ABSTRACT

The holistic approach in treating dermatological problems like Eczema and allergic disorders in Siddha has earned higher confidence in common people. KARUNCHEERAGA CHURANAM (KCC), a siddha medicine is one such formulation indicated for eczema and allergic disorder. The evidence based research among these formulations will focus them in scientific arena. The aim of the study is to explore the anti-inflammatory, analgesic and anti-histamine action of the test drug KCC. Acute anti-inflammatory study was done by hind paw method in albino rats. It was tested in 2 different doses. The chronic anti-inflammatory activity was studied in albino rats by Cotton pellets implantation (granuloma) method. The analgesic study was done by the tail-flick method in albino rats. The anti-histamine effect of the test drug was done in the isolated ileum of the guinea pig. The test drug is prepared by mixing 5gm of the test drug KCC with 50ml water. The chemical analysis of the drug revealed that it has the analyzable amount of calcium and ferrous iron. Pharmacologically test drug KCC has significant anti-histamine action. It has moderate analgesic action and moderate anti-inflammatory action in both acute and chronic studies. The test drug KCC has significant efficacy of anti-allergic property and it can be used in eczema and urticaria rashes.

Keywords: Anti-histamine action, Karuncheeraga churaman, Pharmacological analysis, Siddha medicine.

INTRODUCTION

India has very long, safe and continuous usage of many herbal drugs in the officially recognized alternative systems of health viz. Ayurveda, Yoga, Unani, Siddha, and Naturopathy. These systems have rightfully existed side-by-side with Allopathy and are not in the domain of obscurity', as stated by Venkat Subramanian. More than 70% of India’s 1.1 billion populations still use these non-allopathic systems of medicine. World statistics shows, increases in the prevalence of allergies, asthma, and eczema were more commonly seen among children between the ages of 6 and 7 than among children aged 13 and 14. In 2004 the World Allergy Organization’s Specialty and Training Council conducted a survey of World Allergy Organization (WAO) member societies to obtain information about the status of the specialty of allergy worldwide. Responses were received from 33 countries, representing a population of 1.39 billion people, of whom it was estimated that 22% may suffer from some form of allergic disease. Allergy was reported by 23 respondents to be a certified or accredited specialty in their country, and the number of certified allergists per head of population ranged from 1:25 million to 1:16,000. Allergists were ranked as the fifth most likely clinicians to see cases of allergic asthma, third most likely to see allergic rhinitis, and fourth most likely to see eczema or sinusitis. The survey results highlight a pressing need for the development of allergy services worldwide.

Siddha medicine

Siddha system is an integral part of socio-cultural milieu of Tamil Nadu. The history of Siddha medicine is as old as the history of the Tamil culture and civilization. Scientific documentation of traditional system of medicine is increasing and need for preparing it for Siddha formulation has become the need of the hour. Scientifically validated and technologically standardized botanical products may be explored on a fast track using innovative approaches like reverse pharmacology and systems biology, which are based on traditional medicine knowledge. In siddha system of medicine eczema is described as Karappan; it was treated and mended by many herbal combinations given in the ancient Siddha Literatures.

OBJECTIVE

The rationale of the study is to prove the anti-allergic property of the test drug Karuncheeraga Chooranam (KCC), which is indicated for Eczema like conditions in Siddha literature. To generate scientific evidence of its role in curing skin ailments was evaluated to meet the need of significant drug regimen for allergic conditions.

MATERIALS AND METHODS

Drug Review

The test drug KCC contains Indigofera aspalathoides (Sivanar vembu), Cleomedendron inerme (Sankan kuppil), and Coldenia procumbens linn. (Serrupadi).,Enicostemma asiilare (Veilavragga),Smlax china (Parangi patti),Acalypha fruticosa (Chinni),Jatropha curcas (Kattaiamukku).Capparis sepia linn. (Chenkattthari pattai),Caesia senna (Nilavavara),Azima tetracantha linn. (Sankam pattai) each 12.5 grams (30 varagan edan)Nigella sativa linn. (Karuncheeragam),Trachyspermum ammi (Omum) each 35 grams (one palam). The raw drugs were collected from authorized country shop. The drugs were cleaned and shade dried .Then they were crushed, powdered and mixed well. Human dosage is one gram (verukad), thrice in a day, with hot water. The given Indications are all types of eczema, vigorous itch, and chronic skin lesions.

