A STUDY ON KUTHUKKARAN SAMMATTI W.R.T ANTI INFLAMMATORY AND
ANALGESIC ACTIVITY
(INDIGOHERA OBLONGIFOLIA FORSK)
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The Siddha medical system is one of the ancient medical systems. Siddhars are considered to be super human beings who have defined age and other laws of nature to which all human beings are subjects to. The historians of Alexander the great, spoke of the existence of a class of mystics (siddhars) called Gymnosophists in all countries from Egypt to India.

The main aim of this work is to do a scientific review on kuthukkaran sammatti and its efficacy in treating Aazhal Keel vayu patients.

Scientific name of KUTHUKKARAN SAMMATTI is Indigofera oblongifolia. Forsk, and family FABACEAE.

Synonym: Indigofera paucifolia Delile.
Vernaacular names:
Tamil: Kattukkar chammathi. Sans: Jhilla, Mirdupatraka, Raktapala.
Tel: Kondavem Pali. Delhi: Jhungi, Vilayathi jhonun

Distribution:
a. Throughout the tropical and sub-tropical regions of the world.
Plains from Sind and upper Ganges to Ceylon, java. Arabia, tropical Africa.
All over India (Botanical description as per ref)

Ayurvedic aspects
According to bhavaprakasa, kuthukkaran sammatti is bitter, hot.

Medicinal uses:
Generally roots leaves or the entire plants are used in urinary diseases with excessive urine, giddiness, abdominal enlargement (ascites) enlargement of spleen, vatarakta, gout and intestinal obstruction.

Leaves:
Externally applied as a poultice in various skin affections like scabies and to cleanse and heal wounds and ulcers. Juice of leaves is given in asthma, whooping cough, palpitation of the heart, lungs disease and kidney complaints.

Roots:
Useful in bladder stones and epilepsy.

Material and methods: Preparation of the drug:
The drug under study kuthukkaran sammatti chooranam was prepared according to the methods adopted from the gunapadam mooligai vguppu.
The drug kuthukkarna sammatti was correctly identified and the whole plant about 1 kg was collected and cleaned up with water. Then it was allowed to dry under shade.

Preparation of the chooranam:
After adequately drying the leaves under the shade, it was powered and sieved. To make the powder fine, it was sieved through a fine cloth. Then it was stored in a dry clean container.
Measures were taken to avoid absorption of moisture and infestation with insect and was checked then and there. The chooranam prepared was administered within its lifetime of three months duration.

Dosage:
1 gm, with honey thrice daily.

Bio-chemical analysis of kuthukkaran sammatti chooranam

Preparation Of The Extract
5gm of kuthukkaran sammatti chooranam was weighed accurately and placed in a 250 ml clean beaker. Then 50ml distilled water is added and dissolved well. Then it is boiled well for 10 minutes. It is cooled and filtered in a volumetric flask and then it is made up to 100 ml with distilled water and mixed it will. Then it was taken for analysis.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Experiment</th>
<th>Observation</th>
<th>Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Test for calcium: 2ml of the above prepared Extract is taken in a clean test Tube. To this 2ml of 4% Ammonium oxalate solution is added.</td>
<td>No white precipitate was formed.</td>
<td>Absence of calcium.</td>
</tr>
<tr>
<td>2.</td>
<td>Test for sulphate, 2ml of the extract is added to 5% barium chloride solution.</td>
<td>No white precipitate</td>
<td>Absence of sulphate</td>
</tr>
<tr>
<td>3.</td>
<td>Test for chloride: 2ml of the extract is treated with silver nitrate solution.</td>
<td>No white precipitate</td>
<td>Absence of chloride.</td>
</tr>
<tr>
<td>4.</td>
<td>Test for phosphate, the extract is treated with ammonium molybdate and concentrated nitric acid.</td>
<td>No yellow precipitate</td>
<td>Absence of phosphate</td>
</tr>
<tr>
<td>5.</td>
<td>Test for unsaturated compound, potassium permanganate solution is added to the extract.</td>
<td>It gets decolorized</td>
<td>Presence of unsaturated compound.</td>
</tr>
<tr>
<td>6.</td>
<td>Test for iron, the extract is treated with ammonium thiocyanate solution. The extract is treated with concentrated nitric acid and ammonium thiocyanate solution is added.</td>
<td>No red color is formed.</td>
<td>Absence of ferric Iron.</td>
</tr>
<tr>
<td>7.</td>
<td>Test for tannic acid, the extract is treated with ferric chloride.</td>
<td>Give blue black precipitate.</td>
<td>Presence of tannic acid.</td>
</tr>
<tr>
<td>8.</td>
<td>Testing for reducing sugar, 5ml of benedicts qualitative solution is taken in a test tube and allowed to boil for 2 minutes. 8 to 10 drops of the extract is added and again it is boiled for 2 minutes.</td>
<td>No color change was observed.</td>
<td>Absence of reducing sugar.</td>
</tr>
<tr>
<td>9.</td>
<td>Test for Albumin, the extract is treated with esboch’s reagent</td>
<td>No yellow precipitate</td>
<td>Absence of Albumin.</td>
</tr>
<tr>
<td>10.</td>
<td>Test for amino acid, one or two drops of the extract is placed on a filter paper and dried it well. After drying 1% ninhydrin is sprayed over the same and dried it well.</td>
<td>Violet color is developed.</td>
<td>Presence of Amino acid.</td>
</tr>
<tr>
<td>11.</td>
<td>Test for aluminium, the extract is treated with ammonia solution.</td>
<td>No flocculent white precipitate</td>
<td>Absence of Aluminium.</td>
</tr>
<tr>
<td>12.</td>
<td>Test for starch, the extract is treated with weak iodine solution.</td>
<td>Blue color develops</td>
<td>Presence of starch</td>
</tr>
</tbody>
</table>

