

AVALEHA KALPANA (MEDICATED SEMISOLID PREPARATION) : AN SYNOPTIC OVERVIEW

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ABSTRACT:

In *Ayurveda*, *Rasa shastra* & *Bhaishajya Kalpana* is deal with the formulations which is prepared by using herbal, metal, mineral and animal origin substances. *Avaleha Kalpana* (medicated semisolid preparation) are the most common secondary dosage form prepared with the addition of jaggery, sugar or sugar candy and boiled it with prescribed drug *swaras* (juice) or *kwath* (decoction). It is used as rejuvenator by *Acharya Charak*, *Sushrut* and *Vagbhat*. It is gaining popularity day by day just due to its easy administration, palatability along with a long shelf life. The oral trans-mucosal route has always significant and potential for drug delivery both systemically and locally. *Avaleha* forms can be compared with confection or electuaries conserves of British Pharmacopeia. Confection form means a way of administering relatively large quantities of insoluble powders in a palatable guise by making them into paste with sugar, syrup and honey. This article reviewed the concept of *Avaleha Kalpana* (medicated semisolid preparation) in the *Ayurvedic* literatures, journals, The *Ayurvedic* Formulary of India, The *Ayurvedic* Pharmacopeia of India etc.

Keywords: *Ayurveda*, *Avaleha Kalpana*

INTRODUCTION:

Avaleha or *Leha* is a semi solid dosage form of *Ayurvedic* pharmaceuticals intended for internal administration [1]. It is prepared by addition of jaggery, sugar or sugar candy and boiled with prescribed drug decoction or drug juice etc. liquids. It can be consumed along with some adjuvant [2]. According to *Acharya Sharangdhara* the solid mass obtained by evaporating moisture content of aqueous solution (*Swarasa*, *Kwath*, *Hima* and *Phanta*) is known as *avaleha* or *leha* and the process is known as *Rasakriya* [3].

The word *Avaleha* has been coined from '*lih-aswadane*'. *Leha* comes under four categories of food items i.e. *Peya*, *Leha*, *Bhaksya* and *Chavya*. Amongst them *Leha* is taken by licking with good palatability. Metabolism and absorption of *Avaleha* starts from the mouth itself due to the presence of good amount of sweetening agents like glucose, fructose etc [4]. *Avaleha* can be measured as an *Upakalpana* of *Kwatha* since *Acharya Sharangdhara* had given great importance to *Kwath* in his scriptures [3]. In present era, *Avaleha* is gaining rapid importance because of its good compatibility and dietetic value [5].

SYNONYMS OF AVALEHA [6, 7]:

Leha, *Prasha*, *Khanda* and *Modaka* are some of the terms which can be considered as synonyms of *Avaleha*. All these terms are named so, according to the degree of thickness of sugar solution [8].

Leha is taken by licking, while *Prasha*, *Khanda* and *Modaka* requires mastication [3].

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*, *Branha Rasayana* etc. that shows some apoptogenic effects in patients.

HISTORICAL REVIEW OF AVALEHA KALPANA:

Avaleha Kalpana has been described in many classical texts.

Vedic Period:

Avaleha Kalpana has been used since ancient time. *Avaleha Kalpana* is available in *Vedic* period as "*Haviprasha Kalapana*" [2, 4].

Charaka Samhita [6, 7]:

Avaleha Kalpana is available in various *sthanas* of *Charak Samhita* which are as follows:

- *Sutra Sthana* - *Snehavicharana*
- *Sharira Sthana* - *Shishuprashan Vidhi*
- *Chikitsa Sthana* - *Rasayana* and *Vyadhi Pratighata Chikitsa*
- *Kalpa Sthana* - 60 *yogas* are described
- *Siddhi Sthana* - Utility of *avaleha* in *Panchakarma*

Sushruta Samhita [9]:

In *Sushruta Samhita*, *Avaleha Kalpana* is mentioned in various *Sthanas* such as *Sutra Sthana*, *Sharira Sthana*, *Chikitsa Sthana*, *Kalpa Sthana* and *Uttar Sthana*.

Astanga Hridaya [10]:

Avaleha Kalpana has been described in certain *Stahanas* of *Astanga Hridaya*, these are *Sutra Sthana*, *Sharira Sthana*, *Kalpa Sthana*, *Chikitsa Sthana* and *Uttartantra*.

In *Astanga Hridaya*, *Avaleha Kalpana* has been described for some diseases like *kapharoga*, *Garbha Vyapat*, *Rakta-Pitta*, *Tridoshaja Kasa*, *Swasa*, *Hikka*, *Arsha* etc. The preparation of *Avaleha* along with *Siddhi Lakshana* has been described here.

Sharangadhara Samhita [3]:

Avaleha Kalpana has been described in *Madhyama Khanda* and *Uttar Khanda* of *Sharangadhara Samhita*.

