# AN OPEN CLINICAL EVALUATION ON “UTHIRAVADHA SURONITHAM (RHEUMATOID ARTHRITIS)” WITH SIDDHA TRIAL DRUG “RAJALOGA NAATHARASA PARPAM”(INTERNAL), “PARUTHI THYLAM”(EXTERNAL) &“MARIKOZHUNTHU OTTRADAM”(EXTERNAL THERAPY)


**The dissertation Submitted by**

**Dr. D.SUGANYA**

**Registration No. 321613104**

***Under the Guidance of***

**Associate Prof. Dr. K. SAIBUDEEN, M.D(S)**


**DissertationSubmitted to**

**THE TAMILNADU Dr. MGR MEDICAL UNIVERSITY**

**CHENNAI-600032**

***For the partial fulfillment of the Requirement to the Degree of***

**DOCTOR OF MEDICINE (SIDDHA)**

**BRANCH-III-SIRAPPU MARUTHUVAM**



**POST GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM**

**THE GOVERNMENT SIDDHA MEDICAL COLLEGE**

**CHENNAI -600106**


**OCTOBER 2019**

## GOVT. SIDDHA MEDICAL COLLEGE, CHENNAI 106

## DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation entitled **An open clinical evaluation on "Uthiravadha suronitham (Rheumatoid arthritis)" with siddha trial drug "Rajaloga naatharasa parpam" (Int), "Paruthi Thylam" (Ext) & "Marikozhunthu Ottradam" (External therapy)** is a bonafide and genuine research work carried out by me under the guidance of **Associate Prof. Dr. K.SAIBUDEEN, M.D(S),** Head of the Department, Post Graduate Department of **Yoga Maruthuvam**, Govt. Siddha Medical College, Arumbakkam, Chennai- 600106 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**

**Place:**Chennai **Dr. D.SUGANYA**

**GOVT. SIDDHA MEDICAL COLLEGE, CHENNAI 106**

## CERTIFICATE BY THE GUIDE

This is to certify that the dissertation entitled **An open clinical evaluation on "Uthiravadha suronitham (Rheumatoid arthritis)" with siddha trial drug "Rajaloga naatharasa parpam" (Int), "Paruthi Thylam" (Ext) & "Marikozhunthu Ottradam" (External therapy)** is submitted to the Tamil Nadu Dr. M.G.R. Medical University in partial fulfillment of the requirements for the award of degree of M.D (Siddha) is the bonafide and genuine research work done by D.SUGANYA under my supervision and guidance. The dissertation has not formed the basis for the award of any Degree, Diploma, and Associateship, Fellowship or other similar title.

**Date:** **Seal & Signature of theGuide**

**Place:**Chennai **Dr.K.SAIBUDEEN, M.D(S),**

**GOVT. SIDDHA MEDICAL COLLEGE, CHENNAI 106**

**ENDORSEMENT BY THE HOD, PRINCIPAL/HEAD OF THE INSTITUTION**

This is to certify that the dissertation entitled **An open clinical evaluation on "Uthiravadha suronitham (Rheumatoid arthritis)" with siddha trial drug "Rajaloga naatharasa parpam" (Int), "Paruthi Thylam" (Ext) & "Marikozhunthu Ottradam" (External therapy)** is a bonafide work carried out by D. SUGANYA during the year 2016-2019 under the guidance of **Associate Prof. Dr. K.SAIBUDEEN, M.D(S),** Post Graduate Department of **Yoga Maruthuvam**, Government Siddha Medical College, Chennai - 600106.

**Seal & Signature of the HOD** **Seal & Signature of the Principal**

**Date:** **Date:**

**Place:** Chennai **Place:** Chennai

## ACKNOWLEDGEMENT

First and foremost, I would like to thank almighty and siddhars for giving me the strength, knowledge, ability and opportunity to undertake this research study and to persevere and complete it satisfactorily with his blessings in every phase of my life.

It is a time for me to express my gratitude to the Vice - Chancellor. The Tamilnadu Dr.M.G.R Medical University, Guindy, Chennai .

I express my profound gratitude to Professor. Dr.R. MEENA KUMARI MD(S), Principal, Government Siddha Medical College, Chennai who provided me an opportunity and all facilities to carry out this work successfully.

I express my deepest feeling of adoration and gratitude to our HOD Professor. Dr.M.MOHAMED MUSTHAFA M.D(S) Post graduate Department of Sirappu Maruthuvam, Govt. siddha medical college, Arumbakkam, Chennai 600106 with his great inspiration and support for this thesis. I feel proud to be his student and it was a rich experience to carry out the clinical study under his sagacious guidance.

I express my sincere thanks to my guide Associate Professor, Dr. K.SAIBUDEEN MD(S), Head of the Department, Post graduate Department of Yoga Maruthuvam, Govt siddha medical college, Arumbakkam, Chennai 600106. For his encouragement, guidance, contemplations and for teaching me the impediments in the practice of siddha medicine.

It is my gratitude to Dr.G.Sekar M.D(S), Post graduate Department of Pura Maruthuvam, for his support in this study.

I express my thanks to Dr.T.R.Siddiqueali M.D(S), Post graduate Department of Varmam Maruthuvam for his support in this study.

I would like to express my thanks to Professor Dr. Saravanadevi M.D(S), HOD, PG Department of Gunapadam, for authenticating my trial drug.

I express my deep sense of gratitude to the Chairman and members of Institutional Ethics Committee (IEC), GSMC, Chennai for giving their approval to my clinical study.

I express my recognition to Dr. P. Muralidharan, HOD, Department of Pharmacology C.L. Baid Mehta College of Pharmacy, Thuraipakkam, for his guidance and assistance in doing Pharmacological and toxicity studies.

I also express my thanks to Prof. Rajesh, Biogenix Research Institute, Trivandrum for their assistance in my pharmacological study.

It is an honor for me to thank Noble Research Solutions, Chennai for their guidance and support in doing Organaoleptic characters, Physico-chemical analysis, Heavy metal analysis in my clinical trial medicine.

I wish to express my appreciation to Dr. Manivasagam, B.S.M.S, M.Sc Epidemiology for helping me to do Biostatical analysis.

I thank to our librarian Mr.V.Dhandayuthapani, M.Com, M.Libsc, librarian, Dr. Ambedkar library GSMC, Chennai-106, for his help, in literature collection.

I heartedly thank my friends especially P.Santhosh BE, P.S.Deepa M.Sc, B.Ed, who helped me to concentrate on completing this clinical study and gave me the moral support during the course of this work.

I sincere thank my seniors especially Dr.Kavinaya MD(S), Dr.Kumudha MD(S), Dr.Srisaranya MD(S), Dr.Kalaimani MD(S) for their moral support and words of encouragement to complete this clinical research.

I also thank my batch mates & friends R.Kalaivani, T.Papa Evangeline, M.Srisakthilogisha, K.Thirugnanam, G.Nivetha, K.Dhivya Lakshmi, P.Elamathi and juniors who helped during the whole study period.

I thank my patients who subjected themselves for this study and co-operating with me in every stage of my clinical work.

I am always grateful to my parents and my family members who are responsible for my growth. They really paved the way to success and their earnest support to finish the clinical study completely.

Thankyou all

# CONTENTS


| SL.NO | TITLE | | | PAGE NO. |
|---|---|---|---|---|
| 1. | INTRODUCTION | | | 1 |
| 2. | AIM AND OBJECTIVES | | | 3 |
| 3. | REVIEW OF LITERATURES | | | |
| | 3.1 | SIDDHA ASPECT OF DISEASE | | 4 |
| | 3.2 | MODERN ASPECT OF DISEASE-RA | | 34 |
| | 3.3 | DRUG REVIEW | | 55 |
| 4. | MATERIALS ANDMETHODS | | | |
| | 4.1 | INTERNAL MEDICINE - RAJLOGA NAATHARASA PARPAM | | 87 |
| | 4.2 | EXTERNAL MEDICINE – PARUTHI THYLAM | | 93 |
| | 4.3 | EXTERNAL THERAPY – MARIKOZHUNTHU OTTRADAM | | 97 |
| | 4.4 | STANDARDIZATION PARAMETERS | | |
| | | 4.4.1 | ORGANOLEPTIC | 98 |
| | | 4.4.2 | PHYSICO-CHEMICAL ANALYSIS | 98 |
| | | 4.4.3 | HEAVY METAL ANALYSIS | 99 |
| | | 4.4.4 | PHYTOCHEMICAL ANALYSIS | 100 |
| | 4.5 | TOXICOLOGICAL STUDY | | 102 |
| | 4.6 | PHARMACOLOGICAL STUDY | | 109 |
| | 4.7 | CLINICALSTUDY | | 111 |
| 5. | RESULTS AND OBSERVATIONS | | | |
| 6. | DISCUSSION | | | 118 |
| 7. | SUMMARY | | | 171 |
| 8. | CONCLUSION | | | 173 |
| 9. | BIBLIOGRAPHY | | | 174 |
| 10. | ANNEXURE | | | |

# 1.INTRODUCTION

# INTRODUCTION

Siddha system of medicine is the most primitive medical system which is flourished in the South India. This system was formulated and established about more than 25000 years back by the eminent persons called Siddhars and hence the name siddha medicine.

The fathers of siddha medicine are primordial Guru, Agathiyar. There are also 18 prime siddhars who are the followers of the primordial Guru, contributed their valuable knowledge and experiences in this field.

Siddhars are considered as the great experts which they are highly intellectual & spiritual along with the supernatural person. Siddhars are well-versed in handling 4 different divisions which are related and inter-mingled with each other (Vadham, Vaidyam, Gnanam and Yogam).

In Siddha Chemistry had been found developed into a science auxiliary to MEDICINE (Vaidhiyam) and ALCHEM (Vadham).It was found usefull in the preparation of medicine for curing all sorts of sufferings, spiritual as well as corporeal and also in transmutation of basic Metals (copper) into Gold.

Siddha medical system doesn't consider treatment and prevention separately. The main aim of this system is prevention of disease, as it is well said that "prevention is better than cure".

"Medicine means the prevention of physical illness
Medicine means the prevention of mental illness
Prevention means to avert illness
Medicine therefore is the prevention of death".

-Thirumoolar

Siddha medicine mostly works by revitalizing and rejuvenating the organ. This help to correct the dysfunctions responsible for causing the diseases. It restores the normal functioning of the organs and maintains the ratio of the Thodam (humours) there by providing a healthy state of equilibrium in the body.

In Siddha system of medicine, the disease "UTHIRAVADHA SURONITHAM"is brought under the types of vadha diseases. Here the clinical features of Rheumatoid arthritis

are correlated with "UTHIRAVADHA SURONITHAM" according to the Siddhar YUGI MUNI classification.

Rheumatoid arthritis is an autoimmune disorder. It is a generalized chronic multi-system disease affecting the connective tissues of the whole body with focalized involvement of the musculoskeletal system. It is one among the important collagen disease. It is considered to be an auto immune response to an unknown antigen and antibody formed in rheumatoid factor which is identified as DR4.

Rheumatoid arthritis is widely prevalent throughout the world. The overall worldwide prevalence is 0.8%, in adult Indian population, prevalence rate is 0.75%. Occur most common in tropical areas. 80% women's were affected. Women are 2 to 3 times more common than males. Male Female ratio - 1:3. About 25- 50years of age are affected.

Since RA is a chronic disease, NSAID drugs can reduce the pain and inflammation but do not slow down the progression of joint damage. In modern medicine, recently approved DMARD Leflunomide an immunomodulator drug which limits irreversible joint damage by arresting the growth of activated lymphocytes(which induce inflammation in joints).Comparing with NSAID, the Leflunomide have high potential effect on managing the signs and symptoms of RA but it shows some side effects also (Alopecia, Diarrhoea, Elevated liver enzymes and allergic rashes).

The medicine were prepared by the various research work done by the siddhars on herbs, minerals and animals.More than 80% of medicine formulated by herbal products but in certain life threatening diseases and in many chronic diseases, the herbal medicines alone have not been much effective. In such conditions, siddhars enumerated some herbo-mineral formulation.

For this reason I chosen the Siddha Herbo -mineral formulatory drug "**RAJALOGA NAATHARASA PARPAM" (Internal)** mentioned in "**PRANARASHAMIRTHA SINDHU**" Page no:185 which have **IMMUNOMODULATOR & ANTI - INFLAMMATORY ACTIVITY** in its ingredients and **PARUTHI THYLAM (External)** mentioned in **"NOI NEEKKUM THYLANGAL SEYMURAIGAL"** Page no:87 along with **MARIKOZHUNTHU OTTRADAM ( External Therapy)** mentioned in **"GUNAPADAM MOOLIGAI"** Page no:733 for the study of **'UTHIRAVADHA SURONITHAM'**.

So it is considered to evaluate a Siddha herbo- mineral formulation drug "RAJALOGA NAATHARASA PARPAM" (Internal) and "PARUTHI THYLAM" (External) and "MARIKOZHUNTHU OTTRADAM" (External Therapy) is efficacy and safety for the disease "UTHIRAVADHA SURONITHAM" (Rheumatoid arthritis).

# 2. AIM AND OBJECTIVES

# AIM & OBJECTIVES

**AIM:**

To evaluate the therapeutic efficacy of siddha trail drugs “Rajaloga naatharasa parpam” (Internal), “Paruthi thylam” (External) and “Marikozhunthu Ottradam” (External Therapy) on Uthiravadha Suronitham [Rheumatoid arthritis]

**OBJECTIVES:**

**PRIMARY OBJECTIVE:**

To evaluate the therapeutic efficacy of Rajaloga naatharasa parpam [Internal], Paruthi thylam [External] and Marikozhunthu Ottradam [External therapy] in Uthiravadha Suronitham [Rheumatoid arthritis]

**SECONDARY OBJECTIVE:**

- To Standardize the standard operating procedure for both siddha trail drugs. Standardization through both traditional modern analytical techniques
- Evaluation of acute and sub- acute toxicity studies for the trail drug “Raajaloga naatharasa parpam” .
- To evaluate the pharmacological activity Anti-inflammatory and Immunomodulatory of the trail drug Raajaloga naatharasa parpam in animal model.
- To evaluate the safety of the trail drug Raajaloga naatharasa parpam in thiravadha Suronitham patients before and after treatment.
- To have clinical trial drugs “Raajaloga naatharasa parpam” (int) and “Paruthithylam” (ext) in the treatment of “Uthiravadha Suronitham ”.
- To demonstrate the methodology of Ottradam therapy in treating Uthiravadha Suronitham.
- To create a knowledge about the siddha medicine and prove the efficacy of siddha drug for the disease of Uthiravadha Suronitham [Rheumatoid arthritis].

# 3. REVIEW OF LITERATURE

# 3.REVIEW OFLITERATURE

## 3.1.SIDDHA ASPECT

Man according to siddha system is production of divine mind and thought produced essence of the five elements, sole of the stars, and the spirit which is the stellar and temporal sides of magnumlimbus from the matrix of nature formed of seven layers of tissues.

These five elements together constitute the human body and origin of other material objects are explained as Pancheekaranam (Mutual Intra Inclusion). None of these elements could act independently by themselves. They could act only in coordinationwithotherfourelements.Allthelivingcreaturesandthenon-livingthings are made up of these five basic elements. The five basic elements form the connecting link between the Microcosm (Man) and Macrocosm (World). Any change in the universe due to natural or unnatural causes will create changes in human systems.

**“நிலம்நீர்தீவளிவிசும்போடைந்தும்**

**கலந்தமயக்கமுலகமாதலின்”**

**- தொல்காப்பியம்பொருள்அகராதி**

Again it is said, like the universe man is composed of five elements such as earth, water, air, fire, ether. Therefore life force is the basis for man’s mental and spiritual activities on that nature may evolve him towards perfection.

- The earth gives shape to the body and release Sits energy, Bones, muscles, and tissues represent if in the body.
- Water makes the earth supple and helps in the transmission of energy, serum, lymph, saliva etc. represent it in the body.
- Fire makes the form of the body steady and gives vigour and stimulation. Digestion and circulation represent it in the body. Air ignites the fire and works as a life carrier and is the support of all contact and exchange. Respiration and Nervous system represent it in the body.
- Ether is the creator of life itself in the body. A harmonious combination and function of these elements in the body produce a healthy and beautiful life.

**THE 96 BASIC PRINCIPLES ( 96 Thathuvam )**

According to Siddha system of medicine, 'Thathuvam' is considered as a science that deals with basic functions of the human body. Siddhars described 96 principles as the basic constituent so human body that include physical, physiological, psychological and intellectual components of an individual. These 96Thathuvams are considered to be the cause and effect of our physical and mental well-being. The Thathuvam is the author of the conception of human embryo on which the theory of medicine is based.

There are in our body several supports to the soul for the existence and sustenance of life and they are the five elements (Earth, Water, Fire, Air, Ether), the six plexus, the three humors (mukkuttram), 72,000 blood vessels and nerves etc.. Constituting in all 96 thathuvas i.e constitute principles in nature. These three humours (vatham, pitham, kabham) plays a major role in the body and their function remain in the balanced state in a normal healthy person and disturbance in their equilibrium leads to the development of diseases in the body.

If the siddha medicine is to accomplish its real mission it must start a double movement of revival and reform. It must to revive its tridoshic theory on which the whole ancient medicine is based.

**"முப்பிணி மருவி முனிவுகொள் குறிப்பைத்**
**தப்பாதறியும் தன்மையும் வாத**
**பித்தவையம் பிரிவையும் அவைதாம்**
**ஏறியிறங்கி இணைந்துக் கலந்து**
**மாறிமாறி வரும் செயற்கையார் பிணி**
**நேர்மையறிந்து நீட்டு மருந்தே**
**சீரியதாமெனச் செப்புவர் சித்தரே."**

**- நோய்நாடல் நோய் முதல் நாடல் திரட்டு**

Man develops three distinct, personalities namely the mind and the vital or life force and the body. Through the mind he thinks and wills; through the vitalor life force he executes his thought and will; through the physical body he expresses what he thinks and wills. The mind is vatha, vital or life force is Pitha, and the body is kabha.

- Vatha, pitha, kabha have multiple significances and symbolical in terms.
- Vatha represents Vayu, mind, dryness, pain, flatulence, sensitiveness, lightness, and also air.
- Pitha represents gastric juice, bile energy heat, inflammation, anger and irritation, etc...
- Kabha represents feeling of cold, heaviness, running of the nose, passing mucoid
- Discharge and also the saliva.

They are also formed by the combination of the five basic elements.

Accordingly Vali is formed by the combination of Vali (Air) and Aagayam (Space). This is the Creative force. Azhal is formed by Thee (Fire).This is the Force of Preservation. Iyyam is formed by Mann (Earth) and Neer (Water). This is the Destructive Force. These three humours are in the ratio 4:2:1 in equilibrium which is a healthy normal Condition. They are called as the life forces or humours.

**THE FORMATION OF UYIR THATHUKKAL:**

1.The Vali naadi is formed by the combination of Abanan and Idagalai.

2.The Azhal naadi is formed by the combination of Piranan and Pinkalai.

3.The Iyya naadi is formed by the combination of Samanan and Suzhumunai.

- Vaatham – Ten types
- Pitham- Five types
- Kabam- Five types

**(a) Five forms of vadha:**

These are the five main centres of the subtle physical body and correspond to the nervous plexuses of the gross physical body.

- **Matedial of muladhar centre (அபானன்):** This centre corresponds to the pelvic plexus and is the seat of kundalini or material energy and controls excretions
- **Navel centre(சமானன்):**This corresponds to the solar plexus in the navel region and controls digestion.
- **Heart centre (பிராணன்):**This refers to the cardiac plexus in the Heart and circulation.

- **Throat Centre (உதானன்):** This corresponds to the pharyngeal plexus in the throat region and control breathing and speech.
- **Forehead centre (வியானன்):** This corresponds to the Naso-ciliary plexus at the root-of the nose and base of the skull and control "will".

**(b)Five forms of pitha:**

- **Gastric juice (பாசகம்):**This give appetie and helps Digestion.
- **Bile (பிராசகம்):**which gives complexion to the skin.
- **Haemoglobin (இரஞ்சகம்):** which colours the blood.
- **Aqueous Humour (ஆலோசகம்):**Which brightens the eyes
- **Lifeenergy (சாதகம்):**Which controls the whole body.

**(c) Five form of kapha:**

- **Saliva (கிலேதகம்):** Which helps mastication
- **Cerebrospiral fluid (தற்பகம்):** Which keeps the head cool
- **Lymph (போதகம்):** Which gives taste
- **Serum (அவலம்பகம்):**Which helps the Heart in pumping
- **Synovial fluid (சந்திகம்):** Which lubricate and aids free movement of the joints

The three humours of vatha, pitha and kapha which are absorbed and circulated in the blood have each certain definite qualities: What are they actually,

**1.VADHAM**

| **(Ownqualities-6)** | **(Oppositequalities-6)** |
|---|---|
| Vatha is dry-வறட்சி | Unctuous - பசுமை |
| Vatha is cold – குளிர்ச்சி | Hot-அக்கினி |
| Vatha is subtle- அணுத்துவம் | Solid- கெட்டி |
| Vatha is rough- கடினம் | Soft -மிருது |
| Vatha is unstable- அசைத்தல் | Stable - ஸ்திரம் |
| Vatha is lite- இலகு | Heavy -பளுவு |

All this qualities are present in Air and hence air we inhale is Vadha

**2.PITHAM**

| **(Ownqualities-6)-** | **(Oppositequalities-6)-** |
|---|---|
| Pitha is hot- அக்கினி | Cold- குளிர்ச்சி |
| Pitha is acid- புளிப்பு | Sweet -இனிப்பு |
| Pitha is mobile- பசுமை | Immobile -நிலைதிருத்தல் |
| Pitha isliquid-சலரூபம் | Solid - கெட்டி |
| Pitha is acute-குரூரம் | Mildorharmless-சாந்தம் |
| Pitha is pungent-காரம் | Bitter –கசப்பு |

All this qualities are present in the gastric juice and hence the gastric juice is Pitha.

**3. KABAM**

| **(Ownqualities-6)-** | **(Oppositequalities-6)-** |
|---|---|
| Kapha is cold- குளிர்ச்சி | Hot- உட்டிணம் |
| Kapha is heavy-பளுவு | Lite –இலகு |
| Kapha is immobile -அசைவின்மை | Mobile – அசைத்தல் |
| Kapha is sweet-இனிப்பு | Pungent-காரம் |
| Kapha is soft-மிருது | Rough-கடினம் |
| Kapha is unctuous-ஈரம் | Dry – வறட்சி |
| Kapha is viscid-வழவழப்பு | Sandy -கரகரப்பு |

All this qualities are present in in Saliva so Saliva is Kapha.

**VADHAM:**

The term Vadham denotes Vayu, pain, dryness and flatulence. Vadham is responsible for respiration and control of all movements.

Location -Abanan, Faeces, Idakalai, Pelvic bone, spermatic cord, skin, nerves, joints, hairs and muscles.

Character -It governs the other two basic elements and responsible for all physical process in general. For this reason, disturbance in vadha tend to have more severe implication than the other two humours and other affect the mind as well as entire physical body and also responsible for respiration.

Functions -Pain in the whole body, twitching, pricking pain, inflammation, reddish complexion, and roughness of skin, hardness of limbs, astringent sense of taste inthemouth,constipation,andoliguria,blackishdiscolorationofskin,stool,urineand muddy conjunctiva.

So for 4448 diseases are classified by **Agasthiyar rathina surukkam naadi** and in this **Vadha diseases** are classified as 84 types

**"நாளடா நாற்பத்து நாலு நூறு**
**நயமுடனே நாற்பத்து எட்டு ரோகம்**
**பாரப்பா வாதமது எண்பத்து நாலு"**

Vadham or vali is not mere wind, but also that causes motion, energy, and sensation of every cell in the body. Vali relates to the nerve force. It is responsible for all movements in the mind and the body.

In human body the locomotors activity functions through voluntary muscles and its activities controlled by nerves system called Kanmendhriyam, likewise the sensation and its activities are known as Gnanendhriyam. These types of activities are governed by valikutram among the mukkutram.

**LOCATION OF VADHA HUMOUR:**

- Below the navel region(umbilicus)
- Urinary bladder, motion, Spermatic cord, Umbilical cord, thigh, bone, skin, nerves, joints, muscles, hair follicles, pelvis, ear.
- **வாதத்தின் இருப்பிடம் : பெருங்குடல்**

**NATURAL PROPERTIES OF VADHAM:**

**"ஒழுங்குடன் தாதேழ் மூச்சோங்கி இயங்க**
**எழுச்சிபெற எப்பணியு மாற்ற எழுந்தரிய**
**வேகம் புலன்களுக்கு மேவச் சுறுசுறுப்பு**
**வாகளிக்கும் மாந்தர்க்கு வாயு."**

**-மருத்துவ தனிபாடல், சித்த மருத்துவாங்க சுருக்கம் (பக்கம்140)**

- Functioning of mind throughout the body
- Giving briskness

- Making the uniform functioning of seven udal kattugal
- Protection and strengthening of five sensory organs.
- Regulation of fourteen physiological reflexes.

**QUALITIES OF VADHAM:**

**"வாதங் கடுமை வறட்சியுடன் நொய்மை**
**சீதமுஞ்ச் சலனம் சிதறணுவு ஏதமுட**
**னிக்குணத்தோடுற் றேயியக்கந்த ருமளவிற்**
**தக்க பரிகாரந்தா".**

**-கண்ணுசாமியம்(பக்கம்21)**

**Own qualities-6**

Vadham is dry -வறட்சி

Vadham is cold -குளிர்ச்சி

Vadham is subtle -அணுத்துவம்

Vadham is rough -கடினம்

Vadham is unstable -அசைத்தல்

Vadham is lite -இலகு

**"வாத குணமாறுக்கு மாறுகுணமே னோக்கின்**
**ஒதமிரு தீரம் உயிர்பாரம் போராதரவோ**
**யுள்ள தீயோடுறதி யியற்றுத் திரளாக**
**உள்ள குணத்தையே ஊட்டு."**

**-கண்ணுசாமியம்(பக்கம்22)**

**Oppositequalities-6**

Unctuous – பசுமை

Hot – அக்கினி

Solid – கெட்டி

Soft – மிருது

Stable – ஸ்திரம்

Heavy – பளுவு

## VARIETIES OF VADHAM

**"முறையாம் பிராணனோட பானன் வியானன்**

**மூர்க்கமா முதோனனொடு சமான நாகும்**

**திறமையாங் கூர்ம னோடுகிருகிர ன்றோன்**

**தேவத் தனோடு தனஞ்செயனு மாகும்".**

**-சித்த மருத்துவாங்க சுருக்கம் பக்கம்-142**

## VAAYU – 10 (VITAL NERVE FORCE WHICH IS RESPONSIBLE FOR ALL KINDS OFMOVEMENTS)

**1.Uyirkaal (Piraanan)**

This is responsible for the respiration of the tissues, controlling knowledge, mind and five sense organs and digestion of the food taken in.

**2.Keel nokkukaal (Abanan)**

It lies below the umbilicus. It is responsible for the downward expulsion of stools and urine, ejaculation of semen and menstruation.

**3.Paravukaal (Viyanan)**

This is responsible for the motor and sensory function of the entire body and the distribution of nutrients to various tissues.

**4.Maelnokkukaal (Uthanan)**

ItoriginatesatUtharakini.Itisresponsiblefordigestion,absorptionanddistribution of food. It is responsible for all the upward movements.

**5.Samaanan (Nadukaal)**

This is responsible for the neutralization of the other 4Valis i.e. Piranan, Abanan, Viyanan and Uthanan. More over it is responsible for the nutrients and water balance of A the body.

**6.Naagan**

It is a driving force of eye balls responsible for movements.

**7.Koorman**

It is responsible for the opening and closing of the eyelids and also vision. It is responsible for yawning.

**8.Kirukaran**

It is responsible for the salivation of the tongue and also nasal secretion. Responsible for cough and sneezing and induces hunger.

**9. Devathathan**

This aggravates the emotional disturbances like anger, lust, frustration etc. As emotional disturbances influence to a great extent the physiological activities, it is responsible for the emotional upsets.

**10. Dhanancheyan**

Expelled three days after the death by bursting out of the cranium. It is responsible for edema, plethora and abnormal swelling in the body in the pathological state.

**As per yugi vaithiya cindhamani**

**"என்னவே வாதமது எண்பதாகும்**
**ஏற்றமாம் பேருடைய வெழிலைக் கேளாய்**
.....
**ஊனுதிர வாத சுரோணிதந்தா தானோடு**
**..... வேதத்தினுண்மை தானே"**

**AETIOLOGY OF VADHA DISEASES:**

**According to yugi vaithya cindhamani**

**"என்னவே வாதம்தா ணென்பதாகும்**
**இகத்திலே மனிதர்களுக்கு கெய்யுமாறு**
**பின்னவே பெண்தனையே சோரைஞ் செய்து**
**பெரியோர்கள் பிராமணரை தூறணித்தும்**
**வன்னவேவச் சொத்திற் சோரஞ் செய்து**
**மாதாபிதா குருவைம றந்தபேர்க்கும்**
**கன்னவே வேதத்தை நிந்தை செய்தால்**
**காயத்திற் கலந்திடுமே வாதந்தானே"**
**"தானென்ற கசப்போடுதுவர்ப்பு றைப்பு**
**சாதகமாய் மிஞ்சுகிலுந் சமைத்த வண்ண**
**ஆனென்ற வாறினது பொசித்தாலும்**
**ஆகாயத் தேறலது குடித்தலாலும்**

**பானென்ற பகலுறக்க மிராவிழிப்பு**

**பட்டினிய மிகவுறுதல் பாரமெய்தல்**

**சீக்கிரமாய் வாதமது செனிக்குந்தானே".**

- Excessive sexual indulgence
- Over consumption of bitters, astringents and rancid foods.
- Drinking rainwater
- Day time sleep
- Night timework
- Starvation
- Lifting overweight
- Will initiate and aggravate vali

**As per Konganavar Vadha Kaviyam**

**"ஆச்சப்பா யிதங்கூறை நலதாய்ச்சொன்னோம்**
**ஆகாகா யிந்நூல்தான் காவியகாண்டத்தில்**
**வச்சப்பா வாதத்தின் கூறைச்சொன்னோம்**
**வாதமதின் வாயுனிலை மயங்கிப்போகும்**
**காச்சப்பா கலங்கியது தியங்கிப்போகும்**
**கண்மணியே வதுக்குமத்திபந்தான் கேளு**
**மச்சப்பா மக்கினிதான் மதுவோடொக்க**
**மார்க்கமதாய் கூடிவிளை யாடும்பார்"**

**வாதம் தோன்றுதல்:**

**"வெய்யிலில் நடக்கை யாலும் மிகதண்ணீர் குடிக்கை யாலும்**
**பையவே உண்கை யாலும் பாகற்காய் தின்கை யாலும்**
**தையலே வாத ரோகஞ் சனிக்கு மென்றறிந்து கொள்ளே"**

- Excessive exposure to the sun
- Excessive intake of water
- Postponed of proper intake of food
- Excessive intake of bitter gourd

**According to Agathiyar Kanma Kaandam**

**"நூலென்ற வாதம் வந்த வகை தானேது**
**நுண்மையாய்க் கன்மத்தின் வகையை கேளு**
**காலிலே தோன்றியது கடுப்ப தேது**
**கைகாலிலே முடக்கியது வீக்கமது**
**கோலிலே படுக்கின்றவிருட்சமான**
**குழந்தை மரந்தனை வெட்டி மேல்தோ சீவல்**
**நானிலே சீவசெந்து கால் முறித்தல் நலித்தல் காணே"**

- cutting trees and barks
- Breaking the legs of living animals
- cutting the leaves of living trees

**According to Agathiyar Gunavagadam,**

**"அம்புவியில் வாதனோய் வருகும் நேர்மை**
**அப்பனே சொல்லி கிறேன்றி வாய்க்கேளு**
**அறுகுமடா மாமிசத்தின் வியாதி யாலும்**
**அப்பனே சூதகத்தின் பெருக்காலும்**
**குடிகெடுத்த வாதமது உண்டா மப்பா"**

- Muscular diseases
- Menorrhagia
- Consumption of improper preparation of metallic compounds like mercury and lead will cause vadha diseases

**CHARACTERISTIC FEATURES OF VATHA DISEASE:**

1. **As per Theraiyar Vaagadam:**

**"வாதவீறு அன்னமிறங்காது கடுப்புண்டாம் வண்ணமுண்டாம்**
**மோது கட்டுரோகம் கரமுண்டா மிருமலுமா முறங்கா தென்றும்**
**ஓது சூரிய வாதமனலாகு நடுக்கமுண்டாம் பொருள்களாய்த்**
**தீதெனவே நரம்பிசித்து சந்துகள்தோறும் கடுக்குந் தின்முந்தானே".**

- Loss of appetite
- Pain and redness

- Fever and cough
- Insomnia
- Shivering
- Hyperpyrexia

**"சந்திரவாத முடம்பு குளிர்த்தெழுந்தே நடுக்குங் சீதவாய்வாம்**
**முந்திய குத்திவாஞ் சந்துகள் தோறுங் குடைந்து மொளிகள் வீங்கும்**
**வந்திய தொந்தவாதம் நரம்புகளெல்லா மிசித்துவலம் வீடாது**
**அந்து அவ்வாகு வாதம் வீக்கமுண்டா முடற்றிமி ருண்டாமே"**

- Chillness of the body
- Rigor and spasm
- Pain and tenderness of joints
- Swelling of the joints.

**"அறியதிம் மூன்றின தாண்மை சொன்னார் னநந்தி**
**பறியென நொந்து மற்பச்சை புண்ணாகும்"**

- **திருமூலர் நாயனார் சிகிச்சாரத்ன தீபம்**

- Pain in the upper and lower limbs, pain in the costochondral junctions will be seen in vadham diseases.

**"வாதம் வந்துற்றபோது வயறது பொருமி கொள்ளும்**

**.....வந்த வாதத்தின் குணமிதாபமே"**

- **யூகி முனிவர் பெருனூல் வைத்திய காவியம்(1000)**

- When vadham increases it produce abdominal discomfort, pain in the hip joint and all the joints of upper and lower limbs, constipation and painful voiding of urine and stools will be seen.
- The diseases will be precipitated in months from aani to karthigai. i.e., from June to December, (muthuvenil, kaar and koothirkaalam)

**"பகரவே வாதமது கோபித் தப்போ**
**பண்பாக பெண் போகமது தாமன் செய்யில்**
**.....கனைக் காலும் கடுப்பு உண்டாமே"**

- **யூகி வைத்திய சிந்தாமணி பாடல்-285**

- Indulging in sexual act during vitiation of vadham
- Walking for long distance
- Exposing to cold and dampness and harmful combinations like fruits vegetables and tubers with curd causes toxic factors which affects bones and joints

**In Aaviyalikkum Amutha murai Surukkam**

**"சொல்லவே வாதமது மீறிற்றானால்**
**சொர்வடைந்து வாயுவால் தேகமெங்கும்**
**மெல்லவே கைகால்களசதி யுண்டாம்**
**மெய் முடங்கும் நிமிர வெண்ணா திமிருண்டாகும்**
**வெல்லவே வுடல் பொருமும் வயிருளைக்கும்**
**விரும்பி யன்னஞ்செல்லாது விந்துநட்டம்**
**சொல்லவே நாப்புளிக்கும் கழிச்சல் உண்டாகும்**
**கூறினார் மலையமுனி கூறினாரே"**

- Fatigue, tiredness
- Nausea
- Loss of appetite
- Pricking sensation all over the body
- Pain all over the joints.
- Diarrhoea
- Azoospermia
- Incontinence of urine
- Difficulty in flexion and extension
- Constipation

**Agathiyar 2000**

**"வாதத்தின் குணமேதன்னில் மயக்குந்தியங்கும் மலர்சிவக்கும்**
**பாதங்குளிர்ந்து சருவாங்கம்பற்றி நடக்குமுகங் கடுக்குஞ்**
**சீதத்துடனே வயிறுபுண்ணாஞ் சிரிப்பித் தகுந்தெறி மூச்சாம்**
**போதத் தண்ணீர்தான் வாங்கும்புகழும் பஞ்சகுணமே"**

- Giddiness
- Redness of eyes
- Stabbing pain in the face
- Abdominal distension
- Joint pain in upper and lower limbs
- Oliguria
- Drowsiness
- Chillness of the body

**வாத மிகுதலின் இயல்பு**

**"தக்க வாயு கோபித்தால் சந்து வுளைந்து தலைநோவா**
**மிக்க மூரி கொட்டாவி விட்டங் கெரியு மலங்கட்டும்**
**ஒக்க நரம்பு தான்முடங்கும் முலர்ந்துவாய்நீ ரூறிவரும்**
**மிக்க குளிரும் நடுக்கமுமாம் மேனி குன்றி வருங்காணே"**

- Pain in the joints
- Headache
- Excessive yawning
- Constipation
- Burning sensation of the body
- Paralysis
- Excessive salivation
- Chillness and tremor

**In kaaviyanaadi**

**"காணப்பா வாதமீறில் கால்கைகள் பெருத்து நோகும்"**

## UTHIRAVADHA SURONITHAM

"UTHIRAVADHA SURONITHAM" is one among the eighty types of vadha diseases described by the great siddha pathologist yugi munivar in the textbook of "YUGI VAIDHYA CHINDHAMANI".

A form of arthritis of rheumatic origin marked by severe pain and the formation of inflammatory nodules in the region of the joints and especially in the limbs of the body.

**According to kathirai velpillai tamil mozhi agarathi**

சுரோணிதம் – உதிரம்

**உதிரவாதம்**

**According to sambasivam pillai dictionary**

சுரோணிதம் – உதிரம்

மகளிர் சூதகம்

**சுரோணித வாதம்:**

A disorder of menstruation in women marked by affection in the chest and limbs extreme sensibility to pain, dryness in the dendrites nervous shock, accompanied by intense body pain.

**Therayar vaagadam:**

**"சுரோணிதவாத பிரவிடையான் போதே தொடுக்குந் துடர்ந்து**

**நோகுங்.....**

**( பிரிவிடை - பெண்ணின்மத்திய புருவம்)**

The disease "**suronithavatham**" is occurs in the middle aged women.

**“உரைபெறு உதிரவாத சுரோணித முறைக்குங் காலை**

**தரைபெறு வாதந்தூற்றே சுரோணிதக் குணமுந்தக்க**

**விரிவுறு பலித்துவாத சுரோணிதக் குணமுமிக்க**

**சுரைபெறு உதிரவாத சுரோணித குணமுமுண்டாம்”**

Vitiation of vatha aggravates the signs and symptoms of “vatha suronitham”.

**Jeeva raksha mirtham** classifies this disease into two types,

- Pitha sonitha vatha rogam, which is soft and cause emaciation.
- Slethuma sonitha vatha rogam has polyarthralgia and spindle shaped swelling in the phalanges.

**SIDDHA PATHOLOGY:**

**“காணப்பா வாத மீறில் கால்கைகள் பொருத்து நோகும்.....**

**சொல்லவே வாதமது மீறிற் றானால்**

**சோர்வடைந்து வாயுவினால் தேகமெங்கும்**

**மெல்லவே கைகால் களசிக லுண்டாகும்**

**..... ..... .....திமிருண்டாகும்”**

**- அகத்தியர்**

**“வளிவாக நாலாயிரத்து நானூற்று நாற்பத்தெட்டு**

**வந்தணுகில் தேகமதில் வலுவியாதி”**

**- அகத்தியர்**

**“எரியநல் வாத மெறிக்குங்வ குணங்கேளு**

**குறியெனக் கைகால் குளச்சு விலாச் சந்து”**

**--நோய் நாடல் நோய் முதல் நாடல் திரட்டு**

**NAADI PATHOLOGY:**

**"திருந்துமாம் வாதத் தோடே தீங்கோடு பித்தஞ்சேரில்**

**பொருத்துகள் தோறும் நொந்து"**

**-குணவாகடம் நோயின் சாரம்**

## AETIOLOGY OF SURONITHA VADHAM

**"கொண்டிடிற் சரீரம் கலந்தும் பதார்த்தங்கள் கொள்கையாலு**

**முண்டியிரத்தந் தன்னை யுறிஞ்சிடும் பதார்தத்தாலும்**

**மிண்டிய சாக்கிரத்தில் விருந்தத் திரைகளாலும்**

**மண்டுமை துணங்களாலும் வாதள பத்தையாலும்**

**ஆகிய செல்வமிஞ்சி நடவாம லிருக்கையாலும்**

**பாகமாங் குதிரையானை பலப்பட வேறாலும்**

**பேதமாம் வாயுண்டாய் விபரீதமா யிரத்தஞ்**

**சோகமாய் வாங்கிச் சோர்ந்து சுரோணித வாதமுண்டாம்"**

- Intake of spicy food stuff
- Intake of astringents
- Daytime sleep Sedentary life
- Food which decrease the absorption of iron
- Foods which increases the body heat.
- Riding over the elephant and horse

All these factors will affect vatha which along with blood produces Suronitha vadham.

**According to para rasa sekaram:**

**"தொழில் பெறுகைப்புக் கார்த்தல் துவர்த்தல் விஞ்சுகினுஞ் சோறும்**

**பழையதாம் வரகு மற்றையப்பைந்தினை யருந்தினாலும்**

**எழில் பெறப்பகலுறங்கி இரவினி லுறங்காத தாலும்**

**மழைநீர் குழலினாலே வாதங் கோபிக்குங்கானே"**

1.Over conception of bitters, astringents, savouries and rancid foods

2.Intake of cold water

3.Intake of varagu, thinai

**“காணவே மிகவுண்டாலுங் கருதுபட்டினி விட்டாலும்**

**மானனை யார்கண் மோகமறக்கினு மிகுந்திட்டாலும்**

**ஆணவமலங் கடம்மையங்கனே விடாததாலும்**

**வானுதம் மடநல்லாளே வாதங் கோபிக்குங் காணே ”**

- Eating of excessive intake of food
- Starvation
- Excessive sexual indulgence
- Sleeping in the day time & not sleeping in the night
- Not taking food at proper time, Decreased intake of sour and ghee diet increase the vadham

**“பாரினிற் பயப்பட்டாலும் பலருடன் கோபித்தாலும்**

**காரெனக் கருகியோடிக் கழுமரத்தினாலும்**

**ஏற்பெறு தனது நெஞ்சின் மிகத்துக்க மடைந்திருந்தாலும்**

**பாரிய காற்றினாளும் படரினும் வாதங்கானும்”**

- Fear
- Anger
- Worry

**In textbook of siddha medicine (sabaa pathy kaiyedu)**

**“வளிதரு காய்கிழங்குவரைவிலா தயிலல் கோழை**

**முழுதயிர் போன்மி குக்கு முரையிலா வுண்டி கோடல்**

**களித்தரு முயக்கம் பெற்றோர் கடிசெயல் கருவியாமல்”**

- Intake of vadham containing food stuffs
- Intake of cold items
- Exposure to extreme cold air, rain and snow

- Hereditary
- Stay in mountain

**CLINICAL FEATURES OF UTHIRAVADHA SURONITHAM:**

**In yugi vaithiya chindhamani**

**"வைகிதமாய்க் கணைகாலு முழங்கால் தானு**

**மற்கடஞ் சந்து புறவடியும் வீங்கிச்**

**செய்கிதமாய் சிறுவிரல்கள் மிகவு நொந்து**

**சிந்தைதடு மாறியே சலிப்புண்டாகும்**

**பைகிதமாம் பயித்தியத்தில் வாத மிஞ்சிப்**

**பாரமா யுற்பவித் தழலுண் டாகும்**

**உய்கிதமா மசனமது தானும் வேண்டா"**

- Swelling of the ankle and knee joints
- Swelling of the foot
- Pain in the fingers and toes
- Confusion
- Fatigue
- Loss of appetite

**In Dhanvandhiri vaithiyam**

**"காணுமே எலி விஷம் போல் கனப்புடன் தடிப்புமாக**

**பூணுடம் புளையங்குத்தும் சொறி கனப்புந்**

**தோணிருந் துடிப்புத் தேகங்கிள்ளினாற் சோதியாது**

**மானில முலையாய் சுரோணித வாதமாமே**

**கையினிற் கறண்டை தண்ணீர் கட்டுஞ் சதைபோல் வீங்கு**

**மெய்யினைப்பிளக்கும் வாதம் வியாப்பிக்கும் உடம்பதாக்கு**

**மையலர் உடல் தம்புக்கும் வாதசுரோணித மிதென்னே"**

- Pyrexia and swelling of the body as in rat poison intoxication
- Pain and tenderness
- Twitching of muscles
- Loss of sensation
- Swelling of the wrist and phalanges
- Black and redness of swelling due to vascular failure
- Hyperaemia

**சுரோணிதவாதம்:**

**"ஓடிய சுரோணித வாதமுடல்தனை நெஞ்சுலர்ந்து**
**தேடிய கால் கைகளை திருமே பிளக்க வொண்ணா**
**வாடிய மேனிதானும் வறண்டிடும் நாவும்பல்லும்**
**மூடிறக் கடுத்து நொந்து ஆளைவுடன் குத்துமுண்டே"**

**According to Vaithiya Cindhamani by kannusamy**

**உதிரவாத சுரோணிதம் என்ற நோயில் கனைக்காலும், முழங்காலும், சந்துபுறங்களும் வீங்கி வடிவதுடன் விரல்களில் அதிக நோயுண்டாகும். இன்னும் சிந்தை தடுமாறல், சலிப்பு, ஆகார வெறுப்பு இவையும் பெற்றிருக்கும்.**

- The disease name suronithavatham is also mentioned in **Aaviyalikkum Amuthamurai Churukkam** as painful and swollen joints.
- **Anubogavaithiya Deva Ragasiyam** also deals with vatha diseases. Instead of "Uthiravaatha suronitham" it is mentioned as "Sonitha vatharogam".
- **Jeevarakshamirtham** also deals it as sonitha vaatharogam in Vaatharo gapadalam and the symptoms are polyarthralgia, swelling, anaemia, spindle shap1ed swelling in the joints.

