

## EFFECT OF SIVANAAR AMIRTHAM AND AYAKKANATHA CHENDOORAM IN EXPERIMENTAL INFLAMMATION AND MAST CELL PROTECTION

A. JASWANTH, AKILA RAVIKUMAR, S. JERRY HEISON ROBERT AND B  
JAYAKAR

Periyar College of Pharmaceutical Sciences for Women, Tiruchirappalli- 21.

**Received: 27, June, 1997**

**Accepted: 4 December, 1997**

*ABSTRACT: The Siddha Drugs sivannar Amirthan (SA), Ayakkantha chendooram (AC) and their combinations were screened for their antiinflammatory effect against carrageenin induced paw edema and for its protective effect on mast cellos against degranulation, A significant antiinflammatory and mast cell protective effects were observed.*

### INTRODUCTION

The siddha drugs *Sivannar amirtham* (S.A), *Ayakkantha chendooram* (AC) were used for various ailments, the constituents of the SA and AC were given in the table 1. The combination of these drugs were used in a

variety of inflammatory conditions. SA is used in rheumatic diseases, respiratory diseases, bronchial asthma, piles and also in tuberculosis. AC is used in ascites and in all types of enaemia<sup>1</sup>

**Table 1**  
**Constituents of the Drugs**

Sivannaar Amirtham	Ayakkantha chendooram
Male fern rhizome	Iron filings
Mercury	Lode stone
Aconite	Cinnabar
Sulphur	Borax
Three pungents	Common alum
Red Orpiment	Alkaline earth salt
Borax	common salt
Black pepper	rock salt
	Salammoniac
	Camphor
	Lime juice

### MATERIALS AND METHODS

Sivannaar amirtham (SA) and Ayakkantha chendooram (AC) were procured form IMPCOPS, Chennai.

**Carrageenin induced paw edema<sup>2</sup>**

Paw edema was in albino rats weighing (150-200 gms) by injecting 0.1 ml of 1% carrageenin. The rats were divided into five groups of six each. The dosage of the drugs administered to the different groups was as follows. Group I SA (125 mg/kg), Group II- AC (125 mg/kg) Group III – AC (125 mg/kg) Group III SA+AC (65mg/kg +65 mg/kg), Group IV – Indomethacin (10 mg/kg), all the above druge were prepared in a five suspension with honey and water as indicated in the siddha literature1 group V- serves as solvent control and received 0.5ml of the mixture of honey and water. All the drug ewer administered. The increase in paw volume was measured plethysmographically every hour upto 8 hrs .

### Mast Cell degranulation

In vitro test for mast cell degranulation was carried out by the modified method of kaley and Weiner (1971)3 Male albino rats were sacrificed, the mesentery was carefully removed and cut into small bits of about one cm. these bits were incubated for 5 min in tyrode solution containing SA (100 mcg/ml) were added to the incubates and the bits were removed after 10 min. they were carefully spread over glass slides and stained with 1% toluidine blue. Mast cells were counted in5 different fields at random under high power objective field, the percentage of degranulated cells were calculated in each treatment group. Disodium cromoglycate (DSCG), a known mast cell stabilizer was included in the study for comparison. All results were analyzed using students‘t’ test.

**Table No 2**  
Effect of SA and AC on carrageenin induced paw edema in albino rats

Drug And Dose	% increase in paw volume (mean ±SE n=6)						
	Post insult time of assay in minute						
	0	60	120	180	240	360	480
Vehicle	52.4 ±4.7	57.3± 4.9	82.6 ±5.7	101.6 ±8.4	109.6 ± 8.7	109.6 ±8.7	108.3 ±8.2
Indo (10mg/kg)	35.3 ±3.0	52.3 ±4.4	72.0 ±6.5	74.3 ±6.7	74.3 ±6.7	72.0± 6.5	72.0 ±6.5
SA (125mg/kg)	50.3 v4.2	57.0 ±6.6	82.0 ±7.6	91.6 ±6.7	94.3± 6.7	86.3± 8.1	85.3± 7.8
AC (125mg/kg)	29.3 ±4.0	38.0 ±3.8	44.3 ±5.6	47.6 ±5.8	47.6 ±5.7	55.6 ±5.7	55.0± 5.6
SA+AC (65mg/kg)	42.3 ±4.1	48.6 ±4.4	69.3 ±6.2	69.3± 6.2	76.3 ±4.5	69.3± 4.4	67.3 ±4.2

## RESULTS AND DISCUSSION

### Carrageenin Paw edema

Treatment with SA and AC produced significant reduction in the volume of paw edema (Table -2) It as been reported that the second phase of carrageenin induced inflammation is said to be promoted by

prostaglandin, and this phase is sensitive to drugs like indomethacin, phenlybutazone, and hydrocortisone. 4,5 It was noticed that the siddha drugs SA and AC exert maximum

anti-inflammatory activity at the second phase of carrageenin inflammation.

**Mast cell degranulation**

Propranolol (50mcg/ml) produced 6.3 = 4.1 % degranulation of rat mesenteric mast

cells. Pretreatment with SA and AC significantly reduced percentage of degranulation (table-3). The rupture of mast cell membrane and degranulation are important stages in the allergic reaction. The present study revealed tem as cell stabilizing effect of SA and AC.

**Table – 3**  
**Effect of SA and AC on mast cell degranulation**

Treatment MCG/ml	Saline	Propranolol 50 mcg/ml % degranulation
Control	30.4 ± 3.0	66.3 ± 4.1
SA 100		19.6 ± 1.1*
AC 100		13.2 ± 0.8*
DSCG 10		22.3 ± 1.4 *

Each value represents the mean ± SEM of six experiments. \*P< 0.001 compared to control value.

**REFERENCE:**

1. Chidambarathanu Pillai, S., Siddha system of pharmacopoeia, siddha medicinal literature research centre, Chennai. Pp: 26 – 246, (1992).
2. Winter, C.A., Risley, E.A and Nuss, G.W. Carrageenin induced edema in hind paw of the rat as an assay of inflammatory drugs. Proceedings of the society for experimental biology and medicine, 111, 544, (1962).
3. Kaley, G. and Weiner, R.Y., prostaglandin ‘E’ a potential mediator in Annals of N.Y Acad. Sci., Vol 180, 347-348. Eds. Peer Ramwell and Jan Jane, E. Shaw, Ac. Press New York, (1971).
4. Vinegar, R., Scheiber, W. and Hugo, R., Journal of pharmacology and experimental therapeutics, 166, 96, (1969)
5. DiRosa, M., Sorrentino, L. and parante, L., Journal of pharmacy and pharmacology, 24, 576, (1971).