PHARMACOLOGICAL ANALYSIS- ACUTE ANTI-INFLAMMATORY STUDY ON KUTHUKKARAN SAMMATTI CHOORANAM BY HIND-PAW METHOD IN ALBINO RATS

**Aim:** To study the acute anti-inflammatory effect of kuthukkaran sammatti chooranam.

**Preparing of the test drug:** 1g of kuthukkarna sammatti chooranam was dissolved in 5 ml of honey and 5 ml of water a dose of 2 ml was given to each rat. This 2ml contains 200 mg of the test drug.

**Procedure:** Nine healthy albino rats weighting 100-150 gm were taken and divided into three groups each consisting of 3 rats. First group was kept as control by giving distilled water of 2ml/100 gm of body weight. The second group was given ibuprofen at dose of 20 mg/100chooranam of 200 mg/100 gm of body weight.

ANALGESIC STUDY ON KUTHUKKARAN SAMMATTI CHOORANAM- BY TAIL FLICK METHODS IN ALBINO RATS

**Aim:** To study the analgesic effect of kuthukkaran sammatti chooranam.

1 gm of kuthukkaran sammatti chooranam was dissolved in 5 ml of honey and 5 ml of water. A dose 2 ml was given each rat. This 2ml contain 200 mg of test drug.

**Instrument:** Analgesio meter or Deloris – meter using heated nichrome wire as the source of stimulus.
Procedure: Three groups of healthy albino rats of both sexes were selected, each group having 3 rats. Each rat was put inside a rat holder with the tail projecting out fully. The tip of the tail was kept over 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 switching it on at the same time starting a stopwatch. The time taken for the rat to flick the tail was noted. This is the reaction time. The reaction time is noted for each rat and the average is calculated.

First group was given 2ml of distilled water and kept as control. Second group was administered with paracetamol at a dose of 20-gm/100 gm of body weight orally. The test kuthukkaran sammatti chooranam was administered to the third group at a dose of 200-mg/100 gm of body weight. After the lapse of ½ an hour and one hour, the reaction time of each rat was noted in each group at an interval of 2 minutes (When a rat fails to flick the tail, it should not be beyond 8 seconds to avoid injury) and the average is calculated.

The result of control group, standard group and treated group were tabulated and compared.

**Effect of kuthukkaran sammatti chooranam:**

<table>
<thead>
<tr>
<th>Group</th>
<th>Drugs</th>
<th>Dose /100gm body weight</th>
<th>Initial reading in sec.</th>
<th>After ½ hr in sec.</th>
<th>After 1 hr in sec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Water</td>
<td>2ml</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Standard</td>
<td>Ibuprofen</td>
<td>20mg</td>
<td>3</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Test drug</td>
<td>Kuthukkarn sammatti</td>
<td>200mg</td>
<td>3</td>
<td>6</td>
<td>7.5</td>
</tr>
</tbody>
</table>

**Inference:**

The test drug has analgesic action.

**ANTI-PYRETIC STUDY OF KUTHUKKARAN SAMMATTI CHORANAM**

**Aim:** To study the antipyretic activity of kuthukkaran sammatti chooranam.

**Procedure:** Group of six albino rats were selected and divided equally into 2 groups. All the rats were made hyperthermic by subcutaneous injection of 12% suspension of yeast at a dose of 1 ml /100 gm body weight. 10 hours latter one group of animals were given the test drug by gastric tube at a dose of 200mg/ ml and the second group received only distilled water at a dose of 1 ml. The mean rectal temperature for the two groups were recorded at 0 hour, 1 ½ hours, 3 hours and 4 ½ hours after the drug administration. The difference between the mean temperature of the control group and that of the other group is measured.

