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PHARMACEUTICO-ANALYTICAL STUDY OF SURA W.S.R. TO SHARANGDHAR SAMHITA

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ABSTRACT

Background: Sura is one of the ancient alcoholic preparations described in Ayurveda under Sandhana Kalpana. It is typically prepared by fermenting a decoction of cooked rice (Anna), jaggery, and fermentation initiators. Despite its therapeutic importance in treating conditions like Grahani, Arsha, and Vata disorders, it is rarely used in clinical practice due to a lack of standardized manufacturing procedures. **Aim:** To prepare Sura according to Sharangdhar Samhita and establish its pharmaceutical and analytical standards. **Materials and Methods:** Sura was prepared in three batches following the classical reference of Sharangdhar Samhita (Madhyama Khanda 10/5). The formulation utilized cooked rice (Shali), Jaggery (Guda), Honey (Madhu), and Dhataki flowers. The process was scaled using Anukta Mana principles. Pharmaceutical changes were observed daily, and the final product was subjected to organoleptic and physicochemical analysis (pH, Specific Gravity, Refractive Index, Total Solids, Alcohol content, and Sugar analysis). **Results:** The fermentation completed in 42–44 days. The final product was a reddish-brown, clear liquid with a mild alcoholic aroma. Analytical study revealed a mean pH of 2.80, Specific Gravity of 1.1150, Total Solids of 33.60% w/v, and Alcohol content of 3.47% v/v. The reproducibility of data across three batches confirmed the standardization of the process. **Conclusion:** The study successfully established a standard method for preparing Sura with reproducible analytical parameters, validating its potential for therapeutic use.

KEYWORDS: *Sura, Sandhana Kalpana, Sharangdhar Samhita, Standardization, Fermentation, Ayurvedic Pharmaceutics.*

INTRODUCTION

Ayurveda, the ancient science of life, emphasizes holistic health management through diet, lifestyle, and a vast pharmacopeia of herbal formulations. Among its most sophisticated pharmaceutical branches is *Sandhana Kalpana*, a unique method where drugs are fermented with sweetening agents and *Prakshepa dravya* in a closed vessel (*Sandhana Patra*) to generate self-generated alcohol.[1] This process facilitates the extraction of active phytoconstituents into a liquid medium, enhances absorption through the gut mucosa due to the *Sukshma* and *Vyavayi* properties of alcohol, and ensures a longer shelf-life.

While formulations like *Asava* and *Arishta* are widely known, *Sura* occupies a preeminent position as one of the oldest fermented beverages in Ayurvedic history, with references tracing back to the Vedic era and Kautilya's *Arthashastra*, which describes six varieties of *Sura*.[2] Unlike typical *Asava* prepared from raw juices or *Arishta* from decoctions, *Sura* is distinctly categorized as *Annadikrita Madya*—alcohol prepared from cooked cereals.[3]

Definition and Pharmaceutical Intricacies

Classical texts provide varied but complementary definitions of Sura. Acharya Sharangadhara offers the most practical definition: "परिपक्वान्न संधानसमुत्पन्नां सुरां जगुः ।"[3] meaning Sura is the product obtained from the fermentation of properly cooked food (Anna). Bhavaprakasha[4] and Arunadatta[5] specify the substrate, defining it as Madya prepared specifically from Shali (rice) or Shashtika rice flour (Pishti). Acharya Dalhana on Sushruta Samhita, describes the physical appearance

of Sura as Lohitavarna (reddish in color) and slightly turbid (Kalusha) due to the dissolved solids.[6]

A unique feature of *Sura* preparation is its stratification during fermentation. *Sharangadhara Samhita* explains that as the fermentation matures, the liquid separates into five distinct layers based on density and clarity[3]:

1. **Prasanna:** The clear, supernatant upper layer.
2. **Kadambari:** The layer immediately below *Prasanna*, which is marginally thicker.
3. **Jagala:** A denser layer situated below *Kadambari*, known for its *Grahi* and *Pachana* properties.
4. **Medaka:** The thickest liquid portion found at the bottom.
5. **Vakkasa (Kinva):** The solid sedimentary residue at the base.

Therapeutic Importance

कासार्शोग्रहणीदोषमूत्राघातानिलापहा १७५
स्तन्यरक्तक्षयहिता सुरा बृंहणदीपनी ।। (सु सू 45/175)
गुल्मोदरार्शोग्रहणीशोषहृत् स्नेहनी गुरुः।
सुराऽनिलघ्नी मेदोऽसृक्स्तन्यमूत्रकफावहा॥६७॥ (अ. ह. सु. 5/67)

Therapeutically, Sura is highly valued for its Brimhana and Balya action, distinguishing it from the typically Lekhana nature of other alcoholic preparations.[5] It is described as Guru, Vataghni, and Stanya-Rakta-Kshaya-hita.[7] Acharya Sushruta highlights its utility in Grahani, Arsha, Mutrakrichra, and Kasa.[6] Rationale for the Study.

