AN OPEN CLINICAL STUDY ON BALA KARAPPAN (ATOPIC DERMATITIS)IN CHILDREN WITH THE EVALUATION OF SIDDHA TRIAL DRUG POOVARASU NEI (INTERNAL)

The dissertation Submitted by
Reg.No: 321414101

under the Guidance of
Dr. C.SHANMUGA PRIYA M.D(S)

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CERTIFICATE

This is to certify that the dissertation entitled "**AN OPEN CLINICAL STUDY ON BALA KARAPPAN(ATOPIC DERMATITIS) IN CHILDREN WITH THE EVALUATION OF SIDDHA TRIAL DRUG POOVARASU NEI"** is a bonafide work done by **Dr.R.BHARATHI SRI**, Government Siddha Medical College, Chennai – 600 106 in partial fulfillment of the University rules and regulations for award of **SIDDHA MARUTHUVA PERARIGNAR** under my guidance and supervision during the academic year 2014 – 2017.

Name & Signature of the Guide

Name & Signature of the Head of Department

Name & Signature of the Dean/ Principal

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INTRODUCTION

Good health is our greatest asset.without good health We can hardly expect success in any walk of life.Nowadays man is much more easily subjected to diseases due to their sedentary life styleand environment.

The ancient literature Manimekalai which is the major work of the third sangam period composed by the Great Tamil poet Seethalaisathanaar is classified as one of the Five Great epics. It contains many references of the philosophy and the principles of the siddhars and the siddha system of medicine.

According to the tradition, it was “Shiva” who unfolded the knowledge of siddha system of medicine to his concert “parvathi” who handed it down to “Nandhi deva” and he Conveyed this Knowledge to the siddhars. “ Siddhar" is a tamil word that is derived from its root “*Chit*”which means perfection in life or heavenly bliss. It generally refers to eight kinds of supernatural powers attainable by man.Siddhars were the greatest scientists in ancient time.

One of the famous saint Thirumoolar from his Thirumanthiram said that

அணுவில் அணுவினை ஆதிப்பிரானை
அணுவில் அணுவினை ஆயிரங் கூறிட்டு
அணுவில் அணுவை அணுக வல்லார்கட்கு
அணுவில் அணுவை அணுகலுமாமே.

- திருமந்திரம் 1971

அணுக்கள் தோறும் சிவம்
சிவம் தோறும் சிற்றம்பலம்

The world is made up of atoms and lord shiva is found in each atom.Therefore,it is said that he is everywhere in this world.Siddha science considers nature and man are essentially one.Man is a part and parcel of the universal nature.

Siddha system of medicine is based upon the 96 tha ththuvangal.Among them the pancha-boothas(the five elements Earth,Water,Space,Fire and Air)and the three uyir thathukkal(thee humours vadha,pitha,kapha) got prime importance.The disturbance in the equilibrium of the three humours ,cause the disesase.It is explained by saint Thiruvalluvar in his kural.

மிகினும் குறையினும் நோய்செய்யும் நூலோர்

வளிமுதலா வெண்ணிய மூன்று.

In the siddha system mostly to treat a disease, the selection of drug will be initially with herbals. If the disease does not respond to that herbal medicine then only the physician may select a mineral or metal based drug.

“வேர் பாரு தலைபாரு மிஞ்சினக்கால் மெல்ல் மெல்ல

பற்ப செந்தூரம் பாரே” .

Siddha system deals with all aspects of human life,not only medicine.Siddha system is a medical science comprising of all branches of specialities such as Alchemy, Philosophy,Yoga, Tantra, Astrology etc. *Kuzhanthai Maruthuvam* is one of the branch of medical science of siddhars which deals with the disease exclusive for children, their essential nature,specially on the functional changes and treatment.Agasthiyar said that there are 4448 diseases in this world. Diseases of the Skin account for a great deal of misery, suffering, incapacity, and economic loss. Besides this,they are a great handicap in the society, because they are visible.The prevalence of Atopic dermatitis, has increased over the past 30 years and at high risk of developing asthma and allergic rhinitis of those who will develop atopic dermatitis. The trial drug Poovarasu Nei(Internal medicine) taken by author is comparatively safer than synthetic drugs .So,the author had taken the *Balakarappan* a skin disease , mentioned in the literature *Balavagadam* similar to the signs and symptoms of Atopic dermatitis, for her clinical dissertation work.

AIM AND OBJECTIVES

AIM:

To evaluate the efficacy and safety of the siddha medicine "*PoovarasuNei*"in the treatment of "*BalaKarappan*"(Atopic Dermatitis) in children.

OBJECTIVES:

PRIMARY OBJECTIVE:

- To study the efficacy of *PoovarasuNei* in the treatment of *BalaKarappan* (Atopic Dermatitis)
- To study the safety of the trial medicine *PoovarasuNei.*

SECONDARY OBJECTIVE:

- To have a detailed analysis of the safety of the drug through
  - Toxicity studies
  - Pharmacological studies
  - Physico chemical analysis.
- To collect and review the ideas of' *BalaKarappan* mentioned in various siddha literature in the aspects of Definition,aetiologyand Clinical features.
- To make a correlative study of the Siddha aspect and Modern aspect of my study *BalaKarappan.*
- To have an idea about the incidence of the disease with regard to age,sex,socio-economic status,history of food habits and drug ingestion.
- To have an extensive study that how the disease alters the normal conditions which are dealt under *MukkutraVerupadugal, Envagaithaervu, Udalthaathukkal, Paruvakaalangal, Neerkuri, Neikuri.*
- To use the possible modern parameters in the investigation of the disease,that enhances to observe the progress of the patient.
- To have a clinical trial ,to find out the efficacy of the trial medicine "*PoovarasuNei*" (Internal medicine) in the treatment of *BalaKarappan (*Atopic Dermatitis*)* in children.

3.1 SIDDHA ASPECTS

பால கரப்பான்

பால கரப்பான் என்பது பதினெட்டு வகையான கரப்பான்களில் ஒன்றாகும். பால கரப்பான் குழந்தைகளுக்கு உண்டாகும் பிணி ஆகும். பாலவாகடம் நூலில் விளக்கப்பட்டுள்ள குறிகுணங்களின் அடிப்படையில் நோயினைக் கணித்து, சித்த மருத்துவ முறைத் தேர்வுகளான முக்குற்ற வேறுபாடுகள், ஏழுவகை உடற்தாதுக்கள், குற்றங்களின் தன்னிலைவளர்ச்சி, வேற்றுநிலை வளர்ச்சி, பிணியறிமுறைமை, எண்வகைத்தேர்வுகளின் அடிப்படையில் நோயினை ஆராய்ந்து அதற்கான பிணிநீக்க முறையும், நோய் வராமல் தடுக்கும் வழிகளும் இதில் விளக்கப்பட்டுள்ளன.

வேறுபெயர்கள்

வாலை கரப்பான்

பால கரப்பான்

கரப்பான் நோய் இயல்

உடலில் திமிர், தினவு, சொறி, புண், தடிப்பு, வெடிப்பு, நீர்க்கசிதல் ஆகிய குறிகுணங்களை உண்டாக்கி உடம்பின் இயற்கை நிறத்தை வேறுபடுத்தும் நோய்

- பாலவாகடம்

உடல் முழுவதும் புண், தடிப்பு இரணத்தை உண்டாக்கி கொப்புளங்கள் கண்டு தோலின் நிறத்தை வேறுபடுத்தி சில வேளை வெடிப்பு, நீர் கசிதலை உண்டாக்கி வறட்சியை ஏற்படுத்தும் தோலைப் பற்றிய இரண நோய்.

- பிள்ளை பிணி மருத்துவம் இரண்டாம் பாகம்

நோய் வரும் பருவம்

குழந்தைகளது தாலப் பருவம் முதல் வருகைப்பருவம் வரையுள்ள நான்கு பருவங்களிலும் கரப்பான் நோய் குழந்தைகளுக்கு உண்டாகக்கூடும்.

இயம்புதிமிர் காய்ச்சல் இயங்குந் திரட்சி
தயங்கு கணந்தோன்றுந்தான் கரப்பான் - நயம்படவே
வந்தூறும் மாக்கணத்தில் வாதக்கரப்பான்

- பாலவாகடம்

பாலுண்ணும் பருவம் முதல் பாலும் சோறு உண்ணும் பருவம் வரை குழந்தைகளைத் தாக்குகிறது.

- பிள்ளைப்பிணி மருத்துவம் இரண்டாம்பாகம்

குழந்தைகளை நோய் வதைக்கும் நாள்
கழறான கரப்பான்தான் பிறவி நோக்கிக்
கண்டமுதல் நாள்தொடங்கித் திங்கள் மூன்று
புழறான குழவிகளை வதைக்கும் காலம்.....

- பதிணெண் சித்தர்கள் வைத்திய சில்லரைக் கோவை

மேற்காணும் ஆதார நூல்களின் அடிப்படையில் பால கரப்பான் எனும் நோய் குழந்தைகளின் தாலப் பருவம் முதல் வருகைப் பருவம் வரை வருமென கூறப்படினும், பாலகரப்பான் பாலர்களில் 1 முதல் 12 வயது வரை தொடர்கின்றது.

நோய் வரும் வழி

பாலவாகடம் நூலில்

“பிறந்தநாள் பிள்ளைக்குத் தானே நன்றாய்
பிதாவாலே பிணியுடலின் மேலே தோன்றும்
சிறந்த பிணி கணமாந்தம் கரப்பான் தோடம்
தீதாகு மக்கரங்கள் கிரந்தி முன்னாம்
அறந்தழைக்கு மருந்தறிஞையானாற் தீரும்
அதுவன்றி மருந்தறிஞனானாற் தீரும்
திறந்தெறிந்து பார்த்துவிடு சிறு பிள்ளைக்குச்
சீராக வரு நோய்கள் செப்பக் கேளே”

சுக்கில சுரோணிதம் கலந்து கரு உண்டாகும் போது, தந்தையின் உணவாதி செயல்களின் குற்றத்தினால் சிசுவிற்கு பல பிணிகள் தாயின் வயிற்றிலிருந்து வெளிவந்தவுடனேயே தோன்றும். அவ்வாறு தோன்றும் பிணிகளில் கரப்பானும் ஒன்றாகும். எனவே கரப்பான் கருவில் தோன்றும் நோய் ஆகும்.

பெருகுஞ் சோள மிறுங்கும் பெருங்கம்பு

வரகு காருடன் வாழையின் காயொடு

உரைகொள் பாகற் கெளிற்று மீன் உண்டிடில்

விரிவ தாய்க் கரப்பானு மிகுந்ததே

- *பாலவாகடம்*

சோளம், கம்பு, வரகு, காரரிசி, வாழைக்காய், பாகற்காய், கெளிற்று மீன் போன்ற உணவாதி செயல்களினால் கரப்பான் பிணி உண்டாகக்கூடும், மேலும் இந்த உணவாதிகளை பிணி உள்ள போது எடுத்துக் கொண்டால் பிணி மிகுதிப்படும்.

பிள்ளைப்பிணி மருத்துவ நூலில்

"ஏழான கரப்பான் தன் உற்பத்தி கேளு

யேத்தமடா மாங்கி சங்கள் புசிக்கையாலும்

கூழான கம்பு தினை வரகு சாமை

கொடிதான கிழங்குவகை யருந்தலாலும்

பாழான பெண்மாய்கை தன்னில் சிக்கி

பாங்கான விகத்தான முயற்சியாலும்

தாழான பண்டகங்கள் சமைத்துத்

தின்னல் தாக்குமே கரப்பானின் சாயல் தானே"

மாமிசங்கள் புசிப்பதாலும், கம்பு, தினை, வரகு, சாமை, கிழங்கு வகைகளை உண்பதினாலும், பெண் இச்சை உடையவர்களாலும், தாழ்வான பண்டங்களை சமைத்து உண்பதினாலும் கரப்பான் பிணியானது உண்டாகிறது என சித்த மருத்துவ நூல்கள் கூறுகின்றன.

