



**ANTI-HISTAMINE ACTIVITY OF AMIRTHA SANJEEVI KULIGAI (PILL)**

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**ABSTRACT**

Many children suffer from recurrent coughing, wheezing and chest tightness. In pre-school, one third of all children have these symptoms before the age of six, but only 40% of these wheezing pre-schoolers will continue to have asthma. In older school-aged children the majority of the children have asthma. Quality of life in children's is affected by asthma. Sleep disruption and exercised induced airflow limitation have a negative impact on participation in sports and social activities, and may influence family life. In children and young adults asthma is usually accompanied by allergic (atopic) phenomena such as elevation of the total serum immunoglobulin E concentration. Nowadays the management of childhood asthma is commonly with synthetic corticosteroids, but it has some side effects like weight gain, tachycardia, depression, glaucoma etc. In traditional Siddha system of medicine several herbal and herbo mineral formulations are indicated for respiratory problems in paediatric age group. *Amirtha Sanjeevi Kuligai* is a poly herbal formulation indicated for this disease in Siddha literature. Histamine plays a major role in the pathogenesis of asthma. So, the Anti- histamine activity of *Amirtha Sanjeevi Kuligai* was carried out by determining the histamine activity of injecting histamine in wister albino rat by hind paw method. The change in the hind paw volume was measured using plethysmometer and expressed as mean paw volume. The study result concluded that the drug *Amirtha sanjeevi kuligai* has got significant Anti-histamine activity.

**KEYWORDS:** Childhood bronchial asthma, *Amirtha Sanjeevi Kuligai*, Anti-histamine activity, Phenyl butazone.

**INTRODUCTION**

Asthma is a chronic disorder of the bronchial tree, characterized by completely or partially reversible airway obstruction, which may improve spontaneously or may subside only after specific therapy. Airway hyperresponsiveness is defined as the narrowing of the airways as response to a variety of stimuli, such as allergens and nonspecific triggers and infections. Asthma is a chronic disorder of both children and adults, with 300 million individuals afflicted worldwide (Global Initiative for Asthma

(GINA) guidelines) [1]. The mean prevalence of childhood asthma was  $7.24 \pm SD 5.42$  [2]. Although the prevalence of asthma has increased over the last decades, but in children, there is still no sound explanation for this increase [3]. Asthma symptoms include recurrent wheezing, coughing, chest tightness, and dyspnoea, with nightly and early morning symptoms being more prevalent, whereby quality of life is often reduced [4]. Approximately 60–75% of

school-aged children with asthma have an allergy [5].

Childhood Bronchial Asthma varies widely from country to country. At the age of six to seven years, the prevalence ranges from 4 to 32[6]. It has also increased the number of preventable hospital emergency visits and admissions. Apart from being the leading cause of hospitalization for children, it is one of the most important chronic conditions causing elementary school absenteeism [7],[8]. Geographical location, environmental, seasonal variation, racial, as well as factors related to behaviors and lifestyles are associated with this disease [9],[10],[11]. Child hood bronchial asthma closely correlates with the description of the disease "SOOLI KANAM" recorded thousands years ago by the ancient Siddhar's. Sooli Kanam having the clinical features like wheezing, cough, decreased physical activity, poor diet intake etc described by Siddhar's [12].

Modern medicine is much advanced in treating the infectious diseases but has limitations in treating endogenous diseases like Asthma, Diabetes Mellitus etc however it provides only palliative treatment. In treatment of bronchial asthma extensive use of bronchodilators, antibiotics, steroids and other measures are helpful.[13] In prolonged use of steroid therapy hoarseness of voice, dysphonia, sore throat, asymptomatic or symptomatic oropharyngeal candidiasis and suppression of immune response etc are seen in users while GIT, CNS and CVS toxicity occurs with theophylline and methylxanthines which are potent bronchodilators[13].

On the other hand in siddha, proper implementation of the ancient approach is advantageous.

In Siddha literary various herbal drugs either single or compound are prescribed for the management of many respiratory problems. One such medicine is *Amirtha Sanjeevi Kuligai* a poly herbal formulation which is indicated for *Sooli kanam* (Childhood bronchial asthma) in Siddha literature Balavagadam[14].