Physical properties

The assays for analyzing the physical properties were done as per the methods of Indian Pharmacopeia.

a. Loss on drying

Five grams of the test drug KCC was heated in a hot oven at 40 ± c to constant weight. The percentage of loss of weight was calculated.

b. Determination of ash Value

2-3 grams of tared pl test drug KCC was taken in atinum or silica dish and incinerate at a temperature not exceeding 450 ± until free from carbon. It was cooled and weighed. The percentage of ash was calculated with reference to the air dried drug.

c. Acid insoluble ash

The ash was mixed with 25 ml of 1:1 dilute HCL and boiled for five minutes, and then insoluble matters were collected in Gooch-crucible on an ash less filter paper, and washed with hot water. Then it was ignited, cooled in a desicator and weighed. The percentage of acid insoluble ash with reference to the air dried drug was calculated.

d. Water soluble ash

25ml of water was added into the Gooch crucible containing the total ash, and boiled for 5 minutes. The insoluble matter was collected in a sintered glass crucible or an ash less filter paper. Then
one hour later a sub cutaneous injection of distilled water of 1ml/100gm of body weight. The second group consisting of 2 rats. First group was kept as control by giving 1ml contain 100 mg of the test drug KCC. Six healthy albino rats, of 100-150gms of weight were divided into 3 groups, each of oral. One hour later a sub cutaneous injection of distilled water of 1ml/100gm of body weight. The second group consisting of 2 rats. First group was kept as control by giving

### Pharmacological studies

**I. Acute anti-inflammatory study**

Acute anti-inflammatory study was done by hind paw method in albino rats. 1gm of the test drug KCC was suspended in 10ml of water. From this solution 5 ml test drug was administered orally. 1ml contain 100 mg of the test drug KCC. Six healthy albino rats, of 100-150gms of weight were divided into 3 groups, each consisting of 2 rats. First group was given ibuprofen at dosages of 20 mg /100gm of body weight. The third group was given the test drug at a dose of 100 mg/100gm body weight. Before administration of test drug, the hind paw volumes of all rats were measured. This was done by dipping the hind paw (up to thio-tarsal junction) into a mercury Plethysmograph. While dipping the hind paw, by pulling the syringe position, the level of mercury in the small tube was made to coincide with red-marking and reading was noted from the Plethysmograph. Soon after the measurement, the drugs were administered orally. One hour later a sub cutaneous injection of 0.1 ml of 1% w/v carageenan in water was administered into the plantar surface of both hind paw of each rat. One and half an hour after injection the hind paw volume was measured once again. The difference between the initial and final volume would show the amount of inflammation taking the volume in the control group as 100% of inflammation. Anti-inflammatory effect of the test group was calculated.

**II. Chronic anti-inflammatory study**

Chronic anti-inflammatory study was done by cotton pellets implantation (granuloma) method in albino rats. Cotton pellets each weighing 10 mg was prepared and sterilized in an autoclave for about one hour less than 15 lbs atmosphere pressure. Six albino rats weighing between 100-200 grams were selected; it was divided into 3 groups. Each rat was anaesthetized with ether and cotton pellets were implanted subcutaneously in the groin, two in each side. From the day of implantation, one group of animals received the test drug KCC at a dose of 100mg of body weight. Another group of animals were received distilled water. Last group was given ibuprofen at the dose of 20 mg/100gm body weight. On the eighth day the rats were sacrificed and the pellets were removed and weighed. Then they were put in an incubator at 60°C and then weighed. The concordant weight was noted for all groups.