மதலை நோய் நூலில்- தொகுதி –I

கரப்பான் தந்தையால் மேகத்தாலும்

கருவான தோஷங்கள் விஷத்தினாலும்

கோப்பான கிரந்தியினால் கர்மத்தாலும்

கொங்கைபால் குடித்தமந்த கிருமியாலும்

தாப்பான கரப்பனது அணுகிக்கொள்ளும்

சத்திய மாய்ச் சொல்லுகிறேன் தகமை கேளு

ஏற்பான கரப்பானது ஈரொன்ப தாகும்

இதின்மேலே அவுதங்கள் குறியும் கேளே.

கையெழுத்துப்பிரதி 98-150-151

மேகத்தினால் பாதிக்கப்பட்ட தந்தையின் தோஷமுள்ள விந்துவினால் கருஉற்பத்தியாகும் போது தோடத்தினால் பாதிக்கப்படுகின்றது. பின்பு கரு குழந்தையாக வெளியே வந்து அத்தோடம் தொடர்கின்றது. ஆகார வேறுபாடுகளினால் உண்டான தோஷம் உள்ள தாய்பாலை குழந்தை அருந்தி மந்தமுண்டாகி, அப்போது உண்டாகும் கிருமிகளாலும் கரப்பான் உற்பத்தி ஆகிறதென நூல்கள் கூறுகின்றன.

ஆத்மரட்சாமிர்தமென்னும் வைத்திய சார சங்கிரகம் நூலில்

பாரே குழந்தைப் பிணிக்குறிப்பும் பகரும்பட்சி தோஷமுடன்

நேரே மாந்தம் பதினெட்டும் நேருங்கிரந்தி தன்குணமும்

சீரேபுணர்ச்சிக் காந்தலதுஞ் சிறந்தகர்ப்பச் சூடுமுதல்

நேரேமாந்த ரறியவென்று நிறையாயுரைத்த திதுவாமே

கிரந்தி, பட்சி தோஷம், மாந்தம், கணம், கரப்பான், அக்கரம், செவ்வாப்பு,தொண்டைக்கட்டு,வைசூரி முதலான அநேக ரோகங்கள் குழந்தைகளுக்கு சம்பவிக்கின்றது. மாந்தம் தாயின் முலைப்பாலாலும், கணம் கர்ப்பச் சூட்டினாலும் மற்றப் பிணிகளான கரப்பான் போன்றவை தாய் தந்தையின் புணர்ச்சியினா லெழுந்த சூட்டினாலு முண்டாகிறது.

அகத்தியர் கன்ம காண்டம் 300 நூலில்

உண்மையென்ற கரப்பானோடு வண்டு கடிகுட்ட

முகிலுள்ளோர்க்கிது வந்த உண்மைகேளு

தன்மை யென்ற தில்லாம ஓதாசினங்கள் பேச

சற்குருவை தூடனித்த சண்டாளத்தால்

வன்மையென்ற வழியிலே முள் ளிட்டு வைத்தல்

மரந்தழைகள் பூவுதிர வடித்த பாவம்

பெண்மையிலே வண்டுகடி விடமுஞ் சேர்த்து

பிலத்த சொறி குட்டமது பிலத்த வாறே"

மேற்காணும் செய்யுள் உரைப்பது யாதெனில், வண்டுகடியினாலும், கன்ம வினைகளினாலும் கரப்பான் பிணி உண்டாகின்றது என அறியப்படுகிறது.

பரராசசேகர நூலில்

வேகக் காற்றதினர் பனைவெல்லத்தால்
பாக மிக்கலான் மேதிப் பாவெயிலால்
தாகமானி வருக்க திசார்தலால்
மோக வாழை வழுதலை முள்ளிக்காள்
காயும் பல்லிடத் தாற்சுரத் தாற்களில்
எயும் வண்டெலியால் வருமே துவெளி
குடி நல்லறிவான எருவினார்
யான மானகரப்பான் வகைகளே.

அதிகமான காற்று, அதிக வெயில், பனைவெல்லம், வாழைக்காய், வழுதலை, முள்ளிக்காய் முதலானவைகளாலும் வண்டு, எலி முதலியவை கடித்தலாலும் கரப்பான் பிணி உண்டாகின்றது.

ரோக நிர்ணய சாரம் நூலில்

ஆகாரம் பிசகுதல், பழுக்காத பழங்கள், பருப்பு வகைகள், பலவித மாமிசங்கள், அஜீரண வஸ்துக்கள் இவைகளை குழந்தையின் தாய் புசிப்பதால் குழந்தைகளுக்கு கரப்பான் ரோகங்கள் வருகின்றது.

நோய் எண்

பால வாகட நூலில் கூறப்பட்டுள்ள கரப்பானின் **நோய் எண் - 18**

முத்தோட மரியூது சூலை
முன்னுவெடி மண்டைபொரி சட்டை
சற்றோடு கருமையொடு செம்மை
தனிக்கொள்ளி தோடமொடு வாலை
முற்றோல்வ ரட்சியொடு வீங்கல்
மூரிவரும் பதினெட்டு வகையாம்
கொத்தான கரப்பான்க ளென்று
கூறினார் பண்டையோ ராமால்
செங்கரப்பான் அனல்கரப்பான் தானும் மண்டைச்
சிரங்குபண்ணும் அரிகரப்பான் பொரிக ரப்பான்
அங்கமதி லெழுகரப்பான் தானு மிக்க
அளராம்உதி ரக்கரப்பான் கட்டியோடு

பொங்கமாய் வீங்கி கரப்பா னுந்தான்
புகலரிய சட்டைதடி வெடிகரப்பான்
சிங்கமுக எரிகரப்பான் வாத பித்தச்
சேத்துமந்தோ டேகரப்பான் பதினெட்டாமே.

1. வாதகரப்பான்
2. அழற்கரப்பான்
3. ஐயக்கரப்பான்
4. அரிகரப்பான்
5. ஊதுகரப்பான்
6. சூலை கரப்பான்
7. வெடிகரப்பான்
8. மண்டைக் கரப்பான்
9. பொரி கரப்பான்
10. சட்டை கரப்பான்
11. ஓடு கரப்பான்
12. கருங்கரப்பான்
13. செங்கரப்பான்
14. கொள்ளிக்கரப்பான்
15. தோடக்கரப்பான்
16. **வாலை கரப்பான் (பால கரப்பான்)**
17. வரள் கரப்பான்
18. வீங்கு கரப்பான்

கரப்பான் தீரும் தீரா நிலை-

பதினென் வகை கரப்பான்களில் கொள்ளிக்கரப்பான் மற்றும் செங்கரப்பான் தீராது.பதினாறு கரப்பான் தீரும். பால கரப்பான் தீரும் பிணி ஆகும்.

வேறு நூல்களில் கரப்பானின் வகைகள்

அகத்தியர் 2000	-	66
குருநாடி சாஸ்திரம்	-	85
டி.வி.சாம்பவசிவம் பிள்ளை அகராதி	-	29
பிள்ளை பிணி மருத்துவ நூல்	-	54
பால வைத்திய போதினி நூல்	-	9
யூகி வைத்திய சிந்தாமணி	-	7
அகத்தியர் ரண நூல்	-	80
கும்பமுனி பாலவாகடம்	-	18
அகத்தியர் 2000, 3-ம் பாகம்	-	6

இவ்வாறு பல்வேறு நூல்களில் கரப்பானின் வகைகள் பலவாறு கூறப்பட்டிருந்தாலும் பாலவாகட நூலில் கூறப்பட்டுள்ள 18 வகை கரப்பான்களில் "பால கரப்பான்" ஆய்வாளரின் ஆய்வுக்காக எடுத்துக் கொள்ளப்பட்டுள்ளது

வாலை கரப்பானின் குறிகுணங்கள்

பாலவாகட நூலில்

காலது கடுக்குஞ் சந்து
கண்டமும் வெடித்துப் புண்ணாய்
ஏலவே கடிவிடம் போல்
இருத்துபன் னீர் போல் பாய்ந்து
கோலமாய் வற்றி நாறும்
குழவியு மொடுங்கு மாகில்
மாலருங் குழலாய் வால
கரப்பான்செய் வாறு தானே
கால்கரங்க ளோடு சந்து
மேவலிகளாகிய கடிவிடங்கள் போல

மேல்தடித் ததிலும் நீர் பறிந்து

மகள்மெய் யொடுங்கி யிரணங்களாய்

மூல நாளினுள் தொண்டையோடு

விரணங்க ளாகிமுதிர் வெப்பமாம்

வாலையான கரப்பானிதென்றவும்

தங்களுஞ் சிறிது வைத்திடே

பணிவான விகாரமுற் றனேகங் கூறாய்

பரபரத்து தேகமெல்லாந் சொறிபோ லாகி

பிணியான சாரையுடல் போலே காணும்

பிணிவாயில் விடலந்தான் உதிரம்போல

தினியான குலைவற்றி திருவ ழிந்து

திசதாது பீடமெல்லாம் நடுந டுங்கி

வனியான இக்குணங்கள் கண்ட தானால்

வாலகரப் பானதுவென் றியம்ப லாமே

பக்கம் எண் - 398

பாடல் விளக்கம்

பரபரவென்று தேகமெல்லாம் சொறிபோல் உண்டாகும்.	-	Atopic Dermatitis is a chronic pruritic inflammation of the skin
சாரையுடல் போலே காணும்	-	Xerosis is the hall mark of Atopic Dermatitis
கால், கரங்கள், சந்து, கண்டம் இவ்விடங்களில் உண்டாகும்	-	Common site of Atopic Dematitis is folds of the elbows, behind the knees, flexural surfaces of the upper and lower limbs and sides of the neck.
கடிவிடங்கள் போல தடித்துக்காணும்	-	Atopic dermatitis is a chronic inflammatory skin condition characterised by itchy papules, papulovesicular lesions consists of erythema and discrete confluent oedematous papules.
கடிவிடங்களில் பன்னீர் போல		Papules are intensely itchy resulting in oozing

நீர்பறிந்து அவை வற்றி நாறும். பிணிவாயில் விடசலமானது உதிரம் போன்று வடியும்.	and may become exudative and crusted as a result of rubbing.
இரணங்களாய் மாறும்.	Abrasion of the epidermis due to secondary bacterial and viral infections.
குழந்தையின் மெய்யொடுங்கும்	In Infantile eczema child is irritable and weak.
தொண்டையில் விரணம் உண்டாகும்	Atopic Dermatitis is associated with a personal or family history of hay fever, asthma and allergic rhinitis. In allergic diseases intermittent dry cough resulting in inflammation of the throat.

முக்குற்ற வேறுபாடுகள்

வாதக் குற்றமானது வேற்றுநிலை வளர்ச்சியடைவதைத் தொடர்ந்து கபக் குற்றம் கேடடைந்து இறுதியில் பித்த குற்றம் தன்னிலையிலிருந்து பிறழ்வதால் கரப்பான் பிணி உண்டாகின்றது.

