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## Efficacy of Herbal Medicines in Childhood *Tamaka Shvasa* (Bronchial Asthma)-An Evidence Based Review

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### ABSTRACT

Rapidly changing environment scenario due to urbanization and industrialization pose certain health hazards in children and among them respiratory allergies are most challenging. Now a days we witness increased incidences of allergic bronchial asthma which greatly hampers the physical, mental and social activities of the child. Stress which is triggered by Allergic Bronchial Asthma will be the major responsible factor for psycho, social and academic performance. Globally the incidence of Allergic Bronchial Asthma is anticipated about 4.5%. There are about 334 million patients with asthma affecting all age groups, across the world. India accounts for around 15-20 million patients of Bronchial Asthma. Allergic Bronchial Asthma is a disease of respiratory airways characterized by difficulty in breathing and wheezing due to the narrowing of the airways. Certain causes of bronchial asthma are due to genetic tendency, while few are due to environmental pollution and related hazards. Meanwhile altered life style and food habits are also the major triggering factors. *Tamaka Shvasa* has been also explained in *Ayurvedic* classics which can be correlated with concept of Bronchial Asthma to some extent, in terms of symptomatology. This is a disease with *Vata* and *Kapha Dosha* dominance and triggered by various causative factors. *Ayurveda* also explain the pathophysiology and treatment of the same in detail.

Treatment of bronchial asthma as per the conventional medical Science is not satisfactory and provides temporary relief with certain adverse effects. *Ayurvedic* management can be effective to remove the main cause of allergy and provide permanent relief to the child. *Panchakarma* therapy (Purifactory therapies) and certain single drug preparation of *Ayurveda* are found very much effective for controlling of Bronchial Asthma as evidenced by research works. *Ayurvedic Yogas* prepared by drugs like *Kantakari*, *Shirisha*, *Vasa*, *Bharangi*, *Shati*, *Pushakarmoola* etc. has been proved for its anti-allergic, mast cell inhibiting and anti-histaminic activities on Bronchial Asthma without undue adverse effects.

### KEYWORDS

Asthma, *Tamaka Shvasa*, *Vasa*



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## INTRODUCTION

*Ayurveda*, ancient medical science and heritage of India put forth global approach in the treatment and deals with preventive, promotive as well as curative aspects. Concepts of Allergy in *Ayurveda* has been dealt under different headings like *Asathmya*, *Ahita*, *Apathya*, *Virudda Ahara* - *Vihara* etc. and certain disorders like *Sheeta pitta*, *Kota*, *Udarda*, *Virudda Ahara Janya Rogas* and *Tamaka Shvasa* etc are described with its detail management. However, Respiratory Allergies in children leading to Allergic Bronchial Asthma like conditions can be better correlate with *Tamaka Shvasa* due to similarities in its etiology and symptomatology. Children with Respiratory Allergies pose the greatest stress in their day to day with affliction of physical, psychological, social and personal life with repeated school missing and disturbed academic performance. Meanwhile disease shows multifactorial etiology which include geographical, environmental, racial, life style, food habits and Allergic elements.

Allergic Bronchial Asthma has been presently emerging as most burning problem in pediatric population which demand an effective remedy. As presently available treatment for the same in contemporary systems of medical sciences

is unsatisfactory and expensive, added with unavoidable adverse effects. Hence there is a real need to explore the knowledge of *Ayurvedic* medications for its justified and effective management of Respiratory Allergies.

While exploring the pathology of *Tamaka Shvasa*, vitiated *Prana Vayu* combines with irrational *Kapha Dosha* in *Srotas* leading to obstruction. In the *Pranavaha Srotas* gasping and difficulty in breathing are the striking symptoms of the same. These conditions called as *Shvasaroga*<sup>1</sup>. *Tamaka Shvasa* is triggered by certain allergic causes in relation to *Ahara*, *Vihara*, *Viruddha Ahara* etc. *Tamaka Shvasa* is *Sadhya* in the initial phase, and becomes *Yapya* in chronic condition or due to improper treatment. Regarding *Tammaka Shvasa* or Allergic Bronchial Asthma *Ayurvedic Samhitas* put forth effective remedies using different treatment modalities like *Nidana Parivarjna*, *Samshodhana* and *Samshamana* treatment. It is urgent need of the hour to globally popularize all possible scientific research evidences for its acceptance so, that an effective *Ayurvedic* care can be provided to patients of Childhood Asthma.