**In pararaasasekaram**

**"வீழிபெறு சுரோணி தந்தான் மிகவுடன் மெலிவு மாகித்**
**வாழ்வுறு கையுங்காலும் வசமின்றி யுழன்று நோவாம்**
**பாழ்பெறு மணங்கி நாளே பயனுறப் பகர்ந்திட்டோமே"**

- Decrease in the haemoglobin level
- Pain in the upper and lower limbs
- Swelling especially in the peripheral joint and deformities
- Morning stiffness present more than 1 hr.

**"பக்கமும் மார்பும் கூடப்பற்றியே இழுத்துக் கொண்டு**

**நெக்கியே மார்பிளைத்து நோதாய் நரம்பிழுத்து**

**ஒக்கவே சயித்தியங்கள் உயர்ந்துடன் மேலும் காலும்**

**மிக்குமே உதிரவாதம் என்றிதுவிளம்பலாமே"**

**"சொர்சீதே வுதிர சுரோணித முழங்கால் தாணும்**

**பொற்கனை காலுங்ந் சந்தும் புறவடி தாணும் வீங்கி**

**.....முண்டா முறுநூலிற் சொன்னதாமே"**

• Swelling of the ankle and knee joint

• Swelling of hind foot

• Pain in the distal interphalangeal joint

**According to Agathiyar Ayulvedham– 1200**

**"கைகால் நெற்றித்தலை பிடறி கனத்துதநொந்து வுளைவுண்டாம்**

**மெய்யீன்ரூ பந்தான்கெட்டு வெதும்பி விதனமிக வுண்டாந்**

**தொய்யச் சுருட்டி முடக்கிவிடஞ் சுரோணிதவாதக் குணமதுவென்**

**றையா முனிவர்தாளி தனாலறியச் சொன்னாரரிவாரே"**

• Pain in the upper and lower limbs, forehead and cervical region.

• Restricted joint movements.

**DIFFERENTIAL DIAGNOSIS:**

Among the 80 types of vatdha diseases mentioned in "yugi vaithiya cindhamani" the "Uthira vadha suronitham" is differentiated from the following types of suronitham.

**1.வைகிதவாதசுரோணிதம்:**

**"ஆமென்ற வீங்கினதோர் இடத்தில் ரத்த**

**மழுத்தமாய்த் திரண்டுமே யெங்கும் பாய்ந்து**

**.....**

**பாரமாய் வைகிதமாம் வாதந் தானே"**

- Swelling with hyperaemia
- Soft on touch
- Cough
- Pyrexia
- Irritability

**2.வாதசுரோணிதம்:**

**"அறிந்திட்ட அங்கமெலா மெலிவுமாகி**

**அசைவான தவ்விடங்கள் வீக்கமாகி**

**.....**

**வாதசுரோணிதந் தானும் வகுத்தவாறே"**

- Emaciation
- Swelling of joints
- Restriction of movements
- Anorexia
- Excessive salivation
- Discomfort

**3.சித்துவாத சுரோணிதம்:**

**"வாறான சரீரமெலா நுழைந்தே யூதும்**

**மாசற்ற தோல்தானுந் திரைந்து போகும்**

**.....**

**மிக்கசித்து வாதசுரோ ணிதம தாமே"**

- Anasarca
- Reduced haemoglobin level

- Wrinkles
- Neural pain
- Bullous eruption as in palms
- Glossy tongue
- Sialorrhoea
- Exfoliation
- swelling
- Warmness.

**4.பைத்தியவாதசுரோணிதம்:**

**"உணர்ச்சியாய்ச் சுரோணிதந்தான் மிகவெ தும்பி**

**ஊக்கமாய்த் தேகமெங்கு மிகவே நொந்து**

**.....**

**பயித்தியவாத சுரோணிதத்தின் பண்பு தானே"**

- Hyperaemia
- Tenderness in knee, elbow and smaller joints
- Polyarthralgia
- Pyrexia
- Anaemia

**5.சிலேட்டுமவாதசுரோணிதம்:**

**" பண்பாக வுடல்குளிர்ந்து வயிறு வீங்கிப்**

**பதைப்பான விடந்தொட்டாற் போல நோவாந்**

**.....**

**நற்சிலேட்டும சுரோணிதமாம் நாடுங் காலே"**

- Chillness with abdominal distension
- Severe pain
- Headache
- Bronchitis with dyspnoea
- Giddiness

- Dryness of mouth
- Tachycardia
- Syncope and Hallucination
- Anorexia

**6.உதரவாதசுரோணிதம்:**

**"நாடுமே சுரம்வந்து நடுக்கலுண்டாம்**

**நாவறண்டு தலை நொந்து உடம்ப ழுந்தி**

**.....**

**செயவுதர வாதசுரோ ணிதந்தா னென்னே"**

- Fever with rigor
- Dryness of mouth
- Diarrhoea
- Headache
- giddiness
- Excessive thirst
- Loss of appetite
- Pain all over the body

## IN SIDDHA - MODE OF PATHOLOGY

## VADHAM:

- Vadham is said to be phenomenon responsible for the movements of the parts involved in locomotor system, hence it is responsible for the articulation of thejoints, tendons and muscles.
- Bone and lower abdomen is considered to be the place for vadham.
- Santhiga kabam is said to be the phenomenon which is responsible for the normal maintenance of synovial fluid.
- Synovial fluid provides nutrition for the articular cartilages, disc, meniscus and there by avoids friction of the bones and erosion of the bones, it helps the smootharticulation.

- In Uthiravadha suronitham due to factors related to diet, habit, environment etc, adversely influence of vali and azhal mainly in mukkutram.
- The involvement of viyanavayu and abanavayu plays a major role in the manifestations of signs & symptoms. Viyana is responsible for all the motor and sensory functions of the body and the nutrition of tissues.
- Abananvayu is responsible for the assimilation of the nutritional factors from the gastro intestinal tract distribution between various thathus and expulsion of waste product through faeces, urination etc...

**AZHAL:**

- The azhal is responsible for the healthy maintenance of every tissue of the body and its variation results in inflammatory changes in the bone and other accessory structures like tendons, cartilage and synovial membrane which helps in perfect articulation of joints.

**IYAM :**

- The deterioration of iya humour leads to structural changes in the bones and the fluids in the joints which are mainly controlled by the factors of santhigam.
- Disturbance in humours it produces different clinical manifestations. They Include,

- Swelling of the joints, Pain
- Stiffness
- Restricted movements of the joints due to disturbed vali.
- Inflammatory changes of the joints like redness hyperaemia, and warmness due to disturbed azhal and erosion of bone margin, increased synovial fluid due to disturbed iyam.
- The tridosha phenomenon and the functioning of the joints.

**“வளிமிகு வபான வியான வாயுகளதிகரிக்கும்**

**இளமிகு மலனீர்க் கட்டும் இயம்பிய வபானன் செய்யும்**

**வளிவிலா வியானன் கீலின்விளங்குறு புழைகபோறும்**

**ஒளியுறு குற்றமெல்லா மொன்றிலென்று லவச்செய்யும்”**

- சபாபதி கையேடு (சித்த மருத்துவம், பக்கம் 603)

**UYIRTHAATHUKKAL:**

These are the fundamentals and essential factors in the composition and constitution of the human body.

- Vaatham(vali)
- Pitham(azhal)
- Kabam(iyyam)

**PINIYARI MURAIMAI (DIAGNOSIS):**

The methodology of diagnosing in siddha science is very unique and solely based on the clinical acumen of the physician. It is based on the three main principles,

- PORIYAL THERTHAL
- PULANAL THERTHAL
- VINATHAL

1. **PORIYAL THERTHAL:**

   Pori means sense of perception. Poriyal therthal understands by the five sense organs such as nose, tongue, eyes, skin, and ear.

2. **PULANAL THERTHAL:**

   Pulan means objects of senses. Pulanal therthal understands by the sense objects.

   1. Smell (Manam)
   2. Taste (suvai)
   3. Vision (oli)
   4. Somatic sense (ooru)
   5. Sound (oosai)

In both of the above said methods, physician, pori and pulan are used as tools for examine the pori and pulan of the patients.

3. **VINATHAL:**

Vinathal is the process of obtaining the detailed history of the disease by interrogation the patient. By this gathering the history of disease, complaints, and duration, personal history, family history, clinical features, where an accurate history, is available, a disease can be easily diagnosed ever before clinical examinations carried out. It is the focal point of the "physician –patient" relationship and established the bonding necessary for patient cure.

The classified method of clinical examinations is known as ENVAGAI THERVU, Siddhars have devolved a unique method of diagnosing the diseases by "ENVAGAI THERVU" eight basic diagnostic parameters namely,

1. Sparism
2. Naa
3. Niram
4. Mozhi
5. Vizhi
6. Malam
7. Moothiram
8. Naadi

**NAADI NADAI IN UTHIRA VATHA SURONITHAM:**

Naadi diagnosis is the confirmatory diagnosis, Naadi is the inherent seat anchor of energy on which vibration the entire thathus of the body are functioning.

1. **Vathakapham**
2. **Kaphavatham.**

**வாத கபம்**

**"பாங்கான வாதத்தில் சேத்தும நாடி**

**பரிசித்தாற் திமிர்மேவு முளைச்சலாகுந்**

.....

**.....வெகு நோய்க்கு முறுதி தானே"**

**கப வாதம்**

**"கண்டாயோ சிலேற்பனத்தில் வாத நாடி**

**கலந்திடுகில் வயிறு பொருமல் கனத்த வீக்கம்**

**.....**

**.....பலவும் வந்து சிக்குந்தானே"**

**DERANGEMENTS OF VATHAM IN UTHIRAVATHASURONITHAM:**

**ABHANAN:** Constipation, Polyuria, Menstrual disturbance

**VIYANAN:** Pain and tenderness in the affected joints

**SAMANAN:** Affected due to the derangements

**KOORMAN:** Extra articular features

**KIRUKIRAN:** Loss of appetite

**DERANGEMENTS OF PITHAM IN UTHIRAVATHASURONITHAM**

**ANALAGAM:** Loss of appetite

**RANJAGAM:** Anaemia

**SAADHAGAM:** Disturbance in regular activities

**AALOSAGAM:** Disturbance in vision

**PRASAGAM:** Redness

**DERANGEMENTS OF KABHAM IN UTHIRAVATHASURONITHAM**

**AVALAMBAGAM:** Dyspnoea (due to anaemia)

**KILEDHAGAM:** Loss of appetite

**SANDHIGAM:** Restriction of joint movements

**UDALTHATHUKKAL:**

In uthiravathasuronitham cases,

Saaram

Seneer

Oon

Kozhuppu

Enbu

Moolai

Are the most affected

**GNANENDHIRIYAM:**

In uthiravathasuronitham cases,

**MEI:** Pain

**KAN:** Disturbances of vision

**KANMENDHIRIYAM**

In uthiravathasuronitham cases,

**KAI:** Difficulty to use the upper limbs

**KAAL:** Difficulty to use the lower limbs

**ERUVAI:** Constipation in some cases

**KARUVAI:** Irregular menstrual cycle in some cases

**PININEEKAM:**

Siddha system of medicine is a unique system of medicine in which treatment is given both for the body and mind. Thiruvalluvar in his thirukural under the heading "MARUNDHU" mentions about the diseases and its prevention, they are, So in Siddha system, treatment is not only for the removal of diseases, but for prevention and improving the body condition-Rejuvenation.

1. **Prevention**
2. **Treatment-curative**
3. **Restoration-promotive**

**1.PREVENTION:**

It is very much, essential and stressed in all siddha literature. Body and mind should be very clean and free from evil thoughts and deeds.

**2.TREATMENT:**

A Good physician should know about the derangements of humours and should treat the patients on the basis of altered humours.

**Treatment is based on,**

To bring the tridosham tonormal

To treat the disease according to its symptoms through medicines, To increase the natural immunity

To normalize the tridosham,

**"விரேசனத்தால் வாதம் தாழும்"**

Vatha disease can be brought down by vireasanam(purgation),by giving the laxatives and purgatives according to the patient conditions, Four requisites of successful treatment are explained by **"THIRUVALLUVAR"**

**"உற்றவன் தீர்ப்பான் மருந்துழைவச் செல்வானென்**

**றப்பனாற் கூற்றே மருந்து**".

**3.RESTORATION**

- Reassurance is given to all the patients for fast recovery
- Not to be anxious
- Not to be depressive
- Avoid exposure to cold
- Avoid excessive workload

To advice the patients to do asanas regularly

**MANEGEMENT OFUTHIRAVATHASURONITHAM:**

The treatment of siddha medicine is aimed at keeping the three humours in equilibrium and maintenance of seven elements. So proper diet, medicine and disciplined regimen of life are advised for the healthy living and to restore equilibrium of humours in diseased condition.

- **INTERNAL MEDICINE: RAJALOGA NAATHARASA PARPAM**
  60mg with ghee twice daily, after food for the period of 21 days.
- **EXTERNAL MEDICINE: PARUTHI THYLAM**
- **MARIKOZHUNTHU OTTRADAM (THERAPY)**

## REVIEW OF LITERATURE – 3.2. MODERN ASPECT JOINT

A joint, also called an articulation, is any place where adjacent bones or bone and cartilage come together (articulate with each other) to form a connection.

Joints are mainly classified structurally and functionally. Structural classification is determined by how the bones connect to each other, while functional classification is determined by the degree of movement between the articulating bones.

Structural joints are,

1.SYNOVIAL JOINT - the articulating surfaces of the bones are not directly connected, but instead come into contact with each other within a joint cavity that is filled with a lubricating fluid .This joint allow for free movement between the bones and are the most common joints of the body.

2.FIBROUS JOINT - is where the adjacent bones are united by fibrous connective tissue.

3.CARTILAGINOUS JOINT – the bones joined by hyaline cartilage or fibro cartilage.

Functionally classified are,

1.Diarthrodial or synovial joint – which articulate with free movement, have a synovial membrane lining the joint cavity and contain synovial fluid

2.Amphiarthroses – in which adjacent bones are separated by articular cartilage or a fibrocartilage disc and bound by firm ligaments permited motion .

3.Immovable or synarthroses – which are found only in the skull, where thin fibrous tissue separates adjoining cranial plates that interlock to prevent detectable motion before the end of normal growth, yet permit growth in childhood and adolescence.

Synarthroses (solid joints) are commonly grouped according to the principle type of interosseous connective tissue into fibrous joint and cartilaginous joints.

Disarthrosis (cavitated joints) between the ends of other circumscribed surface of endochondrial bones.

Most of the diseases of joints affect diarthrodial or synovial joints. In diarthrodial joints, the ends of two bones are held together by joint capsule with ligaments and tendons inserted at the outer surface of the capsule. The joint space is lined by synovial membrane or synovium which forms synovial fluid that lubricates the joint during movement.

There basic structures of synovial joints are followed,

**1. Capsule**- It is made of tough membrane enclosing the joint. It connects the bone and holding them firmly inplace.

**2.Articularcartilage**- It is composed of collagen and proteoglycans and 65.80% water which forms the cartilage matrix. And it is covering the end of the bones, absorbing the shock while providing as lick surface so that the bone end scan easily glide across each other during movement.

**3. Synovium**-It secretes the synovial fluid to lubricate and nourish the cartilage.

**4. Muscles**-It act as a shock absorber and contracts to provide a movement.

**5. Ligaments**- It attaches bone to bone and provide stability.

**6. Tendons**- It attaches muscles to bones and acts as a secondary joint stabilizer and also allow for free movements.

**7. Bursae**- It is sac like cavity situated in places in tissues to facilitate the gliding of muscles or tendons over bony or ligamentous surfaces and protecting them against friction, wear and tear.

**CLASSIFICATION OF SYNOVIAL JOINTS:**

1.Plane joints
2.Hinge joints
3.Pivot joints
4.Bicondylar
5.Ellipsoid joints
6.Saddle joints
7.Ball and socket joints

**Syndesmosis:**

The articulating bones are kept at a distance but united by a strong ligaments.e.gvertebral arches, coracoids process and clavicle.

**Nerve supply**:

The sources of nerve fibers to a joint conform well to Hilton's law- the nerves to the muscles acting on a joint as well as to the skin over the area of action of these muscles. The capsule and ligaments receive an abundant sensory nerve supply.

**Blood supply**.

The articular and epiphyseal branches of neighboring arteries form a periarticular arterial plexes. The articular capsule is highly innervated but avascular (lacking blood and lymph vessels), and receives nutrition from the surrounding blood supply. The synovial membrane is highly vascular and lymphatic.

**Diseases of joints and their classification**:

**1.Infectivearthritis**:

Bacterial, viral and parasite

a. Acute infection:

- Acute pyogenic arthritis
- Acute gonococcal arthritis
- Acute rheumatic arthritis
- Small pox arthritis

b. Chronicinfection:

- Non-specific: Pyogenic arthritis
- Specific: Tuberculous arthritis, syphilitic arthritis, gonococcal arthritis
- Parasitic: Guinea worm arthritis

**2.Rheumatoidarthropathy**

- Rheumatoid arthritis
- Ankylosing spondylitis
- Reiter's disease

- Psoriatic arthritis
- nteropathic arthritis
- Juvenile rheumatoid arthritis
- Sero negative spondylo arthropathy

**3.Degenerative arthrosis (orteoarthritis)**

- Primary orteoarthritis
- Secondary orteoarthritis

**4.Neuropathicarthrosis**

- Charcot's arthropathy
- Syringo myelia
- Leprosy
- Diabetes mellitus

**5. Metabolicarthritis**

- Gout
- Pseudo-gout
- Alkaptonuric arthritis

**6. Arthritis in systemdisorders**

- Haemophilic arthritis
- Reactive arthritis

**7. Miscellaneousconditions**

- Villonodular synovitis
- Synovial chondromatosis

**8.Hystericaljoints.**

Arthritis is a generic term for inflammatory joint disease. With the involvement of synovium, articular surfaces and capsule. The inflammation may be such a severity as to destroy the joint cartilage.

# RHEUMATOID ARTHRITIS:

It is generalized chronic multi system disease affecting the connective tissues of the whole body with focalized involvement of musculoskeletal system. Though the most prominent manifestation of RA is inflammatory arthritis of the peripheral joints usually with symmetrical distribution followed by pain, swelling, stiffness, of the joints especially involving joints of hands, wrists and feet and later on spread to the proximal joints such as the knee, hips, elbow, shoulder. It is considered to be an auto immune response to an unknown antigen and the anti body formed is the rheumatoid factor which is identified as **immunoglobulinM** autoantibody is directed against the Fc portion of **IgG** antibodies.

**Epidemiology of Rheumatoid arthritis:**

RA is a common chronic disease that affects about 1% of the world population. The prevalence of RA in the United States based on rates of RA from 1995 minnesota study and 2005 census data is currently estimated at approximately 1.3 million people or 0.6% of the population according to current census data. In India the prevalence of the disease 0.75% projected to the whole population, this would give a total of about seven million patients in India.

The diseases is 3-5 times highly preponderance in females than in males. The disease can begin at any age and even affects children (juvenile idiopathic arthritis), but it most often starts after 40 years of age and before 60 years of age. The courses and severity of the illness can vary considerably. Around 80% moderately to severely disable within 20 years, around 40%of RA patients registered disabled within 3 years and 25%will require a large joint replacement. The risk of RA may be highest when people with these genes HLA DR1, DR4 and MHC class 2 familial aggregation. Cigarette smoking increases a person’s risk of developing RA and can make the disease worse.

Women who have never given birth may be at greater risk of developing RA. Obesity also increase the risk of developing RA. But the women who have breast feed their infants have a decreased risk of developing RA.

## ETIOLOGY

No single factor had been identified to data

1. Host genetic factor
2. Immuno regulatory abnormalities and auto immunity
3. A triggering or persisting microbial infection

**Genetic factor**

- Evidence for the importance of genetic susceptibility comes from higher concordance rates in monozygotic (12 – 15%) than in dizygotic twins (30%).
- Severe Rheumatoid Arthritis is found at approximately 4 times the expected rate in first degree relatives of individuals with disease associated with the presence of the auto antibody, rheumatoid factor.
- One of the major genetic factors in the aetiology of Rheumatoid Arthritis is the class II major his to compatibility complex (MHC) gene product HLA-DR4.
- HLA-DR4 is the major susceptibility halotype in most ethnic groups, DR1 is more important in Indian and Israelis DW15 in Japanese.
- Genetic factor influence both susceptibility and severity with DR4 positivity more common in those with severe erosive disease.

**Environmental factors**

**1.Infectious agent**

- It has been suggested that Rheumatoid Arthritis might be a manifestation of the response to an infectious agent in a genetically susceptible host.
- The organism that have been implicated are Epstein- Bar virus, cytomegalo virus, parvo virus, rubella virus and mycoplasma.
- The microorganism or response to microorganism might induce an immune response to components of the joints by altering its integrity and revealing antigenic peptides.
- Another possibility is that the infecting microorganism might prime the host to cross – reactive determinants expressed with in the joint as a result of “molecular mimicry”.

- Super antigens are proteins with the capacity bind to HLA – DR molecules and patients Vβ gene products and stimulate specific T-cell expressing the Vβ gene products. "Super antigens" produced by a number microorganism including Staphylococci, Streptococci and M.arthritidis. The sole of super antigens in the etiology of Rheumatoid Arthritis remains speculative.
- Recently scientists have reported that smoking tobacco increases the risk of developing rheumatoid arthritis.

**2.Trauma**

Many patients have mentioned traumatic incidents as a precipitating cause.

**3.Psychological Stress**

The study of identical twins in one of whom rheumatoid arthritis developed tends to support this concept.

**4.Vascular Changes**

Alteration of the normal, peripheral vascular bed perhaps by autonomic influence has been suggested as the primary abnormality.

**5. Neurogenic**

Neuropeptides can cause inflammation. Reflex sympathetic areas through the spinal cord could account for the contralateral distribution. Rheumatoid Arthritis affects the non – paralysed side much more severely in a hemiplegic patient.

# PATHOLOGY

Pathology of Rheumatoid Arthritis is divided in two major parts.

I. Pathology of joint and tendons

II. Pathology of extra articular tissues

## I.PATHOLOGY OF JOINT AND TENDONS

It can be explained in three stages.

1.Synovitis

2.Destruction

3.Deformity

### 1.SYNOVITIS

In this stage the following early changes are seen:

- Vascular congestion
- Proliferation of synoviocytes
- Infiltration of synovial layers by polymorphus, lymphocytes, plasma cells.
- Thickening of capsular structure
- Villous formation of synovium
- Cell-rich effusion into joints and tendon sheaths

Though this stage was painful, swollen and tender, their structures are still intact and mobile. So, these disorders are reversible potentially.

### 2. DESTRUCTION:

**Articular cartilage:**

Articular cartilage is eroded partly by proteolytic enzymes and partly by vascular tissue in folds of synovial reflection.

Direct invasion of cartilage by pannus of granulation tissue creeping over particular surfaces.

**Margins of joints:**

Bone is eroded by granulation tissue invasion and osteoclastic resorption. In recent thoughts there is Synovial Hyperplasia rather than inflammation.

**Tendons:**

Tenosynovitis

Invasion of collagen bundles

Partial or complete rupture of tendons

**Other changes:**

Synovial effusion-contains copious amount of fibrinoid materials that produces swelling of joints, tendons and bursae.

**3.DEFORMITY**

In this stage, combination of articular destruction, capsular stretching and tendon rupture that produces instability and then deformity.

By this time, inflammation process may have subsided.

The emphasis may be on the mechanical and functional effects of joint and tendons disruptions.

**II. PATHOLOGY OF EXTRA ARTICULAR TISSUES**

Inflammatory reactions

Collagen bundles are disturbed

↓

Hyperaemia devolps

↓

Aggregation of leucocytes into joint space

↓

Leucocytes organised in to granulation tissue

↓

Granulation tissues matures and to form granular pannus

↓

Granular pannus produce one enzymes called lysozymes

↓

Lysozyme enzymes destroy the articular & peri-articular cartilage

↓

The process is end with Ankylosis.

- Rheumatoid nodule
- Lymphadenopathy, splenomegaly
- Vasculitis
- Muscle weakness
- In the sclera
- Visceral disease

Rheumatoid nodule is a small granulomatous lesion consisting of central necrotic zone, surrounded by a radially disposed palisade of local histocytes and beyond that by inflammatory granulation tissues.

Nodule occur,

- Under the skin especially over subcutaneous of bony prominence,
- In the synovium
- on the tendons
- In many of the viscera

## AUTOIMMUNITY

The antigens are the substance, which induce specific immune reactions in the body.

**Types**

1. Auto antigens - the antigens present on the body's own cells like 'A' antigen and 'B' antigen on the RBC's.

2. Foreign antigens - the antigens entering the body from outside.

**Antibodies**

Antibodies or immunoglobulins (Ig) are produced by plasma cells in response to the presence of antigens.

Immunoglobulins are circulating antibodies synthesized in B lymphocytes and plasma cells in response to the invasion of foreign compounds.

**Classes and Subclasses**

There are five major classes of immunoglobulins present in humans.

They are IgG, IgA, IgM, IgD and IgE.

The differentiation of the classes is based on their molecular weight, structure, electrophoretic mobility, ultra centrifugal properties and immunological properties. IgG and IgA are further subdivided into subclasses such as $G_1$,$G_2$ and $G_3$ for IgG and $A_1$ and $A_2$ for IgA.

**Auto immune disease**

Normally the body has the tolerance against the self antigen .

However, in some occasions, the tolerance fails or becomes incomplete against the self antigen. This state is called auto immunity.

**Types**

- Organ Specific
- Organ non specific or multi systemic diseases

Rheumatoid Arthritis was classified as an autoimmune disease, following the discovery of IgM Rheumatoid factor in the blood of the patients.

The Rheumatoid factor – secreting plasma cells have been demonstrated in the Rheumatoid synovium. Other auto antibodies that occur in the rheumatoid arthritis patients include natural antibodies, anti nuclear antibodies, anti collegen antibodies, anti keratin antibodies and an IgG perinuclear factor. They are considered as associated with the disease process but not directly involved in the pathogenesis.

Another set antibodies identified in Rheumatoid Arthritis patients are directed against antigens present on cartilage such as collagen type II, IX and XI and chondrocyte – specific antigens. The popular hypothesis for induction of autoimmunity is that of "antigenic mimicry".

**CLINICAL FEATURES:**

- Morning stiffness is very characteristics sign of rheumatoid arthritis.
- It usually involves small joints of the hands and feet and then symmetrically affects the joints of wrists, elbows, ankles andknees.
- The proximal inter phalangeal and metacarpo phalangeal joints are affected most severely.
- It is a chronic disease with periodic acute exacerbations andremissions.
- Bilateral symmetric polyarthritis is also a characteristicfeature.
- There is joint line tenderness and the movements are painful and limited.

## HISTOPATHOLOGY

### SYNOVIUM:

The synovium serves as an important source of nutrients for cartilage. Since cartilage itself is avascular.

Synovial cells synthesis joint lubricates such as,

Hyaluronicacid

Collagens Fibronectin

1.Synovial lining or intimal layer-greatlyhypertrophied

2.Sub intimal area of synovium-the sub intimal area is heavily infiltered with inflammatory cells, including T and B lymphocytes, macrophages, mast cells, and mononuclear cells that differentiate into multinucleated osteoclasts.

3. Cartilage:-In RA , type II collagen, proteoglycans its integrity, resilience and water content all are impaired.

### BONE:

**Composed, primarilyoftypeIcollagen, bonydestructionisacharacteristics ofRA**

**Hand and wrist deformity:**

Rheumatoid nodules are particularly found in the subcutaneous tissue over the pressure points such as elbow hand, occiput, sacrum .The centre of these nodules consists of an area of fibrinoid necrosis and cellular debris surrounded by radially dispersed palisade of local histiocytes.

- Ulnardrift
- Intrinsic plus deformity
- Boutonniere or button hole deformity
- Swan neck deformity
- Elbow flexion deformity
- Z deformity orhitch
- Morrants bakers cyst
- Trigger finger

**CHART NO.3.1 : DEFORMITIES OF RA**

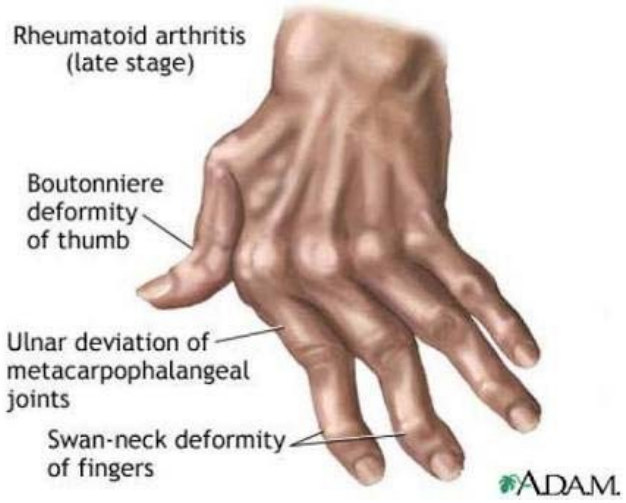
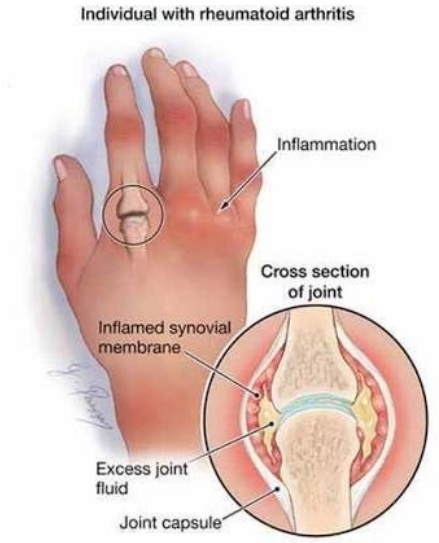



**CHART NO. 3.2 : PAIN AND SWELLING IN MCP JOINTS**

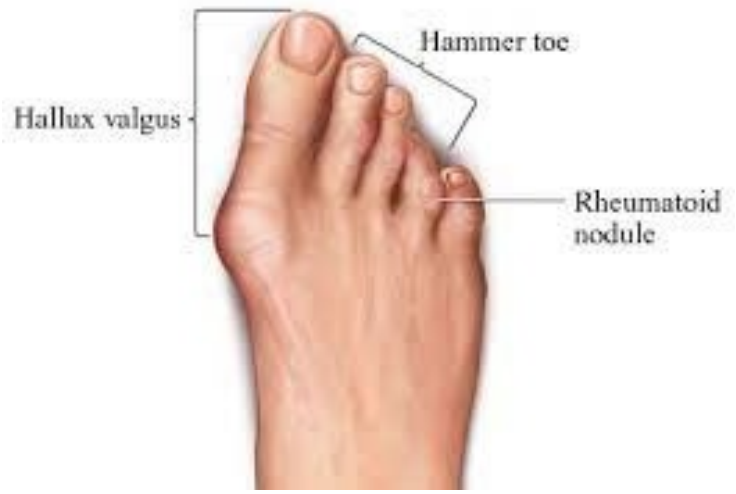



**Ankle and toe's deformity:**

- Atrophy of plantar metatarsal fatpad
- Achillestendinitis
- Clawtoes
- Calcanealerosions
- Callosity underpressure

- Bunion
- Hallusvalgus
- Hammertoes
- Plantarcallosity
- Excessive plantar tilt of metatarsals
- Flattening of longitudinalarch
- Prominent meta tarsalhead
- Over riding of 2 and3toes

**CHART NO.3.3: DEFORMITIES OF RA**




Non specific inflammatory changes are seen in the blood vessels (acute vasculitis), lungs pleura, pericardium, myocardium, lymphnodes, peripheral nerves and eyes.

The combination of bone deformity and swallon inflammatory tissue can pries on the spinal cord, leading to ischeamia and wide spread neurological consequences affecting all four limbs, bowel ,bladder function , or the respiratory muscles and centres in the brain stem that control respiration, potentially resulting in death.

**Extra articular manifestation:**

**Skin:**

- Palmar erythema
- Pyoderma gangrenosum
- Hyperhidrosis in extremities
- Raynaud'sphenomenon
- Painless non-tender sub cutaneous nodules
- Non healing ulcers in the fingers
- Vasculitis of nail beds and tip of the finger

**Eyes:**

- Scleritis due to the granuloma formation
- Sclero malacia perforans
- Aneamia
- Cornea band keratopathy

Ineffective production of erythropoiesis and the RBC is reduced due to the production of hemosiderin in the reticulo endothelial system.

**Respiratory system:**

- Recurrent pleural effusion
- Intersitial fibrosis
- Caplan's syndrome
- Crico arytenoid arthritis is seen–dyspnoea, stridor.
- Pneumonia
- Pneumothorax

**Cardio vascular system:**

- Pericarditis
- Aortic regurgitation and conductiondefect.
- Myocardial infarction (due to coronary vasculitis)
- Endocarditis

**Nervous system:**

- Symmetrical polyneuropathy
- Carpel tunnel syndrome
- Tarsal tunnel syndrome
- Wrist drop
- Foot drop

**Orthopaedics:**

- Juxta articular osteoporosis is seen
- Osteo malacia

**Sjogren's syndrome:**

- Xerostomia
- Kerato conjunctivitis in association with connective tissue disorder.

**Felty 's syndrome:**

- Rheumatoid arthritis
- Spleenomegaly
- Leucopenia

**Gastrointestinal system:**

- Dysphagia
- Parotid enlargement

**Muscles:**

- Myopathy (steroid, chloroquine)
- Tenosynovitis
- Weakness andatrophy

**Rheumatoid vasculitis:**

- Mono neuritis multiplex
- Cutaneous ulceration
- Visceral infarction

**Still's disease:**

RA is occurring in children it is characterized by mono or poly arthritis, fever, maculapapular rash, hepatosplenomegaly, lymphadenopathy, leucocytosis. The joint deformity is rare but growth retardation ispresent.

**DIAGNOSIS:**

The essential criteria laid down by the American Rheumatism Association (ARA) for the diagnosis of RA are as follows;

1. Morning stiffness more than 1hour
2. Arthritis of three or more joints areas observed by physician simultaneously have soft tissue swelling or joint effusion not just bony over growth.
3. Arthritis of hand joints: Wrist, metacarpo phalangeal joints, proximal interphalangeal joints.
4. Symmetric arthritis
5. Rheumatoid nodules: Subcutaneous nodules over bony prominences, extens or surfaces, or juxta articular surfaces observed byphysician.
6. Serum rheumatoid factor demonstration by any method for which the result has been positive in less than 5% of normal control subjects.
7. Radio graphic changes: Typical changes of RA on postero anterior band and wrist radiographs which will show erosions or unequivocal bony decalcification localized in or most marked adjacent to the involved joints.

**DIFFERENTIAL DIAGNOSIS:**

- Ankylosing spondylitis
- Systemic lupus erythematosus
- Reiter's disease
- Osteoarthritis
- Gout and pseudo-gout
- Tuberculous arthritis
- Pyogenic arthritis
- Psoriatic arthritis
- Gonorrheal arthritis

- Haemophilic arthritis

**LABORATORY INVESTIGATION**

1.Complete blood count:

- Aneamia
- Thrombocytosis
- Increased ESR

2. Increased acute phase proteins (CRP)

3. Increased plasma visciosity

4. Serum protreins

- Decreased albumin
- Increased gamma globulins

5. Increased IgG, IgM, IgA Serological tests:

Rheumatoid factor-It is detected IgM by,

Rose Waaler test- It is more specific and is said to be positive when more than1:32

Latex test: It is sensitive and less specific and said to be positive when more than1:20.

6. Synovial fluid analysis:

- Turbidity
- Reduced viscosity
- Increased proteins
- Normal or decrease glucose concentration
- Increased polymorph count

7. Synovial biopsy and histological examination

8. Arthroscopic examinations to evaluate damage to articular cartilage.

9. Antinuclear antibodies are positive in 20 to50%.

10. Antibodies to CCP (cyclic citrullinated polypeptide). This test has similar sensitivity and better specificity for RA.

11. Radiological features of early RA

- Soft tissue swelling
- Periarticular osteopenia
- Periosteitis

Erosions-periarticular and articular Later:

- Narrowed joint spaces is caused by loss of cartilage
- Juxta –articular erosion
- Articular surface irregularity
- Subluxation
- Large cystic erosions of bone
- Ankylosis

Ultrasound and MRI imaging has improved the sensitivity of detecting joint damage earlier in diseases.

Ultrasound may detect synovitis, effusions, and erosions, in addition to Doppler providing estimates of ongoinginflammation.

MRI may show inflammatory synovitis that enhances with Gadolinium and shows early erosions.

Arthroscopy-Synovium oedematous, diffusely erythematous, and friable and later the synovium becomes thickened.

Computerised tomography

Scintigraphy.

Renal biopsy-reduced tubular or glomerular filteration rate.

Pulmonary biopsy-to distinguish rheumatoid nodules from carcinoma or to find out the diagnosis of fibrosing alveolitis.

**MANAGEMENT**

The treatment of this chronic crippling condition needs the team work of rheumatologist, ortho-paedic surgeon, physiotherapist, occupational therapist and social worker to provide comprehensive management. The patient and his relatives must understand the condition fully and be well motivated to cooperate with the treatment which has to be prolonged.

The aim of the treatment is to

- Relieve pain
- Keep the inflammatory process down to aminimum,
- Preserve joint motion
- Maintain the tone of muscles,
- Prevent deformities and stiffness of joint,
- Correct deformities

**General treatment**

It is important to correct anaemia by haematinics and even blood transfusion may be neccessary. A nutritious diet with a high intake of vitaminc is very essential for these patients.

**Conservative Treatment**

The inflamed joint is kept at absolute rest by splinting the joint in the position of function. Physiotherapy is given during the acute phase. Active joint mobilization and muscle strenthening exercise are also prescribed.

**Drug Therapy**

The drug used are as follows:

- Non-steroidal anti-inflammatory drug
- Disease modifying anti rheumatoid drug
- Steroids
- Cytotoxic drug
- Newer drug

**Sugical Treatment:**

- The role of surgery is mainly reconstructive orrehabilitative.
- Synovectomy
- Osteotomy
- Arthroplasty
- Excision arthroplasty
- Replacement arthoplasty

**Foods that may worsen RA symptoms:**

Red meat – contain high level of saturated fat and omega – 6 fatty acids which can exacerbate inflammation.

Sugarandre fined flour: Sugary snacks and drinks, white flour bread and pasta, white rice.

Fried foods and gluten, a protein found in grains such as wheat, rye and barley and alchohol.

# 3.3.DRUG REVIEW

## INTERNAL MEDICINE

## 1.HYDRAGYRUM:

Mercury is a heavy silver metallic element that exists as a liquid at room temperature.

**ATOMIC SYMBOL :** Hg

**ATOMIC NUMBER :** 80

**ATOMICWEIGHT :** 200.592g/ml

**ODOUR :** Odourless

**BOILING POINT :** 356.7$^{O}$C

**MELTING POINT :** -38.83$^{O}$C

**SOLUBILITY :** Insoluble

**DENSITY :**13.55 at 68◦F

**BLOCK-d-block**

- Mercury occurs in deposits throughout the world mostly as cinnabar(mercuric sulphide),
- The red pigment vermilion is obtained by grinding natural cinnabar or synthetic mercuric sulphide.
- Mercury does not react with most acids, such as dilute sulphuric acid and it reacts with solid sulphur flakes, which are used in mercury spill kits to absorb mercury.

**Amalgams:**

- Mercury dissolves many other metals such as gold and silver to form amalgams.
- Mercury readily combines with aluminium to form a mercury-aluminium amalgam. Mercury can be absorbed through the skin and mucous membrane and mercury vapors can be inhaled, so containers of mercury are securely sealed to avoid spills and evaporation.

- The tobacco plant readily absorbs and accumulates heavy metals such as mercury from the surrounding soil into itsleaves.

**Effects of mercury poisoning:**

Symptoms typically include sensory impairment,disturbed sensation and a lack of coordination

இரசம்

இலிங்கத்திலிருந்து பிரித்தெடுக்கப்படுகின்றது. இதிலிருந்து எடுக்கப்படுகின்ற வாலைரசம், தூய்மையானதாயும் உட்கொள்ளுதற்குச் சிறந்ததாயும் கருதப்படுகிறது.

**வேறு பெயர்:**

- சூரியவிரோதி
- பக்கிரம்
- ஈசன்
- விண்மருந்து
- பாரதம்
- பதினெண்பந்தி
- சிந்தூரம்

**செய்கை:**

- வீக்கமுருக்கி
- உடல்தேற்றி
- உடலுரமாக்கி
- மலம்போக்கி

**பொதுகுணம்:**

"விழிநோய் கிரந்திகுன்மம் மெய்ச்சூலை புண்குட்
டழிகாலில் விந்துவினால் அத்தை - வழியாய்
புரியு விதி யாது புரியினோ யெல்லாம்
இரியுவிதி யாது மில்லை".

இரசத்தின் பிரிவுகள் - 5

1. இரசம்
2. இரசேந்திரன்
3. சூதம்
4. மிசரகம்
5. பாரதம்

சுவை : அறுசுவை

தன்மை : தட்பம், வெப்பம்

பிரிவு : துணைமருந்தின் பிரிவை அடையும்

## 2.SULPHUR:

- Sulphur is a chemical element with symbol of "S" and atomic number16.
- It is an abundant multivalent non–metal
- Sulphur is the third most abundant mineral in the body about half concentrated in our muscles, skin, and bones and is essential forlife.
- It is widely distributed in close proximity to hot springs andvolcanoes.
- It is an essential nutrient and therefore cannot be synthesized by the human body and instead must be obtained from thediet.
- Sulphur is not present as an isolated element in the body, the primary placement of sulphur in the human body is in the sulphur containing amino acids.(SSA)

- Methionine , cysteine, and taurine are the sulphur containing amino acids.
- The human body composed of 0.2-0.3% sulphur
- Sulphur is the sixth most abundant macro-mineral in human breast milk.
- Generally, proteins contain about 1% sulphur by weigh.

**Physical properties:**

**Color:** Pale yello ,non metallic

**Phase :** Solid

**Crystalline structure &forms:** Rhombic, Amorphous and prismatic

**Odour:** Odourless

**Taste:** Tasteless

**Solubility:** Insoluble in water

**Boiling point:** 444.6

**Conductivity:** A poor conductor of heat and electricity.

**Viscosity:** Upon melting, sulphur is converted into a mobile Yellow liquid

**Chemical properties:**

**Chemical formula**: **S**

**Compounds**: Hydrogen sulphide, sodium sulphide

**Oxidation** : Sulphur dioxide, sulphur trioxide

**Reactivity**: It is a chemically reactive especially upon heating, sulphur reacts with meals.

**Bio chemical functions:**

- Cellular energyproduction&metabolism.
- Maintainingblood glucose levels.
- Protects nerve tissue-Synthesis neurotransmitters,improvesmemory
- Antioxidant protection-scavenges or neutralizes free radicals and recycles oxidized Anti oxidant.
- **Blood flow:** Produces both blood clotting factors as well as anti coagulant.

- **Joint health:**
  Production of glycosamineglycan's( GAGS)
  Chondroitin sulphate and hyaluronic acid
- **Detoxification:** By means of conjugation and chelation
- **Digestion:** Production of hydrochloricacid
- Regulation of DNA replication and transcription
- Formation of skin hair and nails.

**Proper immune response:**

Enhancing proliferation of lymphocytes, cytotoxic T cell and NK Cells.

**Supports healthy lipoprotein balance:** Cholesterol, HDL, LDL

**Lungs:** Protects against mucous formation in lungs.

**Eyes:** Decrease cataract development.

**Dietary requirements and sources:**

There are no specific dietary requirements for sulphur. Adequate intake of sulphur containing essential amino acid methionine will meets the body needs. Food proteins rich in methionine and cystiene are the sources of sulphur.

**Metabolism of sulphur:**

- Sulphur is metabolized by all organisms, from bacteria plants and animals.
- Sulphur is reduced or oxidized by organisms in a variety forms.
- The element is present in proteins, nucleic acid, sulfates, esters of polysacchrides, steroids, phenols, sulphur containing co-enzymes.

**Role of sulphur in Rheumatoid arthritis:**

- Sulfasalazine is a drug used in the treatment of rheumatoid arthritis and some other auto immuneconditions.
- It helps with pain and swelling and also slow the progression of arthritis over time.

- Sulfasalazine is also known as a disease modifying anti rheumatic drug (DMARDs), because it not only decrease the pain and swelling of arthritis,but also prevent damage to joints.
- It may reduce the risk of long term loss offunction.

**கந்தகம்:**

- 64 பாடாணங்களில் ஒன்று

வேறு பெயர்:

- காரிழையின் நாதம்
- பரைவீரியம்
- செல்விவிந்து
- தேவியுரம்
- செந்தூரதாதி
- சக்திபீஜம்
- இரசசுரோணிதம்
- பொன்வர்னி
- அதீதபிரகாசம்
- பீஜம்

வகைகள்

- பிறப்புகந்தகம்
- வைப்புகந்தகம்
- வாணகெந்தி
- கோழிதலைகெந்தி

சுவை

- கைப்பு
- துவர்ப்பு

செய்கை

- உடல்தேற்றி

- வியர்வைபெருக்கி
- மலமிளக்கி
- கிருமிநாசினி
- பித்தனீர்பெருக்கி

பேதம்

- வெண்மை - எல்லா நோய்களையும் தீர்க்கும்
- பொன்மை - குற்றமற்றது. சூதகத்துடன் உறவாகிநிற்பது
- கிளிமூக்குச்சிவப்பு - நவலோகத்தை ஏமம்மக்கும்
- காகம் - நரைதிரை அற்றுபோம்.

பொதுகுணம்:

நெல்லிக்காய்க் கந்திக்கு நீள்பதினெண் குட்டமந்தம்
வல்லை கவிசைகுன்மம் வாயுகண்ணோய் - பொல்லா
விடக்கடிவன் மேகநோய் வீறுசுரம் பேதி
திடக்கிரக ணீகபம்போந் தேர்.

சிறப்பு:

"செந்தூரத் தனக்காதி சிலை கெந்தி தாளகமும்"
செந்தூரம் செய்வதற்குக் கந்தகம் உபயோகம் ஆகும்.

