PART I

ANTI-HISTAMINE, ANTI-INFLAMMATORY AND ANTI-MICROBIAL ACTIVITY OF *KARUNCHEMBAI ILAI CHOORANAM* *(Sesbania sesban)*

&

PART II

DIURETIC ACTIVITY OF *"ASHTA GUNMA THIRAAVAGAM"*

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DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation entitled **"Anti-Histamine activity" of *Karunchembai Ilai Chooranam (Sesbania sesban)* and Anti-Diuretic Activity of "*Ashta Gunma Thiraavagam*"** is a bonafide and genuine research work carried out by me under the guidance of **Lecturer Dr.M.Pichiah Kumar ,M.D(S)** Post Graduate Department of Gunapadam, Govt.Siddha Medical College, Arumbakkam, Chennai-106 and the dissertation has not formed the basis for the award of any Degree, Diploma, Fellowship or other similar title.

Date: **Signature of the Candidate**

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ENDORSEMENT BY THE HOD, PRINCIPAL/HEAD OF THE INSTITUTION

This is to certify that the dissertation entitled **"Anti –histamine, Anti- inflammatory and Anti-microbial activity of *Karunchembai Ilai Chooranam (Sesbania sesban)*** and **Diuretic Activity of *Ashta Gunma Thiraavagam*** is a bonafide work carried out by **B. Kanimozhi** under the guidance of **Prof.Dr.A.Kumar,M.D$_{(S)}$.**,Head of the Department, Post graduate department of Gunapadam, Govt.Siddha Medical College, Chennai - 106.

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Abbreviations

KIC- Karunchembai Ilai Chooranam

AGT- Ashta Gunma Thiraavagam

CMC- Carboxy methyl cellulose

BT- Before treatment

AT- After treatment

L- Lymphocyte

P- Polymorphs

E- Eosinophils

Alb-Albumin

Dep- Deposits

SEM- Scanning Electron Microscope

IEC-Insititutional Ethical Committee

AbE- Abaxial Epidermis

AdE- Adaxial Epidermis

LM- Leaf Margin

PM- Palisade Mesophyll

SM- Spongy Mesophyll

ESR- Erythrocyte sedimentation rate

FPC- Few Pus Cells

DC- Differential Count

Hb- Haemoglobin

FTIR- Fourier Transform Infrared Spectroscopy

AST- Aspartate Amino Transferase

ALT- Alanine Amino Transferase

1.INTRODUCTION

The siddha system of medicine is considered to be one of the most antiquated traditional medical system. The Siddha system is largely therapeutic in nature and is based on the relationship between man and nature. The objective of siddha system is to attain a fullest survival and to overcome the handicaps of nature and age .

Siddhars, the spiritual scientists are the founding fathers of this scientific system. Siddha system believes that all objects in the universe including human body are composed of five basic primordial elements namely earth, water, fire, air and space called as "*panchaboothams"*.

Siddhars were of the concept that a healthy soul can only be developed through a healthy body. Siddhars practiced intense yogic practices, including years of periodic fasting and meditation and gained the supreme wisdom and overall immortality. Through this spiritually attained supreme knowledge, they wrote scriptures on all aspects of life, from arts to science and truth of life to miracle cure for diseases. So they developed methods and medication that are believed to strengthen their physical body and thereby their souls . They explored the nature and use the natural resources for the sake of humanity. Their boundless knowledge on the properties drugs, purification, processing, heat application, fixing dosage, toxicity, antidote and clinical application is astonishing the modern scientific world.

Eczema is an universally encountered mostly acute,less frequently chronic, recurrent skin disease, characterized by pleomorphism of the morphological lesions; it occurs at any age. The Greek word "ekzein" means "to boil out" or "to effervesce".

The important thing to realize is that it is a symptom only, and in no sense of the word a disease. As a symptom, it is an indispensable word.

It is now accepted that the eczema process as a result of the effect of a complex of neuroallergic, endocrine, metabolic ,emotional factors, psychologic stress and exogenous factors.The exogenic irritants include chemical and biological agents,bacterial agents,physical factors, drugs ,foodstuffs, cosmetics etc..,

It is estimated that 10% people have some of eczema at any one time and upto 40% of population will have an episode of eczema during their lifetime. In India

eczematous diseases are very common with an estimated prevalence of more than 10% in the general population. According to statistics 15 to 25% of all dermatological patients suffer from eczema.

Current treatments include emollient based creams after a lukewarm water bath. Mild, medium or high potency corticosteroid creams are being used to reduce inflammatory reactions based on the severity of symptoms. Oral antihistamines are used in case of severe itching. Short course of oral corticosteroids is prescribed to control acute outbreak of eczema. Ultraviolet light therapy is also another option for people with eczema.

Prolonged use of topical corticosteroids is thought to increase the risk of side effects, the most common of which is the skin becoming thin and fragile(atrophy). Short term side effects of light treatment include sunburn- like reactions and potential longterm side effects include premature skin ageing and skin cancer.

Since the above said allopathic treatment seems to have many adverse reactions, a search for the safe herbal drug for skin disease particularly eczema leads me to select the plant ***Karunchembai (Sesbania sesban***) from the literature, which is a promising drug for the above cure.

" Skin is the index of health"

Since the skin reflects the healthy condition of the body, for the maintenance and glow of a healthy skin, the above said medicine *Karunchembai* leaves proves to be a better medicine.

2. AIM AND OBJECTIVES

Aim:

The main aim of this dissertation is to prove the efficacy of *Karunchembai Ilai Chooranam* for treating *Karappan* (Eczema).

Objective:

The skin is considered as the body's largest immunological organ. Most of the Inflammatory reactions occurring in the skin are based on the disturbance in the normal protective mechanism, conditions affecting the skin cause unfold misery and millions of people face such problems. In Siddha system , many drugs have been effective for skin diseases. Many of Siddha literatures have mentioned about *Karunchembai* for the treatment of Eczema. So I have taken this work with intense.

The main objective of the present study is to establish herbal based medicine to the following method. To highlight the efficacy of the medicines for *Karappan* diseases, the following methods are adopted.

Establishing the identity of the drug through literature evidences and pharmacognostical studies.

- Collection of various literatures about the plant in Gunapadam and botanical aspects.
- To analyse the drug in Bio-chemical analysis.
- Anti-Microbial study.
- Establishing the Anti-histamine, Anti-inflammatory activities of the test drug through pharmacological studies.
- To have clinical study on Eczema with trial medicine.
- To find the statistical analysis of the clinical study.

3.REVIEW OF LITERATURE

3.1 BOTANICAL ASPECT:

***Sesbania sesban (Karunchembai*)**

Bentham and Hooker classification:

Kingdom : Plantae

Phylum : Magnaliophyta

Class : Angiospermae

Order : Fabales

Family : Leguminosae

Genus : Sesbania

Species : sesban

Binomial name: *Sesbania sesban*

Synonyms:

Aeschynomene sesban

Emerus sesban

Sesbania aegyptiaca

Sesbania confaloniana

Sesbania pubescens

Vernacular names:

English- Common sesban, Egyptian Rattle pod

Tamil – *Chittagathi , Karunchembai, Champai*

Sanskrit – *Jayantika , Jayanti*

Hindi – *Jainti , Jait, Rawasan*

Bengali – *Jainti, Jayant*

Marathi – *Shewarie , Jayat, Jarjan*

Gujarati - *Jayati , Raishingin*

Telugu – *Samintha , Suminta*

Kannada – *Arisina , Jeenangi Karijeenangimare*

Malayalam – *Sempa , Nellithalai, Kedangi*

Description of the plant:

A soft – wooded, quick growing short – lived shrub. 1.8 – 6m high, found cultivated throughout the plains of India upto an altitude of 1200 m. Leaves 7.5 – 15 m long , paripinnate, leaflets 8 – 20 pairs, linear oblong , glabrous , entire, mucronate to acuminate, 6.0 – 2.5 mm x 2.5 – 6.0 mm, flowers yellow or yellow apotted red to purple or with standard petals coloured purple or brown from outside , in 8 – 10 flowered , lax , axillary racemes , 2.5 – 14.0 cm long, poda 12.5 – 22.5 cm x 0.25 – 0.37 cm , pendulous, weak , distinctly torulose, twisted , sharply beaked , 20 – 30 seeded and septate.

Cultivation:

The plant is extensively cultivated as a shade tree for turmeric, tea , sweet orange and mandarin in south – west India and for cotton raised during summer in Tamilnadu. It is grown as a hedge in North India and as Paddy field – bunds in Tamilnadu . Sesban is valued as a wind – break for betel – wines and grape – wines in Baroda and Assam . Ragi, Paddy and Sugarcane are manured with sesban.

Uses:

Sesban can grow under widely different conditions and can provide large quantities of green manure. However, it is recommended suitable for cultivation in region liable to periodic inundation. It can also be grown under water logged conditions and acid soils. It withstands salt concentration of 0.4 – 1.0 percent in seeding stage and 0.9 – 1.4 % towards maturity. The leaves and pods dry up as a result of frost.

Well grown plants of *Sesbania sesban* yield fairly good quantity of green leaves as this plant has a great capacity to regenerate quickly after pruning.

The plant is especially rich in Nitrogen (4%) and exceeds the minimum of 2 % over which organic nitrogen materials render nitrogen available for plant growth. It nitrifies soil easily.

Sesban is classed under famine foods because of its seeds which are rich in protein. (In Bihar the flowers are eaten as vegetable).

Leaves collected from plants in Jammu is analysed gave the following values (on dry wt), protein, 26.6, ether extr. 5.8, fibre 8.4, N- free extr, 49.5 , ash 10.0 g/ 100g, calcium 32.50 mg and phosphorous, 340 mg / 100 g. They are a good source of protein, calcium & phosphorous.

Sesban is a common cottage ornament. The leaves and flowers are used in religious offerings. The plant yields an insecticide & is also in making ink.The plant is credited with galactagogue properties. The root is hot and bitter; carminative, alterative and anthelmintic; removes “kapha”, biliousness, inflammation; cures tuberculous glands, fevers, ulcers, diabetes, leucoderma relieves throat troubles; an excellent cure for scorpion-sting

The leaves are purgative, anthelmintic, maturant, demulcent useful for hydrocele and all pains and inflammations.

In Dacca, the juice of fresh leaves is given as an anthelmintic.

Pigments isolated from the flowers include a complex of cyaniding and delphinidin glycoside acylated with gallic and an unidentified acid. Atleast six flavanols, magnesium and traces of iron are present.

Bark is the source of a fibre used for making ropes. Analysis of the fibre gave the following values; moisture 5%; cellulose 65.9; lignin and pectin 24.3; extract 2.5%

Charcoal obtained from the wood is used for gunpowder. Sesban wood is employed as fuel to boil jiggery. Sesban is grown in Deccan to furnish poles as a substitute for bamboo and for roofing huts.

Seeds are stimulant, emmenagogue and astringent and useful in checking diarrhoea and reducing enlargement of the spleen. In the form of ointment, the seeds are used to cure itches and various other skin eruptions. For the same troubles juice of the bark given internally is found effective. A poultice of seeds is reported to be a suppuration of boils and abcesses and absorption of inflammatory rheumatic swellings.

3.2 MATERIA MEDICA (GUNAPADAM ASPECT)

Karunchembai (sesbania sesban)

Synonyms:

chithagathi,chembai

Habit:

It is a small tree cultivated in almost all parts of India.There are three types of *chempai* namely *karunchembai,manjal chembai and chenchembai*.

Parts used: Leaves,flowers,seeds and root.

Suvai : *kaippu,thuvarppu*

Thanmai : *veppam*

Pirivu : *kaarppu*

Action : Stimulant

: Emmenagogue

: Astringent

: Anthelmintic

: Diuretic

: Resolvent

General Characters

"விப்புருதிப் புண்ணாறும் வீறுகரப் பானும்போந்

தப்பாமல் மேகந் தணியுங்காண்-வெப்பார்

கபரோக மேகுஞ் கருஞ்செம்பை யொன்றுக்

கிபமா முலைமாதே!எண்."

-அகத்தியர் குணவாகடம்

The leaves cures leucorrhoea, boils, ulcers and eczema. This cures common cold.

தலைக்குத்த லையஞ் சலதோடம் வாதம்

உலைப்பீ னிசமுமிந்த வூர்க்குள்-நிலைக்கா

தருஞ்சண் பகநாசி யாயிழையே சுத்தக்

கருஞ்செம்பைப் பூவிருக்குங் கால்

.-அகத்தியர் குணவாகடம்

The flowers cures headache, common cold, sinusitis and vadha disease.

கட்டி யொடுவீக்கங் காயத்துள் நீரேற்றம்

ஒட்டிவரு வாதகபம் ஓட்டுவது-தொட்டுவிடும்

அம்பையிலை வேலைவென்ற வங்கண் மடமாதே!

செம்பையிலை வேலையெனத் தேர்.

-அகத்தியர் குணவாகடம்

Heated leaves are applied externally for oedema. It absorbs water in case of ulcers and inflammation.The leaf extract eradicates the intestinal worms.

Leaves along with common salt and Acalypha indica are made into a paste and this is used as external application for eczema, but the bark paste also should be taken internally.

The flower oil cures migraines and headache.The paste of the seeds if taken internally it checks diarrhoea and menorrhagia. The powdered root mixed with vinegar is applied on the spot where scorpion has stung. It relieves pain immediately.

Drugs and other processes which contains *Karunchembai*:

நயன வாயுவுக்குத் 'தைலம்'

நெல்லி செம்பைப் பொற்கண்ணிச்சாறுடனேர்
பசும்பால் விளக்கெண்ணெய் நல்லெண்ணெய்
நல்ல நெய்யுஞ் சமங்கூட்டிதிற்சாறு
நாடும் பாதியிட்டுக் காய்ச்சிசீரகம்
மெல்லரைத் திட்டுப் பக்குவத்திலெரி
மேல்வடித்து முழுகிடும்போது கேள்
வெல்லு நேத்திர வாயுவிட்டோடியே
வெளிச்சமாகிடு மேற்குணமேவியதே.

-சரபேந்திரர் வைத்திய முறைகள்

Ingredients:

Juice of amla-1.3 lit

Juice of sessile plant-1.3 lit

Juice of sesban-1.3 lit

Castor oil-2.6 lit

Gingelly oil-2.6 lit

Cow's milk-1.3 lit

Cumin seeds-350 gms

Preparation:

The paste should be prepared with cumin seeds and milk and then we have to add the above said juices and oil and stir well. Boil the above said mixture and filter

it. The filtered solution should be used for head bath. This cures *naethiravayu* and this will also result in brightening the eyes.

Chittagathi thailam

Ingredients:

Gingelly oil-1.3 lit

Flowers of sesbania sesban-1.3 lit

Vettiveria zizanioides-1/2 ounce

Plectranthus vettiveroides-1/2 ounce

Samutra pachai-1/2 ounce

Poolangilangu-1/2 ounce

Curcuma aromatica-1/2 ounce

Senbagapoo-1/2 ounce

Sandal wood powder-1 ounce

Betle leaf-35 gms

Ginger-35 gms

Pepper-1/2 ounce

Cumin seeds-1/2 ounce

Puzhukappattai-1/2 ounce

Rose buds-1 ounce

Preparation:

Cut the betle leaf and ginger into small pieces and have the other ingredients in powdered form. Add the powder, juice of *chittagathi* and ginger betle leaf pieces in boiling oil and raise the flame, wait until the oil bubbles get settled down and also when *chittagathi* flowers and betle pieces are in crispy stage, stop heating it anymore.

Filter the solution when it's hot. Leave it to get cool and keep it in airtight container. Headache, sneezing, heaviness of the head and cold complaints can be cured by applying (once or twice in a week) the solution on head and taking headbat

Aathandai ennai

Ingredients:

Root of *Capparis zeylenica*-140 gms

Flowers of *Sesbania sesban*-70 gms

Styrax benzoin-70 gms

Allium sativum-70 gms

Betle leaf-70gms

Flowers of *Leucas aspera*-35 gms

Curcuma aromatica-35 gms

Sandal wood powder-35 gms

Papaver somniferum-2.1 gms

Pepper-8.4 gms

Preparation:

The abovesaid contents are grinded into a paste with milk. Then add 650 ml of milk and 1400 gms of gingelly oil and it is allowed to heat in the flame and then filtered.

Uses:

Used as bath oil twice in a week and it cures all types of headache.

Honey (Adjuvant) :

Honey is a food tastes sweet made by bees collecting nectar from flowers. Honey bees changes nectar into honey by a process reabsorption and evaporation.

The viscosity of honey varies greatly by both temperature and water content. The flow of honey directly depends on the humidity of honey. Water has little effect on viscosity, when it crosses its melting point.

The average pH of honey is 3.9. It ranges from 3.4 to 6.1. Honey contains many kinds of organic and amino acids. Honey contains about 18 of the 20 amino acids. However, amino acid content is much negligible in honey, i.e. only 0.05–0.1% of the composition. The main amino acid is proline. Amino acids are derived from the bodies of the bees.

Honey (*Thaen*) is one of the five elixirs of immortality (*Panchamritam*). Ancient literature mention the use of honey as a great medicinal and health food.

Typical honey analysis :

- Fructose : 38.2%
- Glucose : 31.3%
- Maltose : 7.1%
- Sucrose : 1.3%
- Water : 17.2%
- Higher sugars : 1.5%
- Ash : 0.2%
- Other/undetermined : 3.2%

Its glycemic index ranges from 31 to 78, depending on the variety.

Honey has a density of about 1.36 kilograms per litre (36% denser than water)

3.3 Siddha aspect of the disease

Karappan

Definition:

Karappan is characterized by erythema, papules, vesicles and crusting with lichenification followed by scaling of healthy skin without scars. This skin disease called as '*karappan'* sometimes occur without itching complaint.

Aetiology:

Though the exact causes for the '*karappan noi'* are unknown, it has been said the *'kirumi'*(parasites) could not cause the *karappan noi*. But, the *'kirumi'* may be seen in the surface of the *karappan* skin lesions.

The friction of the known allergic things or wool like foreign allergic materials and the psychosomatic disorders may cause *'karappan noi'*. Generally the *'karappan'* in children caused by some kinds of food allergy. These allergic food substances have been well defined by our ancestors as '*karappan pandangal'*. These substances cause the allergic reaction in the body which may be the reasons for the '*Karappan'*.

Most cases of eczema especially in infants are really food allergies, they are the reaction of the skin, at a particular time to particular foods. The treatment of such cases is prevention, discovery and avoidance of particular food.

The allergic substances or the *karappan* substances are known by the following verse

"பெருகுஞ் சோள மிறுங்கும் பெரும்கம்பு
வரகு காருடன் வாழையின் காயொடு
உரைகொள் பாகற் கெளிற்றுமீன் உண்டிடில்
விரிவ தாய்க்கரப் பானுமிகுந்ததே".

Maize(pear millet), *(Pennisetum typhoideum*) Italian millet(*Setaria italica),* varagu(*paspalum scrobiculatum* i.e.kodo millet),samai(little millet *Panicum sumatrense*), unripe fruit of *Musa sapientum*(Plantain fruit), Bitter gourd(*Momordica charantia*), *'Kelitru'* variety of fish are the *'Karappan'* substances according to the above poem. But Yuhimuni says, eating of non-vegetarian foods, maize, millet, kodi millet, little millet, tubers, unhygienic foods and sexual contact with elder women are the reasons for the *'Karappan noi'*. Besides these, Guava*(Psidium guava* fruit),Egg,dried and salted fish*(Karuvadu*), Brinjal and white pumpkin(Cucurbita pepo) are also considered as *karappan* substances.

As *karappan* is caused by allergic substance it is also called as allergic diseases. The *'Karappan noi'* which are caused by the substances said above, allergic diseases. But we could not say these allergic substances to the all persons in always.

Some known allergic substances which are allergic to some persons was not allergic to other persons. Some other substances which have not been said above may be allergic to some other persons. And some substances which could allergic to some persons in sometime, may not allergic to the same persons in another time.

Classifications:

Yuhi muni classified this karappan noi into seven types. These are 1.*vathakarappan, 2.Kanda karappan, 3.Varatchi karappan, 4.Thimir vadha karappan, 5.Kapala karappan, 6.pitha karappan, 7.Setthuma karappan. But in 'Pathinen siddhar palavagadam thirattu', the karappan classification had been said 18 types.*These are

1.Vadha karappan, 2.Pitha karappan, 3.Kapha karappan, 4.Ari karappan, 5.Oothu karappan, 6.Soolai karappan, 7.Veengu karappan, 8.Vedi karappan, 9.Mandai karappan, 10.Pori karappan, 11.Sattai karappan, 12.Odu karappan, 13.Karun karappan, 14.Sen karappan, 15.Kolli karappan, 16.Thoda karappan, 17.Valai karappan, 18.varal karappan.

These types occur in children and is described in '*Bala vagada thirattu'*. Now we see the Yuhi muni's classification.

General symptoms:

Itching, scratching is followed by the 'Erythema, papules,vesicles, oedema, weeping, crushing, scabbing and the healthy skin without scars. The colour of the skin occurs inbetween the stages of papules with oedema and scabbing.

In some *karappan* types, weeping may not occur. Oozing of blood occur in some types. The clotted blood forms the crust and gives foetid odour.

1.***Vadha karappan***

According to the Yuhi muni, the symptoms of the *vadha karappan* are; general malaise, popular lesions with Oedema, weeping and crusting, in the affected

skin areas, ankylosis of the joints and immobility of fingers, enlargement of the vein and the dryness of the skin.

2***.Kanda karappan***

Burning sensation, thickening of the skin in the head and ears. Rigor, shivering are followed by the appearance of the *'sori'* skin lesion(hyperkeratosis), chillness of the body, tingling sensation, dazzling of the eyes and thorns sensation in the skin are the symptoms of the *"Kanda Karappan"* disease.

3***.Varatchi karappan***

Dropsy, tingling sensation and itching, fatigue, drowsiness, dryness of the skin(emaciation), weight loss, unmeaningful talks, weeping in the oedematous areas and foetid odour are the symptoms and signs of the *varatchi karappan*.

4***.Thimir vadha karappan***

Pain in the joints especially while standing up, ankylosis of the legs, arms, hip, and knee joints.Oedema all over the body(dropsy), weeping and the crust formation in the fissures.Excessive urination(polyuria), burning sensation all over the body and tremor(rigor) are the symptoms of the *Thimir vadha karappan*.

Itching and oedematous swelling in the inter digital areas of the foot, weeping and ulcer formation, malaise, emaciation of the body.Crust formation and prutitis may also be the symptoms of the *Thimir vadha karappan*.

*5****.Kabala karappan***

Burning sensation and itching in the ear lobes, eyes, hoarseness of the voice, gummy excretions from the eyes, lacrimal secretion, rhinorrhoea, itching in the head, sneezing, fluttering of the forehead, uvula inflammation(uvulitis) are the symptoms of the *kabala karappan.*

6***.Pitha karappan***

Drooping of the eyelids, loosening of the hells, burning sensation and increased temperature, vertigo, weakness, yellowish discolouration, loss of appetite, anorexia and creeping sensationare the symptoms of the *pitha karappan*.

7***.Sethuma karappan***

Pallor, hoarse of the voice, low pitch tone, tachypnoea, cough and asthma are the symptoms seen in sethuma karappan.Patient expects the help from others in all the things.

Diseases which are accompanied by the *'Karappan noi'*

Karappan noi sometimes accompany with *pitha noi* and *pramega noi*.

Karappan* in *Pitha Rogam

Itching all over the body and '*sori*' skin lesions, lumps formation, itching, burning sensations, pallor, diarrhea, barborygoms, convulsions, weakness of the legs and painful hip joint are the symptoms seen in the *pitha rogam* accompanied with *karappan*.

Karappan* in *pramega rogam

Colic pain, barborycoms, pallor, defecation, dysuria(burning sensation) with colour urine, micturition with ulceration of the urethra of UTI, pyrexia, weakness of the upper and lower limbs and larger skin lesions*(sori*) are seen.

Prognosis

Vadha karappan, Pitha karappan, Varatchi karappan and Kabala karappan are the four curable *karappan* types. Others are incurable.

General restrictions

Patient is advised to have sound sleep, rest, good ventilation and to do some mild exercises. He has to take nourished vegetable diet, milk and milky products. Cooked meat also be given.Spicy items, aromatics, chilly items(pungent taste*), karappan* substances and narcotics should be avoided.For children limited food only be given.

If the '*kudal kirumi'*(helminthiasis) is accompanied by *'Karappan noi'* the disease can be cured, by treating the *kirumi noi*(helminthiasis) first followed by the treatment of *karappan.*

To clean the vesicles, '*Kaluvu neer'* is used. For the inflammation, emolliated(skin lesions) are used.

In ulcerated skin lesions, ointment or cream is used. The varied potencies of external medicines are used, according to the nature of the skin. The crusted skin lesions are applied with emollients. Use warm water for bathing purposes.

Dried and powder of Acacia cancinna pods and(fuller's earth) soaps, should not be used.

The powdered *phaseolus mungo*(green gram) or *Nalangu podi*(The mixture of neem leaves, turmeric, sandal and others) may be used to clean the body while taking bath.

Patient should avoid contact with the allergens which caused this disease. If the disease is occupationally related, he should change his job. Dye factory workers,Building workers are more prone to this disease.

Doctors and the nurse are also susceptible to this disease as they are practicing streptomycin which is one of the known allergen.

3.4 Modern aspect of the disease

Eczema

Definition:

Eczema is an inflammatory skin reaction characterized histologically by spongiosis with varying degrees of acanthosis, and a superficial perivascular lymphohistiocytic infiltrate.The term 'dermatitis' and 'eczema' are nowadays generally regarded as synonymous. Eczema is a specific type of allergic cutaneous manifestation of antigen-antibody reaction.

Etiology:

The exact cause of eczema is unknown, but it's thought to be linked to an overactive response by the body's immune system to an irritant. It is this response that causes the symptoms of eczema.

In addition, eczema is commonly found in families with a history of other allergies or asthma.

Some people may suffer "flare-ups" of the itchy rash in response to certain substances or conditions. For some, coming into contact with rough or coarse materials may cause the skin to become itchy. For others, feeling too hot or too cold, exposure to certain household products like soap or detergent, or coming into contact with animal dander may cause an outbreak. Upper respiratory infections or colds may also be triggers. Stress may cause the condition to worsen.

Predisposing factors:

- Eczema sometimes occurs in infancy, at puberty and at the time of menopause.
- Familial sensitiveness is an important factor.There is usually a personal or family history of allergy, viz.,asthma, eczema, hay fever, etc
- Genetic predisposition is responsible for the preponderance of eczemas in certain families and their absence in others.
- General physical debility predisposes to eczemas by lowering the resistance of the individual and hence the threshold. Climatic extremes like heat, dampness and severe cold and also psychological stresses, promote the development of eczema.
- Besides the above mentioned conditions, local factors like xeroderma or ichthyosis, a greasy skin, hyperhidrosis, varicose veins causing congestion and focus of lowered resistance, hypostasis or chilblains predispose to eczema development.

Classification of Eczemas:

Exogenous eczemas:

- Irritant dermatitis
- Allergic contact dermatitis
- Photo-allergic contact dermatitis
- Dermatophytide
- Post- traumatic eczema

Endogenous eczemas:

- Atopic dermatitis
- Seborrhoeic dermatitis
- Asteatotic eczema
- Discoid eczema
- Pityriasis alba
- Hand eczema
- Gravitational eczema
- Juvenile plantar dermatosis
- Eczema associated with systemic disease
- Eczematous drug eruptions

Pathogenesis:

Two different pathogenetic mechanisms appear to be involved in irritant contact dermatitis. Chronic irritant dermatitis seems to be related to disturbed barrier function and increased epidermal cell turnover leading to lichenification, whereas acute irritant contact dermatitis is characterized by an inflammatory reaction which mimics allergic contact dermatitis, with release of inflammatory mediators and cytokines.

In allergic contact dermatitis, an antigen is presented to T lymphocytes by Langerhans' cells or by keratinocytes, leading to release of cytokines such as interferon- (IFN-), tumour necrosis factor-α(TNF-α), or interleukin 1(IL-1). IFN- promotes expression of HLA-DR, up-regulation of intercellular adhesion molecule

1(ICAM-1) and CD36 on keratinocytes, whereas TNF-α induces only ICAM-1 expression.The expression of these antigens permits adhesion of leukocytes to the epidermis and the subsequent development of inflammation.

Although very similar, acute irritant contact dermatitis differs by not expressing HLA-DR or CD36 on keratinocytes. Thus, ICAM-1 expression may predominate in irritant contact dermatitis as a consequence of TNF-α release, or by direct action of the irritant on the keratinocyte.

Exogenous eczemas:

Irritant contact dermatitis:

Contact irritants are the commonest exogenous cause of hand eczema. It is estimated that irritant contact dermatitis causes one third of hand eczema. The majority of occupational hand eczemas are irritant in nature. They often become chronic.

Clinical features:

The skin is dry and later there is chapping, cracking and fissuring seen on the palms, palmar aspects of fingers and sometimes on the knuckles. The skin is red, shiny, and even glistening. The complaints are burning and pain rather than itching.

Allergic contact dermatitis:

The commonest allergens were vegetables(21%), nickel(20%), and chromium(20%). In adolescents, a significant association is found between hand eczema and nickel allergy acquired by ear piercing by a nickel needle or from nickel coated dental braces.

Photo-allergic dermatitis:

The common causes of photodermatitis are:

1. Drugs like sulphonamides, chlorpromazine, promethazine, declamycin, terramycin, chlorthiazide diuretic, different hypotensive and anti-diabetic drugs, quindexin in animal feeding stuff.
2. Foods like figs, buckwheat.

3. External application of bithionol, tetrachlorsalicylanilide etc.
4. Plants and their products-like parsnips, cow parsnips, meadow grass, mustards, lime oil, psoralea, celery, bur clover, bergamot oil etc.Vit.B complex deficiency, porphyrinuria, seborrhoeic diathesis and liver disorders predispose to photodermatitis.

Infective dermatitis:

This results from sensitization to certain organisms like streptococci, staphylococci, dermatophytes and yeast organisms. Infective eczemas are very common in tropical countries.

Post-traumatic eczema:

The rash is comprised of reddish brown, slightly crusted and scaly patches, with occasional papulovesicles. Histology shows subacute spongiotic dermatitis. The condition responds to topical corticosteroids, but tends to relapse when the treatment is stopped.

Endogenous eczemas

Atopic dermatitis:

Atopic dermatitis is the major cause of hand and foot eczema. The most common site of atopic dermatitis is the hand in adults; sometimes the hands alone are involved. Atopic adolescents and young adults develop hand eczema when they are exposed to schoolwork, hobbies, or occupational contacts.

Important predisposing factors in the development of hand dermatitis in atopics are atopic dermatitis of the hands in childhood; history of widespread dermatitis in childhood; persistent, diffuse atopic dermatitis; and dry itchy skin. Less important factors are female sex, family history of eczema, and presence of other atopic disorders.The atopic diathesis may also predispose to discoid eczema and pompholyx.

Seborrheic dermatitis:

Seborrheic dermatitis is biphasic, being seen in early infancy(within the first three months of life) and later in adult life.In adults it usually does not start before the third

decade but may occur upto the sixth decade. In infancy, there is an equal incidence in both sexes, but in adults, it is more frequently seen in males.

Infantile seborrheic dermatitis:

The cause of infantile seborrheic dermatitis is not fully known. Studies have linked it to the influence of maternal hormones on sebum production. It has been suggested that Malassezia furfur is involved in the development of infantile seborrheic dermatitis.

Spongiosis is the main feature of seborrheic dermatitis. Spongiotic foci are accentuated around hair follicles, whose ostii are surrounded by parakeratotic scales. The stratum corneum shows parakeratosis. The epidermis shows mild inflammatory lymphohistiocytic infiltrate.

