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SHARKARA KALPANA CORRELATION WITH SYRUP: A REVIEW

[1]*Dr. Needa Sayed, [2]Dr. Gaurav Dongare, [3]Dr. Manoj Kulkarni and [4]Dr. Atiq Momin

[1]*PG Scholar, Rasashastra and Bhaishajya Kalpana Department, Ashvin Rural Ayurveda College Manchi Hills, Sangamner, Maharashtra, India.

[2]Guide and Professor, Rasashastra and Bhaishajya Kalpana Department, Ashvin Rural Ayurveda College Manchi Hills, Sangamner, Maharashtra, India.

[3]HOD Rasashastra and Bhaishajya Kalpana Department, Ashvin Rural Ayurveda College Manchi Hills, Sangamner, Maharashtra, India.

[4]Assistant Professor, Rasashastra and Bhaishajya Kalpana Department, Ashvin Rural Ayurveda College Manchi Hills, Sangamner, Maharashtra, India.

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***Corresponding Author**
Dr. Needa Sayed
PG Scholar, Rasashastra and Bhaishajya Kalpana Department, Ashvin Rural Ayurveda College Manchi Hills, Sangamner, Maharashtra, India.

ABSTRACT

Introduction: *Ayurveda Bhaishajya Kalpana* involves the preparation of various medicinal dosage forms through multiple processes, with *Sharkara Kalpana* being one of the significant *Upkalpanas* derived from the fundamental *Panchvidh Kashay Kalpana. Sharkara Kalpana* is prepared by adding double the amount of sugar to the basic formulation, enhancing both the stability and palatability of the medicine. This formulation was first extensively detailed by Acharya Yadavji Trikamji in *Dravyaguna Vigyaniyam Uttarardh.* In this study, *Sharkara Kalpana* is examined from both traditional Ayurvedic and modern pharmaceutical perspectives, specifically correlating it with the syrup formulation used in contemporary medicine. **Materials:** Ayurveda classical texts and *Bhaishajya Kalpana* texts. **Methodology:** Conceptual study of *Sharkara Kalpana* in Ayurveda and its corelation with Syrup as per modern context. **Discussion:** The preparation of *Sharkara Kalpana* follows a precise methodology that ensures both the therapeutic efficacy and shelf life of the formulation. This traditional practice finds parallels in modern syrup production, where sugar acts as a preservative and vehicle for active ingredients. The discussion highlights the relevance of these ancient methods in current pharmacological practices, particularly in enhancing the palatability, preservation, and

therapeutic potential of syrups. **Results:** The compilation provides a comprehensive understanding of *Sharkara Kalpana* from both Ayurvedic and modern perspectives. The study suggests that integrating traditional Ayurvedic practices like *Sharkara Kalpana* with modern pharmaceutical approaches could lead to more effective and patient-friendly medicinal formulations.

KEYWORDS: *Sharkara Kalpana*, Syrup, *Dravyaguna Vigyaniyam*, *Siddha Bheshaj Manimala, Bhaishajya Kalpana.*

1. INTRODUCTION

In recent years there has been a growing interest in exploring innovative dosage forms to enhance the efficacy and convinience of *Ayurvedic* formulation. *Sharkara Kalpana* in *Ayurveda*, represents a significant aspect of classical *Ayurvedic* pharmaceutics. Originating from traditional Indian medicine, *Sharkara Kalpana* involves the creation of sweet, sugar-based formulations intended to enhance the therapeutic effects of herbal ingredients. These formulations were historically designed not only to improve the taste and preservation of herbal drugs but also to increase their efficacy and palatability, especially among sensitive groups such as children and the elderly. Ayurvedic texts provide detailed methods for preparing these formulations, highlighting specific ratios of ingredients, preparation techniques, and therapeutic applications.

In modern context syrup is a concentrated, viscous, aqueous solution of sugar or sugar substitutes, often used as a vehicle for medicinal substances. It serves as a convenient medium to deliver active pharmaceutical ingredients, particularly in liquid formulations, enhancing both the palatability and stability of the medication. Syrup formulations are widely used for their convenient dosing, ease of ingestion, and ability to mask the bitterness of active pharmaceutical ingredients. This review aims to bridge the traditional methods with modern pharmaceutical practices, examining the potential for integrating *Sharkara Kalpana* principles in contemporary syrup production. Additionally, it will explore the pharmacological relevance of these formulations, particularly in addressing modern-day health challenges. Emphasis will be placed on standardization processes, quality control measures, and potential modifications to enhance therapeutic effectiveness and consumer safety in today's health care landscape.

Key objectives include

1. Tracing the historical development of *Sharkara Kalpana* and its evolution over time.
2. Reviewing classical formulation techniques and comparing them with current syrup production standards
3. Discussing potential areas of research, improvement, and integration with modern health care practices.