Madhyama khanda:

The detailed description about *Avaleha Kalpana* is described in 8th Chapter. It contains definition, method of preparation, indication, dose, preservation and storage of *Avaleha Kalpana*. The indications of *Avaleha* according to *Acharya Sharangadhara* are *Swasa*, *Kasa*, *Hikka*, *Urograha*, *Jwara*, *Raktapitta* etc.

Uttar Khanda:

The *Avaleha* has been indicated for many diseases such as *Netravikara*, *Timira*, *Arsha*, *Akshidaha*, *Raktabhishyanda* etc.

Bhava Prakasha [8]:

Purva khanda:

It contains description of method of preparation and tests for perfectness.

Uttar khanda:

Here, various indications in which *Avaleha* is prescribed has been mentioned.

Avaleha Kalpana has been described in some other texts also, such as *Yog Ratnakar*, *Chikitsa Pradeep*, *Bhaishajya Ratnavali* etc.

CLASSIFICATION OF AVALEHA KALPANA [11, 12]:

Depending upon the consistency, it is divided into 4 groups.

- | | |
|-------------------|---------------------|
| 1. Phanita | 2. Rasakriya |
| 3. Avaleha | 4. Ghana |

Type	Liquidity	Solidity
<i>Phanita</i>	++++	+
<i>Rasakriya</i>	+++	++
<i>Avaleha</i>	++	+++
<i>Ghana</i>	+	++++

These solidity and liquidity show mainly following points:

- Viscosity
- Concentration of sweet substances
- Percentage of solid substances

Rasakriya and *Ghana* are concentrated forms obtained from aqueous solutions. Whereas *Avaleha*, *Khanda*, *Modaka* are the concentrated forms of aqueous solutions and sweet substances [13].

Avaleha is classified in two types according to its method of preparation [14].

1. The *kwath* (decoction) or *swaras* (juice) of the drugs are mixed with sugar or *guda* (jaggery) and continuously heated until *paka siddhi lakshana* i.e. upto thick *lehya* form and then *prakshepa dravyas* are added e.g. *Vasavaleha*.
2. Sugar or *Guda* (jaggery) is mixed in water and syrupy mass is prepared by heating until it forms thread like extensions when pressed and drawn between thumb and index finger. Then, the major drugs are added into this syrupy mass and heat is applied upto *paka siddhi lakshana* and at last *prakshepa dravyas* are added eg. *Chyavanprashavaleha*.

PREPARATION OF AVALEHA [11-15]:

Equipment's required:

- A wide mouthed stainless-steel vessel or a similar vessel made of other metals, tinned inside.
- Strong spatula for mixing the ingredients during preparation.
- Fine sieve or fine cloth.
- For preparing these types of medicines in large scale in *Ayurvedic* pharmacies, the heating is carried out by superheated steam jacketed vessels and for the same mixing is done by electrically operated mixing machines / electrical mixer, sieving is done by mechanical sifters and duplex filters can be used for filtration.

INGREDIENTS OF AVALEHA [3, 11-15]:

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*.

1. *Drava Dravya (Liquid media /vehicles)*

(i) *Asneha Pradhana (Aqueous media)* :

Commonly *Kwatha* (decoction) and *Swarasa* (juice) are used as liquid media in preparation of *Avaleha*, but sometimes cow milk, cow urine is also used.

According to *Acharya Sharangadhara* milk, cane juice, decoction of grains (*Yusha*), decoction of *panchamulas*, *vasa* etc. are good vehicles.

(ii) *Sneha Pradhana (Fatty media)* :

The commonly used *Sneha dravyas* for the preparation of *Avaleha* are *ghrita* and *taila*, they also provides softness to *Leha* and act as preservatives.

The use of specific *Sneha Dravya* or combination of *Sneha Dravya* in preparation of *Avaleha* is based on the *doshas* involved in different diseases.

(2) **Madhura Dravya (Sweetening Agents):**

Various sweetening substance are used in *Avaleha Kalpana*. These sweetening substances imparts different properties in *Avaleha* viz.

- Sugar (mono or disaccharides) chemically binds with water, thus making it unavailable to organism. Due to this mechanism, the shelf life of the formulation increases.
- The palatability of the medicament increases due to their sweet property.
- They provides instant energy, because they are carbohydrate in nature.

According to the treatment of *doshas*, the *madhura dravyas* which are used in preparation of *Avaleha* are different for different formulations.

Ex.	Dosha	Madhura Dravya
	Vata	Jaggery (<i>guda</i>)
	Pitta	Sugar, sugar candy (<i>sharkara</i>)
	Kapha	Honey (<i>madhu</i>)

If the quantity of any *dravyas* are not mentioned then the ratio which is used to prepare *avalaha* is

- If *sita* (sugar), it should be 4 parts.
- If *guda* (jaggery), it should be 2 parts.
- If any *drava dravya* (liquid), it should be 4 parts.
- If *churna* (powder), it should be 1 part.

