 | 80 g           |
| 5     | Haridra                | 80 g           |
| 6     | Matulunga Rasa(for making Kalka) | 500 ml |

**Table 3: Observations After Murchana Samkara Of Ghrita**

| S. No | Attribute                  | Result/Observation |
|-------|----------------------------|--------------------|
| 1     | Initial quantity of Ghrita | 2.5 l              |
| 2     | Quantity of Ghrita obtained after Murchana | 2.150 l |
| 3     | Loss observed              | 350 ml             |
| 4     | Initial quantity of Kalka  | 625 g              |
| 5     | Weight of Kalka after Murchana | 1120 g |
| 6     | Gain observed in Kalka     | 495 g              |
Observations:

- The procedure of Ghrita Murchana of 2.5 l of Go ghrita took 2 days to complete.
- The temperature maintained throughout the procedure was 95 to 102°C.
- Considerable loss was observed in the final yield of Ghrita due to the reabsorption of Ghrita into Kalka.
- Paka was stopped at Mrudu paka for further continuation of the process.

Precautions:

- Sukshma churna of Kalka Dravya was prepared for easy assessment of Siddhi lakshanas.
- Mandagni was maintained throughout the Marchana procedure.
- Care was taken to stop the Paka at Mrudu paka.

**PREPARATION OF KALYANAKA GHRITA AND KSHEERAKALYANAKA GHRITA**

I. Preparation of Choorna of raw drugs for Kalka preparation of Kalyanaka Ghrita and Ksheerakalyanaka Ghrita.

Name of the practical: Preparation of Choorna of raw drugs for Kalka preparation for Kalyanaka Ghrita and Ksheerakalyanaka Ghrita.

Principle Involved: Size Reduction

Procedure:

The thoroughly dried raw drugs were powdered in the pulveriser separately and then sieved through number 85 seive to obtain fine powders or Sukshma Choorna of ingredients (Table 4).

Table 4: The Quantity of Ingredients Taken for Kalyanaka Ghrita and Ksheerakalyanaka Ghrita.

| S. No | Name of the ingredient | Quantity taken |
|-------|------------------------|----------------|
| 1     | VISALA/INDRAVARUNI     | 20 g           |
| 2     | HARITAKI               | 20 g           |
| 3     | VIBHITAKI              | 20 g           |
| 4     | AMALAKI                | 20 g           |
| 5     | KAUNTI                 | 20 g           |
| 6     | DEVADARU               | 20 g           |
| 7     | ELAVALUKA              | 20 g           |
| 8     | STHIRA/SALIPARNI       | 20 g           |
| 9     | NATA/TAGARA            | 20 g           |
| 10    | RAJANI                 | 20 g           |
| 11    | DARUHARIDRA            | 20 g           |
| 12    | SARIVA                 | 20 g           |
| 13    | KRISHNA SARIVA         | 20 g           |
| 14    | PRIYANGU               | 20 g           |
| 15    | NILOTPALA              | 20 g           |
| 16    | ELA                    | 20 g           |
| 17    | MANISHTA               | 20 g           |
| 18    | DANTI                  | 20 g           |
| 19    | DADIMA                 | 20 g           |
| 20    | KESARA                 | 20 g           |
| 21    | TALISAPATRA            | 20 g           |
| 22    | BHATI                  | 20 g           |
| 23    | MALATHI                | 20 g           |
| 24    | VIDANGA                | 20 g           |
| 25    | PRISNIPARNI            | 20 g           |
| 26    | KUSHTA                 | 20 g           |
| 27    | CANDANA                | 20 g           |
| 28    | PADMAKA                | 20 g           |

- The raw drugs were thoroughly dried under the sun for three days before subjecting them for powdering.
- After confirming that the drugs had dried properly, they were powdered separately in the pulverizer.
- The two drugs i.e Jatikalika and Dadimaphala which were taken in the fresh form were made into Kalka directly.

Observations:

- Some of the drugs which were woody like Chandana and which were fibrous were difficult to powder.
- It was very easy to prepare the Kalka of Jatikalika.
- It was difficult to sieve the powder through Kora cloth and considerable loss was observed.

Precautions:

- Sookshma choorna of drugs were preferably prepared.

It was then stored in moisture free condition to prevent deterioration.

