

**AVALEHA FORMULATIONS CONTAINING HARITAKI
(TERMINELIA CHEBULA RETZ) IN THE MANAGEMENT OF
TAMAKA SHWASA - A REVIEW**

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ABSTRACT

Introduction: *Haritaki (Terminelia Chebula Retz)* is one of the important drugs mentioned in Ayurvedic Materia Medica because of its immense potential of curing different disease conditions, also used as a *Rasayana* (promote tissue growth and health) in different seasons along with a specific adjuvant. It stimulates digestive capacity, *Vatanulomana* (regulates movement of *Vata Dosha*) and shows immunomodulatory properties and thus help in improving body's defence system. *Avaleha* (confection) formulation is one of the most preferable varieties of Ayurvedic dosage forms due to ease in its administration, palatability and longer shelf-life. Different *Avaleha* are

used in the disease of *Tamaka Shwasa* described in various Ayurvedic classics for all age group patients. *Haritaki* containing *Avaleha* are predominantly used in management of *Tamaka Shwasa*. Therefore, it becomes necessary to describe the rationality behind such inclusion. **Materials and Methods:** A number of clinical studies have been performed on different *Avaleha* formulations in the management of *Tamaka Shwasa*. A review has been carried out of such works to comprehend the importance of *Haritaki* in different types of *Avaleha* formulations used in *Tamaka Shwasa*. Clinical studies pertaining to *Agastaya Haritaki Avaleha*, *Bharanagadi Avaleha* or *Bharangi Guda Avaleha*, *Chitrak Haritaki Avaleha*, *Kamsa Haritaki Avaleha*, *Shirishadya Avaleha*, *Vasaharitaki Avaleha*, *Vyaghri Haritaki Avaleha* have been reviewed. **Result:** It has been found that all the formulations showed good percentage of relief in the cardinal sign and symptoms of *Tamaka Shwasa* without any adverse effect. **Conclusion:** all the formulations have shown significant result on

most of the Asthma Control Questionnaire (ACQ) and cardinal symptoms the *Tamaka Shwasa*. Different *Avaleha* which contains *Haritaki* as a main ingredient is effective in the management of *Tamaka Shwasa* without any adverse reactions.

KEYWORDS: *Avaleha*, *Tamaka Shwasa*, *Haritaki*, Bronchial Asthma.

INTRODUCTION

Ayurveda, the ancient system of medicine developed with an objective of maintaining health and treating diseases.^[1] Ayurveda uses material found in our surroundings like plant, minerals, animal in origin for preparation of various dosage forms. In recent years the plant material and herbal remedies derived from them represent a sustained proportion and has gained place within the health management throughout the world. Medicinal plants have been used successfully in traditional systems of medicine for the management of various disease conditions like bronchial asthma, cold, cough, chronic fever, dysentery, convulsions, diabetes, diarrhoea, emetic syndrome, skin diseases etc. and in treatment of gastric, hepatic, cardiovascular & immunological disorders.^[2] The disease *Tamaka shwasa* has been mentioned in the Ayurvedic classics affecting mainly the *Pranavaha Srotas*. It leads to recurrent episodes of wheezing, breathlessness, tightness of chest and cough particularly at night or early morning. Ayurveda considers two variants of *Tamaka Shwasa* i.e. *Vata Pradhana* and *Kapha Pradhana*.^[3] Similarities of signs and symptoms of *Tamaka Shwasa* with the bronchial asthma of contemporary science are well accepted among Ayurveda community. Asthma is a chronic and recurring condition that can appear for years or may be lifetime.

It is more prevalent in developed countries than developing ones, nearly 8% to 10% of the total population suffers from it. In India, the prevalence of asthma has been found to be around 7% within the majority of surveys done. The disease can start at any age, but in a majority, it starts before 10 years of age. It is twice as common among boys as girls, whereas in adults the male to female ratio is usually equal.^[4]

Because of the faulty methods of lifestyle, lack of balanced diet, increased air pollution, the incidence of *Tamaka Shwasa* is increasing day by day. There is no satisfactory treatment available.

