



Applications Of Ayurvedic *Avaleha*: A Review Through Charak *Chikitsa Sthana*.

Shilpa Patil & Laxmi Narayan Gupta

Department of Rasa Shastra, Faculty of Ayurveda, Institute of Medical Sciences, Banaras Hindu University, Varanasi UP

Abstract:

Background: Charak Samhita is most important therapeutic treaty of Ayurvedic literature. It comprised of various dosages forms for the treatment of several diseases specially in *Chikitsasthana*. Out of these we have selected *Avaleha* because of its multiple therapeutic characteristics. It is one such dosage form of Ayurveda which is known for its palatability, stability, ease of administration and used as *Rogaghana* (to diminish disease) as well as *Rasayan*(rejuvenator). On virtue of its versatility *Avaleha* was described by the *Acharya* Charak throughout the *Chikitsasthana*. **Aim:** we are writing this review to explore key role of various *Avaleha* from its curative and preventive purposes and to critically analyse ingredients and their role, pharmaceutical procedures, dose, *Anupana* and mechanism of action by which *Avaleha* cures and prevent the disease or acts as rejuvenator. **Method:** Literary survey of *Charak Samhita* specifically its *Chikitsasthana* along with its commentaries was done and various research articles published in reputed journals were searched for the present review article. **Result:** After studying the *Avaleha* in *Charak Samhita* we found that various *Avaleha* are potentiated by many ingredients which acts synergistically as well as antagonistically to get holistic clinical effect. *Churna, Kalka, Swaras* may not be considered as *Avaleha* by simple mixing of honey as they do not fulfil the definition of *Avaleha*. Interestingly majority of *Avaleha* are indicated in upper respiratory tract infection (*kasa, shwas, hikka, swarbheda*) and as health promoter.

Key Words: *Avaleha*, *Charak Chikitsasthana*, *Kasa*, *Shwas*, *Rasayana*

Introduction: *Avaleha* is the semi- solid dosage form obtained by reheating of the liquid medicaments (*Kwath* –decoction, *Swaras*- self expressed juice etc.) with or without addition of sugars and flavoured with the condiments and used for both preventive and curative treatments..*Avaleha* is not mentioned in *Vedas* by the Name *Avaleha* but mentioned as *Karambha*. It is a kind of gruel generally offered to Pushan (a deity) to lick as he was not having teeth to masticate¹. In Samhita period no systematic description of *Avaleha* is observed. The term *Leha* first mentioned by *Charak* in context of *Sneha pravicharana*².

In *Charak Samhita*, any standard pharmaceutical method is not narrated as written in *Sharagdhar Samhita*. In *Charak* individual methods of preparation had been indicated as for *Chyavanaprash*. However, at some places well mixed powders of drug and *ghrita* or honey is also termed as *Leha* like *PippalyadiRasakriya* and *Krishnasarpavasadi Rasakriyas*. Which are mentioned for external application. *Sanskara* is a important process in such preparations and *Chyavanaprash* is such a example³⁻⁷. *Sidhi lakshan* (completion test of pharmaceutical preparation)of *Avaleha* is described in *Charak Samhita* in which emphasis was given on *Darvipralepa* It is one point of the completion of *paka*(cooking) quoted in preparation of *Kutajadi Rasakriya* and “*darvivilepana Ghattayet*”. Other completion test as *Tantumayattoyepatitam tu na shiryate* is mentioned in *Kalpasthanas*⁶and consistency of *Avaleha* is mentioned by the name of *Sanyav*.

All over the *Chikitsasthana* the word like *leha*, *lihyata*, *lidhva*, *prashayet*, *liho* etc are prefix or suffix in 37 formulations. Out of total 37 formulations, real *Avaleha* are 12 only which are prepared adopting principles of *Kwathadinam Punahpakat*⁸ and which are finally in semisolid or *Avaleha* like in consistency. The detail description of these is given in table no 1.

Table no 1: Showing *Avaleha* which fulfils the real definition of *Avaleha*⁹⁻²⁰

S.N.	Avaleha	Reference
1.	<i>Brahmarasayana</i>	Cha. Chi. 1/1/ 41-56 pp 17
2.	<i>Chyavanprash</i>	Cha. Chi. 1/1/59-69,pp 21
3.	<i>Dantiharitaki</i>	Cha. Chi. 5/155-160,pp 273.
4.	<i>Kansaharitaki</i>	Cha. Chi. 12/50-52, pp 451
5.	<i>Kutajadi Rasakriya</i>	Cha. Chi. 14/188-190,pp 539
6.	<i>Chitrakadi Leha</i>	Cha. Chi. 18/53-56 ,pp 649
7.	<i>Agastyaharitaki</i>	Cha. Chi. 18/57-62, pp 649.
8.	<i>Twagadi Leha</i>	Cha. Chi. 18/92-93, pp 654
9.	<i>Pippalyadi Leha 1</i>	Cha. Chi. 18/94 pp 654
10	<i>Pippalyadi Leha 2</i>	Cha. Chi. 18/135-136, pp 660
11.	<i>Haritaki Leha</i>	Cha. Chi. 18/168-169, pp 664
12	<i>Udumbaradi Leha</i>	Cha. Chi 26/98 pp 883

Cha. Chi- Charak Samhita Chikitsa sthana

Some variation in pharmaceuticals of formulations are noticed which are as under

In *Kshatakshina Chikitsa* (chapter 11)Charak has given 6 such formulations which are prepared by reheating of liquids but final form is not like *Avaleha*.