Despite its profound historical and therapeutic significance, Sura has fallen out of mainstream clinical practice. The primary reason is the absence of a standardized manufacturing protocol. Classical texts provide the components—rice, jaggery, and fermentation initiators—but often omit specific pharmaceutical ratios and critical process parameters like temperature and duration. Consequently, no commercial samples are available, and practitioners are hesitant to prepare it due to the fear of inconsistent quality or spoilage.

Therefore, this study was undertaken to scientifically revive this lost art. By preparing *Sura* strictly according to *Sharangdhar Samhita* and subjecting it to rigorous physicochemical analysis, this research aims to establish standard quality parameters—such as pH, specific gravity, and alcohol percentage—thereby validating *Sura* as a reproducible, safe, and potent Ayurvedic formulation for modern healthcare.

MATERIALS AND METHODS

1. Selection of Raw Materials

The raw materials were procured from local markets and authenticated.

Table 1: Ingredients of Sura.

Drug	Botanical / English Name	Classical Quantity	Quantity Used (Reduced Batch)
Shali	*Oryza sativa* (Rice)	–	640 g (Cooked)
Jala	Water (Decoction base)	1 Drona (10.24 L)	1280 ml (Reduced Decoction)
Guda	Jaggery	1 Tula (4 kg)	500 g
Madhu	Honey	½ Tula (2 kg)	250 g
Dhataki	*Woodfordia fruticosa*	1/10 Tula (400 g)	50 g

As specific quantities were not explicitly mentioned for all ingredients in the primary verse, the 'Anukta Mana'[8] rule from Sharangdhar was applied:

अनुक्तमानारिष्टेषु द्रवद्रोणे तुलां गुडम् ।
क्षौद्रं क्षिपेद् गुडादर्धं प्रक्षेपं दशमांशिकम् ॥ ३ ॥ शा. म. १०/३

Drava (1 Drona), Guda (1 Tula), Madhu (½ Tula), and Prakshepa (1/10 Tula). For laboratory feasibility, all quantities were systematically reduced by a factor of 1/8.

2. Pharmaceutical Preparation (Method of Preparation)

The study was conducted in three independent batches to ensure reproducibility.

1. Preparation of Rice: *Shali* (rice) was cooked with water in a 1:5 ratios to ensure proper starch gelatinization.[9]
2. Decoction (*Kwatha*): The cooked rice was boiled with 16 parts of water until reduced to one-eighth of the original volume (1280 ml).
3. Mixing: *Guda* (500 g) was dissolved in the warm decoction. Once cooled to room temperature, *Madhu* (250 g) and *Dhataki Pushpa* (50 g) were added as fermentation initiators.
4. Fermentation (*Sandhana*): The mixture was poured into a fumigated porcelain jar (*Sandhana Patra*), filling it up to ¾ capacity. The vessel was sealed using the traditional cloth-mud method (*Sandhi Bandhana*) and kept in a clean, dark room at ambient temperature.
5. Monitoring: The fermentation process was monitored daily using the candle test (for CO_2 release), observation of effervescence, and listening for the "hissing" sound indicative of active fermentation.

3. Analytical Study

The final product was filtered and subjected to organoleptic and physicochemical analysis at a certified laboratory. Parameters included pH, Specific Gravity, Refractive Index, Total Solids, Alcohol Content, Reducing Sugars, and Non-Reducing Sugars.

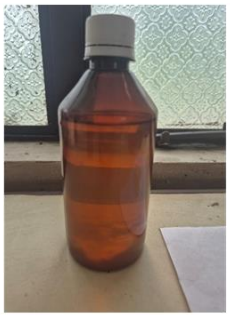
Preparation of cooked rice

Preparation of Kwath

Sandhan Patra

Completion of Sandhan

Surabeej



Sura

Figure 2: Preparation of Sura.

RESULTS AND OBSERVATIONS

A. Pharmaceutical Observations

All three batches exhibited a consistent fermentation pattern.