(3) **Aushada dravyas –**

Powdered drugs having medicinal properties.

(4) **Prakshepa Dravya (condiments):**

"*Prakshepa*" word has been originated by the addition of "*Pra*" prefix to the "*Kshepita Prerne*" dhatu.

Prakshepa dravyas have their specific importance in *Avaleha Kalpana* because -

- They work as *deepana*, *pachana*, *ruchikara*, *rasayana* etc.
- They increase therapeutic efficacy of *Avaleha*.
- They enhance the properties of *Avaleha* and increases its bioavailability in our body.

***Prakshepa Dravyas* are of two types, such as,**

(i) *Samanya Prakshepa*

(ii) *Vishesha Prakshepa*

(i) *Samanya Prakshepa* :

Common drugs i.e. *Kashthaushadhi* (Herbal drugs) comes under the category of *Samanya Prakshepa* and are added into the *Avaelha* to serve different purposes. The drugs like *Sunthi*, *Maricha*, *Pippali*, work as *deepana*, *pachana dravya*. They make the *Avaleha* easily digestible, though it contains *sugar* or *guda* like *madhura dravya* and *ghee*, oil like *sneha dravya*.

Some drugs like *Amalaki*, *Haritaki* etc. have *Rasayana* property, due to which they impart strength to the body. Some drugs like *Twak*, *Ela*, *Patra*, *Nagkesar*, *Kasturi* etc. have well odour therefore they act as *Ruchikara*.

(ii) *Vishesha Prakshepa* :

These are the uncommon drugs i.e. metallic preparations (*Rasaushadhi*) and honey and they are not added frequently in all *Avaleha*.

When metals are mentioned, the *Bhasmas* of those metals are used e.g. *Lauha Bhasma* in *Vidangavaleha* etc. If honey is mentioned it should be added after complete cooling of *avaleha*, because it gets decomposed above 70°C.

According to *Charaka Samhita*, honey is very useful and beneficial to human, but, if it is taken with equal amount of *ghrita* or is taken in hot condition, it is very harmful.

ADDITION OF PRAKSHEPA DRAVYA [11-15]:

There are mainly two views available in different *Ayurvedic* texts for the addition of *Prakshepa Dravya* in *Avaleha*.

As per official method i.e. The *Ayurvedic* formulary of India, the fine powder of *Prakshepa Dravya* should be added in small quantity and stirred continuously to form a homogenous mixture, after removing the vessel from fire.

According to *Vaidya Yoga Ratnavali* and *Andhra Pradesh Pharmacopoeia*, the powdered *Prakshepa Dravya* has to be added after *Paka Siddhi Lakshana* while heating at low temperature for a short period.

This means that, if a particular formulation contains more quantity of powdered drugs, then these are to be added little by little while heating at *mandagni*. If the quantity of powdered drugs is less, then it can be mixed after removing vessel from fire.

Generally, the powdered *Prakshepa dravya* are mixed after taking the vessel away from fire. The reason is that, most of the drugs of *Prakshepa Dravya* contains volatile oil, which may evaporated at high temperature.

The clear reference for the addition of *Prakshepa Dravya* is available in *Gada Nigraha* [16], part 1, 5th chapter (*Lehadhikara*).

1. PURVA KARMA :

- (i) If *Leha* is to be prepare from *Swarasa*, then for this purpose fresh drug should be used.
- (ii) If *Leha* is to be prepare from *Kwath*, then coarse powder (*Yavakutta Churna*) of dry drugs should be used to prepare *Kwatha*.
- (iii) Sometimes *Leha* is prepared from *Kalka* of prescribed *Dravya*, as in case care of *Vyaghri Haritaki Avaleha* and *Chyavanprashavaleha*

2. PRADHANA KARMA:

To this *Kwath* or *swarasa*, *jaggary* / sugar / sugar candy is added and mild to moderate heat is given with continuous stirring & constant temperature. When *Paka Siddhi Lakshna* is obtained, heating should be stopped.

3. PASHCHAT KARMA :

After getting *Paka Siddhi Lakshana*, *Prakshepa Dravya* are added into *Leha* with continuous stirring. When *Leha* gets cooled, then it should be filled in wide mouthed and properly cleaned container and sealed properly. Generally, glass containers or food graded plastic containers are used to preserve the *Avaleha*, proper labeling should be done on which date of preparation, name of preparation, dose etc. must be written.

PAKA LAKSHANAS OF AVALEHA [11-14, 16, 17]:

The *Paka Lakshanas* of *Avaleha* have been described by many *Acharyas* in their texts. The proper *avaleha* can be obtained after getting these *Lakshanas*. In other words, these are the completion tests for *Avaleha* preparation. Some scholars classify these *Lakshanas* into two groups.