1. *Amritaprasha*- For the preparation of *Amritaprasha ghrita*, first step is to do *Ghritapaka* and by the end of the procedure addition of *Madhura dravya* and *Prakshepa dravya* finally leads it into the *Avaleha* form with more oleaginous consistency²¹.
2. Similar procedure is followed in *Pratham Sarpiguda*²².
3. In *Dwitiya Sarpiguda*, *Ghritapaka* is followed by addition of *Madhuradravya*, *Prakshepa dravya*, and flour so as to made into more solid form than in semisolid form which is the required consistency of *Avalehas*²³.
4. In *Tritiya Sarpiguda*, *Ghritapaka* is followed by addition of *Madhuradravya*, *Prakshepa dravya*, and after getting cooled it has been made into *Vati* form²⁴

5. Similar procedure is followed in *Chaturtha Sarpiguda* and *Pancham Sarpimodaka*.^{25,26}

These all are indicated in *Kasa, Shwas, Kshaya* which needs *Brimhana chikitsa* hence first *Ghratapaka* is indicated then lastly *Avaleha* or *Vati* form is there for quick oral absorption alongwith the *Sweeteners and Prakshepa Dravyas* for soothing effect and palatability of these basically *Ghritalakpanas*.

Preparation of *Khadiradi Gutika* indicated in *Mukharoga* described in 26th chapter follows the same procedure as that of *Avaleha paka* but withthe addition of various *churnas* this is again converted into *Vati* form²⁷.

Ksharagutika (Chapet 26) , first attains the *Avaleha* stage i.e. after heating of *Guda* ,*Churna* of ingredients is added later to convert it into *Gutika* form. Final form is *Gutika* so may not be considers as *Avaleha*²⁸.

Classification of Avaleha

On the basis of descriptions available in *Charaka Samhita* regarding *Avaleha Kalpa* we are trying to classify *Avaleha Kalpa* as under

A. On the basis of application of *Sneha Dravya*(Oleaginous substances)

Prepared with *Sneha* : *Brahma Rasayan Chyvanprash, Chitrakaharitaki, Agastyaharitaki*,^{9,10,14,15}

Prepared without *Sneha* : *Kansaharitaki, Kutajadi Rasa Kriya Chitrakadi Leha, Pippalyadi Leha-1, Haritaki leha, Udumbaradi Leha*^{12,13,14,17,19,20}

B. On the basis of application of *Madhur Dravya*(sweeteners)

With *Madhur Dravya* - *Brahma Rasayan ,Chyavanprash, ,Dantiharitaki, Kansaharitaki*^{9,10,11,12}

Without *Madhur Dravya*- *Kutajadi Rasakriya, Udumbaradi leha*^{13,20}

Various *Sneha* and *Madhur Dravya* which are used for preparation of *Avaleha* are tabulated in table no 2

C. *Patra*(Vessels) used for *Avaleha Paka*:

i) *Udumbar patra*(*Tamra patra*) - *Brahma Rasayana*⁹

ii) *Palash Patra*- *Dwitiya Amalakavaleha*²⁹

iii) *Mritapatra*- *Dwitiya Brahma rasayan*³⁰

D. On the basis of route of administration:

Oral route- *BrahmaRasayan, Chyavannprash, Kansaharitaki, Chitrakaharitaki, Twagadi Leha* etc..^{9,10,12,14,16}

Topical Route- *Vidalak of Rasakriya* for external application to eye.³¹

*Anjana of Pippalyadi Rasakriya and Krishnasarpadi Rasakriya*³²⁻³³

Shatavhadi Sanyav for Yonidharan(pessary)⁷

E. On the basis of therapeutic applicability

Rogaghna (as therapeutic agent)- for the treatment of *Kasa, Shwas, Hikka, Swarabheda, Rajyakshma, Shotha, Arsha Avaleha* like *Agastyaharitaki, Twagadi Avaleha , Pippalyadi Leha* first and second and *Haritaki Leha* are given.¹⁵⁻¹⁹

Rasayana (as rejuvenator) – for *Rasayan* purpose *Avaleha* like *Brahma RasayanaChyvanprasha* , are given⁹⁻¹⁰ .