### III. Analgesic study

The analgesic effect was evaluated by the tail-flick method in albino rats. 1 gram of the test drug KCC was dissolved in 10ml of distilled water. A dose 1ml was given to each rat. This 1ml contains 100mg of test drug. Analgesiometer or Dolorimeter, using heated nichrome wire, was used as the source of stimulus. Three groups of healthy albino rats with each group having 2 rats on both sexes were selected. Each rat was put inside a rat holder with the tail projecting out fully. The tip of the tail was kept over the nichrome wire of the analgesiometer without touching it. Now the current of 5 mA was passed through the analgesiometer to heat the nichrome wire by

### Table 1: shows the bio-chemical Qualitative Analysis of the test drug KCC.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Experiment</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Test for Calcium</td>
<td>A white precipitate was formed</td>
</tr>
<tr>
<td>02.</td>
<td>Test for Sulphate</td>
<td>No white precipitate was formed</td>
</tr>
<tr>
<td>03.</td>
<td>Test for Chloride</td>
<td>No white precipitate was formed</td>
</tr>
<tr>
<td>04.</td>
<td>Test for Carbonate</td>
<td>No yellow precipitate was formed</td>
</tr>
<tr>
<td>05.</td>
<td>Test for starch</td>
<td>No blue colour was developed</td>
</tr>
<tr>
<td>06.</td>
<td>Test for Ferric iron</td>
<td>No blue colour was developed</td>
</tr>
<tr>
<td>07.</td>
<td>Test for ferrous iron</td>
<td>Blood red colour was formed</td>
</tr>
<tr>
<td>08.</td>
<td>Test for phosphates</td>
<td>No yellow precipitate was formed</td>
</tr>
<tr>
<td>09.</td>
<td>Test for Albumin</td>
<td>No yellow precipitate was formed</td>
</tr>
<tr>
<td>10.</td>
<td>Test for tannic acid</td>
<td>No blue black precipitate was formed</td>
</tr>
<tr>
<td>11.</td>
<td>Test for Unsaturated Compound</td>
<td>No discoloration</td>
</tr>
</tbody>
</table>
switching it on, at the same time starting a stop watch. The time
taken for the rat to flick the tail was noted. This is the reaction time.
The reaction time was noted for each rat and the average was
calculated. First group was given 2ml of distilled water and kept as
control. Second group was administered with Paracetamol at a dose
of 20mg/100gm of body weight orally. The test drug KCC was
administered to the third group at dose of 200 mg/100mg of body
weight. After a lapse of 1 hour, the reaction time of each rat was
noted in each at an interval of 2 minutes (when a rat fails to flick the
tail, it should not be continued beyond 8 seconds to avoid injury)
and the average is calculated.

IV. Anti-Histamine study

5gms of the test drug KCC was added with 50ml of water and made
into decoction of 10ml. It was used for anti-histamine studies against
the 1 in 1, 00,000 strength solution of histamine. A Guinea pig
weighing about 450 grams was starved for 48 hours and only water
was allowed. It was killed by stunning with a sharp blow on the head
and cutting its throat to bleed it to death. The abdomen was quickly
opened and the viscera inspected and loops of intestine identified
using the patch as a land mark. Then the ileum was removed and
placed in a shallow-dish containing warm “Tyrode solution” mixed
with atropines with the help of 25 ml pipette the lumen of the ileum
was gently rinsed out with saline. It was cut into segments of required
length, generally 4cm, in a fully relaxed state and the sutures were
made with needle and tied at either ends. The segment was suspended
in an isolated organ bath. It was aerated by an oxygen tube and
immersed in Tyrode solution at 37°c. The test drug solution was given
to study the inhibitory effect of histamine induced contractions.

RESULTS

A. Physical properties

The results of physical properties are given in Table no: 2.

B. Bio-chemical Qualitative Analysis

Bio-chemically the test drug KCC had the presence of calcium and
ferrous iron.

I. Acute anti-inflammatory study

Tabulations of the results were recorded and given in Table no: 3. the
test drug KCC has moderate anti-inflammatory action.

II. Chronic anti-inflammatory study

The concordant weight was compared and given in Table no: 4. the
test drug has moderate chronic anti-inflammatory action.

III. Analgesic study

The results of control group, Standard group and the drug treated
group were tabulated in Table no: 5 and compared. The test drug
has moderate analgesic action.