1. *Asannapaka Laskhana*
2. *Paka Siddhi Lashana*

1. ASANNAPAKA LAKSHANA:

These are the signs which indicate that the *paka* is nearer to its completion. They are -

- (i) ***Darvi Pralepatvam*** : *Avaleha* sticksto the stirrer.
- (iii) ***Tantunatvam*** : *Avaleha* should come up as thread like if taken out in a rod.
- (iii) ***Apsumajjanam*** : When *avaleha* dropped in water, it should settle down without spreading. It should not dissolve in water also.
- (iv) ***Sthiratvam*** : The *avaleha* should remain stable on shaking of water
- (v) ***Patite Na Shiryatvam*** : It will not scatter after falling on the floor.

2. PAKA SIDDHA LAKSHANA / SUPAKVA PARIKSHA:

Paka Siddha Lakshana indicates the completion of *Paka* and then heat must be stopped.

This includes -

- (i) ***Pidite mudra*** : It gives finger prints, when pressed between fingers.
- (ii) ***Sukha marda*** : When *avaleha* is taken between fingers and rubbed, it should be soft and pills should be formed.
- (iii) ***Sukha sparsha*** : It should be soft to touch.
- (iv) ***Gandha Vama Rasobhava*** : it should possess good odour, colour and taste.

PRESERVATION AND STORAGE [6, 7, 11]:

Avaleha should be kept in wide mouth glass or porcelain container. It it can be kept in a metal or plastic container, which does not react with it. The *Avaleha* should be generally used within one year.

SAVIRYATA AVADHI (SHELF LIFE) [3, 4]:

1 year according to *Sharangdhara Samhita*.

3 years according to G.S.R. 789(E) dated 12th August, 2016.

MATRA (DOSE) [1-3]:

Generally, it is 6-12 g

Different *Acharyas* have different opinions regarding dose of *Avaleha* viz.

According to *Yadavji*, it is 1 *Karsha* (12 g), According to *Todarananda*, it is 2 *pala* (96 g), According to *Acharya Charaka*, when *Avaleha* is used for *Rasayana* purpose, then its dose should be adjusted in such a way that it does not interfere with the meal. According to disease condition, *Prakriti*, body strength age etc. dose of *Avaleha* can be altered.

ANUPANA (ADJUVANTS) [1-3]:

According to *Acharya Sharangadhara*, *Avaleha* can be administered along with milk, sugarcane juice, *yusha*, *panchamula kashaya*, *vasa kwath*.

Avaleha can also be taken with other liquid substances according to disease.

AVALEHA SEVANA KALA (TIME OF ADMINISTRATION) [1-3, 15]:

Avaleha can be administered at different time (*kala*) as per the disease or *dosha*. According to *Bhaishajya Ratnavali*, *avaleha* must be administer at night in *Urdhvajatrugata Roga*, because *kapha* gets elevated at night and produce or aggravates, the symptoms in *Kaphasthangata Urdhvajatrugata Roga*. *Avaleha* prescribed at night restrain the elevation of *Kapha* and reduce the symptoms. But, *avaleha* is administered before food in *adhobhaga roga*.

MODERN VIEW [18]:

Avaleha can be compared with confection or electuaries of B.P. Confections are no longer official. They are the means of administering relatively large quantities of insoluble powders in a palatable guise by making them into a paste with sugar, syrup or honey. Confection or electuaries were at one time a popular mode of administering remedies but have largely given place to preparation containing the active constituents of plants freed from inert cell tissue and other often objectionable matter.

Confections are defined as a very old form of administrating medicine but only a few are in active demand. They are in the form of soft paste and compounded with a sweet or mucilaginous liquid, so as to make them pleasant the taste. Similar form of administrating medicaments are converses or jams and electuaries.

Confections are prepared by both methods:

- (1) By heating with sugar solution.
- (2) By mixing with honey or sugar solution.

Avaleha confection is a semisolid dosage form, which has certain disadvantages like,

- Difficult to maintain dose accuracy.
- If not prepared or stored properly microbial growth can take place.
- It is difficult to carry as compared to tablet, capsule etc.

CONCLUSION:

Avaleha Kalpana is most important *Kalpana* since ancient time. Now a day's it is gaining popularity because of its easy mode of administration and palatability. It can be included under the aegis of nutraceuticals in *Ayurveda*, due to its medicinal properties as well as nutritional values. But it must not be compared with functional food or dietary supplement. The combination of medicinal drugs along with jaggery, sugar, honey,

ghee, oil, milk etc. are able to fulfill the all the needs of Nutraceutical. *Avaleha* might be comprises with proteins, carbohydrates, minerals, vitamins and fats along with pharmacologically active substances

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