In present scenario, Ayurveda is the best way to provide effective and safe management in Asthma without inducing any drug dependency where use of various *Shodhana* (detoxification) procedures and use of internal medication not only detoxifies the body but also provides nutrition and boots up the natural immunity of the body. Thus decreasing episodic recurrence of the disease and providing long term relief to the patient. Ayurveda has described many herbal formulations to treat *Tamaka Shwasa* effectively without any adverse effect.

Avaleha is a semi-solid dosage form of herbal drugs prepared in decoction or extracts of different herbs by adding sweetening agents like jaggery, sugar or sugar candy.^[5] Different varieties of *Avaleha* are mentioned in various Ayurvedic classics and they are the most accepted varieties of Ayurvedic dosage forms due to its easy administration, palatability, safe in use, high therapeutic efficacy, economic, provides soothing effect to throat, accepted by all age groups, and longer shelf life. Ample of *Avaleha* formulations have been mentioned in classical Ayurvedic literature in the disease of *Shwasa Roga* as these have *Brimhana* (Nutrient and Energy supplementing) property which is very much needed while dealing with this disease.^[6] The present work is aimed at reviewing the clinical efficacy of all such formulations and establishing the importance of *Haritaki* in *Tamaka Shwasa*.

MATERIALS AND METHODS

A number of research works have been found reported on several *Avaleha* at different reputed institutes^[7] of which digitally available studies on *Avaleha* formulations containing *Haritaki* and their effect on the *Tamaka Shwasa* have been considered for review. Few published articles accessible through goggle scholar and PubMed were also complied in this exercise. Keywords for search *Avaleha*, *Tamaka Shwasa*, *Haritaki*, Bronchial Asthma.

OBSERVATIONS AND RESULTS

After a comprehensive review of all the above database it is found that following *Avaleha* formulations containing *Haritaki* as an important ingredient were found to be eminent and effective while dealing with *Tamaka Shwasa* and clinical findings pertaining to same formulations were also found available in detail.

1. *Agastaya Haritaki Avaleha*(AHA)
2. *Bharanagadi Avaleha or Bharangi Guda Avaleha* (BA)
3. *Chitrak Haritaki Avaleha* (CHA)
4. *Kamsa Haritaki Avaleha* (KA)

5. *Shirishadya Avaleha (SA)*
6. *Vasaharitaki Avaleha (VHA)*
7. *Vyagri Haritaki Avaleha (VG)*

Criteria for diagnosis

Patients having signs and symptoms of *Tamaka Shwasa* as described in the Ayurvedic classics, namely, *Shwasakastata* (breathlessness), *Kasa* (cough), *Pinasa* (cold), *Ghurgurakam* (wheezing), *Anidra* (awakening in night), *Aasinolabhetesukham* (relief in sitting position), etc.^[8] *ACQ*^[9] were selected in most of the studies. Detailed history was taken and physical examination was done on the basis of a special proforma prepared by scholars, incorporating all signs and symptoms of the disease.

Investigations

Most of the studies have undertaken routine haematological, RBC, especially white blood cell (WBC) count, erythrocyte sedimentation rate (ESR), absolute eosinophil count (AEC), IgE and urine examination to assess the condition of disease and to exclude any other pathology.

Diet and Restriction

Patients were advised to avoid the aggravating factors mentioned in classical literature of Ayurveda.

Criteria for the assessment

Efficacy of the trial drugs was analysed in terms of relief produced in cardinal signs and symptoms before and after treatment. Assessment was also done on changes in parameters like PEFR and spirometry. Effects of trial drugs were analysed on certain pathological parameters like WBC count, AEC, ESR, and IgE before and after treatment in few studies.

