

Examining the Antioxidant Properties of Avaleha Formulations in Brihat-Trayi: A Critical Analysis of their Constituents' Rasayana Guna

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ABSTRACT:

Humans, due to their tremendous intellectual abilities are on way at par from and this is the most developed and sophisticated living creature on earth. They are step ahead, in true sense, desires not only to live, but to live a long & disease-free life as far as possible. The ancient revered Acharyas achieved the aims before thousands of years ago, in the means of Rasayana which not only helped to attain longer but healthier life & also prevent diseases. Out of all Rasayana formulations, most of them are Avalehas. In Ayurveda there is a special branch of pharmaceuticals called as Bhaishajya Kalpana dealing with formulations of mainly herbal medicines, which are basically two types i.e., primary and secondary formulations. Avaleha is the most popular secondary Kalpana (dosage form) which has been employed in various disorders and these products are gaining its importance due to its easy administration, palatability, longer shelf life and considering as Ayurveda's nutraceutical. It is a semisolid preparation made from herbal drugs, prepared in decoction, expressed juices of different herbs other liquid etc. by adding sweetening agents like jaggery, sugar & added honey. Here an attempt is made to collect, analyze & discuss all different Avaleha formulations and its ingredients for Rasayana Guna (Antioxidant property) which is mentioned in Brihat-trayi.

KEYWORDS: Avaleha, Anti-oxidant, Longevity, Rasayana

I. INTRODUCTION

Humans, the super most of all the species is always remaining in the search of one prime goal: the perfect health. The present condition of human health around the globe is far from satisfaction. As an answer to solve the problems of healthful longevity, and resistant against diseases

the Rasayana is there. It prolongs the longevity, develops the positive health & also prevents diseases.

Out of all Rasayana formulations, mostly are Avalehas. Avaleha is a semisolid preparation of herbal drugs prepared in decoction or extracts of different herbs by adding sweetening agents like jaggery, sugar or sugar candy. Avaleha Kalpana is considered as an Upakalpana of Kwatha Kalpana. Different varieties of Avaleha are mentioned in various Ayurvedic classics and they are the most accepted variety of Ayurvedic dosage forms due to its easy administration, palatability and long shelf-life considering as Ayurveda's nutraceutical.

Rasayana drugs act by preventing the old age and diseases in the healthy person. E.g., Haritaki, Guggulu, Shilajitu. On scientific basis, Rasayana Karma can be analogous with Anti-oxidant, Anti-ageing, Adaptogenic, Nootropic and cognitive, Immunomodulatory activities. The anti-oxidant agent decreases the cell destruction activity of free radical and promotes cell longevity. Considering this, a meticulous screening was done through Brihat-trayi to analyse all different Avaleha formulations, ingredients for their Rasayana Guna (Antioxidant property).

II. MATERIALS AND METHOD

A review of Brihat-trayi i.e., Charaka Samhita, Sushruta Samhita, Ashtanga Samgraha and Ashtanga Hridaya has been made. The collected data is presented here in tabular form.

Avalehas mentioned in Brihat-Trayi:

The review revealed that mostly Avaleha formulations are indicated for Rasayana, Dirghayu, Shwasa and Kasa Roga. Total 41 Avalehas found from Brihat-trayi in which 24 Avaleha found in

CharakaSamhita, while 9, 12 and 11Avalehas found in SushrutaSamhita, AshtangaSamgraha and

AshtangaHridaya respectively (Table no. 1).