Infantile seborrheic dermatitis is usually seen during the first three months of life, usually between the third and eighth week.Infants having this dermatitis are comparatively calm and unperturbed and are not irritated. The scalp and diaper areas are the first to be involved, followed by the face, retroauricular fold, neck and axillary folds.

Adults:

The lesions originate in hairy skin, are brownish in colour and are covered with greasy scales. They involve the scalp, face, presternal,interscapular regions and flexures. Their distribution is the hallmark of SD and is helpful in diagnosis.

Asteatotic eczema:(Winter eczema, Eczema craquele, Senile eczema)

The term asteatotic eczema means eczema due to decreased surface skin lipids.

Asteatotic eczema is basically because of dry skin, xerosis, which precedes it. A decrease in natural lipids, derived from keratohyaline granules, may cause the dryess of old age. Malnutrition, particularly zinc deficiency, may be a contributory factor. Diuretics can affect the hydration of the skin in the elderly. Myxedema should always be ruled out, as asteatosis may be the presenting sign.

Nummular dermatitis:

(Discoid eczema)

Nummular(meaning coin-shaped) dermatitis is characterized by round eczematous lesions, papulovesicular and oozing or scaly erythematous, with a clearly demarcated edge, usually on the extensors of the limbs. It is more common in adults over the age of 50 years.

Stasis dermatitis

(Gravitational eczema, Varicose eczema)

The primary cause of stasis dermatitis is venous insufficiency.Chronic venous insufficiency of the lower extremities is the cause of stasis syndrome. The venous flow up from the feet against gravity is made possible physiologically by the action of calf muscles and competence of valves in the veins. This mechanism is defective in chronic venous insufficiency because of damage to the veins by thrombophlebitis or due to structural weakness of veins in the form of an incompetent valvular system. Because of incompetent valves, there is blood reflux from the deep to the superficial veins, causing venous hypertension.

Other causes are related to the obstruction of one of the major veins, particularly the ileofemoral, due to external pressure caused by neoplastic invasion, hemangioma or arteriovenous fistula.

Juvenile plantar dermatosis

It is a condition seen as dry, glistening and sometimes fissured skin on the forefeet of children aged 3 to 14 years.

Pityriasis alba

It is commonly seen as asymptomatic scaly hypopigmented patches generally on the face.

It is considered as one of the minor diagnostic signs of atopic dermatitis, but it is common in nonatopics too.

Lichen simplex

(Lichen simplex chronicus, Circumscribed neurodermatitis)

It is an intensely itchy disorder manifesting as a lichenified plaque.Lichenification refers to thickening of the skin with accentuation of skin markings because of rubbing. It is common in patients with atopic diathesis.

Lichenification can develop on normal skin by persistent rubbing and scratching, but not everyone develops it. Atopics are more prone and a significant number of lichen simplex patients have a history of atopic disorders. In predisposed patients, psychological factors play an important role in the development and perpetuation of lichen simplex. Anxiety or more importantly depression may be the primary cause.

Metabolic eczema

(Eczemas associated with systemic diseases)

Intestinal malabsorption can be the cause of or the result of widespread eczema. Severe inflammatory skin disease can cause malabsorption known as dermatogenic enteropathy. Malabsorption improves rapidly as the skin condition is treated.

Atopic dermatitis-like eczema is associated with hypogamma-globulinemia and Wiskott-Aldrich syndrome. HyperIgE syndrome too is associated with dermatitis.A photosensitive dermatitis is a diagnostic featureof pellagra and Hartnup disease. Phenylketonuria is characterized by eczema in some cases.

Eczematous drug eruptions

Though rare, eczematous drug reactions can be caused by many drugs.

A systemic drug to which a patient has developed an allergic contact dermatitis by prior topical usage can cause intractable recurrent eczema.

Pompholyx

(Dyshydrotic eczema)

This form of eczema is characterized by vesicles and bullae on the palms and soles. When it involves the palms it is called cheiropompholyx and when on the soles, podopompholyx.

The direct contact allergens implicated are primin, isopropyl-para-phenylenediamine, benzoiso-thiazolones and dichromates, perfumes, fragrances and balsam ingredients. They cause palmar vesicles.

Nickel sulphate was the commonest allergen(14%) followed by potassium dichromate, phenylenediamine and nitrofurazone(8% each),fragrance mix(6%) and cobalt chloride(4%).

Investigations:

- Prick tests
- Patch tests
- Immunoglobulin E
- RAST
- ELISA

3.5 Lateral research

Antidiabetic Activity of Aqueous Leaves Extract of Sesbania sesban (L) Merr.in Streptozotocin Induced Diabetic Rats

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The aqueous leaves extract of *Sesbania sesban* (L) Merr. (Family: Fabaceae) was evaluated for its antidiabetic potential on normal and streptozotocin (STZ)-induced diabetic rats. In the chronic model, the aqueous extract was administered to normal and STZ- induced diabetic rats at the doses of 250 and 500 mg/kg body

weight (b.w.) p.o. per day for 30 days. The fasting Blood Glucose Levels (BGL), serum insulin level and biochemical data such as glycosylated hemoglobin, Total Cholesterol (TC), Triglycerides (TG), High Density Lipoproteins (HDL) and Low Density Lipoproteins (LDL) were evaluated and all were compared to that of the known anti-diabetic drug glibenclamide (0.25 mg/kg b.w.). The statistical data indicated significant increase in the body weight, liver glycogen, serum insulin and HDL levels and decrease in blood glucose, glycosylated hemoglobin, total cholesterol and serumtriglycerides when compared with glibenclamide. Thus the aqueous leaves extract of Sesbania sesban had beneficial effects in reducing the elevated blood glucose level and lipid profile of STZ-induced diabetic rats.

Antinociceptive activity of Sesbania sesban(Linn)Wood extracts, a preliminary study

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The wood of the plant sesbania sesban is reported to have antinociceptive activity. To validate its folk use in the treatment of pain, wood was extracted successively with petroleum ether, chloroform, ethyl acetate, ethanol and water to produce respective extracts. The extracts(50 and100mg/kg,ip) were screened for antinociceptive activity using hot plate test and acetic acid-induced writhing test in mice. Petroleum ether, chloroform and ethyl acetate extracts showed significant and dose-dependent activity in both the tests. In order to find out the involvement of opiod receptors, effect of naloxone(1mg/kg, sc) on the action of extracts was checked in hot plate test. Petroleum ether, chloroform and ethyl acetate extracts showed significant and dose dependent antinociceptive activity. The antinociceptive action of the extracts was blocked by naloxone, suggesting involvement of opiod receptors in the action.

Attenuating effect of Sesbania sesban (L) Merr. extract on neuropathic pain in streptozotocin-induced diabetic rats: an evidence of neuroprotective effects

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Phytopharmacology 2012, 2(1) 190-201

The aim of present study was to investigate the attenuating effects of Sesbania sesban leaves aqueous extract (SSLAE), in streptozotocin (STZ)-induced diabetic rats. SSLAE (250 and 500 mg/kg per day) was given to diabetic rats for 12 weeks. Cold and hot water tail immersion tests, photoactometer and Rota-rod tests were performed to assess degree of colder, thermal spontaneous motor activity and motor co-ordination changes respectively at different time intervals i.e., week 0, 4, 8 and 12. Tissue superoxide anion and total calcium levels were determined after 12 weeks to assess biochemical alterations. Histopathological evaluations of sciatic nerve were also performed. SSLAE increased tail flick latency significantly in diabetic rats. SSLAE also reduced superoxide anion and total calcium levels. These results suggested that SSLAE has attenuated development of diabetic neuropathy in streptozotocin-induced diabetic rats when compared with pregabalin (10 mg/kg, p.o.) and could be beneficial in preventing the progression of diabetic neuropathy.

Potent spermicidal effect of oleanolic acid 3-beta-D-glucuronide, an active principle isolated from the plant Sesbania sesban Merrill.

Das N, Chandran P, Chakraborty S.
Epub 2010 Jun 25.

Reproductive Biology Research Department, Cell-Biology and Physiology Division, Indian Institute of Chemical Biology (A Unit of CSIR), Kolkata-700 032, India.

The spermicidal activity of oleanolic acid 3-β-D-glucuronide (OAG), an active principle isolated from root extracts of Sesbania sesban, was evaluated.Under the Sander-Cramer test criteria, the sperm-immobilizing activity of OAG was studied using highly motile rat sperm. Sperm mortality and membrane integrity were assessed by supravital staining, hypo-osmotic swelling (HOS), transmission electron microscopy (TEM) and sperm membrane lipid peroxidation (LPO). In vitro microbicidal potential and hemolytic index of OAG were examined in Lactobacillus

culture and rat red blood corpuscles (RBCs), respectively. Post-intravaginal OAG application, the in vivo contraceptive efficacy was evaluated in rats. Ames test destined the carcinogenic potential of OAG. The minimum effective concentration (MEC) of OAG was 50 mcg/mL. More than 97% of the OAG-treated sperm lost their HOS responsiveness in a dose-dependent manner.

4. MATERIALS AND METHODS

The trial drug *Karunchembai Ilai Chooranam* was taken from a siddha literature Gunapadam mooligai written by Murugesa mudaliyar.

Collection and authentication of the materials.

The plant material used in this study was collected from Erode Dist, Tamilnadu, India and authenticated from the Gunapadam experts in Department of Gunapadam, Govt. siddha medical college, Chennai-106 and Certified from Botanist, Central Research Institute For Siddha, Arumbakkam, Chennai-106

Purification of the Raw Drug:

The leaves of the plant were well rinsed in water to remove the impurities. Then the roots were cut into pieces and dried in shade.

Preparation of the *chooranam*:

The well dried leaves of *Sesbania sesban (Karunchembai*) were made into fine powder. The finest physical form of this drug was obtained when the powdered material is sieved through a white cotton cloth *(Vashthirakayam)*.

Purification of *chooranam*:

The *Chooranam* was kneaded mildly with cow's milk. The pot was half filled with milk and water. The mouth of the pot was tied with white cotton cloth over which the above *chooranam* was placed. The lid was replaced by another mud pot. The gap between the two mud pots were held tightly using a wet cloth in order to prevent evaporation. Then this arrangement was boiled until level of water gets reduced. Then the powder was taken, dried, powdered finely and preserved for usage.

Preservation:

The purified *Chooranam* was stored in a clean, air tight glass container. Since the self life period of the *Chooranam* is only three months, the prepared *Chooranam* must be used within 3 months period.

Fig.No.1.Showing *Karunchembai (Sesbania Sesban)*

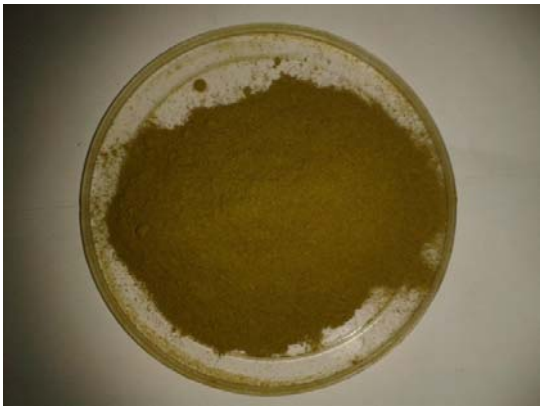


Fig.no.2.Showing *Karunchembai Ilai Chooranam*

Administration of the drug:

- Form of the medicine : *Chooranam*
- Route of Administration : Oral

- Dose : 1gm
- Adjuvant : Honey
- Times of Administration : Two times a day; after food
- Duration : 1-3 months

4.2. STANDARDIZATION OF THE DRUG

4.2.1. PHARMACOGNOSTIC STUDY:

Collection and authentication of the materials

Plant specimen for the proposed study were collected from Erode Dist and identified and authenticated by the *Gunapadam* experts in Department of P.G. *Gunapadam*, Govt. Siddha medical college, Chennai – 106 and certified by Botanist, Central Research Institute for Siddha, Chennai – 106. Care was taken to select healthy plants and normal leaves.

Staining:

The required samples of leaves were removed from the plant and fixed in FAA (Formalin-5ml+ Acetic acid-5ml + 70% Ethyl alcohol-90ml).After 24 hrs of fixing, the specimens were dehydrated with graded series of tertiary –Butyl alcohol as per the schedule given by Sass, 1940. Infiltration of the specimens was carried by gradual addition of paraffin wax (melting point 58-60 C) until TBA solution attained super saturation. The specimens were cast into paraffin blocks.

Sectioning

The paraffin embedded specimens were sectioned with the help of Rotary **Microtome.** The thickness of the sections was 10-12 µm. Dewaxing of the sections was by customary procedure (Johansen, 1940). The sections were stained with **Toluidine blue** as per the method published by O'Brien et al. (1964). Since **Toluidine blue** is a polychromatic stain. The staining results were remarkably good; and some **cytochemical** reactions were also obtained. The dye rendered pink colour to the **cellulose** walls, blue to the **lignified** cells, dark green to suberin, violet to the mucilage, blue to the **protein** bodies etc. wherever necessary sections were also stained with **safranin** and **Fast-green** and IKI(for Starch)

For studying the stomatal morphology, venation pattern and trichome distribution, **paradermal sections** (sections taken parallel to the surface of leaf) as well as **clearing** of leaf with 5% sodium hydroxide or epidermal peeling by partial maceration employing Jeffrey's maceration fluid (Sass, 1940) were prepared. Glycerine mounted temporary preparations were made for macerated/cleared materials. Powdered materials of different parts were cleared with Naoh and mounted in glycerine medium after staining. Different cell component were studied and measured.

Photomicrograph

Microscopic descriptions of tissues are supplemented with micrographs wherever necessary. Photographs of different magnifications were taken with **Nikon lab photo 2** microscopic Unit. For normal observations **bright field** was used. For the study of **crystals, starch grains** and **lignified** cells, **polarized** light was employed. Since these structures have **birefringent property**, under polarized light they appear bright against dark background. Magnifications of the figures are indicated by the scale-bars. Descriptive terms of the anatomical features are as given in the standard Anatomy books (Esau, 1964).

4.2.2. QUALITATIVE PHYTOCHEMICAL ANALYSIS:

Materials and methods:

The leaves of *Sesbania sesban* were collected, washed and shade dried exposing the leaves for desiccation. The leaves were later ground to obtain the fine powder using an electric blender. The yield of extract was estimated. Phytochemical screening procedures carried out determines the biologically active compounds that contribute to the odour, colour and other characteristics of vegetable leaves.

Test for Phenol

Substance in water is added with 5 % alcoholic ferric chloride. Dark blue or green colour shows presence of phenol.

Test for Tannin

Substance is shaken with water and added with lead acetate solution. White precipitate shows the presence of tannin.

Test for Flavonoids (Shinoda test)

Substance is dissolved in alcohol, added with magnesium bits and concentrated hydrochloric acid. On heating over a water bath, the appearance of majenta colour shows the presence of flavonoids.

Triterpenoids (Noller's Test)

To few mg of extract, add tin and thionyl chloride and heat in water bath. Purple colour indicates the presence of triterpenoids.

Test for Glycosides

Substance is treated with anthrone and concentrated sulphuric acid. On heating over a water bath, the appearance of green colour shows the presence of glycoside.

Test for Saponins

To few mg of extract distilled water is added and shaken well. The formation of foam indicates the presence of saponin.

Test for Cardiac glycoside (Keller-Killani Test)

Add 2 ml of glacial acetic acid containing a drop of ferric chloride solution and and 0.5 ml of concentrated sulphuric acid to the chloroform extract of the plant. The blue color in the acetic acid layer shows presence of cardiac glycosides.

4.2.3. PHYSICO-CHEMICAL ANALYSIS:

(a) Physico - chemical parameters

Determination of Total Ash

3 g of the powder was incinerated in a silica dish at a temperature not exceeding 450º until free from carbon, cool and weigh. The percentage of ash was calculated with reference to the air-dried drug.

Determination of Acid Insoluble Ash

The obtained ash was boiled for 5 minutes with 25 ml of dilute hydrochloric acid and insoluble matter was collected in ashless filter paper. Then, it was washed with hot water and ignited to constant weight. The percentage of acid-insoluble ash was calculated with reference to the air dried drug.

Determination of Alcohol Soluble Extractive

5 g of powder was mixed with 100 ml of Ethanol of the specified strength in a closed flask and kept alone for twenty-four hours. Filtered rapidly with taking precautions against loss of solvent. 25 ml of the filtrate was evaporated to dryness in a tarred flat bottomed shallow dish, and dried at 105º, to constant weight and weighed. The percentage of alcohol-soluble extractive was calculated with reference to the air-dried drug.

Determination of Water Soluble Extractive

5 g of powder was mixed with 100 ml of chloroform water of the specified strength in a closed flask and kept alone for twenty-four hours. Filtered rapidly with taking precautions against loss of solvent. 25 ml of the filtrate was evaporated to dryness in a tarred flat bottomed shallow dish, and dried at 105º, to constant weight and weighed. The percentage of water-soluble extractive was calculated with reference to the air-dried drug.

Determination of Moisture Content (Loss on Drying)

10 g of drug was taken in the tarred evaporating dish and dried at 105º for 5 hours, and weighed. (Continue the drying and weighing at one hour interval until difference between two successive weighing corresponds to not more than 0.25 per cent. Constant weight is reached when two consecutive weighing after drying for 30 minutes and cooling for 30 minutes in a desiccator, show not more than 0.01 g difference).

Potential of hydrogen (pH):

The pH scale is logarithmic and runs from 0.0 to 14.0 with 7.0 being neutral. Readings less than 7.0 indicate acidic solutions, while higher readings indicate alkaline or base solutions.

Thin Layer Chromatography:

Solvent system:

Toluene : Ethyl acetate (6:1.5).

TLC plate:

Aluminium plate precoated with silica gel $60F_{254}$ of 0.2 mm thickness (Merck).

Developing chamber:

Camag's twin trough chamber.

Visualizing reagent:

Vanillin-sulphuric acid reagent.

Extract Preparation:

4 g of the *chooranam* was soaked overnight in chloroform. Boiled on a water bath for 10 mins, filtered and concentrated to 10 ml.

Procedure:

The extract was applied on the TLC using capillary and developed in the solvent system. The developed TLC plate was air dried and photograph was taken in white light. Then dipped in vanillin-sulphuric acid reagent, heated in an oven at 105°C until the development of coloured spots and photograph taken.

4.2.4. PROXIMATE CHEMICAL ANALYSIS OF A DRUG

Methodology For Chemical Analysis

Preparation of Extract :

Add 5 gm of the *Karunchembai Ilai Chooranam* to 50ml of distilled water. Boil the solution for 20 minutes, cool and then filter. Use the Extract for the following tests.

Table 1:

S.No	Experiment	Observation	Inference
1.	**Test for reducing Sugar :** To 5ml of Benedicts qualitative reagent, add 10 drops of extract, then boil for two minutes	Absence of Green / Yellow / Red precipitate	Absence of Reducing Sugar
2.	**Test for Starch :** To 5 ml of extract add 2ml of acetic acid and then add few drops of N/50 Iodine Solution.	Absence of Blue Colour	Absence of Starch

3.	**Test for Proteins :** To 2 ml of extract, add 2ml of 5% Sodium Hydroxide mix and add 2 drops of Copper Sulphate Solution.	Presence of Violet or Purple Colour	Presence of Proteins
4.	**Test for amino Acid :** Place 2 drops of extract on a filter paper and allow to dry well. Then spray 1% ninhydrin over the same and allow to dry.	Presence of Violet Colour	Presence of Amino Acid
5.	**Test for Albumin :** To 2 ml of extract, add 2ml of Esboch's reagent.	Absence of Yellow precipitate	Absence of Albumin
6.	**Test for Phosphate :** To 2ml of extract, add 2ml of ammonium Molybdate solution and 2ml of concentrated Nitric Acid.	Absence of Yellow precipitate	Absence of Phosphate
7.	**Test for Sulphate :** To 2 ml of extract add 2ml of 4% ammonium oxalate solution.	Absence of White precipitate	Absence of Sulphate
8.	**Test for Chloride :** Add 2ml of extract to dilute nitric acid till the effervescence ceases. Then add 2 ml of Silver Nitrate Solution.	Presence of Cloudy White precipitate	Presence of Chloride
9.	**Test for Iron :** To 2ml of extract, add 2ml of ammonium thio cynate solution and add 2ml of concentrated Nitric Acid.	Presence of Red Colour	Presence of Iron
10.	**Test for Calcium :**	Presence of White	Presence of

	To 2 ml of extract, add 2 ml of 4% ammonium Oxalate Solution.	precipitate	Calcium
11.	**Test for Sodium :** Make a paste with 2 pinches of the sample with Hcl and Introduce it into the blue flame.	Absence of Yellow Flame	Absence of Sodium
12.	**Test for Potassium :** Add a pinch of the sample to 2 ml of Sodium Nitrate Solution. Then add 2ml of Cobal Nitrate in 20% acetic acid.	Presence of Yellow precipitate	Presence of Potassium
13.	**Test for Zinc :** To 2ml of extract, add few drops of Sodium Hydroxide.	Absence of White precipitate	Absence of Zinc
14.	**Test for Magnesium :** To 2ml of extract, add few drops of Sodium Hydroxide Solution	Absence of White precipitate	Absence of Magnesium

INSTRUMENTAL ANALYSIS:

SCANNING ELECTRON MICROSCOPE (SEM):

The Scanning Electron Microscope (SEM) is a microscope that was electrons rather than light to form an image. There are advantages using the SEM instead of a light microscope.

Resolution : 1.2 nm gold particle separation on a carbon substrate

Magnification : From a min of 12 x to greater than 1, 00,000 X

The SEM has a large depth of field, which allows a large amount of the sample to be in focus at one time. The SEM also produces images of high resolution, which means that closely spaced features can be examined at a high magnification. Preparation of the samples is relatively easy since most SEM one require the sample

to be conductive. The combination of higher magnification, larger depth of focus, greater resolution, and easy of sample observation marks the SEM one of the most heavily used instruments in research areas today.

FOURIER TRANSFORM INFRARED SPECTROSCOPY (FTIR):

Instrument details:

Model : Spectrum one: FT-IR Spectrometer

Scan Range : MIR 450-4000 cm-1

Resolution : 1.0 cm-1

Sample required : 50 mg, solid or liquid.

Fourier Transform Infrared Spectroscopy (FTIR) is an analytical technique used to identify mainly organic materials. FTIR analysis results in absorption spectra which provide information about the chemical bonds and molecular structure of a material. The FTIR spectrum is equivalent to the "fingerprint" of the material and can be compared with cataloged FTIR spectra to identify the material.

Infrared spectrum is useful in identifying the functional groups like -OH, -CN, -CO, -CH, -NH2, etc. Also quantitative estimation is possible in certain cases for chemicals, pharmaceuticals, petroleum products, etc. Resins from industries, water and rubber samples can be analyzed.

The drug sample was analyzed by the FTIR to identify the chemical bonds and molecular structure of a material.

4.2.5 TOXICOLOGICAL STUDY

Materials and methods

Animals

Male albino Wistar rats (190-210 g) and 25-32g of mice were obtained from the animal house of the School of Pharmaceutical Sciences, Vels University, Chennai. They were kept at standard environmental conditions (12/12-h light/dark cycle) and were allowed free access to food and water. Before each test, the animals were fasted for 24 h with free access to water. The rats were randomly divided into test and control groups, each group consisted of age and weight matched rats (n =6). The experimental protocol was approved by the animal ethical committee of Vels University. (Approval number: XIII/VELS/PCOL/14/2000/CPCSEA/IAEC/08.08.2012)

Stock solution and Acute toxicity study

Acute oral toxicity study was performed as per OECD-425 guidelines. Mice (n=6) of either sex selected by random sampling technique were used for acute toxicity study. The animals were kept fasting for overnight providing only water, after which the Karunchembai Ilai Chooranam in 2% CMC was administered orally at the different dose levels in up and down dosing schedule according to body weight by gastric intubation and observed for 14 days.

4.2.6 PHARMACOLOGICAL STUDIES

Antihistaminic activity of *Karunchembai Ilai Chooranam*

Materials and methods

Drugs and stock solution

Drugs used were Histamine diphosphate (Sigma Chemical, USA). Histamine dihydrochloride was dissolved in distilled water and desired concentrations were prepared. The test drug *Karunchembai Ilai Chooranam* concentration was 100microgram per ml prepared by suspending with 2% CMC and then the volume was adjusted to 10 ml with normal saline for making the concentration of 100µg/ml in distilled water.

Animals

Male albino guinea pig weighing 350– 400g was kept in fasting condition 18 hours prior to commencement of experiment and given water ad libitum. It was housed under standard laboratory conditions of temperature (25 ± 2°C) and 12/12 hr light/dark cycle and then sacrificed by a blow to the head and exsanguinated as per CPCSEA recommended guidelines.

In-vitro antihistaminic study

Guinea pig was sacrificed and a segment from ileum (2 cm) was dissected from the terminal ileum and mounted in an organ bath containing Tyrode solution (10 ml) between two stainless steel hooks under 0.5 to 1 g initial tension. The lower hook was fixed at the bottom of the organ bath and upper one was connected to an isotonic transducer. The Tyrode solution composition (pH 7.4) was (concentration in gm/lit.) NaCl 8.0, KCl 0.2, $CaCl_2$ 0.2, $MgCl_2$ 0.1, $NaHCO_3$ 1.0, NaH_2PO_4 0.05, and

Glucose1.0gm/liter. It was continuously aerated and maintained at 37 ± 0.5ºC. The equilibrium period was 60 min and the bath solution was refreshed every 15 min. After equilibrium period, a dose response curve for histamine in variant molar concentrations, by maintaining 45 min time cycle.

Statistical Analysis

Ileum contractions induced by agonist were assumed as 100% and reductions induced by test drug calculated. Percentage of ileum contraction was expressed as mean ± SEM. Results were analyzed using one-way analysis of variance (ANOVA). Probability value less than 0.05 were considered as significant.

Acute anti - inflammatory activity of *karunchembai Ilai Chooranam* in rats

Materials and methods

Animals

Male albino Wistar rats (190-210 g) and 25-32g of mice were obtained from the animal house of the School of Pharmaceutical Sciences, Vels University, Chennai. They were kept at standard environmental conditions (12/12-h light/dark cycle) and were allowed free access to food and water. Before each test, the animals were fasted for 24 h with free access to water. The rats were randomly divided into test and control groups, each group consisted of age and weight matched rats (n =6). The experimental protocol was approved by the animal ethical committee of Vels University. (Approval number: XIII/VELS/PCOL/14/2000/CPCSEA/IAEC/08.08.2012)

Acute anti-inflammatory evaluation

Formalin induced method

Male Albino Wistar rats, 190–210 g, were kept in Polypropylene cages with free access to food and water. Testing took place in the middle of the light period of a 12:12-h light:dark cycle. The *Karunchembai Ilai Chooranam* was suspended in vehicle (2% carboxy methyl cellulose (CMC) in saline) and administered orally at a dose of 100, 250, 500 mg/kg and 45mg/kg for Diclofenac sodium. The rats were divided in to five groups (n=6) and the first group treated with saline (5ml/kg), second group treated with Diclofenac sodium (45mg/kg) and third, fourth and fifth group treated with *Karunchembai Ilai Chooranam* 100, 250 and 500mg/kg respectively

through orally. Oedema was produced by subplantar injection of formalin in the right hindpaw of each rat one hour after the administration of corresponding drugs. The paw volume was measured at 1,2,3 and 4 hr after the injection of formalin using the plethysmometer. Mean increase in the paw volume of oedema was measured.

Statistical analysis

The data are expressed as mean±SEM. Student t-test followed by Dunnet 't' test was used to determine significant differences between groups. *p*-values less than 0.05 were considered as indicative of significance.

Antimicrobial activity of *Karunchembai Ilai Chooranam*

Materials and methods

Antimicrobial assay-Isolation and maintenance of cultures

Esherichia coli and Bacillus subtilis were extracted from food stuffs by serial dilution agar plate method. In this method, serial dilutions of samples obtained from food stuffs were prepared and aliquots from each dilution were added to the plates containing nutrient agar to allow the growth of microbes. All the bacterial isolates were identified by cultural, morphological biochemical characteristics (Gram and endospore staining). The plates were kept in an incubator at 37ºC. The slants were prepared from the pure cultures obtained and kept in the refrigerator at 4^0C for further use.

Standardization of inoculum

The microbial inoculum was standardized at 0.5 McFarland. In microbiology, McFarland standards are used as a reference to adjust the turbidity of bacterial suspensions so that the number of bacteria will be within a given range. Original McFarland standards were made by mixing specified amounts of barium chloride and sulfuric acid together. Mixing the two compounds forms a barium sulfate precipitate, which causes turbidity in the solution. A 0.5 McFarland standard is prepared by mixing 0.05 ml of 1.175% barium chloride dihydrate ($BaCl_2 \bullet 2H_2O$), with 9.95 ml of 1% sulfuric acid (H_2SO_4). The standard could be compared visually to a suspension of bacteria in sterile saline or nutrient broth.

Antibacterial Activity

The antibacterial activity was determined using the hole-in-plate bio assay procedure. The pure cultures of the microorganisms were inoculated onto Muller-Hilton nutrient broth incubated at temperature of 37°C for 24 hours. Using a sterile cork-borer of 5mm diameter, three holes were made into the Petri dishes seeded with bacterial culture. Concentrations of 25, 50 and 100µg/ml solution were reconstituted in distilled water and transferred into the wells. The plates were incubated at temperature of 37°C for 18 hours. S. aureus, E. coli, Salmonella typhi, P.aurigunosa, St. pyogenes and Candida albicans were used as the test microorganisms. All microbial cultures were maintained on nutrient agar slants at temperature of 4ºC and sub cultured onto nutrient agar broth for 24 hours prior to testing.

The plates were kept for 30 min at room temperature to allow diffusion of the test drug, and then were incubated at temperature of 37º C for 18 hours. After the incubation period, the zones of inhibition will be measured using a caliper. Studies were performed in triplicates and the mean value was calculated. The mean zones of inhibitions were compared by one way analysis of variance.

4.3. CLINICAL STUDY

The study was conducted on Eczema patients to assess the anti-histaminic activity of *Karunchembai Ilai Chooranam*.

Aim and Objective:

To study the pharmacological and adverse effects of the pharmaceutical products on humans, in determining the safety and efficacy.

To evaluate the Anti-histamine activity of *Karunchembai Ilai Chooranam.*

Study centre:

The clinical study for Eczema was carried out in outpatients department and inpatients ward of Government Siddha medical college hospital and Arignar Anna government hospital, Arumbakkam,Chennai-600 106.

Design of the study:

Open clinical trial, phase II B

Selection:

50 patients from both men and women in the age group of 20-65 years were chosen. The selection was based on the including and excluding criteria. They were clinically diagnosed on the basis of Siddha Principles with modern laboratory findings.

Registration process:

To register a patient, the following documents has been proceeded.

- Copy of required laboratory tests
- Signed patient consent form

then I verified eligibility and assigned a study number to the patient, drug dose and registered the patient on the study.

Criteria Selection:

Inclusion Criteria

- Itching, Erythema
- Papules
- Oedema
- Vesicles

- Crusting
- Odour
- Oozing

Exclusion criteria :

- Diabetes mellitus
- Bronchial Asthma
- Varicose vein
- Urticaria

Withdrawal Criteria

- Patients undergo irregular medications
- Irregular Visit of the patients
- Itching not subsided within a week
- Patient with unrestricted diet

Among the 50 patients 40 patients were treated as out patients and 10 patients were treated as inpatients in Arignar Anna Government hospital of Indian medicine and Homeopathy, Chennai – 106.

Investigation :

The patients were undergone routine blood, urine, motion investigations. All the patients were diagnosed as suffering from Eczema after the above clinical observations and investigations.

The duration of treatment ranges between 7-8 weeks according to the severity of symptoms. Clinical investigations were done before and after treatment.

The patients were treated with *Karunchembai Ilai Chooranam* 1gm bd with honey. They were observed systematically and symptomatically.