முக்குற்றங்களும் அவற்றின் செய்தொழிலும்

வாதம்

வாதமானது இயற்கை நிலையில் நின்று ஊக்கமுண்டாக்கல், மலம் முதலிய பதினான்கு விரைவுகளை வெளிப்படுத்துதல், சாரம் முதலிய ஏழு உடற்கட்டுகட்டுகளுக்கும் ஒத்த நிகழ்ச்சியைத் தரல், ஐம்பொறிகட்கு வன்மையைக் கொடுத்தல் ஆகிய தொழில்களைப் புரியும்

வளி உடலில் செய்தொழில்

- நீர்ப்பசையின்மை (வறட்சி)
- இளைத்தல்
- மலம் அடைபடுதல்
- தோல் கறுத்துக் காணல்

வாதத்தின் வகைகள	செய்தொழில்	பால கரப்பான் பிணியில் குற்றங்களின் நிலை பாதிப்பு/இயல்பு
பிராணன்	மூச்சுவிடல், வாங்கல், தும்மல், ஏப்பம் விடல், காறியுமிழ்தல், உண்ணும் உணவை செரிக்கப் பண்ணும்.	பாதிப்பு
அபானன்	அன்னசாரத்தை சேர வேண்டிய இடங்களில் சேர்ப்பிக்கும். வெண்ணீர், நாதம், மலம், சிறுநீர், கரு இவற்றை வெளிப்படுத்தும்	பாதிப்பு - மலக்கட்டு உண்டாதல்
வியானன்	உண்ணும் உணவின் சாரத்தை அவ்வவ்விடங்களில் நிறைப்பித்து உடலைக் காக்கும். நடத்தல், உடல் உறுப்புகளை அசைத்தல் ஆகியவைகளை புரியும்.	பாதிப்பு
உதானன்	உணவின் சாரத்தை கூடியிருந்து அங்கேயே நிறுத்தும். அதை வெளிப்படுத்தியும் கலக்கியும் வருதல் செயய்யும்.	பாதிப்பு - உடல்வன்மை, உடல் நிறம், உடல் ஒளி குறைதல்.
சமானன்	மற்ற வாயுக்களை மிஞ்சவொட்டாமற் மடக்கிச் சரிப்படுத்திச் சேரச்செய்யும். உணவுப்பொருட்கள் செரிப்பதற்குரிய தீயை விருத்தி செய்து சாரத்தையும், திப்பியையும் பிரித்து சாரத்தை உடலின் எல்லாப் பாகங்களுக்கும் பகிர்ந்து கொடுத்து வளர்க்கும்.	பாதிப்பு - மற்ற குற்றங்கள் பாதிப்பு
நாகன்	எல்லாக் கலைகளையும் கற்கும்படி அறிவை எழுப்பும் மயிர்களைச் சிலிர்க்க செய்யும்.	இயல்பு
கூர்மன்	மனதிலிருந்து கிளம்பி கண்ணில் நின்று இமையைக் கொட்டுவிக்கும். கொட்டாவி விடப்பண்ணும். வாயை மூடச் செய்யும்.	இயல்பு
கிருகரன்	நாவிலிருந்து நாவிற்கசிவையும், நாசியிற் கசிவையும் உண்டாக்கும். மிகுந்த பசியையுண்டாக்கச் செய்யும்	பாதிப்பு
தேவதத்தன்	சோம்பலையும், உடல் முரித்தலையும் உண்டாக்கும். சண்டை கொள்ளல், தர்க்கம் பேசல், மிகுந்த கோபம் முதலியவற்றையுண்டாக்கும்	பாதிப்பு – உடல்சோர்வு

தனஞ்செயன்	மூக்கிலிருந்து தடித்து உடம்பு முழுமையும் வீங்கப்பண்ணும்.காதில் கடல் போலிரையும். இறந்துவிடின் காற்றெல்லாம் வெளிப்பட்ட பின்னர் மூன்றாவது நாளில் தலை வெடித்த பின் தான் போகும்.	-

பித்தம்

இயற்கை நிலையினின்று செரிப்பித்தல், வெம்மை, பார்வை, பசி, நீர்வேட்கை, சுவை, ஒளி, நினைப்பு, அறிவு, வன்மை, மென்மை இவைகளை உண்டாக்கி உடற்குத்துணை புரியும்.

அழல் உடலில் செய்தொழில்

- உடலில் வெப்பம் உண்டாதல், மெலிவு, எரிவு இவையுண்டாதல்.
- செந்நீர் தன் அளவில் மிகுதல

அழலின் பிரிவுகள்	**செய்தொழில்**	**பால கரப்பான் பிணியில் குற்றங்களின் நிலை பாதிப்பு/இயல்பு**
அனற்பித்தம்	தீயின் குணத்தை மிகுதியாகப் பெற்று நீர் வடிவமுள்ள பொருள்களை வறளச் செய்து உண்ட உணவுப் பொருள்களைச் செரிக்கும்படி செய்யும்.	பாதிப்பு
இரஞ்சகப் பித்தம்	உணவிலிருந்து பிரிந்துண்டான சாறுக்குச் செந்நிறத்தைத் தருகிறது.	பாதிப்பு
சாதகப் பித்தம்	நிறைவேற்றும் பண்புடையது. விருப்பமான தொழிலைச் செய்து முடிக்கும்.	இயல்பு
ஆலோசகப் பித்தம்	கண்களில் வாழ்ந்து கொண்டு எல்லாப் பொருள்களின் வடிவத்தையும் அறிதலாகிய காரியத்தைச் செய்யும்.	இயல்பு
பிராசகப் பித்தம்	தோலுக்கு ஒளியைத் தரும் பண்புடையது. தோலில் வாழ்ந்து கொண்டு தோலுக்கு ஒளியைக் கொடுத்து அதை ஒளிரச் செய்யும்.	பாதிப்பு – தோலில் ஒளி குன்றல், தோலில் நிறமாற்றம் உண்டாதல்.

ஐயம்

இயற்கை நிலையில் நின்று நிலைத்தல், பசி, நீர்வேட்கை, துயரம், கலக்கம், வெப்பம் இவைகளைப் பொறுத்துக் கொள்ளுதல், கீல்களின் அமைப்பிற்கு வன்மை தருதல் ஆகிய தொழில்களைப் புரியும்.

ஐயம் உடலில் செய்தொழில்

- சொறி (தினவு)
- ஊண்விரைவில் செரியாமை
- தொழில் புரிவதில் கூர்மையின்மை
- நெய்ப்பு
- வன்மை.

ஐயத்தின் பிரிவுகள்	செய்தொழில்	பால கரப்பான் பிணியில் குற்றங்களின் நிலை பாதிப்பு/இயல்பு
அவலம்பகம்	நுரையீரலில் இருந்து கொண்டு, தமரகத்திற்கு அடிப்படையாய் இருந்து மற்ற நான்கு ஐயங்கட்கு பற்றுக்கோடாயிருத்தல்	பாதிப்பு
கிலேதகம்	இரைப்பையிலிருந்து கொண்டு உண்ணப்பட்ட உணவுப் பொருள்களை ஈரப்படுத்தி மெத்தெனச் செய்யும் தொழிலைப் புரியும்.	பாதிப்பு
போதகம்	இது சுவைப் பொறியாகிய நாவினின்று உண்ணுகிற சுவைகளை அறிவிக்கும் தொழிலைப் புரியும்	இயல்பு
தற்பகம்	இது தலையினின்று கண்களுக்கு குளிர்ச்சியைத் தரும்	இயல்பு
சந்திகம்	பூட்டுகளில் நின்று இயற்கையாய் எல்லாக் கீல்களையும் ஒன்றோடொன்று பொருத்தித் தளரச் செய்து கொண்டிருக்கும்	இயல்பு

ஏழு உடற் தாதுக்கள்	செய்தொழில்	கரப்பான் பிணியில் தாதுக்களின் நிலை பாதிப்பு/இயல்பு
சாரம்	உடலையும், மனதையும் ஊக்குமுறச் செய்வது	பாதிப்பு - தோல் சுரசுரப்படைதல்
செந்நீர்	அறிவு, வன்மை, ஒளி, செருக்கு, ஒலி இவைகளை நிலைக்கச் செய்வது	பாதிப்பு – வறட்சி
ஊண்	உடலின் உருவத்தை அதன் தொழிற்கிணங்க அமைத்தலும் என்பை வளர்த்தலுமாம்.	பாதிப்பு
கொழுப்பு	ஒவ்வோர் உறுப்பும் தத்தம் செயலை இயற்றும் பொழுது கடினமின்றி இயங்க அவற்றிற்கு நெய்ப்புப்பசை ஊட்டி உதவிபுரிவது.	பாதிப்பு - நெய்ப்புத் தன்மையின்மை
என்பு	உடலை ஒழுங்குபட நிறுத்தி வைத்தல், மென்மையான உறுப்புகளைப் பாதுகாத்தல், உடல் அசைவிற்கு அடிப்படையாயிருத்தல் ஆகிய தொழில்களைப் புரிவதாகும்.	இயல்பு
மூளை	என்புக்குள் நிறைந்து அவைகளுக்கு வன்மையும் மென்மையும் தருவது.	இயல்பு
சுக்கிலம்/சுரோணிதம்	தன்னையொத்த உருவப் பெருக்கிற்கு இடமாகிய கருத் தோற்றத்திற்கு முதலாய் நிற்பது	இயல்பு

முக்குற்றங்களும் பருவக் காலங்களும்

தன்னிலை வளர்ச்சி:

முக்குற்றங்களும் தத்தம் இடங்களில் வளர்ச்சியடைவதே தன்னிலை வளர்ச்சியாகும்.

வேற்றுநிலை வளர்ச்சி:

வளர்ச்சியடைந்த முக்குற்றங்கள் தத்தம் இடம் விட்டு மீறி வேற்றிடங்களிற் பரவுமாயின் அது வேற்றுநிலை வளர்ச்சியாகும்.

கார்காலம் - ஆவணி, புரட்டாசி

கூதிர்காலம் - ஐப்பசி, கார்த்திகை

முன்பனிகாலம் - மார்கழி, தை

பின்பனிகாலம் - மாசி, பங்குனி

இளவேனில் காலம் - சித்திரை, வைகாசி

முதுவேனில் காலம் - ஆனி, ஆடி

வாதமானது முதுவேனில் பருவத்தில் தன்னிலை வளர்ச்சியும், கார்காலத்தில் வேற்றுநிலை வளர்ச்சியும், கூதிர்காலத்தில் தன்னிலையும் அடைகின்றது.

அழலானது கார்காலத்தில் தன்னிலை வளர்ச்சியும், கூதிர்காலத்தில் வேற்றுநிலை வளர்ச்சியும், முன்பனிக்காலத்தில் தன்னிலையும் அடைகின்றது.

ஐயமானது பின்பனிக் காலத்தில் தன்னிலை வளர்ச்சியும், இளவேனில் காலத்தில் வேற்றுநிலை வளர்ச்சியும், முதுவேனில் காலத்தில் தன்னிலையும் அடைகின்றது. முக்குற்றங்களின் வேற்றுநிலை வளர்ச்சி நோய் தோற்றத்திற்கு காரணமாகின்றது.

பிணியறி முறைமை:

பிணியறி முறைமை என்பது உடலைப் பிணித்தலாகிய நோயைத் தெரிந்துகொள்ளுகிற ஒழுக்கம் எனப்படும். இது மூவகைகளை கொண்டு அறியப்படும்.

1. **பொறியாற்தேர்தல்**
2. **புலனாறிதல்**
3. **வினாதல்**

பொறியாற்றேர்தல்

- **மூக்கு** - இயல்பு
- **நா** - இயல்பு
- **கண்** - இயல்பு
- **தோல்** - பாதிப்படைந்து புண், தடிப்பு,வெடிப்பு, நீர்க்கசிவுடன் காணல்
- **செவி** - இயல்பு

புலனாறிதல்

- **நாற்றம்** - இயல்பு
- **சுவை** - இயல்பு
- **ஒளி** - இயல்பு
- **ஊறு** - பாதிப்படைந்து திமிர், தினவு, சொறியுடன் காணல்
- **ஓசை** - இயல்பு

வினாதல்

பிணியுற்றோனிடத்து உள்ள பொறி, புலன்கள் பிணிகளை தெளிவாயுணர்த்துமாகையால், மருத்துவன் தன்னை நோக்கி வந்த பிணியுற்றவனைப் பற்றி அறிய வேண்டியவற்றை அறிந்தும், தன் பொறி, புலன்களால் பிணியாளனுடைய பொறி, புலன் வழியாய் உணர்வதைக் கேட்டு அறிந்து கொள்ள வேண்டும்.

எண் வகைத் தேர்வு

"நாடிப்பரிசம் நாநிறம் மொழிவிழி

மலம் மூத்திரமிவை மருத்துவராயுதம்"

பிணியறியும் முறையானது மருத்துவ நூல் வல்லோர்களால் எண் வகையாய் வகுக்கப்பட்டுள்ளது.

நா

நா மாசற்று உள்ளதா, மா படிந்து உள்ளதா அதன் நிறம் ஆகியவற்றை கவனித்தலாகும்.

நிறம்:

பால கரப்பான் பிணியில் தோலின் நிறமானது பாதிப்படைந்து சிவந்த நிறமாகவோ அல்லது கருமை நிறமாகவோ காணப்படுகின்றது.

மொழி

நோயாளி பேசும் போது சம ஒலி, கபத்தோடு கூடிய பேச்சு உரத்த பேச்சு ஆகியவைகளை அறிதலாகும். பால கரப்பான் ரோகத்தில் மொழி இயல்பாக உள்ளது.

விழி

கண் வெளிறல், சிவத்தல் போன்ற குறிகுணங்களை ஆராய்வதாகும். பால கரப்பானில் விழி இயல்பாக உள்ளது.