Posology

1. *Agastya haritaki avaleha (AHA)*

AHA(a): An open label (Single- Arm) clinical study included 30 patients of 20 to 60 years age, both males and females, Patients having signs and symptoms of *Tamaka -shwasa* (Bronchial Asthma) in *Awegawastha* (non-acute phase) were administered for 10 weeks, (40 g in two divided dosage, empty stomach with lukewarm water) with patient's regular diet.^[10]

AHA(b): A single case study where effect of *Shodhana chikitsa* followed by *Rasayana*. (*Agastaya Haritki Rasayana*) 6 gm with milk started after food twice a day, and *Pranayama* for 3 months was studies.^[11]

2. *Bharangyadi avaleha (BA)*

BA(a): Comparative efficacy of the *BA-I*, *BA-II* was evaluated against the disease *Tamaka Shwasa*. The ingredients of *BA-I* are same as *BA -II*. Total Patients were divided randomly in 2 groups. In Group A patients were treated with *BA-I*, in Group B patients were treated with *BA-II*. Each were advised 12 g twice with lukewarm water for 30 days. Follow up for all the drugs was 30 days.^[12]

BA(b): A randomized, open label, clinical trial included 60 patients of age between 16 to 60 years, both male & female with newly onset uncomplicated, mild and moderate bronchial asthma. Drug was administered in Group A, 30 Patients with *Shodhana Poorvaka Shamana Chikitsa* were enrolled *Vamana Therapy* followed by *Bharangyadi Avaleha* orally at a dose of - 5 gm twice a day, after meal for 15 days and in group B 30 Patients were treated with “Tab. Deriphyllin” with dose of 100 mg thrice a day.^[13]

BA(c): Another study included patients of age group between 2 to 10 years with divided dose 6-14gms in 2-6 yr and 15-18 gms in 7-10 yr age group 3 times/day for 6 week Luke warm water with classical symptoms of *Tamaka Shwasa* emphasis to symptoms of childhood Asthma like wheezing, shortness of breath tightness in chest and cough.^[14]

3. *Chitraka haritaki avaleha (CHA)*

CHA(a): single case study was reported where, a 6 year old male child was treated with *Chitraka Haritaki Avaleha* at a dose of 15 gms given muharmuha (divided dose) orally with lukewarm milk or water, for 6 weeks and follow up for 8 weeks.).^[15]

CHA(b): A Randomized comparative clinical study, to evaluate the effect of *Chitraka Haritaki Avaleha* and *Kantakari Ghrita* in *Tamaka shwasa*, was done in 100 patients. *Chitraka Haritaki Avaleha* was given in a dose of 10 g twice daily half an hour prior to food intake for a period of 15 days.^[16]

CHA(c): A therapeutic interventional randomized clinical trial was done which included the children with clinical features of *Tamaka Shwasa* (Bronchial Asthma) of age group, 2–10 yr with divided dose 8gm (2-4yr), 15gm (5-7yr), 23gm(8-10yr) for 6 week with follow up 8

week. Total of 40 subjects were recruited, 20 in the Intervention group (*Chitraka Haritaki Avaleha*) and 20 in the Comparator group (*Bharangyadi Avaleha*).^[17]

4. *Kamsa haritaki avaleha (KA)*

KA(a): A Randomised comparative clinical study was done included patients having classical symptoms of *Tamaka Shwasa*, age between 16 - 60 years. Selected patients were randomly divided into two groups viz. Group A (*Kamsaharitaki Avaleha*) Group B – (*Kamsaharitaki granules*), The drug was administered at a dose of 12 g twice daily before food followed by lukewarm water orally for 28 days. They were in follow-up for a period of 14 days.^[18]

KA(b): The study was carried out in two groups i.e. Group- A *Kamsaharitaki Avaleha* was prepared using *Dashamoola* stem bark *Kashaya* and Group B *Kamsaharitaki Avleha* was prepared using *Dashamoola* root powder) and both the groups were treated in 15 g/day in divided dose.^[19]