Table 1:Avaleha formulations found in Brihat-trayi

Sr.No.	Name of Avaleha	Name of Ingredients	Uses	References
1.	1 st Brahma Rasayana	Haritaki, Amalaki, PanchaPanchamula	Rasayana, Dirghaayu	Cha. Chi. 1, 1/41-47 A.S. Utt. 49/21
2.	2 nd Brahma Rasayana	Amalaki, Sthira, Punarnava, Suvarna, Rajata, TamraPravala	Rasayana, Dirghaayu	Cha. Chi. 1, 1/58-61
3.	Chyavanaprasha	Amalaki, Dashamula, Draksha, Jivanti, Abhaya, Amrita	Rasayana, Dirghaayu, Kasa-shwasahara	Cha. Chi. 1, 1/62-74 A.S. Utt. 49/29
4.	AmalakaRasayana	Amalaki, Bibhitaka, Haritaki, Palasha	Dirghaayu, Punaryuvatapri	Cha. Chi. 1, 1/75 A.S. Utt. 49/23-24
5.	AmalakaAvaleha	Amalaki, Pippali	100-YearAyu, Rasayana	Cha. Chi. 1, 2/7
6.	VidangaAvavleha	Vidanga, Pippali, Sitopala	Rasayana	Cha. Chi. 1, 2/9 A.S. Utt. 49/37
7.	AparaamlakaAvaleha	1000 Amalaki, Pippali, Vidanga	Rasayana	Cha. Chi. 1, 2/10
8.	NagabalaRasayana	NagabalaMula	Rasayana	Cha. Chi. 1, 2/11
9.	LohadiRasayana	Triphala, Gomutra, Kshara, Lavana, Kinshukakshara	Rasayana, Dirghaayu	Cha. Chi. 1, 3/15-23 A.S. Utt. 49/31
10.	Indroktrasayana	Balya, Jivaniya, Brimhaniya, VayasthapnaGanaAushadhi	SarvaRogaPrasamana	Cha. Chi. 1, 4/13-26
11.	DantiHaritaki	Haritaki, Danti, ChitrakaMula	Gulma, Arsha, Pandu, Hridroga	Cha. Chi. 5/154-160 A.S. Chi. 16/40
12.	KamsaHaritaki	100 Haritaki, Dashamula	Shotha, Shwasa, Jwara, Arochaka, Meha, Gulma	Cha. Chi. 12/50-52 A.H. Chi. 17/14-16
13.	Darvadileha	Daruharidra, Triphala, Vyosha, Vidanga	Kamala, Pandu	Cha. Chi. 16/97
14.	Dhatryavaleha	Dhatri, Munnaka, Tugakshiri, Yashtimadhu	Kamala, Pandu, Kasa, Halimaka	Cha. Chi. 16/100-101
15.	DuralabhaLeha	Duralabha, Shati, Draksha, Sringavera	Kasa, Shwasa, Hikka	Cha. Chi. 18/50
16.	Durhsparsadileha	Durhsparsa, Pippali, Musta, Karkataki	Kasa, Shwasa, Hikka	Cha. Chi. 18/51

17.	VidangadiAvaleha	Vidanga, Saindhava, Kushtha, Vyosha	Kasa, Shwasa, Hikka	Cha. Chi. 18/52
18.	ChitrakadiAvaleha	Chitraka, Pippalimula, Vyosha, Hingu	Kasa, Hridroga, Shwasa, Gulma	Cha. Chi. 18/53-56
19.	AgastyaHaritaki	100 Haritaki, Dashmula, Bala, Shankhapushpi, Shati	Rasayana, Vali-Palitanashaka, Ayushyavardhna, Kasa, Shwasa	Cha. Chi. 18/57-62
				Su. Utt. 52/43-47
				A.H. chi. 3/127-132
				A.S. Chi. 5/82-87
20.	PippalyadiLeha	Pippali, Yashtimadhu, Shitopala, Mridvika	Shwasa, Hridroga	Cha. Chi. 18/135-137
21.	HaritakiLeha	Haritaki, Guda, Pippali	Shwasa, Kasa	Cha. Chi. 15/168-169
22.	DrakshadiLeha	Draksha, Padmaka, Vartaka, Pippali	Shwasa	Cha. Chi. 18/172-173
23.	PadmakadiAvaleha	Padmaka, Triphala, Shunthi, Vyosha	Kasa	Cha. Chi. 18/174-175
				A.S. Chi. 5/132-133
24.	JivantyadiAvaleha	Jivanti, Madhuka, Patha, Sariva, Pushkara	Kasa	Cha. Chi. 18/176-179
25.	Ayorajovyoshadhya valeha	Ayoraja, Vyosha, Vidanga, Triphala	Pandu	Su. Utt. 11/19
26.	Vidangadhyavaleha	Vidanga, Musta, Triphala, Ajamoda	Pandu, Shotha	Su. Utt. 44/31-32
27.	KalyankaGuda	Amalaki, Pippali, Jiraka, Trikatu, Ajamoda, Saindhava	Swasa, Kasa, Swarbheda	Su. Utt. 52/39-42
28.	Khadiradhyavaleha	Khadira, Asana, Nimba, Rajvriksha	Kushtha	Su. Chi. 10/9
29.	Shalasaradhyavaleha	SalasaradiGanaAushadha	Kushtha	Su. Chi. 10/9
30.	NyagrodhaAvaleha	Nyagrodha	Kushtha	Su. Chi. 10/9
31.	AragvadhaAvaleha	Aragvadha	Kushtha	Su. Chi. 10/9
32.	ShalasaradiAvaleha	ShalasaradiGanaAushadha, Amalaki, Lodhra, Priyangu	SarvaPrameha Nashaka	Su. Chi. 13/10
33.	VijayaAvaleha	Haritaki, Guda, Pippali	Shwasa, Kasa	A. H. Chi. 3/167
34.	KasanashskaAvaleha	Draksha, Pippali, Sitopala	Kasa	A.H. Chi. 3/30
35.	KantakariAvaleha	Kantakari, Vyosha, Rasna, Guduchi, Chitraka	Gulma, Hridroga, Shwasa, Kasa	A.H. Chi. 3/63-66
				A.S. Chi. 4/84-87
36.	KushmandakaRasayana	Kushmanda, Pippali, Shunthi, Maricha, Jiraka	Kasa, Hikka, Shwasa, Hridya, Medha-smriti-bala Prada	A.H. Chi. 3/115-117
				A.S. Chi. 5/64-68