மலம்

மலத்தின் தன்மையை அறிதலாகும். பால கரப்பான் பிணியில் வாதமானது பாதிக்கப்பட்டுள்ளதால் மலக்கட்டு காணப்படுகின்றது.

நீர்

"வந்த நீர்க்கரி எடை மணம் நுரை எஞ்சலென்

றைந்தியலுளவவை யறைகுது முறையே"

என்பதன் படி இழிகின்ற நீருக்கு 1. நிறம் 2. எடை 3. நாற்றம் 4. நுரை 5. எஞ்சல் என ஐந்து இயல்கள் உண்டு.

1. **நிறம்** : நீரின் நிறத்தை அறிதல் வேண்டும். பால கரப்பானில் நீரின் நிறம் இளமஞ்சள்.
2. **மணம்** : நீரின் மணத்தை அறிதல் வேண்டும்.
3. **எடை** : நீரின் எடையை அறிதல் வேண்டும்
4. **நுரை** : நுரை உள்ளதா என்று அறிதல் வேண்டும்
5. **எஞ்சல்** : நீர் அளவில் குறைதல் அல்லது மிகுதல் இவற்றை அறிதல் வேண்டும்.

நெய்க்குறி

நீர் நிறக்குறியால் நோயைக் கண்டு பிடித்தற் பொருட்டுச் சொல்லியிருக்கின்ற விதி பொருந்திய சிறுநீரில் ஒரு சிறிய துளி எண்ணெயை நடுவில் கையசைவினால் எண்ணெய்த் துளி சிதறாமல் விட்டு வெய்யிலானது அந்நீரில் படும்படி திறந்து காற்றானது அதில் வீசி அந்த எண்ணெய்த் துளி ஆடாதபடி வைத்து அச்சிறுநீரில் விடப்பட்டிருக்கின்ற எண்ணெய்த் துளியானது செல்லுகின்ற வழியில் கண்ணறிவையும், உயிரறிவையும் செலுத்தி அத்துளி தெரிவிக்கும் நோய் விளக்கத்தை அறிதல் வேண்டும்.

பால கரப்பான் ரோகத்தில் நெய்க்குறி

"அரவென நீண்டிடிற் அ.ஃ.தே வாதம்"

எண்ணெய் துளி விட்டபின் அது பாம்பு போன்று நீளுமாயின் அ.ஃ.து வாத நோயினைக் காட்டும் நெய்க்குறியாகும்.

"ஆழி போல்பரவின் அ.ஃ.தே பித்தம்"

எண்ணெய் துளி விட்டபின் அது மோதிரம் போன்று பரவுமாயின் அ.ஃ.து பித்த நோயினைக் காட்டும் நெய்க்குறியாகும

"முத்தொத்து நிற்கின் மொழிவதென் கபமே"

எண்ணெய்த் துளி விட்டது விட்டவாறே சிறிதும் பரவாமல் முத்துப்போல் நின்றது. ஐய நோயினைக் காட்டும் நெய்க்குறியாகும்.

நாடி:

"சிறப்பான வாதத்தி லுட்டிணந் தானே
சேர்ந்திடு கிலதிசார முளைச்சல் வாயு
உரைப்பான பொருமலொடு அக்கினி மந்தம்
உள்ளாகும் நீர்ச்சிறப்பு பிரமேகங்கள்
பிறப்பாடு மதகரி நீர் கரப்பான் ரத்தம்....."

- சதக நாடி

வாத நாடியானது மிகுதியடைந்து அதனுடன் உஷ்ணமும் சேர்ந்தால் கரப்பான் நோயினை உண்டாகின்றது.

"தானமுள்ள சேத்துமந்தானிளகில் வெப்பு
சயமீளை இருமல் மந்தார காசம்
ஈனமுறுஞ்சந்தி விடதோடம் விக்கல்
இருத்ரோகங் கரப்பான் விரண தோடம்...."

சேத்துமம் நாடி தன்னளவில் இருந்து அதிகரித்துக் காணும் போது கரப்பான் நோய் உண்டாகின்றது.

பரிசம்:

பால கரப்பான் பிணியில் ஸ்பரிசம் பாதிப்படைந்து சுரசுரப்புடன் நீர் பசையின்றி திமிர், தினவு, சொறி, புண், தடிப்பு வெடிப்பு, நீர் வடிதல், தோலில் நிறமாற்றம் ஆகிய குறிகுணங்களுடன் காணப்படுகின்றது.

மருத்துவம்:

நோய் தோன்றுவதற்கான காரணங்களைக் கண்டறிந்து அதற்குரிய சிகிச்சை முறையை பத்தியத்துடன் கடைப்பிடித்து, நோய் வராமல் தடுப்பதற்குரிய முறையைக் கையாளுவதே சித்த மருத்துவத்தின் சிறப்பான கொள்கை ஆகும். இது மூன்று பிரிவுகளுள் அடங்கும்.

1. **காப்பு**
2. **நீக்கம்**
3. **நிறைவு.**

காப்பு:

சித்த மருத்துவ முறையில் காப்பு என்பது முதன்மையான ஒன்றாகும். நோய் தோன்றுவதற்கு காரணமானவற்றை தடுத்து ஆயுளை நீடிக்கச் செய்வதே காப்பாகும்.

நீக்கம்:

உடலை காப்பதற்குரிய நெறிகளை கடைப்பிடித்து நடக்கத் தவறுவானாயின் வளி, அழல், ஐய குற்றங்களினால் உண்டான நோய்களால் துன்பமடைவான். அங்ஙனம் வருவித்துக் கொண்ட பிணிகளைப் போக்கும் விதிகளே நீக்கம் எனப்படும். பிணியானது முக்குற்றங்களை தன்னிலைக்குக் கொண்டு வருவதன் மூலம் நீக்கப்படுகின்றது.

மருத்துவ முறை:

- பாலகரப்பான் பிணியில் இறுதியில் பித்த குற்ற விகாரமுற்று நோய்க்குறிகுணங்கள் மிகுதிப்படுவதால் அதை முதலாக தன்னிலையடையச் செய்து பின் விகாரமுற்ற வாத, கபக் குற்றங்களை தன்னிலைப்படுத்தும் மருந்துகளை வழங்குதல் வேண்டும்.
- வாதக்குற்றத்தினால் எழுந்த மலக்கட்டினை சீர்செய்ய மலமிளக்கி மருந்துகளை வழங்குதல் வேண்டும்.
- ஏழு உடற்கட்டுகளையும் வன்மைபடுத்தும் மருந்துகளை வழங்குதல்.

மருத்துவ அறிவுரை

- குளிப்பதற்கு பாசிப்பயறு மாவு, நலுங்கு மாவினை உபயோகப்படுத்த வேண்டும்.
- திரிபலா சூரணத்தினை குடிநீராக்கி நோய்கண்ட இடத்தினை நன்கு கழுவி துடைக்க வேண்டும்.
- பத்திய, அபத்திய உணவுப் பொருட்களை அறிந்து உணவு முறையை மேற்கொள்ளுவதன் மூலமாக பால கரப்பான் பிணியானது நீக்கப் படுகின்றது

அபத்திய உணவு முறைகள்

அகத்தியுடன் பூசணிக்காய் புடலங்காயும்

மன்பான வாழைக் காயுண்ணார்கள்

நிகழ்த்திய மீன் கடுகுடன்வெங் காயங்கூட்டி

நித்தியமே தின்னதுண்டால் நெடியோனாகான்

செகத்தில் நின்ற வரைக்கீரை வறுக்கை மாங்காய்

திகட்டாத கத்தரிக்காய் தீனபார்க் காய்

மகத்துவமாங் கும்பமுனி யருளிச் செய்த

மாறாத சொறி பறங்கிவளரு மென்றே.

அகத்திக்கீரை, பூசணிக்காய், புடலங்காய், வாழைக்காய், மீன், கடுகு, வெங்காயம், அரைக்கீரை, மாங்காய், கத்தரிக்காய் போன்றவற்றை உணவில் சேர்த்துக் கொள்ளும்போது கரப்பான் பிணி மிகுதிப்படுவதால் இவைகளை உணவில் இருந்து நீக்க வேண்டும்.

நிறைவு:

நோயாளியை சித்த மருத்துவ முறையில் பரிசோதித்து நோயினைப் பற்றிய தெளிவான விளக்கத்தினையும், மருந்துண்ணும் போது கடைப்பிடிக்க வேண்டிய விதிமுறைகளையும் கொண்டு நோயினைத் தீர்ப்பதே நிறைவாகும்.

பால கரப்பான் பிணிக்கு பல நூல்களில் பற்பல மருந்துகள் கூறப்பட்டுள்ளன. இருப்பினும் ஆய்வாளர் தனது ஆய்விற்காக பூவரசுநெய்யினை தேர்ந்தெடுத்துள்ளார்.

3.2 MODERN ASPECT

SKIN ANATOMY

INTRODUCTION

The skin is a protective covering of the body .It provides,Physical, Mechanical, Chemical, and Immunological protection from the external environment.It has also important sensory, endocrine, and thermoregulatory functions. The human skin shows wide regional variations in structure like scalp, face, ear lobes, back, palm, and soles etc. The skin is a largest organ of the body. The skin is the largest organ in the human body.It makes up 16% of total body weight , with a surface area of 1.8m^2covering the entire body. The thickness of the skin varies from 0.5mm thick on the eyelids to 4.0mm on the heels of human body.

DEVELOPMENT

1. The epidermis and its appendages are developed from the ectoderm,about the fifth week of the fetal development.
2. The cornium or true skin is of mesodermal origin.
3. The substanceous fat appears about the fourth month, and the papillae of the true skin about the sixth month.
4. A considerable desquamation of epidermis mixed with sebaceous secretion, constitutes the vernix caseosa by which the skin is smeared during the last three months of fetal life.
5. The nails are formed at the third month and begin to project from the epidermis about the sixth month.
6. Above the fifth month, the fetal hairs appear first on the head and then on the other parts. They drop after and given place to the permanent hairs.
7. The cellular structures of the sudoriferous and sebaceous glands are formed from the ectoderm whereas the connective tissue and blood vessels are derived from the mesoderm.
8. All the sweat glands are being to develop as early as the fourth month.

9. The skin of an average adult cover an area of just under 2m2.The skin thickness ranges from 0.5mm as in the eyelids to 4mm on the heels. Over most of the body it is 1-2mm thick.

ANATOMY

The skin is composed of a superficial epithelial layer -the Epidermis, and an underlying connective tissue layer-the Dermis or Corium.Beneath the corium is another connective tissue layer -the Hypodermis or subcutaneous layer.

EPIDERMIS

The matureEpidermis is formed of non-vascular stratified epithelial tissue composed of predominantly of keratinocytes . The function of epidermis is protection of the organism from the external environment,through physical, chemical, and immunologic barrier functions. Its usual thickness is between 0.07mm and 0.12 mm.It is thickest on the palms of the hand and soles of the feet.The epidermis is mainly divisible into two main systems keratinizing or Malpighian system (Keratinocytes) which forms the bulk and the pigmentary system (Melanocytes) which produces the pigment. The epidermis consists of Squamous cells(Keratinocytes), Melanocytes(The pigment- forming cells), Langerhans cells(Dentritic cells of the mononuclear phagocyte system).

LAYERS OF EPIDERMIS

- **Stratum germinatum** -This is the deepest portion of the epidermis and is composed of columnar cells placed perpendicular to the skin surface.The whole of the epidermis germinates from this stratum hence the name "stratum germinatum".

- **Stratum malpigii**–It is superficial the basal cell layer,and is composed of several layers of polyhedral cells connected to each other by intercellular bridges.

- **Stratum granulosum**-It is superficial to stratum malpigii.It is composed of flat, fusiform cells which are one to three layers thick.These cells contain irregular granules of Keratohyalin and lysosomal enzymes and cystine rich proteins.

- **Stratum lucidum–**It is superficial to the stratum granulosum . It is pale, wavy-looking klayer known as stratum lucidum which is formed by many layers of flattened and closely packed cells .

- **Stratum corneum -**This is the most superficial layer ,the outer surface of which is exposed to the atmosphere.It is formed by many layers of non nucleated,flattened, cornified cells.