IV. Anti-Histamine study

The test drug KCC was given to study the inhibitory effect of
histamine induced contractions. The test drug has a  significant anti-
histamine action. It is given in Fig: 1.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Parameter</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Loss on drying @ 105°c</td>
<td>6.72</td>
</tr>
<tr>
<td>02</td>
<td>Ash value</td>
<td>12.89</td>
</tr>
<tr>
<td>03</td>
<td>Water soluble</td>
<td>9.80</td>
</tr>
<tr>
<td>04</td>
<td>Alkalinity as CaCo3 in water soluble ash</td>
<td>0.05</td>
</tr>
<tr>
<td>05</td>
<td>Acid insoluble ash</td>
<td>5.25</td>
</tr>
<tr>
<td>06</td>
<td>pH at 10% aqueous solution</td>
<td>5.68</td>
</tr>
</tbody>
</table>

Table 2: Shows the results of preliminary physico-chemical analysis.

I. Acute anti-inflammatory study

<table>
<thead>
<tr>
<th>S. No</th>
<th>Group</th>
<th>Dose/100mg/BW</th>
<th>Mean difference</th>
<th>% of inflammation</th>
<th>% of inhibition</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Control water</td>
<td>1ml</td>
<td>0.85</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Standard- ibu-brufen</td>
<td>20mg/1ml</td>
<td>0.05</td>
<td>6.25</td>
<td>93.75</td>
</tr>
<tr>
<td>03</td>
<td>Test drug –KCC</td>
<td>100mg/1ml</td>
<td>0.45</td>
<td>56.25</td>
<td>43.75</td>
</tr>
</tbody>
</table>

Table: 3 shows the results of acute anti-inflammatory Study of the test drug KCC.

II. Chronic anti-inflammatory study

<table>
<thead>
<tr>
<th>S. No</th>
<th>Group</th>
<th>Dose/100mg/BW</th>
<th>Concordant wt in mg</th>
<th>% of inflammation</th>
<th>% of inhibition</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Control water</td>
<td>1ml</td>
<td>250</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Standard- ibu-brufen</td>
<td>20mg/1ml</td>
<td>56</td>
<td>22.4</td>
<td>77.6</td>
</tr>
<tr>
<td>03</td>
<td>Test drug –KCC</td>
<td>100mg/1ml</td>
<td>143</td>
<td>57</td>
<td>43</td>
</tr>
</tbody>
</table>

Table: 4 shows the results of chronic anti-inflammatory Study of the test drug KCC

III. Analgesic study

<table>
<thead>
<tr>
<th>S. No</th>
<th>Group</th>
<th>Drugs</th>
<th>Dose/100mg of BW</th>
<th>Initial reading in seconds</th>
<th>After ½ an hour</th>
<th>After 1 hour</th>
<th>After 1½ hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Control</td>
<td>Water</td>
<td>1ml/kg</td>
<td>2.5sec</td>
<td>2.5sec</td>
<td>2.5sec</td>
<td>3sec</td>
</tr>
<tr>
<td>02</td>
<td>Standard</td>
<td>Paracetamol</td>
<td>20mg/kg</td>
<td>2.5sec</td>
<td>4sec</td>
<td>5.5sec</td>
<td>6.5sec</td>
</tr>
<tr>
<td>03</td>
<td>Test drug</td>
<td>KCC</td>
<td>100mg/ml</td>
<td>2.5sec</td>
<td>3.5sec</td>
<td>4sec</td>
<td>4.5sec</td>
</tr>
</tbody>
</table>

Table: 5 shows the results of analgesic study of the test drug KCC.
Fig. 1: shows the bio-Assay of Anti-Histamine Action of the test drug KCC

IV. Anti-Histamine study

DISCUSSION
The test drug KCC indicated for the chronic skin ailments which can be substantiated by the above studies. The test drug had shown the moderate anti-inflammatory action (both acute & chronic) at 100 mg/1ml of body weight. It had the moderate analgesic action at the same dose level in laboratory animals. The test drug KCC had revealed significant anti-histamine action in the isolated ileum of the guinea pig.

CONCLUSION
The test drug Karuncheeraga Churanam can be used in the treatment of Eczema and other allergic skin diseases. Pre-clinically, it has worthy pharmacological effect on anti-allergic property. Therefore, these scientific investigations may be utilized to develop drugs from the siddha literary source for these diseases. Further research is deserved to find out the clinical efficacy of the test drug Karuncheeraga Churanam responsible for the observed biological activity.

REFERENCES
1. Venkat Subramanian T.C. In: Foreword, /in Road Beyond Boundaries (The Case of Selected Indian Healthcare Systems)/