5. *Shirishadhya avaleha (SA)*

- 34 patients having classical symptoms of *Tamaka Shwasa* were included in this trial. All the patients were randomly divided into two groups i.e. *Virechana - Avaleha group* (V.A.) and only *Avaleha group*. In VA group, 12 patients were given *Shirishadyavaleha* in dose of 10 g bd for duration of 1 month after performing *Virechana Karma*. Out of these 10 completed the course. And another is *Avaleha group (A)*, in this group, 22 patients were given *Shirishadyavaleha* in dose of 10 g BD for 1 month.^[20]

6. *Vasa haritaki avaleha (VHA)*

- A comparative Study of *Shwasahara Leha* and *Vasa Haritaki Avaleha* in the management of *Tamaka Shwasa* was done that included age group between 16–60 years, chronicity less than 10 years, uncomplicated cases of *Tamaka Shwasa*. Total 40 patients were registered and randomly divided into two groups, out of which 31 patients completed the treatment. *Vasa Haritaki Avaleha* (5 g twice a day) was given for 2 months and follow-up was done for one month in both the groups.^[21]

7. *Vyagri haritaki avaleha (VG)*

VG(a): A study included both the sexes having age between 16 years to 60 years. Selected patients were randomly divided into three groups viz. Group-A: Treated with *Vyaghriharitaki*

Avaleha Guda as base (VHA) Group-B: Treated with *Vyaghriharitaki Avaleha* with *Khanda Sarkara* as base (VHB) Group-C: Treated with *Vyaghriharitaki* Granules. Total registered patient in group VHA and VHB were 38 and 37 respectively. All the drug was given 10 g twice daily before food followed by lukewarm water orally. Study was carried out for 28 days (4 weeks).^[22]

VG(b): Another study included the children with clinical features of *Tamaka Shwasa* with age group between 2 to 16 years of either sex. Total of 100 subjects were recruited, 50 in the intervention group (*Astangavaleha* AG) and 50 in the comparator group (*Vyaghriharitaki Avaleha*) VG.^[23]

Effect of *avaleha*: All the tested drug have shown good percentage of result in the disease of *Tamaka Shwasa*.

In the study done by Gaur P *et.al.*^[24] complete relief in the symptoms of Breathlessness, cough and night symptoms was observed. The body weight was increased by 1.9 kg. *Dehabala*, *Satvabala*, were increased inferring the therapeutic activity of *Avaleha*. AEC and Eosinophil count were markedly decreased in comparison to other parameters on haematological changes.

Another study which was done by Gopikrishna S *et al.*,^[25] the effect of intervention with *Chitraka Haritaki Avaleha* showed statistically significant improvement in the subjective parameters like breathlessness, cough, sputum and speech and objective parameters - labored breathing, breathe sounds, body position, respiratory rate and mental status.

The study was done by Kumar D *et. Al.*,^[26] result shows that majority of the patients had a relief in the symptoms of *Shwasa* such as *Ushna Akanksha* 70.00%, *Pranaprapidaka* 69.23% and *Asino Saukhyam* 56.25% in Group-A; whereas is symptoms of *Kasa* 81.81%, *Ushna Akanksha* 65.38%, *Tivravegashwasa* 61.36% and *Asinolabhate saukhyam* 56.00% were found relief in Group -B.

Table 1.1: Effect of all the tested formulations on cardinal Sign and Symptoms of *tamaka shwasa*.