DERMIS

The dermis forms a tough, pliable, fibrous supporting structure between the epidermis and the subcutaneous fat. The thickness of the skin is 1-3 mm.It is profusely supplied with blood vessels. The connective tissue cells in the dermis are spindle shaped fibroblast that is responsible for the synthesis of collagen, elastic fibres and mucopolysaccharides. Phagacytic histiocytes, mast cells and motile leukocytes are also present. Within the dermis are blood vessels, lymphatics, neural structures ,eccrine and apocrine sweat glands, hairfollicles, sebaceousglands and smooth muscle. Morphologically, the dermis can be divided into two layers, the superficial papillary layer that interdigitates with the reteridges of the epidermisand the deeper reticular layerthat lies beneath the papillary dermis. The extracellular matrix of the dermis consists of collagen and elastic fibers embedded in an amorphous ground substance. Collagen provides strength and stability to the dermis, while elastic fibers allow for elasticity.

SUBCUTANEOUS TISSUE

The panniculus, or subcutaneous tissue, consists of fat cells and fibrous septa that divide it into lobules and anchor it to the underlying fascia and periosteum. Bloodvessels and nerves are also present in this layer which serves as astorage depot for lipid, an insulator to conserve body heat, and a protective cushion against trauma.

APPENDAGEAL STRUCTURES

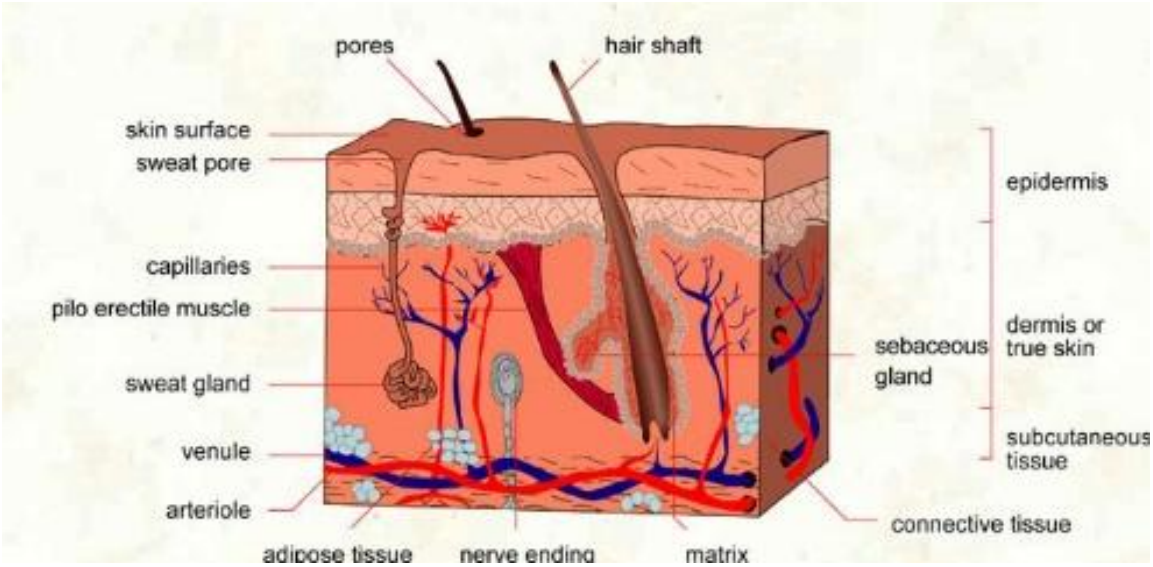
HAIR

Hair follicles are distributed throughout the skin, except in the palms,soles, lips, and glans penis.Individual follicles extend from the surface of the epidermis to the deep dermis. The hair follicle is divided into four segments: the infundibulum,

which extends from the skin surface to the sebaceous duct; the isthumus extending from the sebaceous duct opening to the bulge; the lower follicle between the bulge and the hair bulb;and the hair bulb. The bulge is at the insertion of the arrectorpili muscle and is a focus epidermal stem cells.The bulb is where the matrix cells and dermal papilla are involved in formation and maintenance of the hair. Each hair follicle is lined by germinative cells, which produce keratin and melanocytes,which synthesise pigment.The hair shaft consists of an outer cuticle,a cortex of keratinocytes and an inner medulla. The root sheath which surrounds the hair bulb,is composed of an outer and inner layer. Hair growth is under endocrine control**.** Hair grows about 1-2 cm per month.

ANATOMY OF THE SKIN

CROSS SECTION OF THE SKIN



SEBACEOUS GLANDS

Sebaceous glands occur in all areas except the palms, soles and dorsal feet and are most numerous on the face,upper chest and back.They are situated in upper half of the corium. Their ducts open into the hair follicles except on the lips, prepuce, and labia minora,where they emerge directly onto the mucosal surface.These holocrine glands are saccular structures that are often branched and lobulated and consist of a proliferative basal layer of small flat cells peripheral to the central mass of lipidized cells.The latter cells disintegrate as they move toward the duct and form the lipid secretion known as sebum,which consists of triglycerides, wax esters,squalene and cholesterol esters.The purpose of sebum production likely relates to hydrophobic skin carrier function.Sebaceous glands depend on hormonal stimulation and are activated by androgens by puberty. Fetal sebaceous glands are stimulated by maternal androgens and their lipid secretion,together with desquamated stratum corneum cells, constitutes the vernix caseosa.

APOCRINE GLANDS

The apocrine glands are located in the axillae, areolae, perianal , genital areas and the periumbilical region.These large,coiled, tubular structures continuously secrete an odorless milky fluid that is discharged in response to adrenergic stimuli, usually as a result of emotional stress. Bacterial biotransformation of apocrine sweat components(fatty acids, thio alcohols and steroids) accounts for the unpleasant odour associated with perspiration. Apocrine glands remain dormant until puberty, when they enlarge and secretion begins in response to androgenic activity. The secretory coil of the gland consists of a single layer of cells enclosed by a layer of contractile myoepithelial cells. Although apocrine glands, do not function in thermoregulation they are involved in certain disease processes.

ECCRINE SWEAT GLANDS

Eccrine sweat glands are distributed over the entire body surface and are most abundant on the palms and soles.those on the hairy skin respond to thermal stimuli and serve to regulate body temperatre by delivering water to the skin surface for evaporation;in contrast, sweat glands on the palms and soles, respond mainly to psychophysiologic stimuli.

Each eccrine gland consists of secretory coil located in the reticular dermis or subcutaneous fat and a secretory duct that opens onto the skin surface.The glands are supplied by sympathetic nerve fibers, but the pharmacologic mediator of sweating is acetylcholine rather than epinephrine.sweat from these glands consists of water, sodium, potassium, calcium, chloride, phosphorus, lactate and small quantities of iron, glucose and protein. The composition varies with the rate of sweating but is always hypotonic in normal children.

NAILS

Nails are specialized protective epidermal structures that form convex,translucent,tight-fitting plates on the distal dorsal surfaces of the fingers and toes. The nail plate,which is derived from a metabolically active matrix of multiplying cells situated beneath the posterior nail fold,is composed of anucleate keratinocytes.Nail growth is relatively slow;complete finger nail regrowth takes 6 months, while complete toenail regrowth requires 12-18 months.The nail plate is bounded by the lateral and posterior nail folds;a thin eponychium(cuticle) protrudes from the posterior fold over a crescent-shaped white area called the lunula.The eponychium serves as a sealant barrier to protect the germinal matrix of the nail plate. Nail health relies on several factors,including nutrition, hydration, local infection/irritation and systemic disease.

BLOOD VESSELS

The cutaneous arteries arise directly or indirectly from the underlying source arteries forming anstomosis in the deepest part of the cortex.From here single vessels run upwards and form a second network in the upper cortex. Finally teminal arterioles ascend into the papillae ending in capillary loops,which drain into connecting venules. The blood is returned to the large veins in the subcutaneous tissue.

LYMPHATICS

The skin contains a rich a network of lymphatics which drain into a few larger vessels in the hypodermis.

NERVE SUPLY

The nerve supply of skin consists of motor sympathetic portion derived from the symphathetic ganglia and sensory spinal portion arising from the dorsal root ganglia.The symphathetic fibre innervate the blood vessel, erector pilorum muscles and adrenergic and cause contraction.

FUNCTIONS OF THE SKIN

Protective function

The epidermis and sub cutaneous fat play roles in the protective functions, the mechanical properties of the skin depends mainly on the dermis. It forms an effective barrier against microbial invasion and has properties of mechanical, chemical, atomic, thermal and phototic damage.

Immunological function

The skin is a dynamic organ that contains different cells which contains elements of the innate and adaptive immune system which are activated when the tissue is under attack by invading pathogens.

Sensory function

The skin is richly supplied with nerves . It has many nerve endings , which form the specialized cutaneous receptor which provide information regarding environmental changes to the brain.

Secretion function

Skin secretes sweat through sweat glands and sebum through sebaceous glands. By secreting sweat, skin regulates body temperature and water balance. Sebum keeps the skin smooth and moist.

Excretion function

Skin can excrete small quantities of waste materials like urea, salts and fatty substance.

Synthesis of vitamin "D"

UV rays act on the skin to form Vit D3, activated in liver and kidneys, active form then acts on the intestines to increase calcium and phosphate absorption and on bone to increase calcium and phosphate mobilization.

Body heat regulation

Skin plays an important role in the regulation of body temperature.Excess heat is lost from body through skin by radiation, conduction, convection and evaporation. Sweat glands of the skin play active part in heat loss by secreting sweat. The lipid content of sebum prevents loss of heat from the body in cold environment.

Regulation of water and electrolyte balance

Skin regulates water balance and electrolyte balance by excreting water and salts through sweat.

Storage function of skin

Skin stores fat,water, chloride and sugar. It can also store blood by the dilatation of the cutaneous blood vessels

Absorption

Skin can absorb the fat soluble substances and some ointments.

Gaseous exchange through skin.

A small amount of gaseous exchange occurs through the skin , the amount of co_2 exchanged through the skin is negligible compared to the amount exhaled from the lungs.

Pigment of skin

Melanin pigment protects the skin from the harmful effects of ultraviolet rays.

ATOPIC DERMATITIS (or)ATOPIC ECZEMA

The signs and symptoms of " Balakarappan" are closely similar to signs and symptoms of Atopic Dermatitis(AD). Atopic dermatitis (AD) or eczema is the most common chronic relapsing skin disease seen in infancy and childhood. It affects 10-30% of the children worldwide and frequently occurs in families with other atopic disease such as asthma allergic rhinitis, and food allergy. Infants with Atopic dermatitis are predisposed to development of allergic rhinitis and asthma later in childhood , a process called "the atopic march".

DEFINITION

Atopic dermatitis is an inflammatory skin disorder characterized by erythema, edema, intense pruritis, exudation, crusting and scaling.

EPIDEMIOLOGY

The prevalence of Atopic dermatitis has increased over the past 30 years. It is currently estimated that 10-20% of children and 1-3% of adults in developed countries in within are affected by the disorder. Atopic dermatitis often starts in early infancy, approximately 45% of all cases begin within the first 6 months of life 60% during the first year and 85 % before 5 years of age upto 70% of these children outgrow the disorder before the adolescence. Children with atopic dermatitis are at high risk of developing asthma and allergic rhinitis of those who will develop Atopic dermatitis before the age 2, 50% will develop asthma during subsequent years. The prevalence of eczema is on the increase and currently affects 12- 15% of all school age children

Aetiology

Atopic dermatitis is a complex genetic disorder that results in a

- Defective skin barrier
- Reduced skin innate immune response
- Exaggerated T-cell response to environment allergens and microbes that lead to chronic skin inflammation.

Pathology

Acute Atopic dermatitis skin lesions are characterised by spongiosis or marked intercellular oedema of the epidermis. Antigen presenting cells (APCs) in the epidermis, such as langerhans cells (LCs) exhibit surface bound immunoglobulin (Ig E) molecues.

These ACPs play an important role in cutaeous allergen presenting to T helper type 2 (th 2) cells. There is a marked perivenular T-cells infiltrate with occasional monocyte- macrophages in acute Atopic dermatitis lesions. Mast cells are found in normal numbers but in different stages of degranulation.

