Research Article

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ANALYTICAL EVALUATION OF SHRINGYADI SHAARKAR: A POTENTIAL DRUG FOR KASA

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ABSTRACT

The World Health Organisation emphasises the importance of quality and safety in herbal formulations and recommends standards for standardisation. Standardisation ensures herbal formulations' identification, quality, and purity by utilising active or marker chemicals. Shringyadi leha (electuary) (SL) is mentioned by Acharya Chakrapani Dutta under the Balarogadhikara Adhayay. The syrup form of Shringyadi kwatha (decoction) was prepared and analysed for the present study. Shringyadi dravya kwatha (decoction) 6000 ml and 4002 gm sugar candy powder were heated (80–90 °C) for 3.30 hours, and 3500 ml syrup was obtained. Syrups are a popular delivery vehicle for anti-tissue medicine because they are easier to swallow (ingest) than tablets and capsules. This medication is instantly observed. Today, syrup is used to treat a variety of conditions and to alleviate sickness symptoms. This formulation was subjected to various analytical parameters, and the results have been observed since preparation. In this study, we have standardised the Shringyadi syrup using standard physiochemical protocols such as pH, specific gravity, viscosity, total solids, and total sugar content. In addition, residue analyses such as heavy metal content and microbial load analysis were also examined to strengthen the standardisation process. Microbial load and heavy metals were within the AYUSH permissible limits. Our results gave an idea about the quality standards of Shringyadi syrup.

Keywords: Shringyadi leha, Kwatha, Syrup, Physicochemical parameters.

INTRODUCTION

Quality control concepts for Ayurvedic pharmaceuticals may be traced back to ancient times. Ancient Vaidya, used to collect herbs based on their sensory characteristics, i.e., typical taste, texture, smell, colour, and use them to prepare medicines. Based on their observations, the principles of drug processing and the ideal quality of finished drugs have been recorded. Even though the principles were developed based on the scientific parameters predominant in those days, they are to be viewed and answered by looking at the improvement of science and technology in the present scenario. Given the importance of traditional practices in global healthcare, the World Health Organization (WHO) has been encouraging and promoting these traditional practices for decades. As a result, quality control of raw drugs, in process, finished products, verification of claims, mechanism of action, making it free of heavy metal and microbial contamination, and so on have become some of the major issues that must be addressed in order to increase the worldwide acceptability of herbal drugs and to prove their respective clinical efficacy. Today, the globalisation movement of Ayurveda is advancing rapidly. The world is finally ready to adopt this ancient healing approach. Because of their complicated chemical nature, standardising Ayurvedic herbal formulations, particularly compound medications, is time-consuming. The lack of available reference standards additionally hampers the investigation. Despite this, the task is to evaluate the formulation with the available physicochemical parameters. The syrup is a widely acceptable dosage form in the present scenario due to its palatability, shelf life, easy administration, etc. Keeping this in view, the syrup form of Shringyadi leha (electuary) [1] was prepared in the present study. To prepare the formulation, the Shringyadi syrup was analysed using various analytical parameters for quality control.

MATERIAL AND METHOD

Collection, Identification and Authentication of Raw Drug

The raw drugs are identified and authenticated by the PG Department of Dravya Guna, Uttarakhand Ayurveda University, Risikul campus, Haridwar, India. The ingredients and the parts used are given in Table 1.

Table 1: Formulation composition of Shringyadi Shaarkar[2]

Ingredients	Latin Name	Part used
Karkatshringi	*Pistacia integerrima*	Shringakkar Kosh
Ativisa	*Aconitum heterophyllum*	Mool
Musta	*Cyperus rotundus*	Mool
Sharkara	–	–

Figure 1: Shringyadi Syrup Ingredients

Preparation of Shrigyaadi Shaarkar

The ingredients enlisted from 1-3 are made into coarse powder and mixed well in equal quantities in a mass mixer until a homogeneous mixture is obtained. 6000 gm of the drug mentioned above was taken, and 48 L of water was added and reduced to 1/8 part. Afterwards, sugar candy powder (66.66% w/v of kwatha) was added to one part of previously made kwatha (decoction), and the volume was mildly heated to the necessary level (i.e., 3500 ml), filtered, and kept at room temperature in an amber-coloured glass container [3] (Table 2). Shringyaadi syrup was kept for 7 days for observation. The final product was in the form of syrup.

Figure 2: Shringyadi Syrup preparation

Table 2: Details of Shringyadi Syrup Preparation

Observations	
Date of Starting	21/02/2019
Date of Completion	22/02/2019
Quantity of Kwatha	6000 ml
Quantity of Sugar Candy added (66.7%)	4002 gm
Temperature during process	80-90 °C
Total time taken for preparation of syrup (hours½	3.00 -3.30
Quantity of Obtained syrup	3500 ml

RESULTS

Initially, the liquid in the preparation of Shringyadi dravya kwatha (decoction) was light brown, which changed into a brown colour and was bitter and astringent in taste. Kwatha (decoction) was prepared between 6 hours 30 minutes and 7 hours. The colour of Shringyadi dravya kwatha (decoction) in syrup form changed into dark brown and sweet. Almost Shringyadi syrup was prepared in between 3 hours 30 minutes. Observation of the analysis [4] is given in Table 3 to 6.