Table no 2: Details of Avaleha described by Acharya Charak⁹⁻²⁰

S. N.	Name of the Avaleha	Madhura Dravya	Sneha Dravya	Matra	Anupana	Therapeutic Application
1.	<i>Brahmarasayana</i>	<i>Sitopala Madhu</i>	<i>Ghrita Taila</i>	accordin g to <i>matra</i> and <i>kala</i>	not given	<i>Vaikhanasa, Balakhilya,Nidra, tandra,Shwas, hara Rasayan, Ayushyakar,Smriti- Medha vardhak</i>
2.	<i>Chyanprasha</i>	<i>Matsyandika Madhu</i>	<i>Ghrita Taila</i>	no interfere nce with intake of food	not given	<i>Kasa, hwas, kshtahshin,Swarabhanga, Hridroga, Uroroga, Vatarakta Trishna, Medha Smriti vardhak, kanti vardhak, Ayu vardhak</i>
3.	<i>Dantiharitaki</i>	<i>Guda</i>	<i>Taila</i>	<i>1 pala</i>	not given	<i>Gulama, Shotha, Arsha,</i>

		<i>Madhu</i>				<i>Pandu, Kamala, Hridroga, Grahani, Kushtha, Visham jwara, Pleeha mainly it acts as Virechana</i>
4.	<i>Kansaharitaki</i>	<i>Guda</i> <i>Madhu</i>	no any	1 Haritaki + 1 shukti Avaleha	not given	<i>Shotha, Shwas, Jwara, Arochaka, Prameha, Gulama, Pleeha, Udar, Amavata, Amlapitta, Raktapitta</i>
5.	<i>Kutajadi Rasa Kriya</i>	<i>No Sweeteners</i>	no any	1 kola	<i>Chhagapaya</i> <i>a</i> <i>Manda</i>	<i>Raktarsha, Atisara, Raktatisara</i>
6.	<i>Chitrakadi Leha</i>	<i>Matsyandika</i> <i>Madhu</i>	no any	not given	not given	<i>Kasa, Shwasa, Hridroga</i>
7.	<i>Agastyaharitaki</i>	<i>Purana Guda</i> <i>Madhu</i>	<i>Ghrita,</i> <i>Taila</i>	not given	not given	<i>Vali -palita Bala-ayushya vardhak, Kasa, Shwas, Hikka, Visham jwara, Arsha, Grahani, Hridroga, Aruchi, Peenas</i>
8	<i>Twagadi Leha</i>	<i>Sharkara, Ma</i> <i>dhu</i>	<i>Ghrita</i>	not given	not given	<i>Kasa, Shwasa, Hikka, Kshaya</i> <i>Hridroga</i>
9	<i>Pippalyadi Leha- first</i>	<i>Sitopala,</i> <i>Madhu</i>	no any	not given	not given	<i>Pittaj Kasa</i>
10	<i>Pippalyadi Leha- second</i>	<i>Mishri,</i> <i>Madhu</i>	<i>Ghrita,</i> <i>Taila</i>	not given	not given	<i>Kasa, Shwasa, Hridroga, Krishta</i>

11	<i>Haritaki leha</i>	<i>Puran Guda</i>	no any	not given	not given	<i>Shwas, Kasa</i>
12.	<i>Udumbaradi leha</i>	No any	no any	no any	<i>Shishirambu</i> (lukewarm water)	<i>Kaphaghna</i>

For the designing of dosage forms of Ayurveda some basic fundamental constituents and procedure have been indicated which are essential for desired presentable final form and therapeutic efficacy .

For preparation of *Avaleha* basic constituents are mentioned as under:

Main constituents of *Avaleha* in Charak Samhita

Drava dravya:

i) *Kwath* - *Danti and Chitrakamula kwath* for *Dantiharitaki Dashmula Kwatha* for *Kansaharitaki and Kantakari kwath* for *Chitrakadi Leha*^{11,12,14}

ii) *Yava Kwatha - Agastyaharitaki , Haritaki Leha*^{15,19}

iii) *Dugdha-Pippalyadi Leha* first , *Pippalyadi Leha* second^{17,18}

iv) *Swaras-Ikshuras, Amalaki Swaras- Pippalyadi Leha* second¹⁸

v) *Kshar jala- Ksharagad*³⁴

vi) *Mahendra Jala - Kutajadi Rasakriya*³⁵

Madhur Dravya:

i) *Sharkara- Twagadi Leha*¹⁶

ii) *Gudha - Dantiharitaki Kansaharitaki, Agastyaharitaki*^{11,12,15}

iii) *Matsyandika- Chyvanprasha , Chitrakadi Leha,*^{10,14}

iv) *Mishri- Pippalyadi Leha-* second¹⁸

v) *Sitopala- Brahmarasayana ,Pippalyadi Leha- first*^{9,17}

vi) *Madhu- Brahmarasayana , Chyvanprasha , Dantiharitaki, Kansaharitaki,,Agastyaharitaki ,Twagadi Leha*^{9,10,11,12,15,16}

Sneha dravya:

i) *Tila Taila –Dantiharitaki*¹¹

ii) *Ghrita - Twagadi leha*¹⁶

iii) *Yamak Sneha - Brahma Rasayan, Chyavanprash, Agastyaharitaki, , Pippalyadi Leha first and second*
9,10,15,17,18

