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Research Article

PHARMACEUTICAL ANALYTICAL STUDY OF CHURNODAKA

Aishwarya Laxmi Hegde ^{1*}, Archana B Pagad ², Anusha KR ¹, Anandhu KM ¹

¹ PG Scholar, Department of Rasashastra & Bhaishajya Kalpana, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka, India

² Assistant Professor, Department of Rasashastra & Bhaishajya Kalpana, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka, India

*Corresponding Author Email: aishwaryahegde.1@gmail.com

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ABSTRACT

Introduction: Churnodaka a unique formulation quoted in Rasatarangini, is an uncommon liquid dosage form encompassed under rasashastra. Amlapitta is a disorder of vitiated agni caused by untimely, over intake of food when full, etc. Moreover, stressful life has further enhanced the risk. To imply, it is a lifestyle disorder. Churnodaka is one of the easy to prepare, simple formulations indicated in amlapitta & other koshta roga. A Special emphasis was given to preparation and analysis. **Materials and Methods:** Churnodaka was prepared by adding 2 ratti of sudha churna to 5 tola of water, left undisturbed for 3 yama, later filtered and stored. **Observation and Results:** Churnodaka is a transparent liquid. Physico-chemical parameters were analysed, under which pH of sudha churna, churnodaka and churnodaka with milk were importantly marked. Both sudha & churnodaka have alkaline pH, but of churnodaka is less compared to sudha. **Discussion:** pH of sudha churna suggests the high alkaline nature, which might have corroded the inner lining of GIT on ingestion. Hence a Formulation to dilute sudha to an extent that doesn't burn the mucosa was formulated. **Conclusion:** A simple formulation with unique method of preparation where sudha is brought into therapeutically fit form.

KEYWORDS: Sudha churna, Churnodaka, Amlapitta, Rasatarangini

INTRODUCTION

Global acceptance of Ayurveda has increased because of its positive impact on the life of the patients. It uses wide range of techniques to mitigate illness and encourage wellbeing. Rasaushadhi is one such measure used to combat disease effectively. Sudha churna included under shukla varga by the book Rasarnava¹ and under sudha varga by the book Rasamrita² is basically calcium oxide. It is widely used medicinally as a gastric antacid or dietary calcium supplement³. Churnodaka is a unique liquid dosage form taken up from Rasatarangini, which has sudha as an ingredient⁴. It is indicated in krimi, atisara, amlapitta, babies who cannot digest breastmilk, udara roga, grahani roga. It brings down the toxic effects of gandhakamla⁵ as well.

Amlapitta is composed of 2 words amla and pitta. It is a disease where sourness of pitta gets increased or amlata rises due to increased vidahi quality of pitta⁶. It is common in almost all parts of the world. Kashyapa samhitha is the first available text where amlapitta is mentioned as a separate entity. Here not just treatments are mentioned but mindset change in case, if treatment does not work is also given⁷. Symptoms of amlapitta as per Kashyapa Samhita include amlodgara, antrakujana, amlotklesha, angasada, avipaka, aruchi, gaurava, gurukoshtata, hriddaha, hritshula, kantadaha, klama, karacharanadaha, romaharsha, srama, siroruk, tiktodgara, udaradhamana, uravidaha⁸.

METHODOLOGY

Aim: Pharmaceutical analytical study of churnodaka.

Objective

To prepare churnodaka

To analyze churnodaka

MATERIALS AND METHODS

The total work was carried out in two phases as given below-

1. Pharmaceutical study
2. Analytical study

Pharmaceutical study

Procurement of Raw material

The raw material was procured from the department of Rasashastra and Bhaishajya Kalpana, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan.

Preparation of the churnodaka was done at Teaching Pharmacy, Department of Rasashastra and Bhaishajya Kalpana, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan.

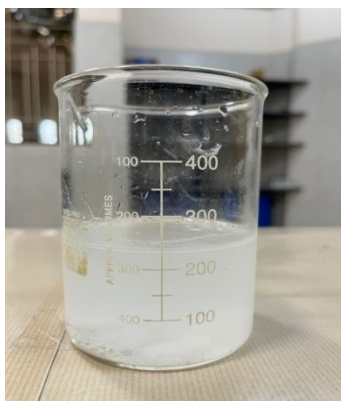
Method of Preparation⁹

As per Rasatarangini, churnodaka is prepared by adding 2 ratti of sudha churna to 5 tola of water and left undisturbed for 3 yama (9 hours). Then it is filtered through a cloth into a glass bottle and stored.

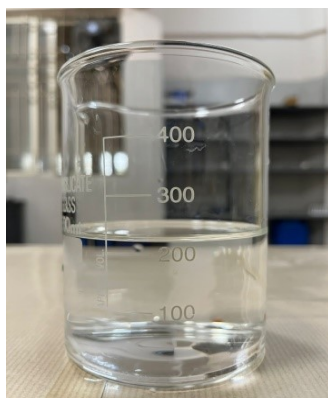
Here, churnodaka was prepared by adding 1ml of sudha churna to 240ml of water and left undisturbed for 9 hours. Later filtered through a cloth into a glass bottle and stored.