Routine examination and assessment

The full details of history and physical examination of the patients were recorded as per the proforma. The clinical assessment was done at regular intervals during treatment and at the end of 21 days follow up were done. The laboratory investigationand the physiological parameters will be recorded initially and the end of the treatment and at follows up as per the Proforma.

Dose:

The trial drug *Karunchembai Ilai Chooranam* was given in the dose of 1gram with honey depending upon the severity of the case.

Administration of the drug:

Form of the drug	:	Chooranam
Route of Administration	:	Oral
Dose	:	1 gm
Adjuvant	:	Honey
Times of Administration	:	2 times a day
Life span of medicine	:	3 months

DIET AND MEDICAL ADVISE

Diet to be avoided

- Diet aggravating the symptoms should be avoided.
- Egg, sea foods, dry fish and chicken.
- Brinjal, tomato, bitter gourd.
- Spicy, acidic, sour fried, oily and greasy food.
- Drinking tea, coffee, alcohol and smoking.
- Usage of detergent powder and soap.
- Usage of synthetic cloth plastics and rubber.

Diet to be advised:

- To drink 3-4 liters of water a day is good.
- To take greens, leafy vegetables, sweet fruits, nuts, seeds, grains.
- To take corn, lentils and soya products.
- To take less salt and less spicy diet.

Trial conduct:

This study will be conducted in compliance with the protocol approved by the Institutional Review Board, and according to Good Clinical Practice standards. No deviation from the protocol will be implemented without the prior review and approval of the IRB except where it may be necessary to eliminate an immediate

hazard to a research subject. In such case, the deviation will be reported to the IRB as soon as possible.

Criteria for assessment of response to therapy.

1. **Good Response:**

   90% of the symptoms were relieved.

2. **Moderate Response:**

   60% to 80% of the symptoms were relieved.

3. **Fair Response:**

   20% to 45% of the symptoms were relieved.

4. **Poor Response:**

   Poor relief of symptoms.

Follow up

Assessment was taken for every three days before treatment and after treatment. During this period clinical assessment and laboratory investigation was carried out.

Statitical analysis

The data will be tabulated and analyzed by students 'T' test. The resuls are showed in Table.

Ethical Review:

The protocol and any amendments regarding have been submitted to the Govt. Siddha Medical College, Chennai-106. Institutional Ethical Committee (IEC) for formal approval to conduct the study. All subjects for this study will be provided a consent form describing this study and providing sufficient information for subjects to make an informed decision about their participation in this study. This consent form was also submitted with the protocol for review and it was approved by the IEC. The formal consent of a subject, using the IEC-approved consent form, has been obtained before that subject was admitted to any study procedure. This consent form was

signed by the subject or legally acceptable surrogate, and the investigator-designated research professional obtaining the consent.

CLINICAL STUDY ON *KARUNCHEMPAI ILAI*

	O.P. No.	Name	Age/ Sex	DATE OF FIRST VISIT	Symptoms	DATE OF LAST VISIT	Resu
	7518	KALIMUTHU	57/M	18.6.2012	Itching, erythema,pustules, oozing present in the extremities	5.8.2012	GOO
	7540	RENGARAJAN	66/M	18.6.2012	Itching, erythema, oedema present in the extremities	8.8.2012	FAIR
	138	GNANASELVAM	65/F	25.6.2012	Itching,,erythema, pustules, oozing, ulcer present in the extremities	30.8.2012	FAIR
	5424	VISWANATHAN	37/M	16.7.2012	Itching, erythema, scaling present in the extremities	7.9.2012	GOO
	5462	SAKILA	30/F	16.7.2012	Itching, erythema,vesicles, oozing present in the extremities	30.9.2012	FAIR

***CHOORNAM* FOR ECZEMA**

	5504	RAO	64/M	18.7.2012	Itching,,erythema, pustules oozing present in the extremities	10.9.2012	GOO
	6207	LENIN	62/M	19.7.2012	Itching,,erythema,oozing present in the extremities	7.9.2012	FAIR
	7165	SARADHA	45/F	23.7.2012	Itching, erythema, oedema present in the extremities	3.9.2012	GOO
	7259	KARPAGAMBAL	49/F	23.7.2012	Itching,,erythema,oozing, ulcer present in the extremities	30.9.2012	FAIR
	7837	AMSA	50/F	25.7.2012	Itching, erythema, oedema present in the extremities	12.10.2012	FAIR

.	O.P. No.	Name	Age/ Sex	DATE OF FIRST VISIT	Symptoms	DATE OF LAST VISIT
	7932	PUSHPA	47/F	25.7.2012	Itching, erythema, oedema,pustules present in the lower extremities	2.10.2012
	7965	KATHIRESAN	38/M	28.7.2012	Itching, erythema, scaling, ulcer present in the extremities	4.10.2012
	8432	MURUGESAN	45/M	2.8.2012	Itching, erythema, vesicles, oozing present in the upper extremities	8.10.2012
	9254	SAIRA BAANU	52/F	4.8.2012	Itching, erythema present, scaling present in the extremities	12.10.2012
.	803	ASHA	53/F	6.8.2012	Itching, erythema, oedema, pustules present in the extremities	3.10.2012
.	836	SELVARAJ	52/M	6.8.2012	Itching, erythema, , vesicles present in the extremities	26.10.2012
.	1469	SEKAR	48/M	9.8.2012	Itching, erythema, oedema present in the extremities	27.10.2012
.	2852	NIRMALA	32/F	14.8.2012	Itching, erythema, scaling, oozing, ulcer present in the extremities	26.10.2012
.	4589	RAMESH	35/M	22.8.2012	Itching, erythema, oedema, vesicles present in the extremities	3.11/2012

.	6238	PARIMALA	39/F	1.9.2012	Itching,,erythema, pustules, oozing, ulcer present in the extremities	5.11.2012

Sl.No.	O.P. No.	Name	Age/ Sex	DATE OF FIRST VISIT	Symptoms

4.3.4.CLINAL STUDY ON *KARUNCHEMBAI ILAI CHOORANAM* FOR ECZEMA

21.	7215	GANAPATI	69/M	3.9.2012	Itching, erythema, oozing present in the upper extremitie
22.	2755	LATHA	33/F	26.9.2012	Itching, erythema, vesicles, oedema presentin the extren
23.	3952	SOUNDHER	60/M	2.10.2012	Itching,,erythema,oozing present in the extremities
24.	4660	ELUMALAI	49/M	4.10.2012	Itching,,erythema, pustules oozing present in the extremi
25.	8016	MUTHUSELVAKUMAR	32/M	18.10.2012	Itching, erythema present, scaling present in the extremit
26.	9436	RAJA	35/M	26.10.2012	Itching, erythema, oedema, ulcer presentin the extremitie
27.	9455	SATHYA	40/F	26.10.2012	Itching, erythema, pustules presentin the extremities
28.	9611	SAKTHIVEL	59/F	27.10.2012	Itching, erythema, vesicles,oedema presentin the extrem
29.	1675	KAMALA	35/F	30.10.2012	Itching,,erythema,oozing, ulcer present in the extremities
30.	1678	RAJESWARI	42/F	6.11.2012	Itching, erythema, scaling present in the extremitie

4.3.4.CLINICAL STUDY ON *KARUNCHEMBAI ILAI CHOORANAM* FOR ECZEMA

4.3.4.CLINICAL STUDY ON *KARUNCHEMBAI ILAI CHOORANAM* FOR

4.3.8 HAEMATOLOGICAL REPORT

Sl. No.	I.P. No. / Sl. No.	O.P. No.	Name	Age/ Sex	BEFORE TREATMENT				AFTER TREATMENT				ESR (mm)				BL.SU
					TC Age/ Sex CU/mm	DC			TC CU/mm	DC			BT AT 1 hr	1hr	Hb(Gm) BT	AT	BT
						P	L	E		P	L	E					
41.	1077/7053		RAJALAKHSMI	52/F	9400	56	32	13	8900	62	36	6	15	14	9.0	9.3	98
42.	1128/8173		SELVI	37/F	7600	48	46	6	7800	52	43	5	14	13	9.2	10.2	96
43.	1220/1115		MOHAMMADBAEG	50/M	9700	55	36	5	9450	65	30	5	13	24	10.6	10.6	117
44.	1231/1419		KAASI	59/M	9200	53	40	7	9200	59	42	5	14	12	10.6	10.8	121
45.	1317/4312		DHANALAKHSMI	53/F	7600	63	32	5	8000	52	44	4	16	15	12.0	12.4	108
46.	1399/6626		RAMESH	35/M	9400	58	36	7	9200	60	36	4	15	14	12.0	12.7	98
47.	1419/7245		SAROJA	43/F	8700	59	35	6	8800	58	39	6	14	13	13.0	13.8	89
48.	74/1979		PADMAVATHI	65/F	9800	63	31	6	9400	60	33	5	14	14	10.0	10.4	132

ECZEMA

4.3.7. GENERAL HAEMATOLOGICAL INVESTIGATION

49.	320/9361	MARY	50/F	9800	64	32	4	8500	52	44	4	12	11	9.0	9.3	127
50.	349/925	PAMIATH	55/F	9600	57	33	5	9800	58	34	5	12	12	12.0	12.5	124

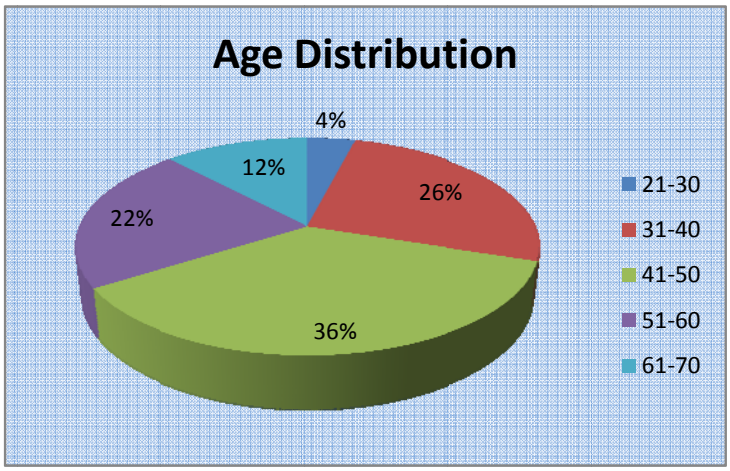
B.KANI

CLINICAL ASSESSMENT

AGE WISE DISTRIBUTION

Table 5.Showing Age wise distribution

Sl. No	Age in years	No. Of patients	Percentage (%)
1	21-30	2	4.0
2	31-40	13	26.0
3	41-50	18	36.0
4	51-60	11	22.0
5	61-70	6	12.0
Total		50	100



Inference:

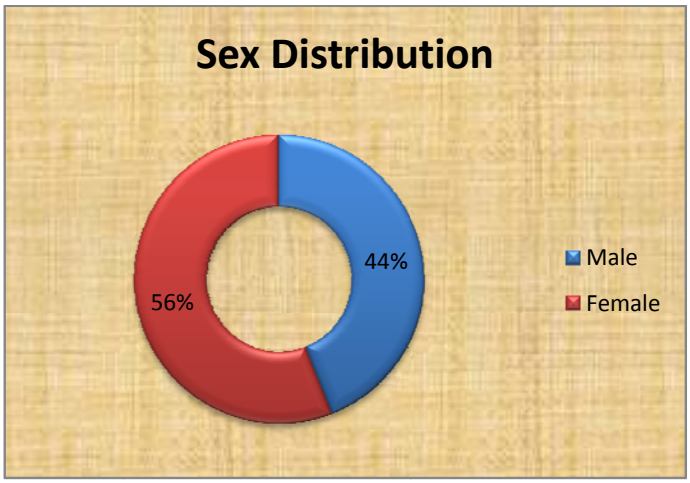
Among 50 patients,

- 4% patients belongs to the age group of 20-30 years
- 26% patients belongs to the age group of 31-40 years
- 36% patients belongs to the age group of 41-50 years
- 22% patients belongs to the age group of 51-60 years
- 12% patients belongs to the age group of 61-70 years

SEX DISTRIBUTION

Table 6.Showing Sex Distribution

Sl. no	Sex	No. of patients	Percentage
1	Male	22	44.0
2	Female	28	56.0
Total		50	100



Inference:

Among 50 patients,

- 44% patients were male,
- 56% patients were female56% patients were female

Table 7.Showing Occupational Status

Occupation	No. of cases	Percentage %
Farmer	12	24 %
Building labourer	22	44 %
Painter	8	16 %
House wife	4	8 %
Tailor	1	2 %
Electrician	1	2 %

Student	1	2 %
Driver	1	2 %

Inference:

Among 50 patients,

24 % of the patients were Farmer

44 % of the patients were building labourer

16 % of the patients were Painter

8 % of the patients were House wife

2 % of the patients were Tailor.

2 % of the patients were Electrician

2 % of the patients were Student.

2 % of the patients were Driver

Table 8.Showing Personal Habits

Personal habit	No. of cases	Percentage %
Vegetarian	5	10 %
Non Vegetarian	45	90 %
Smoking	12	24 %
Alcohol	16	32 %

Inference:

- Among 50 patients,
- 10% of the patients were vegetarian
- 90% of the patients were non vegetarian
- 24% of the patients had smoking habit
- 32 % of the patients were Alcoholic

5. RESULTS AND DISCUSSION

Various studies have been carried out in this trial drug *Karunchembai Ilai Chooranam*. The study includes literary collections, Pharmacognostic study, physico and Phyto chemical analysis, toxicological study, pharmacological study and clinical study. *Karunchembai Ilai Chooranam* was taken for the treatment of Eczema. The drug has been selected for the treatment of Eczema in reference with Gunapadam *mooligai vaguppu* written by K.S.Murugesa Mudaliyar**.**

Literary collections indicates the efficacy of the drug in the treatment of Eczema. Botanical aspect deals with the identification, description, cultivation and ethno medicinal importance of the plant.

Pharmacognostic study:

Microscopic characters:

Leaf:

The leaf has fairly prominent midrib and thick lamina.(fig.1.1). The midrib is plano convex in sectional view with flat adaxial side and semicircular abaxial side.(fig.1.2). The midrib is 420 µm thick 380 µm wide. The epidermal cells along the abaxial part of the midrib are slightly papillate and thick walled; The cells on the flat adaxial side are narrowly rectangular and cylindrical. This is thick vertical segment of collenchyma cells on the adaxial median part of the midrib. The abaxial part consists of thin walled parenchyma cells. The vascular strand is single, wide and thick. These are 7 or 8 rows of short, wide angular xylem elements. Phloem occurs in thick are beneath xylem strand.

Lamina(fig.2.2):

The lamina is 150-170 µm thick. It is smooth and even on both adaxial and abaxial sides. The lamina is amphistomatic(having stomata on both surfaces). The epidermal cells are thick and cylindrical with thin walls. The adaxial epidermis is 20 µm thick and abaxial epidermis is 12-15 µm thick. The palisade zone consists of a single layer of narrowly cylindrical loosely arranged cells. The spongy parenchyma cells are spherical or lobed and loosely arranged with air-spaces.(2.2).

Leaf-margin:

The marginal part of the lamina is 110 µm thick. The margin is semicircular and straight. The epidermal cells of the marginal lamina are slightly larger. The mesophyll tissue consists of distinct palisade layer and spherical spongy parenchyma.

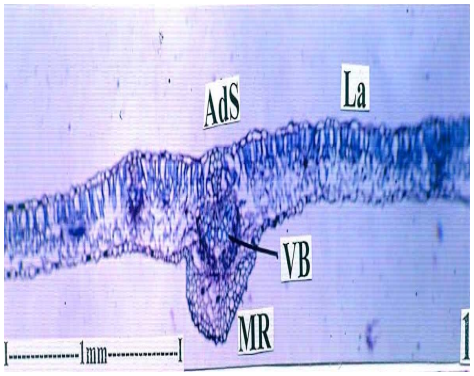


Fig.3. T.S. of leaf through midrib

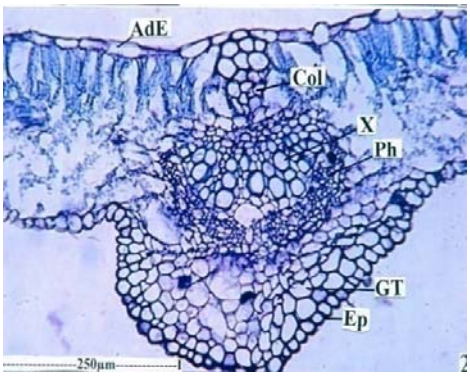


Fig. 4. T.S. of midrib enlarged

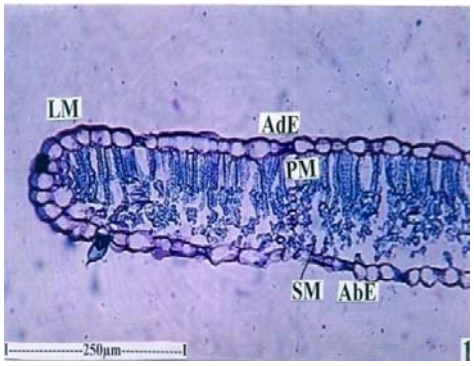


Fig.5.T.S. of Leaf Margin

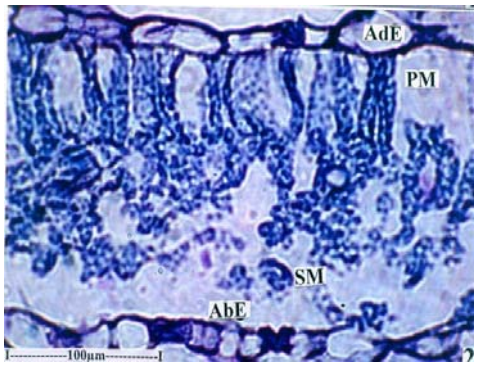


Fig.6. T.S. of Lamina

AbE - Abaxial epidermis,

AdE - Adaxial Epidermis,

LM - Leaf margin,

PM - Palisade Mesophyll,

SM - Spongy Mesophyll

QUALITATIVE PHYTOCHEMICAL ANALYSIS

Table 9 .

1.	Steroids	+ ve
2.	Triterpenes	+ ve
3.	Glycosides	+ ve
4.	Saponin	+ ve
5.	Phenol	+ ve
6.	Flavonoids	+ ve
7.	Tannins	+ ve

PHYSICO - CHEMICAL ANALYSIS

Table 10 :

S.No	Parameter	Mean Value
1.	Loss on Drying at 105°C	9.498 %
2.	Total Ash	10.173 %
3.	Acid insoluble Ash	0.275 %
4.	Water Soluble Extractive	35.7 %
5.	Alcohol Soluble Extractive	29.9 %
6.	Particle size	Completely passes through sieve no.44
7.	Ph	6.5

After spray with Visualizing reagent

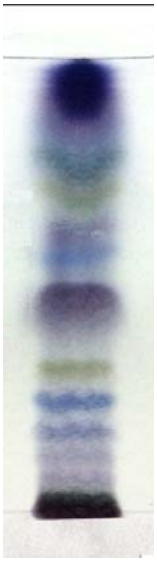


Fig.No.7.Showing Rf Value

Table 11:

Sl.No	After Dipping in Vanillin-Sulphuric acid	
	Rf value	**Colour of the spot**
1	0.18	Blue
2	0.25	Blue
3	0.32	Grey
4	0.48	Violet
5	0.57	Blue
6	0.62	Violet
7	0.71	Grey
8	0.78	Bluish grey
9	0.94	Violet

CHEMICAL ANALYSIS

Table 12:

Test for chemicals	Observation	Inference
Reducing sugar	Absence of green/yellow/red precipitate	_
Starch	Presence of Violet/purple colour	_
Protein	Presence of violet colour	+
Amino acid	Absence of yellow precipitate	+
Albumin	Absence of yellow precipitate	_
Phosphate	Absence of white precipitate	_
Sulphate	Presence of cloudy white precipitate	_
Chloride	Presence of red colour	+
Iron	Presence of white precipitate	+
Calcium	Presence of white precipitate	+
Sodium	Absence of yellow flame	_
Potassium	Presence of yellow precipitate	_
Zinc	Absence of white precipitate	_
Magnesium	Absence of white precipitate	_

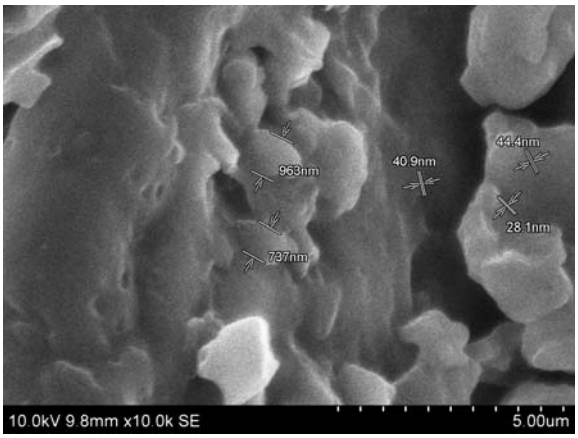


Fig.8.Showing SEM picture of KIC

Results:

SEM picture shows Nano particle (Micro level) size of the sample.

Karunchembai Ilai chooranam have good nano particle size that indicates absorption is very good.

FTIR absorption

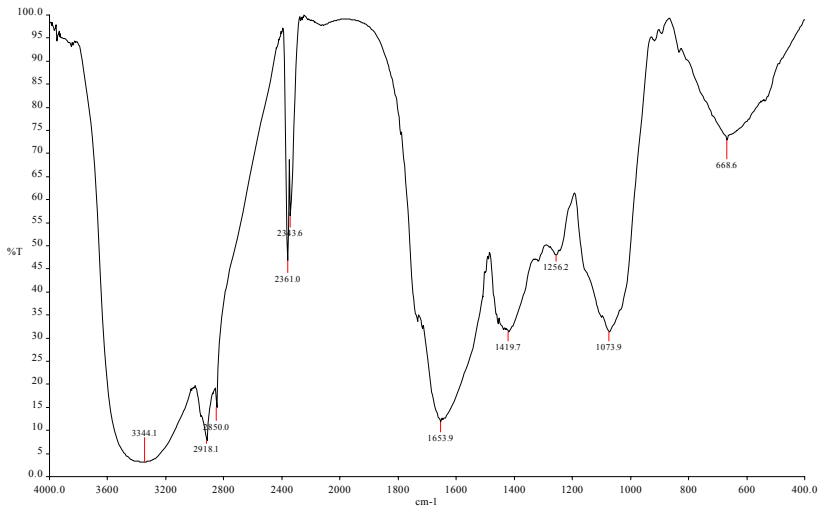


Fig No. Showing FTIR absorption

Table 13. Showing FTIR Absorption results

0Frequency, cm^{-1}	Bonds	Functional groups
3344.1	N-H Stretch	Anhydrides
2918.1	O-H Stretch	Carboxylic acids
2850	C-H Aldehyde Stretch	Aldehydes
1653	C=C stretch(Isolated)	Alkenes
1419	C-H in plane bend O-H bend	Alkenes Carboxylic acids
1256	C-C(O)-Cstretch (acetates)	Esters
1073	C-O stretch(alkyl)	Amines
668.6	C-Cl stretch	Alkyl halides

TOXICOLOGICAL STUDY

Table 10 : Dose finding experiment and behavioural Signs of Toxicity

No	Dose mg/kg	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.	**500**	+	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	**1000**	+	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	**2000**	+	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	**5000**	+	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Alertness 2. Aggressiveness 3. Pile erection 4. Grooming 5. Gripping 6. Touch Response 7. Decreased Motor Activity 8. Tremors 9. Convulsions 10. Muscle Spasm 11. Catatonia 12. Muscle relaxant 13. Hypnosis 14. Analgesia 15.Lacrimation 16. Exophthalmos 17. Diarrhoea 18. Writhing 19. Respiration 20. Mortality.

Acute toxicological study reveal that the drug *Karunchembai Ilai Chooranam* does not having any toxic effect upto 5000 mg/ kg and safety of the drug is recorded through the histopathological results of animal model.

PHARMACOLOGICAL STUDY:

Antihistaminic activity of *Karunchembai Ilai Chooranam*

In isolated guinea pig ileum preparation, a right side shift of dose response curve of histamine was observed in the presence of the *Karunchembai Ilai Chooranam* indicating antihistaminic action. It was observed that antihistaminic activity in *Karunchembai Ilai Chooranam* was effective. The resultant antihistaminic effect may be caused by the suppression of antibody production and stabilization of the mast cell membrane, inhibition of antigen-induced histamine release or non-availability of antibodies on the mast cell surface. Most allergic and non-allergic asthmatics, including those with mild asthma, having bronchial eosinophilia and there is significant association between eosinophil activation and asthma severity as well as bronchial hyper-responsiveness.

The current market is flooded with enormous medicated products for the treatment of asthma as it is one of the most common diseases prevailing in the world population. These drugs effectively control the incidence of sign and symptoms of asthma but none promise to provide a complete relief. Among them antileukotrienes are the newest classes of antihistaminic drugs available.

Moreover, they are also associated with a number of side effects like kidney, liver failure, increased hunger, compromised immune system and high blood pressure. The current approaches to the treatment of asthma are mainly focused on anti-inflammatory drugs such as steroids, bronchodialators and blocking of inflammatory mediator. The available treatment for respiratory tract diseases has major limitations owing to low efficacy and associated adverse effects. Siddha, an Indian system of medicine, has described several drugs for the treatment of bronchial asthma and allergic disorders.

Histamine produces dose dependent contraction of Guinea pig ileum preparation. In the present study, Thus, it can be concluded from the results obtained the *Karunchembai Ilai Chooranam* significantly inhibited ($p<0.01$) the histamine-induced contraction of isolated Guinea pig tracheal chain preparation and found to be

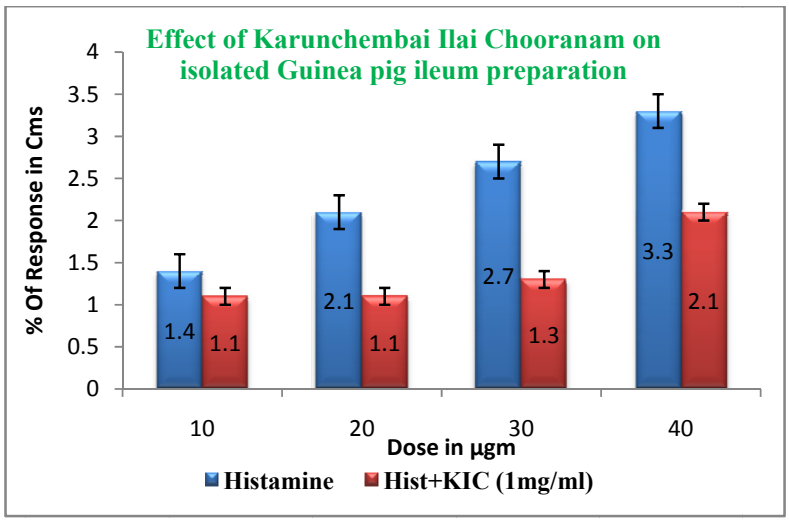
effective can be used as a antihistaminic agent clinically for mild to moderate allergic symptoms.

Table 13 :

Effect of *Karunchembai Ilai Chooranam* on isolated Guinea pig ileum preparation

S. No	Dose of Histamine (µg/ml)	Percent of maximum response	
		Histamine alone	Histamine+ *Karunchembai Ilai Chooranam* (1mg/ml)
1	10	1.4±0.10	1.1±0.16*
2	20	2.1±0.10	1.1±0.22**
3	30	2.7±0.12	1.3±0.24**
4	40	3.3±0.15	2.1±0.21**

Values are expressed in mean ± SEM, *p< 0.05 compared with histamine induced contraction (33mm as 100%); n=3.



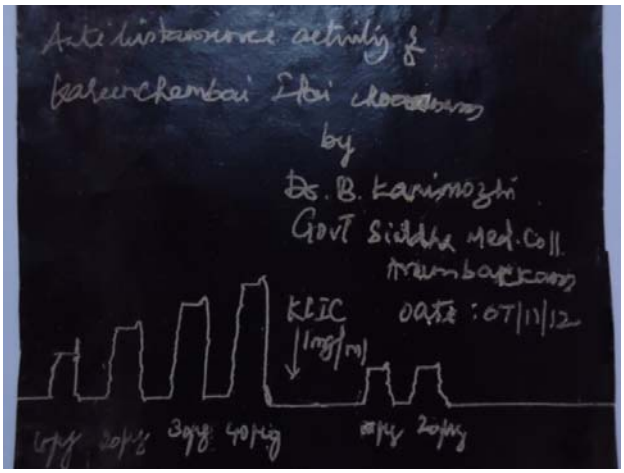


Fig. 9 Showing Anti-Histamine Activity

Anti - inflammatory activity of *Karunchembai Ilai Chooranam* in rats

An important feature of the formalin test in rodents is that the animal show two phases of nociceptive behavior which possibly involves two distinctly different stimuli. The first phase starts immediately after injection of the formalin and lasts for 3-5 min. Evidences show that effect on the opioid receptors is one of the main ways involved in exertion of antinociceptive effects in this phase. The most widely used primary test to screen new anti-inflammatory agents measures the ability of a compound to reduce local edema induced in the rat paw by injection of an irritant agent. This edema depends on the participation of kinins and polymorphonuclear leukocytes with their proinflammatory factors including prostaglandins.

The specific chemical mediators vary with the type of inflammatory process and include amines such as histamine, serotonin, lipids such as prostaglandins and small peptides such as Kinins. Formalin-induced pain is caused primarily by peripheral tissue inflammation. Acute inflammation may last for relatively shorter duration, ranging from few minutes to few days. Exudation of fluid and plasma proteins, emigration of leukocytes, and predominantly neutrophils, are characteristic changes. The *Karunchembai ilai chooranam* as well as diclofenac showed antiphleogestic activity. It can be assumed that the test drug *Karunchembai ilai chooranam* exert its anti-inflammatory effect through mechanism similar NSAIDs.

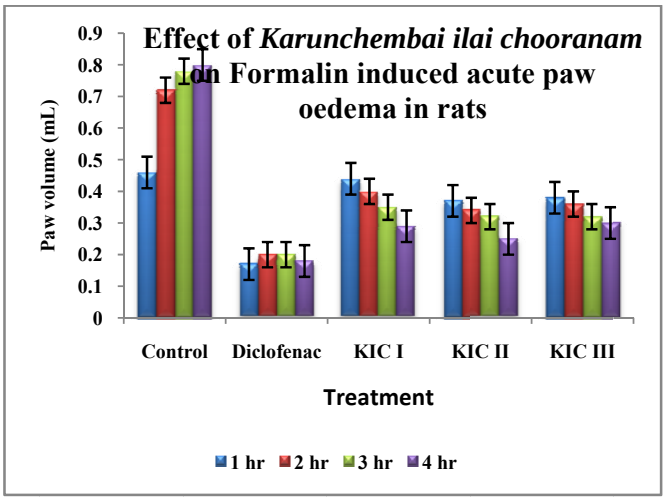
Formalin-induced paw oedema is one of the most suitable test procedures to screen chronic anti-inflammatory agents, as it closely resembled human arthritis. The nociceptive effect of formalin is also biphasic; an early neurogenic component followed by a later tissue-mediated response. The result suggests the usefulness of

Karunchembai ilai chooranam in the treatment of inflammation associated diseases like arthritis. The pattern of anti-inflammatory activity exhibited by this *Karunchembai ilai chooranam* was similar to that of diclofenac which suggests that the activity may be mediated by cyclooxygenase I and II inhibition. This anti-inflammatory activity was found to be statistically significant (P<0.01) at all the concentration used after 120minutes of drug treatment.