*Amirtha Sanjeevi Kuligai* have the ingredients like *Ferulla asafoedita* resin, *Costus speciosus* root, *Electaria cardamomum* fruit, *Syzygium aromaticum* flower bud, *Santalum album* wood, *Picrorrhoea kurora*, *Madhuca longifolia* flower, *Hemidusmus indicaroot*, *Plectranthus vettiveriodes* root, *Vettiveria zizanoides* root, *Piper longum* fruit, *Glycyrrhiza glabra*, *Cyperus rotundus* root tuber, *Vitis vinifera* dry fruit, *Phonex dactylifera* fruit and *Saccharum officinarum* juice. Histamine is one of the mediators of "allergic" and/or "asthmatic" inflammation. It is likely to play a role in the spasmogenic phase of asthma. Anti- histamines will be more effective in patients with mild asthma and in the younger asthmatics[15]. The literature review of the ingredients of ASK *Syzygium aromaticum*, *Piper longum*, *Picrorrhoea kurora*, and *Vitis vinifera* possess Anti histamine activity[16],[17],[18],[19]. So in this view we propose to study the antihistamine activity of the trial drug *Amirtha Sanjeevi Kuligai* by histamine induced paw odema in rats which may use in treating childhood asthma.

**Table1: Ingredients of Amirtha Sanjeevi Kuligai**

S.No	Drug Names	Botanical Name	Parts used	Proportion
1	<i>Perungayam</i>	<i>Ferulla asafoedita</i>	Resin	25 gm
2	<i>Kostum</i>	<i>Costus speciosus</i>	Root	25 gm
3	<i>Ellam</i>	<i>Electaria cardamomum</i>	Fruit	25 gm
4	<i>Illavangam</i>	<i>Syzygium aromaticum</i>	Flower bud	25 gm
5	<i>Santhanam</i>	<i>Santalum album</i>	Stem	25gm
6	<i>Kadugurogini</i>	<i>Picrorrhoea kurora</i>	Stem	25gm
7	<i>Illupai Poo</i>	<i>Madhuca indica</i>	Flower	25gm
8	<i>Nannari</i>	<i>Hemidusmus indicus</i>	Stem	25gm
9	<i>Vilamichi Ver</i>	<i>Plectranthus vettiveriodes</i>	Root	25gm

10	Vettiver	<i>Vettiveria zizanoides</i>	Root	25gm
11	Thippili	<i>Piper longum</i>	Fruit	25gm
12	Athimathuram	<i>Glycyrrhiza glabra</i>	Stem	25gm
13	Korai Kilangu	<i>Cyperus rotundus</i>	Root	25 gm
14	Thiratchai	<i>Vitis venifera</i>	Fruit	25 gm
15	Paerichai	<i>Phonex dactylifera</i>	Fruit	25 gm
16	KarumbuSaaru	<i>Saccharum officinarum</i>	Juice	Required quantity

## MATERIALS AND METHODS

The ingredients of the drugs *AMIRTHA SANJEEVI KULIGAI* were procured from TAMPCOL drug shop. The raw drugs were identified and authenticated in Post Graduate Department of Gunapadam, Govt. Siddha Medical College, Arumbakkam, Chennai. All the ingredients were taken in equal quantity then it was powdered finely and required quantity of sugar cane juice was added little by little and it was grinded in a mortar for 12 hours, then it was made into 370 mg pills, dried and preserved in an air tight container. These pills were labelled as ASK and used for the present study.

### Amirtha Sanjeevi Kuligai



### Preparation of stock solution

The suspension of Siddha drug ASK in 2% (W/V) CMC (Chemistry Manufacturing and Controls) was prepared for oral administration by gastric intubation in rats.

### Animals

Swiss albino rats of male sex weighing about 230-250 gm were obtained

from Animal house department, King Institute, Guindy, Chennai. The animals were acclimatized to standard laboratory condition (temperature - 24 to 28°C and humidity 60- 70%) and maintained on 12hr light/ dark cycle. The animals were housed in polypropylene cages and fed with standard rodent pellet obtained and water ad libitum. The present study was approved by the Institutional Animal Ethical Committee (IAEC), C.L. Baid Metha College of Pharmacy, Thoraipakkam, Chennai- 600097, the approval number: IAEC/XXXIX/13/CLBMCP/2013/ dated 29.6.2013.