## 3.பலகறை

வேறு பெயர் : கவடி, சோகி, வராடி

KINGDOM : Animalia
PHYLUM : Mollusca
CLASS : Gastropoda
ORDER : Littorinimorpha
SUPERFAMILY : Cypraeoidea
FAMILY : Cypraeidae
GENUS : Cypraea

SPECIES : C.moneta

SCIENTIFIC NAME :*Cypraeamoneta*

ENGLISH NAME : Marine shell

CHEMICAL CONSTITUENTS: Protein component

ACTION: Febrifuge, Expectorant, Sedative, Rubefacient

பொதுகுணம்:

"மந்தந்தா கங்கிரகணி மாவிடச் சுரங்கண்ணோய்

தொந்தம் பரிநாமச் சூலைகய-மிந்த

வுலகறையைக் காலெடிவை யோடு நரைத்த

பலகறையை காணினியம் பார்."

சுவை : கைப்பு

MEDICINAL USES:

1. It is used in indigestion, colic, peptic ulcer, eye disease, dysentery, ear ache, ulcer.
2. It is diuretic, anti-diarrheal and of value in eye disease if used in the form of anjanam.
3. It is externally used as caustic in various skin disorders.

## 4.வெங்காரம்

வேறு பெயர் :பொரிகாரம், உருக்கினம், உருக்குமித்திரன், டங்கணம், தூமத்தையடக்கி

ATOMIC NUMBER : 11

MELTING POINT : $743^{O}C$

BOILING POINT : $1.575^{O}C$

PH : 9.13

MOLECULAR WEIGHT : 381.37214

MOLECULAR FORMULA : $B_4Na2O_7$

SOLUBILITY : Water soluble

DENSITY : 1.7 g/$cm^3$

ODOR : Odorless

VANDERWAA'S RADIUS : 0.196 nm

IONIC RADIUS : 0095(+1) nm

CHEMICAL NAME : *Sodium biborate*

ENGLISH NAME : Borax

பொதுகுணம்

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

சுவை :இனிப்புடன் கூடிய துவர்ப்பு

வீரியம் : வெப்பம்

MEDICINAL USES:

1. It is used to treat rheumatoid arthritis.
2. Its supplement for sports and bone-related conditions.
3. It is used in small quantities to prevent or treat osteoporosis or osteoarthritis.

**5.சங்கு**

வேறு பெயர் : நந்து, சுத்தி, நாடு, வளை, கம்பு, கோடு, வாரணம், வெள்ளை, வண்டு, இடம்புரி, சங்கம், தேவதத்தம்

KINGDOM : Animalia

PHYLUM : Mollusca

SUB CLASS : Caenogastropoda

CLASS : Gastropoda

ORDER : Neogastropoda

SUPERFAMILY : Turbinelloidea

FAMILY : Turbinellidae

SUB FAMILY : Turbinellinae

GENUS : Turbinella

SPECIES : T.rapa

SCIENTIFIC NAME : *Turbinellarapa*

ENGLISH NAME : Gastropoda, Conch shell

ACTION: Febrifuge, Expectorant, Stomachic, Astringent, Anodyne, Carminative, Tonic

பொதுகுணம்

"கசிவா மிரத்த பித்தங் கண்ணோய்க ளேகும்

பசியாறும் வாதம் பறக்கு - மிசிவுடனே

தங்கு முளைவிரணந் தானகலு மேவெள்ளைச்

சங்கமது வுண்டாயிற் றான்."

சுவை :துவர்ப்பு

MEDICINAL USES:

1. Internally given to the acute form of dyspepsia.
2. Given for asthuma, cough, constipation, shooting pain and inflammatory conditions in joints.
3. A remedy for blotches, pimples and other skin troubles on the face and body.

# DRUG REVIEW- EXTERNAL

## 1.பருத்திகொட்டை

வேறு பெயர் : காற்பாசம், ஆச்சாதநபலை, பரி, பன்னல், உத்திரி

GENERAL PROPERTIES OF *PARUTHI KOTTAI*

KINGDOM : Plantae

DIVISION : Angiosperm

CLASS : Dicotledons

SUBCLASS : Polypetalae

SERIES : Thalamiflorae

ORDER : Malvales

FAMILY : Malvaceae

GENUS : Gossypium

SPECIES : G.herbaceum

BOTANICAL NAME : *Gossypiumherbaceum*

ENGLISH NAME : Indian cotton plant

USED PART : Seed, Leaf, Flower, Bark

CHEMICAL CONSTITUENTS : Gossypol, glycosides, saponins, phenolic compounds

ACTION : Laxative, Expectorant

பொதுகுணம்

பருத்தியிலை மொக்கிரண்டைப் பாலிலரைத் துண்ண
வருத்துகின்ற மேகமெல்லாம் மாறும்-பருத்த
விரத்தபித்தத் தோடு விரணவீக் கம்போகும்
அரத்தவிதழ் மாதே ! யறை.

சுவை : துவர்ப்பு, இனிப்பு

தன்மை :வெப்பம்

பிரிவு : கார்ப்பு

MEDICINAL USES:

1. Seeds are used internally in the dysentery, intermittent fever and fibroids.
2. Externally the seeds are used to treat herpes, scabies, wounds, reduces swelling, inflammation and orchitis.

## 2.சிற்றமுட்டி

வேறுபெயர் :சிறுந்தொட்டி, சிறுகுறுந்தொட்டி

GENERAL PROPERTIES OF *SITRAMUTTIVER*

KINGDOM : Plantae

DIVISION : Angiosperms

CLASS : Dicotyledons

SUBCLASS : Polypetalae

SERIES : Thalamiflorae

ORDER : Malvales

FAMILY : Malvaceae

GENUS : Pavonia

SPECIES : P.zylanica

BOTANICAL NAME : *Pavoniazylanica*

ENGLISH NAME : Yellow sticky root

USED PART : Whole plant

CHEMICAL CONSTITUENTS : Ephedrine alkaloid

ACTION : Emollient, Astringent, Aphrodiasiac

பொதுகுணம்

அத்தி சுரமுதல் அனந்தசுரம் பித்தமும் போம்

மெத்த விழிக்கோளியாம் வீறுதயி - லத்திற்காம்

நற்றா மரைத்திருவு நாடு மெழிற்றிருவே!

சிற்றாமுட் டித்துரைச் செப்பு.

சுவை : துவர்ப்பு

தன்மை :தட்பம்

பிரிவு :இனிப்பு

MEDICINAL USES:

1. It is used for arthritis and joint pain. It also helps to reduce the stiffness of joints.
2. It is used nerve tonic and rejuvenate for all kinds of vatha disease.

**3.உளுந்து**

வேறுபெயர் :மாடம், மாஷம்

GENERAL PROPERTIES OF *ULUNTHU*

KINGDOM : Plantae

DIVISION : Angiosperms

CLASS : Dicotyledons

SUBCLASS : Polypetalae

SERIES : Calyciflorae

ORDER : Fabales

FAMILY : Fabaceae

GENUS : Vigna

SPECIES : V.mungo

BOTANICAL NAME : *Vignamungo*

ENGLISH NAME : Black gram

USED PART : Seeds, Root

CHEMICAL CONSTITUENTS : Saponin

ACTION : Demulcent, Refrigerant, Nervine tonic, Nutritive

பொதுகுணம்

செய்ய உளுந் திற்குச் சிலேத்மவனி லற்பித்தம்

வெய்யபித்தம் போமந்தம் வீறுங்காண்- மெய்யதனில்

என்புருக்கி தீரும் இடுப்புக் கடுபலமாம்

முன்பு விருத்தியுண்டாய் முன்.

சுவை : இனிப்பு

தன்மை :தட்பம்

பிரிவு : இனிப்பு

MEDICINAL USES:

1. The seeds is used for its suppurative, cooling and astringent properties.
2. Seeds flour is rich saponins and can be used as soap substitute. It makes the skin smooth and soft.

## 4. கொள்ளு

வேறு பெயர் :காணம், முதிரை

GENERAL PROPERTIES OF *KOLLU*

KINGDOM : Plantae

DIVISION : Angiosperms

CLASS : Dicotyledons

SUBCLASS : Polypetalae

SERIES : Calyciflorae

ORDER : Rosales

FAMILY : Rosaceae

GENUS : Macrotyloma

SPECIES : M.uniflorum

BOTANICAL NAME : *Macrotylomauniflorum*

ENGLISH NAME : Horse gram

USED PART : Seed, Whole plant

CHEMICAL CONSTITUENTS : Polyphenols, flavonoids and proteins

ACTION : Astringent, Tonic, Diuretic

பொதுகுணம்

குடல்வாதங் குன்ம முண்டாய் கொள்மருந்தோ நாசம்

அடலேறு பித்தமிக ஆகுங்-கடுகடுத்த

வாதநீ ரேற்றமொடு மன்னுகுளிர்காய்ச்சலும் போஞ்

சாதிநறுங் கொள்ளுக்குத் தான்.

சுவை : துவர்ப்பு, சிறுகைப்பு

தன்மை :வெப்பம்

பிரிவு : கார்ப்பு

MEDICINAL USES:

1. It helps to regulate cholesterol level.
2. It is externally used to treatment for swelling and boils.

## 5.கடுகு

வேறு பெயர் : ஐயவி

GENERAL PROPERTIES OF*KADUGU*

KINGDOM : Plantae

DIVISION : Angiosperms

CLASS : Dicotyledons

SUBCLASS : Polypetalae

SERIES : Thalamiflorae

ORDER : Parietales

FAMILY : Brassicaceae

GENUS : Brassica

SPECIES : B.juncea

BOTANICAL NAME : *Brassica juncea*

ENGLISH NAME : Indian mustard

USED PART : Seed

CHEMICAL CONSTITUENTS : Polyphenols, flavonoids, proteins

ACTION : Rubefacient, Diuretic, Digestive, Stimulant, Emetic, antioxidant

பொதுகுணம்

மந்தமயக் கம்வாதம் வாய்நீர்ச் சுழற்றலறு

முந்து சுகபிரச வங்களுண்டா-மிந்துதன்

மானே! கிராணிகுன்ம மாறுமுத் தோடமும் போம்

தானே கடுகிற்குத் தான்.

சுவை : காரம்

தன்மை :வெப்பம்

பிரிவு : கார்ப்பு

MEDICINAL USES:

1. Mustard seeds are used externally relieves congestion, neuralgia and spasms.
2. Decoction of the mustard seeds is used in the treatment of induration of the liver and spleen.

**6.சுக்கு**

வேறு பெயர் :விடமூடிய அமிர்தம், கடுபத்திரம், வேர்கொம்பு, ஆர்த்ரகம், மநௌஷதம், உபகுல்லம், சுண்டி

GENERAL PROPERTIES OF *CHUKKU*

KINGDOM : Plantae

DIVISION : Angiosperms

CLASS : Monocotyledons

SERIES : Epigynae

FAMILY : Zingiberaceae

GENUS : Zingiber

SPECIES : Z.officinale

BOTANICAL NAME : *Zingiberofficinale*

ENGLISH NAME : Dried ginger

USED PART : Dried tuber

CHEMICAL CONSTITUENTS : Phellandrene, Gingerol, Gingerin

ACTION : Stimulant, Stomachic, Carminative

பொதுகுணம்

சூலைமந்தம் நெஞ்செரிப்பு தோடமேப் பம்மழலை

மூலம் இரைப்பிருமல் மூக்குநீர் - வாலகப

தோடமதி சாரந் தொடர்வாத குன்மநீர்த்

தோடம்ஆ மம்போக்குஞ் சுக்கு.

சுவை : கார்ப்பு

தன்மை :வெப்பம்

பிரிவு : கார்ப்பு

MEDICINAL USES:

1. Dried ginger is used in imbalance of vadha and kabhadhosa as in rheumatoid arthritis and osteoarthritis.
2. It helps to relieve weakness of heart, sharp pain due to cardiac condition.

**7.சதகுப்பை**

வேறுபெயர் :சோயிக்கீரை, மதுரிகை

GENERAL PROPERTIES OF *SATHAKUPPAI*

KINGDOM :Plantae

DIVISION : Angiosperms

CLASS : Dicotyledons

SUBCLASS : Polypetalae

SERIES : Calyciflorae

ORDER : Umbellales

FAMILY : Apiaceae

GENUS : Anethum

SPECIES : A.graveolens

BOTANICAL NAME : *Anethumgraveolens*

ENGLISH NAME : Gardendill, Anet

USED PART : Seed, Leaf, flower

CHEMICAL CONSTITUENTS : Anethine, Phellandrene, Apiol

ACTION : Antispasmodic, Deobstruent, Stimulant, Diuretic

பொதுகுணம்

வாதமொடு சூதிகாவாதம் சிரசு நோய்

மோதுசெவி நோய்கபநோய் மூடுசுரம் - ஓதுகின்ற

மூலக் கடுப்பு முதிர்பினசம் போகும்

ஞாலச் சதகுப்பை நாடு.

சுவை : இனிப்பு,கார்ப்பு

தன்மை :வெப்பம்

பிரிவு : கார்ப்பு

MEDICINAL USES:

1. Dill seeds are used to treatment for arthritis and it is mainly used digestive disorders.
2. It is also used to cures urinary complaints, piles, mental disorders.

## 8.திப்பிலி வேர்

வேறு பெயர் :மோடி, நறுக்குமூலம், தேசாவரம்

GENERAL PROPERTIES OF *THIPPILIVER*

KINGDOM : Plantae

DIVISION : Angiosperms

CLASS : Dicotyledons

SUBCLASS : Monochlamydeae

SERIES : Microembryeae

FAMILY : Piperaceae

GENUS : Piper

SPECIES : P.longum

BOTANICAL NAME : *Piper longum*

ENGLISH NAME : Long pepper root

USED PART : root

CHEMICAL CONSTITUENTS : Piperlongumine, Sesamine, Piperine, Monoterpene

ACTION : Stomachic

பொதுகுணம்

தாகபித்தஞ் சோகந் தணியாச் சுரமிருமல்

மேகங் குரற்கம்மல் மெய்க்கடுப்பும்-ஏகுங்காண்

திப்பிலிமூ லங்கண்டத் திப்பிலிய தாம்நறுக்குத்

திப்பிலியென்றே யொருக்காற் செப்பு.

சுவை :பச்சையில்-இனிப்பு, தன்மை-தட்பம், பிரிவு-இனிப்பு

உலர்ந்தபின்-கார்ப்பு, தன்மை-வெப்பம், பிரிவு-கார்ப்பு

MEDICINAL USES:

1. Root decoction used in sciatica, hemiplegia, arthritis.
2. Root and fruit decoction used for treating gonorrhoea, menstrual pain, RTI, TB.

## 9.மூக்கிரட்டை வேர்

வேறுபெயர் :புட்பகம், இரத்தபுட்பிகா

GENERAL PROPERTIES OF *MOOKIRATTAIVER*

KINGDOM :Plantae

DIVISION : Angiosperms

CLASS : Dicotyledons

SUBCLASS : Monochlamydeae

SERIES : Curvembryeae

FAMILY : Nyctaginaceae

GENUS : Boerhaavia

SPECIES : B.diffusa

BOTANICAL NAME : *Boerhaaviadiffusa*

ENGLISH NAME : Hog weed, Pig weed

USED PART : Root, Whole plant

CHEMICAL CONSTITUENTS: Uridine triacetate, eupalitin 3-O-β-D-galactopyranoside, β amyrin,3-O-β-D-glucopyranosylsitosterol, boeravinone

ACTION : Diuretic, Anthelmintic, Laxative, Expectorant

பொதுகுணம்

சீத மகற்றுந்தி னவடக்குங் காந்திதரும்

வாத வினையை மடிக்குங்காண் - பேதி

கொடுக்குமதை உண்டாக்காற் கோமளமே! பித்தம்

அடுக்குமே மூக்குரட்டை யாய்.

சுவை : கைப்பு

தன்மை :வெப்பம்

பிரிவு :கார்ப்பு

MEDICINAL USES:

1. Decoction of its hog weed plant for treating inflammation and pain.
2. It is used to treat various liver disorders including jaundice and kidney disorders.

## 10.முருங்கைபட்டை

வேறு பெயர் :சிக்குருகிரஞ்சம், கிழவீசோபாஞ்சனம்

GENERAL PROPERTIES OF *MURUNKAI PATTAI*

KINGDOM :Plantae

DIVISION :Angiosperms

CLASS : Dicotyledons

SUBCLASS : Polypetalae

ORDER : Brassicales

FAMILY : Moringaceae

GENUS : Moringa

SPECIES : M.oleifera

BOTANICAL NAME : *Moringaoleifera*

ENGLISH NAME : Drum stick, Horse radish

USED PART : Bark, Leaf, Flower, Seed, Root,Wood

CHEMICAL CONSTITUENTS : Beta-sitosterol, zeatin, quercetin, kaemopferol, caffeoylguinic acid

ACTION : Antispasmodic, Diuretic, Abortifacient, Expectorant, Tonic

பொதுகுணம்

முருங்கைவேர்ப் பட்டைக்கு மூடு கபத்தோ

டொருஞ்குறாச் சன்னிகரம் ஓடும்-அருங்கனக

வட்டைப் பொருமுலையாய்! வாய்வொடுவி டங்களுமேற்

பட்டைக்குப் போமே பறந்து.

சுவை : கைப்பு,துவர்ப்பு,இனிப்பு

தன்மை :தட்பம்

பிரிவு : பட்டைவேர்-கார்ப்பு,காய்-இனிப்பு

MEDICINAL USES:

1. Drumstick bark is used to treatment for sexually transmitted diseases, gout and arthritis.
2. Its bark powder is used in treatment of epilepsy.

## 11.மிளகின் வேர்

வேறுபெயர் :செவ்வியம், கண்டீரை, சவிகை, சவியம்

GENERAL PROPERTIES OF *MILAGIN VER*

KINGDOM : Plantae

DIVISION : Angiosperms

CLASS : Dicotyledons

SUBCLASS : Monochlamydeae

SERIES : Microembryeae

FAMILY : Piperaceae

GENUS : Piper

SPECIES : P.nigrum

BOTANICAL NAME : *Piper nigrum*

ENGLISH NAME : Black pepper root

USED PART : Root

CHEMICAL CONSTITUENTS :Piperine, piperine, piperanine, pipernonaline

ACTION : Anti vadha, Antidote, Antiperiodic, Resolvent, Carminative

பொதுகுணம்

சூலை அருகிசன்னி தொல்லிருமல் ஈளைபித்தம்
மேலைக் குரற்கம்மல் வெங்களநோய்-மூலசுரம்
கவ்வியங்கத் தேறு கனதா வரவிடமுஞ்
செவ்வியங் கொள்ளவிடுந் தேர்.

சுவை : கைப்பு,கார்ப்பு

தன்மை :வெப்பம்

பிரிவு : கார்ப்பு

MEDICINAL USES :

1. Black pepper is used in the treatment of pain relief, chills, rheumatism, flu, muscular aches, cold.
2. It is used externally to treat nasal congestion, sinusitis, epilepsy and skin inflammations.

## 12.தேவதாரு

வேறு பெயர் : தூண், தாரம், பத்திரதாருகம், தேவதசுரர்மரம்

GENERAL PROPERTIES OF *DEVADARU*

KINGDOM : Plantae

DIVISION : Gymnosperm

CLASS : Pinopsida

ORDER : Pinales

FAMILY : Pinaceae

GENUS : Cedrus

SPECIES : C.deodara

BOTANICAL NAME : *Cedrusdeodara*

ENGLISH NAME : Himalayan cedar, Deodar

USED PART : Bark, Wood

CHEMICAL CONSTITUENTS : Cholesterin

ACTION : Astringent, Febrifuge, Carminative

பொதுகுணம்

தேவதா ரக்குணந்தான் சேர்ந்துவளர் பீனிசத்தைச்
காவகத்தி லோட்டுங் கரப்பலவே - மாவலவர்
சொல்லும்பு ராண சுரமொடுநீ ரேற்றத்தை
வெல்லு மனற்றணிக்கு மெய்.

சுவை : பட்டை-துவர்ப்பு,கட்டை-சிறுகைப்பு

தன்மை :வெப்பம்

பிரிவு : கார்ப்பு

MEDICINAL USES:

1. Deodar wood is used to treatment for inflammations and rheumatoid arthritis.
2. Deodar oil is also used in arthritis and headache.
3. It is extremely useful in neurological disorders,asthma, pruritus, fever, infested wound.

## 13.சிற்றரத்தை

GENERAL PROPERTIES OF *SITRARATHAI*

KINGDOM : Plantae

DIVISION :Angiosperms

CLASS : Monocotyledons

SERIES : Epigynae

FAMILY : Zingiberaceae

GENUS : Alpinia

SPECIES : A.officinarum

BOTANICAL NAME : Alpiniaofficinarum

ENGLISH NAME : Lesser galangal

USED PART : Root

CHEMICAL CONSTITUENTS : Galangol, Galangin

ACTION : Expectorant, Febrifuge, Stomachic

பொதுகுணம்

தொண்டையிற்கட் டுங்கபத்தைத் தூரத் துரத்திவிடும்

பண்டைச்சீ தத்தைப் பறக்கடிக்கும்-கெண்டைவிழி

மின்னே! கரப்பனைவேறாக்கும் பசிகொடுக்கும்

சொன்னோம் அரத்தைச் சுகம்.

சுவை : கார்ப்பு,

தன்மை :வெப்பம்

பிரிவு : கார்ப்பு

MEDICINAL USES:

1. Lesser galangal root is used to treat anorexia, indigestion, colic, stomach ache.
2. It is used to remedy for rheumatic pain and arthritis.

## 14.கோட்டம்

வேறு பெயர் : கோஷ்டம், குரா, ஓலி

GENERAL PROPERTIES OF *KOTTAM*

| | |
|---|---|
| KINGDOM | : Plantae |
| DIVISION | : Angiosperms |
| CLASS | : Monocotyledons |
| SERIES | : Epigynae |
| FAMILY | : Zingiberaceae |
| GENUS | : Costus |
| SPECIES | : C.speciosus |
| BOTANICAL NAME | : *Costusspeciosus* |
| ENGLISH NAME | : Costus root |
| USED PART | : Root |

CHEMICAL CONSTITUENTS : Starch

ACTION : Tonic, Diaphoretic, Stomachic, Expectorant

பொதுகுணம்

நாட்டிலுறு வெட்டை நடுக்கம் எனுநோய்கள்

கோட்டமெனச் சொன்னால் குலையுங்காண்-கூட்டிற்

சுரதோடந் தொண்டைநோய் தோலாதபித்தம்

பரதேசம் போமே பறந்து.

சுவை : கைப்பு, விறுவிறுப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

MEDICINAL USES:

1. Costus root is used in the treatment of skin diseases, gout, respiratory disorders and rheumatism.
2. The root is used for treating worm infections.

## 15.நல்லெண்ணெய்

வேறு பெயர் : திலம்

GENERAL PROPERTIES OF *EL*

KINGDOM : Plantae

DIVISION : Angiosperms

CLASS : Dicotyledons

SUBCLASS :Gamopetalae

SERIES :Bicarpellatae

ORDER : Lamiales

FAMILY : Pedaliaceae

GENUS : Sesamum

SPECIES : S.indicum

BOTANICAL NAME : *Sesamumindicum*

ENGLISH NAME : Gingeli oil plant

USED PART : seed oil

CHEMICAL CONSTITUENTS : Lignanssesamolin, Pinoresinol, Lariciresinol

ACTION : Demulcent, Emollient, Laxative,Nutritive

பொதுகுணம்

"புத்திநயனக் குளிர்ச்சி பூரிப்பு மெய்ப்புளகஞ்
சத்துவங் கந்தி தனியிளமை - மெத்தவுண்டாங்
கண்ணோய் செவிநோய் கபாலவழல் காசநோய்
புண்ணோய்போ மெண்ணெய்யாற் போற்று."

சுவை : இனிப்பு

தன்மை :வெப்பம்

பிரிவு : இனிப்பு

MEDICINAL USES:

1.Calcium, zinc, copper minerals in oil plays an important role in growth of bone, healing, regrowth of bone and prevent osteoporosis.

2. Externally it can increase skin elasticity, smoothness and reduce the appearance of age spots.

3. It can help to reduce the inflammation and discomfort of various conditions such as gout and arthritis by reducing the swelling.

## 16.ஆட்டுப்பால்

வேறுபெயர் :பயம், கீரம், சுதை, அமுது, பாகு, துத்தம், சாறு, பயசு

KINGDOM : Animalia

PHYLUM : Chordata

CLASS : Mammalia

ORDER : Artiodactyla

FAMILY : Bovidae

GENUS : Capra

SCIENTIFIC NAME : *Capra AegagrusHircus*

ENGLISH NAME : Goat

CHEMICAL CONSTITUENTS: Calcium, iron, magnesium and phosphorus

ACTION : Immuno-modulatory, anti-inflammatory

பொதுகுணம்

"வெள்ளாட்டு பாலுக்கு மேவியநற் றீபனமாந்

தள்ளாடு வாதபித்தஞ் சாந்தமாம் - உள்ளிரைப்புச்

சீதமதி சாரஞ் சிலேஷ்மமறும் புண்ணாறும்

வாத சிலேஷ்மமுப்போ மாய்ந்து.

MEDICINAL USES:

1. Goat's milk can help to build bone density, boost immunity against diseases and protect against allergies.
2. It help support healthy digestion, lower risk of diabetes, support weight, prevent fat loss and reduce high blood pressure.

# DRUG REVIEW-EXTERNAL THERAPY

## மருக்கொழுந்து

வேறு பெயர் : தமனகந்தம், மரு

GENERAL PROPERTIES OF *MARUKOZHUNTHU*

KINGDOM : Plantae

DIVISION : Angiosperms

CLASS : Dicotyledons

SUBCLASS : Gamopetalae

SERIES : Bicarpellatae

ORDER : Lamiales

FAMILY : Lamiaceae

GENUS : Majorana

SPECIES : M.hortensis

BOTANICAL NAME : *Majoranahortensis*

ENGLISH NAME : Southern wood

USED PART : Leaf

CHEMICAL CONSTITUENTS : Borneol, Camphor, Pinene

ACTION : Tonic, Stomachic, Anodyne, Antispasmodic

பொதுகுணம்

"கண்ணிலுறு தோடங் கபஞ்சூ டிவைபோக்கும்
ஒண்ணனல்கைப் புக்காரம் உள்ளமரும் - மண்ணிற்
கொழுந்தம் மருக்குணத்தைக் கொண்டிருந்த போதுந்
தழைந்தபசி வன்மைதருஞ் சாற்று."

சுவை : கைப்பு, கார்ப்பு

தன்மை :வெப்பம்

பிரிவு : கார்ப்பு

MEDICINAL USES:

1. Marjoram is commonly used for runny nose, coughs, colds, infections and various digestion problems.

2. It is externally used for scabies, wound and joint swelling.

3. In foods, marjoram herb and oil used as flavourings.

## ஆமணக்கு

வேறுபெயர் :ஏரண்டம், சித்திரம், தலரூபம்

GENERAL PROPERTIES OF*AAMANAKKU*

KINGDOM : Plantae

DIVISION : Angiosperms

CLASS : Dicotyledons

SUBCLASS : Monopetalae

SERIES : Unisexuales

FAMILY : Euphorbiaceae

GENUS : Ricinus

SPECIES : R.communis

BOTANICAL NAME : *Ricinuscommunis*

ENGLISH NAME : Castor- oil plant

USED PART : leaves, seeds, root

CHEMICAL CONSTITUENTS : Recinolein

ACTION : Anti vatha, Galactagogue

பொதுகுணம்

"ஆமணக்கு நெய்யால் நலமுண்டாம் யாவர்க்கும்
பூமணக்கு மேனி புரிகுழலே- வாய்மணக்கக்
கொள்ளில் வயிறுவிடுங் கோரமுள்ள வாயுவறும்
உள்ளில்வரு குன்மம்போ மோது".

-அகத்தியர் குணவாகடம்

சுவை : கைப்பு

தன்மை :வெப்பம்

பிரிவு : கார்ப்பு

MEDICINL USES

1. Castor oil is applied topically,it reduced inflammation and relieves pain.
2. It is commonly used to relieve temporary constipation.

# 4.MATERIAL AND METHODS

# MATERIALS AND METHODS

I had chosen siddha trial drug **RAJALOGA NAATHARASA PARPAM** (Internal) for this study from classical siddha literature pranarashamirtha sindhu, **PARUTHI THYLAM** (External) from noi neekkum thylangal seymuraigal and **MARIKOZHUNTHU OTTRADAM** (Externa therapy) from textbook of Gunapadam mooligai.

The raw drugs were purchased from the raw drug shop R.N.RAJAN & CO Paris. After getting proper authentication from the Head of the Department of Pharmacology (Gunapadam) and Medicinal Botany, GSMC, Chennai-106 the medicines were prepared.

**INTERNAL MEDICINE**

**RAJALOGA NAATHA RASA PARPAM**

INGREDIENTS:

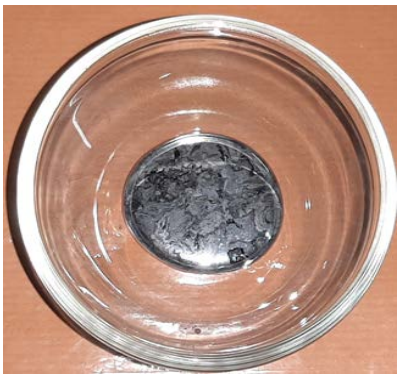
| | |
|---|---|
| 1.Purified Rasam (Mercury) | -35gm |
| 2.Purified Kanthagam (Sulphur) | -35gm |
| 3.Purified Palagarai (Cypraea Moneta) | -140gm |
| 4.Purified Venkaram (Sodium Biborate) | -35gm |
| 5.Purified Sangu (Turbinella Rapa) | -280gm |

**METHODS OF PURIFICATION & MATERIALS REQUIRED**

**Purification of Mercury:**

Mercury is grinded along with brick powder and turmeric powder each for about one hour and is washed with pure water and mixed with the juice of Acalypha indica and ignited well until itdetoxify.

**Before Purification**



**Brick With Turmeric Powder Grinding And Purification**

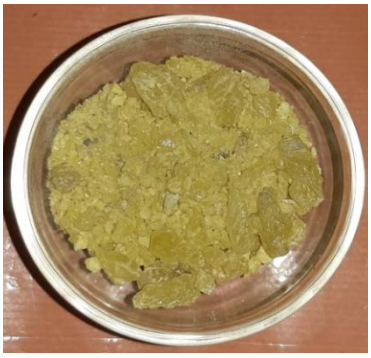
**Squeezing Method**

**After Purification**

**Purification of sulphur:**

Sulphur is placed in an iron spoon (their on spoonislined) with cow's butter and the spoon is heated till the sulphur melts, this mixure is immersed in inclined position in cow's milk. This procedure is repeated for 30 times to get purified sulphur. Eachtime fresh milk is to be used.

**Before Purification**



**Melting Sulphur**

**Gandhagam Poured Into Milk**

**After Purification**

**Purification of Cypraea Moneta:**

Cypraea moneta is boiled with lime water.

**Before Purification \ Cypraea Moneta Boil \ After Purification**

**With Lime Water**

**Purification of Sodium Biborate:**

Sodium Biborate were purified by fry.

**Before Purification** **After Purification**

**Purification of Turbinella Rapa:**

Turbinella rapa is grinded and boiled with milk.

**Before Purification / Turbinella Rapa Boil With Milk / After Purification**

## METHODS OF PREPARATION

**Grounded Rasam & Gandhagam**

**Vengararam grounded with cow's milk**

**Grounded Rasam & Gandhagam insidepalagarai**

**Palagarai is sealed with Vengararam paste**

**Plagarai is placed in the mid of Sangu**

**Sealed with clay smeared cloth**

**Incenerated by using 1000 cow dung cakes**

**After Incenerated drug**

**Grounded end product**

**Collected parpam**

- Purified Rasam & Gandhagam are grounded using a stone mortar and place inside the Palagarai.
- This palagarai is sealed with the mixture of vengaram grounded with cow's milk. Then a mud plate is coated with limestone powder.
- The purified half amount of Sangu is placed in the centre of the mud plate.
- Plagarai is placed in the mid of Sangu .The remaining purified Sangu pieces are placed above the palagarai
- It is closed with another suitable mud plate and sealed it with clay smeared cloth.
- It is incenerated by using 1000 cow dung cakes (Kajapudam)
- Then it is allowed to cool and parpam is collected in clean, dry, airtight container.

DOSAGE : 60mg -twice daily
ADJUVENT : Milaguchooranam
INDICATION : 80 VagaiVaatham (neyyil), 40 VagaiPiththam, 96 VagaiKabam, Athisaaram, Kiraani, Shayam, Irumal, Suvaasam, Kunmam.
REFERENCE : "Pranarashamirtha sindhu" pg.no.185

## EXTERNAL MEDICINE

### PARUTHI THYLAM

**INGREDIENTS:**

**PART I**

1. PARUTHI KOTTAI [*Gossypium herbaceum*] -10gm
2. SITRAMUTTIVER [*Sida cordifolia*] -10gm

**PART II**

3. ULUNTHU [*Vigna mungo*] -10gm
4. KOLLU [*Macrotyloma uniflorum*] -10gm

**PART III**

1.GINGELY OIL (*Sesamum indicum*) -800gms

2.GOAT'S MILK -800gms

**PART IV**

1. KADUGU [*Brassica juncea*] -1gm
2. CHUKKU [*Zingiber officinale*] -1gm
3. SATHAKUPPAI [*Anethum graveolens*] -1gm
4. THIPPILI VER [*Piper longum*] -1gm
5. MOOKIRETTAI VER [*Boerhaavia diffusa*] -1gm
6. MURUNKAI PATTAI [*Moringa oleifera*] -1gm
7. SEVVIYAM [*Piper nigrum*] -1gm
8. DEVADARU [*Cedrus deodora*] -1gm
9. SITRAMUTTI VER [*Sida cordifolia*] -1gm
10. SITRARATHAI [*Alpinia officinarum*] -1gm
11. KOSTAM [*Costus speciousus*] -1gm

**METHODS OF PURIFICATION**

Purified and dried under classical text**.**

**MATERIALS REQUIRED**

**PART I DRUGS**

GOSSYPIUM HERBACEUM

SIDA CORDIFOLIA

**PART II DRUG**

VIGNA MUNGO

MACROTYLOMA UNIFLORUM

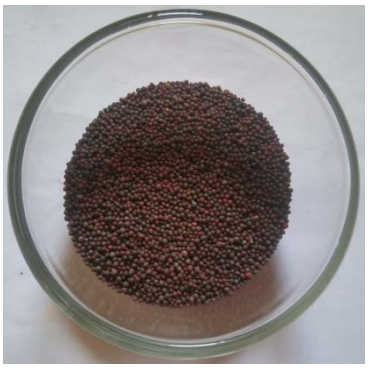
**PART III DRUGS**

SESAMUM INDICUM OIL

GOAT'S MILK

## PART IV DRUGS

BRASSICA JUNCEA



ZINGIBER OFFICINALE

ANETHUM GRAVEOLENS

PIPER LONGUM ROOT

BOERHAAVIA DIFFUSA

MORINGA OLEIFERA

PIPER NIGRUM ROOT

CEDRUS DEODORA

ALPINIA OFFICINARUM

COSTUS SPECIOUSUS

**METHODS OF PREPARATION**

**GINGELY OIL,GOATS MILK&CHOORANAMADDED TO THE DECOCTION**

**ABOVE OIL CONTENT HEATED,FILTRED AND COLLECTED**



Part I, Part II drugs grounded separately in a stone mortar. Then 2 liters of water will be added in part I drugs and boiled, till it is reduced to ¼ part as decoction.Likewise decoction will be made using part II drugs. Then gingely oil, goats milk added to the decoctions. Other raw drugs(part IV) powdered in a stone mortar. The powdered drugs added to the above decoctions and boiled till it attains a waxy consistency.

INDICATION: vadharogam

REFERENCE: NoiNeekkum Thylangal Seymuraigal (page no :87 )

**THERAPY (MARIKOZHUNTHU OTTRADAM)**

**INGREDIENTS:**

1. Marikozhunthu leaf (majorana hortensis)
2. Castor oil(Ricinus communis)

**METHODS OF PURIFICATION**

Purified and dried under classical text**.**

**MATERIALS REQUIRED**

MAJORANA HORTENSIS

RICINUS COMMUNIS

**METHODS OF PREPARATION**

Marikozhunthu leaves are sauted with castor oil and It is tied in an cotton cloth and given as ottradam in affected areas.

INDICATION : Swelling

REFERENCE : Gunapadam - Mooligai(page no:733)

**STANDARDIZATION PARAMETERS**

**ORGANOLEPTIC CHARACTERS:**

**State** **:** Solid

**Appearance** **:** Greenish white in color

**Nature** **:** Very fine in nature

**Odor** **:** Very mild

**Flow property:**Free flowing

**PHYSICOCHEMICAL EVALUATION:**

**Percentage Loss on Drying**

Test drug was accurately weighed in evaporating dish .The sample was dried at 105$^{o}$C for 5 hours and then weighed.

**Determination of Total Ash**

Test drug was accurately weighed in silica dish and incinerated at the furnace a temperature 400 ºC until it turns white in color which indicates absence of carbon. Percentage of total ash will be calculated with reference to the weight of air-dried drug.

**Determination of Acid Insoluble Ash**

The ash obtained by total ash test will be boiled with 25 ml of dilute hydrochloric acid for 6mins. Then the insoluble matter is collected in crucible and will be washed with hot water and ignited to constant weight. Percentage of acid insoluble ash will be calculated with reference to the weight of air-dried ash.

**Determination of Water Soluble Ash**

The ash obtained by total ash test will be boiled with 25 ml of water for 5 mins. The insoluble matter is collected in crucible and will be washed with hot water, and ignite for 15mins at a temperature not exceeding 450ºC. Weight of the insoluble matter will be subtracted from the weight of the ash; the difference in weight represents the water

soluble ash. Calculate the percentage of water-soluble ash with reference to the air-dried drug.

**Determination of Alcohol Soluble Extractive**

Test sample was macerated with 100 ml of Alcohol in a closed flask for twenty-four hours, shaking frequently during six hours and allowing to stand for eighteen hours. Filter rapidly, taking precautions against loss of solvent, evaporate 25 ml of the filtrate to dryness in a tared flat bottomed shallow dish, and dry at 105ºC, to constant weight and weigh. Calculate the percentage of alcohol-soluble extractive with reference to the air-dried drug.

**Determination of Water Soluble Extractive**

Test sample was macerated with 100 ml of chloroform water in a closed flask for twenty-four hours, shaking frequently during six hours and allowing to stand and for eighteen hours. Filter rapidly, taking precautions against loss of solvent, evaporate 25 ml of the filtrate to dryness in a tared flat bottomed shallow dish, and dry at 105ºC, to constant weight and weigh. Calculate the percentage of water-soluble extractive with reference to the air-dried drug.

Water soluble extract = Weight of Extract/ Wt of the Sample taken X 100

**Determination of pH**

About 5 g of test sample will be dissolved in 25ml of distilled water and filteredthe resultant solution is allowed to stand for 30 mins and the subjected to pH evaluation.

**HEAVY METAL ANALYSIS BY AAS**

Standard: Hg, As, Pb and Cd – Sigma

**Methodology**

Atomic Absorption Spectrometry (AAS) is a very common and reliable technique for detecting metals and metalloids in environmental samples. The total heavy metal content of the sample was performed by Atomic Absorption Spectrometry (AAS) Model AA 240 Series. In order to determination the heavy metals such as mercury, arsenic, lead and cadmium concentrations in the test item.

**Sample Digestion**

Test sample was digested with 1mol/L HCl for determination of arsenic and mercury.Similarly for the determination of lead and cadmium the sample were digested with 1mol/L ofHNO3.

**Standard reparation**

As & Hg- 100 ppm sample in 1mol/L HCl

Cd &Pb- 100 ppm sample in 1mol/L HNO3

**PHYTOCHEMICAL ANALYSIS**

**Extraction**

Sample Extraction were carried out with water and the resulting extract was utilized forthe phytochemical analysis

**Test for alkaloids:**

Mayer's Test: To the test sample, 2ml of mayer's reagent was added, a dull white precipitate revealed the presence of alkaloids.

**Test for coumarins:**

To the test sample, 1 ml of 10% sodium hydroxide was added. The presence of coumarins is indicated by the formation of yellow color.

**Test for saponins:**

To the test sample, 5 ml of water was added and the tube was shaken vigorously. Copious lather formation indicates the presence of Saponins.

**Test for tannins:**

To the test sample, ferric chloride was added, formation of a dark blue or greenish black color showed the presence of tannins.

**Test for glycosides- Borntrager's Test**

Test drug is hydrolysed with concentrated hydrochloric acid for 2 hours on a water bath, filtered and the hydrolysate is subjected to the following tests. To 2 ml of filtered hydrolysate, 3 ml of choloroform is added and shaken, choloroform layer is separated and 10% ammomia solution is added to it. Pink colour indicates presence of glycosides.

**Test for flavonoids:**

To the test sample about 5 ml of dilute ammonia solution were been added followed by addition of few drops of conc. Sulfuric acid. Appearance of yellow color indicates the presence of Flavonoids.

**Test for phenols:**

**Lead acetate test:**

To the test sample; 3 ml of 10% lead acetate solution was added. A bulky white precipitate indicated the presence of phenolic compounds.

**Test for steroids:**

To the test sample, 2ml of chloroform was added with few drops of conc. Sulphuric acid (3ml), and shaken well. The upper layer in the test tube was turns into red and sulphuric acid layer showed yellow with green fluorescence. It showed the presence of steroids.

**Triterpenoids**

Liebermann–Burchard test: To the chloroform solution, few drops of acetic anhydride was added then mixed well. 1 ml concentrated sulphuric acid was added from the sides of the test tube, appearance of red ring indicates the presence of triterpenoids.

**Test for Cyanins**

**A. Aanthocyanin:**

To the test sample, 1 ml of 2N sodium hydroxide was added and heated for 5 min at 100$^{o}$C. Formation of bluish green colour indicates the presence of anthocyanin.

**Test for Carbohydrates - Benedict's test**

To the test sample about 0.5 ml of Benedic's reagent is added. The mixture is heated on a boiling water bath for 2 minutes. A characteristic coloured precipitate indicates the presence of sugar.

**Proteins (Biuret Test)**

To extracts 1% solution of copper sulphate was added followed by 5% solution of sodium hydroxide, formation of violet purple colour indicates the presence of proteins.

## TOXICOLOGICAL STUDY ACUTE ORAL TOXICITY STUDY OF *RAJALOGA NAATHARASA PARPAM*

### (OECD GUIDELINE – 423)

**Introduction:**

- The acute toxic class method is a stepwise procedure with the use of 3 animals of a single sex per step.
- Depending on the mortality and/or the moribund status of the animals, on average 2-4 steps may be necessary to allow judgement on the acute toxicity of the test substance.
- This procedure is reproducible, uses very few animals and is able to rank substances in a similar manner to the other acute toxicity testing methods.
- The acute toxic class method is based on biometric evaluations with fixed doses, adequately separated to enable a substance to be ranked for classification purposes and hazard assessment.
- In principle, the method is not intended to allow the calculation of a precise LD50, but does allow for the determination of defined exposure ranges where lethality is expected since death of a proportion of the animals is still the major endpoint of this test.
- The method allows for the determination of an LD50 value only when at least two doses result in mortality higher than 0% and lower than 100%.
- The use of a selection of pre-defined doses, regardless of test substance, with classification explicitly tied to number of animals observed in different states improves the opportunity for laboratory to laboratory reporting consistency and repeatability.

**Principle of the Test:**

It is the principle of the test that based on a stepwise procedure with the use of a minimum number of animals per step, sufficient information is obtained on the acute toxicity of the test substance to enable its classification. The substance is administered orally to a group of experimental animals at one of the defined doses. The substance is tested using a stepwise procedure, each step using three animals of a single sex. Absence or presence of compound-related mortality of the animals dosed at one step will

determine the next step, i.e.

− no further testing is needed

− dosing of three additional animals, with the same dose

− dosing of three additional animals at the next higher or the next lower dose level. The method will enable a judgment with respect to classifying the test substance to one of a series of toxicity classes.

**Methodology:**

**Selection of Animal Species**

The preferred rodent species is the wistar albino rat, although other rodent species may be used. Healthy young adult animals are commonly used laboratory strains should be employed. Females should be nulliparous and non-pregnant. Each animal, at the commencement of its dosing, should be between 6 to 8 weeks old and the weight (150-200gm) should fall in an interval within±20 % of the mean weight of any previously dosed animals.

**Housing and Feeding Conditions**

The temperature in the experimental animal room should be 22ºC ± 3ºC. Although the relative humidity should be at least 30% and preferably not exceed 70% other than during room cleaning the aim should be 50-60%. Lighting should be artificial, the sequence being 12 hours light, 12 hours dark. For feeding, conventional laboratory diets may be used with an unlimited supply of drinking water. Animals may be group-caged by dose, but the number of animals per cage must not interfere with clear observations of each animal.

**Preparation of animals:**

The animals are randomly selected, marked to permit individual identification, and kept in their cages for at least 7 days prior to dosing to allow for acclimatization to the laboratory conditions

**Test Animals and Test Conditions:**

Sexually mature Female Wistar albino rats (150-200gm) were obtained from Kings institute, Guindy, Chennai. All the animals were kept under standard environmental condition (22±3°C). The animals had free access to water and standard pellet diet (Saimeera foods, Bangalore).

**Preparation of animals:**

The animals are randomly selected, marked to permit individual identification, and kept in their cages for at least 7 days prior to dosing to allow for acclimatization to the laboratory conditions

**Preparation for Acute Toxicity Studies**

Rats were deprived of food overnight (but not water 16-18 h) prior to administration of the, ***RAJALOGA NAATHARASA PARPAM***.