37.	VashishthaHaritaki Rasayana	Dashamula, Haritaki, Bala, Haridra, Pippali, Patha	Rasayana, without any regimen healthy person can use it	A.H. Chi. 3/133-140
				A.S. Chi. 5/88-96
38.	EladiSarpiGuda	Ela, Ajamoda, Triphala, Vyosha, Chitraka	Rasayana, Ayushyavardhaka, Gulma, without any regimen healthy person can use it	A. H. Chi. 5/28-32
39.	KutajadiAvaleha	Kutaja, Manjishtha, Priyangu, Mocharasa	RaktaAtisara, Raktapitta, Raktaarsha	A.H. Chi. 8/104-107
				A.S. Chi. 7/53-56
40.	Chitrakavaleha	Chitrakamula, Trikatu, Haritaki, Nagarmotha	Arsha, Kushtha, Gulma, Udararoga	A.H. Chi. 8/153-154
41.	SitadiAvaleha	Shita, Taila, Vidanga, Amalaka	Sarvakushtha	A.H.Chi.19/79

Table no. 2 shows, list of drugs with their pharmacological activity i.e., Anti-oxidant activity, which are maximum times used in Avaleha

formulation and all of them possess anti-oxidant activity (RasayanaGuna).

Table 2:Avaleha ingredients'Rasayana property (Anti-oxidant activity)

Sr.No.	Drug having Rasayana property	Botanical Source	Part Used	Research Study done on Anti-Oxidant Activity of mentioned drug in Avalehas
1	Pippali	Piper longum Linn.	Extract of fruit	Total phenolic content, Radical scavenging by DPPH, ABTS.
2	Haritaki	TerminaliachebulaRitz.	Extract	Reducing power, total Antioxidant capacity, DPH radical concentration, nitric oxide radical concentration and hydrogen peroxide scavenging activity.
3	Amalaki	Emblica officinalisGaertn.	Extract of Fruit	Anti-oxidant activity by DPPH radical, hydroxyl radical, Superoxide anion radical, Reducing power, inhibition capability of Fe.
			Seed	Free radical scavenging activity by DPPH and reducing power method.
4	Bibhitaka	TerminaliabelliricaGaertn.	Extract of fruit	Radical scavenging by DPPH.
5	Daruharidra	Berberisaristata	Extract of plant	Superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx), activities and the level of lipid peroxidation decreased oxidative stress.
6	Varahi	Dioscorea bulbiferaLinn	Extract of bulb	Scavenging activity by DPPH, ABTS, total phenolic content.
7	Vidari	Puerariatuberosa	Tuber	ABTS assay, lipid peroxidation, superoxide, hydroxyl radical

				scavenging activity.
8	Guduchi	Tinospora cordifolia	Five different Extracts of leaves	Total reducing sugar, lipid peroxidation, DPPH & superoxide radical scavenging method.
9	Kshiravidari	Ipomoea digitata Linn.	Extract of root	Nitric oxide, Total anti-oxidant activity.
10	Shatavari	Asparagus racemosusWilld	Root extract	Free radical by DPPH method