	% Relief in Cardinal Symptoms								
Study code	SK*	KA*	ALS*	PI*	AN*	GG*	PS*	KB*	KS*
1.AHA(a) ^[27]	76.12	77.14	70.17	78.43	55.56	65.63	-	-	-

2.BA(a) [A*] ^[28]	61.46	75.00	60.29	67.65	-	62.82	92.68	61.22	63.51
2.BA(a) [B*] ^[29]	47.27	53.52	36.99	50.85	-	42.19	62.61	38.00	48.21
2.BA(b) ^[30]	61.53	65.30	-	-	53.84	57.14	-	60.86	63.63
2.BA (c) ^[31]	88.24	70.0	100	73.33	90.0	89.47	100		100
3.CHA(c) [A*] ^[32]	36.5	60	61.2	54	61.0	88.0	69.7	52.0	65
3.CHA (c)[B*] ^[33]	42.8	50.1	34.7	36	54	50	51.8	66.6	57
4.KA ^[34]	70.08	75.75	-	76.08	81.60	79.31	81.01	61.52	72.72
5. SA. [A*] ^[35]	61.11	54.90	61.90	63.43	53.50	66.66	61.53		49.77
5.SA [B*] ^[36]	42.71	51.51	32.80	42.71	68.66	45.67	21.42		33.14
6.VHA ^[37]	53	75	60	50	69	62.50	100		28
7.VG(a) [A*] ^[38]	84.71	88.86	100	100	100	100	100	100	97.72
7.VG(b) [B*] ^[39]	89.55	89.82	100	100	100	97.56	100	100	97.83
7.VG (b) ^[40]	45.2	76.8		66.1	75.4	68.9	70.4	70.1	57.5

(A* -GROUP, B* -GROUP B)

[SK* -Shwaskashtata (breathlessness), KA* -kasa(cough), ALS* - Asino-Labhate Saukhyam (relief in sitting position), PI* - Pinasa(cold), AN* -Anidra (awakening in night), GG* - Ghurghurakam (wheezing), PS* - Paarshvashool (Chest-tightness), KB* -Krichchhrabhashitam (Catch during phonation), KS* - Kaphashtheevan (Expectoration)].

Table 1.2: Effect of all the tested formulations on asthma control questionnaire (ACQ).

Study code	% Relief in ACQ					
	Night Awakening	Morning worsening of asthma symptoms	Limitation of activity	Shortness of breath	Wheezing	Use of short – acting bronchodilator (puff) each day
1.AHA(b) ^[41]	50.0	50.0	66.66	50.0	66.66	50.0
2.CHA(c)[A*]	68	68.4	44.4	53.3	65.3	72.7
3.CHA(c)[B*]	57.1	63.5	58.8	62.4	59.1	49.8
4.KA	75.0	80.21	77.52	68.96	76.76	88.46
5.VHA	55.7	69.2	60.37	53.70	66.01	83.60

(A* -Group, B* -Group B)

DISCUSSION

Agastya Haritaki Avaleha is a well-known ayurvedic dosage form propounded by Acharya Agastya and mentioned in *Charaka Samhita*. It is also renowned as *Rasayana* in classical literature and publicized for both rejuvenating and curative treatment. It contains *Haritaki* as

the main ingredients, along with *Dashamoola*, *Atmagupta*, *Shankhapushpi*, *Sathi*, *Bala*, *Hastha Pipli*, *Apamarga*, *Pippalimula*, *Chitraka*, *Bharangi*, *Pushkarmoola*, *Yava*, *Haritiki*, *Guda*, *Ghrita*, *Taila*, *Pippali*, *Madhu*.^[42]

In the study done by Pawar V *et al* (2015), *Agastya Haritaki Avaleha* was given to the patients mostly in the *Awegawastha* (non-acute phase) for 10 weeks which showed significant reduction of symptoms. Out of the 30 patients included in the study, no patient showed total relief in symptoms, 21 patients were markedly improved (50-100% relief) while 09 patients showed improvement (25-50% relief). No one patient remained unchanged. On Follow Up study of six months it was observed in all 30 patients of recurrence of *Shwas* - *Vega* showed that 22 patients (73.33%) had no attack of *Shwasa* while 08 patients (26.67%) had attack once within the period of 6 months. It had been done to prove the sustainability of effects of *AHA*.