Chronic lichenified Atopic dermatitis is characterised by a hyperplasic epidermis with hyperkeratosis, and minimal spongiosis. There are predominantly IgE-bearing LCs in the epidermis,and macrophages in the dermis. Mast cell and eosinophil numbers are increased. Eosinophil contribute to allergic inflammation by secreting cytokines and mediators that augment inflammatory responses and induce tissue injury in Atopic dermatitis through the production of reactive oxygen intermediates and release of toxic granule proteins.

Pathogenesis

Two forms of Atopic dermatitis have been identified

1) Atopic eczema is associated with IgE mediated sensitization and occurs in 70-80% of patients with Atopic dermatitis

2) Non atopic dermatitis is not associated with IgE mediated sensitization and is seen in 20-30% of patients with Atopic dermatitis. Both forms of Atopic dermatitis are associated with eosinophilia.

In atopic eczema circulating T cells expressing the skin homing receptor cutaneous lymphocyte – associated antigen (CLA) produced increased levels of th2 cytokines,interleukin (IL-4) and another cytokine IL-5 Plays an important role in eosinophil development.

Non atopic eczema is associated with lower IL-4 and IL-3 production than is atopic eczema. The developement of AD skin lesion is orchestrated by local tissue expression of pro inflammatory cytokines and chemokines. Cytokines such as tumour necrosis factor α (TNF - α) and IL -1 from keratinocytes, mast cells and dendritic cells bind the receptor on vasular endothelium.

These events proceed from tethering activation and adhesion to the endothelium, followed by extravasation of inflammatory cells. Once the inflammatory cells infiltrate the tissue, they respond to chemo tactic gradients established by chemokines,released at sites of injury or infection.Chemokines plays a central role in defining the nature of the inflammatory infiltrate in Atopic dermatitis. Other c-c chemokines,monocytes, chemo tactic protein -4 (MCP -4) exotaxin,macrophage-derived chemokines (MDC) are increased in Atopic dermatitis. Elevated IL-5 and GM/CSF of eosinophils and monocyte – macrophages as well as LCs.

In healthy people the skin acts as a protective barrier against external irritants, moisture loss and infection. Proper function of the skin depends on adequate moisture and lipid content, functional immune responses and structural integrity. Several dry skin is a hallmark of atpoic dermatitis.

This is a result of compromise of physical and chemical structures of the epidermal barrier,which leads to excess transepidermal water loss. Filaggrin a component of the cytoskeleton and its breakdown products are critical to skin barrier function. Genetic mutations in the filaggrin gene family have been identified in up to 50% severe patients with Atopic dermatitis. Such patients have increased risk of bacterial, viral and fungal infection rrelated to impairment of innate immunity, including a loss of barrier and impaired generation of antimicrobial peptides.

Potential Atopic dermatitis triggers:

Associated with food:

- Food allergens found in cow's milk,eggs, peanuts
- Tree nuts (eg, walnuts,cashews) Soy, wheat,fish,shelfish

Associated with direct contact

- Toiletries contacting alcohol,astringents, or fragrances harsh detergents\ soaps
- Abrasive clothing (wool or synthetics)

Associated with physiologic /emotional stressor

- Infections (Especially from overheating/sweating)
- Psychological stress

Other factors

- Irritants - physical , chemical or electrical
- Sensitizers - plants , clothings,cosmetics,infections , diet, and focal sepsis
- External infections – streptococci, staphylococci, fungus..
- Internal septic focus shedding toxins or causing bacteraemia.
- Diathesis - Allergic, xerodermic, hyperhidrotic or seborrhoeic
- Drugs - given for the diseaes or otherwise
- State of local or general nutrition
- Climate - Temperature and humidity

Clinical manifestations

Atopic dermatitis typically begins in infancy 50% of patients experience symptoms in the 1 st yr of life & additional 30% all diagnosed between 1-5 yr of age.

Cardinal features of Atopic dermatitis are

In acute stage

Intense pruritic with erythematic papular lesions.

In subacute stage

Erythematous Excoriated, scaling papular lesion.

In chronic stage

Lichenification or thickening of skin with accentuated surface markings and fibrotic papular (prurigo nodularis). In chronic Atopic dermatitis all three types of reactions may coexist in same individual.

Acute Atopic dermatitis in infants

- Extensor surface of extremities ,face (forehead, cheeks)
- Neck ,scalp,trunk

Chronic Atopic dermatitis in childhood (2 years to puberty)

- Flexual surface of extermities
- Neck ,wrist, ankles

Clinical Features of Atopic dermatitis

Major features

- Pruritis , personal or family history of Atopic dermatitis
- Facial and extensor eczema in infants and children.
- Chronic or relapsing dermatitis

Associated Features

- Xerosis, keratosis ,ichthyosis,palmar hyper linearity
- Cutaneous infections(staphylococcus,herpes simplex, moliuscum warts)
- Non specific dermatitis of the hands or feet
- White dermagraphism , Early age at onset
- Elevated serum Ig E levels, Facial erythema or pallor
- Positive results of immediate type allergy skin test
- Course influenced by environment \emotional factors

Lab Findings

- No specific Laboratory tests to diagnose Atopic dermatitis
- Peripheral blood eosinophilia
- Increased serum Ig E levels
- Prick skin test to identify the allergen.

Differential Diagnosis of Atopic Dermatitis

Infections and infestations

- Scabies, Dermatophytosis
- HIV associated dermatitis,Insect bites.

Congenital Disorders

- Familial keratosis pilaris
- Netherton syndrome

Chronic dermatomes

- Seborrhoea dermatitis, contact dermatitis
- Nummular dermatitis
- Psoriasis dermatitis, ichthyosis dermatitis

Auto immune disorder

- Dermatitis herpetiformis
- Pemphigus foliaccus, Hyper Ig E syndrome

Metabolic disorder

- Zinc deficiency, Pyridoxin niacin, Phenyl ketonuria

Treatment

The Treatment of Atopic deramtitis requires a systematic multifaceted approach that incorporates – Skin hydration

Topical anti inflammatory therapy

Identification and elimination of flare factors

Systemic therapy.

Categorization of physical severity of Atopic dermatitis

Clear - Normal skin with no evidence of Atopic dermatitis

Mild - Area of dry skin , infrequent itching (with or without redness)

Moderate -Area of dry skin ,infrequent itching redness 9with or without excoriation and localised skin thickening)

Severe - Widespread area of dry skin ,incessant itching,Redness (with or without excoriation,extensive skin thickening , bleeding, oozing, cracking and alteration of pigmentation)

Life style changes and general treatments for Atopic dermatitis

- Avoiding hot tubs, steam baths and chlorinated swimming pools
- Avoiding scratchy clothes, getting skin patch test
- Minimizing skin dryness by using lotion specifically designed for sensitive skin, drinking plenty of fluids
- Preventing flare- ups by avoiding exposure to the specific allergen or allergens that induce the condition
- Using ice bags or cool wet compresses to help relieve itching and inflammation, using mild soaps and not over harshly scrubbing skin.

Prick Test

Prick test are a way of detectimg cutaneous typr I (immediate) hypersensitivity to varius antigens such as pollen, house dust ,mite or dander.

Patch Test

Patch test detect type IV (delayed or cell- mediated) hypersensitivity

It is common practice for a battery of around 20 common antigens, including common sensitizers such as nickel,rubber and fragrance mix to be applied to the skin of the back under aluminium discs for 48 hours. The sites are then examined for a positive reaction 24 hours later and again a further 2 hours later. The positive test is revealed by the development of an eczematous patch with erythematic swelling and vesicles at the site of application.

Patch Test reaction is graded in the following degrees

+ - Only redness

++ - Marked redness and swelling

+++ - Marked redness , swelling and papules

++++ - Redness, oedema and vesicles

Specific Ig E levels to antigens can be measured in serum by a specific radio allergic sorbent test (RAST). These are occasionally performed to support diagnosis of Atopic eczema and to determine specific environment allergens,eg. Pet dander , horse hair,house dust mite , pollens and foods.

Bacterial and viral swabs for microscopy and culture

These are useful tests in suspected secondary infection. Skin swabs for bacteriology assessment will invariably reveal the presence of bacteria. In the case of recurrent impetigo in a child with atopic eczema , bacterial swabs should be taken from carrier sites (axillae and groin) from both the affected individual and house hold members.

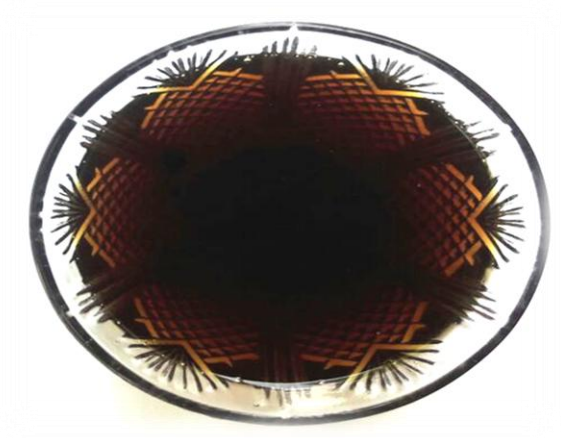
Prognosis of Atopic dermatitis

Dermatitis and Eczema are as rule curable conditions. Dermatitis is mostly non-infective and they donot leave scars. The patient needs reassurance of these points. It must be remembered that epidermis is an ectodermic structure and so takes time to heal.

Acute eczema heals readly in about 1-4 weeks with treatment. Chronic eczemas in which anatomical and fuctional changes set in, take time to disappear. Disseminated and generalised eczemas are not only slow to heat, but are accompanined by ill health.

Infantile and Atopic eczema are troublesome and uncomfortable.The former lates till the age of twenty five or even though life. Its course is marked by spontaneous remissions and exacerbations. Psychogenic stresses, climate extremes and poor health aggravate eczema. The cure of these conditions is restarted in tropical countries by heat, humidity and the prevalent unhygienic condition.

3.3 TRIAL DRUG



POOVARASU NEI

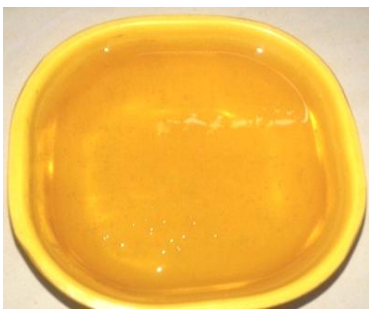
INGREDIENTS OF TRIAL MEDICINE

Poovarasam Pattai

Poovarasam Pattai Saaru

Kasakasa

Kasakasa Paal



Sittrimanaku Ennai

Nuna Ver

Sadamanjil

Manjal Karisalai

Elarici

Karunjeeragam

Seeragam

Kirambu

Karpogarisi

Sarkarai

PREPARATION AND PROPERTIES OF TRIAL DRUGS

பூவரசு நெய்

இயம்பவே இந்நோய்க்கு நெய்தா னொன்று
இன்பமாய்ச் சொல்லுவோம் நன்றாய்க் கேளாய்
இயம்பவே பூவரசம் பட்டைச் சாறும்
இன்பமுடன் தானேயோர் படியு மெய்யாய்
இயம்பவே சிற்றேரண் டெண்ணெய் ஒன்று
இயல்பாக இவ்விரண்டுஞ் சேர்த்தெ ரித்தங்
கியம்பவே கசகசாப்பால் படிதா னொன்றாம்
இருசீர கத்தினெடை கார்கோல் காலே.

காலான ஏலமுடன் லவங்க மாஞ்சில்
கரிசாலை நுணாவேரும் வகைப்ப லந்தான்
நீலான நிழலுலர்த்திச் சூர ணஞ்செய்
நெடுஞ்சீனி பலமைந்து நிறுத்தொன் றாக்கி
வாலான சாறெண்ணெ யடுப்பி லேற்றி
வகையுடனே கடுதிரண்டால் சூரணம்போட்
டேலான கிண்டிநெய்ப் பாக மாக்கி
இறக்கியந்த நெய்யதனை வடித்துக் கொள்ளே
வடித்துமே கரண்டிநிறை யுள்ளுக் கேற்ற
வாலகரப் பான்ரோகம் வகைகெட் டோடும் .