2 MATERIAL AND METHODS

2.1.*Sharkara Kalpana*

2.1.i. Definition[1]

िहमे फा्े ŵूतेक म वा शक्र रा िÕगुणा िपेत I

मंदेअUौ सािधतं पूतं पटात तत शक्र रं 4ृता II [दव्यग ुण fRÊिनयं]

Preparation in which double quantity of sugar is added to any liquid preparation like *swaras, hima*, *kwath* and heated until it gets thick.

2.1.ii.*Sharkara Kalpana* History

- *Charak Samhita – In Sharkara Sadhit Madya 27/183*
- *Dravyaguna Vigyaniyam- Yadavji Trikamji Uttarardha 2/56*
- *Ayurved Saar Sangrah – In Chapter Sharbat Prakaran*
- *Siddha Bheshaj Manimala- In Sharkara Kalpana*

2.1.iii. Types as per *Ayurveda*[2,3,4]

According to physical appearance Sharkara is divided into three types :

- *Matsyandika*: they are small crystals looked like eggs of ants.
- *Khanda sharkara* (*Sharkara*): Large crystalline form.
- *Sitopala*: Powder form, sand type structure.

2.1.iv. Types of *Sharkara* origin[5,6,7,8]

In *Ayurveda* different types of sugars with different origins are used in preparing syrup for base preparation. The following are different *Sharkaras* alongwith their medicinal properties.

- *Madhu Sharkara*- It is made from honey. It is *kashay madhur rasatmak.* Uses-

Raktapittahar, Kapha nissarak, Trishnahara.

- *Guda Sharkara*- It is made from *Guda*. Uses- *Shukravardhak, Raktapittahara, Jwarhara.*
- *Yavasa Sharkara*- It is made from decoction of *Durlabha(yavasa)*. It is *kashay madhur rasatmak.* Uses- *Raktavikar nashak, Jwarhara, Swedajanan.*
- *Tavaraj Sharkara*- Uses- *Dahahar, Kaphaghna, Shramhar.*
- *Poundraj Sharkara*- Uses- *Shukravardhak, Shramhara.*
- *Pushpasita*- It is made from flowers. Uses- Raktapittahar.

2.1.v.SOP of *Sharkara Kalpana*

अàभेèयçटग¸णे िनहाय च िनिश दåय सं क्ïÖटतं Ĥभाते क्ृशान¸ना पचेदÍटांशशेषं न्येत् I

तत् संगाãय पैक्ष्ु: पलिसतां िनि¢Üय भूय: पचेदयाRqöत¸भRो अēताय[तÖददĤोह¸ब[¸धा: शाक[रं II

[िसदध भेषज् मिणमाला][9]

Ingredients	Quantity
Raw drugs	*1 pala*
Water	*8 pala*
Sharkara	*4 pala*
Kalpana	*Hima/Kwath*

Churna of Raw drug

↓

8 times water is added and soaked overnight

↓

Next day it is heated mildly and reduced 1/8th of its total volume

↓

Filter the mixture and in that filtrate four times sugar is added

↓

Boiled over mild fire until liquid attains thread like consistency Dose- Half to One *pala*

Shelf life – One year

2.2. Syrup

Three traditional liquid dosage forms are used to administer pharmacological agents via the oral route. They are solutions, suspensions, and emulsions. Solutions used for the delivery of oral medications commonly fall into two subcategories, based on the solution components: elixirs and syrups.

2.2.i. Definition[10]

Syrups are concentrated, viscous, aqueous solution of sugar or a sugar substitute with or without flavours and medical substances.

2.2.ii. Different Types of Syrups[11,12]

- Simple Syrup – Syrup which is prepared by only using sucrose where its concentration will be 85% alongwith certain polyols like glycerin, sorbitol to prevent early crystallization.
- Medicated Syrup - Syrup which is prepared using sugar as base and medicinal drug as active ingredients.
- Flavoured Syrup – Flavoured Syrup contain various pleasant and aromatic flavoured substance. Some Syrups are not usually medicated.

2.2.iii. SOP of Syrup

Components[13]

A) Solvent

1. Water: Water is the most commonly used solvent in pharmaceutical preparations The compendial requirement for water used these preparations is Purified Water, USP. Purified water must meet requirements for total organic carbon and conductivity.
2. Alcohol: The other common solvent used in oral liquid dosage forms is alcohol. In pharmacy, the term alcohol refers to ethyl alcohol (ethanol) only. For patients under 6 years of age, the recommended alcohol limit is 0.5%, for patients 6 to 12 years of age, the recommended limit is 5%, and for children older than 12 years and adults, the recommended limit is 10%.
3. Glycerin: Glycerin USP is a clear, colorless, viscous liquid. It has humectant and preservative properties. It is used in both internal and external preparations. t is used in both internal and external products.
4. Propylene glycol: Propylene glycol USP is a clear, colorless, viscous liquid.t is used in

both internal and external products. It is being used more often in modern formulations, possibly replacing glycerin.