Table 14: Effect of *Karunchembai Ilai chooranam* on Formalin induced acute paw oedema in rats

Treatment	**Dose (mg/kg)**	**Paw volume (mL)**			
		1 hr	**2 hr**	**3 hr**	**4 hr**
Control	5ml/kg	0.46 ± 0.15	0.72 ± 0.17	0.78 ± 0.14	0.80 ± 0.17
Diclofenac Na	45mg/kg	0.17 ± 0.04	0.20 ± 0.05**	0.20 ± 0.06**	0.18 ± 0.04**
KIC I	100mg/kg	0.44 ± 0.05	0.40 ± 0.05	0.35 ± 0.10**	0.29 ± 0.10**
KIC II	250mg/kg	0.37 ± 0.06	0.34 ± 0.05*	0.32 ± 0.05**	0.25 ± 0.06**
KIC III	500mg/kg	0.38 ± 0.05	0.36 ± 0.06*	0.32 ± 0.05**	0.30 ± 0.07**

Values were compared with control; *P<0.05; **P<0.01 was considered as significant



Antimicrobial activity of *Karunchembai Ilai Chooranam*

Antimicrobial properties are useful tools in the control of microorganisms especially in the treatment of infections and food spoilage. Many plants contain microbial inhibitors. MIC values obtained for the tested microorganisms are reported in Table 1. In the present study, antimicrobial activity of three doses of KIC was evaluated against various microbes by agar well diffusion method. Distilled water was used as negative control. As revealed, the KIC was found to be effective against almost all the microbes used in this study particularly candida with zone of inhibition of 7mm and E.coli with zone of inhibition ranging between 6 to 10mm.

Table 13. Antimicrobial activity of *Karunchembai Ilai Chooranam*

Drug and Concentration	**Inhibition zones in diameter (mm)**					
	E. coli	***P.aeroginosa***	***S. typhi***	***C. albicans***	***St. aureus***	***St. pyogenes***
KIC (25µg/ml)	07	08	07	07	09	05
KIC (50µg/ml)	09	08	06	04	04	04
KIC (100µg/ml)	10	11	10	08	09	08

:

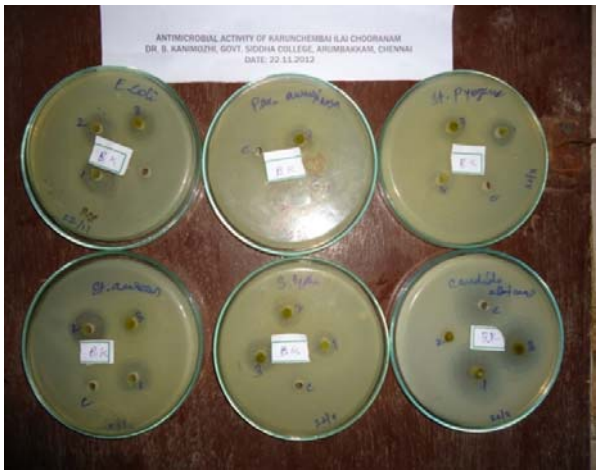
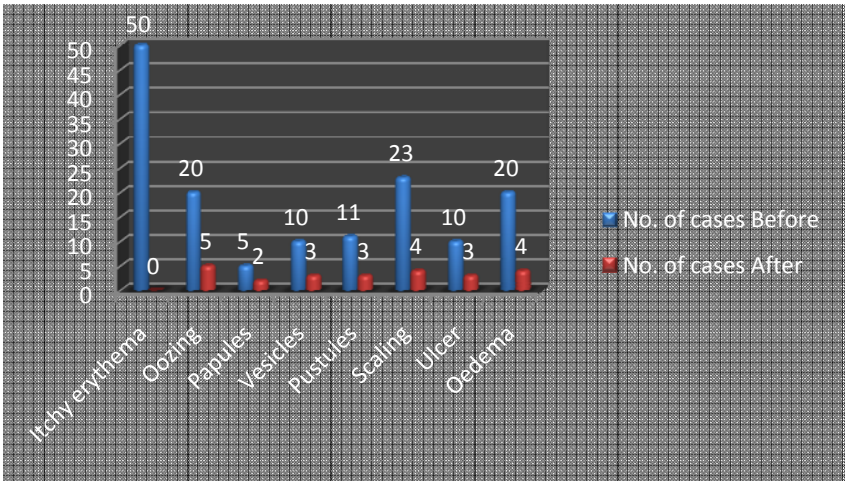


Fig.10.Showing Anti-Microbial Activity

Table 15: Improvement showing signs & symptoms before and after treatment

Signs & Symptoms	No. of cases Before	No. of cases After	Improvement	Percentage Improved
Itchy erythema	50	-	50	100%
Oozing	20	5	15	75.0%
Papules	5	2	3	60.0%
Vesicles	10	3	7	70.0%
Pustules	11	3	8	72.7%
Scaling	23	4	19	26.1%
Ulcer	10	3	7	70.0%
Oedema	20	4	16	80.0%



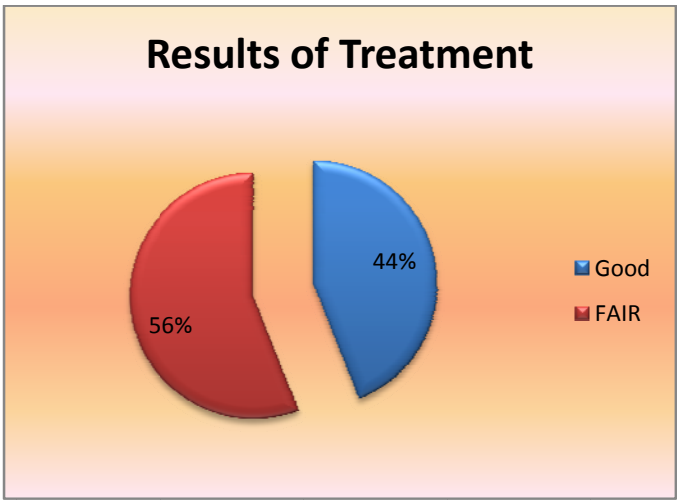
Inference:

Among 50 patients,

- ❖ 100 % of the patients were relieved from Itchy erythema
- ❖ 75 % of the patients were relieved from Oozing
- ❖ 60 % of the patients were relieved from Papules
- ❖ 70% of the patients were relieved from Vesicles
- ❖ 72.7 % of the patients were relieved from pustules
- ❖ 26.1% of the patients were relieved from scaling
- ❖ 70% of the patients were relieved from ulcer
- ❖ 80 % of the patients were relieved from Oedema

Table 16: Gradation results

Sl. no	Level of improvement	No.of patients	Percentage (%)
1	Good	22	44
2	Fair	28	56
Total		50	100



STATISTICAL ANALYSIS

Descriptive statistical for improvement in patients

Paired "t" test result:

Table 16: "p" value & statistical significance:

Treatment	Signs & symptoms	Mean	S.D	S.E.M
Before treatment	50	3.6060	2.19419	0.31030
After treatment	50	1.3880	1.01913	0.14413

From the table we calculated the descriptive statistic like Mean, S.D & S.E.M of Mean for the improvement score before and after treatment.

Table 17: "t" Table:

t-Table	S.D	"t" Value	"p" Value
Pre vs Post	1.28693	12.187	0.000

The two-tailed P value is less than 0.000.By conventional criteria; this difference is considered to be extremely statistically significant.

Improvements of signs and symptoms by statistical analysis shows the two tailed "p" value equals 0.000, by conventional criteria, this difference is considered to be extremely statistically significant. From the above results $p < 0.05$, it shows the

improvement in the subjective parameters produced by *Karunchembaii Ilai Chooranam* is statistically significant

6.CONCLUSION

- The medicinal plant *Karunchembai Ilai Chooranam* was taken for the study mainly to evaluate anti-histamine activity in the treatment of Eczema.
- The drug is easily available and preparation is very simple as per evidences about the plant, thus proving the efficacy of the drug in the treatment of Eczema.
- Qualitative analysis proved the presence of Triterpenoid, Flavonoid, Tannin, Saponin and Phenols.
- Presence of Iron increases the Hb production and helps in transport of O_2 to the tissues also participates in cellular oxidation mechanisms.
- The trial medicine is less expensive.
- No any adverse effects has been reported.

Hence *Karunchembai Ilai Chooranam* proves itself as a satisfactorily effective drug for Eczema.

7.SUMMARY

- The herb *Karunchembai Ilai* was collected from Erode Dist., and purified then powered and stored and was subjected to various studies.
- *Karunchembai* leaves were selected for this study to evaluate the Anti – histamine activity, and to prove its efficacy and safety in Eczema.
- The *Gunapadam* aspect expressed that the drug possess good effect on Eczema and other skin diseases.
- Pharmacological study showed significant anti-histaminic activity, anti-microbial activity, anti-inflammatory activity.
- The microbial studies of the test drug proves highly sensitivity to all micro organism.
- Scanning Electron microscope (SEM) the trial drug have good nano particle size that indicated absorption is very good and pharmaco therapeutic value is good.
- Qualitative analysis for the trial drug evaluated the presence of Triterpenoid, Flavonoid, Saponins,Glycosides, Tannin and Phenol.
- The clinical study showed improvement in symptoms like itching, oozing, erythema, scaling, pustules etc.

1.INTRODUCTION

The name Siddha medicine relates to the earlier esoteric medicinal postulates concerning longevity, even immortality, and the later iatrochemical formulations as conceived and practiced by 18 Siddhars, located in what is today, the Tamil Nadu. It is for this reason, the entire Siddha medical literature is in Tamil. The Siddha alchemy came to the fore in India between 500 and 600 CE, and the Siddha medicine between 900 and 1000 CE. Two millennia old Siddha system received the patronage of tamil Kings and Chieftans as well as the general public all through.

Minerals, metals, salts, toxic substances and even herbs are classified in the Siddha system as male and female, which is reminiscent of the practice in the Latin language which ascribes genders to nouns. These substances are also recognised as friendly or inimical, probably based on their mutual compatibility or otherwise. The Siddha system identifies 120 uparasas, nine metals and nine gems, each requiring an elaborate processing, most often by high physical heat before they are considered fit for use in a medical composition. The formation of the embryo, physiological processes, six rasas, tridhathu, tridosha, curative practices and the like, find rational relative theories in Siddha.

In the Siddha system, *Kaayakalpam* has a very conspicuous place. Inherent in *Kaayakalpam* is the belief of the Siddha physicians that the human body consists of 72,000 veins and nerves, six vital centres, 10 vital airs, and 10 vital pulses. These appear to relate to tantrik and yogic concepts. One of the notable characteristics of *Kaayakalpam* is the intake of *muppu*, the three salts, besides the administration of meticulously processed minerals and other rejuvenating compositions, use of potent herbal extracts, breathing regulation, conservation of sperm and others. *Muppu* is believed to enhance the efficacy of any Siddha medicine.

Nowadays people do suffer from many ailments like urolithiasis, oedema, hypertension, ascites due to change in lifestyle, restricted water intake, increased intake of spicy, salty fast foods, increased intake of carbohydrate and fat rich foods, lake of proper balanced diet etc.., so to the demand of the day and to control the ailments, diuretics are the preferable choice.

Diuretics are the substances which causes the removal of fluid from the body

through urination, more commonly known as "water pills". The word "diuretic" comes from a combination of the greek "dia"-thoroughly, "ourein" to urinate=to urinate thoroughly.

Diuretic therapy are indicated for many diseases such as oedema associated with sodium retention (Cardiac oedema, Hepatic oedema, Renal oedema, pulmonary oedema, cerebral oedema, oedema of pregnancy and idiopatic oedema), Urolithiasis, Hypertension, Ascites etc..,

Current treatments as in modern side includes diuretics like Xanthines, Thiazides, Acetazolamide, spironolactone, mannitol, glycerol, Isosorbide, Triamterene, Amiloride, Frusemide and Ethacrynic acid.

The adverse effects of these diuretics include hypokalemia, blood dyscrasias, muscle weakness, allergic reactions, metabolic acidosis, vomiting, diarrhoea, hyperkalemia, liver and bone marrow changes, cardiac arrest on intravenous administration.

Nowadays it is our duty to bringout the Siddha medicines to this modern world thereby providing effective and humoral based healing to our body which gives eternal wellbeing to this mankind.

Thiraavagam means acidic liquid preparations obtained by a process of destructive distillation of salts and alkalies with or without any addition of fluids in a peculiar distillation setup called *valaiyanthiram*. *Thiraavagam* has peculiar properties, where little dosage of the drug and its easy absorption will increases the curative aspect of the condition to a greater extent.

As per Siddha literature, *Ashta gunma thiraavagam* made from combination of 6 salts will be more effective, less toxic and also till no researches have been done on above medicine, here this study deals with *Ashta gunma thiraavagam* on diuretic activity.

2.AIM AND OBJECTIVES

Aim

The Aim of the study is to prove the Diuretic efficacy of *Ashta Gunma Thiraavagam*. Oedema, Hypertension, Renal calculus etc are some conditions in which diuretics are much necessary.

Synthetic Diuretics such as Loop Diuretics[Frusemide] and Thiazide like Diuretics accomplish the demand. These synthetic diuretics cannot be used for long term as they produce decrease in concentration of electrolytes which in turn results in serious conditions. These diuretics do not contain any active constituents, nutrients or any other medicinal or tonic properties to mankind.

Ashta Gunma Thiraavagam is a drug which enhances elimination of excess body fluids as in oedema, ascites etc which are indicated in the literature.

Hence the Aim of the Study is to test the safety and efficacy of *Ashta Gunma Thiraavagam* for diuretic activity.

Objectives

The drug was studied in the following aspects.

1. Literature reviews.
2. Chemical Analysis of *Ashta Gunma Thiraavagam*
3. Toxicological activity.
4. Pharmacological activity.
5. Clinical study.
6. Statistical analysis of the results.

3.REVIEW OF LITERATURE

3.1.GUNAPADAM ASPECT OF THE DRUGS:

***Vediuppu*:**

Synonyms:

Pottiluppu, Inangan, padai rasan, poomikoormai, navachara mithru.

Action:

Refrigerant, diaphoretic, diuretic.

General characters:

மல்லாரு மட்டகுன்ம மாதருத ரக்கட்டி

கல்லா மதைப்புநீர்க் கட்டருக-லெல்லாமே

கம்பிகம்பி யென்றுங் கருவுண்டா மங்கிநின்ற

கம்பிகம்பி யென்றுரைக்குங் கால்.

தாது-சீவ வகுப்பு

This cures ulcers, bleeding piles, urinary calculi and burning sensation. It reduces the frequency of pulse, useful in dropsy, small pox, catarrh, acute rheumatism and bleeding from lungs.

Vengaaram:

Synonyms:

Porikaram, karam, urukkinam, urukkumithran, tanganam, thoomathaiadakki.

Action:

Refrigerant, diuretic, lithotriptic, antiseptic, emmenagogue, astringent, alterative.

General characters:

சொறிபுடையெண் குன்மநமை சோரி யாசம்
பறிகிரகணி கல்லூனம் பன்னோய்-நெறியைத்
தடங்கணங்க பங்கிருமி சர்ப்பவிடஞ் சந்ந
யிடங்கணங்க லக்கிற்போ மெண்.

தாது-சீவ வகுப்பு

This cures ulcers, bleeding piles, urinary calculi, skin diseases, puerperal convulsions, amenorrhoea and cystitis.

Navacharam:

Synonyms:

Ishtigai, salligai, sooligai, padu

Action:

Expectorant, diaphoretic, diuretic, cholagogue

General characters:

குன்மம் குடற்சூலை கொல்லும் மகோதரத்தை
வன்மையுறு கல்லடைப்பை மாற்றுங்காண்-சன்மக்
கவிச்சுமுத் தோடங் கனவாத நீக்கும்
நவச்சார மாதே நவில்.

தாது-சீவ வகுப்பு

This cures stomachache, ascites, urinary calculi. It stimulates mucosa, relieves hepatic congestion, urinary secretion and in dropsy.

Padikaram:

Synonyms:

Padiki, cheenam.

Action:

Astringent, styptic, antiseptic, anti-spasmodic.

General characters:

சீனமெனுங் காரமது சீறிவரு பல்லரணை

ஆனைக்கால் கண்ணோய் அனிலமொடு-மாநிலத்தில்

துன்மாங் கிசம்வாயு தோலாத உள்ளழலை

குன்மமிவை போக்குமெனக் கூறு.

தாது-சீவ வகுப்பு

This cures filariasis, eye diseases,*pallaranai, nethiravayu*(eye diseases) and ulcers.

Pooneeru:

Synonyms:

Moorkkan, Tharaninathan, theerkkan, Uvar, Poosarathi, Satthi, savudu.

Action:

Antacid, diuretic

General characters:

கரப்பான் சீதத்தை கண்டிக்கும் பேதி

யுரப்பாகும் வாயுதனை யோட்டும் சுரப்பாகும்

உந்திவலி குன்மம் ஒழிக்கும் பூநீறனவே

செந்தாமரை முகத்தாய் செப்பு.

தாது-சீவ வகுப்பு

This cures eczema, cold, ulcers and stomach pain.

***Savukkaram*:**

Action:

Demulcent, disinfectant.General characters:

கார்மேகத் துர்ப்படையும் கட்டிக் கரப்பனுடன்

கார்மேக வூறற் றழும்பலரும்-சேர்மேகத்

தொட்டி வரும்நகத்தி னூற லகற்றிவிடும்

கட்டிச் சவுக்காரங் காண்.

- பதார்த்தகுண விளக்கம்

This is used externally for *karumpadai, katti*, scabies, eczema and itching of the genital region.

Preparations:

Pancha lavana parpam:

Drugs:

Common salt-*sottruppu*- 35 gms

Rock salt- *Indhuppu*- 35 gms

Salt petre- *Vediuppu*- 35 gms

Borax - *Venkaram*- 35 gms

Alum - *Padikaram*- 35 gms

Karpoora silasathu- 175 gms

Acalypha juice- sufficient quantity

Process:

Grind the mixture of the above said salts.Along with it add acalypha juice and grind it for 12 hours and calcine with cow dung cakes.

Dose:

8 to 16 kunri with *chukku kudineer*, lemon juice and *seeraka kudineer.*

Indications:

Indigestion, ulcer, stomach ache.

Sanka Thiraavagam

Drugs:

Salt petre- *vediyuppu*	- 12 parts
Rock salt- *Induppu*	- 8 parts
Common salt- *sotruppsu*	- 4 parts
Sal ammoniac- *Navacharam*	- 10 parts
Green vitriol- *Annabhedi*	- 1 part
Blue vitriol- *Thurusu*	- 1 part
Common alum- *Padikaram*	- 1 part
Salt from alkaline earth- *Pooneeru*	- 3 parts
Borax- *venkaram*	- 4 parts

Process:

Powder the drugs separately and mix. Charge in a glazed earthern still and distill . The condensate is acidic and should be collected in porcelain ,enameled or glass containers.

Indications

Ascitis, enlargement of liver and spleen, colic and spasmodic pains in the abdomen and chest .

Dose

1 to 5 drops with *sombu theeneneer* or water twice ,daily.

- ***Vediuppu cheyaneer***

Indications- Anuria, renal calculi, retention of urine, burning micturition.

- ***Vediuppu kattu***

Indications- stomach ache, retention of urine, ulcers.

- ***Padikara chunnam***

Indications- myocele, retention of urine, renal calculi.

- ***Pooneeru cheyaneer***

Indications- stomach ache, ulcers, uterus problems.

- ***Savukkara chunnam***

Indications- ulcers, indigestion.

- ***Navacharathi kuzhambu***

Indications- Ascites, jaundice, anaemia.

- ***Venkaara mezhugu***

Indications- anuria, retention of urine.

- ***Aaruppu cheyaneer***

Indications- indigestion, gastric problems.

- ***Maha thiraavagam***

Indications- ulcer,indigestion, retention of urine, ascites, anemia.

- ***Pancha pootha chenduram***

Indications- Fistula, cough, tuberculosis.

- ***Thiripurathi chenduram***

Indications- bronchial asthma, soolaikattu, vadha disease.

- ***Neela kanda paalai***

Indications- 18 types of soolai, scabies.

- ***Lavana kuzhambu***

Indications- Ascites, anemia, jaundice.

3.2.MODERN ASPECT OF THE DRUG:

Potassium nitrate:

Vernacular names:

Tamil	:	*pottiluppu*
Sanskrit	:	*surakshara*
Telugu	:	*surekaramu*
Kannada	:	*patluppu*
Malayalam	:	*vediyuppu*
Hindi	:	*sarakalmi*

Potassium nitrate (also known as nitre and saltpeter; KNO3, mp 334degreeC) is manufactured by the following methods:

i) Lixiviation of earth containing nitre
ii) Fractional crystallization of an aqueous solution of sodium nitrate (Chile saltpeter) and potassium chloride
iii) Action of dilute nitric acid on potassium chloride, and
iv) Reaction of potassium chloride with ammonium nitrate.

The first method is widely used in India. The second method is commonly used all over the world.

Potassium nitrate occurs as a natural efflorescence on soils over extensive areas in Bihar, Punjab and Uttar Pradesh.

Properties and uses:

Potassium nitrate forms colourless transparent prisms, or a white powder. It is odourless, has a saline taste and produces a cooling sensation in the mouth. It is easily soluble in hot water and much less in cold, and almost insoluble in alcohol. It is an important fertilizer and is particularly suited for tea plants. Other minor applications are in the manufacture of certain types of glass and ceramic glazes, and in meat curing, freezing mixtures, impregnating candle wicks, heat treating of steel. It is also used as a saline diuretic.

Common alum

Vernacular names:

Tamil : *padikaaram*

Sanskrit : *sphatika*

Telugu,kannada: *padikaaram*

Hindi : *phatkari*

Alums are represented by the general formula R2SO4, R2’’’(SO4)3. 24H2O, where R and R ‘’’ are respectively monovalent and trivalent positive radicals, Potash alum is the common alum. Ammonia alum, chrome alum, ferric alum and soda alum find occasional uses.

Solutions of alums coagulate proteins and precipitate them; they harden gelatin.

In industry, alum is used for the same purposes as aluminium sulphate, and is largely replaced by the latter which is cheaper. Alum is also used in manufacture of matches to impregnate the untipped ends to render them fire-proof, burnt alum is used by taxidermists as a preservative.

Medicinal uses:

It is used as an astringent and as a gargle, and externally as a styptic. Exsiccated alum is used as a dressing for ulcers and sores and as an astringent for swollen gums.

Borax:

Vernacular name:

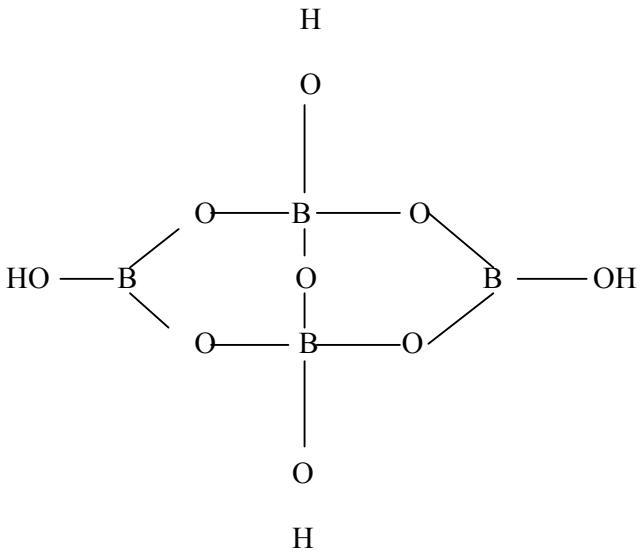
Tamil	:	*Venkaaram*
Sanskrit	:	*Tankana*
Telugu	:	*Veligaram*
Kannada	:	*Biligaara*
Malayalam	:	*Pongaaram*
Hindi	:	*Tincal*

Borax occurs in the form of large transparent monoclinic prisms, often dulled on the surface (sp.gravity-1.69 to 1.72). It is sparingly soluble in cold water, but is more soluble in hot water.

Borax is the most important polyborate. These were apparently regions of volcanic activity in the past, and boron was transported to the surface by host springs or steam in the form of boric acid. There the acid combined with surface rocks such as carbonates or satins and was converted into alkali or alkaline earth metal borate. If this activity occurred in an arid region the water soon evaporated after borate formation leaving immense beds of borate salts.

Its chemical name is sodium borate, or sodium tetraborate. Exposure to moist air causes crystals to cluster, for which reason most people think of borate in terms of powders, water softeners, soap. Use of various forms of boron in medicine and eyewash probably goes back to Hippocrates himself.

Structure:



$Na_2B_4O_7.10H_2O$

The latest calculations have it that in the construction of the serine amino acid and nature's directed protein, the DNA-RNA code calls for 15,198,623 transactions using boron during protein construction. In the first instance, rate of fission is controlled by the depth of boron rods in the reactor; in the second, by the presence or absence of boron in the human metabolic function

Boron is required in trace amounts for healthy bones and muscle growth. The genome code in its paper record said to be as high as the Washington Monument, has held that ACGT language in escrow for all who wish to follow every phase of the human body's functions.

Uses:

- Organic boron assists in the production of natural steroid compounds.
- Boron is mandated for the metabolism of calcium, phosphorus and magnesium.
- First-rate research points to enhanced brain function when boron is in adequate supply.
- In Minerals for the Genetic Code, boron comes off as one of four magnificent minerals— the other three being iodine, selenium and magnesium — that belong in the survival kit of most people in most parts of the country.
- Boron plays a part in the body's sugar metabolism equation. .

- The official assessment is that people are not generally deficient in boron because most people consume foods that contain it. Such a statement may be evasive. It loops elderly people in with the mass population. In fact, it borders on elder abuse when boron supplementation is withheld. Usually older people have problems with absorption. There's the oft-noted fact that old people in rest homes are deprived of vitamin D, the sunshine vitamin.
- Vitamin D deficiency is enlarged when boron deficiency is a reality, recognized or not.
- USDA research reveals that 3 milligrams of boron supplemented each day drastically reduces calcium loss, by 40 percent in approximately a week.
- The amino acid that connects with boron on the Olree Standard Genetic Periodic Chart is serine.

Fullers earth:

Fuller's earth is characterized by the absence of plasticity, high water content and foliated structure; dehydrated samples show a tendency to adhere strongly to the tongue. Montmorillonite [(Mg,Ca)O.Al2O.A12O3.5SiO2.nH2O] is a dominant, though not essential, constituent of most fuller's earths; beidellite [Al2O3.3SiOH20] is the dominant clay mineral in some of them. The ratio of silica to aluminium varies from 4 to 6 in earths of good quality, which also contain a relatively high proportion of hydrous silica.

Indian fullers' earth consists of well-bedded, non-arenaceous, unctuous clay or shale, varying in colour from cream to yellow, yellowish brown, buff, greenish grey or light grey. It is essentially a hydrated aluminium silicate with lime, magnesia and iron oxide as impurities; it contains a large proportion (up to 30%) of water. It is soft when freshly excavated, but hardens appreciably on exposure to the atmosphere.

Uses:

Fuller's earth is extensively employed in refining oils, greases and lard. Practically all liquid fractions of petroleum, including crude naphtha, crude kerosene and shale oil, are clarified by treatment with fuller's earth. It is used as a carrier for pigments, size for textiles, poultice for skin eruptions, substitute for talcum powder, filler for paper and soap, and conditioner for foundry sands. Selected soft grades are

incorporated in compositions used in pencil manufacture. It is used in the laboratory for the detection of colouring matter added to butter, whisky, etc.

Fuller's earth has been employed in India as a substitute for soap in washing clothes and hair

Ammonium chloride:

Vernacular names:

Tamil	:	*Navacharam*
English	:	Sal Ammoniac
Arab	:	*Armina*
Ben	:	*Navasagara, Nishadal*
Hindi	:	*Navasadara*
Guj & Mah	:	*Navasagar*
Burm	:	*Lovas, Zarasa*

Ammonium chloride, NH4Cl3, commonly known as sal ammoniac, in a white crystalline solid with a fibrous structure. It is odourless and has a saline taste. It is slightly hygroscopic and is readily soluble in water. When heated, it volatilizes.

Uses:

Ammonium chloride is used in galvanizing, in dyeing and calico-printing and in the manufacture of Leclanche cells and dry batteries. It is employed as a soldering flux, and in electroplating. In medicine, the salt is used as an expectorant, diaphoretic and diuretic, and in inhalations.

The salt is generally not used as fertilizer, as it is likely to increase the total chlorine content of the soil when other fertilizers like potassium chloride are also employed. In other cases it is as effective as the sulphate, but it is slightly more expensive. A fertilizer grade of synthetic ammonium chloride contains N, 24 per cent.

Ammonium chloride is more effective for grain crops than for root crops. When applied to barley, the grains contain a lower percentage of nitrogen than when ammonium sulphate is used, which raises its malting and money value.

Ammonium chloride is usually produced by passing ammonia gas into hydrochloric acid, or by neutralizing ammoniacal liquor with hydrochloric acid. The

salt is purified by crystallization from water, or by sublimation. A very pure product is obtained by mixing gaseous ammonia and hydrogen chloride diluted with hydrogen maintaining the temperature at 230-310 degrees.

3.2 SIDDHA ASPECT OF THE DISEASE

Kalladaippu:

Synonym: *Achmari*

Definition:

This disease is characterized by intermittent cessation of urine, pain at the tip of the penis, burning micturition, backache and small pebbles found in the urine.

Aetiology:

- Drinking of stagnant water
- Carbohydrate diet
- Excess intake of vadha food

Classification:

It is classified into 4 types. They are

- *Vadha kalladaippu*
- *Pitha kalladaippu*
- *Kapha kalladaippu*
- *Mukktra kalladaippu*

General symptoms:

- Frequency of urination
- Intermittent cessation of urine
- Pricking pain of penis
- Inflammation of penis
- Irritation of bladder and lower abdomen
- Haematuria

Oothal noi:

Synonyms:

Thommai noi, sokai noi, sobai noi.

Definition:

This disease is characterized by anaemia and pallor, also the upper and lower extremities, face and abdomen distends against normal. This is called as '*oothal'* disease. Since the patient feels so grieviance, this is called as '*sogai*'. Since anasarca is present, this disease is called *'veekam'.*

Aetiology:

- Follows anemia
- Toxicosis
- Food variants
- Dysfunctioning of *paravukaal*
- *Sittha pramai sanni*
- Snake bite
- Hilly residence
- Damp and marshy areas
- Pick's disease

Pre monitory symptoms:

- Emaciation
- Oedema
- Exhaustion
- Dyspnoea
- Headache
- Fainting
- Oedema of lower extremities, face and abdomen

Classification:

This is classified into 4 types. They are

- *Vadha oothal noi*
- *Pitha oothal noi*
- *Kapha oothal noi*
- *Mukktra oothal noi*

General symptoms:

- Anorexia
- Exhaustion
- Hydrocele
- Thickness of the ear pinna
- Hearing impairment
- Squint
- Pallor
- Dyspnoea

Diuresis:

A diuretic is any substance which increases urine and solute excretion. Diuretics are normally required to remove oedema fluid which is composed of water and solutes of which sodium is the most important.

Most clinically useful diuretics are organic anions and are transported from the blood, through the tubular cells and into the tubular fluid.

Sites and mode of action:

As a result of active reabsorption of sodium chloride and sodium bicarbonate from the renal tubular lumen and passive reabsorption of accompanying water, 65% of the glomerular filtrate is reabsorbed iso-osmotically from the proximal tubule. The epithelium of the proximal tubule is described as leaky because of its free permeability to water and a number of solutes.

Osmotic fluids such as mannitol are solutes which are not reabsorbed in the proximal tubule and therefore carry into the urine equivalent volumes of fluid. The

physiological changes are best understood by considering first the ascending limb.In the thick segment chloride ion is transported actively from the tubular fluid taking with it sodium ion but not water, to which this part of the tubule is impermeable.

In consequence the tubular fluid becomes dilute, the interstitium becomes hypertonic and fluid in the descending limb which is permeable to water becomes more concentrated as it approaching the tip of the loop, because the hypertonic interstitial fluid sucks water out of the tubule.