In the study done by Mohit *et al* (2018) an attempt was made to evaluate the effect of *Agastaya Haritaki Rasayana* on *Shwasa Roga*. It is said in the classics, the site of origin of *Shwasa Roga* is *Amashaya-Samudhbhawam* i.e *Pitta sthana* & *Virechana karma* is considered as the prime treatment for the aggravated *Pitta dosha*, Therefore, *Virechana* helps in maintaining the normal levels of *Pitta-dosha*. For every auto immune diseases, immune system must be regulated and strength of patient plays a crucial part. Here *Agastaya haritiki* was planned as *Rasayana* which was sustained for 3 months. *Shodhana* is an important part for any *Rasayana* therapy, to get rid of *Avarana*. Most of the contents of *Agastya Haritki* possess *Vata-Kapha Shamak* property and *Haritaki* also possess *Rukshana* property and *Vatanulomana prabhava* which play main role in breaking the pathogenesis of *Tamaka Swasa*.

Bharngi Guda Avaleha is an effective Ayurvedic Medicine for disease of respiratory conditions. It contains *Haritaki*, *Dashamoola*, *Bharangi*, *Guda*, *Madhu*, *Trikatu*, *Trijatak* and *Yavakshara*.^[43]

The study was done by Jarsania A *et al.* (2017), It was observed that, overall effect of therapy in *Bharangiguda Avaleha-I*, complete remission was observed in 05 patients i.e. 15.15%. Marked improvement was found in 25 patients i.e. 75.76% and moderately improvement was obtained in 03 (8.82%) patients. Mildly and no improvement was not found in any patient. Overall effect of therapy in *Bharangiguda Avaleha-II*, complete remission was observed in

02 patients i.e. 06.06%. Markedly improvement was found in 20 patients i.e. 60.61%. Moderately improvement was obtained in 11 patients i.e. 33.33%. Mildly and no improvement was not found in any patient.

Another study was conducted by Lokhande K *et al*'(2017), When the percentage of relief was compared, in *Swasakrchrata*, *Pinasa*, *Urahsula*, *Parsvasula* and *Kaphasteevan*, Group A which were treated with *Shodhana* followed by *Shamana chikitsa* i.e. *Vamana therapy* followed by *Bharangyadi Avleha* orally showed moderately better results than Group B which were treated with Tab. Deriphyllin. As far as the associated symptoms are concerned, *Asino labhate saukhyam*, *Krchrat bhasitam*, *Kantodhvamsana*, *Slesma vimoksante sukham* and *Anidra* are remarkably reduced in the Group A than Group B. No side effects were observed from the drug during the study in both groups.

In the study was done by Gohil S *et al*(2009), on *Bharangyadi Avaleha*, the treatment has reduced the intensity and frequency of attacks, even the drugs (inhaler) taken in between the treatment or after the treatment were also reduced. It was observed that, overall effect of therapy, the highest number of patient 63.64% got markedly improvement and 18.18% was observed with moderate improved and 18.18% of patients were observed with complete remission. There were no significant changes in Haematocrit values only Lymphocyte count was reduced by 19.23%, and Hb was improved 1.51% and Eosinophil count was reduced 24.19%. and ESR was reduced 47.95%.

Chitrak haritaki avaleha is one of the most important ayurvedic formulation, and commonly used in *Pratishyaya* (chronic rhinitis), *Kasa* (cough), *Shwasa* (dyspnoea), *Agnimadhya* (digestive weakness) and *Krimi* (helminthiasis). The major ingredient of *Chitrak Haritaki avaleha* are *Chitrak*, *Haritaki*, *Amalaki*. and *Guduchi*, while minor ingredients are *Twak*, *Ela*, *Trikatu*.^[44]

A study conducted by Gaur P *et al.* (2017) on *Chitraka Haritaki Avaleha* showed improvement in total WBC (2.7%), Neutrophils (6.52%), Eosinophil (12.5%), Monocyte (5.50%) and Absolute Eosinophil Count (21.4%), ESR (15%) and lymphocyte (3.71%). significant changes were found in Eosinophil, AEC and ESR. During the period of follow up, recurrence of symptoms (35.4%) of *Tamaka Shwasa* was observed. Probable reason may be the indulgence of subjects in *Virudh-Ahara* (imbalanced diet) and also due to nature of the disease.