Prakshepa Dravya:

i) *Pippali- Brahmarasayana,Chyvanprash, Dantiharitaki, Chitrakadi Leha, Agastyaharitaki*^{9,10,11,14,15}

ii) *Vanshalochana- Chyvanprash, Dantiharitaki, Chitrakadi Leha*^{10,11,14}

iii) *Ela, Tejapatra, Nagakeshar -Chyvanprash, Dantiharitaki*^{10,11}

iv) *Dalchini- Brahmarasayana, Dantiharitaki*^{9,11}

v) *Trikatu - Kansaharitaki, Udumbaradi Leha*^{12,20}

vi) *Manahshila, Rasanjana -Haritaki Leha*¹⁹

Relevancy of these constituents have been explored in this review paper with a critical approach to justify rationality of the individual ingredients incorporated in a particular *Avaleha* .Which is being presented as under

Kwath is one of the fundamental dosage form of *Panch Vidha KashayaKalpanan* and its treatment with different pharmaceutical parameters lead to production of secondary dosage forms of Ayurveda . In *Avaleha* preparations *Kwatha* are heated in a particular pattern with other ingredients to get final form of *Avaleha* such as *Kamsa Haritaki Avaleha* is prepared with the *Kwatha* of *Dashmula* drugs which exhibit *Shwasahar* property, where as *Kantakari, Bharangi* and *Vasa* also have the quality to conquer the disease *Shwasa*³⁶.

In Ayurvedic classics *Ghrita* has been identified as a brain tonic, nutritive, aphrodisiac, digestive and eye tonic and immunomodulator. *Ghrita* is a *Yogavahi* i.e. a catalytic agent that carries the medicinal properties of herbs into targeted organs ³⁷*Ghrita* is an excellent *Anupana* (vehicle) for transporting herbs (after specific pharmaceutical preparation) to the deeper tissue layers of the body means *Ghrita* improves absorption and assimilation. To get optimum therapeutic effect proper digestion, absorption, and delivery to a target organ system are crucial in this context lipophilic action of *Ghrita* facilitates transportation to a target organ and final delivery inside the cell as cell membrane are made up of lipid. A study that compared different forms of herbs and herbal extracts found that the efficacy increased when they were used with *Ghrita* as compared to those used in powder or tablet form ³⁸.

Tila taila is used in preparation of *Avaleha* for exhibiting several pharmaceutical as well as pharmacological properties. Such as antioxidative activity of *Tila taila* has been established through newly discovered lignans. The antiaging effect of sesame oil was elucidated to be due to the strong vitamin E activity. It is caused by synergistic effect of sesame lignans with tocopherols resulting from the inhibition of metabolic decomposition of tocopherols by sesame lignans.

This effect of sesame lignans lowers fatty acid concentration in liver and serum due to acceleration of fatty acid oxidation and suppression of fatty acid synthesis, *Tila taila* also has antihypertensive immunoregulatory anticarcinogenic activity, it is used for dry cough, asthma and in inflammatory conditions. *Tila taila* is also act as *Rasyana* along with many other therapeutic effects e.g. *Kasa shwashar*, *Brihman*, *Balya* etc. ³⁹.

In *Avaleha* preparation of Ayurveda *Prakshepa dravya* plays very vital role for accumulative therapeutic effect. Main *Prakshepa dravya* of *Avaleha* are *Jeerak*, *Pipalli*, *Vanshalochan*, *Ela*, *Tejpatra*, *Nagakeshar*, *Vidanga*, *Dalchini*, *Shunthi*, *Maricha* etc. *Prakshepa dravyas* in *Avaleha* serve specific functions, e.g. *Pippali* (*Piper longum*) having *Katu*, *Tikta Rasa*, *Madhura Vipaka*, *Anushnasheetavirya* and acts as *Yogavahi*⁴⁰. Recent researches proved it as a bioavailability enhancer. Piperine content of *Pippali* decreases the rate and amplitude of respiration and showed nonspecific blockade of Acetylcholine, histamine, 5 hydroxy triptamine induce spasm on isolated guinea pig and rabbit intestine ⁴¹.

Pippli exhibits the antibacterial activity against the gram positive and moderately antibacterial against the gram negative bacteria ⁴².

Prakshap Dravya serves as flavouring agents because most of these have aroma, which improves the acceptability of a product. However, the quantity of *Prakshapa dravyas* should be just sufficient to suggest the desired flavour and should not leave an intense taste in mouth³⁶. |

Madhu is added/administered as *Prakeshpa Dravya/Anupan* in nearly all *Avalehas*. *Madhu* is administered traditionally to get relief from the cough in day-to-day practice. It possesses the demulcent property. It is suggested in the World Health Organization report that demulcents may soothe the throat and can be recommended to provide some relief from cough in children. In addition to the demulcent effect, honey has antioxidant properties and increases cytokine release, which may explain its antimicrobial effect⁴³

Madhur Dravyas (Sweet substances) play a crucial role in *Avaleha Kalpana* as they impart palatability and preservation. *Sharkara* [Crystalline sugar], *Guda* [Jaggery] and *Madhu* [Honey] take the role of sweet substances in *Avaleha* formulations. These substances are made up of different forms of carbohydrates. Such as crystalline sugar contains plain sucrose, jaggery contains invert sugar along with sucrose and honey contains maximum number of invert sugar. These substances get exposed to heat, water molecule and other extracted herbal substances, while preparing the *Avaleha Kalpana*. High percentage of sugar in the medicament facilitates the oral absorption. Due to its mode of administration, i.e. licking, it produces a soothing effect in the throat and relieves local irritation⁴⁴.