## AIMS AND OBJECTIVES

1. To collect all available research studies related to *Ayurvedic* management of



*Tamaka Shvasa* in children from different sources of information.

2. Critically reviewing and analyzing all available research studies in the management of Bronchial Asthma in children.

## MATERIALS AND METHODS

In the present paper, all the available research studies related to *Ayurvedic* management of *Tamaka Shvasa* in children from different sources of information were collected, rearranged, critically analyzed. Different sources of information like *Ayurvedic* literature, different text of *Dravya Guna*, magazines, various online Research journals and modern medical science were reviewed. Collected information was arranged in systematic way with possible logical interpretation to understand efficacy and clinical utility of herbal medicines in childhood *Tamaka Shvasa*

## HERBAL MEDICINES

### **BHARANGI**

A study was conducted to find out the clinical utility of drug *Bharangi*, where in isolated Guinea Pig ileum displayed graded inhibition of histamine responses with the aqueous extract of the root bark (10 to 500 µg/ml). The ethyl acetate fraction (0.1 to 1 µg/ml) of the aqueous extract showed

inhibition of histamine responses on the guinea pig ileum. After saponin treatment for three weeks the *in vitro* sensitivity of the rat lung tissue to histamine was diminished but the sensitivity to acetylcholine was not remarkable<sup>2</sup>. After continuous perfusion of the alcoholic fraction of extract of the root of *Clerodendrum serratum* suggesting an anti-asthmatic potential on anaphylactic bronchoconstriction response in sensitized guinea pig lung. The saponin derived from the plant caused disruption of mast cells of the rat mesentery and the maximum effect was produced in thirty minutes after which they were was no further increase<sup>3</sup>.

### **VASA**

*Vasa* (*Adhatoda vasica*) is one of the common *Ayurvedic* single drug used in respiratory disorders. The primary chemical components of *Vasa* are *vasicine* and *vasicinone*<sup>4</sup>. *Adhatoda*'s leaves and root extracts are useful in treating different respiratory conditions like bronchitis, Bronchial Asthma and other lung and bronchiole disorders. Leaves decoction of *Vasa* has been found beneficial in throat irritation and helps to expel out the mucus from the respiratory tract. Good antitussive activity of *Adhatoda* extract has been evaluated in this study [Table No. 1]. *Vasicine* showed broncho-dilatory activity [Table No. 1] during recent investigations<sup>5</sup>.

### **KANTAKARI**



*Solanum xanthocarpum* (*Kantakari*) is described in *Kasahara* and *Hikka Nigrahana Mahakashayas* of *Charaka Samhita*. The ethanolic extract of *Solanum xanthocarpum* showed therapeutic effect like antihistaminic, anti-allergic, smooth muscle relaxant, inhibition of eosinophils and mast cell degranulation antagonist property have been evaluated<sup>6</sup> [Table No. 1]. *Kantakari* at a dose of (50-100 mg/kg) showed highly significant results in mast cell stabilization activity as compared to standard drug Disodium chromoglycate (DSCG)<sup>7</sup>.

#### **SHIRISHA**

A single blind study had been conducted on *Shirisha Twak Kwatha* reveal that the drug significantly effective to suppress TLC, eosinophil count, ESR and improve the PEFr along with symptomatic relief. So, the drug can be recommended for its use in the patients of Bronchial Asthma<sup>8</sup>. Antihistaminic activity of *Shirisha* has been also proved in various trials [Table No. 1]. The bark decoction of *Shirisha* in dose of 0.25g to 1.0 g/kg is considerably effective in 1% Histamine induced guinea pigs. The flower decoction of *Shirisha* in dose of 50mg/kg is appreciably protected the G. pig against Histamine induced bronchospasm. Due to smooth muscle relaxation activity both the bark and flower decoction of the

plant protect the guinea pig against Histamine induced bronchospasm<sup>9</sup>.

#### **YASHTIMADHU**

Asthma induced Albino rats were by triple antigen treated with extract of *G. glabra* saponin. The results showed that saponins act as anti-asthmatic agent in triple antigen induced albino rats [Table No. 1]. The inhibition on mast cell degranulation was found to be 62% at the dose of 25 mg/Kg<sup>10</sup>.

