

A REVIEW ON MODIFIED DOSAGE FORMS OF AVALEHA KALPANA- A PHARMACEUTICAL AND THERAPEUTIC INNOVATIONS

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ABSTRACT

Avaleha Kalpana is a traditional semisolid Ayurvedic dosage form widely recognized for its therapeutic efficacy, palatability, and ease of administration. Rooted in classical Ayurvedic texts, Avalehas are prepared by combining herbal decoctions with sweetening agents like jaggery, sugar, or honey, along with ghee or oil, to achieve a desirable consistency known as Leha. This formulation is especially useful in chronic conditions such as respiratory disorders, general debility, and as a Rasayana. With the growing demand for patient-friendly, stable, and standardized dosage forms, Avaleha has undergone significant modifications in modern pharmaceutical practice. These innovations have led to the development of alternative forms such as granules, syrups, elixirs, linctus, confections, and gummies. These modified forms retain the therapeutic essence of classical Avaleha while improving palatability, portability, shelf-life, and patient compliance, especially in pediatric and

geriatric care. This review explores the classical foundation of Avaleha Kalpana and its transformation into modern equivalents. It highlights the pharmaceutical rationale, method of preparation, and clinical advantages of these contemporary forms, emphasizing their relevance in integrative and global Ayurveda. The study further underlines the importance of standardization, industrial scalability, and regulatory support to make these modified dosage

forms more acceptable in modern healthcare systems.

KEYWORDS: Avaleha Kalpana, Modified Dosage Forms, Syrups, Gummies, Granules, Ayurveda, Palatability, Stability.

1. INTRODUCTION

Avaleha Kalpana, also known as Leha, is one of the most important Upakalpanas (secondary formulations) of Kashaya Kalpana (decoction-based preparations) in Ayurvedic pharmaceutics. It is a semi-solid preparation made by processing decoctions (Kashayas) or other liquid media with sweetening agents such as Guda (jaggery), Sharkara (sugar), and Madhu (honey), along with Sneha Dravyas (ghee or oils). The formulation is subjected to moderate heat until it attains classical Siddha Lakshanas (confirmatory signs) such as proper consistency, color, and string formation.^[1,2]

Avaleha is especially appreciated for its Rasayana (rejuvenative), Brimhana (nutritional), and Balya (strength-promoting) properties. It is indicated in a wide range of conditions, particularly Kasa (cough), Shwasa (asthma), Rajayakshma (tuberculosis), Prameha (diabetes), and general debility. Due to its palatable taste, easy digestibility, and nutritive value, Avaleha is often preferred for children, elderly, and chronic disease management.^[3]

Classical Ayurvedic texts such as Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya elaborate extensively on various Avaleha formulations like Chyawanprasha, Kantakari Avaleha, Kushmanda Avaleha, and Haritaki Avaleha, highlighting their specific indications and therapeutic benefits.

In the modern context, Avaleha Kalpana has gained popularity not only in India but also internationally, being recognized as both a herbal medicinal product and a nutritional supplement. Its acceptability has been further enhanced through pharmaceutical innovations like granule forms, lozenges, and sugar-free versions, which preserve the core Ayurvedic principles while improving shelf life, portability, and patient compliance.^[4]

Thus, Avaleha represents a perfect blend of classical wisdom and modern adaptation, offering holistic support in preventive and curative healthcare.

Etymology

Preparation which is in semisolid forms neither too thick nor thin and which can be licked is

called ‘Leha’. Word Avaleha is derived from ‘Lih Dhatu’ and ‘Aswadane Kriya’1.

Definition

(*Sharangadhara Samhita, Madhyama Khanda, 6/2*)

(*Charaka Samhita, Kalpa Sthana, 1/5 — Commentary reference*)

According to Acharya Sharangadhara,^[5] decoctions etc. preparations are heated further to obtain Avaleha and Rasakriyawhich are in thicker consistency. According to Acharya Charaka3, Preparations which are made by heating sugar syrup etc. sweet substances up to a specific proportion and are consumable by licking is called ‘Leha’.