Innovatory ingredients of *Avaleha* by Acharya Charaka

Along with basic pharmaceutical ingredients of *Avaleha* some other ingredients are also added by Acharya Charaka to potentiate the effect of *Avaleha* according to the therapeutic need of particular formulation. Such as

A-Kshar (Botanical ash)-

i) *Palash Kshar- Ksharagada*³⁴

ii) *Yavakshar- Kansaharitaki*¹²

iii) *Mushkak Kshar –Kshargutika*²⁶

B- Dhatus (Metals)-

i)Swarna-Indra Rasayan ⁴⁵

ii)Loha- Darvyadi Leha ⁴⁶

iii)Swarna, Rajat, Tamra, Loha,- Dwitiya brahma Rasayan, Dwitiya indrokta Rasayan ^{30,47}

iv)Tikshana Loha -Jivantyadi Leha ⁴⁸

C- Khanija(Minerals)-

i)Praval -Dwitiya Brahma Rasayan ³⁰

ii)Manahshila - Vidangadi Leha,Haritaki Leha^{49,19}

iii)Shankha, Sphatik, -Vidangadi Leha⁴⁹

iv)Rasanjana- Haritaki Leha¹⁹

v)Gairik –Ksharagada ³⁴

D-Ratna(Precious stones):Mukta, Vaidurya -Dwitiya Brahma Rasayan ³⁰

E-Visha Dravya(poisonous plants):Vatsanabha -Indra Rasaya ⁴⁵

F-Pranija Dravya(Animal products):

i)Godugdha andAjadugdha- Pippalyadi Leha Second ¹⁸

ii)Krishnasrapavasa -Krishnasrapavasadi Rasakriya ³³

G-Lavana(Salts):

i)Saindhav-Pippalyadi Rasakriya ³²

ii)Sauvarchal -Chaturtha Sarpigudha ²⁵

Discussion:

Avaleha are very unique in its pharmaceutical and therapeutic approaches. These are made by addition of variety of substances which play many roles in inculcation of final characteristics of product on account of its desired clinical effect and manufacturing modules. Therefore, *Avaleha* are used to prevent and cure several diseases as well as quality nutraceuticals. Some *Avaleha* are established as radioprotective, imuno-modulator and rejuvenator. *e.g. Brahmarasayana, Chyvanprash* ⁵⁰.

Charak has classified the *Avaleha* on various basis, one of them is mixing of *madhu* or any other material at the time of administration to the patient i.e. few *Churna* are added with *Madhu* and *Ghruta* as vehicle so that it attains the form of *Avaleha* (palatable as well as making it suitable for licking). But we are of opinion that we cannot consider such *Churna* as *Avaleha* because basic rule of manufacturing of *Avaleha* is *Kwathadinam Punahpakat* given in *Sharangdhara Samhita* (Reheating of *Kwath* or any other liquid) is not fulfilled⁸.

Varying ingredients of several *Avaleha* which have different therapeutic applications are based on their pharmaceutical attributes, innovative pharmaceutical procedures (where *Avaleha* like consistency is either in the finally prepared formulation or acquired somewhere in intermediate step before final preparation of formulation), e.g. in *Kasa Chikitsa*, *Pippalyadi Avaleha*- first¹⁸ is prepared only by addition of ingredients in milk, boiling till desired characteristics appears and mixing with *Madhu*. Another modified manufacturing process mentioned while preparing *Khadiradi Gutika* where first the *Avaleha* preparation is there and by adding some powdered ingredients it finally gets converted into the *Vati* form²⁷.

While taking look at the ingredients of *Avaleha* either indicated in diseases or as *Rasayana* we came across many such proved properties of *Avaleha* on virtue of ingredients added there to make that particular *Avaleha*.

Acharya Charak indicated *Avalehas* prominently in *Kasa*, *shwas*, *Rajyakshma*, *Hikka* i.e. diseases related to respiratory track. It is because of Ayurvedic principles which exhibits the *Kasa- Shwasha* effect. *Shwas* and *Kasa* are *Vata- kapha* predominant disease and *Katu Tikta Rasa*, *Ushna Virya*, *Katu Vipaka* and *Kapha - Vataghna properties* of all these ingredients leads to the *Samprapti vighatana* (breaking of pathogenesis) of *Shwas* and *Kasa*³⁶.