The principles of laboratory animal care were followed and the Institutional Animal Ethical Committee approved the use of the animals and the study design
IAEC No: LV/07/CLBMCP/2018

| | |
|---|---|
| **Test Substance** | : **RAJALOGA NAATHARASA PARPAM** |
| **Animal Source** | : Kings institute, Guindy, Chennai. |
| **Animals** | : Wister Albino Rats (Female-3+3) |
| **Age** | **:** 6-8 weeks |
| **Body Weight on Day 0** | **:** 150-200gm. |
| **Acclimatization** | **:** Seven days prior to dosing. |
| **Veterinary examination** | **:** Prior and at the end of the acclimatization period. |
| **Identification of animals** | **:** By cage number, animal number and individual marking by using Picric acid. |
| **Number of animals** | : 3 Female/group, |
| **Route of administration** | : Oral |
| **Diet** | **:** Pellet feed supplied by Saimeera foods Pvt Ltd, Bangalore |
| **Water** | **:** Aqua guard portable water in polypropylene bottles. |
| **Housing & Environment** | **:** The animals were housed in Polypropylene cages provided with bedding of husk. |
| **Housing temperature** | **:** between 22ºC $\pm$3ºC. |
| **Relative humidity** | **:** between 30% and 70%, |
| **Air changes** | **:** 10 to 15 per hour and |
| **Dark and light cycle** | **:** 12**:**12 hours. |
| **Duration of the study** | **:** 14 Days |

**Administration of Doses:**

***RAJALOGA NAATHARASA PARPAM*** was suspended in water and administered to the groups of wistar albino rats in a single oral dose by gavage using a feeding needle. The control group received an equal volume of the vehicle. Animals were fasted 12 hours prior to dosing. Following the period of fasting, the animals were weighed and then the test substance was administered. Three Female animals are used for each group. The dose level of 5, 50, 300 and 2000 mg/kg body weight was administered stepwise. After the substance has been administered, food was withheld for a further 3-4 hours. The principle of laboratory animal care was followed. Observations were made and recorded systematically and continuously as per the guideline after substance administration. The visual observations included skin changes, mobility, aggressively, sensitivity to sound and pain, as well as respiratory movements. Finally, the number of survivors was noted after 24 hrs and these animals were then monitered for a further 14 days and observations made daily. The toxicological effect was assessed on the basis of mortality.

**Observations:**

Animals are observed individually after dosing at least once during the first 30 minutes, periodically during the first 24 hours, with special attention given during the first 4 hours, and daily thereafter, for a total of 14 days, except where they need to be removed from the study and humanely killed for animal welfare reasons or are found dead. It should be determined by the toxic reactions, time of onset and length of recovery period, and may thus be extended when considered necessary. The times at which signs of toxicity appear and disappear are important, especially if there is a tendency for toxic signs to be delayed. All observations are systematically recorded with individual records being maintained for each animal.

Observations include changes in skin and fur, eyes and mucous membranes, and also respiratory, circulatory, autonomic and central nervous systems, and somatomotor activity and behavior pattern. Attention was directed to observations of tremors, convulsions, salivation, diarrhoea, lethargy, sleep and coma. The principles and criteria summarized in the Humane Endpoints Guidance Document taken into consideration. Animals found in a moribund condition and animals showing severe pain or enduring

signs of severe distress was humanly killed. When animals are killed for human reasons or found dead, the time of death was recorded.

## REPEATED DOSE 28-DAY ORAL TOXICITY (407) STUDY OF *RAJALOGA NAATHARASA PARPAM*

| | |
|---|---|
| **Test Substance** | : **RAJALOGA NAATHARASA PARPAM** |
| **Animal Source** | : Kings institute, Guindy, Chennai |
| **Animals** | : Wister Albino Rats (Male -24, and Female-24) |
| **Age** | **:** 6-8 weeks |
| **Body Weight** | **:** 150-200gm. |
| **Acclimatization** | **:** Seven days prior to dose. |
| **Veterinary examination** | **:** Prior and at the end of the acclimatization period. |
| **Identification of animals** | **:** By cage number, animal number and individual marking by using Picric acid |
| **Diet** | **:** Pellet feed supplied by SaiMeera Foods Pvt Ltd, Bangalore |
| **Water** | **:** Aqua guard portable water in polypropylene bottles. |
| **Housing & Environment** | **:** The animals were housed in Polypropylene cages provided with bedding of husk. |
| **Housing temperature** | **:** between 22ºC±3ºC. |
| **Relative humidity** | **:** between 30% and 70%, |
| **Air changes** | **:** 10 to 15 per hour |
| **Dark and light cycle** | **:** 12**:**12 hours. |
| **Duration of the study** | **: 28 Days.** |

**Table 5**

| Groups | No of Rats |
|---|---|
| Group I Vehicle control (Water) | 12(6male,6 female) |
| Group II low dose X (20mg) | 12 (6male,6 female) |
| Group III Mid dose 10X (200mg) | 12 (6male,6female) |
| Group IV High dose 20X(400mg) | 12(6male,6female) |

RAJALOGA NAATHARASA PARPAM

**Methodology**

**Randomization, Numbering and Grouping of Animals:**

48 Wistar Albino Rats (24M + 24F) were selected and divided into 4 groups. Each group consist of 12 animals (Male -6, and Female-6). First group treated as a control and other three group were treated with test drug (low, mid, high) for 28 days. Animals were allowed acclimatization period of 7 days to laboratory conditions prior to the initiation of treatment. Each animal was marked with picric acid. The females were nulliparous and non-pregnant.

**Justification for Dose Selection:**

As per OECD guideline three dose levels were selected for the study. They are low dose (X), mid dose (10X), high dose (20X). X is calculated by multiplying the acute toxicity dose (2000mg) i.e X dose is (20mg/kg), 10X dose is (200mg/kg), 20X dose is (400mg/kg).

**Preparation and Administration of Dose:**

**RAJALOGA NAATHARASA PARPAM** suspended in with water, It was administered to animals at the dose levels of X, 10X, 20X. The test substance suspensions were freshly prepared every two days once for 28 days. The control animals were administered vehicle only. The drug was administered orally by using oral gavage once daily for 28 consecutive days.

**Observations:**

**Experimental animals were kept under observation throughout the course of study for the following:**

**Body Weight:**

Weight of each rat was recorded on day 0, at weekly intervals throughout the course of study.

**Food and water Consumption:**

Food and water consumed per animal was calculated for control and the treated dose groups.

**Clinical signs**:

All animals were observed daily for clinical signs. The time of onset, intensity and duration of these symptoms, if any, were recorded.

**Mortality:**

All animals were observed twice daily for mortality during entire course of study.

**Necropsy:**

All the animals were sacrificed by excessive anesthesia on day 29. Necropsy of all animals was carried out.

**Laboratory Investigations:**

Following laboratory investigations were carried out on day 29 in animals fasted over-night. Blood samples were collected from orbital sinus using sodium heparin (200IU/ml) for Bio chemistry and potassium EDTA (1.5 mg/ml) for Hematology as anticoagulant. Blood samples were centrifuged at 3000 r.p.m. for 10 minutes.

**Haematological Investigations:**

Haematological parameters were determined using Haematology analyzer.

**Biochemical Investigations:**

Biochemical parameters were determined using auto-analyzer.

**Histopathology:**

Control and highest dose group animals will be initially subjected to histopathological investigations. If any abnormality found in the highest dose group than the low, then the mid dose group will also be examined. Organs will be collected from all animals and preserved in 10% buffered neutral formalin for 24 h and washed in running water for 24 h. The organ sliced 5 or 6µm sections and were dehydrated in an auto technicon and then cleared in benzene to remove absolute alcohol. Embedding was done by passing the cleared samples through three cups containing molten paraffin at 50°C and then in a cubical block of paraffin made by the "L" moulds. It was followed by microtome and the slides were stained with Haematoxylin-eosin red.

**Statistical analysis:**

Findings such as body weight changes, water and food consumption, hematology and blood chemistry were subjected to One-way ANOVA followed by dunnet t test using a computer software programme – Graph pad version 7. All data were summarized in tabular form, (Table-6 to 12)

## PHARMACOLOGICAL STUDY

### 1. IMMUNOMODULATOR ACTIVITY - CELL LINE STUDY

The evaluation of the immunomodulatory activity of was Rajaloga naatharasa parpam carried out in cultured raw cell line in Biogenix Research Center.

### DETERMINATION OF INVITRO IMMUNOMODULATORY EFFECT OF EXTRACTS ON CULTURED RAW CELL LINES

**RAW 264.7 cells** was initially procured from National Centre for Cell Sciences (NCCS), Pune, India and maintained Dulbecco's modified Eagles medium, DMEM ( Sigma aldrich, USA).

The cell line was cultured in 25 $cm^2$ tissue culture flask with DMEM supplemented with 10% FBS, L-glutamine, sodium bicarbonate (Merck, Germany) and antibiotic solution containing: Penicillin (100U/ml), Streptomycin (100µg/ml), and

Amphoteracin B (2.5µg/ml). Cultured cell lines were kept at 37ºC in a humidified 5% $CO_2$ incubator (NBS Eppendorf, Germany).

The cells were grown to 60% confluency followed by activation with 1 µL lipopolysaccharide (LPS: 1µg/mL). LPS stimulated RAW cells were exposed with different concentration (25,50, 100 µg/mL) of sample solution and Diclofenac sodium, a standard anti-inflammatory drug in varying concentration corresponding to the sample was added and incubated for 24 hours. After incubation the anti-inflammatory assays were performed using the cell lysate.

**Estimation of Cellular Nitrite Levels**

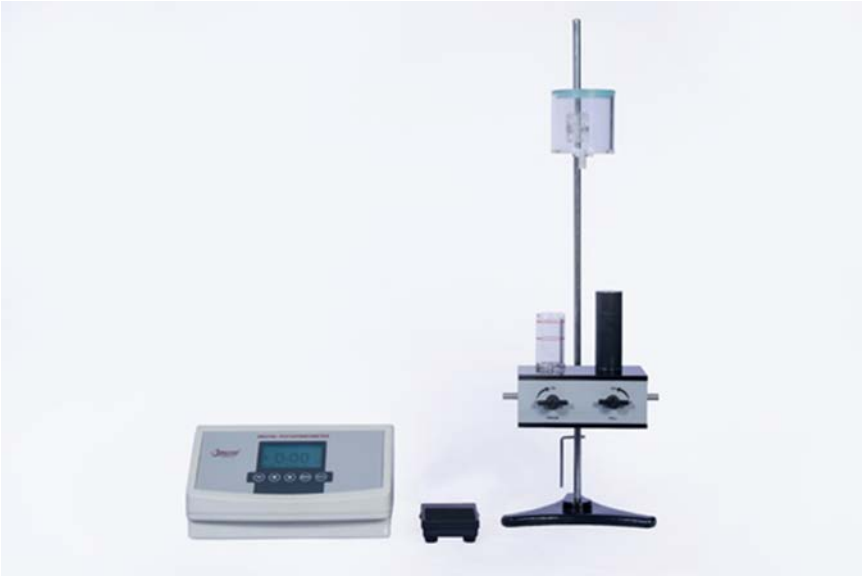
The level of nitrite level was estimated by the method of Lepoivre et al. (Lepoivre et. al. 1990) To 0.5 mL of cell lysate, 0.1 mL of sulphosalicylic acid was added and vortexed well for 30 minutes. The samples were then centrifuged at 5,000 rpm for 15 minutes. The protein-free supernatant was used for the estimation of nitrite levels. To 200 µL of the supernatant, 30 µL of 10% NaOH was added, followed by 300 µL of Tris-HCl buffer and mixed well. To this, 530 µL of Griess reagent was added and incubated in the dark for 10–15 minutes, and the absorbance was read at 540 nm against a Griess reagent blank. Sodium nitrite solution was used as the standard. The amount of nitrite present in the samples was estimated from the standard curves obtained.

## 2. ANTI-INFLAMMATORY STUDIES USING RAJALOGA NAATHARASA PARPAM (RNP)

For the experiment, the animals were divided into 5 groups with 6 animals in each group.

- Group-I (control) received 3% gum acacia 10 ml/kg p.o.
- Group-II (Carageenan) received 0.1ml of 1% w/v suspension of carrageenan S.C
- Group-III (standard) received Indomethacin 40 mg/kg p.o.
- Group-IV(Test-1) received RNP 200mg/kg p.o.
- Group-V(Test-2) received RNP 400mg/kg p.o.

All the drugs were administered orally and the volume of medicaments kept constant at 10 ml/kg body weight of the animals it was administered orally to rats 1 hrbefore subcutaneous injection of carrageenan. After 1 hr 0.1ml of 1% w/v suspension of carrageenan was injected into sub-plantar region of the left hind paw to all the groups. The paw volume was measured at 1, 2, 3, 4, and 5 hr using plethysmometer (Model 7150 UGO Basile, Italy) Edema was expressed as the mean increase in paw volume relative to control animals.



**CLINICAL STUDY**

This study was conducted after getting approval from IEC (Institutional Ethical Committee), GSMC Chennai**. IEC No: GSMC-CH-ME-21/014/2017**. This study was also registered in Clinical Trail Registry of India **CTRI/REF/2018/05/013640,** this was done in Post graduate department Sirappu Maruthuvam, Government Siddha Medical College and Hospital, Arignar Anna Hospital Campus, Arumbakkam, Chennai-106 under the observation and guidance of Head of the department. In this clinical study totally 40 cases were enrolled out of which 20 cases were treated with Internal medicine alone, 20 cases were treated with Internal , External medicines & Ottradam therapy.

**STUDY CENTER**

OPD of Arignaranna Government Hospital of Indian Medicine and Homeopathy, Arumbakkam, Chennai-106.

**TRAIL DRUG:**

**Internal : Rajaloga naatharasa parpam**

**External : Paruthi thylam**

**External therapy : Marikozhunthu Ottradam**

**Study period :** 21days

**Sample Size :** 40 cases

20 cases treated with Internal drug alone

20 cases treated with Internal, External drug and Ottradam (Therapy)

**SUBJECT SELECTION:**

There is considerable number of patients reporting of PG Sirappu Maruthuvam OPD, Aringar anna govt. hospital, GSMC, with the symptom of inclusion criteria will be subjected to screening test and documented using screening proforma. 40 Patients who fulfilled the inclusion criteria were included for the study. Patients criteria, clinical assessment, siddha assessment, laboratory investigations, diagnosis and treatment aspect in patients after the degree of palliation is achieved they were advised to visit OPD for further follow up selection were strictly subjected to protocol comprising selection.

**INCLUSION CRITERIA**

- Age : 18-60 years
- Sex : both male & female
- Low grade fever
- Morning stiffness>1hours
- Arthritis of ≥3 joint area of the possible 28 joints
- Arthritis of hand joints[MCPs , PIPs , WRISTs]
- Symmetric swelling –same joints on both sides
- Redness of joints
- Rheumatoid nodules
- Serum rheumatoid factor [RA factor] +ve or -ve
- Anti ccp +ve

**EXCLUSION CRITERIA**

- Systemic lupus erythematosis
- Sub acute bacterial endocarditis
- Rheumatic fever
- Gouty arthritis
- Carries spine
- Ankylosing spondylitis
- Psoriatic arthritis
- Osteomyelitis
- Renal failure
- Tumours
- History of long term intake of steroid
- HIV
- Progressive systemic sclerosis
- Pregnancy&lactation
- Chickungunya

**WITH DRAWAL CRITERIA**

- Intolerance to the drug and development of any serious adverse effect during the period of drug trial
- Patients turned unwilling to continue in the course of clinical trial with any other systemic illness.

**ADR REPORTING:**

- If ADR is reported patients will be referred to SCRI [Peripheral pharmacovigilance center]
- Patient is directed to nearest Government Hospital.

**CLINICAL ASSESSMENT**

**BLOOD :**

HB, Total WBC Count, Polymorphs, Lymphocytes, Eosinophil, Monocytes, Basophils, Total RBC Count, ESR, Blood sugar, Serum cholesterol.

**RENAL FUNCTION TESTS :**

Blood urea, Serum creatinine.

**LIVER FUNCTION TESTS :**

Total bilirubin, Serum Alkaline Phosphatase, SGOT, SGPT.

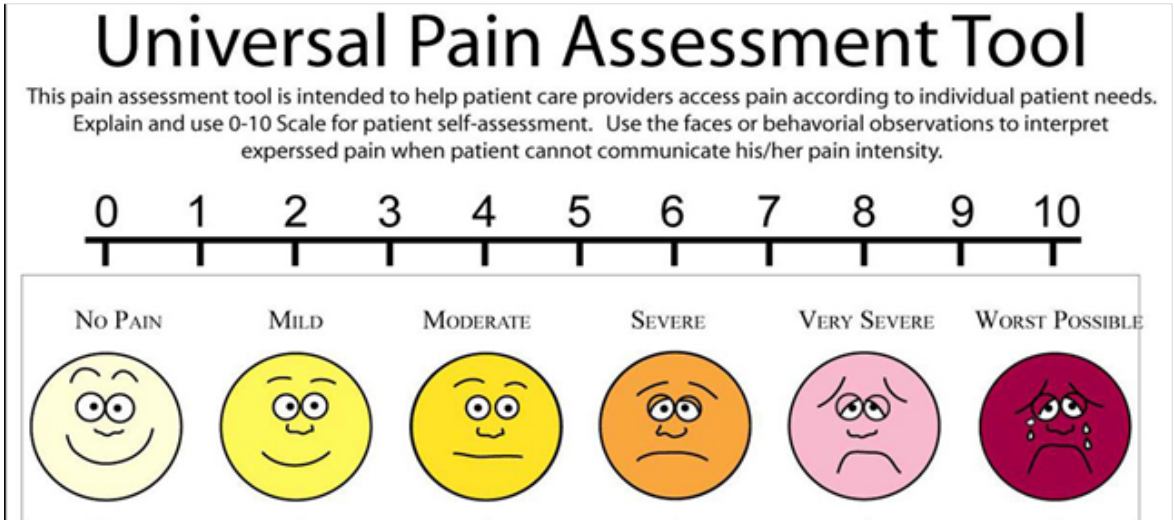
**SPECIFIC INVESTIGATION:**

RA Factor, Anti-CCP, CRP.

**URINE :**

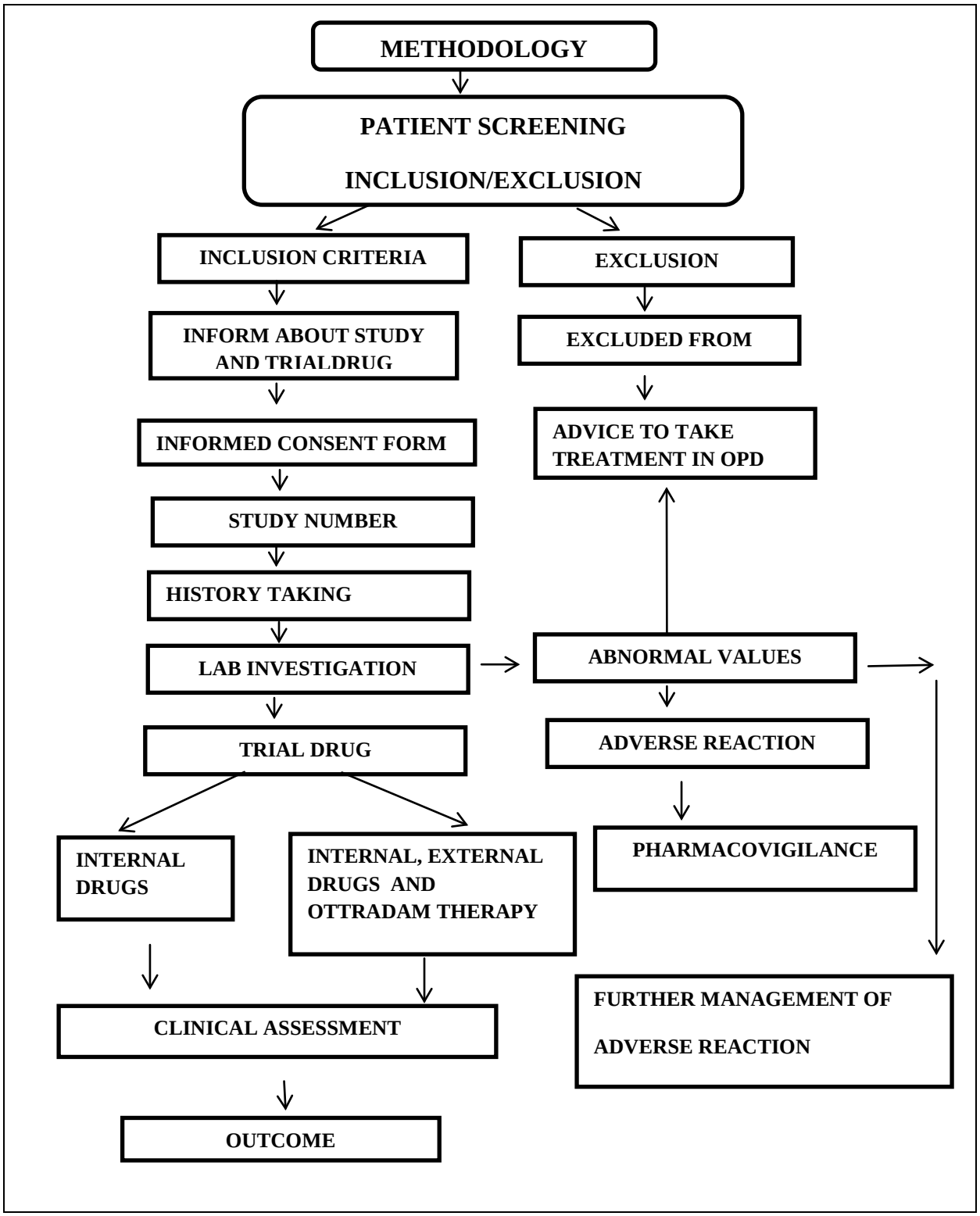
Albumin, Sugar, Deposits

**PAIN ASSESSMENT VISUAL ANALOGUE SCALE**




**STUDY ENROLMENT:**

Patient reporting at the OPD with symptoms of Anti CCP +ve, RA factor +ve/ -ve, CRP, Arthritis of more than 3 joints, Pain and swelling in inter phalangeal joints, Spindle shape swelling , rheumatoid nodules are chosen for enrolment based on this inclusion criteria. The patient who are enrolled are informed about the trial drug, possible outcomes and objective of the study in the language and terms understandable to them and the informed consent would be obtained in the consent form.


METHODOLOGY
PATIENT SCREENING
INCLUSION/EXCLUSION
INCLUSION CRITERIA
EXCLUSION
INFORM ABOUT STUDY AND TRIALDRUG
EXCLUDED FROM
INFORMED CONSENT FORM
ADVICE TO TAKE TREATMENT IN OPD
STUDY NUMBER
HISTORY TAKING
LAB INVESTIGATION
ABNORMAL VALUES
TRIAL DRUG
ADVERSE REACTION
INTERNAL DRUGS
INTERNAL, EXTERNAL DRUGS AND OTTRADAM THERAPY
PHARMACOVIGILANCE
CLINICAL ASSESSMENT
FURTHER MANAGEMENT OF ADVERSE REACTION
OUTCOME

## CONDUCT OF THE STUDY:

Patients satisfying the inclusion and exclusion criteria will be included in the trial. Modern investigations will be carried out before treatment and at the end of the treatment. At the end of the study the trial patients are advised to report when there is recurrence.

## DATA COLLECTION FORMS:

Required information will be collected from each patient by using following forms.

Form I : Screening and selection proforma

Form II : History taking proforma

Form III : Clinical assessment proforma

Form IV : Clinical assessment during and after trial

Form V : Laboratory investigation proforma

Form VI : Informed consent form

Form VII : Withdrawal form

Form VIII : Patients information sheet

From IX :Diet sheet

## DATA ANALYSIS:

After enrolling the patients in the study, a separate file for each patient will be maintained and all forms will be kept in the file. Whenever the patients visits OPD during the study period necessary entries will be made in the assessment forms. The data entries and adverse events if any will be monitored by the head of the department.

## OUTCOME OF TREATMENT

### PRIMARY OUTCOME

- Primary outcome is mainly assessed by reduction in pain and inflammation of joints
- Reduction of morning stiffness
- Pain is assessed by universal pain assessment scale

- By comparing the any two parameters before and after treatment ESR, Hb, Anti-CCP, RA factor

**SECONDARY OUTCOME**

- Secondary outcome is assessed by comparing the safety parameter before and after treatment.

**ETHICAL ISSUES**

- Informed consent will be obtained from the patients after explaining about the clinical trial in regional tongue.
- After the consent of the patient (through consent form) if they are in the inclusion criteria they will be enrolled in the study.
- Treatment will be provided free of cost.
- Concomitant medications will be given when required.
- Rescue medications will be given when needed.
- The patients who withdrawn from the trial are given proper treatment with full care at OPD & IPD.

# 5. RESULT AND OBSERVATIONS

# RESULTS AND OBSERVATIONS

## ORGANOLEPTIC CHARACTERS

**Table –5.1: Organoleptic character of *RAJALOGA NAATHARASA PARPAM***

| | |
|---|---|
| State | Solid |
| Appearance | Greyish White |
| Nature | Very Fine |
| Odor | Very Mild |
| Flow Property | Free flowing |

## PHYSICOCHEMICAL EVALUATION

**Table – 5.2: Physicochemical evaluation of *RAJALOGA NAATHARASA PARPAM***

| S.No | Parameter | Mean (n=3) SD |
|---|---|---|
| 1. | ***Loss on Drying at 105 °C (%)*** | 1.36 ± 0.64 |
| 2. | ***Total Ash (%)*** | 93.7 ± 1.66 |
| 3. | ***Acid insoluble Ash (%)*** | 12.8 ± 0.72 |
| 4. | ***Water Soluble Ash (%)*** | 7.73 ± 0.70 |
| 5. | ***Alcohol Soluble Extractive (%)*** | 0.15 ± 0.04 |
| 6. | ***Water soluble Extractive (%)*** | 0.33 ± 0.08 |
| 7. | ***Ph*** | 10.5 |

## HEAVY METAL ANALYSIS

**Table –5.3: Heavy Metal Analysis of *RAJALOGA NAATHARASA PARPAM***

| Name of the Heavy Metal | Absorption Max Λ max | Result Analysis | Maximum Limit |
|---|---|---|---|
| Mercury | 253.7 nm | 1.04 ppm | 1 ppm |
| Lead | 217.0 nm | 5.11 pm | 10 ppm |
| Arsenic | 193.7 nm | 0.04 ppm | 3 ppm |
| Cadmium | 228.8 nm | BDL | 0.3 ppm |

Cadmium **BDL- Below Detection Limit**

**Report and Inference**

Results of the present investigation have clearly shows that the sample has traces of heavy metals such as Mercury, Arsenic and lead. Further there is no trace of cadmium in the sample presented for analysis.

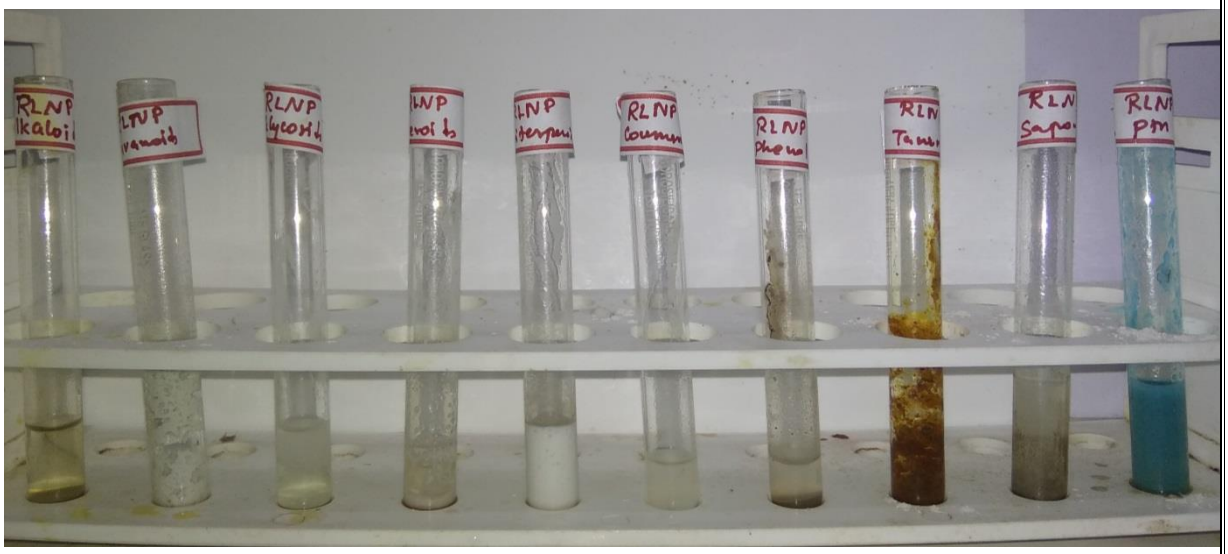
## PHYTOCHEMICAL ANALYSIS

**Table – 5.4: Phytochemical analysis of *RAJALOGA NAATHARASA PARPAM***

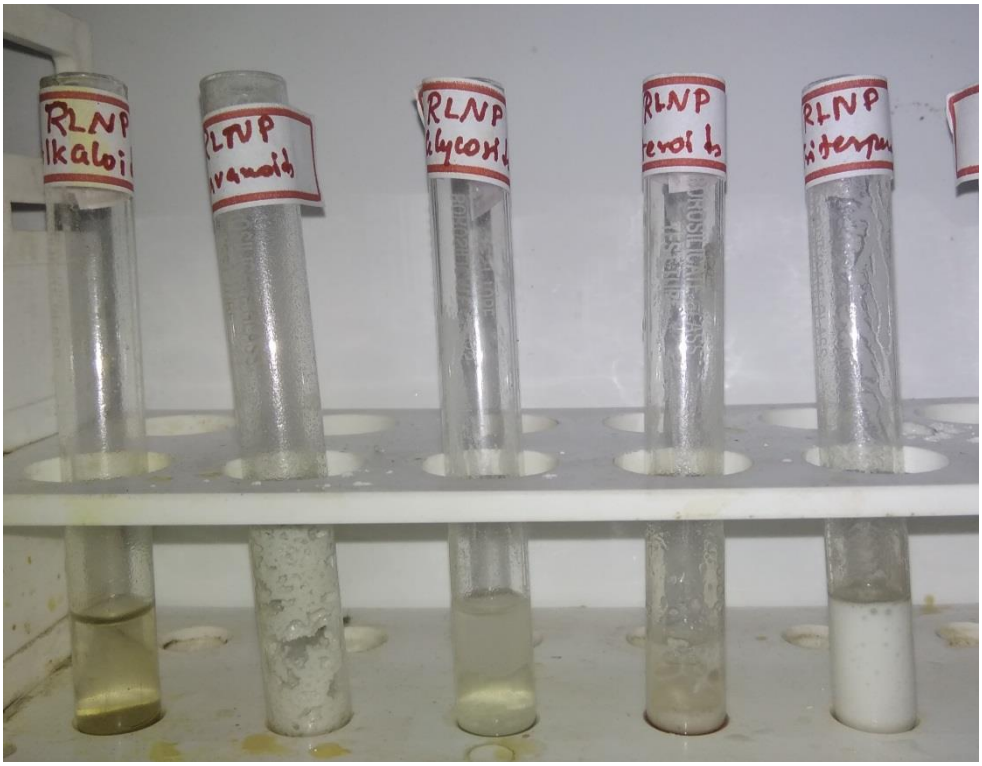
| S.NO | TEST | OBSERVATION |
|---|---|---|
| 1 | ALKALOIDS | - |
| 2 | FLAVANOIDS | - |
| 3 | GLYCOSIDES | - |
| 4 | STEROIDS | - |
| 5 | TRITERPENOIDS | - |
| 6 | COUMARIN | - |
| 7 | PHENOL | + |
| 8 | TANIN | + |
| 9 | PROTEIN | + |
| 10 | SAPONINS | + |
| 11 | SUGAR | - |
| 12 | ANTHOCYANIN | - |
| 13 | BETACYNIN | - |

**+ -> Indicates Positive and - -> Indicates Negative**

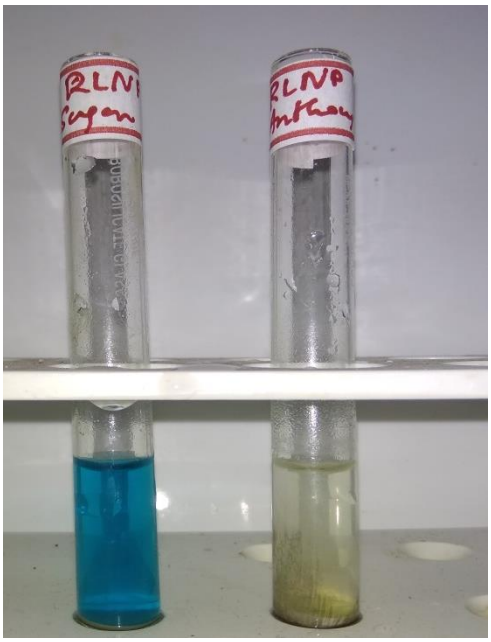
**TEST DONE FOR**



**Test for Alkaloids, Flavonoids, Glycosides, Steroids and Triterpenoids**




**Test for AnthoCyanin and carbohydrates**



## TOXICOLOGICAL STUDY

### Acute oral toxicity study of RAJALOGA NAATHARASA PARPAM

**Observation done:**

**Table – 5.5: Dose finding experiment and its behavioral Signs of acute oral Toxicity**

| SL | Group CONTROL | Observation | SL | Group TEST GROUP | Observation |
|---|---|---|---|---|---|
| 1 | Body weight | Normal | 1 | Body weight | Normally increased |
| 2 | Assessments of posture | Normal | 2 | Assessments of posture | Normal |
| 3 | Signs of Convulsion Limb paralysis | Normal | 3 | Signs of Convulsion | Absence of sign (-) |
| 4 | Body tone | Normal | 4 | Body tone | Normal |
| 5 | Lacrimation | Normal | 5 | Lacrimation | Absence |
| 6 | Salivation | Normal | 6 | Salivation | Absence |
| 7 | Change in skin color | No significant color Change | 7 | Change in skin color | No significant color change |
| 8 | Piloerection | Normal | 8 | Piloerection | Normal |
| 9 | Defecation | Normal | 9 | Defecation | Normal |
| 10 | Sensitivity response | Normal | 10 | Sensitivity response | Normal |
| 11 | Locomotion | Normal | 11 | Locomotion | Normal |
| 12 | Muscle gripness | Normal | 12 | Muscle gripness | Normal |
| 13 | Rearing | Mild | 13 | Rearing | Mild |
| 14 | Urination | Normal | 14 | Urination | Normal |

**Behaviour:**

The animals will be observed closely for behaviour in the first four hours which includes abnormal gait, aggressiveness, exophthalmos, ptosis, akinesia, catalepsy, convolusion, excitation, head twitches, lacrimation, loss of corneal reflex, loss of traction, piloerection reactivity of touch, salivation, scratching, sedation, chewing, head movements, sniffing, straub, tremor and writhes, diarrhea, leathery, sleep and coma.

**Body Weight:**

Individual weight of animals was determined before the test substance was administered and weights will be recorded at day 1, 7, and 14 of the study. Weight changes were calculated and recorded. At the end of the test, surviving animals were weighed and humanly killed.

**Food and water Consumption:**

Food and water consumed per animal was calculated for control and the treated dose groups.

**Mortality:**

Animals were observed for mortality throughout the entire period.

**Results:**

All data were summarized in tabular form, (Table-1-4) showing for each test group the number of animals used, the number of animals displaying signs of toxicity, the number of animals found dead during the test, description of toxic symptoms, weight changes, food and water intake

No of animals in each group:3

**Table – 5.6: Observational study Results**

| 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. | Control | + | - | - | + | - | + | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2. | 2000mg | + | - | - | + | - | + | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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.Diarrhea 18. Writhing 19. Respiration 20. Mortality.

(+ Present, - Absent)

**Table – 5.7: Body weight Observation**

| DOSE | DAYS | | |
|---|---|---|---|
| | 1 | 7 | 14 |
| **CONTROL** | 229.2±12.30 | 229.4 ± 10.10 | 232.2 ±12.10 |
| **HIGH DOSE** | 310.4± 1.01 | 310 ± 2.04 | 314.2 ± 2.10 |
| **P value (p)*** | NS | NS | NS |

**Table – 5.8: Water intake (ml/day) of Wistar albino rats group exposed to *RAJALOGA NAATHARASA PARPAM***

| DOSE | DAYS | | |
|---|---|---|---|
| | 1 | 6 | 14 |
| **CONTROL** | 58 ± 1.02 | 58±9.20 | 59.4±1.04 |
| **HIGH DOSE** | 60.4±1.20 | 60.8±1.40 | 59.9±6.24 |
| **P value (p)*** | NS | NS | NS |

N.S- Not Significant,**(p > 0.01), *(p >0.05), n = 10 values are mean ± S.D (One-way ANOVA followed by Dunnett's test)

**Table -5.9: Food intake (gm/day) of Wistar albino rats group exposed to*RAJALOGA NAATHARASA PARPAM***

| DOSE | DAYS | | |
|---|---|---|---|
| | 1 | 7 | 14 |
| **CONTROL** | 61.04±2.62 | 62.2±4.76 | 64.3±6.26 |
| **High DOSE** | 62.4±4.23 | 62.4±6.22 | 62.6±4.18 |

## SUB ACUTE TOXICITY

# Repeated Dose 28- day oral toxic study of RAJALOGA NAATHARASA PARPAM

**Table – 5.10: Body weight of wistar albino rats group exposed to *RAJALOGA NAATHARASA PARPAM***

| DOSE | DAYS | | | | |
|---|---|---|---|---|---|
| | 1 | 7 | 14 | 21 | 28 |
| **CONTROL** | 235.2±18.46 | 236.5 ± 35.10 | 236.6 ± 45.60 | 238.7± 56.16 | 238.4 ± 66.15 |
| **LOW DOSE** | 284.2 ± 65.24 | 284.7 ± 66.28 | 285.6± 55.34 | 286 ±56.34 | 286.8± 35.36 |
| **MID DOSE** | 242.4± 16.34 | 243.3 ± 16.24 | 243.4 ± 14.12 | 245.2 ± 15.20 | 246.4 ± 54.10 |
| **HIGH DOSE** | 251.6± 62.24 | 251.4±42.22 | 252.4 ± 52.24 | 253 ± 54.28 | 254 ± 74.60 |
| **P value (p)*** | NS | NS | NS | NS | NS |

NS- Not Significant, **(p > 0.01),*(p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

**Table – 5.11: Water intake (ml/day) of Wistar albino rats group exposed to *RAJALOGA NAATHARASA PARPAM***

| DOSE | DAYS | | | | |
|---|---|---|---|---|---|
| | 1 | 6 | 14 | 21 | 28 |
| **CONTROL** | 60.1 ± 8.72 | 60±1.52 | 60.2±1.40 | 61±1.32 | 61.4±1.62 |
| **LOW DOSE** | 63.1±1.21 | 63.6±4.22 | 63.6±1.02 | 63.2±2.06 | 64.4±1.20 |
| **MID DOSE** | 66.1±1.02 | 66.3±1.21 | 66.1±2.62 | 66.4±4.32 | 65.4±1.64 |
| **HIGH DOSE** | 61.1±1.81 | 61.2±1.32 | 61.4±1.14 | 61.6±1.62 | 61.8±2.02 |
| **P value (p)*** | NS | NS | NS | NS | NS |

N.S- Not Significant, **(p > 0.01), *(p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

**Table -5.12: Food intake (gm/day) of Wistaralbino rats group exposed to *RAJALOGA NAATHARASA PARPAM***

| DOSE | DAYS | | | | |
|---|---|---|---|---|---|
| | 2 | 7 | 23 | 22 | 28 |
| **CONTROL** | 34±4.14 | 34.2±6.12 | 34.3±2.18 | 34.2±1.14 | 34±5.62 |
| **LOW DOSE** | 36.3±1.64 | 36.3±1.51 | 36.2±1.51 | 36.5±1.62 | 36.5±1.22 |
| **MID DOSE** | 34.1±2.12 | 34.2±3.50 | 34.2±2.14 | 34.2±2.16 | 35.2±1.64 |
| **HIGH DOSE** | 32.4±1.62 | 32.1±1.64 | 32.6±2.36 | 32.6±1.20 | 36.4±2.32 |
| **P value (p)*** | NS | NS | NS | NS | NS |

N.S- Not Significant, **(p > 0.01), *(p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett'stest

**Table – 5.13: Haematological parameters of Wistaralbino rats group exposed to *RAJALOGA NAATHARASA PARPAM***

| Category | Control | Low dose | Mid dose | High dose | P value (p)* |
|---|---|---|---|---|---|
| **Haemoglobin(g/dl)** | 11.4±0.71 | 11.60±0.14 | 11.7±0.13 | 11.82±0.13 | N.S |
| **Total WBC ($\times 10^3$ l)** | 10.31±0.22 | 10.42±0.22 | 10.34±0.22 | 10.29±1.10 | N.S |
| **Neutrophils (%)** | 21.13±0.60 | 21.02±0.52 | 21.11±1.42 | 22.02±2.71 | N.S |
| **lymphocyte (%)** | 82.10±1.26 | 82.12±1.42 | 83.10±2.44 | 83.20±2.54 | N.S |
| **Monocyte (%)** | 1.1±0.03 | 1.1±0.01 | 1.2±0.04 | 1.1±0.03 | N.S |
| **Eosinophil (%)** | 0.8±0.03 | 0.8±0.04 | 0.9±0.05 | 0.9±0.08 | N.S |
| **Platelets cells$10^3$/µl** | 900.17±3.18 | 901.11±4.02 | 901.1±2.20 | 901.2±2.64 | N.S |
| **Total RBC $10^6$/µl** | 9.32±0.11 | 9.33±0.33 | 9.35±0.64 | 9.36±0.46 | N.S |
| **PCV%** | 44.10±0.2 | 44.12±5.30 | 45.8±4.70 | 46.4±.62 | N.S |
| **MCHC g/Dl** | 36.5±1.61 | 36.2±1.51 | 36.8±1.30 | 36.3±1.60 | N.S |
| **MCV fL(µ$m^3$)** | 58.2±2.02 | 58.2±1.80 | 58.7±1.10 | 59.7±1.30 | N.S |

N.S- Not Significant, **(p > 0.01), *(p >0.05), n = 10 values are mean ± S.D (One-way ANOVA followed by Dunnett's test)

**Table – 5.14: Biochemical Parameters of Wistaralbino rats group exposed to *RAJALOGA NAATHARASA PARPAM***

| BIOCHEMICAL PARAMETERS | CONTROL | LOW DOSE | MID DOSE | HIGH DOSE | P Value (p)* |
|---|---|---|---|---|---|
| **GLUCOSE (R) (mg/dl)** | 138.10±2.02 | 139.12±2.10 | 140.9±12.06 | 141.12±5.25 | N.S |
| **T.CHOLESTEROL(mg/dl)** | 140.14±5.10 | 141.15±5.20 | 141.40±1.68 | 142.21±1.10 | N.S |
| **TRIGLY(mg/dl)** | 74.15±1.82 | 74.11±1.32 | 75.15±1.22 | 77.16±1.21 | N.S |
| **LDL** | 78.6±2.13 | 78.7±2.05 | 79.10±1.03 | 79.40±01.32 | NS |
| **VLDL** | 14.2±1.52 | 14.20±2.41 | 15.02±1.32 | 15.04±12.15 | NS |
| **HDL** | 28.12±4.32 | 27.32±2.50 | 29.46±1.20 | 29.51±1.23 | NS |
| Ratio 1 (T.CHO/HDL) | 3.73±1.16 | 3.72±1.80 | 3.73±1.32 | 3.74±2.33 | NS |
| Ratio 2 (LDL/HDL) | 1.92±1.22 | 1.92±1.20 | 1.93±2.20 | 1.94±06.02 | NS |
| **Albumin(g/dL)** | 6.21±0.22 | 6.22±0.52 | 6.±7.20 | 6.55±6.48 | NS |

NS- Not Significant,**(p > 0.01), * (p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

**Table – 5.15: Renal function test of Wistaralbino rats group exposed to *RAJALOGA NAATHARASA PARPAM***

| PARAMETERS | CONTROL | LOW DOSE | MID DOSE | HIGH DOSE | P Value (p)* |
|---|---|---|---|---|---|
| **UREA (mg/dl)** | 14.50±0.29 | 14.50±0.29 | 14.46±1.18 | 14.42±1.22 | N.S |
| **CREATININE(mg/dl)** | 0.42±0.02 | 0.41±0.04 | 0.43±0.03 | 0.42±0.09 | N.S |
| **BUN(mg/dL)** | 19.1±0.02 | 19.2±0.34 | 19.3±0.42 | 19.2±1.02 | NS |
| **URIC ACID(mg/dl)** | 4.02±0.04 | 4.06±0.21 | 4.4±0.12 | 4.20±0.10 | N.S |

NS- Not Significant, **(p > 0.01), * (p >0.05) , n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

**Table 16: Liver Function Test of ofWistar albino rats group exposed to *RAJALOGA NAATHARASA PARPAM***

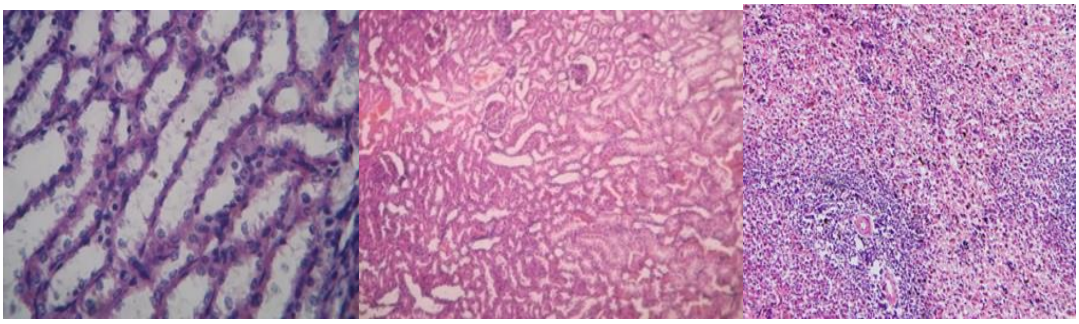
| PARAMETERS | CONTROL | LOW DOSE | MID DOSE | HIGH DOSE | P Value (p)* |
|---|---|---|---|---|---|
| **T BILIRUBIN(mg/dl).** | 0.08±0.01 | 0.08±0.03 | 0.08±0.03 | 0.08±0.01 | N.S |
| **SGOT/AST(U/L)** | 64.11±1.53 | 64.12±0.22 | 64.24±1.54 | 65.74±1.53 | N.S |
| **SGPT/ALT(U/L)** | 79.21±1.02 | 79.24±1.04 | 79.24±1.16 | 79.28±0.21 | N.S |
| **ALP(U/L)** | 137.11±2.21 | 138±2.20 | 138±1.24 | 139.03±6.02 | N.S |
| **T.PROTEIN(g/dL)** | 7.2.40±0.14 | 7.2±0.41 | 7.2±0.60 | 7.3±0.61 | N.S |

NS- Not Significant, **(p > 0.01), * (p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test.