<table>
<thead>
<tr>
<th>Group</th>
<th>Drugs</th>
<th>Dose /100gm body weight</th>
<th>Initial temp.</th>
<th>After 1 ½ hours</th>
<th>After 3 hours</th>
<th>After 4 ½ hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Water</td>
<td>2ml</td>
<td>40° C</td>
<td>40° C</td>
<td>39.5° C</td>
<td>40° C</td>
</tr>
<tr>
<td>Standard</td>
<td>Paracetomol</td>
<td>10mg</td>
<td>40° C</td>
<td>38.5° C</td>
<td>37° C</td>
<td>36.5° C</td>
</tr>
<tr>
<td>Test drug</td>
<td>Kuthukkarn sammatti</td>
<td>100mg</td>
<td>40° C</td>
<td>38.5° C</td>
<td>38.5° C</td>
<td>37° C</td>
</tr>
</tbody>
</table>

**Inference:**

From the above experiment it was concluded that the kuthukkaran sammatti chooranam has significant antipyretic action.

**CLINICAL ASSESSMENT**

This study consisted of 20 patients suffering from azhal keel vayu (Osteo arthritis). They were selected from out-patient department of the Hospital attached to the Govt. Siddha Medical College, Palayamkottai, Tamil Nadu and 10 patients were admitted and treated in the In patients ward and 10 patients were treated as Out patients. These cases were subjected to a careful case taking and thorough examination by Siddha clinical methodology. Routine laboratory investigations on blood, urine and skin were done. These cases were given kuthukkaran sammatti chooranam 1 gm, three times a day with honey. During the treatment period no side effects were noted in the patients. Finally the improvement was noted clinically with signs and symptoms.
All patients were strictly advised to avoid the following items:
1. Egg, mutton, chicken.
2. Sour tasted food items.
3. Brinjal, tomato, gingely oil.
4. Walking long distance, strenuous work.

1. Sex distribution:
   For this study 20 cases were selected. 9 were males and 11 were females. This coincides with the Modern concept.

**DISCUSSION**

Keelvayu is a chronic disease. It is the commonest cause of physical impairment in the community. According to Siddha principle Keel vayu is classified into 10 types, on the basis of symptoms and aetiology the word Aazhal Keel vayu is more or less equivalent to the word of osteo-arthritis. The aim of the present study is to find out the efficacy of Kuthukkaran sammatti in Aazhal keel vayu noi.

**Signs and symptoms of Aazhal keel vayu noi:**
1. Pain and swelling in major joints relieved by rest.
2. Aggravation of pain insidiously.
3. Mild pyrexia.
4. Crepitus on movement.
   These signs and symptoms are equivalent to the osteo arthritis.

20 patients of both sexes and different age groups were selected for the dissertation study. 10 were treated in out-patient ward and 10 were in in-patient ward.

The author(s) diagnosed the patient on the basis of clinical features mentioned in Siddha medicine. Patients were also subjected to routine investigations like blood, urine and also X-ray investigation. All these patients received 1gm of kuthukkaran sammatti with honey as anupanam thrice a day after the meal.

Patients were advised to take plenty of water to relieve constipation. So the patients were advised to take Nilavarai chooranam (Cassia senna) 5 gm with hot water at bed time in alternative days. In the cases the pain relieved and swelling subsided moderately. It showed the patients has responded well to the drug. No adverse effect was noted.

The pharmacological study showed that the drug has analgesic, acute and chronic anti-inflammatory and anti-pyretic actions. This proves the efficacy of the drug in Aazhal keel vayu noi scientifically.

**SUMMARY**

1. Botanical aspect showed the identification, description and chemical constituents of the plant.
2. the Siddha (gunapadam) aspects, journals, abstracts and other literatures surveys the author has an idea about therapeutic efficacy. The dose of kuthukkaran sammatti chooranam is 1 gm thrice a day after meals.
3. the Bio-chemical analysis revealed that kuthukkaran sammatti chooranam contains amino acids.
4. Pharmacological analysis showed that the drug had good anti-inflammatory, analgesic and anti-pyretic activities.
5. Clinical studies showed that the drug had a got good response (80%).

**CONCLUSION**

This is concluded that the drug kuthukkaran sammatti chooranam has got anti-inflammatory, analgesic and anti-pyretic effects and clinically is very effective in Aazhal keel vayu (Osteo arthritis).