Kamsaharitaki avaleha is a polyherbal formulation prepared by using *Dashamoola* and *Haritaki* as main ingredient and *Sunthi*, *Pippali*, *Maricha*, *Twak*, *Ela*, *Patra* and *Yavakshara* as *Prakshepa Dravya* and *Guda* as a sweetening base.^[45]

In the study conducted by Khemuka N *et al.* (2015), on *Kamsaharitaki Avaleha*, it was found that by usage of trial drugs, the duration, frequency and dosage of the emergency allopathic medicines including steroids etc. were drastically reduced and in few cases, they were withdrawn. Interestingly, most of the patients in their follow-up too, did not felt the need of any emergency medication. Vital parameters shown highly significant reduction in RR (Respiratory Rate) and highly significant increase was found in BHT (Breath Holding Time) and PEFR (Peak Expiratory Flow Rate).

Shirishadyavaleha contains *Shirisha*, *Vasa*, *Bharangi*, *Kantakari*, *Pippali*, *Haritaki* in equal parts, *Arka Pushpa* and *Trijata* are used as *Prakshepa Dravya*.(anubhuta yoga).^[46]

In the study done by Mali P *et al.*(2004), average percentage improvement observed in total score was 51.93% in *Virechana Karma* followed by *Shirishadyavaleha* group where as 37.46% improvement was reported in *Shirishadyavaleha* group. This shows that drug is more effective when it is used after *Shodhana* therapy particularly after performing *Virechana Karma*. Most significant results were obtained in *Avaleha* group on A.E.C Count than V.A. group. It indicates Antihistaminic properties of remedy *Shirishadyavaleha*. But improvement in P.E.F.R. was significant in V.A. group.

Vasa haritaki avaleha is a polyherbal formulation, contains *Vasa*, *Haritaki*, *Vanshalochana*, *Pippali*, *TVak*, *TVakpatra*, *Ela*, *Nagakeshara* and *Karkatashringi*.^[47]

In the study done by Sharma M *et al* (2011), it was observed that recurrence was found in 50% patients in Group A treated with *Shwasahara Leha* and recurrence was not observed in none of patient of Group B treated with *Vasaharitaki Avaleha* during one month follow up. Thus it can be understood that group B had lasting effects in comparison to group A. During the course treatment 8 patients needed emergency treatment. For that purpose *Panchaguna Taila* was given for local application followed by *Swedana*. Only *Parshvashula* was relieved in 5 patients with this treatment. So, it can be concluded that the prescribed remedy is not useful in emergency condition. Patient needed inhaler to be relieved from attack. *Vasa* and *Haritaki* are the main ingredients of *Vasaharitaki Avaleha* which are having expectorant,

anti-spasmodic, purgative and anti-inflammatory pharmacological actions, which helps in breaking the pathogenesis of *Tamaka Shwasa*.

Vyaghriharitki avaleha (VHA) is a purely a herbal product used commonly for the management of various diseases of respiratory system. It contains *Kantakari*, *Haritaki*, *Shunti*, *Maricha*, *Pippali*, *Twak*, *Ela*, *Patra* and *Nagakshera*.^[48]

The study which was conducted by Roshy J. *et al.* (2012), shows that in Group A treated with VHA (with *Guda* as base), 27 patients got marked improvement and 5 patients got moderate improvement, whereas in Group B VHA (with *Sharkara* as base) 26 patients got marked improvement and 5 patients got moderate improvement, Therefore, it can be concluded that both the group that contains *Vyagri haritaki avaleha* have a good effect on *Tamaka Swasa* (Bronchial Asthma). 21.88% of re-occurrence was observed in Group A, 25.81% of re-occurrence was observed in group B. No adverse effects were found during the study.