## HISTO PATHOLOGY

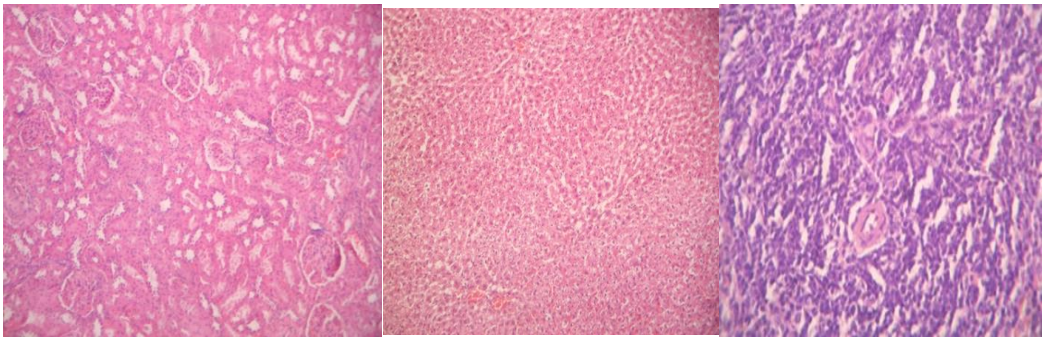
## CONTROL GROUP

**KIDNEY** **LIVER** **SPLEEN**



## High dose

**KIDNEY** **LIVER** **SPLEEN**



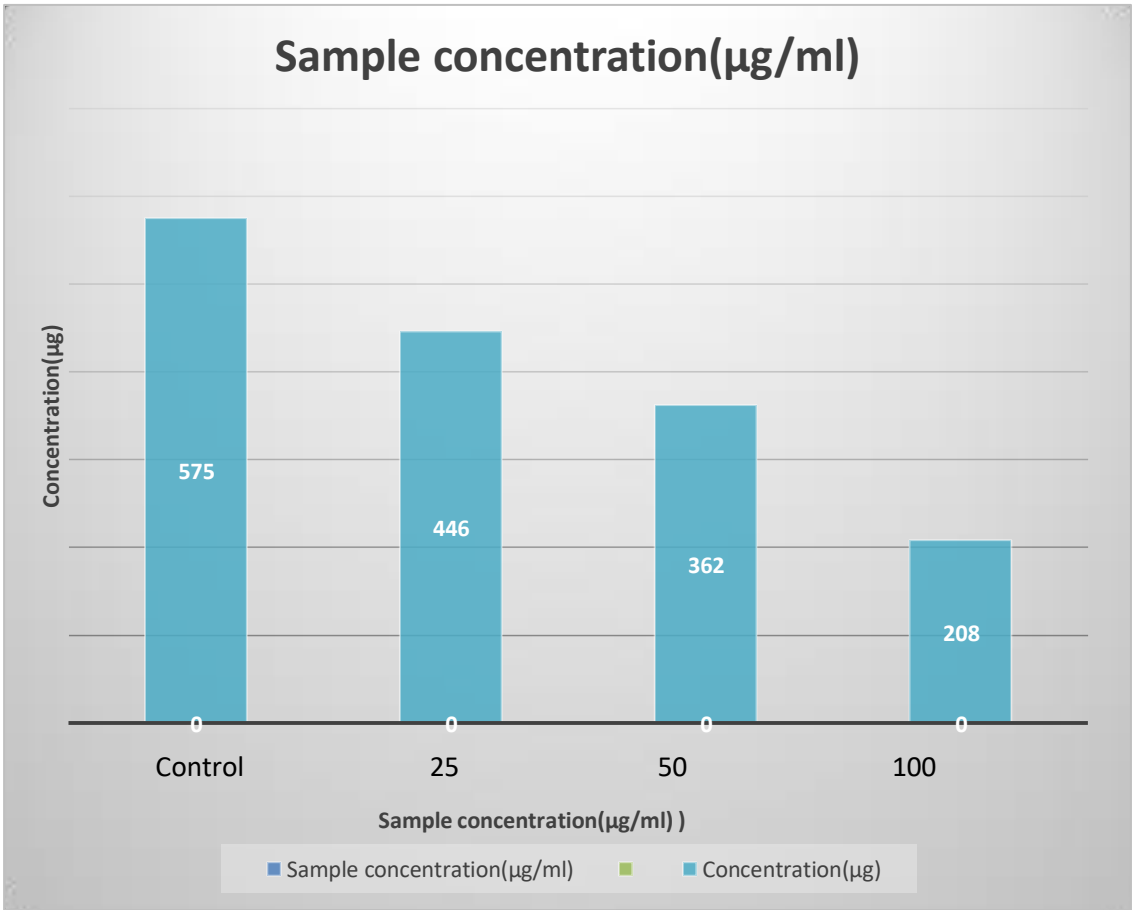
## PHARMACOLOGICAL STUDY

### SAMPLE:RAJALOGA NAATHA RASA PARPAM

**Table – 5.17: Immunomodulator activity of RNP**

| Sample concentration(µg/ml) | OD at 540nm | Concentration(µg) |
|---|---|---|
| Control | 0.1162 | 575.19 |
| 25 | 0.0902 | 446.49 |
| 50 | 0.0733 | 362.835 |
| 100 | 0.0421 | 208.395 |

**Chart – 1:Sample concentration**



**Standard-Nitrate level**

**Table –5.18: Standard nitrate level for Immunomodulatory activity**

| Concentration(µg) | OD (540nm) |
|---|---|
| 100 | 0.021 |
| 200 | 0.042 |
| 300 | 0.063 |
| 400 | 0.080 |
| 500 | 0.170 |

**RESULT AND INFERENCE:**

While the concentration level is decreased, nitrate level increased. Hence 25µg/ml of RLNRP has rich level of nitrate and thus proven to be an immunomodulator

**PAW EDEMA VOLUME**

**Table –5.19: Paw edema volume of anti-inflammatory studies by using RNP**

| Group | | Dose | | Initial paw volume | | Change in paw edema mm at different time intervals | |
|---|---|---|---|---|---|---|---|
| | | 0hr | 1 hr | 2hr | 3hr | 4hr | 5hr |
| I | Control | 1.20 ±0.14 | 1.20±0.14 | 1.20±0.14 | 1.20±0.14 | 1.20±.14 | 1.20±0.14 |
| II | Carrageenan | 1.21±0.17 | 1.91 ±0.21 | 2.27 ± 0.02 | 2.37 ± 0.14 | 2.48 ± 0.18 | 2.62 ± 0.17** |
| III | Indomethacin | 1.01±0.06 | 2.10±0.26 | 1.56±0.15 | 1.47±0.05 | 1.34±0.18 | 1.15±0.16** |
| IV | Low dose | 1.38 ±0.21 | 1.43 ±0.20 | 1.49 ± 0.42 | 1.58 ± 0.14 | 1.51 ± 0.33 | 1.50 ± 0.32** |
| V | High dose | 1.20±0.24 | 1.32 ±0.22 | 1.52 ± 0.33 | 1.56 ± 0.52 | 1.42 ± 0.51 | 1.30 ± 0.62** |

The paw volume up to the tribiotural articulation was measured at 0, 1, 2, 3, 4, 5 hrs

Each value represents the mean ± SEM of results from six rats. ** $p < 0.01$ compared to control

**Table –5.20:Percentage protection anti-inflammation**

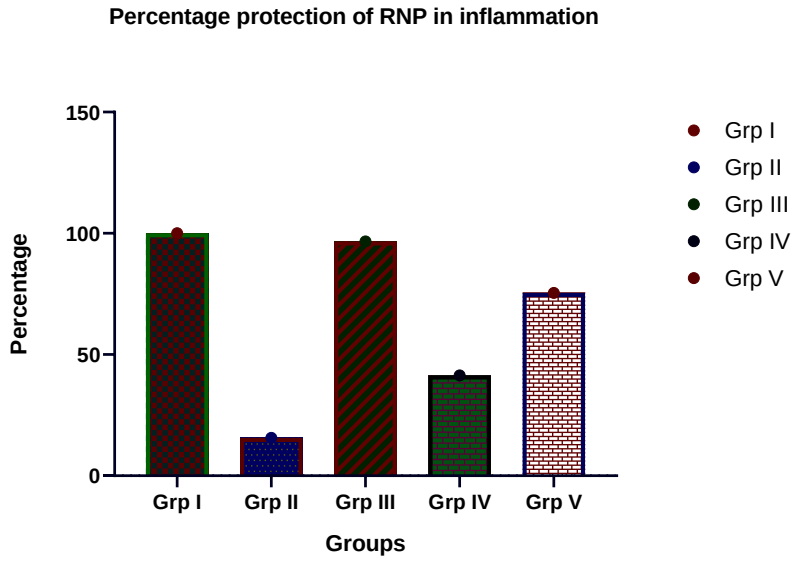
| Group | Initial paw volume | 5 hr in mm | Difference in paw volume | Percentage protection |
|---|---|---|---|---|
| I | 1.20 ± 0.14 | 1.20±0.14 | 0.00 | 100 |
| II | 1.21± 0.17 | 2.82 ± 0.17 | 1.61 | 15.62 |
| III | 1.01± 0.06 | 1.15 ± 0.16 | 0.14 | 96.68 |
| IV | 1.38 ± 0.13 | 1.69 ± 0.32 | 0.25 | 41.42 |
| V | 1.20 ±0.44 | 1.46 ± 0.12 | 0.14 | 75.45 |

Percentage protection is calculated by the formulae: $(T_2 - T_1/T_2) \times 100$

$T_1$----normal control

$T_2$ ----drug treated test

**Chart -2**




**Results of the study were observed with respect to the following criteria**

1. Selection of case
2. Age distribution
3. Gender distribution
4. Occupational distribution
5. Socio-economic status
6. Diet
7. Duration of illness
8. Distribution Paruvakalangal
9. Distribution Kaalam (Season)
10. Distribution of Vatham
11. Distribution of Pitham
12. Distribution of Kabam
13. Distribution of Envagaithervugal
14. Neerkuri/Neikkuri
15. Clinical Prognosis

Group I

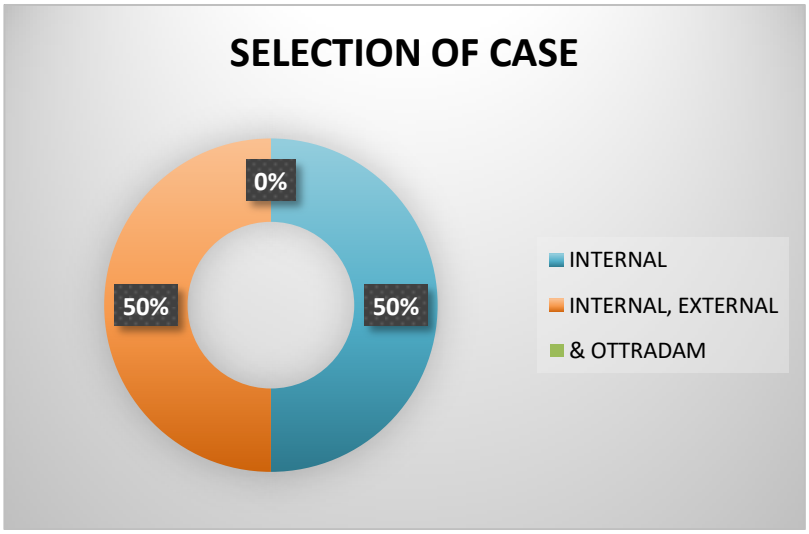
Group II

## SELECTION OF CASE

**Table –5.21: Selection of case**

| S.NO | SELECTION OF CASE | NO OF PATIENTS | PERCENTAGE (%) |
|---|---|---|---|
| 1 | INTERNAL | 20 | 50 |
| 2 | INTERNAL, EXTERNAL & OTTRADAM | 20 | 50 |

**Chart – 3:Selection of case**




**Inference:**

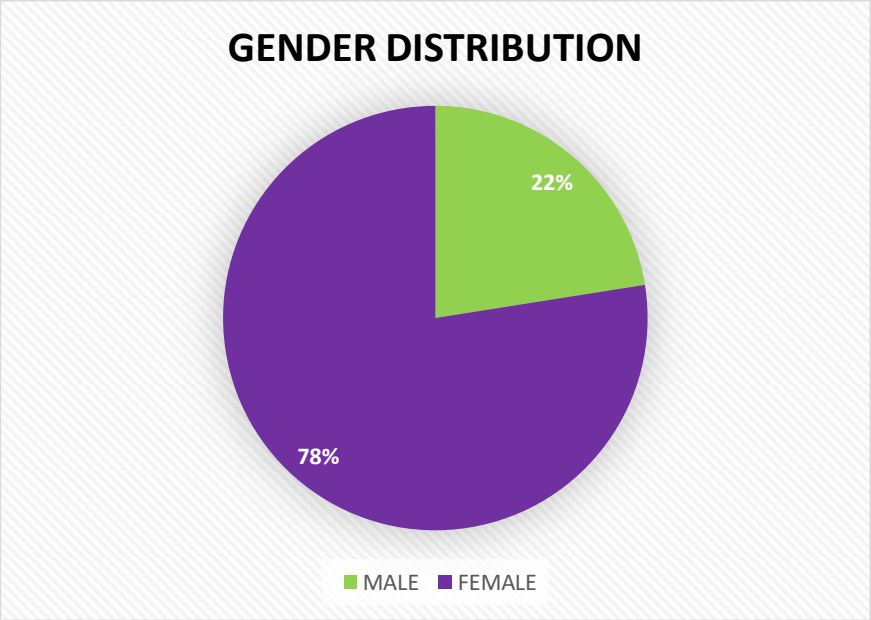
Among 40 cases, 20 cases (50%) were treated with internal drug alone, 20 cases (50%) were treated with internal, external ottradam.

## GENDER DISTRIBUTION

**Table –5.22: Gender distribution**

| S.NO | GENDER DISTRIBUTION | NO OF PATIENTS | PERCENTAGE(%) |
|---|---|---|---|
| 1 | MALE | 9 | 22.5 |
| 2 | FEMALE | 31 | 77.5 |

**Chart -4: Gender distribution**




**Inference:**

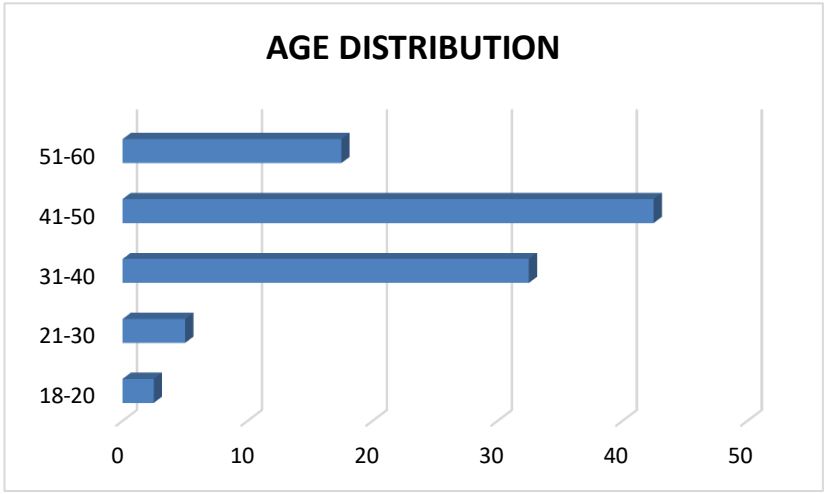
Among 40 cases, 9 cases (22.5%) were male and 31 cases (77.5%) were female.

## AGE DISTRIBUTION

**Table –5.23:Age distribution**

| S.NO | AGE DISTRIBUTION | NO OF CASE | PERCENTAGE(%) |
|---|---|---|---|
| 1 | 18-20 | 1 | 2.5 |
| 2 | 21-30 | 2 | 5 |
| 3 | 31-40 | 13 | 32.5 |
| 4 | 41-50 | 17 | 42.5 |
| 5 | 51-60 | 7 | 17.5 |

**Chart –5:Age distribution**




**Inference:**

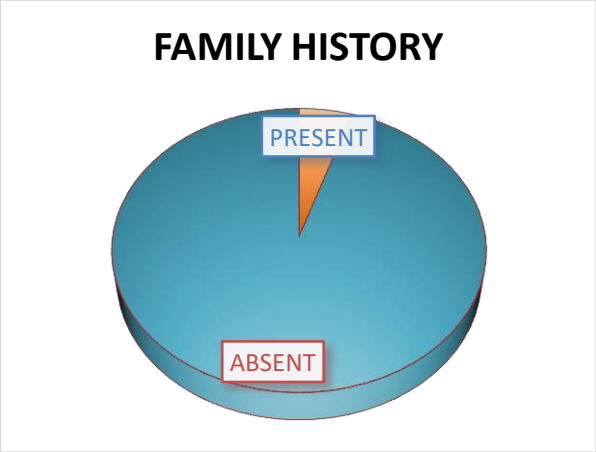
Among 40 cases, high age incidence is between 41-50 (42.5%) and 31-40 (32.5%).

**FAMILY HISTORY:**

**Table –5.24: Family history**

| S.NO | FAMILY HISTORY | NO OF CASES | PERCENTAGE(%) |
|---|---|---|---|
| 1. | PRESENT | 2 | 5 |
| 2. | ABSENT | 38 | 95 |

**Chart – 6: Family history**




**Inference:**

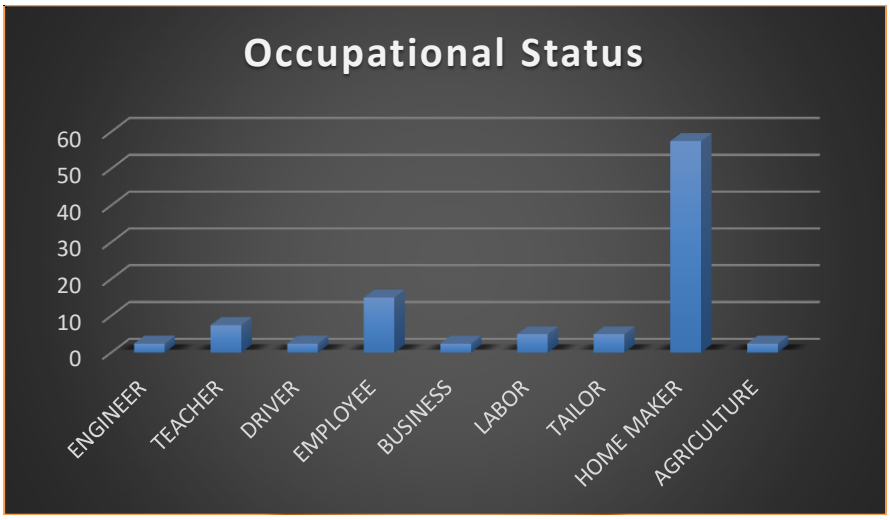
Among 40 cases, only 2 cases(5%) had positive family history of Rheumatoid arthritis.

## OCCUPATIONAL HISTORY

**Table -5.25: Occupational status**

| S.NO | OCCUPATIONAL STATUS | NO OF CASES | PERCENTAGE(%) |
|---|---|---|---|
| 1. | ENGINEER | 1 | 2.5 |
| 2. | TEACHER | 3 | 7.5 |
| 3. | DRIVER | 1 | 2.5 |
| 4. | EMPLOYEE | 6 | 15 |
| 5. | BUSINESS | 1 | 2.5 |
| 6. | LABOR | 2 | 5 |
| 7. | TAILOR | 2 | 5 |
| 8. | HOME MAKER | 23 | 57.5 |
| 9. | AGRICULTURE | 1 | 2.5 |

**Chart - 7: Occupational status**




**Inference:**

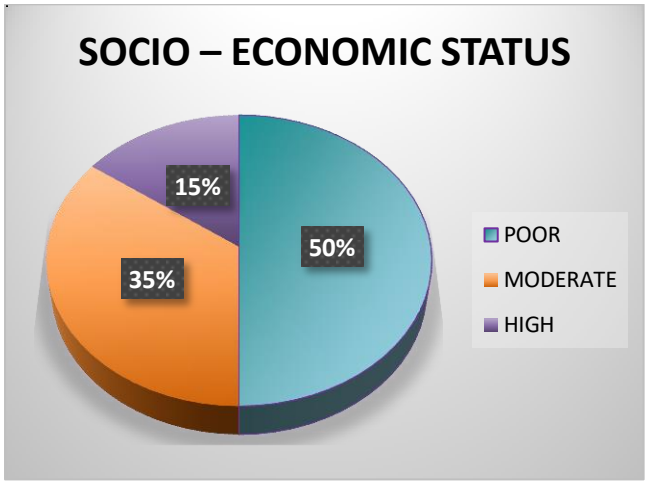
Among 40 cases, 23 cases (57.5%) were Home maker and 6 cases (15%) were Employee.

**SOCIO – ECONOMIC STATUS:**

**Table – 5.26: Socio – Economic Status**

| S.NO | SOCIO – ECONOMIC STATUS | NO OF CASES | PERCENTAGE(%) |
|---|---|---|---|
| 1. | POOR | 20 | 50 |
| 2. | MODERATE | 14 | 35 |
| 3. | HIGH | 6 | 15 |

**Chart - 8: Socio – Economic Status**




**Inference:**

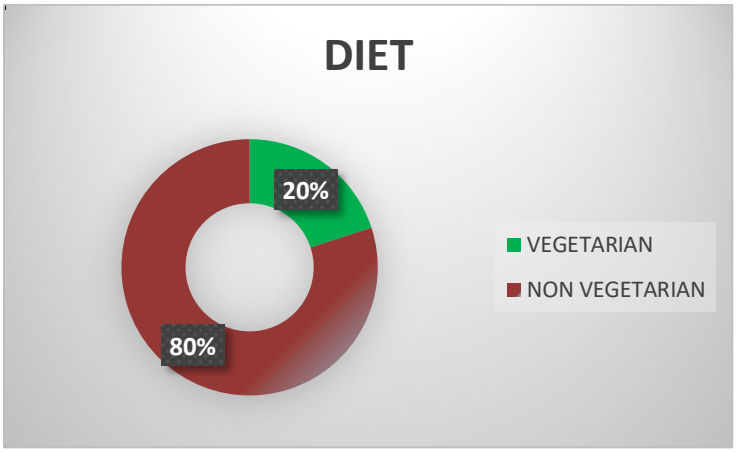
Among 40 cases, 20 cases (50%) were poor, 14 cases (35%) were moderate and 6 Cases (15%) were from high class.

**DIET:**

**Table – 5.27: Diet**

| S.NO | DIET | NO OF CASES | PERCENTAGE(%) |
|---|---|---|---|
| 1. | VEGETARIAN | 8 | 20 |
| 2. | NON VEGETARIAN | 32 | 80 |

**Chart - 9: Diet**




**Inference:**

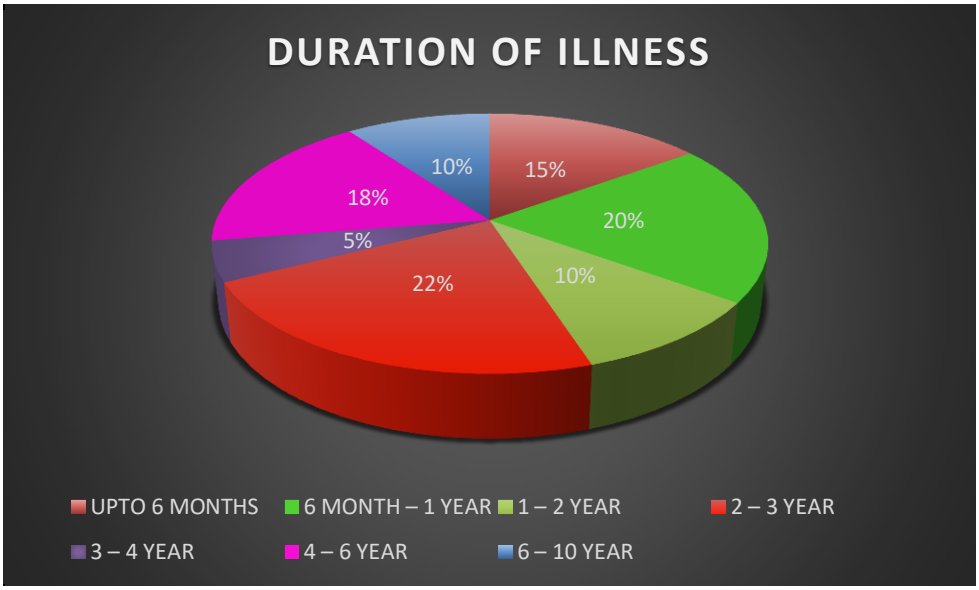
Among 40 cases, 32 cases (80%) were non-vegetarian and 8 cases (20%) were vegetarian.

**DURATION OF ILLNESS:**

**Table – 5.28: Duration of illness**

| S.NO | DURATION OF ILLNESS | NO OF CASES | PERCENTAGE(%) |
|---|---|---|---|
| 1. | UPTO 6 MONTHS | 6 | 15 |
| 2. | 6 MONTH – 1 YEAR | 8 | 20 |
| 3. | 1 – 2 YEAR | 4 | 10 |
| 4. | 2 – 3 YEAR | 9 | 22.5 |
| 5. | 3 – 4 YEAR | 2 | 5 |
| 6. | 4 – 6 YEAR | 7 | 17.5 |
| 7. | 6 – 10 YEAR | 4 | 10 |

**Chart - 10: Duration of illness**




**Inference:**

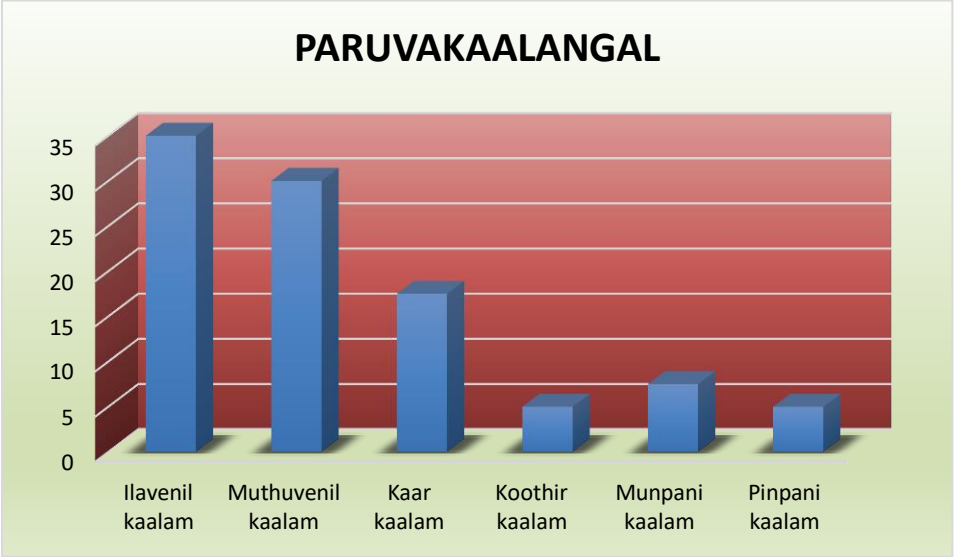
Among 40 cases, 9 cases (22.5%) had 2-3 years of illness, 8 cases (20%) had 6 months-1year of illness, 7 cases (17.5%) had 4-6 years of illness, 6 cases (15%) had up to 6 months of illness, 4 cases (10%) had 1-2 year of illness,4 cases (10%) had 6-10 years of illness and 2 cases(5%) had 3-4 years of chronic illness.

## DISTRIBUTION AMONG PARUVAKAALANGAL

**Table –5.29:Paruvakaalangal**

| S.No | Paruvakaalam | No of cases | Percentage |
|---|---|---|---|
| 1. | Ilavenilkaalam | 14 | 35 |
| 2. | Muthuvenilkaalam | 12 | 30 |
| 3. | Kaarkaalam | 7 | 17.5 |
| 4. | Koothirkaalam | 2 | 5 |
| 5. | Munpanikaalam | 3 | 7.5 |
| 6. | Pinpanikaalam | 2 | 5 |

**Chart – 11:Paruvakaalangal**




**Inference:**

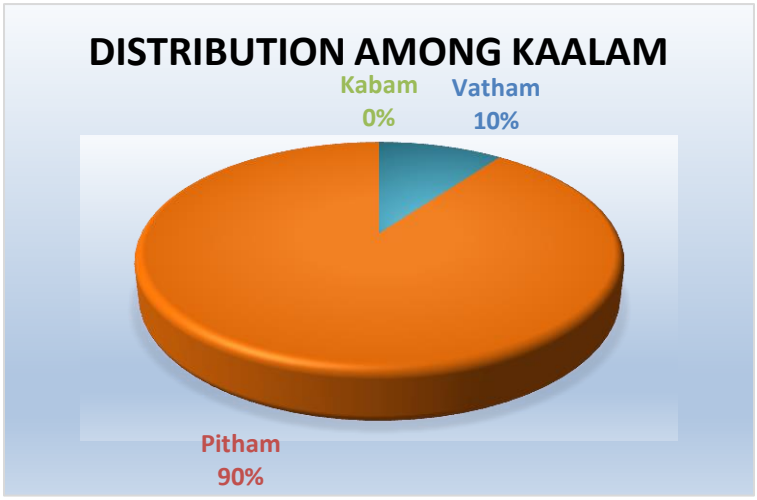
Among 40 patients, 35%, 30%, 17.5%, 5%, 7.5% , 5% of patients came in Ilavenil kaalam, Muthuvenil kaalam, Kaar, koothir, Munipani, Pinpani.

## DISTRIBUTION AMONG KAALAM

**Table –5.30:Distribution among kaalam**

| S.No | Kaalam | No of patients | Percentage |
|---|---|---|---|
| 1 | Vatham | 4 | 10 |
| 2 | Pitham | 36 | 90 |
| 3 | Kabam | 0 | 0 |

**Chart -112: Distribution among kaalam**




**Inference:**

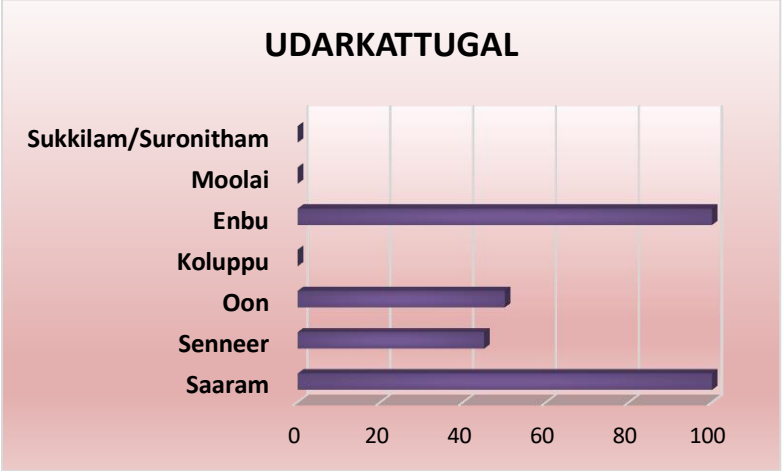
Out of 40 patients, 10% of patients were belonged Vatha kaalam and 90% belonged to Pitha kaalam.

## DISTRIBUTION OF UDARKATTUGAL

**Table –5.31:Distribution of udarkattugal**

| S.No | Udarkattugal | No of Patients | Percentage |
|---|---|---|---|
| 1 | Saaram | 40 | 100 |
| 2 | Senneer | 18 | 45 |
| 3 | Oon | 20 | 50 |
| 4 | Koluppu | 0 | 0 |
| 5 | Enbu | 40 | 100 |
| 6 | Moolai | 0 | 0 |
| 7 | Sukkilam/Suronitham | - | - |

**Chart -13: Distribution of udarkattugal**




**Inference:**

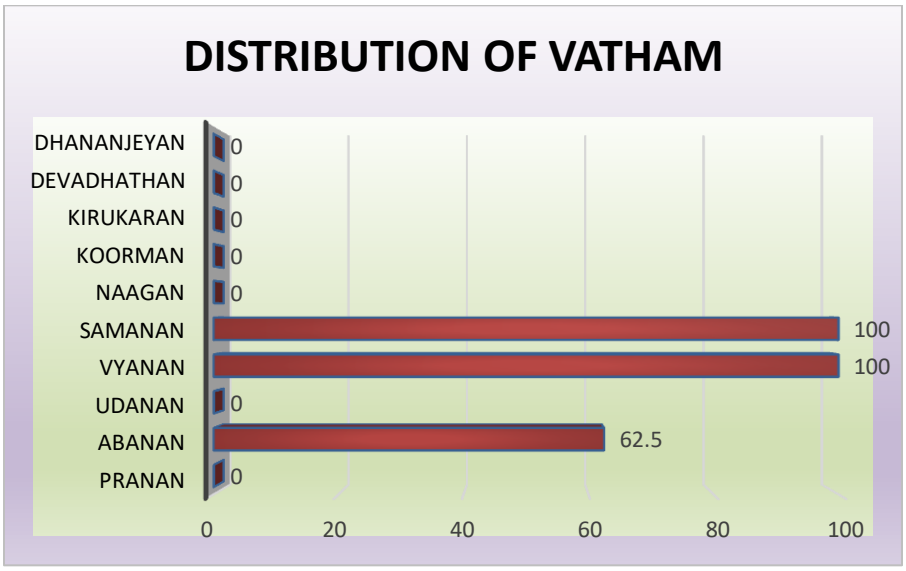
Out of 40 Patients, were affected in all the patients. Saaran and senneer, Oon, Enbu were affected in 100% , 45%, 50%, 100% of patients respectively.

## DISTRIBUTION OF VATHAM

**Table –5.32:Distribution of vatham**

| Vatham | No of Patients | Percentage |
|---|---|---|
| Pranan | 0 | 0 |
| Abanan | 25 | 62.5 |
| Udanan | 0 | 0 |
| Vyanan | 40 | 100 |
| Samanan | 40 | 100 |
| Naagan | 0 | 0 |
| Koorman | 0 | 0 |
| Kirukaran | 0 | 0 |
| Devadhathan | 0 | 0 |
| Dhananjeyan | - | - |

**Chart -14: Distribution of vatham**




**Inference:**

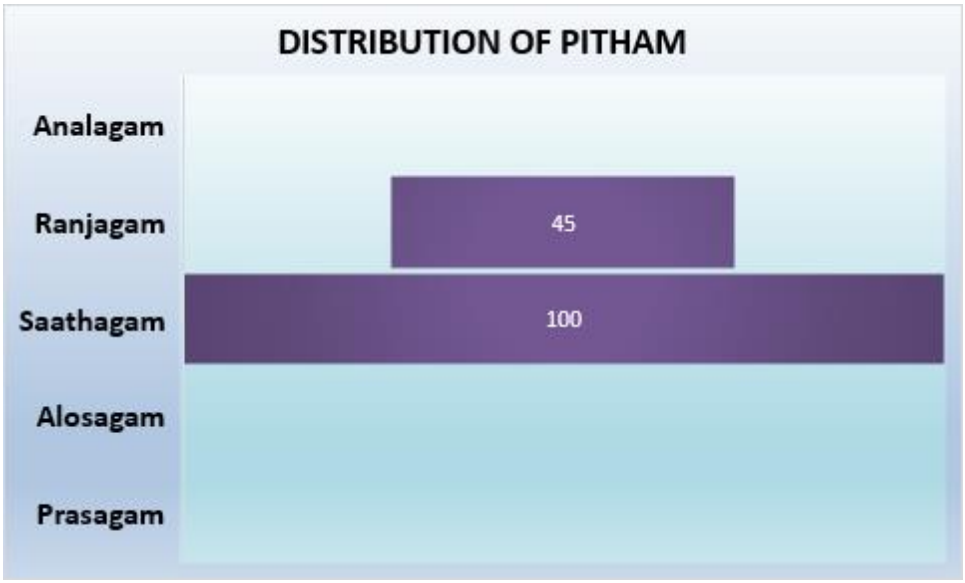
Out of 40 Patients, Udanan and Samanan were affected in all the patients. abanan were affected in 62% of patients respectively.

## DISTRIBUTION OF PITHAM

**Table –5.33:Distribution of pitham**

| S.No | Pitham | No of Patients | Percentage |
|---|---|---|---|
| 1 | Analagam | 0 | 0 |
| 2 | Ranjagam | 18 | 45 |
| 3 | Saathagam | 40 | 100 |
| 4 | Alosagam | 0 | 0 |
| 5 | Prasagam | 0 | 0 |

**Chart -15: Distribution of pitham**




**Inference:**

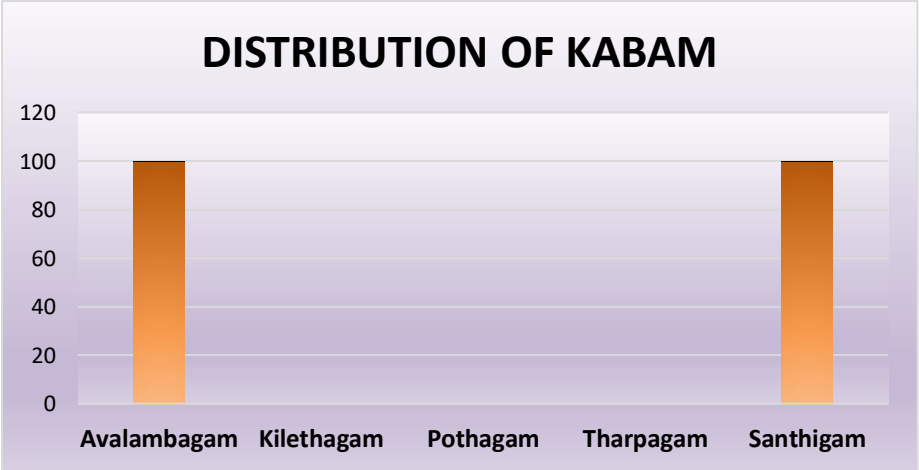
Out of 40 patients, Ranjaga pitham was affected in 45% of patients and Saathaga pitham was affected in all the patients (100%).

## DISTRIBUTION OF KABAM

**Table –5.34:Distribution of kabam**

| S.No | Kabam | No of Patients | Percentage |
|---|---|---|---|
| 1 | Avalambagam | 40 | 100 |
| 2 | Kilethagam | 0 | 0 |
| 3 | Pothagam | 0 | 0 |
| 4 | Tharpagam | 0 | 0 |
| 5 | Santhigam | 40 | 100 |

**Chart -16: Distribution of kabam**




**Inference:**

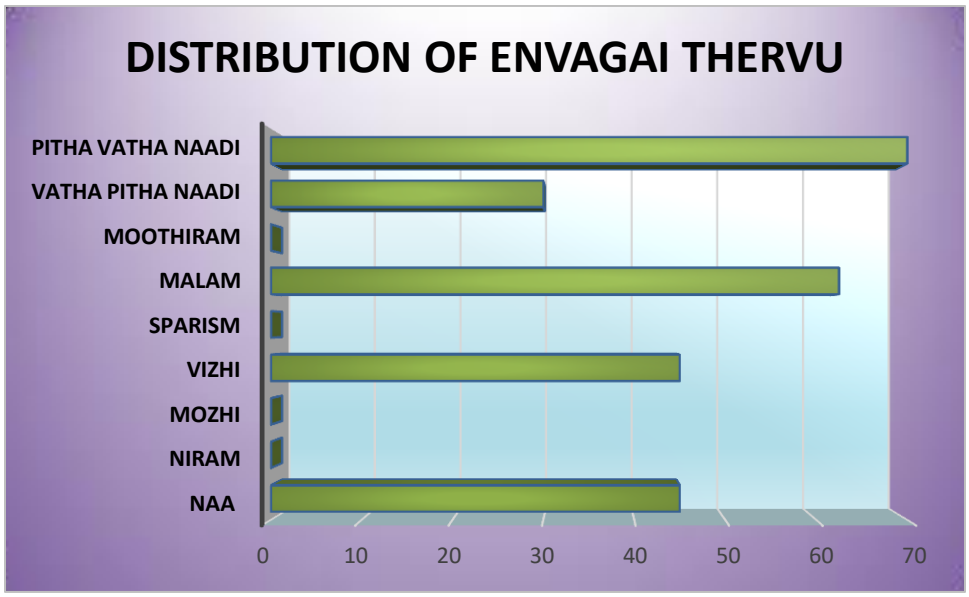
Out of 40 patients, Avalambagam and Santhigam were affected in all patients (100%)

## DISTRIBUTION OF ENVAGAITHERVU

**Table –5.35:Distribution of envagaithervu**

| S.No | Envagaithervu | No of Patients | Percentage |
|---|---|---|---|
| 1 | Naa | 18 | 45 |
| 2 | Niram | 0 | 0 |
| 3 | Mozhi | 0 | 0 |
| 4 | Vizhi | 18 | 45 |
| 5 | Sparism | 0 | 0 |
| 6 | Malam | 25 | 62.5 |
| 7 | Moothiram | 0 | 0 |
| 8 | Naadi | | |
| | Vathapitha naadi | 12 | 30 |
| | Pithavatha naadi | 28 | 70 |

**Chart -17:Distribution of envagaithervu**




**Inference:**

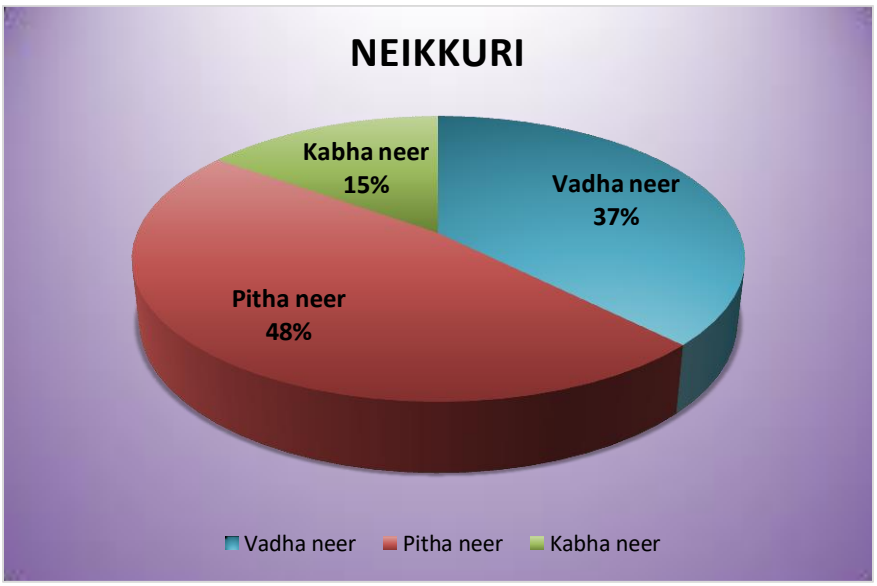
Out of 40 patients, Naa were affected in 45% of patients, Mozhi were affected in 45% of patients and Malam were affected in 62.5% of patients. Naadinadai seen in Uthiravatha suronitham patients were Vathapitham 30% and Pithavatham 70%.

**NEERKURI/NEIKKURI**

**Table –5.36:Neerkuri/Neikkuri**

| S.No | Neikkuri | No of Cases | Percentage |
|---|---|---|---|
| 1 | Neerkuri "Vaikkolniram" (Straw yellow) | 40 | 100 |
| 2 | VathaNeer "Aravenaneelal" | 15 | 37.5 |
| 3 | .PithaNeer "Azhipolparaval" | 19 | 47.5 |
| 4 | KabaNeer "Muthuthothunitral" | 06 | 15 |

**Chart -18:Neerkuri/Neikkuri**




**Inference:**

Out of 40 patient's urine sample vathaneer were present in 37.5% of patient's urine sample, Pithaneer were present in 47.5% of patient's urine sample and Kabaneer were present in 15% of urine sample.