Synonym

Various synonyms are given according to the consistency^[6] such as,

- *Lehya*
- *Leha*
- *Avaleha*
- *Rasakriya*
- *Ghana etc.*

IMPORTANCE OF AVALEHA KALPANA^[7]

1. The Avaleha Kalpana has more shelf life period (or more stability) than that of Panchavidha Kashaya Kalpana.
2. It has got more palatability, because it contains sweetening agents and therefore can be easily taken by child as well as adult.
3. Some of the Ayurvedic medicaments like Asava or Arista due to their Tikshna, Laghu property cannot be taken for longer period but Avaleha has no harmful effect even though taken for longer duration.
4. Avaleha Kalpana contains Madhura Dravya and Sneha Dravyas, these both works as preventatives and increase the shelf-life.
5. Avaleha Kalpana can be used in diseased state as well as in healthy person as Vajikaran and Rasayana. Many Acharyas have prescribed Chayavanprashavaleha, Branya Rasayana

etc. that shows some apoptogenic effects in patients.

INGREDIENTS OF AVALEHA^[8-12]

The component drugs which are used for the preparation of *Avaleha* can be classified as:

1. *Drava Dravya*
 - Asneha Pradhana e.g. *Kwath* (decoction), *Swarasa* (juice) milk etc.
 - *Sneha Pradhana* e.g. *Ghee, Taila* etc.
2. *Madhura Dravya*
 - Sugar, Sugar candy, jaggery and honey etc.
3. *Aushada dravyas*
4. *Prakshapa Dravya*
 - Common drugs - *Kashthaushadhi* (Herbal drugs) e.g. *Trikatu* etc.
 - Uncommon drugs - *Rasaushadhi* (metallic preparations) e.g. *Bhasma*.

General Method of Preparation of Avaleha Kalpana Preparation Setup.

Before beginning the preparation of Avaleha (Lehya) Kalpana, the following equipment and materials should be arranged.

- Wide stainless-steel vessel
- Spatula for stirring
- Fine sieves
- Fire source or heating system
- Filtering cloth (double-layered)
- Essential raw drugs

In large-scale manufacturing units, advanced equipment such as super-heated steam jacketed vessels (for heating), electric mixing machines (for stirring), and mechanical sifters (for sieving) are employed for efficiency and consistency.

Step-by-Step Preparation Process

1. Preparation of the Liquid Base: Prepare the required liquid medium such as juice (*Swarasa*) or decoction (*Kashaya*).
2. Addition of Sweetening Agents: Add the prescribed sweeteners like jaggery (*Guda*), sugar candy (*Khanda Sharkara*), or sugar (*Sharkara*) to the liquid. Heat gently while stirring continuously to dissolve the sweetening agents uniformly.
3. Filtration: Filter the sweetened mixture using a double-layered cloth to remove any

physical impurities.

4. Boiling to Desired Consistency: Reheat the filtered mixture and continue boiling until it reaches the required thickness, typically indicated by 2–3 thread consistency—this stage is known as *Paka Lakshana*.
5. Addition of Ghee or Oil (if applicable): Incorporate ghee or oil into the mixture just before it reaches the final *Paka Lakshana* stage.
6. Incorporation of Prakshepa Choorna: Once the desired consistency is achieved, remove the vessel from heat. Gradually add fine powdered medicinal ingredients (*Prakshepa Choorna*) while stirring continuously to ensure uniform blending.
7. Addition of Honey (if specified): Allow the mixture to cool slightly. If honey is mentioned in the formulation, add it at this stage and mix thoroughly.

Table 1: The confirmatory tests of Lehya Kalpana.

Signs before attaining Paka (Asannapaka)	Signs after attainment of Paka {Sidha Lakshana}
Thread like appearance when pressed and released between fingers (Tantumatra)	Imparts fingerprint when pressed between two fingers (Peeditomudra)
Sinks in water (Apsu Majjana)	Formation of proper odour, colour and taste (Gandha Varna Rasodbhava)
Proper consistency and hardness (Sthiratva)	Soft to press (Sukhamarda)
Sticking to the spatula (Darvi Pralepa)	Soft to touch (Sukhasparsha)
When put on water doesn't floats (Kshipto Na Plavate)	
When put on water, sinks and adhere in bottom (Kshiptastu Nishchala)	

Table 2: Dose, Adjuvants, Shelf life and Time of administration of Avaleha Kalpana in general.