Diuresis may also achieved by extra-renal mechanisms by raising the cardiac output and increasing renal blood flow.eg. with dobutamine and dopamine.

Moderate efficacy diuretics:

(Thiazide and related diuretics)

Thiazides raise potassium excretion to an important extent. It lowers blood pressure, chiefly due to reduction in intravascular volume but probably also to reduction of peripheral vascular resistance, for in chronic use they diminish the responsiveness of vascular smooth muscle to noradrenaline.

Thiazides are generally well absorbed from the gut and most begin to act within an hour. There are numerous derivatives and differences lie principally in duration of action. The relatively water soluble eg.cyclopenthiazide, chlorothiazide, hydrochlorothiazide are most rapidly eliminated, their peak effect occurring within 4 to 6 hours and passing off by 10 to 12 hours.

Adverse effects results in rashes. Long term treatment with thiazide type drugs causes total serum cholesterol to increase by about 7%.

Chlorthiazide acts for 48 to72 hours after a single oral dose.

Xipamide is structurally related to chlorthialidone and to frusemide. It induces a dieresis for about 12 hours that is brisker than with thiazides which may trouble the elderely.

Low efficacy diuretics:

Trimaterene(dytac) is a potassium sparing diuretic which has an action and use similar to that of aminolide . The diuretic effect extends over 10 hours. Gastrointestinal upsets occur. Reversible , non-oliguric renal failure may occur when triamterene is used with indomethacin(and presumably other NSAIDS).

Osmotic diuretics:

Osmotic diuretics are small molecular weight substances that are filtered by the glomerulus but are not reabsorbed by the renal tubule and that increases the osmolarity of the tubular fluid. Mannitol-a polyhydric alcohol is most commonly used.It is given in addition to its effect. It encourages the movement of water from inside cells to the extracellular fluid.

3.3 MODERN ASPECT OF THE DISEASE

Urolithiasis

Definition

Urinary calculi consists of aggregates of crystals and small amounts of proteins and glycoprotein.

Types according to the chemical constituent:

- Oxalate calculus
- Phosphate calculus
- Uric acid and urate calculus
- Cystine calculus
- Xanthine calculus
- Indigo calculus

Types according to the site:

- Renal calculus
- Ureteric calculus
- Vesical calculus
- Prostatic calculus

- ❖ Urethral calculus

Clinical features:

- ❖ Pain in the loin which radiates round the flank to the groin and often into the testis or labium.
- ❖ Pallor, sweating and often vomiting.
- ❖ Frequency, dysuria and hematuria may occur.

Investigations:

- ❖ Radiography
- ❖ Intravenous urography
- ❖ Cystoscopy
- ❖ Retrograde pylography

Hypertension :

Definition:

Systemic hypertension is the persistent rise of basal blood pressure above the arbitrary level of 150/90 mmhg recorded on three or more successive occasions. Hypertension may be systemic or pulmonary.

Classification of hypertension:

- Essential or Idiopathic hypertension
- Secondary or Symptomatic hypertension
    - ❖ Renal cause-chronic nephritis, polycystic kidney, hydronephrosis, chronic pyelonephritis.
    - ❖ Endocrine cause-thyrotoxicosis, myxedema, acromegaly, cushings syndrome, primary aldosteronism, phaeochromocytoma.
    - ❖ Metabolic cause-diabetes mellitus, chronic gout, toxaemias of pregnancy.
    - ❖ Drugs-contraceptives pills, steroids, liquorice.

Clinical features:

- ❖ Headache, often occipital and occurs particularly in the morning.

- Easy fatiguability.
- Insomnia
- Dizziness
- Lack of concentration
- Loss of memory
- Occasional palpitation

Investigations:

- ECG
- X-ray of the chest
- Echocardiography
- Ultra sonogram

Oedema:

Definition:

Oedema is a collection of excess fluid in the body interstitium, from the intravascular compartment.

Classification of oedema:

Generalized oedema**:**

- Cardiac oedema
- Renal oedema
- Hepatic oedema
- Nutritional oedema
- Idiopathic

Localized oedema**:**

- Venous oedema
- Lymphatic oedema
- Inflammatory oedema
- Allergic oedema

Pitting and Non-Pitting oedema**:**

- Cutaneous edema is referred to as "pitting" when, after pressure is applied to a small area, the indentation persists for some time after the release of the pressure. Peripheral pitting edema, as shown in the illustration, is the more common type, results from water retention. It can be caused by systemic diseases, pregnancy in some women, either directly or as a result of heart failure or local conditions such as varicose veins thrombophlebitis, insect bites, and dermatitis.
- Non-pitting edema is observed when the indentation does not persist. It is associated with such conditions as lymphedema, Lipoedema and myxedema.

Clinical features according to various causes:

- Ankle swelling is characteristic , but oedema develops over the sacrum in bed-bound patients.
- Ascites is common and often an earlier feature in children or young adults, and in liver disease.
- Pleural effusions are common and can be a feature of any cause of generalized oedema
- Facial oedema on waking is common in adults with low oncotic pressure oedema
- Features of intravascular volume depletion(tachycardia, postural hypotension) may occur when oedema is due to decreased oncotic pressure or increased capillary permeability.

Investigations:

- Liver function tests,Renal function tests
- Complete hemogram
- Serum electrolytes,Ultra sonogram of abdomen

4. MATERIALS AND METHODS

Materials:

Ashta Gunma Thiraavagam has been selected from the classical siddha literature, "*Anuboga Vaithya Navaneetham*".Ingredients of the test drug are Salt petre, Alum, Borax, Sal ammoniac, Alkaline earth salt and *savukaram.*

Purification of the raw drugs:

Salt petre (Potassium nitrate)

The drug is soaked in lemon juice, then its dried in sunlight until the moisture content is lost.

Common Alum

The lumps are dissolved in pure water, filtered and allowed to boil in a pan. When it attains thicky molten consistency, it is allowed to cool.

Borax

It is allowed to heat on a pan to complete dehydration.

Sal ammoniac

It is grinded with cow's urine and allowed to dry.

Alkaline earth salt

The salt is dissolved in 4 times of fresh water, stirred well, allowed to remain for sometime decant the clear supernatant liquid in flat porcelain vessels, then it is allowed to boil till all the moisture evaporates. The earthy portions were discarded. The dried quintessence thus got above is subjected to the same process ten more times.

Fig.1.Showing Purified *Vediuppu*

Fig.Showing Purified *Padikaram*

Fig.3.Showing Purified *Vengaaram*

Fig.4.Showing Purified *Navacharam*

Fig.5.Showing Purified *Pooneeru*

Fig.6.Showing Purified *Savukaaram*

Fig.7.Showing *Ashta Gunma Thiraavagam*

4.1.Preparation of *Ashta Gunma Thiraavagam*

Ingredients:

Purified Salt petre (Potassium nitrate)	-280 gms
Purified common Alum	-105 gms
Purified Borax(Sodium biborate)	-21 gms
Purified Alkaline earth salt	-10.5 gms
Purified Sal ammoniac(Ammonium chloride)	-10.5 gm
Purified *Savukaram*(Sapo mollis)	-8.4 gms

Process:

The salts were grinded well and transferred to the *Valaiyanthiram* made of earthern distillation set up and intensely heated . During the process of heating the salts decompose completely releasing the acidic fumes and then they get condensed at the condenser submerged in cold water and collects at the receiver vessel kept adjacently. Then, it is stored in air tight glass containers.

Administration of the drug:

Form of the drug	:	Liquid (*Thiraavagam*)
Root	:	Enteral (Oral)
Dose	:	8 drops
Adjuvant	:	*Nerunjil ver kudineer*
Duration	:	3 to 4 weeks

***Nerunjil(*Adjuvant):**

Botanical name :Tribulus terrestris

Vernacular names:

Tamil	: *Thirigandam, Nerunjiputhum, Asuvasattiram, Kaamarasi.*
English	: Small caltrops, Land caltrops
Hindi	: *Gakhru*

Telugu : *Palleru*

Malayalam : *Nerunji*

Description:

It is a prostrate herb of thorn variety. The thorn of this plant resembles the horn of cow. It has yellow flowers.

Part used : Whole plant

Suvai : Astringent, sweet

Thanmai : *Seetham*

Pirivu : *Inippu*

Action : Diuretic

:Refrigerant

:Demulcent

:Tonic

:Astringent

General Characters:

நல்ல நெருஞ்சிலது நாளுங்கி ரிச்சாரத்தை
வல்ல சுரமனலை மாற்றுங்காண்-மெல்லியலே!
மாநிலத்தில் கல்லடைப்பும் வாங்காத நீர்க்கட்டும்
கூனுறுமெய் வாதமும்போக் கும்.

-அகத்தியர் குணவாகடம்.

Uses:

- Oliguria
- Renal calculi
- Anuria
- Leucorrhoea

- ❖ Burning micturition
- ❖ Fever

4.2.STANDARDISATION OF THE TEST DRUG

4.2.1.Chemical analysis:

Preparation of extract of test drug:

Add 5 ml of the *Ashta Gunma Thiraavagam* to 50ml of distilled water. Boil the solution for 20 minutes, cool and then filter. Use the Extract for the followingtests.

Table 1:Chemical analysis

S.No	Experiment	Observation	Inference
1.	**Test for reducing Sugar :** To 5ml of Benedicts qualitative reagent, add 10 drops of extract, then boil for two minutes	Absence of Green / Yellow / Red precipitate	Absence of Reducing Sugar
2.	**Test for Starch :** To 5 ml of extract add 2ml of acetic acid and then add few drops of N/50 Iodine Solution.	Absence Blue Colour	Absence of Starch
3.	**Test for Proteins :** To 2 ml of extract, add 2ml of 5% Sodium Hydroxide mix and add 2 drops of Copper Sulphate Solution.	Absence Violet or Purple Colour	Absence of Proteins
4.	**Test for amino Acid :** Place 2 drops of extract on a filter paper and allow to dry well. Then spray 1% ninhydrin over the same and allow to dry.	Absence Violet Colour	Absence of Amino Acid
5.	**Test for Albumin :** To 2 ml of extract, add 2ml of Esboch's reagent.	Absence Yellow precipitate	Absence of Albumin

6.	**Test for Phosphate :** To 2ml of extract, add 2ml of ammonium Molybdate solution and 2ml of concentrated Nitric Acid.	Presence of Yellow precipitate	Presence of Phosphate
7.	**Test for Sulphate :** To 2 ml of extract add 2ml of 4% ammonium oxalate solution.	Presence of White precipitate	Presence of Sulphate
8.	**Test for Chloride :** Add 2ml of extract to dilute nitric acid till the effervescence ceases. Then add 2 ml of Silver Nitrate Solution.	Presence of Cloudy White precipitate	Presence of Chloride
9.	**Test for Iron :** To 2ml of extract, add 2ml of ammonium thio cynate solution and add 2ml of concentrated Nitric Acid.	Presence of Red Color	Presence of Iron
10.	**Test for Calcium :** To 2 ml of extract, add 2 ml of 4% ammonium Oxalate Solution.	Presence of White precipitate	Absence of Calcium
11.	**Test for Sodium :** Make a paste with 2 pinches of the sample with Hcl and Introduce it into the blue flame.	Absence of Yellow Flame	Absence of Sodium
12.	**Test for Potassium :** Add a pinch of the sample to 2 ml of Sodium Nitrate Solution. Then add 2ml of Cobal Nitrate in 20% acetic acid.	Presence of Yellow precipitate	Presence of Potassium
13.	**Test for Zinc :** To 2ml of extract, add few drops of Sodium Hydroxide.	Absence of White precipitate	Absence of Zinc

14.	**Test for Magnesium :** To 2ml of extract, add few drops of Sodium Hydroxide Solution	Absence of White precipitate	Absence of Magnesium
15.	**Test for Alkaloids :** a. To 2ml of extract, add 2ml of Potassium Iodide Solution b. To 2ml of extract add 2ml of Picric Acid. c. To 2 ml of extract add 2ml of Phosphotunqstic Acid.	Absence of Red Colour Absence of Yellow Colour Absence of White ppt	Absence of Alkaloids Absence of Alkaloids Absence of Alkaloids
16.	**Test for Tannic Acid :** To 2ml of extract add 2 ml of Ferric Chloride Solution	Absence of Black ppt	Absence of Tannic Acid

4.2.2..PHYSICOCHEMICAL ANALYSIS OF THE TEST DRUG:

SCANNING ELECTRON MICROSCOPE:

The Scanning Electron Microscope (SEM) is a microscope that was electrons rather than light to form an image. There are many advantages to using the SEM instead of a light microscope.

Resolution : 1.2 nm gold particle separation on a carbon substrate

Magnification : From a min of 12 x to greater than 1, 00,000 X

The SEM has a large depth of field, which allows a large amount of the sample to be in focus at one time. The SEM also produces images of high resolution, which means that closely spaced features can be examined at a high magnification. Preparation of the samples is relatively easy since most SEM one require the sample to be conductive.

The combination of higher magnification, larger depth of focus, greater resolution, and easy of sample observation marks the SEM one of the most heavily used instruments in research areas today.

FOURIER TRANSFORM INFRARED SPECTROSCOPY (FTIR):

Instrument details:

Model	**: Spectrum one: FT-IR Spectrometer**
Scan Range	**: MIR 450-4000 cm-1**
Resolution	**: 1.0 cm-1**
Sample required	**: 50 mg, solid or liquid.**

Fourier Transform Infrared Spectroscopy (FTIR) is an analytical technique used to identify mainly organic materials. FTIR analysis results in absorption spectra which provide information about the chemical bonds and molecular structure of a material. The FTIR spectrum is equivalent to the "fingerprint" of the material and can be compared with cataloged FTIR spectra to identify the material.

Infrared spectrum is useful in identifying the functional groups like -OH, -CN, -CO, -CH, -NH2, etc. Also quantitative estimation is possible in certain cases for chemicals, pharmaceuticals, petroleum products, etc. Resins from industries, water and rubber samples can be analyzed.

The drug sample was analyzed by the FTIR to identify the chemical bonds and molecular structure of a material.

4.2.3.TOXICOLOGICAL STUDY

Acute and sub acute toxicity study on *Ashta Gunma Thiravagam* in rodents

Animals:

Mice of either sex weighing 25-30g and rats weighing 210-240g were obtained from the animal house of Vels University. The animals were used with the approval of the Institute animal ethics committee and obtained from Vels University, Chennai. They were fed with a balanced standard pellet diet and maintained under standard laboratory conditions, providing 24-28^{0}C temperature, standard light cycle (12 h light, 12 h dark) and water ad libitum. Animals were kept in cages with raised floors of wide mesh to prevent coprophagy. Animal welfare guidelines were observed during the maintenance period and experimentation. The rats were randomly assigned

to control and different treatment groups, six animals per group. The animals were acclimatized for one week under laboratory conditions.

Acute toxicity study:

Acute oral toxicity test for the Ashta Gunma Thiravagam was carried out as per OECD Guidelines 425. As with other sequential test designs, care was taken to ensure that animals are available in the appropriate size and age range for the entire study. The test substance is administered in a single dose by gavage using a stomach tube or a suitable intubation cannula. The fasted body weight of each animal is determined and the dose is calculated according to the body weight. After the substance has been administered, food was withheld for a further 2 hours in mice. The animals were observed continuously for the first 4 h and then each hour for the next 24 h and at 6 hourly intervals for the following 48 h after administering of the test drug, to observe any death or changes in general behaviour and other physiological activities. Single animals are dosed in sequence usually at 48 h intervals. However, the time interval between dosing is determined by the onset, duration, and severity of toxic signs. Treatment of an animal at the next dose was delayed until one is confident of survival of the previously dosed animal.

Observation of toxicity signs:

General behaviour, respiratory pattern, cardiovascular signs, motor activities, reflexes, change in skin and fur, mortality and the body weight changes were monitored daily. The time of onset, intensity, and duration of these signs, if any, was recorded.

Sub-acute toxicity:

In a 28-days sub acute toxicity study, twenty four either sex rats were divided into four groups of 6 rats each. Group I that served as normal control was administered with distilled water (p.o.) while groups II, III and IV were administered daily with the Ashta Gunma Thiravagam (p.o.) for 28 days at a dose of 0.1, 0.2 and 0.4ml/kg respectively. The animals were then observed daily for gross behavioural changes and any other signs of sub-acute toxicity. The weight of each rat was recorded on day 0 and weekly throughout the course of the study, food and water consumption per rat was calculated. At the end of the 28 days they were fasted

overnight, each animal was anaesthetized with diethylether, following which they were then dissected and blood samples were obtained by cardiac puncture into heparinised tubes. The blood sample collected from each rat was centrifuged with 3000 X g at 4^{o}C for 10 min to separate the serum and used for the biochemical assays.

Hematological and blood biochemical analyses

At the end of the study, all animals were kept fasted for 16-18 h and then anesthetized with anaesthetic ether on the 28th day. Blood samples for hematological and blood chemical analyses were taken from retro orbital vein. Heparinized blood samples were taken for determining complete blood count (white blood cell count, differential white blood cell count, platelet count, red blood cell count, hematocrit, and hemoglobin) by semiautomated hematology analyzer. The serum from non-heparinized blood was carefully collected for blood chemistry and enzyme analysis glucose, creatinine, total protein, albumin, total and direct bilirubins, serum glutamate-oxaloacetate transaminase(SGOT), serum glutamate pyruvate transaminase (SGPT), and alkaline phosphatase (ALP)) were automatically determined using autoanalyzer.

Necropsy:

All rats were sacrificed after the blood collection. The positions, shapes, sizes and colors of internal organs were evaluated. The Spleen, Testes, Pancreas, Lung, Liver, Brain, Heart, Stomach, Intestine, Bone, Ovary, and Kidney tissues were excised from all rats to visually detect gross lesions, and weighed to determine relative organs' weights and preserved in 10% neutral formalin for histopathological assessment. The tissues were embedded in paraffin, and then sectioned, stained with haematoxylin and eosin and were examined microscopically.

Statistical analysis

Values were represented as mean ± SEM. Data were analysed using one-way analysis of variance (ANOVA) and group means were compared using the Tukey-Kramer Multiple Comparisons Test using GraphPad Instat-V3 software. P values < 0.05 were considered significant.

4.2.4.PHARMACOLOGICAL STUDY

Diuretic activity of *Ashta Gunma Thiravagam* in rats

Materials and methods:

Drugs and Chemicals

Frusemide was procured from Himedia Laboratories, Mumbai, Other chemicals and reagents used in this study were analytical grade was purchased from SRL labs.

Animals

For acute toxicity studies, albino mice of either sex weighing between 28 and 30 g were selected. For the diuretic study, male Wistar weighing between 180-220 g were used. (Approval number:XIII/VELS/PCOL/21/2000/CPCSEA/IAEC/08.08.2012). The animals were acclimatized to standard laboratory conditions (temperature: 25±2°C) and maintained on 12-h light: 12-h dark cycle. They were provided with regular rat chow and drinking water ad libitum.

Evaluation of Diuretic activity

The screening was performed on healthy rats (180-220gms). Frusemide (20 mg/kg), and *Ashta Gunma Thiraavagam* (0.5 and 1ml/kg) were used as reference standards and were dissolved in saline solution for administration while normal saline (25 ml/kg) was used as vehicle. The rats were divided in 3groups each containing 6 rats (n = 6). Rats were kept for fasting for 18 hrs before the study. The control group received normal saline and test groups received *Ashta Gunma Thiraavagam* (0.5 and 1ml/kg). The doses of *Ashta Gunma Thiraavagam* were decided on the basis of acute toxicity study. The doses were given by oral route and rats were kept in specially designed metabolic cages for the collection of urine for 6 hrs. The urine volume during 6 hrs is measured and urine electrolyte estimation was carried out for Na+, K+ using flame photometer and Cl- was estimated by titration.

Statistical analysis

All results are expressed as mean ± standard error. The data was analyzed statistically using ANOVA followed by Dunnett's Multiple Comparison Test.

Fig.7.Analysis of Diuretic activity

4.3.CLINICAL STUDY OF *ASHTA GUNMA THIRAAVAGAM*

Aim & Objectives:

- To evaluate the Diuretic activity of *Ashta Gunma Thiraavagam.*
- To explore the efficacy of *Ashta Gunma Thiraavagam* in patients with Oedema, Hypertension, Urolithiasis.

Design of the study:

Randomized controlled trial.

Study centre:

Arignar Anna Government Hospital of Indian Medicine and Homeopathy, Arumbakkam, Chennai –106.

Study participants:

Both men and women and members of all races and ethnic groups are eligible for this trial. Treatment will be administered on an *inpatient/outpatient* basis. The patients will be selected from the In-patient and Out-patient department of Arignar Anna Government Hospital of Indian Medicine and Homeopathy, Chennai – 106.

Number of subjects:

Number of participants will be 40- 50.

At the beginning of the study, 50 patients will be treated with a low dose of the drug. If this dose does not cause bad side effects, it will slowly be made higher as new patients take part in the study. A total of 100 patients are the most that would be able to enter the study.

Registration process:

To register a patient, the following documents should be completed by the investigator.

- Copy of required laboratory tests
- Signed patient consent form.
- Other appropriate forms (e.g., Eligibility Screening Worksheet, Registration Form).

The investigator will then verify eligibility and will assign a patient study number, drug dose and register the patient on the study.

Criteria for inclusion:

Patients with Oedema, Hypertension, Urolithiasis are eligible for entry to the trial if the following criteria are satisfied. The criteria of inclusion are:

- Oedema
- Hypertension ranging 140/90 mmhg.
- Pain present in the either/both loins**.**
- Patients with known urolithiasis with USG reports.
- Uraemic Patients if possible**.**

Criteria for exclusion:

- Severely ill patients.
- AIDS
- Malignancy
- Pregnant and lactating women
- TB
- Patients with CVS complaints

- Age below 10 years
- Syphilis

Withdrawal criteria

Patients will be removed from study when any of the criteria listed below applies. The reason for the withdrawal and the date, the patient removed must be documented in the Case Report Form.

In the absence of treatment delays due to adverse events, treatment may continue for 2 cycles or until one of the following criteria applies:

- Disease progression,
- Deterioration of vital signs with cardiac, respiratory, hepatic, renal and CNS changes.
- Intercurrent illness that prevents further administration of treatment,
- Unacceptable adverse events,
- Patient's unwillingness to continue treatment, or
- General or specific changes in the patient's condition render the patient unacceptable for further treatment in the judgment of the investigator.

Routine examination and assessment

The full details of history and physical examination of the patients is to be recorded as per the proforma (form I and I A). The clinical assessment will be done initially at the end of 4 days, 7 days, 14 days and 21 days during treatment and at the end of the 21 days follow up (form II) to be done. The laboratory investigation and the physiological parameters will be recorded initially at the end of the treatment and at the end of follow up as per the proforma (form III). 24hrs urine volume estimation will be done in all patients before and after the intake of the drug.

Trial drug

Ashta Gunma Thiraavagam

Dosage

Dose will be fixed after finding the LD50.

Duration of trial

Study Period : 4weeks.

Treatment plan

Administration of the drug:

Form of the medicine	: Liquid(*Thiraavagam)*
Route of Administration	: Enteral(oral)
Dose	: 8 drops
Adjuvant	:*Nerunjil ver kudineer*
Times of Administration	: Two times a day; after food
Duration	: 3-4 weeks

Diet restriction and medical advice

- The patients will be instructed to follow easily digestible foods.
- They will be advised to take tender coconut, and vegetables like radish, juice of plantain stem.
- Avoid bitter gourd, *agathi* greens, brinjal, non-vegs.
- The patient will advise to cold damp climate.
- The patient will be advised to take rest. But prolonged immobilization should be avoided.
- The clinical improvement will be observed and recorded daily in the proforma of case sheet.

Trial conduct

This study was conducted in compliance with the protocol approved by the Institutional Review Board, and according to Good Clinical Practice standards. No deviation from the protocol was implemented without the prior review and approval of the IRB except where it may be necessary to eliminate an immediate hazard to a research subject. In such case, the deviation will be reported to the IRB .

Classification of results:

1. **Good Response**

Relief of Symptoms above 75% and improvement towards normalcy in laboratory parameters.

2. **Fair Response**

   50% to 75% relief in symptoms. Significant improvement in laboratory parameters.

3. **Poor Response**

   25% to 49% relief in symptoms and minimal improvement in laboratory parameters.

4. **No Response**

   No relief in symptoms and no significant improvement in laboratory parameters.

Follow up:

Assessment was taken for every three days before treatment and after treatment. During this period clinical assessment (form II) and laboratory investigation (form III) was carried out.

Statistical analysis:

The data was tabulated and analyzed by students 'T' test.

Ethical review:

This protocol and any amendments were submitted to the Govt. siddha medical college Institutional Ethical Committee (IEC) for formal approval to conduct the study. The decision of the IEC concerning the conduct of the study was made in writing to the investigator.

All subjects for this study were provided a consent form describing this study and providing sufficient information for subjects to make an informed decision about their participation in this study. This consent form was submitted with the protocol for review and approval by the IEC. The formal consent of a subject, using the IEC-approved consent form, was obtained before that subject is submitted to any study procedure. This consent form must be signed by the subject or legally acceptable surrogate, and the investigator-designated research professional obtaining the consent.

Sl.No.	OP. No.	Name	Age/ Sex	Date of first visit	Symptoms
21.	5648	JEYALAKSHMI	43/F	14.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty i breathing
22.	7579	SIVALINGAM	72/M	16.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty i breathing
23.	9238	SOKKALINGAM	54/M	25.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty i breathing
24.	9275	ARUN	30/M	25.10.2012	Pain present in the rt.loin, nausea, dizziness, tiredness present
25.	403	RUBY	65/F	31.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty i breathing
26.	436	SULOKSHANA	45/F	31.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty i breathing

CLINICAL STUDY ON *ASHTA GUNMA THIRAAVAGAM* IN IN AND OUT PATIENTS DEPT. FOR DIURETIC ACTIVITY

Sl.No.	O.P. No.	Name	Age/ Sex	Date of first visit	Symptoms
27.	437	RAMASWAMY	50/M	31.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty i breathing
28.	1101	SASIKALA	50 /F	4.11.12	Diziness, headache,loss of sleep,tiredness,difficulty i breathing
29.	1102	RAMACHANDR AN	55/M	4.11.2012	Dizziness, headache, loss of sleep, tiredness, difficult breathing
31.	1273	RANI	50/F	5.11.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breath
32.	1340	KUMAR	48/M	9.11.2012 5.11.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breath Diziness, headache,loss of sleep,tiredness,difficulty i breathing
33.	1806	PRATHAP	54/M	7.11.2012	Pain present in the rt loin ,nausea,dizziness ,tiredness present
34.	2405	ALAMELU	48/F	9.11.2012	Pain present in the rt loin ,nausea,dizziness ,tiredness present
35.	3768	RAJESWARI	45/F	17.11.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing

CLINICAL STUDY ON *ASHTA GUNMA THIRAAVAGAM* IN IN AND OUT PATIENTS DEPT. FOR DIURETIC ACTIVITY

36.	4145	RAJENDRAN	53/M	19.11.2012	Swelling pitting of the oedema present in lower extremity,tiredness
37	5451	SUGANTHI	45/F	24.11.2012	Dizziness, headache, loss of sleep, tiredness, difficulty in brea
Sl.No.	**I.P. No.**	**Name**	**Age/ Sex**	**Date of first visit**	**Symptoms**
38.	6210	DEVI	35/F	27.11.2012	Swelling, pitting of the oedema present in lower extremities
41.	1339/4958	ELLAMMAL	55/F	24.8.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breath
39.	7170	PRAKASH	40/M	1.12.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breath
42.	1446/8001	GNANAMBAL	52/F	6.9.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breath
40.	7177	PRIYA	45/F	1.12.2012	
43.	54/1611	SARAVANAN	43/M	22.9.2012	Swelling, pitting of the oedema present in lower extremities Pain present in the rt loin ,nausea,dizziness ,tiredness present
44.	70/1920	GEETHALAK	55/F	24.9.2012	Dizziness, headache, loss of sleep, tiredness, difficulty in brea

4.3.6. CLINICAL STUDY ON *ASHTA GUNMA THIRAAVAGAM* IN IN AND OUT PATIENTS DEPT. FOR DIURETIC ACTIVITY

		SHMI			
45.	83/2084	PERUMAL	52/M	24.9.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing
46.	256/7740	MAHADEVAN	52/M	17.10.2012	Swelling pitting of the oedema present in lower extremity,tiredness
47.	357/1821	SABEERUSSAIN	56/M	5.11.2012	Dizziness, headache, loss of sleep, tiredness, difficulty in bre
48.	446/4154	DEVAKI	48/F	19.11.2012	Pain present in the rt loin ,nausea,dizziness ,tiredness present
49.	487/4920	CHANDRA	50/F	22.11.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breath
50.	536/6242	MOORTHY	58/M	28.11.2012	Dizziness, headache, loss of sleep, tiredness, difficulty in bre

HAEMATOLOGICAL REPORT

Sl. No.	O.P. No.	Name	Age/ Sex	

4.3.9. 24 HRS URINE VOLUME BEFORE AND AFTER *ASHTA GUNMA THIRAAVAGAM*

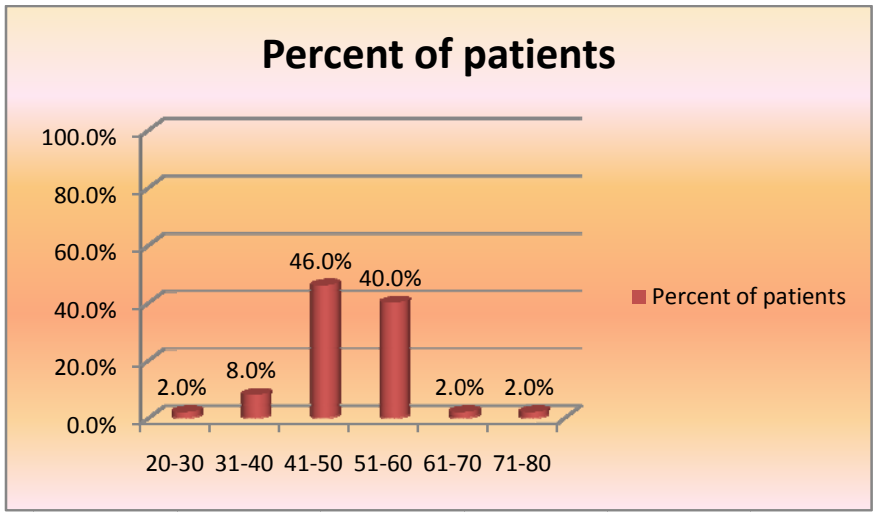
S.NO	OP.NO.	NAME	AGE/ SEX	24 HRS URINE VOLUME	
				BEFORE TREATMENT	AFTER TREATMENT
1.	5562	KANNAN	48/M	950ML	1200ML
2.	5678	MOORTHY	52/M	1100ML	1660ML
3.	6273	KANNAMMAL	43/F	1200ML	2200ML
4.	6658	KANAGA	42/F	1400ML	2600ML
5.	7266	VALLI	45/F	1500ML	2300ML
6.	7455	MANIKANDAN	55/M	1300ML	1850ML
7.	7792	SARAVANAN	48/M	1200ML	1950ML
8.	7856	ARUMUGAM	54/M	1400ML	2200ML
9.	7963	ABDUL KADHER	45/M	1300ML	2030ML
10.	8299	MALLIGA	50/F	1200ML	1830ML
11.	9487	SUSILA	39/F	950ML	1650ML
12.	9567	CHINNASAMY	51/M	1000ML	1600ML
13.	9762	GUHANATHAN	55/M	1140ML	1700ML
14.	9964	CHINNAPPA	56/M	1360ML	1760ML
15.	106	PONNAMMAL	39/F	1650ML	2530ML
16.	208	KANDHASAMY	45/M	1550ML	2100ML
17.	378	GOMATHY	47/F	1450ML	2430ML
18.	562	VENKATESAN	55/M	1350ML	1800ML
19.	893	KARTHIKEYAN	53/M	950ML	1600ML
20.	1165	RAMASAMY	58/M	970ML	1500ML