The basis of selection of these are in accordance of therapeutic properties of individual ingredient which have been mentioned in the table no. 3

Table no. 3Ingredients of *Avaleha* having *Kasa Shwashara* property

S.N	Name of The Ingredient	Latin Name	Name of the <i>Avaleha</i>	Proved effect
1.	<i>Apamarga</i>	<i>Achyranthes aspera</i>	<i>Agastya Haritaki</i>	anti-inflammatory effects ⁵¹
2.	<i>Bibhitaki</i>	<i>Terminalia belerica</i>	<i>Chyvanprash Avaleha Pratham Brahma Rasayan</i>	lowering serum glucose level and antioxidant activity by reducing lipid peroxidation, scavenge hydroxyl radical and superoxide radicals ⁵¹
3	<i>Chitraka</i>	<i>Plumbago zeylanica</i>	<i>Danti Hartaki Chitrakadi leha Agastya haritaki</i>	antiatherogenic, cardiogenic, hepatoprotective, and neuroprotective ⁵¹
4	<i>Ela</i>	<i>Elettaria cardamomum</i>	<i>Jivantyadi leha</i>	spasmogenic, spasmolytic, blood pressure-lowering, vasodilator, diuretic, and sedative activities ⁵¹
5	<i>Guduchi</i>	<i>Tinospora cordifolia</i>	<i>Chitrakadi leha</i>	Antioxidant, immunomodulatory, Anti-inflammatory ⁵¹
6	<i>Haritaki</i>	<i>Terminalia chebula</i>	<i>Danti Haritaki Agastya Haritaki</i>	strong anti-anaphylactic actions, anti-inflammatory and analgesic properties ⁵¹
7	<i>Karkatshringi</i>	<i>Pistacia integerrima</i>	<i>Jivantyadi Leha</i>	antipyretic effects, and analgesic and anti-inflammatory activities ⁵¹
8	<i>Khadaira</i>	<i>Acacia Catechu</i>	<i>Khadiradi Gutika</i>	acts as a dual inhibitor of cyclooxygenase (COX) and 5-lipoxygenase (LOX) enzymes and showed that flavocoxid significantly inhibited COX-2, 5-LOX ⁵¹
9.	<i>Kantakari</i>	<i>Solanum xanthocarpum</i>	<i>Chitrakadi leha</i>	reducing breathlessness and cough by depletion of histamine from lungs and expectorant action due

		<i>Schrad. & Wendl</i>		to inorganic nitrate content, anti-tussive activity ⁵¹
10.	<i>Manahshila</i>	<i>Realgar</i>	<i>Haritaki leha</i>	pacifies cough and eosinophilia ⁵¹
11	<i>Nagarmotha</i>	<i>Cyperus rotundus</i>	<i>Jivantyadi Leha</i> <i>Twagadi Leha</i>	extract exhibited high reduction capability and powerful free radical scavenging ⁵¹
12	<i>Nagakeshara</i>	<i>Mesua ferrea</i>	<i>Chyvanprash</i>	anti-inflammatory, antioxidant ⁵¹
13	<i>Pushkarmola</i>	<i>Inula racemosa</i>	<i>Twagadi Leha</i>	antiseptic, antibacterial and antifungal activity ⁵¹
14	<i>Pippali</i>	<i>Piper longum</i>	<i>Pippalyadi Leha</i> <i>Chitrakadi Leha</i>	piper extracts and piperine possess inhibitory activities on prostaglandin and leukotrienes COX-1 inhibitory effect, as well as on NF-κB activation, and thus exhibit anti-inflammatory activity ⁵¹
15	<i>Shunthi</i>	<i>Zingiber officinale</i>	<i>Chitrakadi Leha</i> <i>Twagadi Leha</i>	as antioxidant, anti-inflammatory, and anticarcinogenic properties ⁵¹
16	<i>Tulsi</i>	<i>Ocimum sanctum</i>	<i>Chitrakadi Leha,</i> <i>Ksharagada</i>	The inhibition of NF-κB, antioxidant ⁵¹
17	<i>Tila</i>	<i>Sesamum indicum</i>	<i>Chyavan nprash</i> <i>Avaleha</i> <i>Pippalyadi Leha</i>	demulcent in respiratory affections, antioxidative, neuroprotective effects ⁵¹
18	<i>Vacha</i>	<i>Acorus calamus</i>	<i>Chitrakadi Leha</i>	anti-inflammatory effects, and it might be mediated by suppression of NF-κB and interferon regulatory factor 3 (IRF3) ⁵¹
19	<i>Vasa</i>	<i>Adhatoda Vasika</i>	<i>Chyvaanprash</i>	inhibited IgE-dependent basophil mediator release. ⁵¹
20	<i>Yashtimadhu</i>	<i>Glycyrrhiza glabra</i>	<i>Pippalyadi leha -</i> <i>2</i>	anti-inflammatory, anticancer, antihepatotoxic, antimicrobial, antioxidant, anti-genotoxic,

				hepatoprotective, cytoprotective and cytotoxic activities ⁵¹
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One outstanding utilization of *Avaleha* is as *Rasayan* which achieved through its adaptogenic immunomodulator antioxidant properties. The *Rasayan* effect of ingredients is mentioned in table no 4