Dose (Matra)	One Karsha to one Pala, according to Roga-Rogi Bala ^[13]
Adjuvants (Anupana)	Milk, Sugarcane juice, decoctions, water or other liquid medications ^[14]
Shelf-life (Saveeryatavadhi)	One year ^[15]
Time of administration (Sevanakala)	For Urdhwa Jatrugata Roga—At evening time with suitable Anupana For Adhobhaga Roga—Before food ^[16]

DIFFERENT DOSAGE FORMS INCLUDED UNDER AVALEHA KALPANA

a) Rasakriya



The term ‘Rasakriya’ is attributed with multifold meanings. It is an individual dosage form as well as represents synonym for Avaleha. Other synonyms are Ghanasatwa, Ghanavati and Avaleha.

Definition

According to Acharya Sharangadhara¹⁰, Rasakriya is the one which is obtained by further heating of decoction etc. preparations into a thicker form.

Confirmatory Tests for Rasakriya

To ensure the proper preparation and quality of Rasakriya, the following confirmatory tests are considered.

- **Potency Retention on Dilution:** Diluting Rasakriya with water should not significantly reduce its therapeutic potency or efficacy.
- **Wick Formation Test:** When a small amount of Rasakriya is rolled between the fingers, it should form a firm, wick-like shape (*vartīkāra*), indicating the ideal semi-solid consistency.

General Method of Preparation of Rasakriya^[17]

According to Acharya Dalhana on Susruta commentary

- Rasakriya is correlated with 'Phanita' and is commonly called as 'Kakavi'.
- Rasakriya is prepared by boiling one part of drug with 8 or 16 parts of water in mild fire and is reduced till 1/8th or 1/16th part of liquid remains.
- Filtered using a clean dry cloth and is further boiled and reduced until it attains thicker consistency as that of Phanita.

b) Phanita

- According to **Acharya Bhavamishra**, *Phanita* is a concentrated preparation obtained by heating fresh juice or decoction with a prescribed amount of sugar until it reaches a honey-like consistency.
- Another variety is prepared by boiling filtered sugarcane juice in an iron vessel to the same consistency, and is traditionally stored in an earthen pot.
- As per **Acharya Sushruta**, *Phanita* is sweet in taste, heavy to digest, sticky, nourishing,

non-aphrodisiac, and known to aggravate all three *Doshas*.

c) Khanda (Granular Preparations)

- *Khanda* or *Khandaka* refers to granular formulations derived by slightly extending the heating process beyond the *Avaleha Paka* stage. The term “Khanda” signifies a fragment or piece, indicating the characteristic granular texture of the product.
- The ingredients, proportions, and overall preparation method are similar to that of *Avaleha Kalpana*. However, during Khanda preparation, the sweet syrup is heated further until it reaches a **three to four-thread consistency**, enabling the formation of granules upon cooling.

Advantages of khanda Kalpana

- Long shelf-life as it contains less moisture content. So the chances.
- of fungal infestations are less. Moreover, it is more convenient.
- for packing, storage, dosage fixation and also has better.
- palatability.

d) Sharkara (Syrups)

- *Sharkara Kalpana* is not directly mentioned in classical Ayurvedic texts. This dosage form was introduced into Ayurvedic pharmaceutics by **Acharya Yadavji Trikamji** in the 20th century.
- It involves the preparation of a **sucrose-based syrup** by saturating or concentrating a sugar solution until it reaches a **syrupy consistency**, typically containing **66.7% sugar concentration** to ensure stability and preservation.

General method of preparation

- According to Acharya Yadavji Trikamji; To the preparation like.
- Hima, Phanta, Arka or Kwatha double quantity of sugar is added.
- and boiled over mild fire till it attains honey like consistency.
- Confirmation is done by observing one to two thread.
- consistencies. Later it is filtered and stored in dry, clean.
- containers.

e) Gudapaka

Gudapaka refers to preparations where **Guda** (jaggery) is used as the primary ingredient

and binding agent. Guda possesses excellent binding properties along with notable nutritional benefits.

There are two types of *Guda Kalpana* based on the method of preparation.

- **Agni Siddha** – Involves processing with heat.
- **Anagni Siddha** – Prepared without heating; medicinal substances (*Oushadha Dravyas*) are pounded and thoroughly mixed with Guda.

Table 3: Dose, Adjuvants and Shelf-life of different dosage forms.