Table 3: Physiochemical characters of samples of Shringyadi Syrup

Parameters	Shringyadi Syrup
pH	4.74
Specific gravity	1.264
Viscosity	117.05cp
Total Solids	40.51%
Total sugar (%w/w)	61.26%
Reducing sugar	37.63%
Non-Reducing sugar	23.63%

Table 4: Microbial Contamination of samples of Shringyadi Syrup

Microbial test	Shringyadi Syrup
Total Bacterial count	950 cfu/g
Total yeast and moulds count	231 cfu/g

Table 5: Heavy metal limit analysis of samples of Shringyadi Syrup

Heavy metals	Shringyadi Syrup
Lead	0.3686 ppm
Cadmium	0.0273 ppm
Mercury	ND
Arsenic	ND

Table 6: Test for a specific pathogen

Parameters	Shringyadi Syrup
Escherichia coli, Salmonella, Pseudomonas	Absent
Salmonella sp.	Absent
Staphylococcus aureus	Absent
Pseudomonas aeruginosa	Absent

DISCUSSION

The quality assurance of any preparation is important. The whole procedure of Shringyadi syrup is divided into two parts, i.e., kwatha (decoction) preparation and syrup preparation. To prepare Shringyadi kwatha (decoction), the amount of water is taken as per w/v concept, i.e., 6000 gm of kwatha (decoction) churna (powder) and 48 L water is taken by volume, i.e., in the ratio 1:8. During the preparation of kwatha (decoction), the basic fundaments as mentioned by Acharya Sharangdhara [5] are followed. This study passes kwatha churna (powder) through mesh no. 08. Overnight soaking (12 hours) is done before applying heat, allowing the micelle to take up a liquid film and the tissues to swell. Mild heating with a peak temperature of 90–95 °C is carried out with continuous stirring. It is used to ensure effective extraction and reduce the possibility of deterioration of certain active ingredients, which may break down owing to hydrolysis. For preparing Shringyadi syrup, the temperature range is 80–90 °C. The average time required for preparing kwatha is 10 hours 5 minutes, while the average time needed for preparing syrup is 3 hours 30 minutes (Table 2). Shringyadi kwatha (decoction) is brown, has a characteristic smell, and has a kashaya taste, whereas syrup is dark brown. The syrup tastes more madhura (sweet) than the kwatha (decoction). The taste of syrup is sweet because of the sweet taste; it is palatable. The pH [6] value of syrup is 4.74, indicating that it is acidic. So, it cannot be administered on an empty stomach; this medication should be used after a meal. The specific gravity is 1.264, and Viscosity [6] is 117.05 cp. If viscosity decreases with increased temperature and vice versa, viscosity measures the provided consistency and quality; a high-viscosity liquid has more power to pump than a low-viscosity liquid. The total solid [7] content is 40.51% in the samples of Shringyadi syrup. Total solid refers to the residual produced after drying a certain amount of the preparation to constant. The percentage of total sugars in Shringyadi syrup is 61.26%, the percentage of reducing sugar is 37.63%, and the percentage of non-reducing is 23.63%.[8] On the other hand, this data suggested that the percentage of both forms of sugars did not exceed the API limit. In Shringyadi syrup, non-reducing sugar is approximately 2/3 that of reducing sugar. *Escherichia coli, Salmonella, Staphylococcus aureus,* and *Pseudomonas aeruginosa* are absent, and total bacterial count [9] is standard in limit. Total yeast and mould count are within normal limits. Heavy metals [10] like Mercury, Lead, Cadmium and Arsenic contents of Shringyadi syrup are also within permissible limits. As a result, the formulation is free of microbiological and heavy metal contamination. It is also possible to conclude that the substance is not contaminated throughout the preparation process.

CONCLUSION

The drug's consumption and composition are changed in this compound formulation to increase its affordability and accessibility. It is an effort to standardise compound formulation regarding palatability and absorption. Leha form is not feasible for everyone to do constantly; for small kids, it was well-palatable because leha (electuary) had a lot of bitterness, but syrup lacked it. Shringyadi syrup ingredients include Kasahar (cough reliever) properties. To prepare 3500 ml Shringyadi syrup, the requirements of Shringyadi kwatha (decoction) and sugar candy powder were 6000 ml and 4002 gm, respectively; 3 hours 30 minutes was the time taken at the temperature range of 80–90 °C. The analytical study's parameters were all confirmed to be within acceptable limits. We produced standardised syrup with precise characteristics in our effort.

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