Table no 4: Ingredients of *Avaleha* exhibiting *Rasayana* property

S.N.	Ingredients	Latin name	formulation	Pharmacological action
1	<i>Amalaki</i>	<i>Emblica officinalis</i>	<i>Braha Rasayan</i> <i>Chyavanprash</i> <i>PrathamAmalakaval eha</i>	free radical scavenging activity and radioprotecting ⁵⁴ ,anti-mutagenic, anti-inflammatory, antioxidant, immunomadulator ⁵⁵
2	<i>Brahmi</i>	<i>Bacopa monnieri</i>	<i>Endra Rasayan</i>	antioxidant, ulcer protective, brain tonic, regeneration of neural tissues ⁵⁴
3	<i>Bhumya amalaki</i>	<i>Phyllanthus niruri</i>	<i>Chyavannprash</i>	free radical scavenging, radioprotecting, anti-mutagenic ⁵⁵
4	<i>Chandan</i>	<i>Santalum album,</i>	<i>Dwitiya Brahma Rasayan</i>	free radical scavenging ⁵⁵
5	<i>Guduchi</i>	<i>Tinospora Cordifolia</i>	<i>Dwitiya Brahma Rasayan,</i> <i>Chyavanprash</i>	free radical scavenging, radioprotecting ,anti-mutagenic, anti-inflammatory, antioxidant, immunomadulator ⁵⁵
6	<i>Haridra</i>	<i>Curcuma longa</i>	<i>Pratham Brahma Rasayan</i>	anti-inflammatory,antimutagenic, free radical scavenging activity ⁵⁵
7	<i>Haritaki</i>	<i>Terminalia chebula,</i>	<i>Chyavanprash</i>	free radical scavenging activity and radioprotecting ⁵⁴ , antimutagenic ⁵⁵
8	<i>Jeevanti</i>	<i>Leptadenia reticulate</i>	<i>Chyvanprash</i>	galactogogue, inhibitory effect on the tumor cell proliferation, anti depressant , antianaphylactic effect, prevent recurrent abortion ⁵⁶

9	<i>Jeevak</i>	<i>Crepidium acuminatum</i>	<i>Chyvanprash</i>	Aphrodisiac, febrifuge, tonic ⁵⁷
10	<i>Kakoli</i>	<i>Roscoea purpurea</i>	<i>Chyvanprash</i>	immunostimulant, sexual stimulant, galactagogue, hemostatic ⁵⁷
11	<i>Mandukparni</i>	<i>Centella asiatica,</i>	<i>Pratham Brahma Rasayan Endra Rasayan</i>	brain tonic, regeneration of neural tissues ⁵⁴ free radical scavenging, radioprotecting, inflammatory, antioxidant ⁵⁵
12	<i>Meda</i>	<i>Polygonatum verticillatum</i>	<i>Chyvanprash</i>	aphrodisiac, tonic, galactagogue, emollient appetizer ⁵⁷
13	<i>Palash</i>	<i>Butea Monosperma</i>	<i>Pratham Amalakavaleha Dwitiya Endraokta Rasayan</i>	anti-giardial activity ⁵⁴
14	<i>Prishniparni</i>	<i>Uraria picta</i>	<i>Chyvanprash</i>	tonic, rheumatic conditions antiinflammatory ⁵⁶
15	<i>Punarnava</i>	<i>Boerhaavia diffusa</i>	<i>Chyvaanaprash</i>	free radical scavenging, radioprotecting ⁵⁵
16	<i>Riddhi</i>	<i>Habenaria intermedia</i>	<i>Chyvanprash</i>	brain tonic, aphrodisiac, depurative, appetizer, emollient ⁵⁷
17	<i>Rishabhak</i>	<i>Malaxis muscifera</i>	<i>Chyavanprash</i>	aphrodisiac, hemostatic, febrifuge, cooling and tonic ⁵⁷
18	<i>Shankhapushti</i>	<i>Convolvulus pluricaulis</i>	<i>Endra Rasayan</i>	brain tonic, regeneration of neural tissues ⁵⁴
19	<i>Shaliparni</i>	<i>Desmodium gangeticum</i>	<i>Chyavanprash</i>	antioxidant, protect DNA damage ⁵⁹

21	<i>Vacha</i>	<i>Acoras calamus</i>	<i>Pratham Brahma Rasayan</i> <i>Dwitiya Brahma Rasayan</i>	brain tonic, regeneration of neural tissues ⁵⁴ free radical scavenging, radioprotective ⁵⁵
22	<i>Vasa</i>	<i>Adhatoda vasika</i>	<i>Chyvaanprash</i>	free radical scavenging, radioprotective ⁵⁵
23	<i>Vidanga</i>	<i>Embelia ribes</i>	<i>Vidangavaleha</i> <i>Dwitiya Amalakavaleha</i>	free radical scavenging, radioprotective ⁵⁵
24	<i>Vidarikanda</i>	<i>Pueraria Tuberosa</i>	<i>Chyvanprash</i>	isoflavonoids content reported hypolipidemic and antioxidant activity ⁶⁰
25.	<i>Swarna</i>	<i>Aurum</i>	<i>Brahama Rasayana</i> <i>Second Indra Rasayan</i>	analgesic activity antioxidant activity ⁶¹
26.	<i>Rajat</i>	<i>Argentum</i>	<i>Brahama Rasayana</i> <i>Second</i>	hepatoprotective, strong antioxidant ⁶¹
27.	<i>Tamra</i>	<i>Cuprum</i>	<i>Brahma Rasayana-</i> <i>First</i>	immunomodulator ⁶²
28	<i>Loha</i>	<i>Ferrum</i>	<i>Brahama Rasayana</i> <i>Second</i>	antiobesity and hypilipidemic ⁶²