Table 3: Repetition of drugs in AvalehaKalpana

Sr. No.	Name of the drug	Botanical source	Part used	No. of times repeated in Avaleha formulations
1	Pippali	Piper longumLinn.	Fruit	20 times
2	Haritaki	TerminaliachebulaRitz	Fruit	17 times
3	Amalaki	EmbalicaofficinalisGaertn	Fruit	16 times
4	Bibhitaki	TerminaliabellicricaGaertn	Fruit	8 times
5	Daruharidra	Berberisaristata	Stem bark	6 times
6	Varahi	DioscoreabulbiferaLinn	Bulb	6 times
7	Vidari	Puerariatuberosa	Tuber	6 times
8	Guduchi	Tinosporacordifolia	Stem	5 times
9	Kshiravidari	Ipomoea digitateLinn.	Root	4 times
10	Shatavari	AsparagusracemosusWilld	Root	4 times

III. DISCUSSION

Health is a state of a complete physical, mental and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.

Ayurveda describes various rejuvenating therapies with the help of special class of medicinal preparations called Rasayana, those are believed to rebuild the body, mind, prevent degeneration and postpone aging or rather reverse the aging process.

In Ayurveda, there is a special branch of pharmaceuticals called as Bhaishajya Kalpanadealing with formulation of medicines. In this branch there are basically two types of formulations i.e., Primary formulations and Secondary formulations. Avaleha is the most popular secondary Kalpana (dosage form) which has been employed in various disorders and these products are gaining its importance due to its easy administration, palatability, longer shelf life and considering as Ayurveda's nutraceutical. It is defined as "A

semisolid preparation which is prepared by reboiling of decoction etc., till it solidifies and attains signs of proper cooking. Out of all Rasayana formulations, mostly are Avalehas.

During the screening throughout in Brihat-trayi, the Avalehas can be classified into two categories:

- 1) As a Rasayana,
- 2) As a therapeutic indication.

Out of them mostly Avaleha are indicated as a Rasayana. This shows that Avaleha has property of Rasayana Karma (for longevity) because of its ingredient's Rasayana properties, E.g., Chyavanaprashavaleha. The main ingredient of Chyavanaprasha Avaleha is Amalaki, which has properties like Rasayana, Vayasthapana as well as antioxidant properties. The chief ingredients of Avalehas in Brihat-Trayi are Amalaki, Haritaki, Pippali, Shatavari, etc. which have properties like Rasayana, Vayasthapana (for longevity), etc.

Table no. 2 shows, correlation with Ayurvedic pharmacology i.e. Rasayana Gunawith antioxidant properties. The part of activity of

RasayanaGunamay be interpreted with antioxidant activity or free radical scavenging activity. Antioxidants are reducing agents, and limit oxidative damage to biological structures by passivating them from free radicals. Free radicals accumulate in the cell as the age progresses. They are highly unstable and reactive in nature and cause oxidative chain reaction. As per Ayurvedic mode of action for RasayanaDravyas, ingredients of RasayanaAvaleha are working on proper formation and functioning of all seven Dhatus. This can be assumed after observing their action and indication regarding various disease conditions of individual Dhatu. Among them 10 drugs are mostly repeated, and they are already reported for their antioxidant activity. (Table 2). Table no. 3 shows, the number of times drug repeated in AvalehaKaplana having a Rasayana property. The maximum repeated drug used in Avaleha formulation is Pippali i.e., 20 times. Then after Haritaki, Amalaki, Bibhitaka, Daruharidra, Varahi, Vidari, Guduchi, Kshiravidari and Shatavari being repeated for 17, 16, 8, 6, 6, 6, 5, 4, 4 times respectively.

IV. CONCLUSION

Total 41Avalehas are enumerated from four important Samhita having Rasayana Guna. A critical analysis on data regarding Avaleha formulations clearly indicates that maximum number of drugs are attributed with Rasayana Guna. Among them, repeated ten major drugs viz., Amalaki, Haritaki, Pippali etc. exhibit antioxidant activity, which is preferred as one of the pharmacological expressions of Rasayana Guna. Degenerative changes in different organs due to oxidative stress may be controlled by Rasayana drugs which are mentioned in Avaleha formulation with proven antioxidant activities. So that Avaleha might play major role in Ayurveda for longevity of human being.

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