Dosage form	Dose	Adjuvants	Shelf-life	Examples
Rasakriya	1 Pala (48 g) 1 Karsha (12 g)	Cow's milk, decoctions, other medicated liquid preparations	1 year	Guduchighana, Darvirasakriya Babbularasakriya
Phanita	same as that of Avaleha	same as that of Avaleha	same as that of Avaleha	Ikshu Phanita Draksha Phanita
Khanda Kalpana	1 Karsha(12 g)	Cow's milk, water, other medicated liquid preparations	1 year	Haridra khanda Triphala khanda
Sharkara Kalpana	1 Pala (48 g)	Cow's milk, water, other medicated liquid preparations	1 year	Vanapsa Sharkara, Parusaka Sharkara, Tulasi Arka Sharkara, Ajamodarkasharkara
Gudapaka Kalpana	1 Karsha (12 g)	Cow's milk, decoctions, other medicated liquid preparations	1 year	Draksha Gudapaka Pippali Gudapaka

3. Modified Dosage Forms of Avaleha Kalpana

According to modern pharmaceutics, Avaleha can be correlated with Syrups, elixirs, linctus and confections.

- Syrups:** Concentrated sugar solution or sucrose is dissolved in water or other liquid media to obtain syrups. Concentration of sugar will be 66.7% in this medium. Syrups are used for masking disagreeable taste of ingredient drugs, also as flavors or vehicle for other medicinal preparations.^[18]
- Elixirs:** Elixirs are sweet, pleasantly flavored sweet hydroalcoholic liquid preparations which are administered orally. 5-40% Ethyl alcohol is the main ingredient of elixirs and it may also contain glycerin, sorbitol, propylene glycol, sugar, other preservatives etc.^[19]
- Linctus:** Linctus are sweet, viscous liquid medicinal preparations commonly having sedative, demulcent or expectorant properties. Majority of cough syrups constitute this form that gives smoothening effect for mucous membrane of throat.^[20]

d. **Confections:** Confections consists of a drug mixed with honey or syrup. It may be used as an excipient for pill masses also. They are soft solid mass, which contains one or more medicinal components so as their palatability and easy usage will be enhanced.^[21]

e. **Gummies-** Gummies can be defined as an innovative transformation of Avaleha Kalpana into a solid, chewable form by preserving its therapeutic principles while enhancing palatability, portability, and shelf life through modern pharmaceutical techniques.²²

Dosage Form	Definition	Key Ingredients	Form & Consistency	Uses / Benefits
Syrups	Concentrated sugar solutions prepared by dissolving sucrose in water or other liquid media.	Sugar (66.7%), water, flavors	Liquid, viscous	Masks unpleasant taste, acts as vehicle
Elixirs	Sweet, flavored hydroalcoholic oral liquid preparations.	5–40% ethyl alcohol, sugar, glycerin, sorbitol	Clear, sweet liquid	Enhances solubility and palatability of actives
Linctus	Sweet, viscous liquids with sedative or expectorant action.	Sugar/syrup, herbal actives	Thick, sticky liquid	Soothes throat, relieves cough
Confections	Drugs mixed with syrup or honey to form a soft solid mass.	Medicinal powders, honey/syrup	Semi-solid or soft solid	Enhances palatability and compliance
Gummies	Chewable solid form derived from Avaleha with enhanced taste and shelf life.	Herbal actives, gelatin/pectin, sweeteners	Soft, jelly-like solid	Convenient, palatable, child-friendly

Quality and Shelf-Life Improvements

Studies comparing classical Avaleha and its modified forms (e.g., Kantakari Avaleha vs. granules) show.

- Improved microbial stability
- Better physicochemical consistency
- Extended shelf-life (18–24 months to 36+ months in some cases)

Pharmaceutical and Clinical Implications Acceptability

Modified forms show higher **patient compliance**, especially among.

- Children (due to taste and ease of intake)
- Working adults (due to portability)
- Diabetics (with sugar-free versions)

Standardization

- Dosage can be accurately calibrated
- Batch-to-batch consistency is improved
- Enables GMP and industrial scalability

6. CONCLUSION

Avaleha Kalpana, a cornerstone of Ayurvedic pharmaceutics, is undergoing significant innovation to meet the expectations of modern patients and healthcare systems. **Granules, lozenges, and syrup forms** represent effective modifications that maintain the classical integrity of Avaleha while enhancing usability, stability, and dosage accuracy. Continued research, regulatory support, and industrial adaptation are essential to promote these formats for **global Ayurveda acceptance**.

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