Sudha Churna



Sudha churna+Jala



Churnodaka

Figure 1: Preparation of Churnodaka

Analytical Study

CCRAS has given guidelines for different dosage forms¹⁰. So, in this study an attempt was made to prepare churnodaka and carry out its analytical study for further documentation.

Churnodaka was analyzed at QC lab attached to teaching pharmacy, SDM College of Ayurveda and Hospital, Hassan.

To establish preliminary quality control over a drug, analytical study is necessary. Hence Analytical study of churnodaka was carried out in the following analysis were carried out:

1. Organoleptic character:

- a. Colour
- b. Odour
- c. Taste
- d. Touch

2. pH

3. Specific gravity

4. Refractive Index

5. Viscosity

Determination of pH¹¹- pH value is noted using pH meter with the help of electrodes and buffer solutions.

Determination of Refractive index¹²- Using Abbe's refractometer, refractive index was calculated for the sample. Using dropper on the measurement prism, sample was put and light focus was adjusted for proper illumination then reading was noted.

Determination of Viscosity¹³- 25ml of sample was poured into bulb with a pipette. Liquid was released to flow back into the bulbs and time taken to flow from A to B was noted then the procedure was repeated for water and sample was calculated and viscosity determined. This procedure is performed using viscometer.

Determination of specific gravity¹⁴- A clean pycnometer was cleaned and tared. The specific gravity is obtained by dividing the weight of the sample contained in pycnometer by weight of distilled water contained. W1 (Empty pycnometer), W2 (pycnometer with distilled water), W3 (pycnometer with sample) values were calculated, and specific gravity was determined by proper calculation.

OBSERVATION AND RESULTS

Pharmaceutical study

When 1ml of sudha churna was added to 240ml of water, liquid became whitish. It was left undisturbed for 9 hours. Within 1st three hours, sudha churna started to settle down. In the next 6 hours, sudha churna suspended completely and liquid became very clear. After filtering, 230 ml of churnodaka was obtained pertaining to 4.1% loss of the liquid. Shelf- life study is not yet done.

Analytical study

Table 1: Organoleptic characters

Features	Churnodaka
Colour	Clear, transparent
Odour	Odorless
Appearance	Similar to Water
Taste	Bittersweet

Table 2: Observation and result of Analytical Study

Parameters	Churnodaka
pH	10.88
Viscosity	0.0110
Specific Gravity	1.0027
Refractive Index	1.364

pH of sudha churna- 12.1

pH churnodaka with milk- 7.5

DISCUSSION

Churnodaka is an alkaline liquid preparation where sudha churna and water are the ingredients. Mentioned ratio of sudha churna was diluted in specific quantity of water. This might be the dilution required for sudha to move in the mucosa smoothly giving maximum benefit, without showing corrosive action. Sudha churna was allowed to settle in water for 9 hours. This might be the time required for sudha churna to suspend completely as well as for it to get imbibed into the water.

Specific gravity indicates the density of the formulation in comparison to the density of water. It is the presence of the solute content in the solvent. Here the solvent is water, and solute is extractive sudha churna in churnodaka. Here specific gravity of churnodaka is 1.0027 which indicates that it is denser than water. This may be due to presence of active principles in churnodaka whereas in simple water there are no solutes.

Viscosity is an index of a liquid to flow. Higher the viscosity of the liquid, the greater is the resistance to flow. In this study during analysis was found that viscosity of churnodaka is 0.0110F. With this it can be understood that churnodaka has better absorption capacity.

pH value of an aqueous liquid may be defined as the common logarithm of the reciprocal of the hydrogen ion concentration expressed in gram per litre. pH value of churnodaka is 10.88 which suggests that it is alkaline. pH of sudha churna is 12.1. pH of churnodaka with milk is 7.5, which is also alkaline. But when pHs of three are compared, of sudha churna is higher than that of churnodaka & churnodaka with milk. Alkaline pH of course neutralizes acid in the stomach, but this high alkaline pH 12.1 would have shown corrosive action if consumed. This might be the reason why a formulation was made, where sudha churna is diluted to an extent which doesn't burn the mucosa on ingestion.

Churnodaka is quoted to be taken along with milk. In addition to milk being pitta shamaka, also facilitates churnodaka to move inside the mucosa without harming it.

CONCLUSION

Churnodaka was prepared by adding 240 parts of water to 1 part of sudha churna and studied pharmaceutically and analytically. Various observations were marked, out of which settling of churna in water when left undisturbed over period of time was high lightened; Physicochemical parameters of churnodaka was analyzed. pH Change in sudha churna, churnodaka, churnodaka with milk was importantly noted. The clinical administration of churnodaka with milk is easy for consumption and makes it palatable. It is a Simple formulation indicated in amlapitta, with a unique method of preparation where sudha is bought into therapeutically fit form.

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