Brahma Rasayan which is the first *Rasayan* mentioned by Charak has proven immunopotentiating activity in stem cell production, its differentiation and proliferation. *Amalaki*(*Embllica officinalis*) *Ashwagandha*(*Withania somnifera*) *Nelumbium speciosum*(*Kamal*) *Sesamum indicum*(*Tila*) *Cinnamomum tamala*(*tamalpatra*), *Draksha* (*Vitis vinifera*) *Pippali* (*Piper longum*) *Bala*, (*Sida cordifolia*) *Haritaki*(*Terminalia chebula*) *Bilva*(*Aegle marmelos*), *Pushkaramula*(*Ipomoea digitata*) *Bhumyamalaki*(*Phyllanthus nirur*), *Guduchi*(*Tinospora cordifolia*) and *Punarnava*(*Boerhaavia diffusa*) are individually

reported to possess antioxidant activity, and these are the constituents used for the preparation of *Brahma Rasayana* and *Chyvanprash* both are useful in radiotherapy, they manifest enhanced rate of DNA repair in normal tissues. The biological products obtained from plant sources such as polysaccharides, lectins, peptides etc. have been shown to stimulate the immune system⁵⁰.

Mechanism of action of many of plant material present in *Brahma Rasayan* is largely unknown. As the preparation given a multitude of biological activity, it should be interfered that activity of *Brahma Rasayan* is a combined effect of several plant derived compounds. Active principles involved in it is yet to be confirmed

63 .

Brahma Rasayan contains 60 plant extracts of various concentrations being used as a medicine to combat immunodeficiency. A systemic administration of *Brahma Rasayan* was found to improve the cell mediated humoral immunity in mice. It has been shown to protect the tissue from undesirable side effects of radiation and was found to reduce myeloid suppression in cancer patients undergoing chemotherapy. *Brahma Rasayan* could reduce oxygen radicals and subsequently reduce the harmful effects produced by oxygen free radical

64 .

Contemporary Pharmaceutical Resemblance

Avaleha forms of Ayurveda can be compared with confection or electuaries of contemporary period in its most likeness. Confections are defined as a very old form of administering medicine but only a few are in active demand. Confection form facilitates a way of administering relatively large quantities of insoluble powders in a palatable guise by making them into paste with sugar syrup and honey. They are in the form of soft paste and compounded with a sweet or mucilaginous liquid, so as to make them pleasant to the taste. Confections are prepared by both methods-either heating with sugar solution or mixing with honey or sugar solution. Other similar form of medicaments are jam and electuaries which closely resembles the *Avaleha Kalpa* of Ayurveda⁴⁴.

The confectionery market of India is divided into three segments: chocolate, sugar confectionery and gum market, Indian confectionery market is expected to grow at a CAGR of more than 18% during 2012-2015. The manufacturers of the medicated confectioneries are encompassing innovative and distributive strategies

to increase the market size of these products. They are coming up with products from healthy plant extracts and differentiated medicated herbs like 'tulsi', 'ginger' ⁶⁵ .

young consumers looking for newer formats and flavours in confectionery, manufacturers were induced to cash in on the demand and expand their product range. Dabur, for instance, extended its popular digestive brand Hajmola, and reinstated its presence in the pure confectionery segment with the launch of the Natkhat Amrud variant and Hajmola Chuzkara ⁶⁶ .

Recently there is growing market of candy like Amla candy, Chayvan candy. Hindustan Uniliver's 'Max' confectionery brand has been successful in capturing the imagination of kids i.e. ChocoMax, MaxMagik , MaxMasti, MaxCream and ToffyMax have already in market ⁶⁷ . Safety studies should be carried out very well in such preparations⁶⁸⁻⁶⁹ .

Among the new packing technology , 3d printing is new revolutionary idea in confectionery. Packaging innovations like stand up pouches, flexible packaging, reseal features and paper packs are new arrivals in the market of confectionaries ⁷⁰ .

Interesting factor about packaging of the *Avaleha* Acharya Charak also have innovatory thoughts while description of *Sarpiguda* second where finally prepared semisolid material is added with the wheat and water chestnut flour and spread on *Bhurjapatra* so as to avoid stickiness and make them into suitable consumable form. This *Sarpiguda* attended the form of Candy. These innovatory idea of Charak is applicable to modern pharmaceutical procedures ⁷¹ . Quality control is a crucial process for traditional medicines, which should be taken care of⁷²⁻⁷⁶ .

Conclusion:

Charaka mainly named the formulation as *Avaleha* due to its mode of administration i.e. licking. Specific methodology for preparation of *Avaleha* is described while making the individual *Avaleha*. Accurate selection of ingredients that acts on upper respiratory tract infection as a depot is remarkable contribution of Charak.

While considering the the *Rasayan* properties of *Avaleha* , selection of immunomodulator drugs along with the specific pharmacological activities perform by them synergistically as well as antagonistically is taken into consideration. Carefully Charak has avoided those ingredients which might have opposite action than the action desired by us to treat the specific disease. All round in nut shell we can say that Charak has provided one basic idea about the *Avaleha* which we have to carry forward with the expertise and therapeutic need of the patients.

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