- Initial Stage (0-7 days): The liquid was turbid and frothy. A burning candle extinguished at the mouth of the vessel, confirming CO_2 release.
- Active Stage (14-28 days): Mild effervescence was observed. The liquid became warm (28–32°C), and the taste shifted from sweet (*Madhura*) to sweet-sour (*Madhura-Amla*).
- Completion Stage (35-44 days): Effervescence ceased, the solid ingredients (*Prakshepa*) settled at the bottom, and the liquid became clear. The candle continued to burn, indicating the cessation of CO_2 production.

Table 2: Yield and Duration.

Parameter	Batch 1	Batch 2	Batch 3
Fermentation Time	42 days	44 days	42 days
Initial Volume	2200 ml	2200 ml	2200 ml
Final Yield	1800 ml	1650 ml	1700 ml
Loss (%)	8.0%	8.5%	7.0%

B. Organoleptic Parameters

The final product was a reddish-brown liquid with a clear appearance, mild alcoholic-sweet aroma, and a sweet, slightly sour, and astringent taste.

C. Physicochemical Analysis

The analytical results showed minimal variation across the three batches.

Table 3: Physicochemical Parameters (Mean of 3 Batches).

Parameter	Mean Value	Significance
pH	2.80	Indicates acidic nature, ensuring self-preservation
Specific Gravity	1.1150	Shows uniform concentration of dissolved solids
Refractive Index	1.377	Reflects optical consistency
Total Solids (% w/v)	33.60	Indicates good extraction of phytoconstituents
Alcohol Content (% v/v)	3.47	Consistent with *Mrudu Madya* (mild alcohol) category
Reducing Sugar (% w/v)	27.05	Indicates unfermented sugars remaining
Non-Reducing Sugar (% w/v)	15.80	Shows enzymatic inversion of sucrose

DISCUSSION

The preparation of *Sura* involves the fermentation of a carbohydrate-rich substrate (*Anna*). This study utilized *Shali* (rice) converted into a decoction as the base. The fermentation duration of 42–44 days aligns with the classical timeline for *Sandhana* in moderate climates. The pH of 2.80 confirms that organic acids were produced, which naturally preserve the formulation and prevent contamination. The alcohol content of 3.47% defines *Sura* as a mild alcoholic beverage, suitable for therapeutic delivery without causing severe intoxication. The high total solid content (33.60%) suggests that the fermentation process effectively extracted active principles from the ingredients.

CONCLUSION

The study successfully standardized the method of *Sura* preparation based on *Sharangdhar Samhita*. The pharmaceutical process is reproducible, with a fermentation period of approximately 42 days. The analytical values—specifically a pH of ~2.8, Specific Gravity of ~1.115, and Alcohol content of ~3.5%—can be considered preliminary standard parameters for *Paishtiki Sura*. These findings support the reintroduction of this valuable formulation into clinical practice.

REFERENCES

1. Mehta, et al - Quality Assessment and Development of TLC Fingerprinting Profile of an Ayurvedic Formulation – Takrarishta, IJRAR, June 2020; 7(2): 935-941.
2. Gaurav, Kumar A, Thakur R, An Insightful Review on Sandhana Kalpana. J Ayu Int Med Sci., 2024; 9(10): 206-210.
3. Sharngadhara. *Sharngadhara Samhita*, Madhyama Khanda 10/5-6. In: Pandit Parashuram Shastri Vidyasagar, editor. Varanasi: Chaukhamba Sanskrit Prakashan, 2013; 232.
4. Bhavamishra. Bhavaprakasha Nighantu, Sandhana Varga. Varanasi: Chaukhamba Bharati Academy, 2018; 785.
5. Vagbhat, Ashtanga Hrudaya of Vagbhata, Sutrasthana5/67, Varanasi: Chaukhamba Sanskrit Sansthan; Reprint edition, 2019; 80.
6. Sushruta. Sushruta Saṃhita, Sutrasthana 45/170. In: Yadavji Trikamji Acharya, editor. Varanasi: Chaukhamba Surbharati Prakashan, 2014; 210.
7. Charaka. Charaka Saṃhita, Sutrasthan 27/179. With Ayurvedadipika commentary by Cakrapanidatta. In: Acharya Yadavji Trikamji, editor. Varanasi: Chaukhamba Surbharati Prakashan, 2016; 163.
8. Sharngadhara. *Sharngadhara Samhita*, Madhyama Khanda 10/3. In: Pandit Parashuram Shastri Vidyasagar, editor. Varanasi: Chaukhamba Sanskrit Prakashan, 2013; 232.
9. Bhavamishra. Bhavaprakasha Nighantu, krutanna Varga 12/6. Varanasi: Chaukhamba Bharati Academy, 2018; 724.