**Step 2: Preparation of Kalka**

Name of the practical: Preparation of Kalka for Kalyanaka Ghrita and Ksheerakalyanaka Ghrita

Reference: Sharangadhara Samhita

Principle involved: Peshana

Procedure:

- Accurately measured quantities of each ingredient was taken in Khalwa yantra and made into a homogenous mixture first (Table 4).
- To the mixture, required quantity of water was added as required and grinded until a smooth paste was obtained and the paste was converted into a bolus.
- This Kalka was further used for the purpose of Kalyanaka Ghrita and Ksheerakalyanaka Ghrita.(Fig. 3)

II. Preparation of Kalyanaka Ghrita and Ksheerakalyanaka Ghrita

A. Name of the practical: Kalyanaka Ghrita preparation

Reference: Charaka Samhita

Equipment used: Tamra patra, Spatula, Measuring jar, cloth, thermometer, vessel etc.

Principle involved: Sneha Paka Samskara

Ingredients:

- **Kalka**: 437 gm
- **Moorchita Ghrita**: 1 litre
- **Jala**: 4 l

Procedure:

- Initially the Murchita Ghrita was taken in a big copper vessel.
- Later, Jala and Kalka were added and boiling was started.(Fig 2 and Fig 4)
- The boiling was continued until all the water content evaporated from the ghee and Sneha siddhi lakshanas were appreciated.(Fig 5)
- The temperature was maintained between 90-102°C.
- Once the Sneha siddhi lakshanas were observed, the heating process was stopped and the ghrita was filtered.(Fig 6)
- Filtration was done through a thick double folded Kora cloth into a stainless steel vessel.
Later the ghee was allowed to cool and on cooling it was stored in airtight container.

**Observations**

- The procedure was completed within 2 days
- After attaining paka all the siddhi lakshanas could be appreciated such as Shabdahinatva on Agninikshema, formation of Varti, Rasa and gandha could be appreciated.
- On cooling it became semisolid and granular in consistency.

**Precautions**

- Continuous stirring was carried out to prevent charring of Kalka.
- Taila paka was stopped at Madhyama paka avaastha.
- The mandagni was maintained throughout the procedure.

**Results:** The results observed after the preparation of Kalyanaka Ghrita (Fig.7) is depicted in Table 5.

| S. No | Attribute                              | Result/Observation |
|-------|----------------------------------------|--------------------|
| 1     | Initial quantity of Murchita Ghrita    | 1 litre            |
| 2     | Quantity of Kalyanaka Ghrita           | 750 ml             |
| 3     | Loss observed                          | 250 ml             |
| 4     | Initial quantity of Kalka              | 437 gm             |
| 5     | Weight of Kalka after preparation      | 730 gm             |
| 6     | Gain observed in Kalka                 | 293 gm             |

**PREPARATION OF KSHEERAKALYANAKA GHrita** [2]

Reference: Chakradatta

Equipment used: Tamra patra, Spatula, Measuring jar, cloth, thermometer, vessel etc.

Principle involved: Sneha Paka Samskara

**Ingredients:**

- Kalka: 437 gm
- Murchita Ghrita: 1 litre
- Jala: 2 l
- Ksheera: 4 l

**Procedure:**

- Initially the Murchita Ghrita was taken in a big copper vessel.
- Later, Jala, Kalka and Ksheera were added successively and boiling was started (Fig.8 and Fig.9).
- Boiling was continued until all water content evaporated from the ghee and Sneha siddhi lakshanas were appreciated. (Fig.10)
- Temperature was maintained between 90-102°C.
- Once the Sneha siddhi lakshanas were observed, the heating process was stopped and the ghrita was filtered.
- Filtration was done through a thick double folded Kora cloth into a stainless steel vessel.
- Later the Ksheerakalyanaka ghrita (Fig.11) was allowed to cool and on cooling it was stored in airtight container.

**Observations**

- The procedure was completed within 2 days.
- After boiling for about 1 hour it appeared like an emulsion and the consistency became thicker.

- After 2 hours the ghrita started getting separated from the Kalka.
- After attaining madhyama paka, all the siddhi lakshanas could be appreciated such as Shabdahinatva on Agninikshema, formation of Varti, Rasa and gandha could be appreciated.
- On cooling it became semisolid and granular in consistency.
- The characteristic smell of Ksheera along with Ghrita could be appreciated.

**Precautions**

- Continuous stirring was carried out to prevent charring of Kalka.
- Sneha paka was stopped at Madhyama paka avaastha.
- The mandagni was maintained throughout the procedure.