**MODE OF ONSET:**

**Acute onset:** upto 6 months

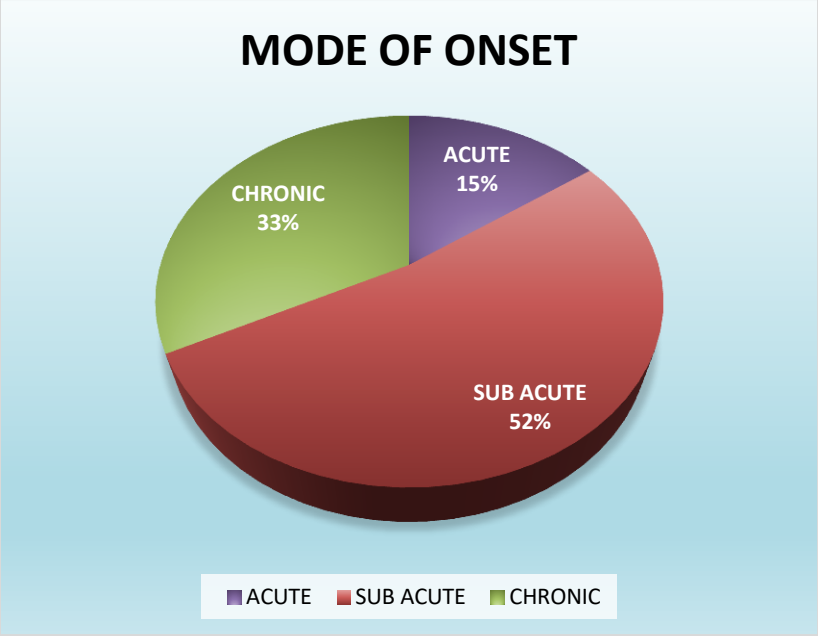
**Sub-acute:** 6 months – 3 years

**Chronic:** 4 – 10 years

**Table – 5.37: Mode of Onset**

| S.NO | MODE OF ONSET | NO OF CASES | PERCENTAGE(%) |
|---|---|---|---|
| 1. | ACUTE | 6 | 15 |
| 2. | SUB ACUTE | 21 | 52.5 |
| 3. | CHRONIC | 13 | 32.5 |

**Chart - 19: Mode of Onset**




**Inference:**

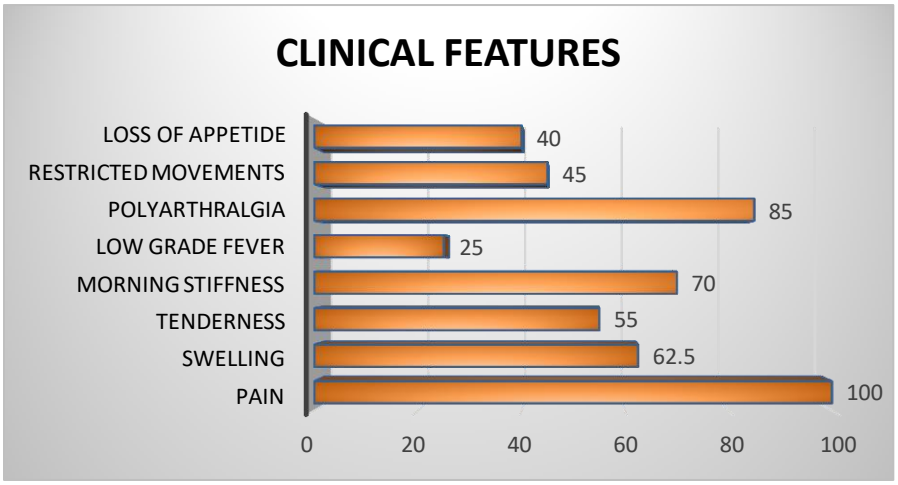
Among 40 cases, 6 cases (15%) were suffering from acute illness, 21 cases (52.5%) were suffering from sub-acute illness, 13 cases (32.5%) were suffering from chronic illness.

**CLINICAL FEATURES:**

**Table – 5.38: Clinical Features**

| S.NO | CLINICAL FEATURES | NO OF CASES | PERCENTAGE(%) |
|---|---|---|---|
| 1. | PAIN | 40 | 100 |
| 2. | SWELLING | 25 | 62.5 |
| 3. | TENDERNESS | 22 | 55 |
| 4. | MORNING STIFFNESS | 28 | 70 |
| 5. | LOW GRADE FEVER | 10 | 25 |
| 6. | POLYARTHRALGIA | 34 | 85 |
| 7. | RESTRICTED MOVEMENTS | 18 | 45 |
| 8. | LOSS OF APPETIDE | 16 | 40 |

**Chart -20: Clinical features**




**Inference**

Among 40 cases, 40 cases(100%) had pain, 25 cases(62.5%) had swelling, 28cases(70%) had morning stiffness, 34 cases (85%) had polyarthralgia, 22 cases

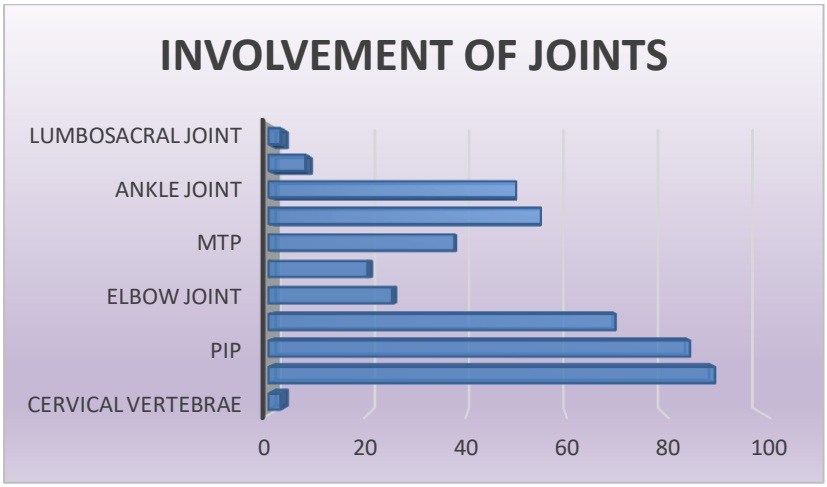
(55%) had tenderness, 18 cases (45%) had restriction of movements, 16 cases (40%) had loss of appetite, 10 cases (25%) had low grade fever.

**INVOLVEMENT OF JOINTS:**

**Table -5.39: Involvement of Joints**

| S.NO | INVOLVEMENT OF JOINTS | NOOF CASES | PERCENTAGE(%) |
|---|---|---|---|
| 1. | CERVICAL VERTEBRAE | 1 | 2.5 |
| 2. | METACARPO PHALANGEAL JOINT(MCP) | 36 | 90 |
| 3. | PROXIMAL INTERPHALANGEAL JOINT(PIP) | 34 | 85 |
| 4. | WRIST JOINT | 28 | 70 |
| 5. | ELBOW JOINT | 10 | 25 |
| 6. | SHOULDER JOINT | 8 | 20 |
| 7. | METATARSAL PHALANGEAL JOINT(MTP) | 15 | 37.5 |
| 8. | KNEE JOINT | 22 | 55 |
| 9. | ANKLE JOINT | 20 | 50 |
| 10. | HIP JOINT | 3 | 7.5 |
| 11. | LUMBOSACRAL JOINT | 1 | 2.5 |

**Chart - 21: Involvement ofJoint**




**Inference:**

Among 40 cases, high involvement of joints were MCP and PIP joints, 36 cases (90%) and 34 cases (85%) respectively.

**RESULTS AFTER TREATMENT:**

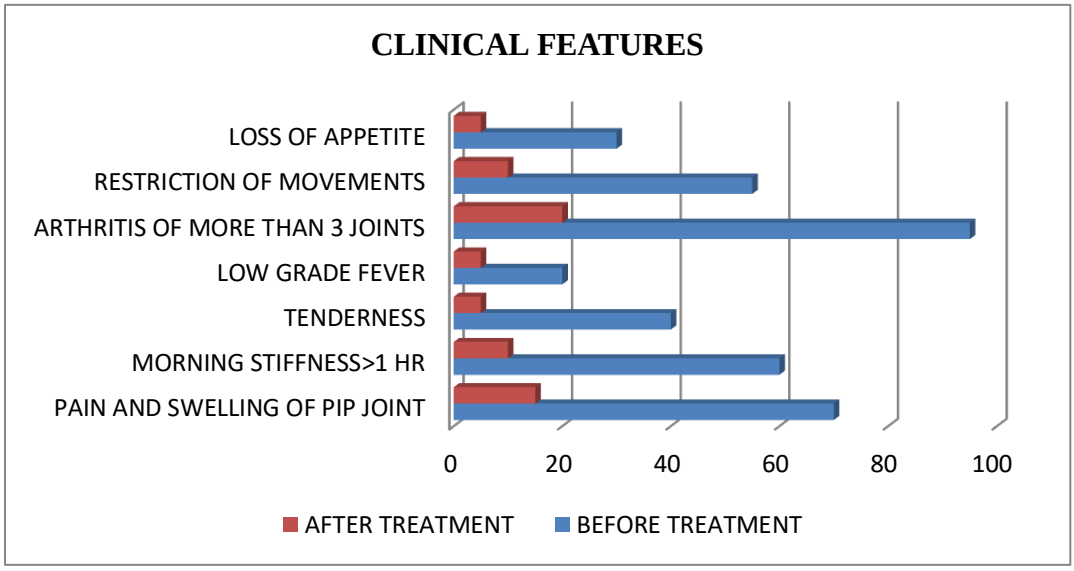
**IMPROVEMENT OF GROUP I SUBJECTS:**

Improvement in subjects treated with internal trial drug "RAJALOGA NAATHARASA PARPAM" in group I subjects

**Table –5.40: Improvement of group I subjects**

| S.NO | CLINICAL FEATURES | BEFORE TREATMENT | | AFTER TREATMENT | |
|---|---|---|---|---|---|
| | | SUBJECTS | PERCENTAGE | SUBJECTS | PERCENTAGE |
| 1. | PAIN AND SWELLING OF PIP JOINT | 14 | 70% | 3 | 15% |
| 2. | MORNING STIFFNESS > 1 hr | 12 | 60% | 2 | 10% |
| 3. | TENDERNESS | 8 | 40% | 1 | 5% |
| 4. | LOW GRADE FEVER | 4 | 20% | 1 | 5% |
| 5. | ARTHRITIS OF MORE THAN 3 JOINTS | 19 | 95% | 4 | 20% |
| 6. | RESTRICTION OF MOVEMENTS | 11 | 55% | 2 | 10% |
| 7. | LOSS OF APPETITE | 6 | 30% | 1 | 5% |

**Chart-22:Improvement of group I subject**




**Inference:**

Among 20 cases, 14 cases (70%) had pain and swelling of PIP joints, 12 cases (60%) had morning stiffness > 1hr, 8 cases (40%) had tenderness, 4 cases (20%) had low grade fever, 19 cases (95%) had arthritis of more than 3 joints, 11 cases (55%) had restriction of movements, 6 cases (30%) had loss of appetite before treatment. But after treatment only 3 cases (15%) had pain and swelling of PIP joints, 2 cases (10%) had morning stiffness>1hr, 1 cases (5%) had tenderness, 1 cases (5%) had low grade fever, 4 cases (20%) had arthritis of more than 3 joints, 2 cases (10%) had restriction of movements, 1 cases (5%) had loss of appetite.

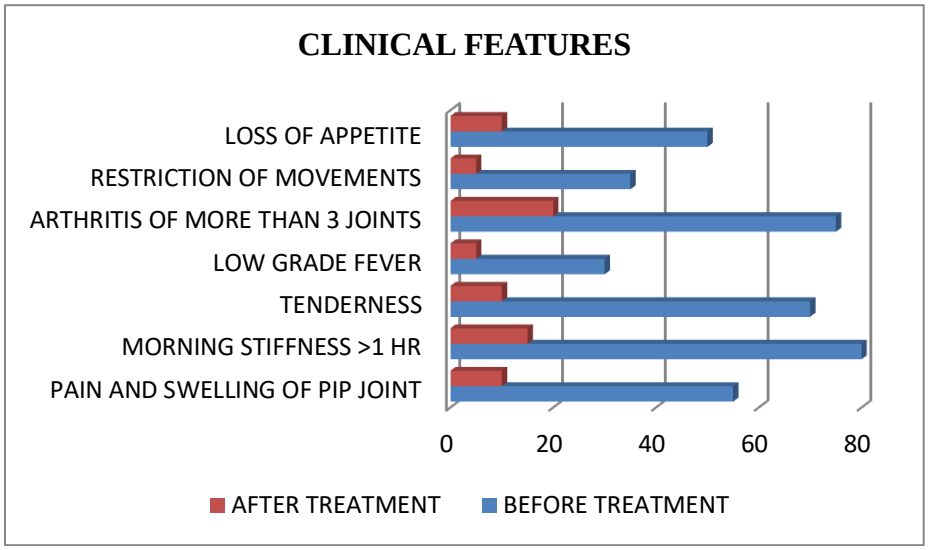
**IMPROVEMENT OF GROUP II SUBJECTS:**

Improvement in subjects treated with internal & external trial drug "RAJALOGA NAATHARASA PARPAM, PARUTHI THYLAM & MARIKOZHUNTHU OTTRADAM" in group II subjects.

**Table – 5.41: Improvement of group II subjects**

| S. N O | CLINICAL FEATURES | BEFORE TREATMENT | | AFTER TREATMENT | |
|---|---|---|---|---|---|
| | | SUBJECTS | PERCENTAGE | SUBJECTS | PERCENTAGE |
| 1. | PAIN AND SWELLING OF PIP JOINT | 11 | 55% | 2 | 10% |
| 2. | MORNING STIFFNESS > 1 hr | 16 | 80% | 3 | 15% |
| 3. | TENDERNESS | 14 | 70% | 2 | 10% |
| 4. | LOW GRADE FEVER | 6 | 30% | 1 | 5% |
| 5. | ARTHRITIS OF MORE THAN 3 JOINTS | 15 | 75% | 4 | 20% |
| 6. | RESTRICTION OF MOVEMENTS | 7 | 35% | 1 | 5% |
| 7. | LOSS OF APPETITE | 10 | 50% | 2 | 10% |

**Chart – 23: Improvement of group II subjects**




**Inference:**

Among 20 cases, 11 cases (55%) had pain and swelling of PIP joints,16 cases (80%) had morning stiffness > 1hr, 14 cases (70%) had tenderness, 6 cases (30%) had low grade fever, 15 cases (75%) had arthritis of more than 3 joints, 7 cases (35%) had restriction of movements,10 cases (50%) had loss of appetite before treatment. But after treatment only 2 cases (10%) had pain and swelling of PIP joints, 3 cases (15%) had morning stiffness >1hr, 2 cases (10%) had tenderness, 1 cases (5%) had low grade fever, 4 cases (20%) had arthritis of more than 3 joints, 1 cases (5%) had restriction of movements, 2 cases (10%) had loss of appetite.

**REDUCTION OF PAIN:**

**SEVERE PAIN:** PAIN SCORE 7 – 10

**MODERATE PAIN:** PAIN SCORE 4

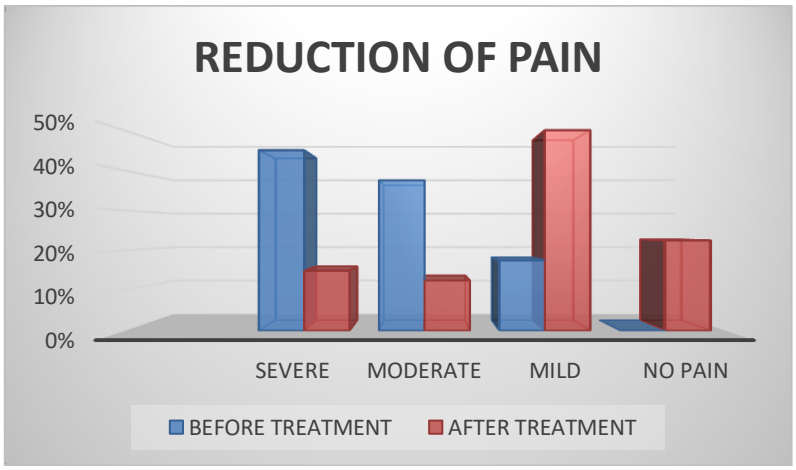
**MILD PAIN:** PAIN SCORE 1 – 3

**NO PAIN:** PAIN SCORE 0

**Table – 5.42: Reduction of pain**

| S.NO | REDUCTION OF PAIN | BEFORE TREATMENT | | AFTER TREATMENT | |
|---|---|---|---|---|---|
| | | SUBJECTS | PERCENTAGE (%) | SUBJECTS | PERCENTAGE (%) |
| 1. | SEVERE | 18 | 45% | 6 | 15% |
| 2. | MODERATE | 15 | 37.5% | 5 | 12.5% |
| 3. | MILD | 7 | 17.5% | 20 | 50% |
| 4. | NO PAIN | 0 | 0 | 9 | 22.5% |

**Chart – 24: Reduction of pain**




**Inference:**

Among 40 cases, 18 cases (45%) had severe pain, 15 cases (37.5%) had moderate pain and 7 cases (17.5%) had mild pain before treatment. But after treatment only 6 cases (15%) had severe pain, 5 cases (12.5%) had moderate pain, 20 cases (50%) had mild pain and 9 cases (22.5%) had no pain.

**FUNCTIONAL ABILITY GRADATION:**

**GRADE I** – FIT FOR ALL ACTIVITIES

**GRADE II** – MILD RESTRICTION

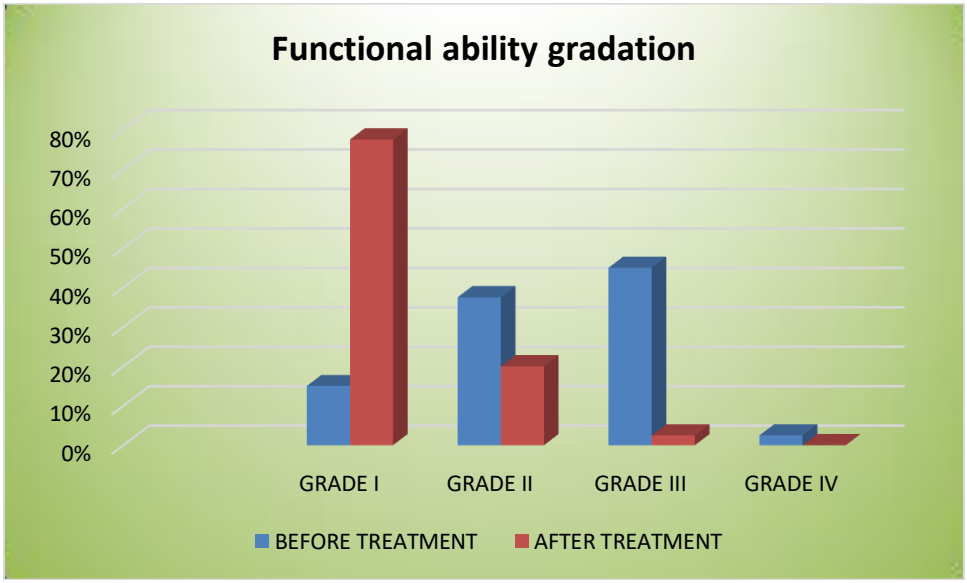
**GRADE III** – MODERATE RESTRICTION

**GRADE IV** – CONFINED TO CHAIR OR BED RIDDEN

**Table – 5.43: Functional ability gradation**

| S.NO | GRADE | BEFORE TREATMENT | | AFTER TREATMENT | |
|---|---|---|---|---|---|
| | | SUBJECTS | PERCENTAGE (%) | SUBJECTS | PERCENTAGE (%) |
| 1. | GRADE I | 6 | 15% | 31 | 77.5% |
| 2. | GRADE II | 15 | 37.5% | 8 | 20% |
| 3. | GRADE III | 18 | 45% | 1 | 2.5% |
| 4. | GRADE IV | 1 | 2.5% | 0 | 0 |

**Chart – 25: Functional ability gradation**




**Inference:**

Among 40 cases, 6 cases (15%) was fit for all activities, 15 cases (37.5%) had mild restriction in movements, 18 cases (45%) had moderate restriction in movements and 1 cases (2.5%) had confined to chair on before treatment.

But after treatment, 31 cases (77%) became fit for all activities, 8 cases (20%) had mild restriction in movements, 1 cases (2.5%) had moderate restriction in movements and no one was confined to chair.

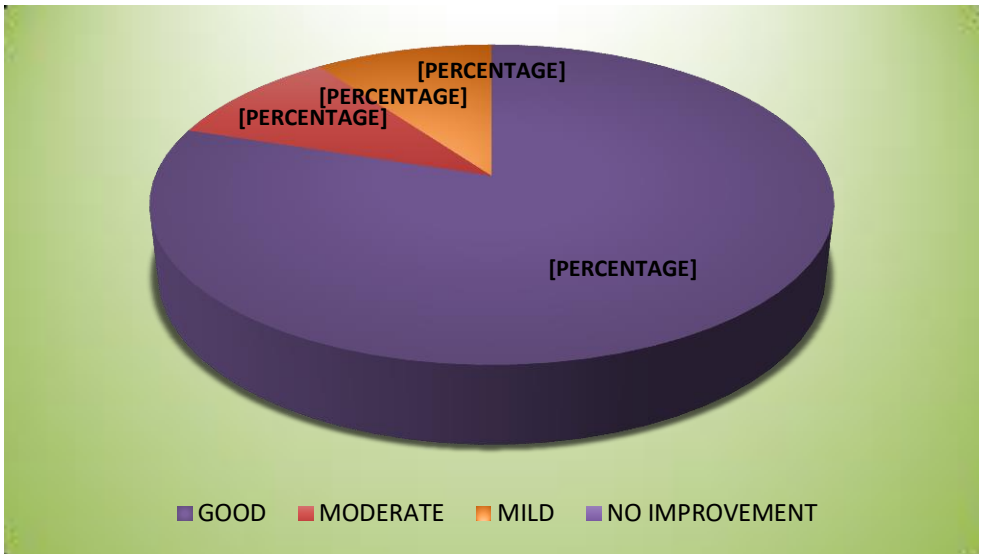
**OVERALL RESULT:**

**IMPROVEMENT OF RA**

**Table – 5.44: Improvement of RA**

| S.NO | IMPROVEMENT | NO OF PATIENTS | PERCENTAGE(%) |
|---|---|---|---|
| 1. | GOOD | 32 | 80% |
| 2. | MODERATE | 4 | 10% |
| 3. | MILD | 4 | 10% |
| 4. | NO IMPROVEMENT | 0 | 0 |

**Chart – 26: Improvement of RA**




**Inference:**

Among 40 cases, 32 cases (80%) had good improvement, 4 cases (10%).

## Table – 5.45: Treatment details of Subjective parameters of Group I:

| S.NO | OP/IP NO | Name | Age/ Sex | Occupation | Duration of illness | Date of starting treatment | Date of withdrawal treatment | Results |
|---|---|---|---|---|---|---|---|---|
| 01 | 3301 | HEMAVATHI | 32/F | Employe | 2-3years | 7-5-2018 | 28-5-2018 | Good Improvement |
| 02 | 3895 | MOHANA | 35/F | Employe | 1-2years | 8-5-2018 | 29-5-2018 | Good Improvement |
| 03 | 4500 | SUNAITHA | 41/M | Homemaker | 1-2years | 10-5-2018 | 1-6-2018 | Moderate Improvement |
| 04 | 6534 | PREMAVATHI | 47/M | Homemaker | 6-10years | 18-5-2018 | 9-6-2018 | Good Improvement |
| 05 | 7482 | MANI | 38/M | Employe | 6 months-1year | 22-5-2018 | 13-6-2018 | Good Improvement |
| 06 | 2890 | SATHYA | 35/F | Employe | Upto 6 months | 12-6-2018 | 9-7-2018 | Good Improvement |
| 07 | 6584 | RASAKUMARI | 26/F | Homemaker | 2-3years | 26-6-2018 | 17-7-2018 | Good Improvement |
| 08 | 4393 | SUNDARI | 46/F | Homemaker | 1-2years | 23-7-2018 | 13-8-2018 | Good Improvement |
| 09 | 4685 | BARATHY | 44/M | Employe | 4-6years | 24-7-2018 | 14-8-2018 | Good Improvement |
| 10 | 6776 | SIVANESAN | 47/M | Engineer | 6-10years | 31-7-2018 | 21-8-2018 | Good Improvement |
| 11 | 1140/ 8659 | JAMUNA | 35/F | Tailor | 6 months-1year | 26-5-2018 | 10-6-2018 | Good Improvement |
| 12 | 1337/ 5662 | SHOBA | 48/F | Homemaker | 2-3years | 25-6-2018 | 15-7-2018 | Good Improvement |
| 13 | 1558/ 4250 | KARNAN | 46/M | Tailor | Upto6 months | 23-7-2018 | 14-7-2018 | Good Improvement |
| 14 | 1581/ 4659 | RAJALAKSHMI | 53/F | Homemaker | 2-3years | 24-7-2018 | 15-8-2018 | Good Improvement |
| 15 | 1635/ 7245 | JAYASRI | 34/F | Teacher | 6 months-1year | 1-8-2018 | 21-8-2018 | Good Improvement |
| 16 | 1734/ 869 | SHANTHI | 53/F | Homemaker | 4-6 years | 16-8-2018 | 5-9-2018 | Good Improvement |
| 17 | 1810/ 4375 | VASANTHA | 40/F | Homemaker | 2-3years | 29-8-2018 | 19-9-2018 | Good Improvement |
| 18 | 2620/ 4174 | MAHARANI | 41/F | Teacher | 6 months-1year | 20-12-2018 | 7-1-2019 | Good Improvement |
| 19 | 410/ 8357 | SARASWATHI | 59/F | Homemaker | 6-10years | 28-2-2019 | 9-3-2019 | Mild Improvement |
| 20 | 553/ 3908 | PUSHPA | 56/F | Homemaker | 4-6years | 18-3-2019 | 14-4-2019 | Mild Improvement |

**Table – 5.46: Treatment details of Subjective parameters of Group II:**

| S.NO | OP/IP NO | Name | Age/ Sex | Occupation | Duration of illness | Date of starting treatment | Date of withdrawal treatment | Results |
|---|---|---|---|---|---|---|---|---|
| 01 | 4764 | SUGANYA | 30/F | Tailor | 6 months-1year | 11-5-2018 | 20-5-2018 | Good Improvement |
| 02 | 6333 | SAAVITHIRI | 48/F | Tailor | 2-3years | 17-5-2018 | 8-6-2018 | Good Improvement |
| 03 | 1444 | POONKODI | 45/F | Coolie | 4-6 years | 6-6-2018 | 27-6-2018 | Moderate Improvement |
| 04 | 1534 | RAJASEKAR | 46/M | Driver | Up to 6 months | 6-6-2018 | 27-6-2018 | Good Improvement |
| 05 | 3163 | BHARATHI | 47/F | Salesman | 4-6 years | 13-6-2018 | 23-6-2018 | Good Improvement |
| 06 | 8747 | VAANATHI | 40/F | Housewife | 2-3 years | 3-7-2018 | 24-7-2018 | Good Improvement |
| 07 | 2837 | ROSI | 42/F | Electrician | Up to 6 months | 17-7-2018 | 8-8-2018 | Good Improvement |
| 08 | 2838 | ASHOK | 38/M | Teacher | Up to 6 months | 17-7-2018 | 8-8-2018 | Good Improvement |
| 09 | 4394 | KASTHURI | 57/F | Driver | 6-10 years | 23-7-2018 | 14-8-2018 | Mild Improvement |
| 10 | 6376 | KRISHNAVENI | 36/F | Tailor | 6 months-1year | 30-7-2018 | 21-8-2018 | Good Improvement |
| 11 | 1065/ 6134 | DEVI | 35/F | Housewife | 6 months-1 years | 16-5-2018 | 6-6-2018 | Good Improvement |
| 12 | 1669/ 8898 | ANANTHI | 47/F | Electrician | Up to 6 months | 7-8-2018 | 28-8-2018 | Good Improvement |
| 13 | 1727/ 727 | POONKODI | 53/F | Carpenter | 4-6 years | 16-8-2018 | 23-8-2018 | Moderate Improvement |
| 14 | 1948/ 763 | GEETHA | 48/F | Driver | 6 months-1 years | 14-9-2018 | 2-10-2018 | Good Improvement |
| 15 | 2086/ 6178 | MANIVANAN | 54/M | Housewife | 3-4 years | 1-10-2018 | 18-10-2018 | Mild Improvement |
| 16 | 2140/ 8720 | ASRAFNISHA | 45/F | Tailor | 1-2 years | 10-10-2018 | 28-10-2018 | Good Improvement |
| 17 | 2498/ 7705 | KANIMOZHI | 20/F | Housewife | 2-3 years | 3-12-2018 | 16-12-2019 | Good Improvement |
| 18 | 2529/ 9500 | GANESAN | 53/F | Teacher | 4-6 years | 8-12-2018 | 30-1-2018 | Good Improvement |
| 19 | 127/ 6121 | KOMALA | 52/F | IT sector | 3-4 years | 25-1-2019 | 15-2-2019 | Moderate Improvement |
| 20 | 484/ 1729 | KARTHIK | 38/M | Tailor | 2-4 years | 11-3-2019 | 30-3-2019 | Good Improvement |

# LABORATORY INVESTIGATION

**GROUP I SUBJECT : LAB INVESTIGATION**

| S. NO | OP/IP NO | NAME | TC (Cells/ Cu.mm) | | DC (%) | | | | | | | | | | ESR (mm/ HR) | | | | HB (gm%) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BT | AT | N | | B | | E | | M | | L | | ½ HR | | 1 HR | | BT | AT |
| | | | | | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | | |
| 1. | 3301 | HEMAVATHI | 8000 | 8700 | 65 | 65 | 1 | 0 | 5 | 5 | 3 | 1 | 26 | 29 | 4 | 4 | 10 | 13 | 11.1 | 12.3 |
| 2. | 3895 | MOHANA | 7500 | 7800 | 58 | 60 | 1 | 0 | 5 | 4 | 1 | 0 | 35 | 36 | 12 | 11 | 30 | 26 | 13.3 | 14 |
| 3. | 4500 | SUNAITHA | 9610 | 9700 | 65 | 64 | 0 | 0 | 7 | 6 | 1 | 0 | 27 | 30 | 25 | 23 | 51 | 48 | 9.2 | 10.1 |
| 4. | 6534 | PREMAVATHI | 6200 | 6420 | 50 | 56 | 0 | 0 | 5 | 4 | 2 | 2 | 43 | 38 | 20 | 18 | 45 | 40 | 9.1 | 10.3 |
| 5. | 7482 | MANI | 10400 | 10000 | 79 | 73 | 0 | 0 | 2 | 2 | 0 | 0 | 19 | 25 | 36 | 38 | 59 | 56 | 12.5 | 14 |
| 6. | 2890 | SATHYA | 9250 | 9500 | 57 | 64 | 1 | 0 | 6 | 5 | 1 | 1 | 35 | 30 | 16 | 15 | 37 | 35 | 12.6 | 13 |
| 7. | 6584 | RASAKUMARI | 8200 | 8400 | 68 | 68 | 0 | 0 | 5 | 5 | 2 | 1 | 25 | 26 | 21 | 15 | 44 | 30 | 15.1 | 15.5 |
| 8. | 4393 | SUNDARI | 8700 | 9100 | 64 | 60 | 2 | 0 | 5 | 4 | 2 | 1 | 27 | 35 | 45 | 40 | 83 | 76 | 9.5 | 10 |
| 9. | 4685 | BARATHY | 8800 | 9200 | 54 | 59 | 1 | 0 | 7 | 5 | 2 | 1 | 36 | 35 | 10 | 9 | 22 | 18 | 15 | 16 |
| 10. | 6776 | SIVANESAN | 10500 | 9000 | 53 | 60 | 1 | 0 | 8 | 6 | 1 | 0 | 37 | 34 | 18 | 15 | 38 | 30 | 12.1 | 13 |
| 11. | 1140 | JAMUNA | 7800 | 8000 | 75 | 71 | 0 | 0 | 8 | 6 | 0 | 1 | 17 | 22 | 14 | 12 | 29 | 25 | 10.3 | 11.5 |
| 12. | 1337 | SHOBA | 8300 | 8500 | 66 | 65 | 1 | 0 | 5 | 5 | 2 | 0 | 26 | 30 | 22 | 21 | 46 | 44 | 9.6 | 10.2 |
| 13. | 1558 | KARNAN | 7700 | 8500 | 51 | 59 | 0 | 0 | 2 | 1 | 2 | 0 | 45 | 40 | 15 | 15 | 32 | 30 | 10.9 | 11.5 |
| 14. | 1581 | RAJALAKSHMI | 8600 | 9000 | 61 | 67 | 0 | 0 | 6 | 4 | 0 | 0 | 33 | 29 | 5 | 5 | 18 | 15 | 11.8 | 13 |
| 15. | 1635 | JAYASRI | 8800 | 9200 | 54 | 58 | 0 | 0 | 7 | 4 | 0 | 0 | 39 | 38 | 18 | 14 | 42 | 37 | 11.4 | 13 |
| 16. | 1734 | SHANTHI | 9500 | 9600 | 70 | 68 | 0 | 1 | 5 | 3 | 0 | 2 | 25 | 26 | 10 | 9 | 21 | 18 | 11.3 | 12 |
| 17. | 1810 | VASANTHA | 9622 | 9800 | 56 | 56 | 1 | 1 | 6 | 7 | 6 | 1 | 31 | 35 | 25 | 23 | 42 | 38 | 10.4 | 11 |
| 18. | 2620 | MAHARANI | 8200 | 8000 | 67 | 66 | 0 | 1 | 7 | 7 | 0 | 1 | 26 | 25 | 20 | 20 | 38 | 30 | 12 | 14.2 |
| 19 | 410 | SARASWATHI | 8400 | 8600 | 63 | 59 | 1 | 0 | 7 | 8 | 2 | 0 | 27 | 33 | 10 | 8 | 24 | 16 | 10.2 | 11 |
| 20. | 553 | PUSHPA | 5600 | 6300 | 50 | 56 | 1 | 0 | 5 | 4 | 4 | 0 | 40 | 40 | 6 | 6 | 15 | 12 | 11.8 | 12.4 |

**GROUP II SUBJECT : LAB INVESTIGATION**

| S. NO | OP/IP NO | NAME | TC (Cells/ Cu.mm) | | DC (%) | | | | | | | | | | ESR (mm/ Hr) | | | | Hb (gm%) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BT | AT | N | | B | | E | | M | | L | | ½ hr | | 1 hr | | BT | AT |
| | | | | | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | | |
| 1. | 4764 | SUGANYA | 9200 | 8100 | 71 | 70 | 0 | 0 | 2 | 2 | 5 | 3 | 22 | 25 | 27 | 26 | 42 | 40 | 10 | 10.5 |
| 2. | 6333 | SAAVITHIRI | 8900 | 8300 | 56 | 60 | 1 | 0 | 5 | 4 | 2 | 1 | 36 | 35 | 17 | 16 | 24 | 25 | 12 | 11.5 |
| 3. | 1444 | POONKODI | 7700 | 8200 | 70 | 71 | 1 | 0 | 6 | 4 | 1 | 0 | 22 | 25 | 11 | 10 | 19 | 21 | 12 | 11.5 |
| 4. | 1534 | RAJASEKAR | 8400 | 78600 | 58 | 63 | 0 | 1 | 4 | 3 | 3 | 1 | 35 | 32 | 10 | 12 | 25 | 24 | 10 | 13 |
| 5. | 3163 | BHARATHI | 11000 | 10500 | 63 | 67 | 2 | 1 | 6 | 5 | 1 | 0 | 28 | 27 | 24 | 20 | 42 | 35 | 9.8 | 11 |
| 6. | 8747 | VAANATHI | 9400 | 9100 | 58 | 63 | 0 | 0 | 6 | 4 | 0 | 0 | 36 | 33 | 20 | 19 | 20 | 22 | 11 | 10.5 |
| 7. | 2837 | ROSI | 8500 | 8600 | 62 | 65 | 0 | 0 | 6 | 5 | 0 | 0 | 32 | 30 | 12 | 11 | 32 | 28 | 10.4 | 10 |
| 8. | 2838 | ASHOK | 9600 | 9400 | 70 | 69 | 0 | 0 | 5 | 3 | 0 | 0 | 25 | 28 | 16 | 16 | 42 | 32 | 10.2 | 11.4 |
| 9. | 6376 | KRISHNAVENI | 8900 | 8550 | 55 | 61 | 0 | 0 | 8 | 5 | 0 | 0 | 37 | 34 | 18 | 15 | 38 | 30 | 9.8 | 10 |
| 10. | 4394 | KASTHURI | 8100 | 8000 | 59 | 62 | 0 | 0 | 7 | 6 | 0 | 0 | 34 | 32 | 14 | 15 | 32 | 29 | 11.2 | 12 |
| 11. | 1065 | DEVI | 9200 | 11000 | 47 | 62 | 1 | 1 | 7 | 4 | 3 | 2 | 42 | 31 | 11 | 13 | 34 | 32 | 10.3 | 10 |
| 12. | 1669 | ANANTHI | 8200 | 8300 | 61 | 61 | 0 | 0 | 6 | 5 | 0 | 2 | 33 | 32 | 16 | 18 | 22 | 22 | 11.5 | 11 |
| 13. | 1727 | POONKODI | 9500 | 9440 | 71 | 64 | 0 | 0 | 5 | 4 | 0 | 1 | 24 | 31 | 25 | 25 | 45 | 42 | 10.2 | 12 |
| 14. | 1948 | GEETHA | 8400 | 8400 | 65 | 63 | 1 | 1 | 3 | 3 | 4 | 2 | 27 | 31 | 11 | 10 | 35 | 30 | 10.6 | 12.4 |
| 15. | 2086 | MANIVANAN | 3400 | 5000 | 47 | 55 | 1 | 0 | 7 | 5 | 4 | 2 | 41 | 38 | 12 | 10 | 34 | 35 | 10.4 | 13.2 |
| 16. | 2140 | ASRAFNISHA | 6900 | 7100 | 64 | 60 | 2 | 1 | 3 | 2 | 4 | 1 | 27 | 36 | 15 | 13 | 34 | 28 | 10.5 | 11.5 |
| 17. | 2498 | KANIMOZHI | 6800 | 6400 | 66 | 67 | 0 | 0 | 6 | 4 | 2 | 1 | 26 | 28 | 30 | 29 | 60 | 54 | 10.7 | 11.8 |
| 18. | 2529 | GANESAN | 7300 | 7200 | 69 | 68 | 0 | 0 | 6 | 3 | 0 | 0 | 25 | 29 | 16 | 15 | 31 | 30 | 9.6 | 10.5 |
| 19 | 127 | KOMALA | 8700 | 9200 | 49 | 55 | 1 | 0 | 6 | 4 | 0 | 0 | 44 | 41 | 22 | 20 | 45 | 43 | 10.5 | 11.4 |
| 20. | 484 | KARTHIK | 8600 | 7600 | 70 | 67 | 0 | 1 | 2 | 2 | 8 | 4 | 20 | 26 | 9 | 10 | 26 | 24 | 11.3 | 12 |

**GROUP I SUBJECT : LAB INVESTIGATION**

| S. NO | OP/IP NO | NAME | BLOOD SUGAR | | | | PLT($10^3$ ×$mm^3$) | | S.CHOLETEROL (mg/dl) | | S.URIC ACID (mg/dl) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | FBS | | PPBS | | | | | | | |
| | | | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT |
| 1. | 3301 | HEMAVATHI | 78 | 82 | 126 | 130 | 236 | 305 | 170 | 181 | 2.2 | 2.3 |
| 2. | 3895 | MOHANA | 80 | 84 | 125 | 132 | 234 | 266 | 189 | 192 | 3.5 | 3.4 |
| 3. | 4500 | SUNAITHA | 76 | 81 | 120 | 126 | 319 | 330 | 152 | 147 | 2.2 | 2.0 |
| 4. | 4764 | PREMAVATHI | 102 | 100 | 141 | 135 | 280 | 310 | 160 | 151 | 2.7 | 2.5 |
| 5. | 6333 | MANI | 81 | 78 | 161 | 150 | 241 | 275 | 146 | 158 | 2.6 | 2.4 |
| 6. | 6534 | SATHYA | 96 | 90 | 137 | 130 | 234 | 260 | 186 | 183 | 2.3 | 3.0 |
| 7. | 7482 | RASAKUMARI | 94 | 85 | 135 | 126 | 221 | 239 | 179 | 166 | 4.8 | 4.4 |
| 8. | 1444 | SUNDARI | 98 | 100 | 143 | 145 | 296 | 306 | 231 | 224 | 4.1 | 4.0 |
| 9. | 1534 | BARATHY | 77 | 80 | 138 | 140 | 429 | 419 | 179 | 184 | 3.5 | 3.5 |
| 10. | 2890 | SIVANESAN | 88 | 92 | 129 | 130 | 313 | 316 | 216 | 215 | 3.4 | 3.4 |
| 11. | 1140 | JAMUNA | 107 | 110 | 207 | 212 | 293 | 310 | 185 | 191 | 2.9 | 3.0 |
| 12. | 1337 | SHOBA | 84 | 90 | 143 | 145 | 243 | 251 | 174 | 180 | 4.8 | 4.9 |
| 13. | 1558 | KARNAN | 79 | 85 | 128 | 133 | 194 | 215 | 169 | 164 | 2.6 | 2.5 |
| 14. | 1581 | RAJALAKSHMI | 88 | 85 | 137 | 130 | 296 | 303 | 173 | 170 | 2.4 | 2.3 |
| 15. | 1635 | JAYASRI | 96 | 100 | 145 | 145 | 322 | 353 | 176 | 171 | 5.8 | 5.5 |
| 16. | 1734 | SHANTHI | 101 | 110 | 152 | 150 | 242 | 290 | 187 | 184 | 4.1 | 4.0 |
| 17. | 1810 | VASANTHA | 89 | 84 | 131 | 120 | 214 | 247 | 193 | 190 | 3.5 | 3.4 |
| 18. | 2620 | MAHARANI | 95 | 90 | 134 | 138 | 247 | 294 | 193 | 205 | 3.8 | 3.7 |
| 19. | 410 | SARASWATHI | 83 | 80 | 125 | 126 | 212 | 260 | 200 | 205 | 2.4 | 2.2 |
| 20. | 553 | PUSHPA | 77 | 70 | 148 | 145 | 264 | 308 | 185 | 190 | 4.2 | 4.4 |

**GROUP II SUBJECT : LAB INVESTIGATION**

| S. NO | OP/IP. NO | NAME | BLOOD SUGAR | | | | PLT($10^3$ ×$mm^3$) | | S.CHOLESTEROL (mg/dl) | | S.URIC ACID (mg/dl) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | FBS | | PPBS | | | | | | | |
| | | | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT |
| 1. | 4764 | SUGANYA | 77 | 80 | 126 | 130 | 236 | 305 | 170 | 181 | 2.2 | 2.3 |
| 2. | 6333 | SAAVITHIRI | 82 | 86 | 125 | 132 | 234 | 266 | 189 | 192 | 3.5 | 3.4 |
| 3. | 1444 | POONKODI | 76 | 81 | 120 | 126 | 319 | 330 | 152 | 147 | 2.2 | 2.0 |
| 4. | 1534 | RAJASEKAR | 102 | 100 | 141 | 135 | 280 | 310 | 160 | 151 | 2.7 | 2.5 |
| 5. | 3163 | BHARATHI | 81 | 78 | 161 | 150 | 241 | 275 | 146 | 158 | 2.6 | 2.4 |
| 6. | 8747 | VAANATHI | 96 | 90 | 137 | 130 | 234 | 260 | 186 | 183 | 2.3 | 3.0 |
| 7. | 2837 | ROSI | 94 | 85 | 135 | 126 | 221 | 239 | 179 | 166 | 4.8 | 4.4 |
| 8. | 2838 | ASHOK | 98 | 100 | 143 | 145 | 296 | 306 | 231 | 224 | 4.1 | 4.0 |
| 9. | 6376 | KRISHNAVENI | 77 | 80 | 138 | 140 | 429 | 419 | 179 | 184 | 3.5 | 3.5 |
| 10. | 4394 | KASTHURI | 85 | 90 | 129 | 130 | 313 | 316 | 216 | 215 | 3.4 | 3.4 |
| 11. | 1065 | DEVI | 107 | 110 | 207 | 212 | 293 | 310 | 185 | 191 | 2.9 | 3.0 |
| 12. | 1669 | ANANTHI | 84 | 90 | 143 | 145 | 243 | 251 | 174 | 180 | 4.8 | 4.9 |
| 13. | 1727 | POONKODI | 79 | 85 | 128 | 133 | 194 | 215 | 169 | 164 | 2.6 | 2.5 |
| 14. | 1948 | GEETHA | 88 | 85 | 137 | 130 | 296 | 303 | 173 | 170 | 2.4 | 2.3 |
| 15. | 2086 | MANIVANAN | 96 | 100 | 145 | 145 | 322 | 353 | 176 | 171 | 5.8 | 5.5 |
| 16. | 2140 | ASRAFNISHA | 101 | 110 | 152 | 150 | 242 | 290 | 187 | 184 | 4.1 | 4.0 |
| 17. | 2498 | KANIMOZHI | 89 | 84 | 131 | 120 | 214 | 247 | 193 | 190 | 3.5 | 3.4 |
| 18. | 2529 | GANESAN | 95 | 90 | 134 | 138 | 247 | 294 | 193 | 205 | 3.8 | 3.7 |
| 19. | 127 | KOMALA | 83 | 80 | 125 | 126 | 212 | 260 | 200 | 205 | 2.4 | 2.2 |
| 20. | 484 | KARTHIK | 77 | 70 | 148 | 145 | 264 | 308 | 185 | 190 | 4.2 | 4.4 |