#### **SHATI**

In a study the powdered rhizome of *H. spicatum*, given 10 g in divided doses to 25 patients with repeated paroxysmal attacks of dysopnea for 4 weeks, completely disappeared dysopnea, cough and breathlessness in all the patients. The rhonchi totally disappeared in 36 % of the patients. The mean respiration rate was reduced by 25 % and the vital capacity was increased by 20 %. The mean absolute eosinophil count also declined by 55.6 %. In another study 16 patients of bronchial asthma got 1 g of powder with plain water 3 time/day for 21 days. The chief complaints like breathlessness, cough, chest heaviness, loss of appetite, uneasiness during exercise and sleeplessness etc were relieved with varying degree of relief in all the patients<sup>11</sup>.

#### **PUSHKARMOOLA**

*Pushkarmoola* is effective in *Shvasa Roga* due to its antihistaminic and bronchodilator



property [Table No. 1]. The root of *Inula racemosa* is helpful in all unhealthy condition and useful to rehabilitate inflammation and pain. *Pushkarmoola* is expectorant and bronchodilator. The Alantolactone in oil is main chemical component of root. *Pushkarmoola* provided  $\beta$ - sitosterol, dancosterol, and isoalantolactone<sup>12</sup>. *Pushkarmoola* is rejuvenative for lungs. It is useful in many

conditions like *Shvasa Roga*, bronchitis and *Pandu*. According to *Vagbhatta Pushkarmoola* is the drug of alternative in *Hikka, Shvasa and Parshwashoola*. Mast cell Stabilizing [Table No. 1] and bronchodilator property of *Inula racemosa* that create it add in *Shvasa Roga*. Alantolactone and inulin manifest most antimicrobial and anti-inflammatory actions<sup>13</sup>.

**Table 1** Some Herbal Drugs with its Properties

Sr. No.	Drugs	Latin Name	Prosperities
1.	<i>Shirisha</i>	<i>Albizia lebeck</i> Benth	Anti-inflammatory <sup>14</sup>
2.	<i>Vasa</i>	<i>Adhatoda vassica</i> Nees	Antispasmodic, Expectorant, Anti-tussive <sup>15</sup> , Bronchodilator <sup>16</sup>
3.	<i>Yastimadhu</i>	<i>Glycyrrhiza glabra</i> Linn	Anti-asthmatic <sup>17</sup> , Anti-inflammatory, Anti-microbial, Expectorant <sup>18</sup>
4.	<i>Amalaki</i>	<i>Emblica officinalis</i> Gaertn	Immunomodulatory <sup>19</sup>
5.	<i>Tulasi</i>	<i>Ocimum sanctum</i> Linn	Anti-inflammatory, Anti-asthmatic, Immunomodulatory <sup>20</sup>
6.	<i>Puskarmoola</i>	<i>Inula racemosa</i> Hook	Mast cell Stabilizing <sup>21</sup> , Antihistaminic, Anti eosinophilic <sup>22</sup>
7.	<i>Kantakari</i>	<i>Solanum surattense</i> Burm	Antihistaminic, Anti-inflammatory <sup>23</sup>
8.	<i>Shati</i>	<i>Hedychium spicatum</i> Buch-Ham	Anti-asthmatic <sup>24</sup>
9.	<i>Haridra</i>	<i>Curcuma longa</i> Linn	anti-inflammatory, analgesic, antibacterial
10.	<i>Pipalli</i>	<i>Piper longum</i> Linn	Mast cell Stabilization property, immunomodulatory, Anti-asthmatic

## CONCLUSION

*Nidana* and symptomatology of Bronchial asthma can be very well correlated with *Tamaka Shvasa* in *Ayurveda*. Detailed explanation of pathogenesis, clinical presentations and prevention, of *Tamaka Shvasa* in *Ayurvedic* classics is available. Childhood Bronchial Asthma can be very well managed by adopting the *Ayurvedic* line of treatment. Different formulation of *Ayurveda* which contains the drugs like *Bharangi, Shati, Kantakari, Yastimadhu*

etc. were found very effective in the management of childhood bronchial asthma as evidenced by research studies. These drugs are also effective when used singly. Further, it also helps to avoid the fatal adverse effects caused by medicines of contemporary system, thus avoiding the chances of hampering the growth and development of children, as also highlighted by different research work. The anti-tussive, expectorant, anti-allergic, mast cell inhibition, bronchodilator, sympathy-



mimetic, anti-cholinergic activities were also found in *Ayurvedic* herbal medicines also without any adverse effects which are very much essential for the treatment of Allergic Bronchial asthma . Thus on the basis of review and critical analysis of recent research works and critically reviewing and analyzing all available research studies in the management of bronchial asthma in children it can be concluded that *Ayurvedic* line of treatment with herbal drugs can be an alternative for most burning and challenging health hazards like Allergic Bronchial Athama.



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