B) Antioxidants are chemical compounds that inhibit oxidation. Antioxidants for products intended for administration via the oral route include ascorbic acid potassium and sodium metabisulfite, ascorbyl palmitate, butylated hydr butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT), and alpha-tocopherol.

C) Buffers: Many pharmacologic agents are either weak acids or weakbases. Their solubility in solution depends on their ionic state. To maintain the drugs in the solution state, buffers are sometimes use to control the pH and therefore keep the ionic state constant.

D) Flavours, Colours and Sweetening agents: Flavors are used to make products more palatable. The flavoring agent must be compatible with the formulation ingredients and not adversely affect product stability. Colourants are generally used to enhance the presentation of syrup. Sweeteners are used to help mask the taste of the drug in a solution. The sweetener may also contribute to an increase in viscosity of the solution or the suspension. Sucrose is the sugar most frequently used in syrups but in certain circumstances it may be replaced as whole or partly by other substitutes of sugars. Proportion of sugar in syrups are usually from 65% to 85%.

2.2.iv. Preparation of Syrup

Syrups are most frequently prepared by four techniques:[14]

- Solution with aid of heat

In this method sugar is generally added to distilled water and heated until sugar dissolves. Then other heat stable components are added in hot sugar syrup and mixture is allowed to cool.

- **Solution without aid of heat**

In this process sugar or it's substitutes along with other formulation agents are dissolved in purified water permitting agitation of mixture. In large scale preparation huge glass lined or stainless steel tanks with mechanical stirrers are used.

- **Addition of sucrose to medicated liquid**

In this method sucrose as base is added in a medicated liquid like tincture or fluid extract

which also contains alcohol soluble constituents that is prepared with alcoholic or hydro-alcoholic vehicles.

- **Percolation**

In this method either sucrose may be percolated or source of medicinal component may be percolated to form an extractive.

2.2.v. Merits of Syrup

- Syrups provide better compliance for patients having swallowing difficulty.
- Syrups offer greater flexibility in dosage adjustment making it easier for paediatric and geriatric population.[15]
- Pleasant taste of syrup makes it a drug dose of choice for children.
- Syrups offer less disintegration time making it easily absorbable by the body.

3 DISCUSSION

Sharkara Kalpana, a sugar-based formulation in *Ayurveda*, demonstrates the profound understanding of preservative and therapeutic uses of sugar. Known as *Sharkara* in *Ayurveda*, sugar has been incorporated in medicinal preparations for centuries to enhance stability, palatability, and therapeutic efficacy. *Sharkara Kalpana's* preparation process is guided by ratios and techniques recommended in classical texts, including those by Acharya Krishna Ram Bhatt and Acharya Yadavji Trikamji. Both recommend adding sugar to herbal formulations, yet differ in ratios, with Acharya Yadavji suggesting a 1:2 ratio and Acharya Ram Bhatt a 1:4 ratio. These variations are significant: the higher sugar content in the 1:4 ratio contributes to a sweeter taste and longer shelf life, while the 1:2 ratio offers a balance between taste and potency, highlighting Ayurveda's adaptive methodologies in medicinal formulation. The preparation process in *Sharkara Kalpana* involves boiling, filtering, and concentrating the decoction with sugar, steps aimed at increasing bioavailability and shelf stability. This principle is mirrored in modern syrup formulations, where sucrose is often used to create a stable, sweet-tasting, and easily administered liquid medium. This similarity demonstrates *Sharkara Kalpana's* potential to offer natural, effective alternatives to synthetic syrups, making it highly relevant in today's health practices.

4 CONCLUSION

Sharkara Kalpana is a significant *Ayurvedic* formulation that exemplifies the traditional use of sugar to enhance both the therapeutic efficacy and shelf life of herbal medicines. The

exploration of sugar-based formulations in *Ayurveda*, approach resonates with the principles of modern syrup formulations, where sugar acts as a preservative and vehicle for active ingredients, especially in pediatric and geriatric care. Integrating these principles into contemporary medicine can offer valuable, patient-friendly alternatives to syrups. Future research into natural preservatives or sugar substitutes could expand the applicability of *Sharkara Kalpana,* making it more accessible to individuals with dietary restrictions. In essence, *Sharkara Kalpana* represents a timeless and adaptable approach to herbal medicine, one that bridges the gap between ancient wisdom and modern pharmaceutical practice.

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