### Evaluation of the Anti-histamines activity

The animals were divided into four groups and each group had six animals. All the animals were injected with single intra plantar injection of 0.1 ml of histamine of the hind paw. Group I is treated as negative control without drug treatment. Standard drug phenyl butazone (100 mg/kg) were used as standard drug and administered as CMC suspension by oral route for the Group II [20]. Group III and Group IV were treated with test drug solution of *Amirtha sanjeevi kuligai* at two different levels of dose. This dose was fixed based on the acute toxicity study in rats. The swelling was measured by plethysmometer and expressed as mean paw volume of left hind paw of the rats. After the induction of paw oedema, the increase in paw volume was calculated at fixed interval of 0, 60, 120, 180 and 240 mins. The change in paw volume was measured as the difference between the final and initial paw volume.

**Table2: Paw volume (ml) was measured on days/ mean displacement value (ml).**

Groups and Drugs	Paw oedema at different time intervals (ml) (mean ±SEM)				
	0min	60 min	120 min	180 min	240 min
Histamine(Negative control)	0.281± 0.07	0.66± 0.01	0.83± 0.06	0.92 ± 0.03	1.03 ± 0.06
Histamine + standard	0.272 ± 0.06	0.32 ± 0.05	0.41 ± 0.06	0.423 ± 0.02	0.471 ± 0.01
Histamine + Test low dose	0.251 ± 0.05	0.61 ± 0.02	0.75 ± 0.01	0.89 ± 0.03	0.93 ± 0.02
Histamine+ Test high dose	0.256 ± 0.06	0.527 ± 0.01	0.693 ± 0.02	0.744 ± 0.01	0.791 ± 0.07

Mean changes in paw volume using mercury Plethysmometer in rats n=6, Values are expressed as mean ± SEM. \* P < 0.05, Significantly different from negative control (histamine only)

### Statistical analysis

The statistical analysis was carried by one way ANOVA (GRAPH PAD PRISM 5 computer program). Results are expressed as mean ± standard error. A statistical comparison was carried out using the Dunnett's 't' multiple comparison test for comparing control and treatment group.

### Results and observation

Observation of results predicts that histamine induced group shown increased displacement value ranges from 0.281 to 1.03 ml

Treatment with test drug at the dose of 200mg/kg shown displacement value ranges from 0.251 to 0.93 ml

Treatment with test drug at the dose of 400mg/kg shown displacement value ranges from 0.256 to 0.791ml

Treatment with standard drug Phenylbutazone at the dose of 100mg/kg shown displacement value ranges from 0.272 to 0.471 ml.

### DISCUSSION

In the present observation the *Amirtha Sanjeevi Kuligai* was able to reduce the histamine content. In the histamine edema process, mediators are released in an ordinate sequence and the first phase is considered as the histamine phase in which there is an explosive output of histamines

released from mast cells. The drug at the dose of 200mg/kg b.wt and 400 mg/kg b.wt observed as the effective therapeutic dose. In the present observation the *Amirtha Sanjeevi Kuligai* was able to reduce the histamine content. It may be due to the inhibitory effect on calcium influx into cells and thus the drug would have controlled the release of histamine content.

*Amirtha Sanjeevi Kuligai* could also potentiate the anti-histaminic activity by controlling the release of histamine and there by restoring vascular wall integrity and thus prevented the exudation. The present observation might suggest the anti-histamine activity of *Amirtha Sanjeevi Kuligai*.

### CONCLUSION

The results of the present study demonstrate that the drug *Amirtha Sanjeevi Kuligai* has significant anti-histaminic activity by the suppression of increased vascular permeability, reflected in the decreased paw volume in rats. It has been concluded that the potent Anti-histaminic activity of *Amirtha Sanjeevi Kuligai* in rats and this results contribute towards the validation of the traditional use of *Amirtha Sanjeevi Kuligai* in the treatment of Childhood Asthma.

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