**RESULTS**

The observations of Ghrita moorchana, Kalyanaka Ghrita and Ksheerakalyanaka Ghrita is depicted in Table 3, Table 5 and Table 6 respectively.

**Table 5:** Results after the Preparation of Kalyanaka Ghrita

| S. No | Attribute                              | Result/Observation |
|-------|----------------------------------------|--------------------|
| 1     | Initial quantity of Murchita Ghrita    | 1 litre            |
| 2     | Quantity of Kalyanaka Ghrita           | 750 ml             |
| 3     | Loss observed                          | 250 ml             |
| 4     | Initial quantity of Kalka              | 437 gm             |
| 5     | Weight of Kalka after preparation      | 730 gm             |
| 6     | Gain observed in Kalka                 | 293 gm             |

**Table 6:** Results after the Preparation of Ksheerakalyanaka Ghrita

| S. No | Attribute                              | Result/Observation |
|-------|----------------------------------------|--------------------|
| 1     | Initial quantity of Murchita Ghrita    | 1 litre            |
| 2     | Quantity of Ksheera Kalyanaka Ghrita   | 800 ml             |
| 3     | Loss observed                          | 200 ml             |
| 4     | Initial quantity of Kalka              | 437 gm             |
| 5     | Weight of Kalka after preparation      | 680 gm             |
| 6     | Gain observed in Kalka                 | 243 gm             |

**Organoleptic Characteristics of End Products**

a. Colour: The colour of both Kalyanaka Ghrita and Ksheerakalyanaka Ghrita was brownish yellow. After cooling, it attained light yellow colour.

b. Odour: Kalyanaka Ghrita had the characteristic odour of ghrita but Ksheerakalyanaka ghrita differed slightly as the odour of milk processed in Ghrita was appreciable.

c. Taste: Kashaya Tikta.

d. Consistency: Unctuous, semisolid and granular.

**Pharmaceutical Preparation of Kalyanaka Ghrita and Ksheerakalyanaka Ghrita**

![Murchita Ghrita](image1.png)

**Figure 1:** Murchita Ghrita

![Addition of water](image2.png)

**Figure 2:** Addition of water
Figure 3: Kalka

Figure 4: Addition of Kalka

Figure 5: Stirring and Heating

Figure 6: Boiling is continued with uniform heating till Sneha siddhi Lakshanas

Figure 7: End product- Kalyanaka Ghrita

Preparation of Ksheera Kalyanaka Ghrita

Figure 8: Dugdha

Figure 9: Addition of 4 parts of Dugdha as drava dravya

Figure 10: Observations during Boiling

Figure 11: End product- Ksheera Kalyanaka Ghrita

DISCUSSION

Ksheera is one among the drava-dravyas which has been explained in the context of Sneha Kalpana. It can be inferred that different drava-dravyas are mentioned in the classics based upon capability of a particular solvent to imbibe certain therapeutically active principles into it; for e.g water soluble extracts, alcohol soluble extracts etc. Hence, evaluation of Kalyanaka Ghrita and Ksheerakalyanaka Ghrita was carried out in a methodical way.

It was observed that unlike Kalyanaka Ghrita during the preparation of Ksheerakalyanaka after boiling for a stipulated period of time the mixture turned into an emulsion like consistency. On further heating, the Kalka started to get separated from the emulsion like form and the characteristic odour of milk mixed with ghrita could be appreciated. Siddhilakshanas like Phenashanti, formation of Varti, Sabdahinatva on Agninikshepana and the attainment of desired Gandha, Varna and Rasa could be appreciated in both the cases. Both the preparations were stopped at Madhyama paaka avastha. The final yield of Kalyanaka Ghrita and Ksheerakalyanaka Ghrita was 750 ml and 800ml respectively. The loss was comparatively less for Ksheerakalyanaka Ghrita compared to Kalyanaka Ghrita. On cooling, the consistency of both the Ghrita changed to a semisolid granular consistency.

CONCLUSION

The Kalyanaka Ghrita and Ksheerakalyanaka Ghrita was prepared as per Standard operating procedures explained in Charaka Samhita and Chakradatta respectively. During the pharmaceutical preparation of Ksheerakalyanaka ghrita it was observed that after boiling for an hour; the mixture appeared like an emulsion and the consistency became thicker. The ghrita started to get separated from Kalka after two hours of boiling. On analysing the end products, it was found that both the...
preparations were having semisolid granular consistency. *Ksheera kalyanaka Ghrita* had a characteristic odour of *Ghrita* mixed with *Ksheera* after processing.

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