21.	5648	JEYALAKHSMI	43/F	1170ML	1590ML
22.	7579	SIVALINGAM	62/M	1020ML	2450ML
23.	9238	SOKKALINGAM	54/M	1300ML	2380ML
24.	9275	ARUN	30/M	900ML	1700ML
25.	403	RUBY	65/F	980ML	1750ML
26.	436	SULOKSHANA	45/F	900ML	1530ML
27.	437	RAMASAMY	50/M	1050ML	1900ML
28.	1101	SASIKALA	50/F	1650ML	2300ML
29.	1102	RAMACHANDRAN	55/M	1250ML	1800ML
30	1214	JAYAGOPAL	48/M	2220ML	2860ML
31.	1273	RANI	50/F	1300ML	1950ML
32	1340	KUMAR	45/M	1400ML	2350ML
33.	1806	PRATHAP	54/M	1380ML	1950ML
34.	2405	ALAMELU	48/F	1350ML	1880ML
35.	3768	RAJESWARI	45/F	1530ML	2300ML
36.	4145	RAJENDRAN	53/M	1400ML	2000ML
37.	5451	SUGANTHI	45/F	1450ML	1900ML
38.	6210	DEVI	35/F	1150ML	1800ML
39.	7170	PRAKASH	40/M	1120ML	1800ML
40.	7177	PRIYA	45/F	950ML	1500ML

CLINICAL ASSESSMENT

Table 2: Age wise Distribution

SL. NO	AGE IN YEARS	NO. OF PATIENTS	PERCENTAGE (%)
1	20-30	1	2.0
2	31-40	4	8.0
3	41-50	23	46.0
4	51-60	20	40.0
5	61-70	1	2.0
6	71-80	1	2.0
TOTAL		50	100



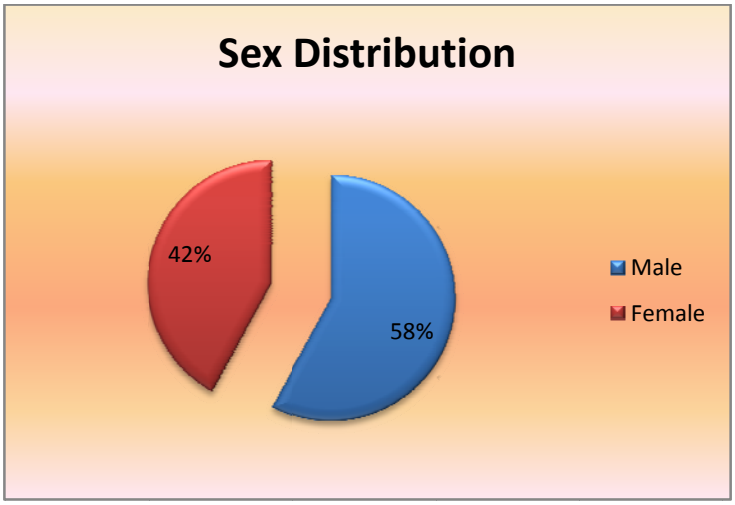
Inference:

Among 50 patients,

- 2% patient belongs to the age group of 20-30 years
- 8 % patients belongs to the age group of 31-40 years
- 46% patients belongs to the age group of 41-50 years
- 40% patients belongs to the age group of 51-60 years
- 2% patient belongs to the age group of 61-70 years
- 2% patient belongs to the age group of 71-80 years

Table 3: Sex Distribution

Sl. no	Sex	No. of patients	Percentage
1	Male	29	58.0
2	Female	21	42.0
Total		40	100



Inference:

Among 50 patients,

- 58% patients were male
- 42% patients were female

5.RESULTS AND DISCUSSION

Table 4: Physico chemical analysis

S.No	Parameter	Mean Value
1.	pH	2.2
2.	Specific gravity	1.167

Table 5: Chemical analysis of *Ashta Gunma Thiraavagam*

S.No.	Acid radicals	Result
1.	Sulphate	+
2.	Chloride	+
3.	Phosphate	+

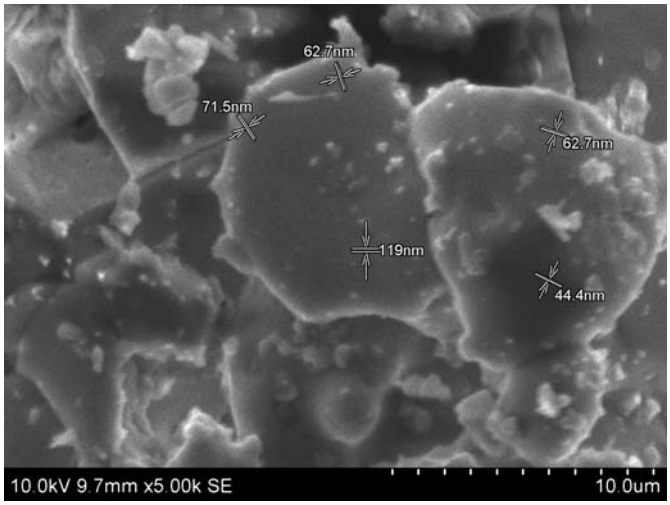


Fig. 9. SEM picture of *Ashta Gunma Thiraavagam*

Results:

SEM picture shows Nano particle (Micro level) size of the sample.

Ashta Gunma Thiraavagam have good nano particle size that indicats absorption is very good and pharmaco therapeutic value is good.

:

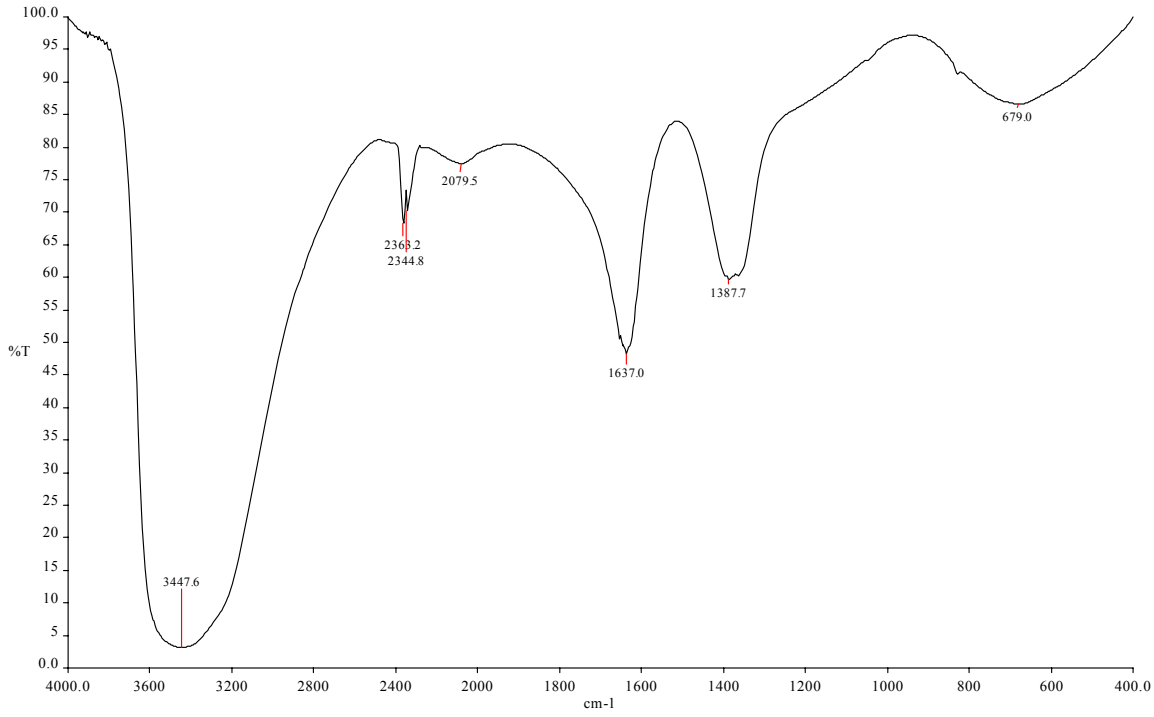


Fig.No.8 Showing FTIR results

Table 6:FTIR Absorption results

0Frequency, cm^{-1}	**Bonds**	**Functional groups**
3347.6	N-H Stretch	Anhydrides
2344.8	N-H Stretch	Anhydrides
1637	N-H bend	Amines
1387.7	C-F Stretch	Alkyl halides
679	C-Cl stretch	Alkyl halides

Toxicological study of *Ashta Gunma Thiraavagam*:

Acute toxicity:

In acute toxicity study, the animals treated with 2ml/kg were showed tolerance with toxic signs. Hence the one tenth of the dose was selected as median therapeutic dose for the further study. In sub acute toxicity study, animals were shown significant

toxic clinical signs during the dosing period of 28 days. Animals from *Ashta Gunma Thiravagam* treated dose groups not survived throughout the dosing period of 28 days and it was found two animals dead after 14days of treatment in high dose. Results of body weight determination of animals of control and different dose groups exhibited reduction in body weight ($P>0.01$) after one week of the dosing period.

During dosing period, the quantity of food consumed by animals from different dose groups was found to be comparable ($P>0.05$) and normal with that of control animals. Ophthalmoscopic examination of animals in control and Ashta Gunma Thiravagam treated group revealed abnormality as liver damage. Urine analysis data of control group and Ashta Gunma Thiravagam treated group of animal determined revealed abnormalities like increase in urine volume. Gross pathological examination of animals in control as well as the Ashta Gunma Thiravagam treated group revealed abnormalities like liver damage at higher dose treated animals and also and microanatomical changes in bone and spleen tissue.

The results of haematological investigations, revealed mild changes ($P>0.05$) when compared with those of respective controls especially in platelet levels. Results of Biochemical investigations conducted on days 28 revealed the significant changes in the values of different parameters like ALP, AST and ALT when compared with those of respective controls ($P<0.01$), Uric acid level was elevated in animals of 0.1 and 0.4 ml/kg group ($P<0.05$). Other all biochemical and Haematological parameters were found to be within normal limit as compared to control group values.

Table 7:Dose finding experiment and its behavioral Signs of Toxicity

No	Dose ml/kg	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.	**1**	+	+	+	+	-	+	-	+	-	+	-	-	-	-	+	+	-	-	-	-
2	**2**	+	+	+	+	-	+	-	+	+	+	-	-	-	-	+	+	-	+	+	+
3	**5**	+	+	+	+	-	+	-	+	+	+	-	-	-	-	+	+	-	+	+	+

1.Alertness 2. Aggressiveness 3. Pile erection 4. Grooming 5. Gripping 6. Touch Response 7. Decreased Motor Activity 8. Tremors 9. Convulsions 10. Muscle Spasm 11. Catatonia 12. Muscle relaxant 13. Hypnosis 14. Analgesia 15.Lacrimation 16. Exophthalmos 17. Diarrhoea 18. Writhing 19. Respiration 20. Mortality

Sub acute toxicity:

Table 8: Weight of rats as affected by doses of *Ashta Gunma Thiravagam* after 28days of administration.

Dose (ml/kg)	Initial Weight	1st Week	2nd Week	3rd Week	4th Week
Control	187.80±1.42	187.41±1.22	187.12±1.48	189.10±1.54	188.90±1.21
0.1	194.18±0.90	191.14±0.71*	192.02±0.92	194.02±0.67	192.74±0.70
0.2	203.12±2.10	204.02±3.44	204.50±3.46	Dead	Dead
0.4	205.45±1.10	209.57±1.47**	Dead	Dead	Dead

Values are mean ± SEM. *=significantly different from the control ($p<0.05$).

Table 9: Effect of *Ashta Gunma Thiraavagam* on Liver function indices in rats.

Dose (ml/kg)	TP(g/dl)	TA(g/dl)	TB(g/dl)	ALP(IU/L)	AST(IU/L)	ALT(IU/L)
Control	6.42±2.28	4.42±0.42	4.90±2.21	108.60±1.41	24.30±2.12	10.10±1.02
0.1	6.30±1.04	4.12±1.10	5.18±2.11	310.40±2.50**	30.32±2.18*	15.32±0.49**
0.2	6.18±2.02	4.01±0.53	5.21±3.42	400.41±2.25**	36.23±0.40**	22.51±1.24**
0.4	5.70±1.16	3.50±0.60	5.80±2.24	431.22±2.20**	48.28±0.52**	28.24±0.44**

Values are mean ± SEM. * p< 0.05; **p< 0.01=significantly different from the control.

Table 10: Effect of *Ashta Gunma Thiravagam* on Kidney function parameters in rats.

Dose (ml/kg)	Creatinine (µmole/l)	Urea (mmol/l)	Uric acid (µmole/l)	Sodium (ppm)	Potassium (ppm)
Control	84.37±0.72	9.82±1.71	201.56±0.82	32.07±0.48	8.88±1.90
0.1	85.14±0.81	10.00±0.38	206.29±0.76**	31.22±0.52	9.36±0.48
0.2	92.02±1.10	11.50±0.40	202.39±0.48	31.12±1.10	9.45±0.82
0.4	96.24±0.72	12.14±0.42	217.21±0.75**	28.24±0.18**	10.2±2.00

Values are mean ± SEM. * p< 0.05; **p< 0.01=significantly different from the control.

Table 11:.Effects of *Ashta Gunma Thiravagam* on body weight and relative organ weights of treated rats.

Parameter	Control	0.1ml/kg	0.2ml/kg	0.4ml/kg
Initial b.w.(kg)	150±7.1	149±7.2	154±8.6	151±7.2
Final b.w.(kg)	300±10.1	299±12.4	284±10.4	292±10.2
Heart(g)	0.68±0.07	0.58±0.08	0.61±0.09	0.58±0.06
Liver(g)	4.14±0.50	4.12±0.48	4.90±0.50	4.80±0.48
Lung(g)	0.67±0.04	0.68±0.06	0.70±0.05	0.69±0.05
Spleen(g)	0.65±0.05	0.62±0.03	0.74±0.02	0.65±0.05
Kidney(g)	1.00±0.3	1.00±0.04	1.86±0.2**	1.72±0.04*
Testis(g)	1.02±0.03	0.96±0.05	0.94±0.04	0.94±0.03
Ovary(g)	0.04±0.00	0.04±0.01	0.04±0.00	0.04±0.02

Data are expressed as Mean ± SEM., n=6. *P<0.05; **P<0.01 and NS-Not significant as compared to Group 1.

Table 12: Effects of *Ashta Gunma Thiravagam* on Hematological parameter of treated rats.

Parameter	Control	0.1ml/kg	0.2ml/kg	0.4ml/kg
RBC ($X10^6/mm^3$)	4.95±0.40	4.92±0.34	4.26±0.30	4.21±0.32
Hemoglobin (g/dl)	14.02±0.25	14.12±0.28	14.21±0.25	14.42±0.22
PCV (%)	44.11±2.10	45.23±2.31	44.50±2.45	46.34±2.14
MCV (fl)	89.78±4.4	88.45±4.12	86.34±3.82	85.24±4.21
MCH (pg)	28.00±1.4	29.52±1.54	30.00±1.58	30.11±1.26
MCHC (g/dl)	35.55±0.82	34.16±0.90	35.39±1.40	35.82±2.00
Platelets ($X10^5/\mu l$)	1.72±0.04	1.50±0.06*	1.52±0.05*	1.46±0.04**
WBC ($X10^3/mm^3$)	3.561±171	3.730±143	3.874±140	2.924±128

PMNL	46.34±2.15	44.02±2.36	45.13±2.41	45.22±2.00
Lymphocytes	42.02±0.8	44.72±1.1	46.32±1.2*	46.22±1.08*

RBC-Red Blood Cell, WBC-White Blood Cell, PCV-Packed cell volume, MCV-Mean Corpuscular Volume, MCH- Mean Corpuscular Hemoglobin,MCHC-Mean Corpuscular Hemoglobin Concentration. Mean ± SEM., n=6.Comparisons were made between Group I and Group II, III, and IV. *P<0.05; **P<0.01 and NS-Not significant as compared to Group I.

Table 13: Effects of *Ashta Gunma Thiravagam* on Biochemical parameter of treated rats.

Parameter	Control	0.1ml/kg	0.2ml/kg	0.4ml/kg
Glucose (mg/dl)	102±9.4	100±10.2	105±12.5	103±11.2
Cholesterol (mg/dl)	74±2.0	76.4±4.1	68.2±3.2	72.4±3.8
Protein (g/dl)	4.0±0.3	4.13±0.3	4.22±0.4	4.25±0.5
Bilirubin (mg/dl)	0.72±0.14	0.70±0.12	0.74±0.12	0.68±0.10
Urea (mg/dl)	33.76±4.5	35.14±4.0	34.12±4.1	32.2±4.2
Creatinine (mg/dl)	0.81±0.25	0.80±0.24	0.82±0.30	0.75±0.35
ALP (IU/L)	68±4.2	69.10±5.6	59.20±4.4	60.0±4.34
AST (IU/L)	91.04±4.2	90.21±5.0	88.30±4.08	83.8±6.00
ALT (IU/L)	68.00±6.2	79.20±6.01	81.0±6.05	80.5±5.24

ALP-Alkaline Phosphatase, AST-Aspartate Aminotransferase, ALT-Alanine Aminotransferase. Mean ± SEM., n=6.Comparisons were made between Group I and Group II, III, and IV. *P<0.05; **P<0.01 and NS-Not significant as compared to Group I.

Table-14: Urine Analysis

Parameters	**Control**	**0.1ml/kg**	**0.2ml/kg**	**0.4ml/kg**
Colour	Yellow	Yellow	Yellow	Yellow
Transparency	Clear	Slightly turbid	cloudy	turbid
Specific gravity	1.010	1.010	1.010	1.010
PH	>7.2	>8.0	>8.0	>9.0
Protein	Nil	3+	3+	3+
Glucose	Nil	Nil	Nil	Nil
Bilirubin	-ve	-ve	-ve	-ve
Ketones	-ve	+ve	+ve	+ve
Blood	Absent	Absent	Absent	Absent
Urobilinogen	Normal	Abnormal	Abnormal	Abnormal
Pus cells	0-cells/HPF	1-cell/HPF	2-cells/HPF	1-cell/HPF
RBCs	Nil	Nil	0-1cells/HPF	Nil
Epithelial cells	Nil	1-cell/HPF	Nil	1-cell/HPF
Crystals	Nil	Nil	Nil	Nil

SUBACUTE TOXICITY OF *ASHTA GUNMA THIRAAVAGAM*:

Fig.No.10.Bone

0.1 ml of AGT 0.2 ml of AGT 0.4 ml 0f AGT

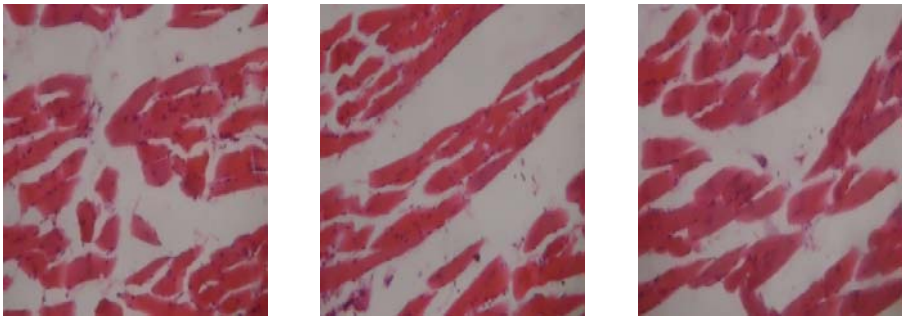


Fig.No.11.Brain

0.1 ml of AGT 0.2 ml of AGT 0.4 ml 0f AGT

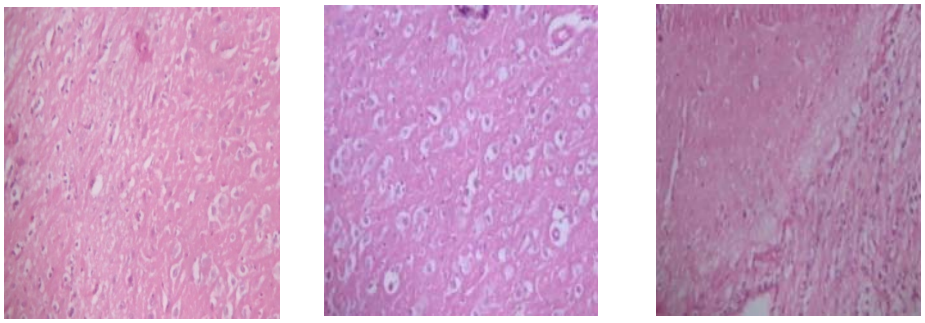
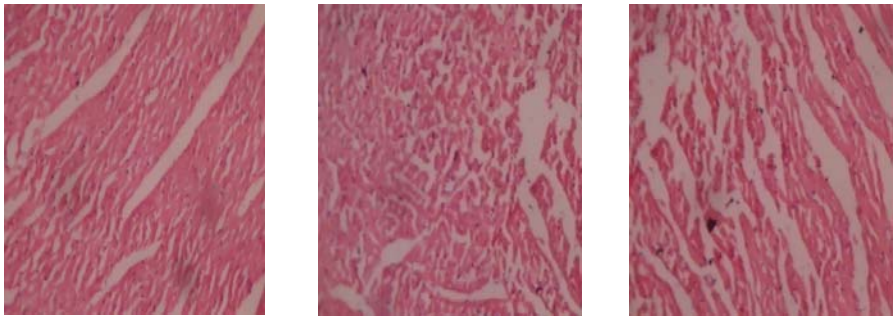


Fig.No.12.Heart

0.1 ml of AGT 0.2 ml of AGT 0.4 ml 0f AGT



AGT-*Ashta Gunma Thiraavagam*

Fig.No.13.Intestine

0.1 ml of AGT 0.2 ml of AGT 0.4 ml 0f AGT

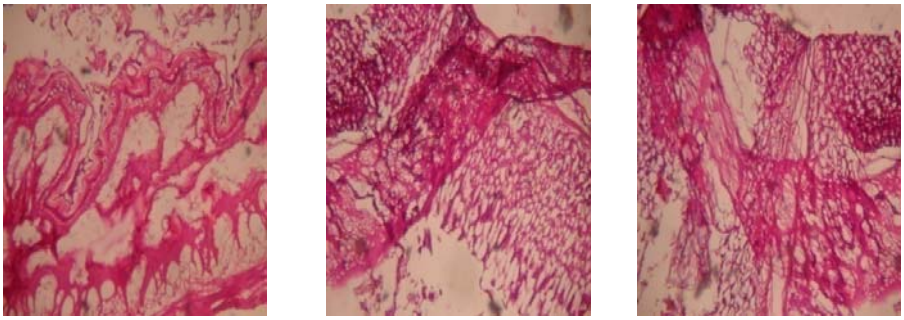


Fig.No.14.Kidney

0.1 ml of AGT 0.2 ml of AGT 0.4 ml 0f AGT

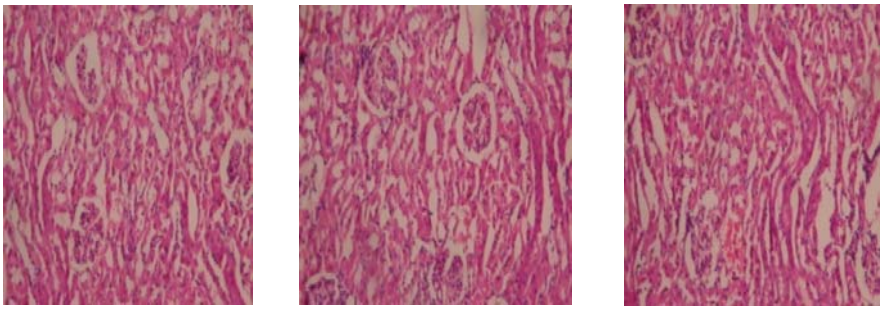


Fig.No.15.Liver

0.1 ml of AGT 0.2 ml of AGT 0.4 ml 0f AGT

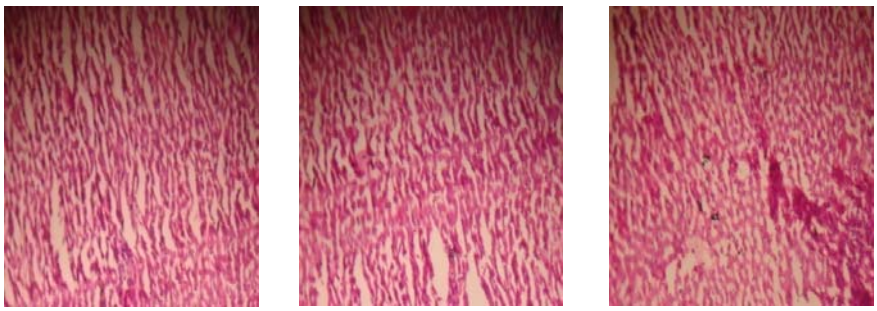


Fig.No.16.**Lungs**

0.1 ml of AGT | 0.2 ml of AGT | 0.4 ml 0f AGT

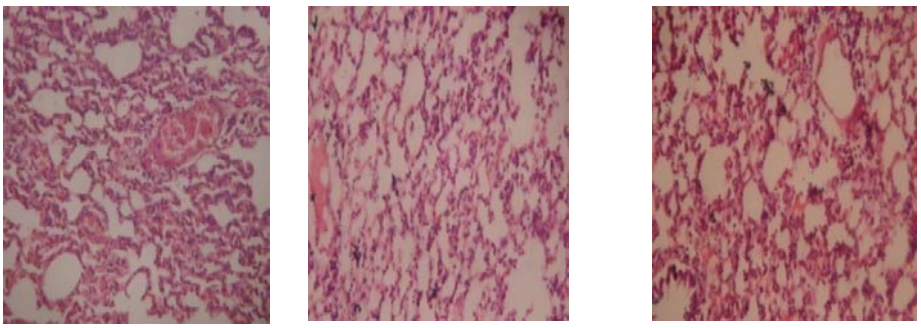


Fig.No.17.Ovary

0.1 ml of AGT | 0.2 ml of AGT | 0.4 ml 0f AGT

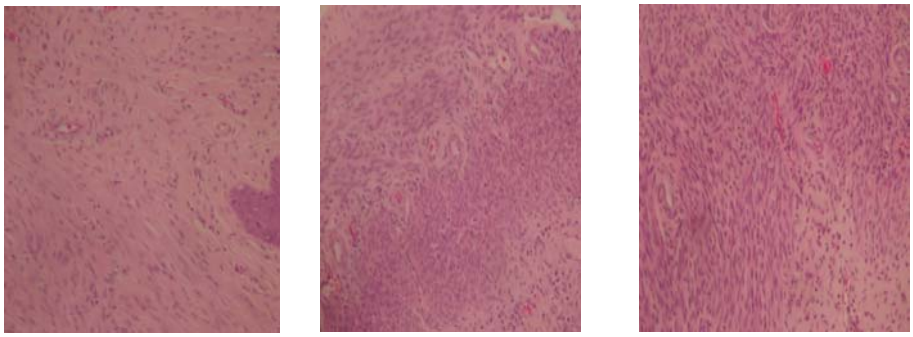
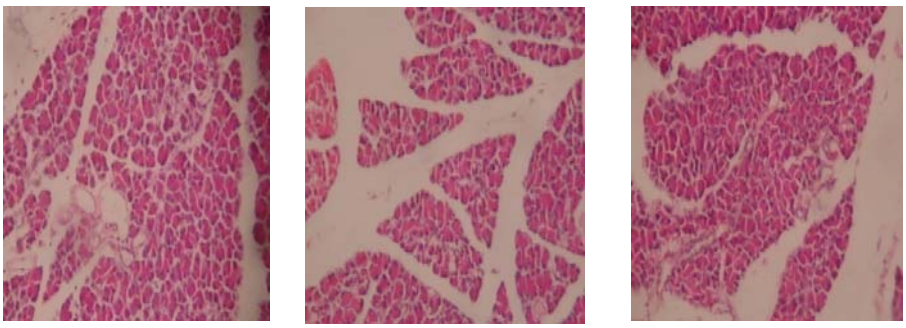


Fig.No.18.**Pancreas**

0.1 ml of AGT | 0.2 ml of AGT | 0.4 ml of AGT



AGT-Ashta Gunma Thiraavagam

Fig.No.19.Spleen

0.1 ml of AGT 0.2 ml of AGT 0.4 ml of AGT

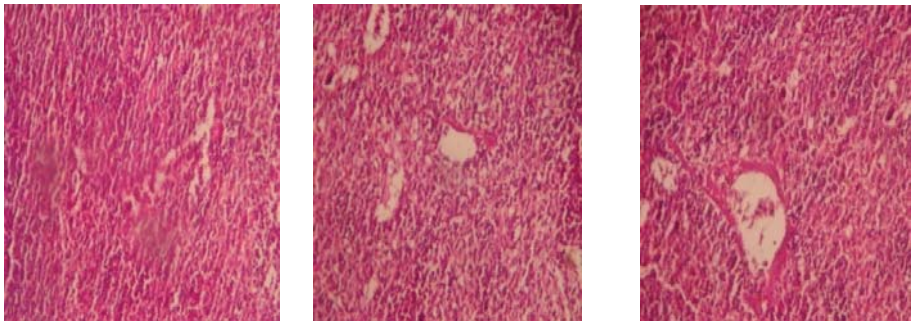


Fig.No 20.Stomach

0.1 ml 0f AGT 0.2 ml of AGT 0.4 ml of AGT

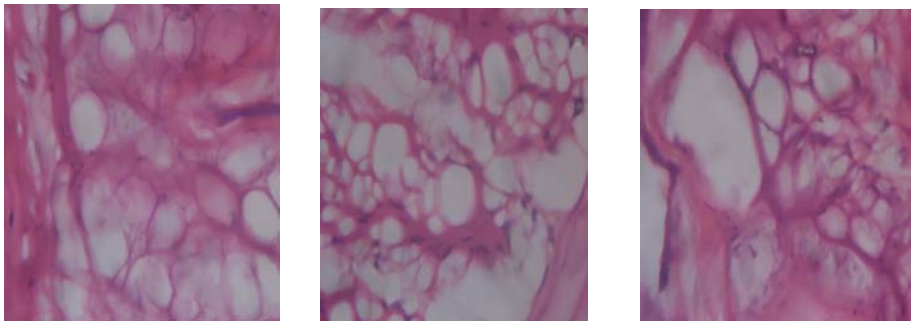
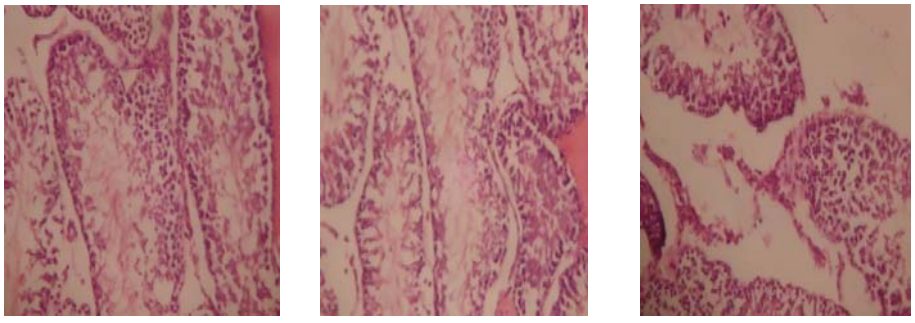


Fig.No 21.Testis

0.1 ml 0f AGT 0.2 ml of AGT 0.4 ml of AGT



AGT-*Ashta Gunma Thiraavagam*

Diuretic activity of *Ashta Gunma Thiraavagam* in rats:

In acute toxicity study, the animals treated with 2, 5, 10ml/kg were showed toxic signs. Hence the 0.5 and 1ml per kg body weight was selected as median therapeutic dose for the further study. Frusemide treated rats showed a significant increase in volume of urine and urinary excretion of sodium ($p<0.01$) but not potassium and chloride as compared to control The 1ml/kg *Ashta Gunma Thiraavagam* was not produced statistically significant diuretic actions but at high dose of 1ml/kg showed significant increase in volume of urine and also urinary excretion of sodium, potassium and chloride when compared to control was observed.