**GROUP I SUBJECT : LAB INVESTIGATION**

| S. NO | OP/IP NO | NAME | LIVER FUNCTION TEST | | | | | | | | RENAL FUNCTION TEST | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | T.BILIRUBIN (Mg/dl) | | ALKALINE PHOSPHATASE (U/L) | | SGOT(U/L) | | SGPT(U/L) | | CREATININE (mg/dl) | | UREA (mg/dl) | |
| | | | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT |
| 1. | 3301 | HEMAVATHY | 0.38 | 0.36 | 193 | 181 | 29.9 | 33 | 26.4 | 24 | 22 | 21 | 0.8 | 0.7 |
| 2. | 3895 | MOHANA | 0.4 | 0.3 | 139 | 135 | 37 | 36 | 31 | 31 | 20 | 19 | 0.3 | 0.4 |
| 3. | 4500 | SUNAITHA | 0.2 | 0.2 | 204 | 202 | 31 | 30 | 33 | 31 | 14 | 14 | 0.6 | 0.5 |
| 4. | 6534 | PREMAVATHI | 0.4 | 0.3 | 173 | 173 | 22 | 20 | 17 | 18 | 23 | 22 | 0.4 | 0.4 |
| 5. | 7482 | MANI | 0.7 | 0.5 | 194 | 189 | 36 | 33 | 30 | 26 | 20 | 20 | 0.6 | 0.5 |
| 6. | 2890 | SATHYA | 0.5 | 0.6 | 196 | 200 | 23 | 25 | 20 | 22 | 32 | 28 | 0.7 | 0.5 |
| 7. | 6584 | RAJAKUMARI | 0.8 | 0.6 | 147 | 143 | 19 | 19 | 22 | 20 | 19 | 19 | 0.5 | 0.4 |
| 8. | 4393 | SUNDARI | 0.44 | 0.38 | 96 | 82 | 15.4 | 14 | 11.9 | 11.9 | 22 | 21 | 0.4 | 0.4 |
| 9. | 4685 | BHARATHY | 0.7 | 0.5 | 158 | 148 | 20 | 15 | 22 | 19 | 19 | 20 | 0.7 | 0.6 |
| 10. | 6776 | SIVANESAN | 0.7 | 0.6 | 159 | 154 | 24 | 22 | 27 | 25 | 24 | 23 | 0.6 | 0.5 |
| 11. | 1140 | JAMUNA | 0.4 | 0.5 | 188 | 188 | 25 | 26 | 20 | 22 | 24 | 20 | 0.8 | 0.7 |
| 12. | 1337 | SHOBA | 0.6 | 0.4 | 167 | 162 | 28 | 25 | 22 | 19 | 15 | 16 | 0.3 | 0.4 |
| 13. | 1558 | KARNAN | 0.5 | 0.6 | 110 | 106 | 19 | 19 | 23 | 23 | 18 | 17 | 0.6 | 0.4 |
| 14. | 1581 | RAJALAKSHMI | 0.5 | 0.3 | 190 | 183 | 23 | 20 | 19 | 15 | 21 | 19 | 0.7 | 0.5 |
| 15. | 1635 | JAYASRI | 0.7 | 0.5 | 215 | 212 | 35 | 34 | 30 | 28 | 20 | 21 | 0.6 | 0.4 |
| 16 | 1734 | SHANTHI | 0.3 | 0.4 | 68 | 65 | 22 | 21 | 16 | 15 | 19 | 18 | 0.5 | 0.4 |
| 17. | 1810 | VASANTHA | 0.4 | 0.3 | 155 | 152 | 21 | 19 | 17 | 15 | 24 | 20 | 0.4 | 0.4 |
| 18. | 2620 | MAHARANI | 0.4 | 0.3 | 196 | 193 | 23 | 21 | 20 | 19 | 14 | 15 | 0.6 | 0.5 |
| 19. | 410 | SARASWATHI | 0.5 | 0.4 | 168 | 168 | 27 | 25 | 24 | 24 | 21 | 20 | 0.4 | 0.4 |
| 20 | 553 | PUSHPA | 0.4 | 0.4 | 195 | 194 | 17 | 15 | 19 | 16 | 33 | 29 | 0.7 | 0.6 |

**GROUP II SUBJECT : LAB INVESTIGATION**

| S. NO | OP/IP NO | NAME | LIVER FUNCTION TEST | | | | | | | | RENAL FUNCTION TEST | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | T.BILIRUBIN (Mg/dl) | | ALKALINE PHOSPHATASE (U/L) | | SGOT(U/L) | | SGPT(U/L) | | CREATININE (mg/dl) | | UREA (mg/dl) | |
| | | | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT |
| 1. | 4764 | SUGANYA | 0.6 | 0.6 | 100 | 96 | 16.8 | 16.4 | 23.6 | 22.2 | 21 | 20 | 0.7 | 0.6 |
| 2. | 6333 | SAAVITHIRI | 0.4 | 0.4 | 192 | 193 | 43.3 | 32 | 36.8 | 25 | 19 | 18 | 0.4 | 0.5 |
| 3. | 1444 | POONKODI | 0.3 | 0.4 | 90 | 90 | 13 | 14 | 17 | 16 | 15 | 14 | 0.5 | 0.4 |
| 4. | 1534 | RAJASEKAR | 0.3 | 0.3 | 163 | 164 | 24 | 24 | 21 | 19 | 16.9 | 15 | 0.93 | 0.8 |
| 5. | 3163 | BHARATHI | 0.6 | 0.4 | 211 | 186 | 51.2 | 35 | 79.5 | 70 | 22 | 22 | 0.7 | 0.5 |
| 6. | 8747 | VAANATHI | 0.5 | 0.5 | 156.1 | 143 | 24.3 | 20 | 14.7 | 12.8 | 31 | 27 | 0.5 | 0.4 |
| 7. | 2837 | ROSI | 0.3 | 0.3 | 152 | 149 | 19 | 20 | 24 | 22 | 20 | 19 | 0.8 | 0.7 |
| 8. | 2838 | ASHOK | 0.5 | 0.4 | 154 | 150 | 20 | 19 | 23 | 20 | 24 | 23 | 0.5 | 0.4 |
| 9. | 6376 | KRISHNAVENI | 0.4 | 0.4 | 98 | 100 | 13 | 14 | 18 | 15 | 20 | 18 | 0.4 | 0.6 |
| 10. | 4394 | KASTHURI | 0.3 | 0.4 | 125 | 124 | 15 | 14 | 9 | 9 | 23 | 22 | 0.6 | 0.5 |
| 11. | 1065 | DEVI | 0.2 | 0.2 | 138 | 137 | 24 | 22 | 28 | 24 | 24 | 20 | 0.6 | 0.5 |
| 12. | 1669 | ANANTHI | 0.3 | 0.3 | 183 | 184 | 25 | 22 | 23 | 22 | 15 | 16 | 0.8 | 0.7 |
| 13. | 1727 | POONKODI | 0.5 | 0.5 | 178 | 179 | 13.7 | 13 | 11 | 11 | 19 | 18 | 0.6 | 0.4 |
| 14. | 1948 | GEETHA | 0.6 | 0.5 | 165 | 163 | 15 | 15 | 19 | 18 | 22 | 19 | 0.6 | 0.4 |
| 15. | 2086 | MANIVANAN | 0.3 | 0.3 | 147 | 145 | 25 | 24 | 21 | 20 | 20 | 21 | 0.6 | 0.5 |
| 16 | 2140 | ASRAFNISHA | 0.3 | 0.4 | 188 | 183 | 31 | 27 | 34 | 30 | 17 | 18 | 0.5 | 0.4 |
| 17. | 2498 | KANIMOZHI | 0.7 | 0.5 | 176 | 171 | 30 | 28 | 26 | 23 | 24 | 20 | 0.5 | 0.5 |
| 18. | 2529 | GANESAN | 0.6 | 0.6 | 195 | 188 | 21 | 16 | 19 | 13 | 15 | 16 | 0.6 | 0.5 |
| 19. | 127 | KOMALA | 0.5 | 0.5 | 187 | 185 | 25 | 24 | 20 | 20 | 21 | 20 | 0.7 | 0.6 |
| 20 | 484 | KARTHIK | 0.6 | 0.4 | 191 | 185 | 33 | 30 | 35 | 27 | 32 | 28 | 0.4 | 0.4 |

**GROUP I SUBJECT : LAB INVESTIGATION**

| S. NO | OP/IP NO | NAME | SPECIAL IVESTIGATION | | | | | | URINE TEST | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ANTI-CCP | | CRP | | RA | | ALBUMIN | | SUGAR | | DEPOSITS (PUS CELLS) | |
| | | | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT |
| 1. | 6534 | HEMAVATHY | 220 | 214 | 38 | 4.8 | 164.2 | 148 | NIL | NIL | NIL | NIL | 1 - 4 cells | 1 – 2 cells |
| 2. | 3895 | MOHANA | 110 | 102 | 13.5 | 9 | 16 | 10 | NIL | NIL | NIL | NIL | 1 – 2 cells | 1 – 2 cells |
| 3. | 4500 | SUNAITHA | 52 | 40 | 6.2 | 2.5 | 240 | 228 | NIL | NIL | NIL | NIL | 6– 8cells | 2– 4 cells |
| 4. | 6534 | PREMAVATHI | 124 | 112 | 15.7 | 9 | 574 | 520 | NIL | NIL | NIL | NIL | 2 – 3 cells | 1 – 2 cells |
| 5. | 7482 | MANI | 130 | 122 | 16 | 12 | 14 | 11 | NIL | NIL | NIL | NIL | 1 – 2 cells | 1 – 3 cells |
| 6. | 2890 | SATHYA | 45 | 35 | 8.7 | 6 | 12 | 7 | NIL | NIL | NIL | NIL | 1 – 3 cells | 1 – 2 cells |
| 7. | 6584 | RAJAKUMARI | 62.70 | 58 | 21.4 | 18.8 | 52.1 | 42.8 | NIL | NIL | NIL | NIL | 1 – 2 cells | 1 – 2 cells |
| 8. | 4393 | SUNDARI | 124 | 114 | 20.2 | 18.6 | 80.6 | 74.2 | NIL | NIL | NIL | NIL | 1 – 3 cells | 1 – 4 cells |
| 9. | 4685 | BHARATHY | 24 | 15 | 6.27 | 5.2 | 18 | 12.9 | NIL | NIL | NIL | NIL | 2 – 4 cells | 1 – 3 cells |
| 10. | 6776 | SIVANESAN | 200 | 184 | 12.90 | 10.4 | 26 | 18 | NIL | NIL | NIL | NIL | 1 – 2 cells | 1 – 3 cells |
| 11. | 1140 | JAMUNA | 33.9 | 30 | 8.3 | 4 | 592 | 458 | NIL | NIL | NIL | NIL | 4 – 6 cells | 2 – 5 cells |
| 12. | 1337 | SHOBA | 76 | 71 | 18 | 7 | 37 | 33.6 | NIL | NIL | NIL | NIL | 2 – 4 cells | 2 – 3 cells |
| 13. | 1558 | KARNAN | 100 | 98 | 16.2 | 12.5 | 20.4 | 18.1 | NIL | NIL | NIL | NIL | 2 – 6 cells | 2 – 4 cells |
| 14. | 1581 | RAJALAKSHMI | 18 | 11 | 37 | 32 | 16.5 | 14 | NIL | NIL | NIL | NIL | 1 – 4 cells | 1 – 3 cells |
| 15. | 1635 | JAYASRI | 69 | 61 | 5.8 | 4 | 204 | 182 | NIL | NIL | NIL | NIL | 0 – 1 cells | 1 – 2 cells |
| 16 | 1734 | SHANTHI | 96 | 88 | 20 | 18 | 20 | 17.8 | NIL | NIL | NIL | NIL | 2 – 3 cells | 0 – 1 cells |
| 17. | 1810 | VASANTHA | 162.3 | 155 | 8.4 | 6 | 16 | 12.7 | NIL | NIL | NIL | NIL | 1 – 3 cells | 1 – 2 cells |
| 18. | 2620 | MAHARANI | 192.8 | 188 | 6.8 | 5.8 | 117 | 108 | NIL | NIL | NIL | NIL | 1 – 2 cells | 1 – 2 cells |
| 19. | 410 | SARASWATHI | 123 | 116 | 10.4 | 7.2 | 24 | 20.2 | NIL | NIL | NIL | NIL | 2 – 6 cells | 2 – 4 cells |
| 20 | 553 | PUSHPA | 28 | 18 | 7.2 | 5 | 86.3 | 78.7 | NIL | NIL | NIL | NIL | 1 – 4 cells | 0 – 2 cells |

**GROUP II SUBJECT : LAB INVESTIGATION**

| S. NO | OP/IP NO | NAME | SPECIAL IVESTIGATION | | | | | | URINE TEST | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ANTI-CCP | | CRP | | RA | | ALBUMIN | | SUGAR | | DEPOSITS (PUS CELLS) | |
| | | | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT | BT | AT |
| 1. | 4764 | SUGANYA | 30.75 | 28.1 | 51 | 4.8 | 692 | 458 | NIL | NIL | NIL | NIL | 1 – 4 cells | 1 – 2 cells |
| 2. | 6333 | SAAVITHIRI | 188.6 | 180.4 | 10.5 | 8 | 37 | 33.6 | NIL | NIL | NIL | NIL | 1 – 2 cells | 0 – 1cells |
| 3. | 1444 | POONKODI | 205 | 201 | 5.2 | 1.5 | 20.4 | 18.1 | NIL | NIL | NIL | NIL | 1 – 4cells | 0 – 1cells |
| 4. | 1534 | RAJASEKAR | 200 | 198.6 | 15.7 | 9 | 16.5 | 14 | NIL | NIL | NIL | NIL | 2 – 3 cells | 1 – 2 cells |
| 5. | 3163 | BHARATHI | 30.2 | 28.4 | 15 | 13 | 209 | 185 | NIL | NIL | NIL | NIL | 1 – 4cells | 1 – 2 cells |
| 6. | 8747 | VAANATHI | 10.3 | 7.5 | 6.7 | 5 | 21 | 18.8 | NIL | NIL | NIL | NIL | 1 – 3 cells | 1 – 2 cells |
| 7. | 2837 | ROSI | 68 | 61.3 | 20.4 | 17.8 | 18 | 14.7 | NIL | NIL | NIL | NIL | 0 cells | 0 – 2 cells |
| 8. | 2838 | ASHOK | 34.6 | 32.1 | 21.2 | 20.6 | 117 | 108 | NIL | NIL | NIL | NIL | 1 – 2cells | 1 – 2 cells |
| 9. | 6376 | KRISHNAVENI | 61.33 | 58.8 | 5.37 | 4.8 | 24 | 20.2 | NIL | NIL | NIL | NIL | 2 – 4 cells | 1 – 3 cells |
| 10. | 4394 | KASTHURI | 12 | 8 | 11.90 | 9.4 | 89.3 | 80.7 | NIL | NIL | NIL | NIL | 1 – 2 cells | 1 – 3 cells |
| 11. | 1065 | DEVI | 110.2 | 94.78 | 7.3 | 5 | 168.2 | 150 | NIL | NIL | NIL | NIL | 4 – 6 cells | 2 – 4 cells |
| 12. | 1669 | ANANTHI | 154.6 | 160 | 16 | 8 | 14 | 9 | NIL | NIL | NIL | NIL | 2 – 4 cells | 2 – 3 cells |
| 13. | 1727 | POONKODI | 199.2 | 203.2 | 14.2 | 13.5 | 243 | 238 | NIL | NIL | NIL | NIL | 2 – 6 cells | 2 – 4 cells |
| 14. | 1948 | GEETHA | 10.56 | 6.8 | 35 | 30 | 584 | 570 | NIL | NIL | NIL | NIL | 1 – 4 cells | 1 – 3 cells |
| 15. | 2086 | MANIVANAN | 38 | 30 | 5.3 | 5 | 15 | 12 | NIL | NIL | NIL | NIL | 0 – 1 cells | 1 – 2 cells |
| 16 | 2140 | ASRAFNISHA | 209 | 216 | 19 | 17 | 10 | 4 | NIL | NIL | NIL | NIL | 2 – 4 cells | 0 – 1 cells |
| 17. | 2498 | KANIMOZHI | 26.43 | 19.4 | 9.6 | 9 | 50.1 | 42.8 | NIL | NIL | NIL | NIL | 1 – 3 cells | 1 – 2 cells |
| 18. | 2529 | GANESAN | 471.2 | 479 | 5.8 | 5.5 | 80.6 | 74.2 | NIL | NIL | NIL | NIL | 1 – 2 cells | 1 – 2 cells |
| 19. | 127 | KOMALA | 140.7 | 150 | 9 | 7.5 | 17 | 11.9 | NIL | NIL | NIL | NIL | 2 – 4cells | 1 – 2cells |
| 20 | 484 | KARTHIK | 15 | 9 | 7.8 | 5 | 28 | 20 | NIL | NIL | NIL | NIL | 1 – 4 cells | 0 – 2 cells |

## STATISTICAL ANALYSIS - CLINICAL PROGNOSIS

### IMPROVE MENT OF GROUP I SUBJECTS:

Improvement in subjects treated with internal trial drug "RAJA LOGA NAATHA RASA PARPAM (INT)" in group I subjects.

The most popular non parametric statistical tool, namely, McNemar Test analysis has been employed to analyses the effectiveness with the help of a hypothesis.

### IMPROVE MENT OF GROUP I SUBJECTS:

| S. No | Clinical features | Before Treatment | After Treatment |
|---|---|---|---|
| | | n% | n% |
| 1. | PAIN AND SWELLING OF PIP JOINT | 14(70) | 3(15)** |
| 2. | MORNING STIFFNESS > 1 hr | 12(60) | 2(10)** |
| 3. | TENDERNESS | 8(40) | 1(5)** |
| 4. | LOW GRADE FEVER | 4(20) | 1(5)* |
| 5. | ARTHRITIS OF MORETHAN 3 JOINTS | 19(95) | 4(20)** |
| 6. | RESTRICTION OF MOVEMENTS | 11(55) | 2(10)** |
| 7. | LOSS OF APPETITE | 6(30) | 1(5) |

McNemat test, C.I: 95%, *P<0.05; **P<0.01

**Software:** spss17 version

**Number of cases:** 20

**Inference:** Since the p value is significant in all clinical features. So there is significant reducing of clinical features among the patients for the treatment of Uthiravadha Suronitham (Rheumatoid Arthritis). Hence it is concluded that the treatment was effective and **significant.**

### IMPROVEMENT IN GROUP II SUBJECTS:

Improvement in subjects treated with Internal & external trial drug "RAJA LOGA NAATHA RASA PARPAM [internal], PARUTHI THYLAM [external] and OTTRADAM [therapy]" in group II subjects.

The most popular non parametric statistical tool, namely, McNemar Test analysis has been employed to analyses the effectiveness with the help of a hypothesis.

### IMPROVE MENT OF GROUP II SUBJECTS:

| S. No | Clinical features | Before Treatment | After Treatment |
|---|---|---|---|
| | | n% | n% |
| 1. | PAIN AND SWELLING OF PIP JOINT | 11(55) | 2(10)** |
| 2. | MORNING STIFFNESS > 1 hr | 16(80) | 3(15)** |
| 3. | TENDERNESS | 14(70) | 2(10)** |
| 4. | LOW GRADE FEVER | 6(30) | 1(5)** |
| 5. | ARTHRITIS OF MORE THAN 3 JOINTS | 15(75) | 4(20)** |
| 6. | RESTRICTION OF MOVEMENTS | 7(35) | 1(5)** |
| 7. | LOSS OF APPETITE | 10(50) | 2(10)** |

McNemat test, C.I: 95%, *P<0.05; **P<0.01

**Software:** spss17 version

**Number of cases:** 20

**Inference:**

Since the p value is significant in all clinical features. So there is significant reducing of clinical features among the patients for the treatment of Uthiravadha Suronitham (Rheumatoid Arthritis). Hence it is concluded that the treatment was effective and **significant.**

**GROUP I SUBJECTS : LIVER FUNCTION TEST**

| S.No. | Investigations | Before Treatment Mean±SD n= 20 | After Treatment Mean±SD n= 20 | P value |
|---|---|---|---|---|
| 1 | SGOT | 24.86±6.23 | 23.60±6.63 | **<0.05** |
| 2 | SGPT | 22.51±5.58 | 21.19±5.38 | **<0.05** |
| 3 | Alkaline Phosphatase | 165.55±38.43 | 161.5±39.92 | **<0.001** |
| 4 | T.Bilirubin | 0.49±0.15 | 0.42±0.12 | **<0.05** |

C.I: 95%; Paired samples t test. Where p<0.001, p<0.05 represents statistically significant.

**GROUP II SUBJECTS : LIVER FUNCTION TEST**

| S.No. | Investigations | Before Treatment Mean±SD n= 20 | After Treatment Mean±SD n= 20 | P value |
|---|---|---|---|---|
| 1 | SGOT | 24.11±9.98 | 21.47±6.51 | **<0.05** |
| 2 | SGPT | 25.13±14.70 | 21.95±12.53 | **<0.001** |
| 3 | Alkaline Phosphatase | 159.45±34.63 | 155.75±32.61 | **<0.05** |
| 4 | T.Bilirubin | 0.44±0.14 | 0.41±0.10 | **0.234** |

C.I: 95%; Paired samples t test. Where p<0.001, p<0.05 represents statistically significant

**GROUP I SUBJECTS : RFT**

| S.No. | Investigations | Before Treatment Mean±SD n= 20 | After Treatment Mean±SD n= 20 | P value |
|---|---|---|---|---|
| 1 | Urea | 21.20±4.89 | 20.10±3.65 | **<0.05** |
| 2 | Creatinine | 0.56±0.15 | 0.48±0.10 | **<0.05** |

C.I: 95%; Paired samples t test. Where p<0.001, p<0.05 represents statistically significant.

**GROUP II SUBJECTS : RFT**

| S.No. | Investigations | Before Treatment Mean±SD n= 20 | After Treatment Mean±SD n= 20 | P value |
|---|---|---|---|---|
| 1 | Urea | 21.04±4.62 | 19.70±3.55 | **<0.05** |
| 2 | Creatinine | 0.59±0.14 | 0.51±0.12 | **<0.05** |

C.I: 95%; Paired samples t test. Where p<0.001, p<0.05 represents statistically significant.

**GROUP I SUBJECTS:BLOOD INVESTIGATION**

| S.No. | Investigations | Before Treatment Mean±SD n= 20 | After Treatment Mean±SD n= 20 | P value |
|---|---|---|---|---|
| 1 | Hb | 11.46±1.70 | 12.40±1.75 | **<0.001** |
| 2 | ESR1hr | 36.30±16.84 | 31.85±15.96 | **<0.001** |

C.I: 95%; Paired samples t test. Where p<0.001, p<0.05 represents statistically significant.

**GROUP II SUBJECTS : BLOOD INVESTIGATION**

| S.No. | Investigations | Before Treatment Mean±SD n= 20 | After Treatment Mean±SD n= 20 | P value |
|---|---|---|---|---|
| 1 | Hb | 12.30±7.54 | 9.97±6.90 | **<0.001** |
| 2 | ESR1 hr | 110.78±114.14 | 108.61±117.48 | **0.134** |

C.I: 95%; Paired samples t test. Where p<0.001, p<0.05 represents statistically significant.

**GROUP I SUBJECTS: SPECIAL INVESTIGATIONS**

| S.No. | Investigations | Before Treatment Mean±SD n= 20 | After Treatment Mean±SD n= 20 | P value |
|---|---|---|---|---|
| 1 | Anti CCP | 99.53±60.65 | 91.60±60.42 | **<0.001** |
| 2 | CRP | 14.84±9.29 | 9.89±7.18 | **<0.05** |
| 3 | RA | 116.50±173.18 | 100.75±147.37 | **<0.05** |

C.I: 95%; Paired samples t test. Where p<0.001, p<0.05 represents statistically significant.

**GROUP II SUBJECTS: SPECIAL INVESTIGATIONS**

| S.No. | Investigations | Before Treatment Mean±SD n= 20 | After Treatment Mean±SD n= 20 | P value |
|---|---|---|---|---|
| 1 | Anti CCP | 110.78±114.14 | 108.61±117.48 | **0.134** |
| 2 | CRP | 14.59±11.28 | 9.97±6.90 | **<0.05** |
| 3 | RA | 122.70±189.94 | 104.15±155.59 | **0.0120** |

C.I: 95%; Paired samples t test. Where p<0.001, p<0.05 represents statistically significant.

# 6. DISCUSSION

# DISCUSSION

Rheumatoid arthritis (RA) is a chronic inflammatory syndrome with a strong autoimmune component (autoantigens) are neither tissue nor organ-specific, but comprise a broad collection of post-translational modified proteins, such as citrullinated proteins. Both innate and adaptive mechanisms will closely interplay to promote chronic inflammation in peripheral joints (PIP,MCP, MTP & Wrist joints) more often and very rarely after the larger joints.

The disease **Rheumatoid arthritis** signs and symptoms were correlates with the symptoms of **Uthiravadha Suronitham** mentioned in the siddha literature **Yugi Vaithiya Chindhamani.**

The drugs in the **RAJALOGA NAATHARASA PARPAM** and **PARUTHI THYLAM** possesses **anti-vadha** and **anti-spasmodic** actions as indicated in the siddha literature Gunapadam-Mooligai & Thadhu SeevaVagupu were selected as Internal and External medicines respectively for the clinical evaluation on Uthiravadha Suronitham (Rheumatoid arthritis).

After getting proper **Authentication** from the Head of the Department of Gunapadam (Pharmacology) and after conducting the proper analysis of **Toxicological & Pharmacological study** for the Internal trial medicine (Rajaloga naatharasa parpam), the medicine was administered to the patients.

20 patients were admitted for the trial in the outpatient ward & 20 patients were admitted for the trial in the inpatient ward. Out of which 20 patients was treated with Internal medicine alone (Group I), 20 patients was treated with Internal, External medicine & Ottradam (Group II) and guided by the **Head of the Department of Sirappu Maruthuvam**, **GSMC, Chennai-106.**

Progress of the patients was followed and documented regularly. Various criteria like Distribution of Gender, Age, Diet, Occupational & Socio-Economic status were assessed. Clinical manifestation and assessment of the enhancement in the prognosis of the disease (RA) with the trial drugs along with ottradam were taken into account for evaluating the **Efficacy** of the trial drugs.

**GENDER:**

22.5% of Patients were in the gender of male

77.5% of Patients were in the gender of female

**AGE:**

2.5% of Patients were in the age group of 18-20

5% of Patients were in the age group of 21-30

32.5% of Patients were in the age group of 31-40

42.5% of Patients were in the age group of 41-50

17.5% of Patients were in the age group of 51-60

**OCCUPATIONAL STATUS:**

57.5% of Patients was Homemakers were affected

15% of Patients was Employees were affected

7.5% of Patients was Labours were affected

Mostly Homemakers and Employees were affected

**SOCIO-ECONOMIC STATUS:**

50% of Patients were affected in the socio-economic status of lower income groupbecause of the low nutrition, poor hygiene and poor immunity.

**DIET:**

80% of Patients were Non-vegetarian and only 20% of Patients were Vegetarian.

**DURATION OF ILLNESS:**

22.5% of Patients had illness for 2-3 years

15% of Patients had illness upto 6 months

17.5% of Patients had illness for 4-6 years

10% of Patients had illness for 1-2 years

20% of Patients had illness for 6 months – 1 year

5% of Patients had illness for 3-4years

10% of Patients had illness for 6-10 years

**MODE OF ONSET:**

52.5% of Patients were in the Sub-acute stage of the disease (6 month – 3 years)

**CLINICAL FEATURES:**

80% of Patients merely have all the above said clinical features of the presentingillness.

**CLINICAL PROGRESS WITH INTERNAL MEDICINE:**

80% of Patients got relief from Pain, Morning stiffness, Inflammation and Restriction of movements.

About 70-75% of Patients had the progress in their clinical features when treated with providing Internal medicine alone.

**CLINICAL PROGRESS WITH INTERNAL, EXTERNAL MEDICINE AND OTTRADAM:**

80% of Patients got relief from Pain, Morning stiffness, Inflammation and Restriction of movements.

About 70-75% of Patients had the progress in their clinical features when treated with providing Internal medicine, External medicine and Ottradam.

**RESULTS:**

**GROUP I SUBJECTS (INTERNAL MEDICINE):**

Among 20 cases, 14 cases (70%) had pain and swelling of PIP joints, 12 cases (60%) had morning stiffness > 1hr, 8 cases (40%) had tenderness, 4 cases (20%) had low grade fever, 19 cases (95%) had arthritis of more than 3 joints, 11 cases (55%) had restriction of movements, 6 cases (30%) had loss of appetite before treatment. But after treatment only 3 cases (15%) had pain and swelling of PIP joints, 2 cases (10%) had morning stiffness > 1hr,1 cases (5%) had tenderness, 1 cases (5%) had low grade fever, 4 cases (20%) had arthritis of more than 3 joints, 2 cases (10%) had restriction of movements, 1 cases (5%) had loss of appetite.

**GROUP II SUBJECTS (INTERNAL, EXTERNAL MEDICINE AND OTTRADAM):**

Among 20 cases, 11 cases (55%) had pain and swelling of PIP joints, 16 cases (80%) had morning stiffness > 1hr, 14 cases (70%) had tenderness, 6 cases (30%) had low grade fever, 15 cases (75%) had arthritis of more than 3 joints, 7 cases (35%) had restriction of movements, 10 cases (50%) had loss of appetite before treatment. But after

treatment only 2 cases (10%) had pain and swelling of PIP joints, 3 cases (15%) had morning stiffness > 1hr, 2 cases (10%) had tenderness, 1 cases (5%) had low grade fever, 4 cases (20%) had arthritis of more than 3 joints, 1 cases (5%) had restriction of movements, 2 cases (10%) had loss of appetite.

**OVERALL RESULTS:**

Among 40 cases, 34 cases (80%) had good improvement, 4 cases (10%) had moderate improvement and 4 cases (10%) had mild improvement.

**GRADING OF RESULTS:**

There is certainly marked improvement noted in the grading of the result before and after treatment.

**STATISTICAL REPORT:**

**Inference:**

Since the p value is significant in all clinical features, so there is significant reducing of clinical features among the patients for the treatment of **Uthiravadha Suronitham (Rheumatoid arthritis)**. Hence it is concluded that the treatment was **effective** and **significant.**

# 7. SUMMARY

# SUMMARY

The primary purpose of the study is to analyse my trial drugs in the disease Uthiravadha Suronitham (Rheumatoid Arthritis).

Many literature reviews in both siddha and modern textbooks has been collected for the disease Uthiravadha Suronitham and Rheumatoid Arthritis respectively. Literature reviews has also been collected from siddha and modern textbooks as well as from various articles for the ingredients in the trial drugs.

The trial drugs Internal and External medicine along with Ottradam has been approved by **Institutional Ethics Committee (IEC No: GSMC-CH-ME-2/014/2017).**

After getting proper permission from the **Institutional Animal Ethics Committee No: (IAEC No: LV/07/CLBMCP/2018).** The clinical trial is also registered in Clinical Trial Registry of India **(CTRI/2018/05/01360).**

Acute and Sub-acute Toxicity for the trial drug RAJALOGA NAATHARASA PARPAM was carried out in **Wistar albino rats.**

**Standardization and Quality Evaluation(NRS/AS/0202/01/2019)** for the trial drug RAJALOGA NAATHARASA PARPAM was carried out in several methods which includes **Organaoleptic characters, Qualitative and Quantitative Analysis, Heavy Metal Analysis, Phytochemical analysis.**

Pharmacological study (Immunomodulator activity) for the trial drug RAJALOGA NAATHARASA PARPAMwas done in-vitro method by using **RAW 264.7 Cell line.**

The patients with raised **CRP, Anti-CCP** along with the **clinical symptoms** mentioned in inclusion criteria were included in my clinical trial.

Before conducting the clinical trial, the details about the trial drug and my study was informed to the patients in their vernacular language and their signature were obtained in the consent forms. Separate Proforma was maintained for each and every patient.

After completing all the above studies and procedures, the clinical study was conducted in 40 patients. Out of which 20 were treated with Internal medicine (Group I) and 20 patients were treated with Internal and External medicine with Ottradam therapy (Group II).

The trial drugs RAJALOGA NAATHARASA PARPAM at the dose of **60 mg (twice daily)** and PARUTHI THYLAM of **60 ml (per week)** with OTTRADAM were administered to the above said group patients for **21days.**

The Efficacy of the trial drugs were assessed by Reduction in Inflammation of joints, Morning stiffness, CRP and Anti-CCP.

The Safety of the trial drugs were assessed by comparing the safety parameters LFT & RFT before and after treatment.

Hence the **Statistical Analysis** helps to evaluate the **EFFICACY** and **SAFETY** of the trial drug **RAJALOGA NAATHARASA PARPAM (Internal), PARUTHI THYLAM (External) with MARIKOZHUNTHU OTTRADAM (External therapy)** in **Uthiravadha Suronitham (Rheumatoid Arthritis)**.

# 8.CONCLUSION

# CONCLUSION

As expressed before, various studies have conducted to evaluate whether the trial drug Rajaloga naatharasa parpam (Internal) along with Paruthi thylam (External) and Marikozhunthu Ottradam (External therapy) is Efficacy and Safety for the disease Uthiravadha suronitham (Rheumatoid Arthritis).

Heavy Metal Analytical study clearly shows that sample has permitable limit the traces of heavy metals such as Mercury, Arsenic and lead. Further there is no trace of cadmium in the sample Rajaloga naatharasa parpam. Thus the drug Rajaloga naatharasa parpam is recommended for the clinical trial.

Phytochemical study indicates the presence of rich Phenol, Tanin, Protein and Saponins. This analysis clearly proves that the ingredients of Rajaloga naatharasa parpam has possess Anti inflammatory and Immunomodulator activity which helps to reduce the inflammation in RA.

Acute oral toxic study and Repeated dose 28-day oral toxic study was done in Wistar Albino Rats for the sample Rajaloga naatharasa parpam and hence no other significant changes were observed in their behavior, body weight, water intake, food intake, LFT, RFT. It proves that the trial drug Rajaloga naatharasa parpam is safe for animal models.

In Pharmacological study, 25µg/ml concentration of Rajaloga naatharasa parpam has rich level of nitrate (446.49µg) and thus proven to be a potent IMMUNO MODULATOR drug.

Overall clinical study with the trial drugs (Internal, External medicine with Therapy) for 21days reveals that 80% cases have Good improvement, 10% cases have Moderate improvement and 10% cases have mild improvement in patients with Uthiravadha suronitham (RA).

# 9. BIBLIOGRAPHY

# BIBLIOGRAPHY

1."Yoogi vaithiya chinthamani 800, 2nd edition -2013" pg no:122

2."Pranarashamirthasindhu", volume 1 , pg.no.185

3.Vaithiyar naagai sanmugantha swamigal - "Noi NeekkumThylangal Seimuraigal" 1992; pg no: 87

4. Noi Nadal Noi Mudhal Nadal Thirattu Part I, author Dr.M. Shanmugavelu, 2009, published by directorate of Indian medicine and homeopathy department, Chennai.

5. Gunapadam Mooligai Vaguppu –Part -II, author -Dr. Murugesa Mudhaliyar , 2013 published by directorate of Indian medicine and homeopathy department, Chennai.

6. Gunapadam thathu Jeevavaguppu Part-I - Dr.R.Thiyagarajan, 2009 published by directorate of Indian medicine and homeopathy department, Chennai.

7. Padhartha GunaC hinthamani - R.C. Mohan

8. Sigicha Rathna Deepamennumvaithiya nool - Thamarai pathipagam

9. Pararasa Sekaram, part IV, vatharoga sigichai (8), author – I. Ponnaiya pillai, published by siddha and Ayurveda books & printers, Agasthiyar siddha vaithiya saalai, yaazhpanam, srilanka.

10. Kaaviya naadi nool.

11. Agathiyar Gunavagadam

12. Agathiyar Kanma Kandam, published by Thamarai pathipagam.

13. Agathiyar 2000, published by Thamarai pathipagam.

14. History of Siddha Medicines- N.Kandaswamy Pillai, Former Member, Siddha Science Development Committee, Department of Indian Medicine & Homoeopathy, Chennai-106.

15. Medical Taxonomy of Angiosperms, vol –I medicinal uses and chemical constituents, author –Dr.S.Somasundaram-Published by Elangovan pathipagam.

16. The Pharmacopoeia of Siddha Research Medicines – Dr.M.Shanmugavelu & Dr.G.D.Naidu

17. Siddha Maruthuvanga Surukkam- Dr.K.S. Uthamarayan, published by directorate of Indian medicine and homeopathy department, Chennai.

18. Konganavar vatha kaviyam part-II, published by Thamarai pathipagam.

19. Siddha Maruthuvam (Podhu), author- Dr.N.K. Kuppusamy Mudhaliyar, 2007 published by directorate of Indian medicine and homeopathy department, Chennai.

20. Aaviyalikkum amuthamurai surukkam, published by Thamarai pathipagam.

21. Siddha Maruthuvam (Sirappu) - Dr.R.Thiyagarajan

22. Siddha Principles of Social and Preventive medicine - Dr.G. Durairasan

23. Siddha Vaithiya Padhartha Guna Vilakkam - C.Kannusamy Pillai

24. Therayar Vagadam, published by Thamarai pathipagam.

25. Sarakku Suthi Sei Muraigal-Siddha Maruthuva Veliettupirivu

26. Siddha Medicine Volume IV Vadha related diseases part-I, Author – Dr.V.Subramanian, Tamil Valarchi kazhagam madras university, Chennai, 2006.

27. T.V.Sambhashiva Pillai Dictionary, Volume 4, Part–I, published by directorate of Indian medicine and homeopathy department, Chennai.

28. Dhanvanthiri vaithiyam, Dr.Venkatraman, published by Thamarai pathipagam.

29. Agathiyar Aayul vedham, Thamarai pathipagam.

30. Vadha Noi Maruthuvam-Dr.S.Chidambarathaanu Pillai

31. Yugi Munivar Peru nool Kaaviyam

32. Siddhars Science of Longevity and Kalpa Medicines

33. Medical Taxonomy of Angiosperms – S.Sankara narayanan, HOD of Medicinal Botany, GSMC, Chennai-106

34. Pathartha Guna Vilakkam (Materia Medica) – C.Kannusaami pillai

35. The Siddha Pharmacopoeia of India vol I &II, Government of India, Ministry of health & family welfare

36. Indian Materia Medica - "Dr. K.M.Nadkarni".

**MODERN BOOKS**

1.ACR/EULAR (2010) classification criteria for RA, www.rheumtutor.com

2.Mayil Vahanan Natarajan, "Natrajan's text book of orthopaedics and traumatology ", seventh edition; 2011; Published By -Wolters Kluwer (India) Pvt.Ltd, New Delhi.pg no:89

3. Textbook of Orthopaedics – 5th Edition, John Ebnezar, Rakesh John

4.The merck manual, 16th edition 1992; pg no:1305

5.John Crawford Adams David L.Hamblen - "Outline of orthopaedics ,12th edition"

6.Kelley's Textbook of Rheumatology – 9th Edition, Gary S.Firestein, Ralph C. Budd, Sherine E. Gabriel, Iain B. Mcinnes, James R. O'Dell

7.Harrison's Rheumatology – 3rd Edition, Anthony S.Fauci, Carol A.Langford

8. P.C.Das and P.K.Das –Textbook of Medicine -5th Edition, Published by Currents Books international,Kolkatta.

9. R.Alagappan- Manual of Practical Medicine-5th Edition, Jaypee Brothers Medical Publishers.pvt.ltd.New Delhi.

10. Harsh Mohan - Textbook of Pathology-6 th Edition-Jaypee Brothers Medical Publishers.pvt.ltd.New Delhi.

11. Johns Hopkins Medicine –Arthritis Center-American College of Rheumatology.

12.Manjit Singh, Vijendhar Kum and Ajudhia Nath Kalia Pharmacognosy Research –Med Know Publications.

13. Health line –Prevalence of RA Globally and US.

14. Medicine Net-Rheumatoid arthritis-Diagnosis, Complications.

15. Everyday Health-RA-Auto Immune Disorders of the Joints, Muscles and Nerves-By Sara calabro-Medically Reviewed by Pat F. Bass, III.

16. Encyclopedia of Medicinal Plants-Herbs-Medicinal Plant Usage and Identification Data Base.

17. Davidson's principle and practice of medicine 28 th edition, Elsewier publisher 2010.

18.Immuno modulation of RAW 264.7 murine macrophage functions and Anti oxidant activities of 11 plant extract,http://www.academia.edu

19.Florham park , "Leflunomide, a novel immunomodulator for the treatment of active rheumatoid arthritis" ; www.ncbi.nlm.nih.gov > pubmed.

20. Anti-inflammatory action of ginger: A critical review in anemia of inflammation and its future aspects - Subodh Kumar, Kiran Saxena, Uday N. Singh, Ravi Saxena (www.florajournal.com)

21. Vijaykumar singh, Preethisingh, Ashutoshmishra, Anandpatel, Kamlesh KM Yadav - Delightful surprise to the biological world, madeby plant "pepper" And great bio vailability enhancer for our drug and supplements (www.wjpr.net) 2014,pg no:2091, 2093

22.Maitreyizaveril, Amitkhandhar, Samir patel, Architapatel-Chemistry and pharmacology of piper longum (www.globalresearchonline.net) 2010, pg no:71

23.V.A.Pawar,P.R.Pawar-.Costus speciosus: An important Medicinal Plant (www.ijsr.net) 2012,pg no:31

# 10. ANNEXURE

# GOVERNMENT SIDDHA MEDICAL COLLEGE

**Arumbakkam, Chennai-106**

**Communication Of The Decision Of Institutional Ethics Committee (IEC)**

**IEC No: GSMC-CH-ME-2/014/2017**

**Protocol title:**

An open comparative clinical evaluation on UTHIRAVATHA SURONITHAM (RHEUMATOID ARTHRITIS) with Siddha trial drug 'RAJALOGA NATHA RASA PARPAM' [INT] ,PARUTHI THYLAM [EXT] AND OTTRADAM [THERAPY]

**Principal Investigator:** Dr. D.SUGANYA

**Name & Address of Institution:**

Government Siddha Medical College,

Arumbakkam, Chennai-106

☑ New Review ☐ Revised Review ☐ Expedited Review

Date of review (DD/MM/YY): 06-04-2017

Date of Previous Review, If Revised Application:

Decision of the IEC

☐ Recommended ☑ Recommended with suggestions

☐ Revision ☐ Rejected

Suggestions / Reasons / Remarks:

1.Add lemon in ingredient of internal medicine

2.Add CRP

Recommended for a period of 1 year
from date of completion of preclinical studies :

**Please Note:**

- Inform IEC immediately in case of any adverse events/serious drug reaction.
- Seek IEC approval in case of any change in the study procedure, site and investigator
- This approval is valid only for period mentioned above
- IEC member have the right to review the trial with prior intimation.

**Dr.P.Jeyaprakashnarayanan**
**Chairman**

**Dr.K.Kanakavalli** 6.4.17
**Member Secretary**

# INSTITUTIONAL ETHICS COMMITTEE

**Date : 06.04.2017**
**Sub : IEC Review of research proposals**
**Ref : Your letter dated**

| MEMBERS | PARTICIPATION | SIGNATURE |
|---|---|---|
| **Dr.P JEYAPRAKASH NARAYANAN. M.D(S).,** Chairman | | |
| **Dr. K. KANAKAVALLI., MD(S).,** Member secretary | ✓ | 6.4.17 |
| **Dr.SATHYA RAJESWARAN M.D(S),** Clinician - Siddha | ✓ | 6/4/17. |
| **Dr.KABILAN M.D(S),** Clinician - Siddha | ✓ | 6/4/17 |
| **Dr.R.VASUDEVAN, M.D(S)., PG.DIP** (Clinical research), Msc (Medical sociology), Sociologist | ✓ | 6/4/17 |
| **Dr.L.MUKUNTHAN, M.B.B.S.,DNB (Medicine ).,** Modern medicine specialist, | ✓ | 6/4/17 |
| **Dr.JOSEPH MARIYA ADAIKKALAM, M.D(S).,** Msc epidemiology., Social scientist, | ✓ | 6/4/17 |
| **Dr.G.DAYANAND REDDY, M.Pharm, Ph,D.,** Biomedical scientist | ✓ | 06/04/17 |
| **Mr.B.PADMANABHA PILLAI,** Philosopher | | |
| **Mrs.PREETHA SARAVANAN,** Public person | ✓ | 06/04/17 |

**Dr.P.Jeyaprakashnarayanan M.D(s).,**
**Chairman**

6.4.17

**Dr.K.Kanakavalli, M.D(s)**
**Member secretary**

# Government Siddha Medical College

**Arumbakkam, Chennai – 600 106**

## CERTIFICATE

Certified that the samples submitted for identification by Dr.D.Suganya, PG Scholar, Department of Sirappu maruthuvam, Government Siddha Medical College, Arumbakkam, Chennai-600 106, were identified as:

1.Rasam - Mercury
2.Ganthagam - Sulphur
3.Palagarai - Cypraea moneta
4.Venkaram - Sodium biborate
5.Sangu - Turbinella rapa

**Date:** 29.01.2018

**Place: Chennai**

HEAD OF THE DEPARTMENT
Head of the Department
Gunapadam
Govt. Siddha Medical College,
CHENNAI-600 106.

**PG Department of Gunapadam**

# Central Council for Research in Siddha (CCRS)

MANIPAL UNIVERSITY

Central Council for Research in Siddha (CCRS), Ministry of AYUSH, Govt. of India, Arumbakkam, Chennai-600106
Centre for Integrative Medicine and Research (CIMR), Manipal University
Department of Pharmacology, Melaka Manipal Medical College, Manipal University

## CERTIFICATE

This is to certify that Dr./~~Mr./Ms~~ D. Suganya

participated in the Seminar cum Workshop on "Management of dermatological disorders and cancer –moving towards an integrative (Siddha & Modern) approach" held during 11-12 February 2017 at Manipal University, Manipal - 576104.

**Dr. Vishaal Bhat**
Coordinator
CIMR, MU

**Dr. Vasudha Devi**
Head, Dept. of Pharmacology
MMMC, MU

**Prof. Dr. R. S. Ramaswamy**
Director General
CCRS, Chennai

# The Tamil Nadu Dr.M.G.R.Medical University

69, Anna Salai, Guindy, Chennai - 600 032.

*This Certificate is awarded to Dr/~~Mr~~/~~Mrs~~.....SUGANYA.D.....*

*For participating as ~~Resource~~ ~~Person~~ / Delegate in the Twenty Fourth Workshop on*

## "RESEARCH METHODOLOGY & BIOSTATISTICS"

*For **AYUSH Post Graduates & Researchers***

*Organized by the Department of Siddha*

*The Tamil Nadu Dr. M.G.R. Medical University From 24th to 28th April 2017.*

**Dr.N.KABILAN,** M.D.(S),Ph.D.,
PROF & HEAD DEPT.OF SIDDHA

Prof.**Dr.T.BALASUBRAMANIAN,** M.D.,D.L,O.,
REGISTRAR

Prof.**Dr.S.GEETHALAKSHMI,** M.D., Ph.D.,
VICE CHANCELLOR

தேசிய கருத்தரங்கம்

சித்த மருத்துவத்தில் புற மருத்துவ முறைகள்

# SIDDHA REGIONAL RESEARCH INSTITUTE

(Under Central Council for Research in Siddha, Chennai.
Ministry of Ayush, Government of India)

**Kuyavarpalayam, Puducherry - 605 013.**

Certificate No : SRRI/NCPM/2017/ 163

# Certificate

*This is to certify that Dr./Sh./Km./Smt.* **Dr. D. SUGANYA**

*has participated in the National Conference on Pura Maruthuvam - External Therapies in Siddha System of Medicine organized by Siddha Regional Research Institute, Puducherry, held on 9th & 10th December , 2017 at Dr. APJ Abdul kalam JIPMER Auditorium, Puducherry.*

**Organising Secretary** **Convenor** **Chairman**

# LOYOLA COLLEGE

(Autonomous, Affiliated to University of Madras)
College of Excellence, NAAC Acredited A++, Chennai - 600 034. Tamil Nadu.