-குழந்தை மருத்துவம் ப .எண்:398&399

METHOD OF PREPARATION

Internal Medicine : Poovarasu Nei

Ref : *Kuzhanthai maruthuvam ((Bala vagadam*) Pg no:397,398 .

Author :DR.G.S.MURUGESA MUDALIAR , DR.PON. GURU SIRONMANI.

Source of raw drugs:

The *Poovarasam pattai* and *Nuna ver* is collected from my native place, Tiruvarur and other required raw drug is procured from a well reputed indigenous drug shop from Paris town,Chennai .All raw drugs were authenticated by the Pharmacognosist, SCRI Chennai.

Purification of raw drugs:

Raw drugs are purified as mentioned in ***Sikicharathna deepam Sarakku Suthi Muraigal.***

INGREDIENTS

1.Poovarasam pattai Saaru(*Thespesia populnea*) -1.3 liters

2.Sittramanaku ennai(*Ricinus communis*) -1.3 liters

*3.*Kasakasa paal*(Papaver Somniferum)* -1.3 liters

*4.*Seeragam*(cuminum cyminum)*

*5.*Karunjeeragam*(Nigella sativa)* -10gms

*6.*Karpogarisi*(psoralea carylifolia)*

*7.*Nuna ver*(Morinda tinctoria)*

*8.*Elarici*(Elettaria cardamomum)*

*9.*Sadamanjil*(Nardostachys grandiflora)* - 40gms

*10.*Manjal Karisalai Samulam *(widelia calendulaceae)*

*11.*Kirambu*(syzygium ar omaticum)*

*12.*Sarkarai*(Saccharum officinarum)* - 200gms

PREPARATION

All the drugs were purified.Milk of kasakasa and the juice of poovarasampattai was taken.Both are mixed with castor oil. All other Ingredients are made into fine powder. Boil the mixture of castor oil until the kaduku thiral padham occurs and then add the powdered drugs to the above oil till it becomes nei form and filter it.

DRUG STORAGE:

The trial drug is stored in clean air tight container and it is dispensed to the patients

DOSE: 4ml (3-7yrs) , once a day (morning)

DURATION: 28days

PROPERTIES OF TRIAL DRUG

1.பூவரசம் பட்டை

Botanical name: *Thespesia populnea*

English name **:**Heart wood

Family **:**Malvaceae

Organoleptic character

Suvai **:** kaippu

Thanmai **:**Veppam

Pirivu **:**kaarppu

பூவரசம் பட்டை

நூற்றாண்டு சென்றதொரு நூண்பூ வரசம்வேர்

தூறாண்ட குட்டைத் தொலைக்குங்காண் - வீறிப்

பழுத்தஇலை விதைபூப்பட்டையிவை கண்டாற்

புழுத்தபுண்வி ரேசனமும் போம் .

குட்டங் கடிசூலை கொல்லும் விடபாகத்

துட்ட மகோதரமுஞ் சோபையொடு – கிட்டிமெயில்

தாவுகரப் பான்கிரந்தி தண்மேகம் போக்கிவிடும்

பூவரசங் காய்ப்பட்டைப் பூ.

-அகத்தியர் குணவாகடம்

Chemical constituents:

Thespone,thespesone, mansonone-D,mansonone-E, mansonone- F, mansonone- G,gossypol, oleic acid, quercetin, thespesin .

Actions:

Anthelmintic, Depurative,Hepatoprotective,Astringent,Antioxidant

Pharmacological activities:

Anti bacterial, Immuno modulator, Anti oxidant,

2.நுணா வேர்

Botanical name: *Morinda tinctoria*

English name **:**IndianMulberry

Family :Rubiaceae

Organoleptic character

Suvai **:** kaarppu

Thanmai **:** Veppam

Pirivu **:** kaarppu

நுணா

பட்டை கரப்பனொடு பாரச்சி லேஷ்மசுரம்

ஒட்டிநின்ற புண்கிரந்தி ஓட்டுங்காண் - மட்டலரை

ஏந்து நுணாவின் இலைமந்தம் தீர்த்துநல்ல

காந்திதரு மேகமடுங் காண்.

-அகத்தியர் குணவாகடம்

Chemical constituents:

Morindone,rubiadin,carotene, vitamin A,linoleic acid, alizarin, amino acids,L-asperuloside, caproic acid, caprylic acid, rutin .

Actions:

Cathartic

Pharmacological activities:

Anti inflammatory, Anti microbial, Anti bacterial

3.கசகசா

Botanical name: *Papaver Somniferum*

English name **:**Opium poppy

Family **:**Papaveraceae

Organoleptic character

Suvai **:**Inippu

Thanmai **:**Veppam

Pirivu **:** Inippu

கசகசா

கிருமி நமைச்சல் கிராணியதி சாரஞ்
சிரநீர் அநித்திரைபோஞ் செப்பில் - உருவழகுங்
காந்தியுமுண் டாகுங் கசகசா வின்குணத்தைத்
தேர்ந்தவர்க்கு விந்துவுமாந் தேர்.

-அகத்தியர் குணவாகடம்

Chemical constituents:

papaverine, isocorypalmine, laudanine, magnoflorine, methylocodine, narcotine, meconine, morphine, codeine, thebaine, pseudomorphine, linoleic acid, oleic acid, linolenic acid .

Actions:

Demulcent,Nutritive,Astringent, Antispasmodic, Aphrodisiac, Sedative, Narcotic

Pharmacological activities:

Analgesic, Anti oxidant, Anti diarrheal, Anti spasmodic, Anti cancer, Anti bacterial

4.ஆமணக்கு எண்ணெய்

Botanical name:*Ricinus communis*

English name **:**Castor

Family **:**Euphorbiaceae

Organoleptic character

Suvai **:** Kaippu

Thanmai **:**Veppam

Pirivu **:**Kaarppu

ஆமணக்கு எண்ணெய்

ஆமணக் கெண்ணெய் தன்னை யணிநில மறியக் கேண்மின்

பூமணச் சந்துதோறும் பொருந்திய வாதம் போக்கும்

தீமந்தந் தானும் போக்குந் திகழ்வுடன் விரைவு முண்டாம்

தீமனக் குடலில் வாதஞ் சேர்குட லேற்றம் போமே.

-அகத்தியர் குணவாகடம்

Chemical constituents:

Glycerides, ricinoleic, isoricinoleic, stearic, dihydrocystearic acids, lipases, alkaloid ricinine

Actions:

Laxative

Pharmacological activities:

Laxative,Stimulant.

5.நற்சீரகம்

Botanical name: *cuminum cyminum*

English name **:**Cumin seed

Family :Umbelliferae(Apiaceae)

Organoleptic character

Suvai **:** Kaarppu, Inippu

Thanmai **:**Thatppam

Pirivu **:**Inippu

நற்சீரகம்

பித்தமெனு மந்திரியைப் பின்னப் படுத்தியவன்

சத்துரவை யுந்துறந்து சாதித்து – மத்தனெனும்

ராசனையு மீவென்று நண்பைப் பலப்படுத்தி

போசனகு டாரிசெயும் போர் .

-தேரன் வெண்பா

Chemical constituents:

Alpha-pinene, two sesquiterpenoid glucosides, cuminoside A and B

Actions:

Carminative, Stimulant,Stomachic, Anti spasmodic, Diuretic .

Pharmacological activities:

Anti microbial, Anti oxidant, Anti inflammatory,Immunological activity

6.கருஞ்சீரகம்

Botanical name: *Nigella sativa*

English name :Black cumin

Family :Ranunculaceae

Organoleptic character

Suvai : Kaippu

Thanmai :Veppam

Pirivu :Kaarppu

கருஞ்சீரகம்

கருஞ்சீ ரகத்தான் கரப்பானொடு புண்ணும்

வருஞ்சிராய்ப் பீநசமு மாற்றும் - அருந்தினால்

காய்ச்சல் தலைவலியுங் கண்வலியும் போமுலகில்

வாய்ச்ச மருந்தெனவே வை.

-அகத்தியர் குணவாகடம்

Chemical constituents:

Cymene, carvone, d-limonene, nigellone, melanthin, melanthigenin, nigellidine-indazole, campesterol, citronellyl acetate.The seed contain a fattyoil rich in unsaturated fatty acids like linoleic acid, oleic acid, palmitic acid and stearic acid .

Actions:

Carminative, Stomachic, Anthelmintic, Diuretic.

Pharmacological activities:

Anti microbial, Analgesic, Anti inflammatory, Anti oxidant, Immunomodulatory .

7.கார்போகரிசி

Botanical name: *psoralea carylifolia*

English name :Babchi seed

Family :Fabaceae

Organoleptic character

Suvai **:** Kaippu

Thanmai **:**Veppam

Pirivu **:**Kaarppu

கார்போகரிசி

கார்போக மாமரிசி கண்டாற் கரப்பான்புண்
பீர்சகுவ நஞ்சிவைபோம் பித்தமுண்டாம் - பார்மீதில்
வாத கபநமைச்சல் வன்சொறிசி ரங்குமறுஞ்
சீத மலர்க்குழலாய் செப்பு.

-அகத்தியர் குணவாகடம்

Chemical constituents:

Corlifolinin,corylifolin, Limonene, Isonerbavachalcone, Psorlidin-2',3'-oxide diacetateisoflavone, corylinin, along with six known compounds isopsoralen, psoralen, sophoracoumestan A, neobavaisoflavone, psoralin, uracil .

Actions:

Vasodilator activity, Laxative, Stomachic, Anthelmintic, Diuretic, Aphrodisiac,Deobstruent.

Pharmacological activities:

Anti Bacterial, Anti inflammatory,Anti microbial

8.ஏலரிசி

Botanical name: *Elettaria cardamomum*

English name :Cardamom

Family **:**Zingiberaceae

Organoleptic character

Suvai **:** Kaarppu

Thanmai **:**Veppam

Pirivu **:**Kaarppu

ஏலரிசி

தொண்டை வாய்கவுள் தாலுகு தங்களில்
தோன்றும் நோயதி சாரம்பன் மேகத்தால்
உண்டை போல்எழுங் கட்டி கிரிச்சரம்
உழலை வாந்தி சிலந்தி விஷஞ்சுரம்
பண்டை வெக்கை விதாக நோய் காசமும்
பாழுஞ் சோமப் பிணிவிந்து நட்டமும்
அண்டை யீளைவன் பித்தம் இவைக்கெல்லாம்
ஆல மாங்கமழ் ஏல மருந்ததே.

-தேரன் குணவாகடம்

Chemical constituents:

Myrcene, limonene, menthone, α- pinene, sabinene, 1,8 – cineol,geraniol, α - terpinyl acetate, α - terpineol.

Actions:

Carminative, Diuretic, Stimulant.

Pharmacological activities:

Anti microbial,Anti inflammatory,Anti spasmodic.

9.சடாமாஞ்சில்

Botanical name: *Nardostachys grandiflora*

English name :Musk root

Family **:**Valerianaceae

Organoleptic character

Suvai **:** Kaarppu

Thanmai **:**Veppam

Pirivu :Kaarppu

சடாமாஞ்சில்

குட்டஞ் சிலந்திவிடம் கோர புராண சுரம்
உட்டிணங்கால் பேதிகண்ணோய் ஓட்டிருமல் - சொட்டிரத்த
பித்தமிரைப் பேகும் பெருங்கோரை என்றுரைக்குஞ்
சுத்தசடா மாஞ்சிலை சொல்.

-அகத்தியர் குணவாகடம்

Chemical constituents:

Jatamansic acid, jatamansone or valeranone,jatamansinol, jatamansinone, nardosinone,seselin,valeranal,oroselone,oroseolol.

Actions:

Stimulant, Anti spasmodic, Diuretic, Expectorant.

Pharmacological activities:

Anti depressant, Anti oxidant, Anti convulsant, Anti fungal**.**

10.மஞ்சள் கரிசாலை

Botanical name: *Wedelia calendulaceae*

English name **:**chinese wedelia

Family **:**Asteraceae(Compositae)

Organoleptic character

Suvai **: Kaippu**

Thanmai **:Veppam**

Pirivu **:Kaarppu**

மஞ்சள் கரிசாலை

குரற்கம்மற் காமாலை குட்டமொடு சோபை
யுயற்பாண்டு பன்னோ யொழிய – நிரற்சொன்ன
மெய்யாந் தகரையொத்த மீளி ண்ணு நற்புலத்துக்
கையாந் தகரையொத்தக் கால்.