Diuretics relieve pulmonary congestion and peripheral edema. These agents are useful in reducing the syndrome of volume overload, including orthopnea and paroxysmal nocturnal dyspnoea. They decrease plasma volume and subsequently venous return to the heart (preload). This decreases cardiac workload, oxygen demand and plasma volume, thus decreasing blood pressure. Thus, diuretics play an important role in hypertensive patients.

In present study, *Ashta Gunma Thiravagam* may produce diuretic effect by increasing the excretion of Na+, K+ and Cl-. The control of plasma sodium is important in the regulation of blood volume and pressure; the control of plasma potassium is required to maintain proper function of cardiac and skeletal muscles. The regulation of Na+/ K+ balance is also intimately related to renal control of acid-base balance.

The K+ loss that occurs with many diuretics may lead to hypokalemia. For this reason, generally potassium-sparing diuretics are recommended. In present study, *Ashta Gunma Thiravagam* showed elevated levels of K+ in urine, which may increase risk of hypokalemia, Results of present investigation showed that 1ml/kg is most effective in increasing urinary electrolyte concentration of all the ions i.e. Na+, K+ and Cl – while 0.5ml/kg did not show significant increase in urinary electrolyte concentration.

Table 15: Diuretic activity of *Ashta Gunma Thiraavagam* in rats

Group	Treatment	Urine volume at different time intervals (in ml)				
		15 min	30 min	45 min	60 min	120 min
Control	Normal saline (25 ml/ kg)	0.24±0.2	0.52±0.4	1.01±0.3	1.56±0.4	2.12±0.4
Test 1	AGT 0.5ml/kg	0.21±0.3	0.50±0.2	1.15±0.5	1.42±0.5	2.23±0.5
Test 2	AGT 1ml/kg	0.20±0.2	0.48±0.3	1.42±0.4	2.05±0.5	4.38±0.5*
Standard	Frusemide (20 mg/ kg)	0.22±0.2	0.64±0.2	2.28±0.5	3.55±0.6*	6.10±0.8**

Values are mean ± SEM, * p< 0.01, ** p< 0.05 when compared to normal saline (control)

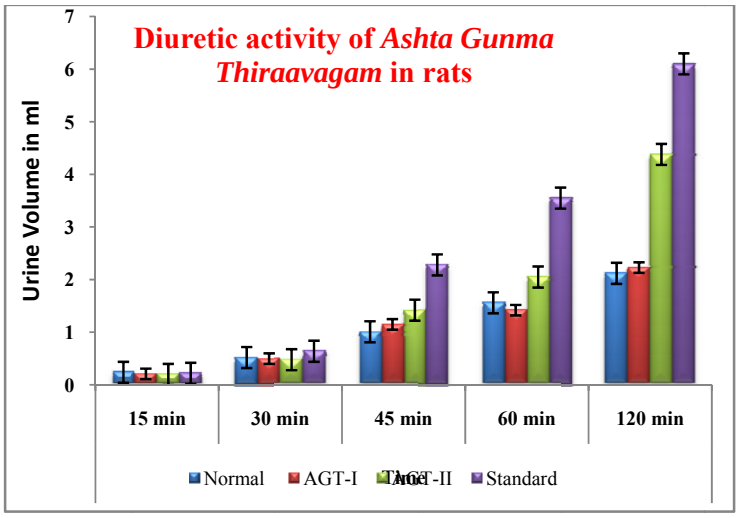
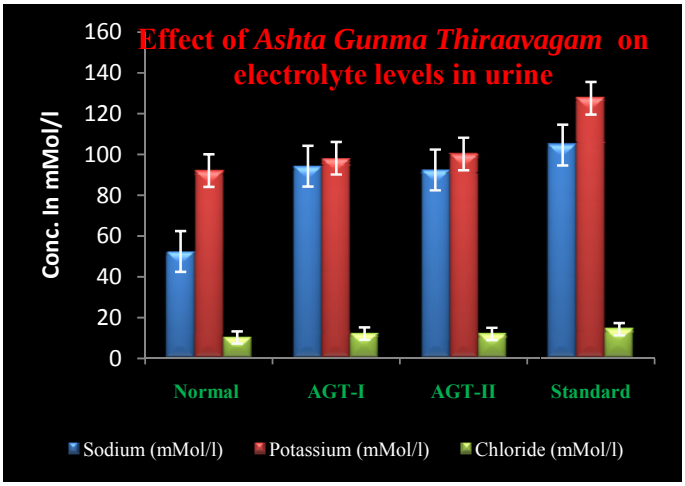


Table 16: Effect of *Ashta Gunma Thiraavagam* on electrolyte levels in urine

Group	Treatment	Sodium (mMol/l)	Potassium (mMol/l)	Chloride (mMol/l)
Control	Normal saline (25 ml/ kg)	52.41±1.69	92.11±2.30	10.24±1.14
Test 1	AGT 0.5ml/kg	94.23±2.53**	98.16±2.52	12.17±1.00
Test 2	AGT 1ml/kg	92.40±3.02**	100.22±3.50	12.00±0.85
Standard	Frusemide (20 mg/ kg)	104.61±3.40**	127.54=5.12**	14.31±1.22*

Values are mean ± SEM, * p< 0.01, ** p< 0.05 when compared to normal saline (control



CLINICAL STUDY

Fig.No.22.Net increase in urine volume

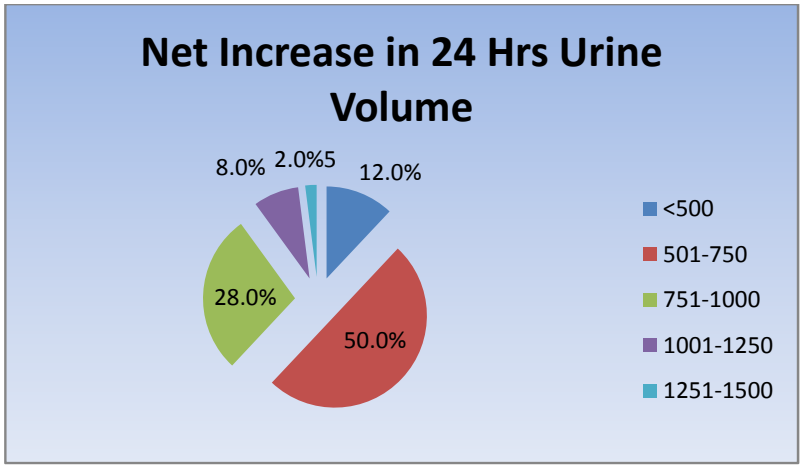


Table 17:Showing Improvement in clinical features:

	Before	After	% Before treatment	% After Treatment	Improvement	% Improved
Dizziness	28	8	56	16	20	40
Head ache	33	3	66	6	30	60
Loss of sleep	33	10	66	20	23	46
Tiredness	48	2	96	4	46	92
Difficulty in Breathing	30	5	60	10	25	50
Pain in the loin region	3	1	6	2	2	4
Nausea	11	1	22	2	10	20
Pitting Oedema	5	1	10	2	4	80

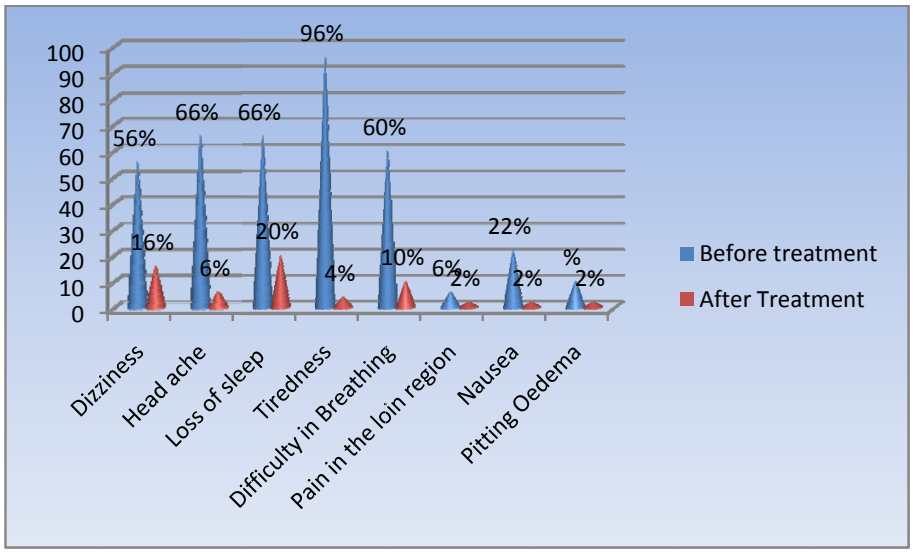
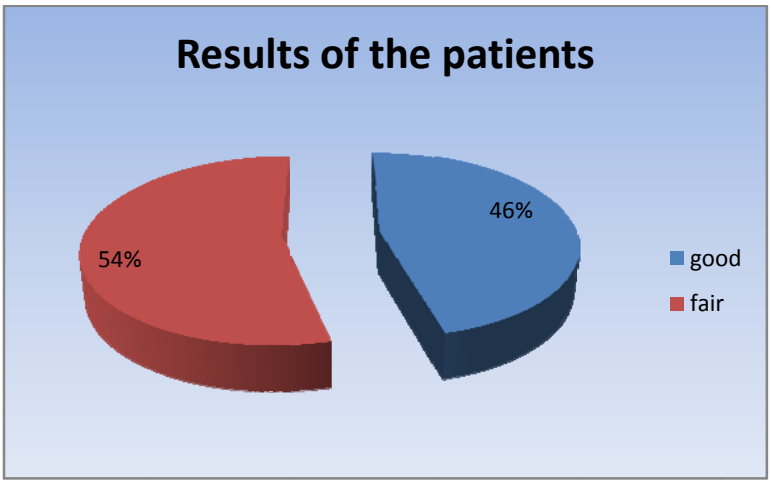


Table 18: Gradation results:

Sl. no	Level of improvement	No.of patients	Percentage (%)
1	Good	23	46
2	Fair	27	54
Total		50	100



50 patients of both sexes were selected.

Among the 50 patients, 40 patients were treated as out- patients in the Post graduate department of *Gunapadam,* Govt.Siddha medical college hospital and Govt. Arignar Anna hospital, Arumbakkam, Chennai- 106. 10 patients were treated as in - patients.

The patients were observed regularly.

The trial drug *Ashta Gunma Thiraavagam* was given to the patients at the dose of 8 drops twice a day. On administration of *Ashta Gunma Thiraavagam* 30 ml twice for 4 weeks showed significant Diuretic activity.

Out of 50 patients 12% of the pts had an increase in excretion of nearly 500 ml of urine per day, 50% of the pts had 501 to 750 ml more urine per day, 28% of the pts excreted an increase 751-1000ml of urine per day, 8% of the pts had an increase of 1001-1250ml of urine per day, 2% of the pts had an increase of 1251-1500ml of urine per day.

Among the patients, 60% of the patients were relieved from headache, 8% were relieved from Oedema, 20% were relieved from Nausea, 40% of patients were relieved from dizziness, 46% of patients were relieved from loss of sleep, 92% were relieved from Tiredness 50% relieved from Difficulty in Breathing and 4% were relieved from Pain in the loin region.

The results revealed that the drug possess 62.5% good relief, 37.5%fair relief.

Statistical analysis

Descriptive statistical for improvement of urine output in patients

Paired "t" test result:

Table 19: "**p" value & statistical significance:**

Treatment	Signs & symptoms	Mean	S.D	S.E.M
Before treatment	50	1265.80	246.834	34.908
After treatment	50	1983.00	363.280	51.376

From the table we calculated the descriptive statistic like Mean, S.D & S.E.M of Mean for the improvement score before and after treatment.

Table 20: **"t" Table:**

t-Table	S.D	"t" Value	"p" Value
Pre vs Post	229.374	-22.110	0.000

The two-tailed P value is less than 0.000.By conventional criteria, this difference is considered to be extremely significant.

6.CONCLUSION

- The evaluation of the efficacy of *Ashta Gunma Thiraavagam* for diuretic activity in the managements of oedema,urolithiasis and hypertension gave significant results.
- The presence of chloride, calcium and sulphate enhances the diuretic activity.
- Pharmacological animal study shows that *Ashta Gunma Thiraavagam* acts as potent diuretic comparable to that of standard drug.
- The drug gives very good therapeutic effect because of its easy absorption.
- Clinically, the drug relieved the symptoms of SHT,Urolithiasis,oedema and showed net increase in 24 hrs urine output.
- No adverse reactions were produced during the period of the clinical study.
- So I conclude that *Ashta Gunma Thiraavagam* act as a good diuretic.

7.SUMMARY

- *Ashta Gunma Thiraavagam* was selected for this study to establish the safety and efficacy of its diuretic activity
- The Physico – chemical analysis shows the precence of Potassium, Iron, Calcium, Sulphate and Chloride.. These elements are useful in eliminating urine from the body and helps in many metabolic functions of our body.
- Acute and Sub acute toxicological studies shows strong evidence of the drug. The results showed.
- The pharmacological analysis showed that the drug has got significant efficacy.
- In clinical study, the drug has showed improvement in 65% of cases.
- The patients were responding well from the beginning of the treatment and no adverse effects were reported.

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S.NO	IP.NO	NAME	AGE/ SEX	24 HRS URINE VOLUME	
				BEFORE TREATMENT	
41.	1339/4958	ELLAMMAL	55/F	AFTER TREATMENT	1450ML
42.	1446/8001	GNANAMBAL	65/F	1200ML	1960ML
43.	54/1611	SARAVANAN	43/M	1500ML	2300ML
44.	70/1920	GEETHALAKSHMI	55/F	1450ML	2600ML
45.	83/2084	PERUMAL	62/M	1500ML	2700ML
46.	256/7740	MAHADEVAN	52/M	1200ML	1750ML
47.	357/1231	SABEERHUSSAIN	56/M	1200ML	1950ML
48.	446/4154	DEVAKI	58/F	1400ML	2300ML
49.	487/4920	CHANDRA	50/F	1300ML	2130ML
50.	536/6242	MOORTHY	58/M	1200ML	1830ML

Form: I

CONSENT FORM

I certify that I have disclosed all the details about the study in the terms readily understood by the patient.

DATE: **SIGNATURE**
NAME

CONSENT BY THE PATIENT

I have been informed to my satisfaction by the attending physician the purpose of the clinical trial and the nature of the drug treatment and follow up including the lab investigations to be performed to monitor and safeguard my body functions.

I am aware of my right to opt out of the trial at any time during the course of the trial without having to give reasons for doing so.

I ,exercising my free power of choice , hereby give my consent to be included as a subject in the clinical trial of **……**for the treatment of**……..**

DATE: **SIGNATURE**
NAME

ஒப்புதல் படிவம்

ஆய்வுகுறித்தஅத்தனைதகவல்களையும் நோயாளிஎளிதில் புரிந்துகொள்ளும் வகையில் நோயாளிக்குவிளக்கியுள்ளேன் என்றுஉறுதியளிக்கிறேன்

தேதி: ஆய்வாளரின் கையொப்பம்:

பெயர்:

நோயாளியின் ஒப்புதல்

இந்தஆய்வுகுறித்த முழு தகவல்கள்,மருந்தின் தன்மை,எனதுஉடல் நலன் குறித்தஆய்வுகள்,ஆய்வுக்கானமருத்துவபரிசோதனைகள் மற்றும் சிகிச்சைவிபரங்கள் ஆகியஅனைத்தும் மருத்துவரால் முழுமையாகவிளக்கிக் கூறப்பட்டுள்ளது.

இந்தஆய்விலிருந்துஎந்தநிலையிலும்,எவ்விதகாரணமுமின்றிவிலகிக்கொள்ளஎனக்கு முழு சுதந்திரம் உள்ளதுஎன்பதையும் அறிந்திருக்கிறேன்.

இந்தஆய்வில்,.....ஒருபயனாளியாகஎன் னைஉட்படுத்திக் கொள்ளஏவ்விதமானநிர்பந்தமுமின்றிமுழுமனதுடன் சம்மதிக்கிறேன் என்பதைத் தெரிவித்துக் கொள்கிறேன்.

தேதி: கையொப்பம்:
பெயர்:

S.NO	OP.NO.	NAME	AGE/ SEX	EASI SCORE	
				BT	AT
1.	7518	KALIMUTHU	57/M	6	2.4
2.	7540	RENGARAJAN	66/M	2.7	1.4
3.	138	GNANASELVAM	65/F	11.2	5.4
4.	5424	VISWANATHAN	37/M	4	1.2
5.	5462	SAKILA	30/F	7.2	2.8
6.	5504	RAO	64/M	12	5.2
7.	6207	LENIN	62/M	2.8	1.2
8.	7165	SARADHA	45/F	2.7	1.4
9.	7259	KARPAGAMBAL	49/F	2	1.2
10.	7837	AMSA	50/F	1.2	0.6
11.	7695	PUSHPA	47/F	1.8	0.7
12.	7932	KATHIRESAN	38/M	3.5	1.2
13.	8432	MURUGESAN	45/M	3	1.3
14.	9254	SAIRA BAANU	52/F	5.4	1.9
15.	803	ASHA	53/F	1.6	0.4
16.	836	SELVARAJ	52/M	4.8	1.3
17.	1469	SEKAR	48/M	4	1.6
18.	2852	NIRMALA	32/F	1.6	0.3
19.	4589	RAMESH	35/M	5	1.2
20.	6238	PARIMALA	39/F	4.6	2
21.	7215	GANAPATHI	69/M	7.1	2.3
22.	2755	LATHA	33/F	3.8	0.8
23.	3952	SOUNDHAR	60/M	2.5	1.4
24.	4660	ELUMALAI	49/M	1.6	0.4
25.	8016	MUTHUSELVA KUMAR	32/M	1.2	0.4
26.	9436	RAJA	35/M	2.2	0.6
27.	9455	SATHYA	40/F	1.6	0.3
28.	9611	SAKTHIVEL	59/M	2	0.4
29.	1675	KAMALA	35/F	2.4	0.8
30	1678	RAJESWARI	42/F	3	1.2
31.	1851	MARI	36/F	1.8	0.4
32	1849	PUSHPA	50/F	2	0.8

33.	2243	SANKAR	28/M	2.6	1
34.	2406	LAKHSMI	35/F	3.5	1.2
35.	8107	SELVARAJ	50/M	4.2	2.1
36.	8865	KANNAN	46/F	3	1.4
37.	9265	MUNIRAJ	49/M	2.8	0.8
38.	9368	KASTHURI	51/F	2.5	1.3
39.	9621	MATHIVANAN	49/M	4.6	1.8
40.	9981	VAELLAMMAL	42/F	2.3	0.6

S.NO	**IP.NO**	**NAME**	**AGE/ SEX**	**EASI SCORE**	
				BT	**AT**
41.	1077/7053	RAJALAKHSMI	52/F	3.2	1
42.	1128/8173	SELVI	37/F	2.6	1.4
43.	1220/1115	MOHAMMAD BAEG	50/M	4	2.6
44.	1231/1419	KAASI	59/M	3.8	1.4
45.	1317/4312	DHANALAKHSMI	53/F	2.5	0.8
46.	320/9361	MARY	50/F	5.2	1.6
47.	1419/7245	SAROJA	43/F	5.8	2.3
48.	74/1979	PADMAVATHI	65/F	3	1.2
49.	320/9361	MARY	50/F	4.3	1.8
50.	349/925	PAMIATH	55/F	2.1	0.6

Aringnar Anna Govt.Hospital of Indian Medicine and Homeopathy,Chennai-106.				
Govt.Siddha Medical College , Chennai-106.				
Name of the study.	Diuretic activity of *Ashta Gunma Thiraavagam* Dose :8 to 10 drops with *Nerunjil Ver Kudineer* Date:			
OP NO:	Name:	Age:	Sex:	Religion:

Country: Marital status:	Personal Habits:	Past history: □DM □SHT □BA□TB□Allery □Epilepsy □Drug intake: □Surgery□Trauma Others;	Address:
Vitals:	PR	RR	BP	T˚

S.No	SYMPTOMS	Before treatment	After treatment[in weeks]						
			I	II	III	IV	V	VI	VII
1.	Changes in Urination								
2.	Fatigue								
3.	Nausea and Vomiting								
4.	Dizziness								
5.	Flank Pain								
6.	Pain in loin								
7.	Constipation								

Inspection		Before treatment	After treatment[in weeks]						
			I	II	III	IV	V	VI	VII
1.	Swelling of legs								
2.	Pallor								
3.	Icterus								
4.	Clubbing								

5.	Abdominal distension								
6.	Skin rashes								

Palpation		Before treatment	After treatment[in weeks]						
			I	II	III	IV	V	VI	VII
1.	Tenderness								
2.	Palpable mass								
3.	Pitting of the edema								
4.	Abdominal rigidity								

Percussion		Before treatment	After treatment[in weeks]						
			I	II	III	IV	V	VI	VII
1.	Dullness of the abdomen								
2.	Dullness of the chest								

Auscultation		Before treatment	After treatment[in weeks]						
			I	II	III	IV	V	VI	VII
1.	Heart sounds								
2.	Respiratory sounds								
3.	Bowel sounds								

Signature of the M.O.								

Laboratory investigations:BLOOD:		
	Before treatment	After treatment
TC		
DC		
ESR		
HB		
Serum bilirubin		
SGOT		
SGPT		
Blood Urea		
Serum Creatinine		
Albumin /globulin ratio		
Blood sugar		

Laboratory investigations:URINE		
	Before treatment	After treatment
Albumin		
Sugar		
Deposits		

	Before treatment	After treatment
X-Ray		
USG		
OTHERS		

நோய் நாடல்-SIDDHA SYSTEM OF DIAGNOSIS:

எண் வகை தேர்வு:8	சிகிச்சைக்கு முன்	சிகிச்சைக்கு பின்
1நாடி		
2.பரிசம்		
3.நா		
4.நிறம்		
5.மொழி		
6.விழி		
7.மலம்		
8.மூத்திரம்		
நீர்குறி: நிறம் மணம் நுரை நெய்குறி:		

SIGNATURE OF THE H.O.D

SIGNATURE OF THE M.O.

GOVT. SIDDHA MEDICAL COLLEGE & HOSPITAL

CHENNAI-106

M.D(S) - Branch II (GUNAPADAM)

Name of the medicine : *Karunchembai Ilai Chooranam*

Name of the disease : *Karappan* (Eczema)

Dose & Adjuvant : 1 gm bd after food with honey

O.P. NO :	Date :	Height :
Name :	Age/Sex :	Weight :
Address :		BP :
Occupation :	Marital status :	PR :

SIGNS&SYMPTOMS	WEEKS								
	0	1	2	3	4	5	6	7	8
Itching									
Erythema									
Oedema									
Vesicles									
Pustules									
Oozing									
Scaling									
Lichenification									
Ulcer									
Pain and burning sensation									
Varicose vein									
Family H/O of EAHU									
Others									
Signature of AL/MO									

ASSESSMENT

Eczema Area and Severity Index(EASI)Score	Before treatment	After treatment

CALCULATION OF EASI SCORE

EASI=0.1{Eh+Ih/Oh/Ph+Exh+Lh}(A)h+0.2{Eu+Iu/Ou/Pu+Exu+Lu}Au+0.3{Et+It/Ot/Pt+Ext+Lt}At+0.4{El+Il/Ol/Pl+Exl+Ll}Al

Eh-Erythema of head

Ih-Induration of head

Oh-Oedema of head

Ph-Papulation of head

Exh-Excoriation of head

Lh-Lichenification of head

(A)h-Area of head

Upper extremities-u

Trunk-t

Lower extremities-l

E, I, O, P, Ex, and L are assessed according to a 3-point scale where 0=no symptoms, 1=slight, 2=moderate, 3=marked. *A* is assigned a numerical value based on the extent of lesions in a given anatomic site: 1=<10%, 2=10-29%, 3=30-49%, 4=50-69%, 5=70-89% and 6=90-100%.

EASI SCORE=

LABORATORY INVESTIGATIONS

		Before treatment	After treatment
Blood	TC		
	DC		
	ESR		
	Hb		
	Blood sugar		
	IgE		
Urine	Albumin		
	Sugar		
	Deposit		
Specific patch test			

SIDDHA SYSTEM OF EXAMINATION

ENVAGAI THERVUGAL

	Before treatment	After treatment
Naadi		
Sparisam		
Naa		
Niram		
Mozhi		
Vizhi		
Malam		
Moothiram		

Signature of AMO **Signature of HOD**

CLINICAL STUDY ON *KARUNCHEMBAI ILAI CHOORNAM* FOR ECZEMA

Sl. No.	O.P. No.	Name	Age/ Sex	Date of first visit	Symptoms	DATE OF LAST VISIT	Results
1..	7518	KALIMUTHU	57/M	18.6.2012	Itching, erythema,pustules, oozing present in the extremities	5.8.2012	GOOD
2.	7540	RENGARAJAN	66/M	18.6.2012	Itching, erythema, oedema present in the extremities	8.8.2012	FAIR
3.	138	GNANASELVAM	65/F	25.6.2012	Itching,,erythema, pustules, oozing, ulcer present in the extremities	30.8.2012	FAIR
4.	5424	VISWANATHAN	37/M	16.7.2012	Itching, erythema, scaling present in the extremities	7.9.2012	GOOD
5.	5462	SAKILA	30/F	16.7.2012	Itching, erythema,vesicles, oozing present in the extremities	30.9.2012	FAIR
6.	5504	RAO	64/M	18.7.2012	Itching,,erythema, pustules oozing present in the extremities	10.9.2012	GOOD
7.	6207	LENIN	62/M	19.7.2012	Itching,,erythema,oozing present in the extremities	7.9.2012	FAIR
8.	7165	SARADHA	45/F	23.7.2012	Itching, erythema, oedema present in the extremities	3.9.2012	GOOD
9.	7259	KARPAGAMBAL	49/F	23.7.2012	Itching,,erythema,oozing, ulcer present in the extremities	30.9.2012	FAIR
10.	7837	AMSA	50/F	25.7.2012	Itching, erythema, oedema present in the extremities	12.10.2012	FAIR

CLINICAL STUDY ON *KARUNCHEMBAI ILAI CHOORANAM* FOR ECZEMA

Sl.No.	O.P. No.	Name	Age/ Sex	DATE OF FIRST VISIT	Symptoms	DATE OF LAST VISIT	Results
11.	7932	PUSHPA	47/F	25.7.2012	Itching, erythema, oedema,pustules present in the lower extremities	2.10.2012	FAIR
12.	7965	KATHIRESAN	38/M	28.7.2012	Itching, erythema, scaling, ulcer present in the extremities	4.10.2012	GOOD
13.	8432	MURUGESAN	45/M	2.8.2012	Itching, erythema, vesicles, oozing present in the upper extremities	8.10.2012	GOOD
14.	9254	SAIRA BAANU	52/F	4.8.2012	Itching, erythema present, scaling present in the extremities	12.10.2012	FAIR
15.	803	ASHA	53/F	6.8.2012	Itching, erythema, oedema, pustules present in the extremities	3.10.2012	FAIR
16.	836	SELVARAJ	52/M	6.8.2012	Itching, erythema, , vesicles present in the extremities	26.10.2012	GOOD
17.	1469	SEKAR	48/M	9.8.2012	Itching, erythema, oedema present in the extremities	27.10.2012	FAIR
18.	2852	NIRMALA	32/F	14.8.2012	Itching, erythema, scaling, oozing, ulcer present in the extremities	26.10.2012	GOOD
19.	4589	RAMESH	35/M	22.8.2012	Itching, erythema, oedema, vesicles present in the extremities	3.11/2012	FAIR
20.	6238	PARIMALA	39/F	1.9.2012	Itching,,erythema, pustules, oozing, ulcer present in the extremities	5.11.2012	GOOD

CLINICAL STUDY ON *KARUNCHEMBAI ILAI CHOORANAM* FOR ECZEMA

Sl.No.	O.P. No.	Name	Age/ Sex	DATE OF FIRST VISIT	Symptoms	DATE OF LAST VISIT	Result
21.	7215	GANAPATI	69/M	3.9.2012	Itching, erythema, oozing present in the upper extremities	7.9.2012	FAIR
22.	2755	LATHA	33/F	26.9.2012	Itching, erythema, vesicles, oedema presentin the extremities	15.11.2012	GOOD
23.	3952	SOUNDHER	60/M	2.10.2012	Itching,,erythema,oozing present in the extremities	4.12.2012	FAIR
24.	4660	ELUMALAI	49/M	4.10.2012	Itching,,erythema, pustules oozing present in the extremities	18.11.2012	FAIR
25.	8016	MUTHUSELVAKUMAR	32/M	18.10.2012	Itching, erythema present, scaling present in the extremities	1.12.2012	GOOD
26.	9436	RAJA	35/M	26.10.2012	Itching, erythema, oedema, ulcer presentin the extremities	8.12.2012	FAIR
27.	9455	SATHYA	40/F	26.10.2012	Itching, erythema, pustules presentin the extremities	6.12.2012	GOOD
28.	9611	SAKTHIVEL	59/F	27.10.2012	Itching, erythema, vesicles,oedema presentin the extremities	10.12.2012	FAIR
29.	1675	KAMALA	35/F	30.10.2012	Itching,,erythema,oozing, ulcer present in the extremities	14.12.2012	GOOD
30.	1678	RAJESWARI	42/F	6.11.2012	Itching, erythema, scaling present in the extremitie	25.12.2012	FAIR

CLINICAL STUDY ON *KARUNCHEMBAI ILAI CHOORANAM* FOR ECZEMA

Sl.No.	O.P. No.	Name	Age/ Sex	DATE OF FIRST VISIT	Symptoms	Date of last visit	Results
31.	1851	MARI	36/F	7.11.2012	Itching, erythema, scaling present in the extremities	18.12.2012	GOOD
32.	1879	PUSHPA	50/F	7.11.2012	Itching, erythema, vesicles, oedema presentin the extremities	20.12.2012	FAIR
33.	2243	SANKAR	28/M	9.11.2012	Itching, erythema, oedema presentin the extremities	18.12.2012	FAIR
34.	2406	LAKSHMI	35/F	10.11.2012	Itching,,erythema,oozing present in the extremities	23.12.2012	GOOD
35.	8107	SELVARAJ	50/M	12.11.2012	Itching, erythema pustules, scaling, ulcer present in the extremities	14.12.2012	FAIR
36.	8865	KANNAN	46/M	15.11.2012	Itching, erythema, oedema present in the lower extremities	22.12.2012	GOOD
37.	9265	MUNIRAJ	49/M	18.11.2012	Itching,,erythema,oozing present in the extremities	16.12.2012	FAIR
38.	9368	KASTHURI	54/F	23.11.2012	Itching, erythema, vesicles scaling present in the extremitie	28.12.2012	FAIR
39.	9621	MATHIVANAN	49/M	27.11.2012	Itching, erythema, pustules, oedema presentin the extremities	24.12.2012	GOOD
40.	9981	VAELLAMMAL	42/F	27.11.2012	Itching,,erythema,oozing, ulcer present in the extremities	26.12.2012	FAIR