## National Conference on

## Biochemistry and Therapeutics of Diabetes and Cancer Treatment & Challenges

## (BTDCTC - 2019)

February 28 & March 1, 2019

Organised by

Ethnopharmacology and Microbial Biotechnology Lab,
Department of Plant Biology and Biotechnology

## *Certificate*

This is to certify that ~~Mr./Ms.~~/Dr. D. Suganya of Govt. Siddha Medical College, Chennai. has participated / ~~presented~~ a paper (Oral/Poster) in the National Conference on Biochemistry and Therapeutics of Diabetes and Cancer Treatment & Challenges (BTDCTC-2019) held on February 28 & March 1, 2019.

D. Agastian
**Dr. P. AGASTIAN**
**CONVENOR, BTDCTC-2019**
Dept. of Plant Biology & Biotechnology

**Rev. Dr. F. ANDREW, S.J**
**PRINCIPAL**
Loyola College

# International Conference on

# "Sports Medicine, Yoga, Fitness Therapy & Rehabilitation"

## SYFTR-2019

**Date: 11th and 12th March 2019**

## *CERTIFICATE*

This is to certify that Mr/Ms/Dr/Prof R. SUGANYA. GOVT. SIDDHA MEDICAL COLLEGE, has participated/Chaired a session in the International conference, organized by Research and Development wing, Sree Balaji Medical College & Hospital, Chromepet, Chennai, Tamil Nadu, India. He/she has presented a Paper entitled on_____ and the CME Points Awarded_____

**Prof . S. Benjamin Prakash**
German University of Physical Education & Sports Sciences Cologne,Germany

**Prof. Senthamil R. Selvan**
Principal Scientist, Biomarker Strategies Rockville, MD,USA

**Prof.W.M.S. Johnson**
Dean -Incharge
SBMCH

**Prof. P. Ramasamy**
Director -Research
SBMCH

உணவே மருந்து!

மருந்தே உணவு !!

सत्यमेव जयते

## 2nd Siddha day Pre-event

# CERTIFICATE

## OF PARTICIPATION

This is to certify that

Dr./Mr./Ms. SUGANYA . D

participated in the Seminar on "Reproductive and Child Health through Siddha" held on 20th December 2018 at Siddha Central Research Institute (CCRS, Ministry of AYUSH, Govt. of India), Arumbakkam, Chennai - 600 106.

(Dr. P. Sathiyarajeswaran)
Director Incharge, SCRI

(Prof. Dr. K. Kanakavalli )
Director General, CCRS

(Dr. R. Meenakumari)
Principal Incharge
Govt. Siddha Medical College,Chennai

II Siddha Day / RCH / SCRI-CCRS/2018/ 072

International Day of Yoga
Yoga for Harmony & Peace

Individualized
Clinical Yoga Therapy
ICYTTRF

# Certificate

This is to certify that

Dr. D. SUGANYA

has successfully completed 3 days Residential **CLINICAL YOGA THERAPY** Workshop conducted by **ICYTTRF** - Individualized Clinical Yoga Therapy Training and Research Foundation from **29th JUNE 2018 to 1st JULY 2018** at **Sterling Resorts,** Yercaud, Salem.

**Mr. K. ANANDARANGA**
Chairman, **ICYTTRF**

**Dr R. VETRIVENDAN**
Program Convenor, **ICYTTRF**

**Prof. SUBRAMANIAN ANANTHA VENKATA**
Adhyatma Yoga Foundation, Bangalore

# GOVERNMENT SIDDHA MEDICAL COLLEGE

Arumbakkam, Chennai, 600106

This certificate is awarded to Dr./~~Mr./Ms.~~ SUGANYA

for participating as a ~~resource person~~ / delegate in the seminar on

## "Orientation to research Methods"

Organised by Suzhumunai Scientific forum Government Siddha Medical College on 22 March 2018

**Dr. P. Manickam**
Scientist E
(ICMR) National Institute of Epidemiology

**Dr. K. Kanakavalli**
Principal
Govt. Siddha Medical College

Phone : 24960151, 24962592, 24960425
e-mail : clbaidmethacollege@gmail.com
Website : www.clbaidmethacollege.com

# C.L. Baid Metha College of Pharmacy

An ISO 9001:2008 approved institution
Old Mahabalipuram Road,
Thoraipakkam, Chennai - 600 097.

ISO 9001 : 2008
Reg. No : EQ91/3038

Affiliated to The Tamil Nadu Dr. M.G.R. Medical University, Chennai.
Approved by Pharmacy Council of India, New Delhi, and
All India Council for Technical Education, New Delhi

## CERTIFICATE

This is to certify that the project titled **"Evaluation of siddha drug RAJA LOGA NATHA PARPAM for its Toxicological and Anti inflammatory activity in Wistar rats"** has been approved by IAEC

**IAEC No: LV/07/CLBMCP/2018**

C.L. Baid Metha College of Pharmacy ★ CHENNAI-97 ★ Thoraipakkam

P. Muralidharan

Dr.P.Muralidharan

Noble research solutions
We Trust in Quality and Ethics

# Noble Research Solutions

*We Trust in Quality and ethics*

E-mail : nobleresearchsolutions@gmail.com
info@nobleresearchsolutions.com
Contact : 9710437419, Admin : 044 - 42691289

## CERTIFICATE

Date: 30 MAR 2018

To,

Dr.D.Suganya
Government Siddha Medical College,
Arumbakkam, Chennai 600 106,Tamil Nadu, India

Project Id: **NRS/AS/0202/01/2019**

This is to certify that Dr.D.Suganya from Govt Siddha Medical College, Arumbakkam, Chennai, has carried out the following activity at our facility for the trial drug *Raja Loga Naatharasa Parpam (RLNP)*

| S.No | Study Description | Annexure no |
|---|---|---|
| 1. | Standardization and Physicochemical Evaluation of study drug *Raja Loga Naatharasa Parpam (RLNP)* | I - VI |

*Note:*

- *Annexures was attached as a separate enclosure along with this report*

NOBLE RESEARCH SOLUTIONS ★ TAMIL NADU, INDIA. ★ CHENNAI

**Services offered : Standardization and Characterization of ASU formulations**
**In-vitro and In-silico Evaluations / Instrumental analysis / Histopathological Analysis**
**Blood & Serum Estimations**
**Thesis Writing / Research Article Preparation and Publication Services**

Noble research solutions
We Trust in Quality and Ethics

# Noble Research Solutions

ISO 9001-2015 certified company

*We Trust in Quality and Ethics*

E-mail: nobleresearchsolutions@gmail.com
Contact: 9710437419, Admin: 044 – 42691289
Website: www.nobleresearchsolutions.com

| | |
|---|---|
| **Name and Address of the Researcher** | **Dr.D.Suganya**<br>**Government Siddha Medical College,**<br>**Chennai**<br>**Tamil Nadu, India** |
| **Sample –ID** | **Raja Loga Naatharasa Parpam – RLNP** |
| **Parameter Requested for Analysis** | **Phytochemical Analysis** |
| **Sample Received** | **In Person** |
| **Method of Analysis** | **PLIM- Protocol – ASU Formulations** |
| **Analysis Type** | **Physicochemical Analysis** |
| **Result of Analysis** | **Test and Analytical Reports Attached As Annexures** |

## Phytochemical Analytical Report

| S.NO | TEST | OBSERVATION |
|---|---|---|
| 1 | ALKALOIDS | - |
| 2 | FLAVANOIDS | - |
| 3 | GLYCOSIDES | - |
| 4 | STEROIDS | - |
| 5 | TRITERPENOIDS | - |
| 6 | COUMARIN | - |
| 7 | PHENOL | + |
| 8 | TANIN | + |
| 9 | PROTEIN | + |
| 10 | SAPONINS | + |
| 11 | SUGAR | - |
| 12 | ANTHOCYANIN | - |
| 13 | BETACYANIN | - |

**+ -> Indicates Positive and - -> Indicates Negative**

Noble research solutions
We Trust in Quality and Ethics

# Noble Research Solutions

*We Trust in Quality and Ethics*

E-mail: nobleresearchsolutions@gmail.com
Contact: 9710437419, Admin: 044 – 42691289
Website: www. nobleresearchsolutions.com

| | |
|---|---|
| **Project ID** | NRS/AS/0202/01/2019 |
| **Name and Address of the Researcher** | Dr.D.Suganya<br>Government Siddha Medical College,<br>Chennai, Tamil Nadu, India |
| **Parameter Requested for Analysis** | Heavy Metal analysis by AAS |
| **Sample Received** | In Person |
| **Sample –ID** | Raja Loga Naatharasa Parpam – RLNP |
| **Description of the Sample** | Solid |
| **Method of Analysis**<br>**Instrument**<br>**Extraction Solvent** | <br>Model: AA 240 Series<br>HCl and HNO3 |
| **Analysis Type** | Third Party Analysis |
| **Date of Analysis** | 28/4/2019 |
| **Result of Analysis** | Test Report Attached as Annexure |

E-mail: nobleresearchsolutions@gmail.com
Contact: 9710437419, Admin: 044 – 42691289
Website: www. nobleresearchsolutions.com

## HEAVY METAL ANALYSIS BY AAS

Standard: Hg, As, Pb and Cd – Sigma

**Methodology**

Atomic Absorption Spectrometry (AAS) is a very common and reliable technique for detecting metals and metalloids in environmental samples. The total heavy metal content of the sample was performed by Atomic Absorption Spectrometry (AAS) Model AA 240 Series. In order to determination the heavy metals such as mercury, arsenic, lead and cadmium concentrations in the test item.

**Sample Digestion**

Test sample was digested with 1mol/L HCl for determination of arsenic and mercury. Similarly for the determination of lead and cadmium the sample were digested with 1mol/L of HNO3.

**Standard reparation**

As & Hg- 100 ppm sample in 1mol/L HCl
Cd & Pb- 100 ppm sample in 1mol/L $HNO_3$

**Test Report**

| Name of the Heavy Metal | Absorption Max Λ max | Result Analysis | Maximum Limit |
|---|---|---|---|
| Mercury | 253.7 nm | 1.04 ppm | 1 ppm |
| Lead | 217.0 nm | 5.11 pm | 10 ppm |
| Arsenic | 193.7 nm | 0.04 ppm | 3 ppm |
| Cadmium | 228.8 nm | BDL | 0.3 ppm |

**BDL- Below Detection Limit**

**Report and Inference**

- Results of the present investigation have clearly shows that the sample has traces of heavy metals such as Mercury, Arsenic and lead. Further there is no trace of cadmium in the sample presented for analysis.

Noble research solutions
We Trust in Quality and Ethics

# Noble Research Solutions

ISO 9001-2015 Certified Company

*We Trust in Quality and Ethics*

E-mail: nobleresearchsolutions@gmail.com
Contact: 9710437419, Admin: 044 – 42691289
Website: www. nobleresearchsolutions.com

| | |
|---|---|
| Project ID | NRS/AS/0202/01/2019 |
| Name and Address of the Researcher | Dr.D.Suganya<br>Government Siddha Medical College, Chennai<br>Tamil Nadu, India |
| Parameter Requested by the Customer for Analysis | Elemental Analysis |
| Sample Received | In Person |
| Sample –ID | Raja Loga Naatharasa Parpam – RLNP |
| Description of the Sample | Solid |
| Method of Analysis<br>Instrument | EDAX Elemental Analysis |
| Analysis Type | Third Party Analysis |
| Date of Analysis | 19/02/2019 |
| Result of Analysis | Test Report Attached |

Noble research solutions
We Trust in Quality and Ethics

# Noble Research Solutions

ISO 9001-2015 Certified Company

*We Trust in Quality and Ethics*

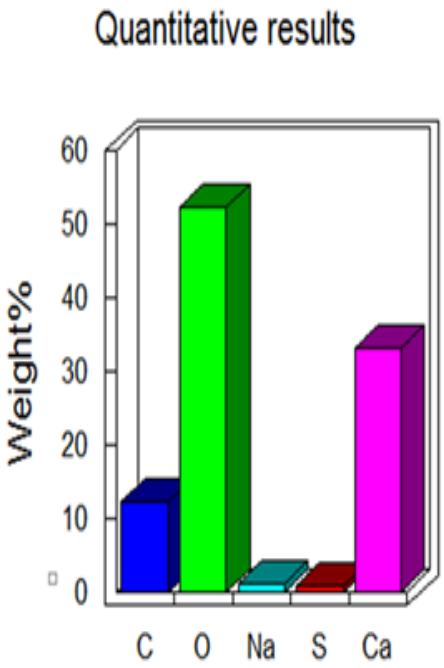
E-mail: nobleresearchsolutions@gmail.com
Contact: 9710437419, Admin: 044 – 42691289
Website: www. nobleresearchsolutions.com

## Methodology

Sample subjected for particle size and elemental analysis using FE- SEM- SUPRA 55.,CARL ZEISS, Germany. The EDX detector system performs a simultaneous display of all mid-energy (1-20 keV) X-rays collected during any individual analysis period and the energy of the X-rays is reproduced as a spectrum, which is a histogram plot of number of counts against X-ray energy. The spectrum contains both semi-qualitative and semi quantitative information. The position of a peak in the spectrum, its energy, identifies the element; the area under the peak is proportional to the number of atoms of the element in the irradiated area.

### Elemental Analysis Report

| Element | Weight% |
|---|---|
| C | 12.44 |
| O | 52.38 |
| Na | 1.04 |
| S | 0.88 |
| Ca | 33.27 |
| Total | 100.00 |



Noble research solutions
We Trust in Quality and Ethics

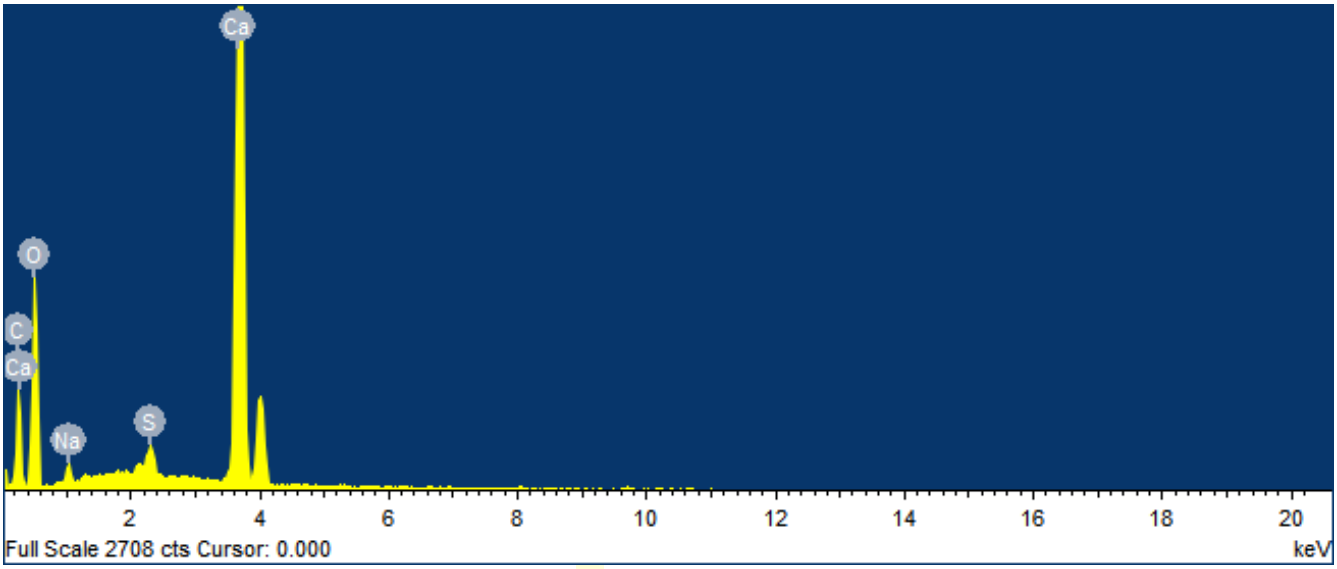
# Noble Research Solutions

ISO 9001-2015 Certified Company

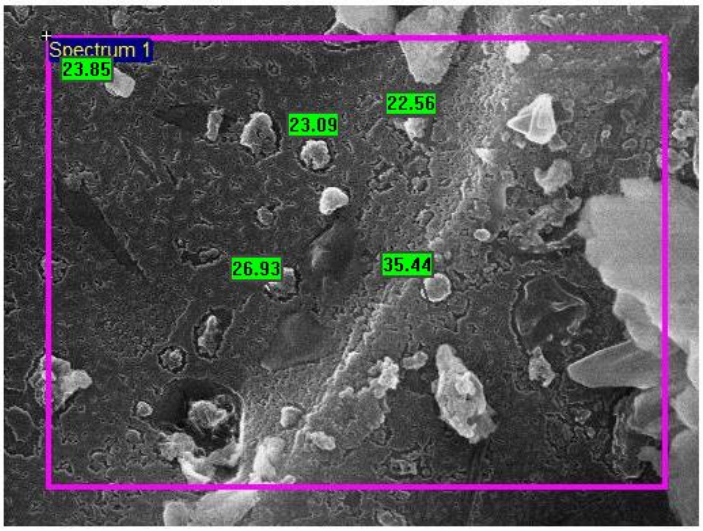
*We Trust in Quality and Ethics*

E-mail: nobleresearchsolutions@gmail.com
Contact: 9710437419, Admin: 044 – 42691289
Website: www. nobleresearchsolutions.com

**Spectrum of Elemental Composition of the Test Sample**




**Electron Microscopic Observation of Particle Size for the Test Sample**




Services offered: Standardization and Characterization of AYUSH formulations
In-vitro and In-silico Evaluations/ Instrumental analysis/Histopathological Analysis
Blood & Serum Estimations
Thesis Writing/ Research Article Preparation and Publication Services

E-mail: nobleresearchsolutions@gmail.com
Contact: 9710437419, Admin: 044 – 42691289
Website: www. nobleresearchsolutions.com

| | |
|---|---|
| Mean | **26.37** |
| Std. Deviation | **5.343** |
| Std. Error | **2.39** |

**REPORT**

Microscopic observation of the particle size analysis reveals that the average particle size of the sample was found to be 26.37 ± 5.3 nm

**Reference**

1.Morgan AJ. X-ray microanalysis in electron microscopy for biologists. Oxford University Press; 1985

2.Takashi Hiroi. Measurement of Particle Size Distribution in Turbid Solutions by Dynamic Light Scattering Microscopy. J Vis Exp. 2017; (119): 54885.

**GOVERNMENT SIDDHA MEDICAL COLLEGE**

**ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE**

**CHENNAI – 600 106**

**POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM**

**An open clinical evaluation on "Uthiravadha suronitham (Rheumatoid arthritis)" with Siddha trial drug "RAJALOGA NAATHARASA PARPAM" (Internal), "PARUTHI THYLAM" (External) and "MARIKOZHUNTHU OTTRADAM" (External therapy).**

## FORM l - SCREENING AND SELECTION PROFORMA

**1. OP NO: .....**

**2. NAME: …….**

**3. AGE: ……** **4.GENDER: …….....**

**5. OCCUPATION: …….. 6.INCOME: ……**

**7. ADDRESS: ……**

**……**

**……**

**8. CONTACT NO: ……**

**INCLUSION CRITERIA:**

- Age : 18-60 years YES/NO
- Sex : both male & female YES/NO
- Low grade fever YES/ NO
- Morning stiffness>1hours YES/NO
- Arthritis of ≥3 joint area of the possible 28 joints YES/NO
- Arthritis of hand joints[MCPs , PIPs , WRISTs] YES/NO
- Symmetric swelling –same joints on both sides YES/NO
- Redness of joints YES/NO
- Rheumatoid nodules YES/NO

- ❖ Serum rheumatoid factor [RA factor] +ve / –ve YES/NO
- ❖ Anti ccp +ve YES/NO
- ❖ CRP YES/NO
- ❖ Patient willing to sign the cosent form YES/NO

**EXCLUSION CRITERIA**

- ❖ Systemic lupus erythematosis
- ❖ Sub acute bacterial endocarditis
- ❖ Rheumatic fever
- ❖ Gouty arthritis
- ❖ Carries spine
- ❖ Ankylosing spondylitis
- ❖ Psoriatic arthritis
- ❖ Osteomyelitis
- ❖ Renal failure
- ❖ Tumours
- ❖ History of long term intake of steroid
- ❖ HIV
- ❖ Progressive systemic sclerosis
- ❖ Pregnancy&lactation
- ❖ Chickungunya

**ADMITTED TO TRIAL: YES NO**

**If yes, OPD/IPD**

**Date:**

**Station:**

**Signature of the Guide:** **Signature of the Investigator:**

**GOVERNMENT SIDDHA MEDICAL COLLEGE**

**ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE**

**CHENNAI – 600 106**

**POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM**

**An open clinical evaluation on Uthiravadha suronitham (Rheumatoid arthritis) with Siddha trial drug "RAJALOGA NAATHARASA PARPAM" (Internal), "PARUTHITHYLAM" (External) and "MARIKOZHUNTHU OTTRADAM" (External therapy).**

**FORM lI -HISTORY TAKING PROFORMA**

**1. SERIAL NO OF THE CASE: …….**

**2.OP / IP NO: .....**

**3. NAME: ……**

**4. AGE: ……..** **5. GENDER: ……..**

**5. OCCUPATION: ……** **6. INCOME: ……..**

**7.COMPLAINTS & DURATION:**

**8.CHIEF COMPLAINTS WITH DURATION**

| | **Presnt** | **Absent** |
|---|---|---|
| **Duration** | | |
| Low grade fever | | |
| Pain in the joints | | |
| Tenderness & swelling of joints | | |
| I. MCP | | |
| II. PIP | | |
| III. Wrist | | |
| IV. Ankle | | |
| V. Knee | | |
| Morning stiffness | | |

Restriction of joint movements

Loss of appitite

Rheumatoid nodules

Deformities

**9.HISTORY OF PRESENT ILLNESS**

1.Onset of disease : Acute Insidious

2.Duration of disease :

3.Treatment given so far : Ayurvedic medicine Modern medicine

Unani Homeopathy

**10.PERSONAL HISTORY:**

| **PERSONAL HABITS** | **YES** | **NO** | **IF YES, SPECIFY DURATION/QUANTITY** |
|---|---|---|---|
| Smoking | | | |
| Tobacco Chewing | | | |
| Alcoholism | | | |
| Narcotic drugs | | | |

**11. HISTORY OF PREVIOUS ILLNESS/PELVIC SURGERY**

**12. DIETARY HABIT:**

1.Vegetarian 2.Non-vegetarian

**13. FAMILY HISTORY:**

Whether this problem runs in family?

1. Yes 2.No

**If yes, mention the relationship of affected person(s) ----------**

**History of previous investigations if any ----------**

**14.MENSTURAL AND OBSTETRIC HISTORY:**

**Date:**

**Station:**

**Signature of the Guide:** **Signature of the Investigator:**

**GOVERNMENT SIDDHA MEDICAL COLLEGE**

**ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE**

**CHENNAI – 600 106**

**POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM**

**An open clinical evaluation on Uthiravadha suronitham (Rheumatoid arthritis) with Siddha trial drug "RAJALOGA NAATHARASA PARPAM"(Internal), "PARUTHI THYLAM"(External) and "MARIKOZHUNTHU OTTRADAM" (External therapy).**

**FORM III**

**CLINICAL ASSESSMENT ON ENROLLMENT AND ON VISITS**

**1. SERIAL NO: ……**

**2. OP NO : ……..**

**3. IP NO : ……..**

**4. BED NO : …….**

**5. NAME : …… 6.AGE: …… 7.GENDER: .....**

**8. RELIGION: H/C/M/O**

**9. SOCIAL STATUS : ……**

**10. OCCUPATION : ……**

**11. DATE OF INITIAL ASSESSEMENT**

**SIDDHA SYSTEM OF EXAMINATION**

**1. THEGI (BODY CONSTITUTION):**

1. Vathaudal ☐
2. Pithaudal ☐
3. Kabaudal ☐
4. Thonthaudal ☐

**2. NILAM (LAND WHERE THE PATIENT LIVED MOST):**

1. Kurinji ☐
2. Mullai ☐
3. Marutham ☐
4. Neithal ☐
5. Paalai ☐

**3. KAALAM:**

1. Kaarkaalam (Aavani-Puratasi) ☐
2. Koothirkaalam (Ippasi-Kaarthigai) ☐
3. Munpanikaalam (Maargazhi-Tai) ☐
4. Pinpanikaalam (Maasi-Panguni) ☐
5. Ilavenilkaalam (Chithirai-Vaigasi) ☐
6. Muthuvenilkaalam (Aani-Aadi) ☐

**4. GUNAM:**

1. Sathuvam ☐
2. Rasatham ☐
3. Thamasam ☐

**5. PORI PULANGAL (SENSORY ORGANS):**

| | **Normal** | **Affected** | |
|---|---|---|---|
| 1. Mei | ☐ | ☐ | ..... |
| 2. Vaai(Naaku) | ☐ | ☐ | ..... |
| 3. Kan | ☐ | ☐ | ..... |
| 4. Mookku | ☐ | ☐ | ..... |
| 5. Sevi | ☐ | ☐ | ..... |

**6. KANMENDRIYAM (MOTOR ORGANS) :**

| | **Normal** | **Affected** | |
|---|---|---|---|
| 1. Vaai | ☐ | ☐ | ..... |
| 2. Kaal | ☐ | ☐ | ..... |
| 3. Kai | ☐ | ☐ | ..... |

4. Eruvaai ☐ ☐ .....

5. Karuvaai ☐ ☐ .....

**7. KOSANGAL (SHEATH):**

| | Normal | Affected | |
|---|---|---|---|
| 1. Annamaya kosam | ☐ | ☐ | ..... |
| 2. Pranamaya kosam | ☐ | ☐ | ..... |
| 3. Manomaya kosam | ☐ | ☐ | ..... |
| 4. Vignanamaya kosam | ☐ | ☐ | ..... |
| 5. Anandhamaya kosam | ☐ | ☐ | ..... |

**8. UYIR THATHUKKAL (THREE HUMOURS):**

**8a.VALI:**

| | Normal | Affected | |
|---|---|---|---|
| 1. Praanan | ☐ | ☐ | ..... |
| 2. Abaanan | ☐ | ☐ | ..... |
| 3. Viyaanan | ☐ | ☐ | ..... |
| 4. Uthaanan | ☐ | ☐ | ..... |
| 5. Samaanan | ☐ | ☐ | ..... |
| 6. Naagan | ☐ | ☐ | ..... |
| 7. Koorman | ☐ | ☐ | ..... |
| 8. Kirukaran | ☐ | ☐ | ..... |
| 9. Devathathan | ☐ | ☐ | ..... |
| 10. Dhananjayan | ☐ | ☐ | ..... |

**8b. AZHAL:**

| | Normal | Affected | |
|---|---|---|---|
| 1. Analam | ☐ | ☐ | ..... |
| 2. Ranjagam | ☐ | ☐ | ..... |
| 3. Saathagam | ☐ | ☐ | ..... |
| 4. Aalosagam | ☐ | ☐ | ..... |
| 5. Praasagam | ☐ | ☐ | ..... |

**8c.IYAM:** **Normal** **Affected**

1. Avalambagam ☐ ☐ .....
2. Kilethagam ☐ ☐ .....
3. Pothagam ☐ ☐ .....
4. Tharpagam ☐ ☐ .....
5. Santhigam ☐ ☐ .....

**9. EN VAGAI THERVU (EIGHT FOLDS OF EXAMINATION):**

1.Naadi : …….....

2.Parisam : …….....

3.Naa : .....…….....

4.Niram : .....…….....

5.Mozhi : .....…….....

6.Vizhi : .....

**7.Malam : .....**

**8. Moothiram : …….**

**8a.Neerkuri:**

Niram : 1.Whitish ☐ 2. Yellowish ☐

3.Straw coloured ☐ 4. Crystal clear ☐

Edai : 1.Present ☐ 2.Absent ☐

Manam: 1.Nil ☐ 2.Reduced ☐ 3. Increased ☐

Nurai : 1. Normal ☐ 2. Increased ☐ 3. Decreased ☐

Enjal :

**8b: Neerkuri (Oil –in urine sign):**

VathaNeer ☐ PithaNeer ☐ KabaNeer ☐

**10. SEVEN UDAL THAATHUKKAL (SEVEN SOMATIC COMPONENTS):**

**Normal** **Affected**

1. Saaram ☐ ☐ .....
2. Senneer ☐ ☐ .....
3. Oon ☐ ☐ .....
4. Kozhuppu ☐ ☐ .....

5. Enbu ☐ ☐ .....

6.Moolai ☐ ☐ .....

7. Sukkilam / Suronitham ☐ ☐ .....

**GENERAL EXAMINATION:**

1. Body weight [Kg] :
2. Height [cm] :
3. Body Temperature [F] :
4. Blood Pressure (mmHg) :
5. Pulse Rate /min. :
6. Heart Rate / min. :
7. Respiratory Rate /min. :

| | | **Yes** | **No** |
|---|---|---|---|
| 8. Pallor | : | ☐ | ☐ |
| 9. Jaundice | : | ☐ | ☐ |
| 10. Clubbing | : | ☐ | ☐ |
| 11. Cyanosis | : | ☐ | ☐ |
| 12. Pedal Oedema | : | ☐ | ☐ |
| 13. Lymphadenopathy | : | ☐ | ☐ |
| 14. Jugular venous pulsation | : | ☐ | ☐ |

**VITAL ORGAN EXAMINATION:**

| | **Normal** | **Abnormal** |
|---|---|---|
| 1. Heart | ☐ | ☐ |
| 2. Lungs | ☐ | ☐ |
| 3. Brain | ☐ | ☐ |
| 4. Liver | ☐ | ☐ |
| 5. Kidney | ☐ | ☐ |
| 6. Spleen | ☐ | ☐ |
| 7. Stomach | ☐ | ☐ |

**SYSTEMIC EXAMINATION:**

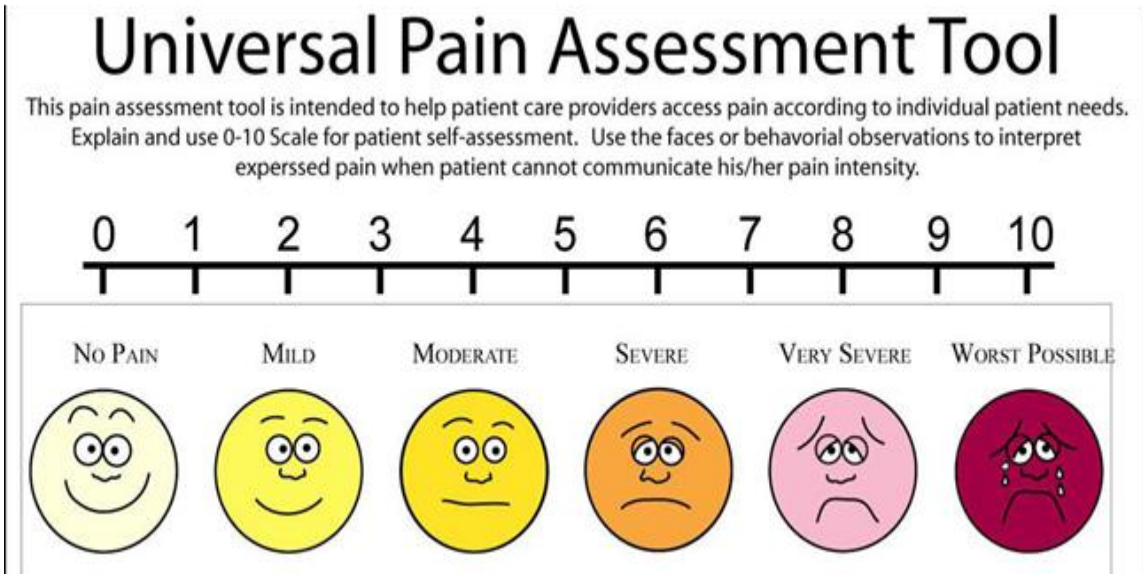
| | Normal | Abnormal |
|---|---|---|
| 1. Cardio-vascular system | ☐ | ☐ |
| 2. Respiratory system | ☐ | ☐ |
| 3. Gastro intestinal system | ☐ | ☐ |
| 4. Central nervous system | ☐ | ☐ |
| 5. Genital urinary system | ☐ | ☐ |
| 6. Endocrine system | ☐ | ☐ |

**CLINICAL ASSESSMENT AND PROGRESS**

| S.NO | CLINICAL FEATURES | BEFORE TREATMENT | AFTER TREATMENT | | |
|---|---|---|---|---|---|
| | | | 7th DAY | 14th DAY | 21st DAY |
| **1.** | Pain in the joints | | | | |
| **2.** | Morning stiffness | | | | |
| **3.** | Swelling and tenderness of joints<br>• MCP | | | | |
| | • PIP | | | | |
| | • Wrist | | | | |
| | • Ankle | | | | |
| | • Knee | | | | |
| **4.** | Fever | | | | |
| **5.** | Loss of appetite | | | | |
| **6.** | Anaemia | | | | |
| **7.** | Restriction of joint Movements | | | | |
| **8.** | Subcutaneous nodules | | | | |
| **9.** | Deformities | | | | |

**0 – nil**
**+ - mild**
**++ - moderate**
**+++ - severe**

**PAIN ASSESMENT: VISUAL ANALOGUE PAIN SCALE;**




**CLINICAL EXAMINATION**

**I . INSPECTION:**

| | 1st Day | 7th Day | 14th day | 21th day |
|---|---|---|---|---|
| Skin over joints | Normal/ Affected | | | |
| Swelling | Mild/ Moderate/ Severe | | | |
| Deformities | Present/ Absent | | | |
| Muscle wasting 1.Proximal 2.Distal | Present/ Absent | | | |

**II. PALPATION:**

| | 1st day | 7th day | 14th day | 21th day |
|---|---|---|---|---|
| Local temperature | | | | |
| Tenderness | Mild/ Moderate/ Severe | | | |
| Evidence of intra articular fluids | Present/ Absent | | | |
| Rheumatoid vasculitic lesions | Present/ Absent | | | |
| Local lymphadenopathy | Present/ Absent | | | |
| Pitting oedema | Present/ Absent | | | |
| Subcutaneous nodules | Present/ Absent | | | |

**III. MOVEMENTS:**

| | 1st Day | 7th Day | 14th day | 21th day |
|---|---|---|---|---|
| Stiffness | Present/ Absent | | | |
| Rotation | Normal/ Affected | | | |
| Flexion | Normal/ Affected | | | |
| Extension | Normal/ Affected | | | |

Date :

Station:

Signature of the Investigator:

Signature of the guide:

**GOVERNMENT SIDDHA MEDICAL COLLEGE**

**ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE**

**CHENNAI – 600 106**

**POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM**

**An open clinical evaluation on Uthiravadha suronitham (Rheumatoid arthritis) with Siddha trial drug "RAJALOGA NAATHARASA PARPAM"(Internal), "PARUTHI THYLAM"(External) and "MARIKOZHUNTHU OTTRADAM" (External therapy).**

## FORM IV: LABORATORY INVESTIGATIONS PROFORMA

**1. SERIAL NO OF THE CASE: ……**

**2.IP/OP NO: .....**

**3. NAME: ……**

**4.AGE: …… 5.GENDER: .....**

**A) BLOOD INVESTIGATIONS:**

| **BLOOD INVESTIGATIONS** | | | **NORMAL VALUES** | **BEFORE TREATMENT** | **AFTER TREATMENT** |
|---|---|---|---|---|---|
| Hb ( gm/dL) | | | **M:12-15 F:11.5-14** | | |
| T.RBC (millions cells / Cu.mm) | | | **M:4.0-5.5 F:3.5-4.5** | | |
| ESR (mm) | | ½ hr. | **M:6-12 F:7-18** | | |
| | | 1 hr | | | |
| T.WBC (Cells / Cu.mm) | | | **4000-11000** | | |
| Differential Count (%) | Polymorphs | | **40-75** | | |
| | Lymphocytes | | **20-40** | | |
| | Monocytes | | **2-10** | | |
| | Eosinophils | | **1-6** | | |
| | Basophils | | **0-1** | | |

| BLOOD INVESTIGATIONS | | NORMAL VALUES | BEFORE TREATMENT | AFTER TREATMENT |
|---|---|---|---|---|
| Blood glucose (mg/dl) | Fasting | **70-100** | | |
| | PP | **80-140** | | |
| Serum Cholesterol(mg/dl) | | **< 200** | | |
| Renal Function Test(mg/dl) | Blood urea | **7-20** | | |
| | Serum creatinine | **0.6-1.2** | | |
| Liver function test | Alkaline phosphatase (IU/L) | **44-147** | | |
| | SGOT (mg/dl) | **5-40** | | |
| | SGPT (mg/dl) | **7-56** | | |
| Specific Investigation | RA factor (IU/ml) | **< 15** | | |
| | Anti CCP(u/ml) | **< 20** | | |
| | CRP (mg/dl) | **< 3** | | |

**B) URINE INVESTIGATIONS:**

| URINE INVESTIGATIONS | BEFORE TREATMENT | AFTER TREATMENT |
|---|---|---|
| Albumin | | |
| Sugar | | |
| Deposits | | |

**Date:**

**Station:**

**Signature of the Guide:** **Signature of the Investigator:**

**GOVERNMENT SIDDHA MEDICAL COLLEGE**

**ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE**

**CHENNAI – 600 106**

**POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM**

**An open clinical evaluation on Uthiravadha suronitham (Rheumatoid arthritis) with Siddha trial drug "RAJALOGA NAATHARASA PARPAM"(Internal), "PARUTHI THYLAM" (External) and "MARIKOZHUNTHU OTTRADAM" (External therapy).**

## FORM V: INFORMED CONSENT FORM

*"I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction.*

*I consent voluntarily to participate in this study and understand that I have the right to withdraw from the study at any time without in any way it affecting my further medical care".*

"I have received a copy of the information sheet/consent form"

Date:

Signature of the participant: Signature of the Investigator

In case of illiterate participant:

*"I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely."*

Date:

Left thumb Impression of the Participant

Signature of a witness:

(Selected by the participant bearing no connection with the survey team)

Signature of participant:

Date: Signature of the Investigator:

Station: Signature of the Guide:

# அரசு சித்தமருத்துவக் கல்லூரி

## அறிஞர் அண்ணா மருத்துவமனை, சென்னை-600 106

**உதிரவாத சுரோணிதம் நோய்க்கான சித்தமருந்தின் ராஜலோக நாதரச பற்பம், பருத்தி தைலம் மற்றும் ஒற்றடம்.**

**பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கான தகவல்படிவம்.**

**நான் இந்த ஆய்வை குறித்த அனைத்து விபரங்களையும் நோயாளிக்கும் புரியும் வகையில் எடுத்துரைத்தேன் என உறுதியளிக்கிறேன்.**

**தேதி:** **கையொப்பம்:**

**இடம்:** **பெயர்:**

**நோயாளியின் ஒப்புதல் படிவம்**

**என்னிடம் இந்த மருத்துவ ஆய்வின் காரணத்தையும், மருந்தின் தன்மை மற்றும் மருத்துவ வழி முறை பற்றியும் தொடர்ந்து எனது உடல் இயக்கத்தை கண்காணிக்கவும், அதனை பாதுகாக்கவும் பயன்படும் மருத்துவ ஆய்வுக்கூட பரிசோதனைகள் பற்றி திருப்தி அளிக்கும் வகையில் ஆய்வுமருத்துவரால் விளக்கிக் கூறப்பட்டது.**

**நான் இந்த மருத்துவ ஆய்வின் போது காரணம் எதுவும் கூறாமல் எப்பொழுது வேண்டுமானாலும் இந்த ஆய்விலிருந்து என்னை விடுவித்து கொள்ளும் உரிமையை தெரிந்து இருக்கின்றேன். நான் என்னுடைய சுதந்திரமான தேர்வு செய்யும் உரிமையை கொண்டு உதிரவாத சுரோணிதம் நோய்க்கான ராஜலோக நாதரச பற்பம், பருத்தி தைலம் மற்றும் ஒற்றடம் மருந்தின் பரிகரிப்புத் திறனைக் கண்டறியும் மருந்தின் ஆய்விற்க்கு என்னை உட்படுத்த ஒப்புதல் அளிக்கிறேன்.**

**தேதி:** **நோயாளியின் கையொப்பம்:**

**இடம்:** **பெயர்:**

**தேதி:** **சாட்சிக்காரர் கையொப்பம்:**

**இடம்:** **பெயர்:**

**துறைத்தலைவர் கையொப்பம்** **ஆராய்ச்சியாளர் கையொப்பம்**

**GOVERNMENT SIDDHA MEDICAL COLLEGE**

**ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE**

**CHENNAI-600 106**

**POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM**

**An open clinical evaluation on Uthiravadha suronitham (Rheumatoid arthritis) with siddha trial drug "RAJALOGA NAATHARASA PARPAM"(Internal), "PARUTHI THYLAM" (External) and "MARIKOZHUNTHU OTTRADAM" (External therapy).**

## FORM VI - WITHDRAWAL FORM

**SI NO:**

**OP /IP NO:**

**NAME:**

**AGE / GENDER :**

**DATE OF TRIAL COMMENCEMENT:**

**DATE OF WITHDRAWAL FROM TRIAL:**

**REASONS FOR WITHDRAWAL:**

- Long absence at reporting : Yes/ No
- Irregular treatment: Yes/ No
- Shift of locality : Yes/No
- Increase in severity of symptoms: Yes/No
- Development of severe adverse drug reactions: Yes/No

**Date:**

**Station:**

**Signature of the Guide:** **Signature of the Investigator:**

**GOVERNMENT SIDDHA MEDICAL COLLEGE**

**ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE**

**CHENNAI – 600 106**

**POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM**

**An open clinical evaluation on Uthiravadha suronitham (Rheumatoid arthritis) with Siddha trial drug "RAJALOGA NAATHARASA PARPAM"(Internal), "PARUTHI THYLAM" (External) and "MARIKOZHUNTHU OTTRADAM" (External therapy).**

**FORM VII – PATIENT INFORMATION SHEET**

**Name of Investigator: Dr.D.SUGANYA**

**Name of the college: Govt. Siddha Medical College, Arumbakkam, Chennai-106.**

**INFORMATION SHEET FOR PATIENTS PARTICIPATING IN THE OPEN CLINICAL TRIAL.**

D.Suganya studying M.D (Siddha) at Govt.Siddha Medical College, Chennai, is doing a clinical trial on ''Uthiravadha suronitham (Rheumatoid arthritis)". It is becoming a most common disease, occurring throughout the world. In this regard, I am in need to ask you few questions. I will maintain confidentiality of your comments and data obtained. There will be no risk of disclosing your identity and no physical, psychological or professional risk is involved by taking part in this study. Taking part in this study is voluntary. No compensation will be paid to you for taking part in this study.

You can choose not to take part. You can choose not to answer a specific question. There is no specific benefit for you if you take part in the study. However, taking part in the study may be of benefit to the community, as it may help us to understand the problem of defaulters and potential solutions.

If you agree to be a participant in this study, you will be included in the study primarily by signing the consent form and then you will be given the internal medicine

**GOVERNMENT SIDDHA MEDICAL COLLEGE**

**ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE**

**CHENNAI – 600 106**

**POST - GRADUATE- DEPARTMENT OF SIRAPPU MARUTHUVAM**

**An open clinical evaluation on Uthiravadha suronitham (Rheumatoid arthritis) with Siddha trial drug "RAJALOGA NAATHARASA PARPAM"(Internal), "PARUTHI THYLAM" (External) and "MARIKOZHUNTHU OTTRADAM" (External therapy).**

**FORM VIII**

**DIETARY ADVICE FORM**

**சேர்க்க கூடிய உணவுகள்:**

**காய்கள்:** கத்திரி பிஞ்சு, முருங்கை பிஞ்சு, அவரை பிஞ்சு ஆகியவை சேர்க்க வேண்டும்.

**கீரைகள்:** கரிசாலை, பொன்னாங்கண்ணி, மணத்தக்காளி, முருங்கைகீரை, பசலைகீரை, சிறுகீரை, கறிவேப்பிலை ஆகியவை சேர்க்க வேண்டும்.

**பழங்கள்:** மாதுளை, ஆப்பிள், வாழை, பேரீச்சை, அத்தி, திராட்சை, கொய்யா, ஆரஞ்சு, எலுமிச்சை, நாவல், தக்காளி ஆகியவை சேர்க்க வேண்டும்.

**தானியங்கள்:** கோதுமை, ஓட்ஸ், சோயாபீன்ஸ், பட்டாணி, கொண்டைகடலை, எள், பாதாம் ஆகியவை சேர்க்க வேண்டும்.

**அசைவம்:** வெள்ளாட்டு கறி, ஈரல், எலும்பு மஜ்ஜை ஆகியவை சேர்க்க வேண்டும்.

**மற்றவை:** நெய்,பால்

**சேர்க்க கூடாதவைகள்:**

- மந்தப் பொருள்
- உருளைக் கிழங்கு
- அகத்திக் கீரை
- புளிப்பு
- புகையிலை
- மது அருந்துதல்

**GOVERNMENT SIDDHA MEDICAL COLLEGE**

**ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE**

**CHENNAI – 600 106**

**POST - GRADUATE- DEPARTMENT OF SIRAPPU MARUTHUVAM**

**An open clinical evaluation on Uthiravadha suronitham (Rheumatoid arthritis) Siddha trial drug "RAJALOGA NAATHARASA PARPAM"(Internal), "PARUTHI THYLAM" (External) and "MARIKOZHUNTHU OTTRADAM" (External therapy).**

**FORM IX - ADVERSE REACTION FORM**

**SERIAL NO:**

**OP/IP NO:**

**NAME:**

**AGE:** **GENDER:**

**DATE OF TRIAL COMMENCEMENT:**

**DATE OF OCCURRENCE OF THE ADVERSE REACTION:**

**TIME:**

**DESCRIPTION OF ADVERSEREACTION:**

SIGNATURE OF THE INVESTIGATOR

DATE :

STATION :

SIGNATURE OF THE GUIDE