By reviewing all the studies, it was observed that, all the formulations were found to be subduing the almost all of the cardinal symptoms of the disease *Tamaka Shwasa* in a significant manner. No adverse effect was found during the studies. Although it was noticed that prescribed formulations are not much useful in emergency condition. However, dependency on inhalers and frequency of episodes on exacerbations were remarkably reduced by using these formulations. Along with the maintainance of the diet and life style i.e. heavy diet, day sleep and polluted environmental factors. Further, being *Yapya* nature of the disease, there were incidences of recurrence after cessation of trial drugs.

Probable mode of action of *haritaki*

On comprehending the formulations, it is observed that *Haritaki* is present from 20 % to 64%, lowest in *Bharangyadi Avaleha* and highest percentage in *Vasa Haritaki Avaleha* amongst all reported formulations in this review.

Haritaki is one of the drugs under *Falini dravya* (Which useful part is fruit).^[49] It acts as a rejuvenator (by cleaning various malas). But for producing its *Rasayana* effect, it needs various supportive dravyas in different seasons in the form of *anupana* (vehicle) mentioned in classics literature as *Rhithu haritaki*.^[50]

Any drug, food or drink is alleviative of *Kapha* and *Vata*, and have *ushna* property and regulative of the movements of *Vata*, is beneficial for patients afflicted with *Shwasa*.^[51]

Haritaki which is *Ruksha*, *Laghu*, *Kashaya Pradhana Pancha Rasa* (except *Lavana*), *Madhura Vipaka*, *Ushna Veerya*, *Rasayani* and *Vata- Kaphahara* these properties are much beneficial in treating the *Tamaka Shwasa*. Also, *Haritaki* has *Anulomana* property, in *Tamaka Shwasa*, *Kapha* is *Avarana* to *Vata* and *Viloma gati* of *Prana vayu* takes place. *Haritaki* does the *Anulomana* of *Vata* and helps to treat *Tamaka Shwasa*.^[52,53]

Haritaki consists a number of phytochemical constituents which are found to be associated with the plant extract that include mainly chebulic acid, gallic acid, ellagic acid, amino acid, flavanoids, like luteolin, rutins and quercetin etc. All these compounds are found to be responsible for pharmacological activities. These properties of *Haritaki* are reported to possess following activity etc.^[54]

Table 2: Phytoconstituent and Their pharmacological activity of *Haritaki* (*Terminelia chebula* retz).

Sr. no.	Phytoconstituent	Pharmacological activity in reference to pathology of Bronchial Asthma
1	Chebulagic acid, Gallic acid,	Immunomodulatory ^[55]
2	Gallic acid and ethyl ester	Antibacterial activity, antiviral ^[56]
3	flavonol aglycones and their glycosides	Anti-oxidant ^[57]
4	Chebulagic acid, Gallic acid, ellagic acid, Ellagitannins	Antihistaminic/ Anti-inflammatory ^[58]
5	Gallotannin, Tannic acid, Gallic acid Ellagic acid	anti-ulcerogenic activity ^[59]

CONCLUSION

It is concluded, that all the formulations have shown significant result on most of the cardinal symptoms of *Tamaka Shwasa* and Asthma Control Questionnaire (ACQ) and With the above observations it is clear that the different *Avaleha* which contains *Haritaki* as a main ingredient is effective in the management of *Tamaka Shwasa* without any adverse reactions. All were found to be eminent and effective while dealing with this disease. *Haritaki*, by the virtue of its properties helps in breaking the pathogenesis of *Tamaka Shwasa*. The absence of dependence of these formulations may provide a new insight in management of this palliative condition.

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