CLINICAL STUDY ON *KARUNCHEMBAI ILAI CHOORANAM* FOR ECZEMA

Sl.No.	I.P. No.	Name	Age/ Sex	DATE OF FIRST VISIT	Symptoms	DATE OF LAST VISIT	Results
41.	1077/7053	RAJALAKSHMI	43/F	23.7.2012	Itching, erythema, oedema presentin the extremities	10.9.2012	FAIR
42.	1128/8173	SELVI	37/F	26.7.2012	Itching, erythema, oozing present in the extremities	17.9.2012	GOOD
43.	1231/1419	KAASI	59/M	8.8.2012	Itching, erythema, oedema presentin the extremities	17.9.2012	GOOD
44.	1220/1115	MOHAMMAD BAEG	50/M	9.8.2012	Itching, erythema, vesicles scaling present in the extremitie	22.9.2012	FAIR
45.	1317/4312	DHANALAKHSMI	53/F	21.8.2012	Itching,,erythema, pustules, oozing, ulcer present in the extremities	29.9.2012	FAIR
46.	1399/6626	RAMESH	35/M	31.8.2012	Itching,,erythema,oozing present in the extremities	6.9.2012	GOOD
47.	1419/7245	SAROJA	43/F	3.9.2012	Itching, erythema, oedema presentin the extremities	24.9.2012	FAIR
48.	74/1979	PADMAVATHI	65/F	24..2012	Itching, erythema, oedema presentin the extremities	12.10.2012	GOOD
49.	320/9361	MARY	50/F	26.10.2012	Itching,,erythema, vesicles oozing present in the extremities	6.11.2012	FAIR
50.	349/925	PAMIATH	55/F	3.11.2012	Itching, erythema, scaling present in the extremities	21.11.2012	GOOD

CLINICAL STUDY ON *ASHTA GUNMA THIRAAVAGAM* IN IN AND OUT PATIENTS DEPT. FOR DIURETICACTIVITY

Sl.No.	I.P. No.	Name	Age/ Sex	Date of first visit	Symptoms	Date of last visit	Results
1.	5562	KANNAN	48/M	12.7.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	24.8.2012	GOOD
2.	5678	MOORTHY	52/M	18.7.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	14.8.2012	FAIR
3.	6273	KANNAMMAL	43/F	19.7.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	22.8.2012	FAIR
4.	6658	KANAGA	42/M	23.7.2012	Pain present in the rt.loin, nausea, dizziness, tiredness present	28.8.2012	GOOD
5.	7266	VALLI	45/F	4.8.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	5.9.2012	FAIR
6.	7453	MANIKANDAN	55/M	7.8.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	12.9.2012	GOOD
7.	7792	SARAVANAN	48/M	14.8.2012	Pain present in the rt.loin, nausea, dizziness, tiredness present	19.9.2012	FAIR
8.	7856	ARUMUGAM	54/M	22.8.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	27.9.2012	FAIR
9.	7963	ABDUL KADHAR	45/M	25.8.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	23.9.2012	GOOD
10.	8299	MALLIGA	50/F	28.8.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	24.9.2012	FAIR

CLINICAL STUDY ON *ASHTA GUNMA THIRAAVAGAM* IN IN AND OUT PATIENTS DEPT. FOR DIURETIC ACTIVITY

Sl.No.	O.P. No.	Name	Age/ Sex	Date of first visit	Symptoms	Date of last visit	Results
11.	9487	SUSILA	39/F	2.9.2012	Swelling and pitting present in lower extremity, Tiredness present	4.10.2012	FAIR
12.	9567	CHINNASAMY	51/M	6.9.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	10.10.2012	GOOD
13.	9762	GUGANATHAN	55/M	12.9.2012	Pain present in the rt loin ,nausea,dizziness ,tiredness present	18.10.2012	GOOD
14.	9964	CHINNAPPA	56/M	18.9.2012	Swelling& pitting present in lower extremity,tiredness, present	25.10.2012	FAIR
15.	106	PONNAMMAL	39/F	23.9.2012	Pain present in the rt loin ,nausea,dizziness ,tiredness present	28.10.2012	FAIR
16.	208	KANDHASAMY	45/M	26.9.2012	Pain present in the rt &ltloin ,nausea,dizziness ,tiredness present	2.11.2012	GOOD
17.	378	GOMATHY	47/F	28.9.2012	Pain present in the rt loin ,nausea,dizziness ,tiredness present	5.11.2012	GOOD
18.	562	VENKATESAN	55/M	3.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	15.11.2012	FAIR
19.	893	KARTHIKEYAN	53/M	8.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	23.11.2012	GOOD
20.	1165	RAMASAMY	58/M	13.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	25.11.2012	FAIR

CLINICAL STUDY ON *ASHTA GUNMA THIRAAVAGAM* IN IN AND OUT PATIENTS DEPT. FOR DIURETIC ACTIVITY

Sl.No.	OP. No.	Name	Age/ Sex	Date of first visit	Symptoms	Date of last visit	Results
21.	5648	JEYALAKSHMI	43/F	14.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	22.11.2012	GOOD
22.	7579	SIVALINGAM	72/M	16.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	20.11.2012	FAIR
23.	9238	SOKKALINGAM	54/M	25.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	28.11.2012	FAIR
24.	9275	ARUN	30/M	25.10.2012	Pain present in the rt.loin, nausea, dizziness, tiredness present	15.11.2012	GOOD
25.	403	RUBY	65/F	31.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	21.11.2012	FAIR
26.	436	SULOKSHANA	45/F	31.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	22.11.2012	FAIR
27.	437	RAMASWAMY	50/M	31.10.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	28.11.2012	FAIR
28.	1101	SASIKALA	50 /F	4.11.12	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	3.12.2012	GOOD
29.	1102	RAMACHANDRAN	55/M	4.11.2012	Dizziness, headache, loss of sleep, tiredness, difficulty in breathing	27.11.2012	FAIR
30.	1214	JAYAGOPAL	48/M	9.11.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	2.12.2012	GOOD

CLINICAL STUDY ON *ASHTA GUNMA THIRAAVAGAM* IN IN AND OUT PATIENTS DEPT. FOR DIURETIC ACTIVITY

Sl.No.	O.P. No.	Name	Age/ Sex	Date of first visit	Symptoms	Date of last visit	Results
31.	1273	RANI	50/F	5.11.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	8.12.2012	FAIR
32.	1340	KUMAR	45/M	5.11.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	3.12.2012	GOOD
33.	1806	PRATHAP	54/M	7.11.2012	Pain present in the rt loin ,nausea,dizziness ,tiredness present	10.12.2012	GOOD
34.	2405	ALAMELU	48/F	9.11.2012	Pain present in the rt loin ,nausea,dizziness ,tiredness present	6.12.2012	FAIR
35.	3768	RAJESWARI	45/F	17.11.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	22.12.2012	FAIR
36.	4145	RAJENDRAN	53/M	19.11.2012	Swelling pitting of the oedema present in lower extremity,tiredness	25.12.2012	GOOD
37.	5451	SUGANTHI	45/F	24.11.2012	Dizziness, headache, loss of sleep, tiredness, difficulty in breathing	22.12.2012	FAIR
38.	6210	DEVI	35/F	27.11.2012	Swelling, pitting of the oedema present in lower extremities	24.12.2012	GOOD
39.	7170	PRAKASH	40/M	1.12.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	28.12.2012	FAIR
40.	7177	PRIYA	45/F	1.12.2012	Swelling, pitting of the oedema present in lower extremities	30.12.2012	FAIR

CLINICAL STUDY ON *ASHTA GUNMA THIRAAVAGAM* IN IN AND OUT PATIENTS DEPT. FOR DIURETIC ACTIVITY

Sl.No.	I.P. No.	Name	Age/ Sex	Date of first visit	Symptoms	Date of last visit	Results
41.	1339/4958	ELLAMMAL	55/F	24.8.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	8.9.2012	GOOD
42.	1446/8001	GNANAMBAL	52/F	6.9.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	3.10.12	FAIR
43.	54/1611	SARAVANAN	43/M	22.9.2012	Pain present in the rt loin ,nausea,dizziness ,tiredness present	25.10.2012	GOOD
44.	70/1920	GEETHALAKSHMI	55/F	24.9.2012	Dizziness, headache, loss of sleep, tiredness, difficulty in breathing	16.10.2012	GOOD
45.	83/2084	PERUMAL	52/M	24.9.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	12.10.2012	FAIR
46.	256/7740	MAHADEVAN	52/M	17.10.2012	Swelling pitting of the oedema present in lower extremity,tiredness	3.11.2012	GOOD
47.	357/1231	SABEERUSSAIN	56/M	5.11.2012	Dizziness, headache, loss of sleep, tiredness, difficulty in breathing	27.11.2012	FAIR
48.	446/4154	DEVAKI	48/F	19.11.2012	Pain present in the rt loin ,nausea,dizziness ,tiredness present	10.12.2012	GOOD
49.	487/4920	CHANDRA	50/F	22.11.2012	Diziness, headache,loss of sleep,tiredness,difficulty in breathing	7.12.2012	FAIR
50.	536/6242	MOORTHY	58/M	28.11.2012	Dizziness, headache, loss of sleep, tiredness, difficulty in breathing	27.12.2012	GOOD

Sl. No.	O.P. No.	Name	Age/ Sex	HAEMATOLOGICAL REPORT														URINE ANALYSIS					
				BEFORE TREATMENT				AFTER TREATMENT				ESR (mm)		Hb(Gm)		BL.UREA		BT			AT		
				TC CU/mm	DC			TC CU/mm	DC			BT		AT		BT	AT						
					P	L	E		P	L	E	1 hr	1hr					ALB	SUG	DEP	ALB	SUG	DEP
1.	5562	KANNAN	48/M	8600	63	34	5	8900	54	42	5	19	21	10	10.1	29	27	NIL	NIL	NIL	NIL	NIL	NIL
2.	5678	MOORTHY	52/M	9800	62	33	5	9700	61	38	4	13	12	12.0	12.5	32	28	NIL	NIL	NIL	NIL	NIL	NIL
3.	6273	KANNAMMAL	43/F	8700	52	39	6	8800	52	44	5	14	15	10.3	10.6	34	31	NIL	NIL	NIL	NIL	NIL	NIL
4.	6658	KANAGA	42/F	9000	60	38	5	9800	60	43	4	18	17	11	11.2	28	32	NIL	NIL	NIL	NIL	NIL	NIL
5.	7266	VALLI	45/F	7800	57	41	6	8000	54	40	5	14	15	10.6	10	34	33	NIL	NIL	NIL	NIL	NIL	NIL
6.	7455	MANIKANDAN	55/M	8600	49	39	5	7900	53	32	4	14	13	9	9.8	28	34	NIL	NIL	NIL	NIL	NIL	NIL
7.	7792	SARAVANAN	48/M	9400	55	35	6	9800	54	41	4	15	14	10.2	10.4	27	32	NIL	NIL	NIL	NIL	NIL	NIL
8.	7856	ARUMUGAM	54/M	9000	53	34	5	9500	55	41	5	18	16	14	13.2	37	35	NIL	NIL	NIL	NIL	NIL	NIL
9.	7963	ABDUL KADHER	45/M	9700	57	38	6	9400	62	33	5	14	14	10.0	10.4	33	35	NIL	NIL	NIL	NIL	NIL	NIL
10.	8299	MALLIGA	50/F	7600	48	46	5	7800	50	45	5	14	12	12.0	12.0	25	24	NIL	NIL	NIL	NIL	NIL	NIL
11.	9487	SUSILA	39/F	9000	49	45	6	9300	50	45	5	19	18	13.0	13.6	26	27	NIL	NIL	NIL	NIL	NIL	NIL
12.	9567	CHINNASAMY	51/M	7400	53	41	6	7600	52	40	8	17	16	10.7	11.0	30	31	NIL	NIL	NIL	NIL	NIL	NIL
13.	9762	GUHANATHAN	55/M	9400	57	38	5	9500	59	36	5	14	14	10.6	10.8	25	24	NIL	NIL	NIL	NIL	NIL	NIL
14.	9964	CHINNAPPA	56/M	9900	60	34	6	9200	60	36	4	18	15	11.0	11.1	34	33	NIL	NIL	NIL	NIL	NIL	NIL
15.	106	PONNAMMAL	39/F	7800	55	38	7	7700	54	42	4	15	14	9.0	9.3	34	33	NIL	NIL	NIL	NIL	NIL	NIL
16.	208	KANDHASAMY	45/M	9800	55	39	6	9800	55	41	4	13	12	10.2	10.1	37	36	NIL	NIL	NIL	NIL	NIL	NIL
17.	378	GOMATHY	47/F	9500	60	36	4	9800	60	35	5	14	13	10.6	10.0	29	28	NIL	NIL	NIL	NIL	NIL	NIL
18.	562	VENKATESAN	55/M	8600	55	39	6	8700	56	38	6	15	14	10.5	10.1	29	30	NIL	NIL	NIL	NIL	NIL	NIL
19.	893	KARTHIKEYAN	53/M	8000	55	39	6	8000	57	37	6	14	15	11.0	10.1	35	37	NIL	NIL	NIL	NIL	NIL	NIL
20.	1165	RAMASAMY	58/M	9200	61	36	3	9300	64	35	3	15	13	9.0	9.9	28	29	NIL	NIL	NIL	NIL	NIL	NIL

Sl. No.	O.P. No.	Name	Age/ Sex	4.3.8 HAEMATOLOGICAL REPORT														URINE ANALYSIS					
				BEFORE TREATMENT				AFTER TREATMENT				ESR (mm)				BL.UREA		BT			AT		
				TC	DC			TC	DC			BT	AT	Hb(Gm)		BT	AT						
				CU/mm	P	L	E	CU/mm	P	L	E	1 hr	1hr	BT	AT			Alb	Sug	Dep	Alb	Sug	Dep
21.	5648	JEYALAKHSMI	43/F	9800	55	32	13	9500	57	33	6	15	14	9.0	9.3	28	34	NIL	NIL	NIL	NIL	NIL	NIL
22.	7579	SIVALINGAM	62/M	7600	48	46	6	7800	55	43	5	14	13	10.2	10.1	34	33	NIL	NIL	NIL	NIL	NIL	NIL
23.	9238	SOKKALINGAM	54/M	9500	59	36	5	9430	65	30	5	13	24	10.6	10.6	33	35	NIL	NIL	OPC	NIL	NIL	NIL
24.	9275	ARUN	30/M	9200	53	40	7	9200	53	42	5	14	12	10.8	10.8	25	24	NIL	NIL	NIL	NIL	NIL	NIL
25.	403	RUBY	65/F	7600	63	32	5	8000	52	44	4	16	15	12.0	12.4	30	28	NIL	NIL	OPC	NIL	NIL	NIL
26.	436	SULOKSHANA	45/F	9700	57	36	7	9100	60	36	4	15	14	12.0	12.7	23	22	NIL	NIL	OPC	NIL	NIL	NIL
27.	437	RAMASAMY	50/M	8700	59	35	6	8800	58	56	6	14	13	13.0	13.3	34	33	NIL	NIL	NIL	NIL	NIL	NIL
28.	1101	SASIKALA	50/F	9800	63	31	6	9400	62	33	5	14	14	10.0	10.4	33	35	NIL	NIL	NIL	NIL	NIL	NIL
29.	1102	RAMACHANDRAN	55/M	8600	64	32	4	8500	52	44	4	12	11	9.0	9.3	29	30	NIL	NIL	NIL	NIL	NIL	NIL
30.	1214	JEYAGOPAL	48/M	9600	62	33	5	9900	58	34	5	12	12	12.0	12.3	29	28	NIL	NIL	NIL	NIL	NIL	NIL
31.	1273	RANI	50/F	6100	64	31	5	6300	51	44	5	12	14	11.0	11.6	23	22	NIL	NIL	NIL	NIL	NIL	NIL
32.	1340	KUMAR	45/M	7200	59	36	5	9800	59	37	4	11	12	13.0	13.6	34	33	NIL	NIL	NIL	NIL	NIL	NIL
33.	1806	PRATHAP	54/M	9200	52	39	9	9200	58	38	4	16	15	11.0	11.4	29	30	NIL	NIL	NIL	NIL	NIL	NIL
34.	2405	ALAMELU	48/F	7800	55	38	7	7900	54	42	4	15	14	9.0	9.3	30	28	NIL	NIL	NIL	NIL	NIL	NIL
35.	3768	RAJESWARI	45/F	8600	55	39	6	9800	55	41	4	13	12	10.2	10.1	23	22	NIL	NIL	NIL	NIL	NIL	NIL
36.	4145	RAJENDRAN	53/M	9700	60	36	4	9800	62	35	5	14	13	10.6	10.0	34	33	NIL	NIL	NIL	NIL	NIL	NIL
37.	5451	SUGANTHI	45/F	8600	55	39	6	8700	56	38	6	15	14	10.8	10.1	29	30	NIL	NIL	OPC	NIL	NIL	NIL
38.	6210	DEVI	35/F	8700	55	39	6	8000	57	37	6	14	15	11.0	10.1	35	37	NIL	NIL	OPC	NIL	NIL	NIL
39.	7170	PRAKASH	40/M	9200	61	36	3	9300	62	35	3	15	13	9.0	9.9	28	29	NIL	NIL	NIL	NIL	NIL	NIL
40.	7177	PRIYA	45/F	8700	59	35	6	8800	53	56	6	14	13	13.0	13.8	34	32	NIL	NIL	OPC	NIL	NIL	NIL

Sl. No.	I.P. No.	Name	Age/ Sex	4.3.8 HAEMATOLOGICAL REPORT														URINE ANALYSIS					
				BEFORE TREATMENT				AFTER TREATMENT				ESR (mm)				BL.UREA		BT			AT		
				TC	DC			TC	DC			BT	AT	Hb(Gm)		BT	AT						
				CU/mm	P	L	E	CU/mm	P	L	E	1 hr	1hr	BT	AT			Alb	Sug	Dep	Alb	Sug	Dep
41.	1339/4958	ELLAMMAL	55/F	9200	54	32	13	9500	57	33	6	15	14	9.0	9.3	23	22	NIL	NIL	NIL	NIL	NIL	NIL
42.	1446/8001	GNANAMBAL	65/F	7600	48	46	6	7800	52	43	5	14	13	10.2	10.1	34	33	NIL	NIL	NIL	NIL	NIL	NIL
43.	54/1611	SARAVANAN	43/M	9700	59	36	5	9430	65	30	5	13	24	10.6	10.6	33	35	NIL	NIL	OPC	NIL	NIL	NIL
44.	70/1920	GEETHALAKHSMI	55/F	9100	52	40	7	9200	53	42	5	14	12	10.6	10.8	25	24	NIL	NIL	NIL	NIL	NIL	NIL
45.	83/2084	PERUMAL	62/M	7600	63	32	5	8000	52	44	4	16	15	12.0	12.4	30	28	NIL	NIL	OPC	NIL	NIL	NIL
46.	256/7740	MAHADEVAN	52/M	9400	57	36	7	9100	60	36	4	15	14	12.0	12.7	23	22	NIL	NIL	OPC	NIL	NIL	NIL
47.	357/1231	SABEERHUSSAIN	56/M	8600	52	35	6	8800	58	56	6	14	13	13.0	13.7	34	33	NIL	NIL	NIL	NIL	NIL	NIL
48.	446/4154	DEVAKI	58/F	9800	63	31	6	9400	62	33	5	14	14	10.0	10.3	33	35	NIL	NIL	NIL	NIL	NIL	NIL
49.	487/4920	CHANDRA	50/F	9800	64	32	4	8500	52	44	4	12	11	9.0	9.3	29	30	NIL	NIL	NIL	NIL	NIL	NIL
50.	536/6242	MOORTHY	58/M	9900	65	33	5	9800	62	34	5	12	12	12.0	12.2	30	28	NIL	NIL	NIL	NIL	NIL	NIL

GENERAL HAEMATOLOGICAL INVESTIGATION

Sl. No.	O.P. No.	Name	Age/ Sex	HAEMATOLOGICAL REPORT														URINE ANALYSIS					
				BEFORE TREATMENT				AFTER TREATMENT				ESR (mm)		Hb(Gm)		B.L SUGAR		BT			AT		
				TC	DC			TC	DC			BT		AT		BT	AT	ALB	SUG	DEP	ALB	SUG	DEP
				CU/mm	P	L	E	CU/mm	P	L	E	1 hr	1hr										
1.	7518	KALIMUTHU	57/M	8800	57	40	4	9000	57	39	4	19	18	11.0	11.4	83	103	NIL	NIL	NIL	NIL	NIL	NIL
2.	7540	RENGARAJAN	66/M	9800	62	33	5	9900	62	34	5	12	12	12.0	12.3	143	113	NIL	NIL	NIL	NIL	NIL	NIL
3.	138	GNANASELVAM	65/F	8700	64	31	5	6300	51	44	5	12	14	11.0	11.6	117	123	NIL	NIL	NIL	NIL	NIL	NIL
4.	5424	VISWANATHAN	37/M	10000	59	36	5	9800	59	37	4	11	12	13.0	13.6	136	128	NIL	NIL	OCC	NIL	NIL	NIL
5.	5462	SAKILA	30/F	9800	52	39	9	9200	58	38	4	16	15	11.0	11.4	110	103	NIL	NIL	NIL	NIL	NIL	NIL
6.	5504	RAO	64/M	8400	63	32	5	8000	52	44	4	16	15	12.0	12.4	96	105	NIL	NIL	NIL	NIL	NIL	NIL
7.	6207	LENIN	62/M	7800	57	36	7	9100	60	36	4	15	14	12.0	12.7	98	107	NIL	NIL	NIL	NIL	NIL	NIL
8.	7165	SARADHA	45/F	8400	59	35	6	8800	58	56	6	14	13	9.8	13.7	136	128	NIL	NIL	OCC	NIL	NIL	NIL
9.	7259	KARPAGAMPAL	49/F	10400	63	31	6	9400	62	33	5	14	14	10.0	10.4	112	115	NIL	NIL	NIL	NIL	NIL	NIL
10.	7837	AMSA	50/F	7600	48	46	6	7800	50	45	5	14	12	12.0	12.0	92	102	NIL	NIL	NIL	NIL	NIL	NIL
11.	7695	PUSHPA	47/F	9000	49	45	6	9200	50	45	5	19	18	13.0	13.6	98	107	NIL	NIL	OCC	NIL	NIL	NIL
12.	7932	KATHIRESAN	38/M	7400	53	41	6	7600	52	40	8	17	16	10.7	11.0	114	112	NIL	NIL	NIL	NIL	NIL	NIL
13.	8432	MURUGESAN	45/M	9400	57	38	5	9500	59	36	5	14	14	10.6	10.8	96	99	NIL	NIL	NIL	NIL	NIL	NIL
14.	9254	SAIRA BAANU	52/F	10100	60	34	6	9200	60	36	4	18	15	11.0	11.1	107	115	NIL	NIL	OCC	NIL	NIL	NIL
15.	803	ASHA	53/F	7800	55	38	7	7900	54	42	4	15	14	9.0	9.3	105	117	NIL	NIL	NIL	NIL	NIL	NIL
16.	836	SELVARAJ	52/M	9800	55	39	6	9800	55	41	4	13	12	10.2	10.1	121	127	NIL	NIL	NIL	NIL	NIL	NIL
17.	1469	SEKAR	48/M	9700	60	36	4	9800	60	35	5	14	13	10.6	10.0	103	119	NIL	NIL	NIL	NIL	NIL	NIL
18.	2852	NIRMALA	32/F	8600	55	39	6	8700	56	38	6	15	14	10.8	10.1	89	96	NIL	NIL	NIL	NIL	NIL	NIL
19.	4589	RAMESH	35/M	8000	59	39	6	8000	57	37	6	14	15	11.0	10.1	95	108	NIL	NIL	NIL	NIL	NIL	NIL
20.	6238	PARIMALA	39/F	7800	61	36	3	9300	64	32	3	15	13	10.2	10.8	93	99	NIL	NIL	NIL	NIL	NIL	NIL

Sl. No.	O.P. No.	Name	Age/ Sex	HAEMATOLOGICAL REPORT														URINE ANALYSIS					
				BEFORE TREATMENT				AFTER TREATMENT				ESR (mm)				BL.SUGAR		BT			AT		
				TC	DC			TC	DC			BT	AT	Hb(Gm)		BT	AT	Alb	Sug	Dep	Alb	Sug	Dep
				CU/mm	P	L	E	CU/mm	P	L	E	1 hr	1hr	BT	AT								
21.	7215	GANAPATHI	69/M	9400	61	32	13	9800	57	36	6	15	14	9.0	9.3	89	95	NIL	NIL	NIL	NIL	NIL	NIL
22.	2755	LATHA	33/F	7600	48	46	6	7800	52	43	5	14	13	10.2	10.1	104	112	NIL	NIL	NIL	NIL	NIL	NIL
23.	3952	SOUNDHAR	60/M	9700	59	36	5	9430	65	30	5	13	24	10.6	10.6	106	131	NIL	NIL	OPC	NIL	NIL	NIL
24.	4660	ELUMALAI	49/M	9200	53	40	7	9200	53	42	5	14	12	10.8	10.8	99	107	NIL	NIL	NIL	NIL	NIL	NIL
25.	8016	MUTHUSELVAKUMAR	32/M	7600	63	32	5	8000	52	44	4	16	15	12.0	12.4	94	99	NIL	NIL	OPC	NIL	NIL	NIL
26.	9436	RAJA	35/M	9400	65	36	7	9100	60	36	4	15	14	12.0	12.7	121	117	NIL	NIL	OPC	NIL	NIL	NIL
27.	9455	SATHYA	40/F	8700	59	35	6	8800	58	39	6	14	13	13.0	13.7	130	108	NIL	NIL	NIL	NIL	NIL	NIL
28.	9611	SAKTHIVEL	59/M	9800	63	31	6	9400	62	33	5	14	14	10.0	10.4	132	112	NIL	NIL	NIL	NIL	NIL	NIL
29.	1675	KAMALA	35/F	9800	64	32	4	8500	52	44	4	12	11	9.0	9.3	107	98	NIL	NIL	NIL	NIL	NIL	NIL
30.	1678	RAJESWARI	42/F	9600	62	33	5	9900	62	34	5	12	12	12.0	12.3	110	116	NIL	NIL	NIL	NIL	NIL	NIL
31.	1851	MARI	36/F	6100	64	31	5	6300	51	44	5	12	14	11.0	11.6	115	109	NIL	NIL	NIL	NIL	NIL	NIL
32.	1849	PUSHPA	50/F	9800	59	36	5	9800	59	37	4	11	12	13.0	13.6	102	108	NIL	NIL	NIL	NIL	NIL	NIL
33.	2243	SANKAR	28/M	9200	57	39	9	9200	58	38	4	16	15	11.0	11.4	134	128	NIL	NIL	NIL	NIL	NIL	NIL
34.	2406	LAKSHMI	35/F	7800	55	38	7	7900	54	42	4	15	14	9.0	9.3	86	97	NIL	NIL	NIL	NIL	NIL	NIL
35.	8107	SELVARAJ	50/M	9800	55	39	6	9600	55	41	4	13	12	10.2	10.1	89	104	NIL	NIL	NIL	NIL	NIL	NIL
36.	8865	KANNAN	46/F	9700	60	36	4	9800	60	35	5	14	13	10.6	10.0	88	95	NIL	NIL	NIL	NIL	NIL	NIL
37.	9265	MUNIRAJ	49/M	8600	55	39	6	8700	56	38	6	15	14	10.8	10.1	85	98	NIL	NIL	OPC	NIL	NIL	NIL
38.	9368	KASTHURI	51/F	8000	59	39	6	7900	57	34	6	13	17	11.0	11.5	99	107	NIL	NIL	OPC	NIL	NIL	NIL
39.	9621	MATHIVANAN	49/M	9200	61	36	3	9300	62	35	3	15	13	9.0	9.9	97	113	NIL	NIL	NIL	NIL	NIL	NIL
40.	9981	VAELLAMMAL	42/F	8700	59	35	6	8700	58	56	6	14	13	12.8	13.5	104	108	NIL	NIL	OPC	NIL	NIL	NIL

Sl. No.	I.P. No.	Name	Age/ Sex	HAEMATOLOGICAL REPORT														URINE ANALYSIS					
				BEFORE TREATMENT				AFTER TREATMENT				ESR (mm)				BL.SUGAR		BT			AT		
				TC	DC			TC	DC			BT	AT	Hb(Gm)		BT	AT						
				CU/mm	P	L	E	CU/mm	P	L	E	1 hr	1hr	BT	AT			Alb	Sug	Dep	Alb	Sug	Dep
41.	1077/7053	RAJALAKHSMI	52/F	9400	56	32	13	8900	62	36	6	15	14	9.0	9.3	98	103	NIL	NIL	NIL	NIL	NIL	NIL
42.	1128/8173	SELVI	37/F	7600	48	46	6	7800	52	43	5	14	13	9.2	10.2	96	88	NIL	NIL	NIL	NIL	NIL	NIL
43.	1220/1115	MOHAMMADBAEG	50/M	9700	55	36	5	9450	65	30	5	13	24	10.6	10.6	117	102	NIL	NIL	OPC	NIL	NIL	NIL
44.	1231/1419	KAASI	59/M	9200	53	40	7	9200	59	42	5	14	12	10.6	10.8	121	101	NIL	NIL	NIL	NIL	NIL	NIL
45.	1317/4312	DHANALAKHSMI	53/F	7600	63	32	5	8000	52	44	4	16	15	12.0	12.4	108	114	NIL	NIL	OPC	NIL	NIL	NIL
46.	1399/6626	RAMESH	35/M	9400	58	36	7	9200	60	36	4	15	14	12.0	12.7	98	103	NIL	NIL	OPC	NIL	NIL	NIL
47.	1419/7245	SAROJA	43/F	8700	59	35	6	8800	58	39	6	14	13	13.0	13.8	89	94	NIL	NIL	NIL	NIL	NIL	NIL
48.	74/1979	PADMAVATHI	65/F	9800	63	31	6	9400	60	33	5	14	14	10.0	10.4	132	105	NIL	NIL	NIL	NIL	NIL	NIL
49.	320/9361	MARY	50/F	9800	64	32	4	8500	52	44	4	12	11	9.0	9.3	127	111	NIL	NIL	NIL	NIL	NIL	NIL
50.	349/925	PAMIATH	55/F	9600	57	33	5	9800	58	34	5	12	12	12.0	12.5	124	106	NIL	NIL	OPC	NIL	NIL	NIL

VEL'S COLLEGE OF PHARMACY

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S.No	Title of The Project	Name of The Investigator	Approval status/Remarks	Project Reference
17.	Studies on Acute, Subacute toxicity – Diuretic activity of *Jalamanjari Chendooram.*	Dr. I. Nithya Mala	The candidate proposed 36 rats and 36 mice for the experimentation. But, experts suggested that the study data can be shared with other co workers. So, it is advised to minimize the number to 10 rats and 25mice were sanctioned.	XIII/VELS/PCOL/ 17/2000/CPCSEA/I AEC/11.08.2012
18.	Evaluation of Centrally acting Analgesic property and CNS Activity of Sathikkaipodi in mice.	Dr. P. Kavitha	Totally 35rats were proposed and sanctioned.	XIII/VELS/PCOL/ 18/2000/CPCSEA/I AEC/11.08.2012
19.	A Preclinical Trial Of *Megarajanga Choornam* For T Treatment Of Kalladaippu.	Dr. R. Sathyavathy	Totally 35rats were proposed and sanctioned.	XIII/VELS/PCOL/ 19/2000/CPCSEA/I AEC/11.08.2012
20.	Bronchodilator and lithotripic activity of *Neeradaipu thelineer*	Dr. Tamizh Magal	Total number of animals sanctioned was 50 rats and 13guinea pigs. Permitted to proceed. But it is advised to share the common group data with similar pattern of projects if possible.	XIII/VELS/PCOL/ 20/2000/CPCSEA/I AEC/11.08.2012
21.	Studies on Acute, Subacute toxicity – Diuretic activity of *Ashta gunma Thiraavagam.*	Dr. B. Kanimozhi	35 rats were Sanctioned and advised to reduce the animal groups from 8 to 5.	XIII/VELS/PCOL/ 21/2000/CPCSEA/I AEC/11.08.2012