-அகத்தியர் குணவாகடம்

Chemical constituents:

Wedelolactone,dimethylwedelolactone .

Actions:

Hepato protective,Tonic, Alterative.

Pharmacological activities:

Anti Bacterial, Anti inflammatory, Analgesic, Anti oxidant, Anti convulsant, Sedative, Immunomodulatory, Wound healing,Anti ulcerogenic,Anti helmintic .

11.கிராம்பு

Botanical name: *syzygium aromaticum*

English name **:**Cloves

Family : Myrtaceae

Organoleptic character

Suvai : kaarppu, Viruviruppu

Thanmai **:**Veppam

Pirivu **:**Kaarppu.

கிராம்பு

பித்த மயக்கம் பேதியொடு வாந்தியும்போம்

சுத்தவிரத் தக்கடுப்புந் தோன்றுமோ – மெத்த

இலவங்கங் கொண்டவருக் கேற் சுகமாகும்

மலமங்கே கட்டுமென வாழ்த்து.

Chemical constituents:

Syzyginins A and B, Eugeniin, Ellagitannins, polyoxygenated chromone C-glucoside, isobiflorin, biflorin, acetyleugenol, chavicol, acetyl salicylate and humulenes,flavonoids,apigenin trioside .

Actions:

Anti fungal, Anti carcinogenic, Anti convulsant, Diuretic, Stomachic, cardiac tonic, Carminative, Stimulant, Odontalgic.

Pharmacological activities:

Anti microbial, Anti viral, Anti inflammatory, Anaesthetic, Anti pyretic.

12.சர்க்கரை

Botanical name: *Saccharum officinarum*

English name **:**Sugar

Family **:**Poaceae(Graminae**)**

Organoleptic character

Suvai **:** Inippu

Thanmai **:**Seetham

Pirivu **:**Inippu

சர்க்கரை

சீனிச் சர்க்கரைக்குத் தீராத வன்சுரமுங்

கூனிக்கும் வாதத்தின் கூட்டுறவும் - ஏனிற்கும்

வாந்தி யொடுகிருமி மாறாத விக்கலுமே

போந்திசையை விட்டுப் புரண்டு.

-அகத்தியர் குணவாகடம்

Chemical constituents:

Ligan,Altissinone,Flavonoid, 2”-0-p hydroxybenzolylorietin,Acytylated flavone C glucoside **.**

Actions:

Anti septic, Demulcent**.**

Pharmacological activities:

Anti oxidant, Anti -microbial

MATERIALS AND METHODS

Study Design

An open clinical trial of *Bala karappan* was carried out in the post graduate department of *Kuzhanthai Maruthuvam* in Govt siddha mdical college attached to Arignar Anna Govt Hospitalof Indian medicine,Chennai -106 during the period of 2015-2017..

The study was approved on **Institutional ethics committee (IEC) and** the approval number is **GSMC-CH-ME-4/017/2015**

Study size

The study was conducted in 40 selected patients of both genders of between age groups of 3 to7 years.

Selection criteria

The patients having any 4 of the following parameters are selected for the study

- Age:3-7 yrs
- Itching
- Erythema
- Weeping
- Vesicles
- Oozing
- Lichenification

Exclusion criteria;

- Scabies
- Photodermatitis
- Secondary bacterial infection

Withdrawal criteria:

- Exacerbations of symptoms
- Intolerance to the drug and development of adverse reactions during the trial drug .
- Patients turned unwilling to continue in the course of clinical trial.
- Any other acute illness

Tests and Assessments:

A. Clinical Assessment

B. Siddha Assessment

C. Laboratory Investigations

Clinical Assessment:

- Itching
- Papules
- Vesicles
- Scaling
- Oozing
- Hyperpigmentation

Siddha Assessment:

- Naa
- Niram
- Mozhi
- Vizhi
- Sparisam
- Malam
- Naadi

- Moothiram-neer kuri,nei kuri.

Laboratory Investigations

Blood

TC,DC,ESR,HB

Urine:

Albumin,Sugar,Deposit

Methodology of treatment

Study enrolment:

Patient's parent or guardian reporting at the OPD with child associated with clinical features of severe itching,erythema,vesicles,papules,oozing and lichenification are chosen for enrolment based on the inclusion criteria. The patients who are enrolled are informed about the study of trial drug *Poovarasu nei(Internal)* ,possible outcomes and the objectives of the study in their own language and terms understandable to them and the informed consentwould be obtained from the patient's parent or guardian using consent form.

Conduct of the study

On the first day onwards the trial drug "Poovarasu Nei (Internal)" will be given. The trial drug will be given in the OPD department of *kuzhanthai maruthuvam,*GSMC,chennai. The patients will be asked to have a regular follow up in the OP department once in 5 days. In each and every visit the clinical assessment will be recorded in the prescribed proforma. The laboratory investigationwill be done before and after treatment and recorded in the prescribed format .

Data collection forms

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

Form I : screening and selection proforma

Form II : History taking proforma

Form III : clinical assessment proforma

Form IV :Laboratory investigation proforma

FormV : Informed consent form

Form VI : Withdrawal form

FormnVII : Patient information sheet

Form VIII : Informed Assent form

Form IX : Diet sheet

Data Analysis:

After enrolling the patients in the study a separate file for each patient is maintained and all forms are kept in the file. Whenever the patient 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 clinical symptoms

Secondary Outcome

Safety of the patients is assessed as a secondary outcome through LFT/RFT .

Adverse effect and serious effect management

If the trial patient develops any adverse reactions the patient will be referred to the pharmacovigilence department of SCRI and documented. For any adverse effect the investigator will give the proper management in the OPD.

Ethical issues

1. Informed Consent/Assent will be obtained from the patient/ patients parent or guardian after explaining about the clinical trial in their language.

2 . After the Consent/Assent of te patient or patients parent (through consent/Assent form)if they fit in the criteria they will be enrolled in the study.

3. Treatment will be provided free of cost.

4. Concomitant medicines will be used if there is any need.

5 . The patients who are excluded (as per the exclusion criteria) will be referred to OPD

6. In conditions of treatment failure, adverse reaction patients will be given rescue medication.

Analysis of Trial medicine:

1. The acute and subacute toxicity study was carried out in Sathyabama University, Rajiv Gandhi Salai,Chennai.

2. The Pharmacological analysis of trial drug for its Antihistamine and Immunological activity was carried out in Sathyabama University, Rajiv Gandhi Salai ,Chennai.

3. The Bio chemical , Physicochemical and Phytochemical analysis was performed in GSMC, Biochemistry laboratory, Arumbakkam, Chennai and in Sathyabama University, Rajiv Gandhi Salai, Chennai .

4. Observation made from patients with sign and symptoms of the disease and their prognosis were recorded.

RESULTS AND OBSERVATION

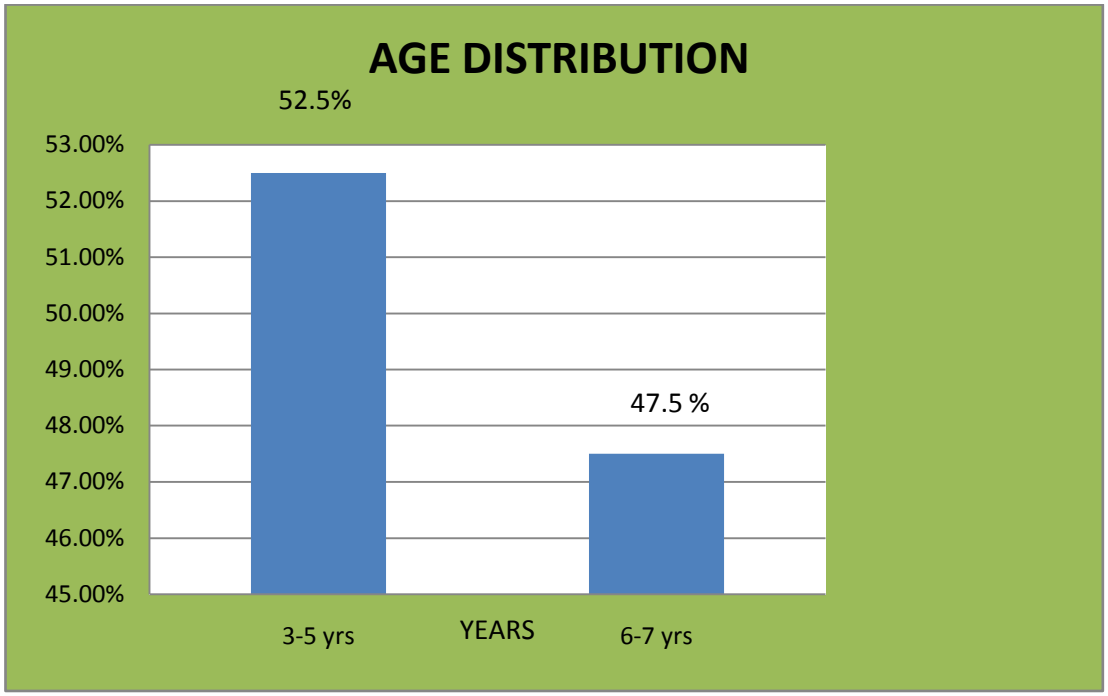
A total number of 40 child patients with signs and symptoms of ***Bala karappan*** attending PG-IV, *KuzhanthaiMaruthuvam* Out Patient Department in Govt. Siddha Medical College attached to Aringnar Anna Hospital were observed in the present study. The observations were made and tabulated with regards to the following features:

1. **Age Distribution**
2. **Gender Distribution**
3. **Socio-Economic status**
4. **Aetiological factor**
5. **Dietary habits**
6. **Seasonal reference**
7. **Reference to Thinai**
8. **UyirThathukkal**
9. **Udarthathukkal**
10. **Envagaithervugal**
11. **Neikkuri**
12. **Clinical prognosis**
13. **Results after treatment**

The observation recorded are given below in tabular form

AGE DISTRIBUTION

S.NO.	AGE	NO. OF CASES	PERCENTAGE
1	3-5 yrs	21	52.5%
2	6-7 yrs	19	47.5%

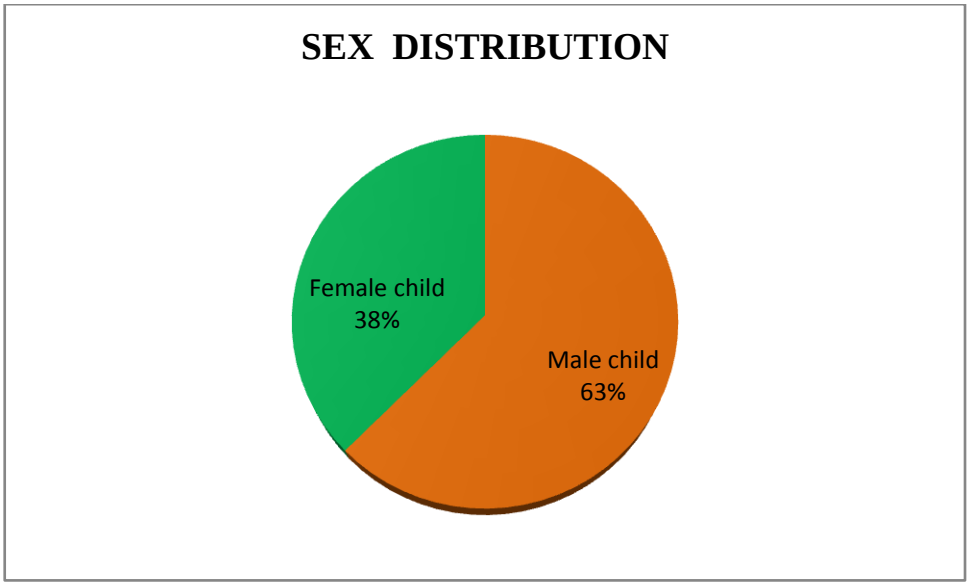


Inference

The above table indicates that children coming under 3-5 years of age group were 21(52.5%), 6-7 years were 19(47.5%) respectively.

SEX DISTRIBUTION

S.NO.	SEX	NO. OF CASES	PERCENTAGE
1	Male child	25	62.5%
2	Female child	15	37.5%

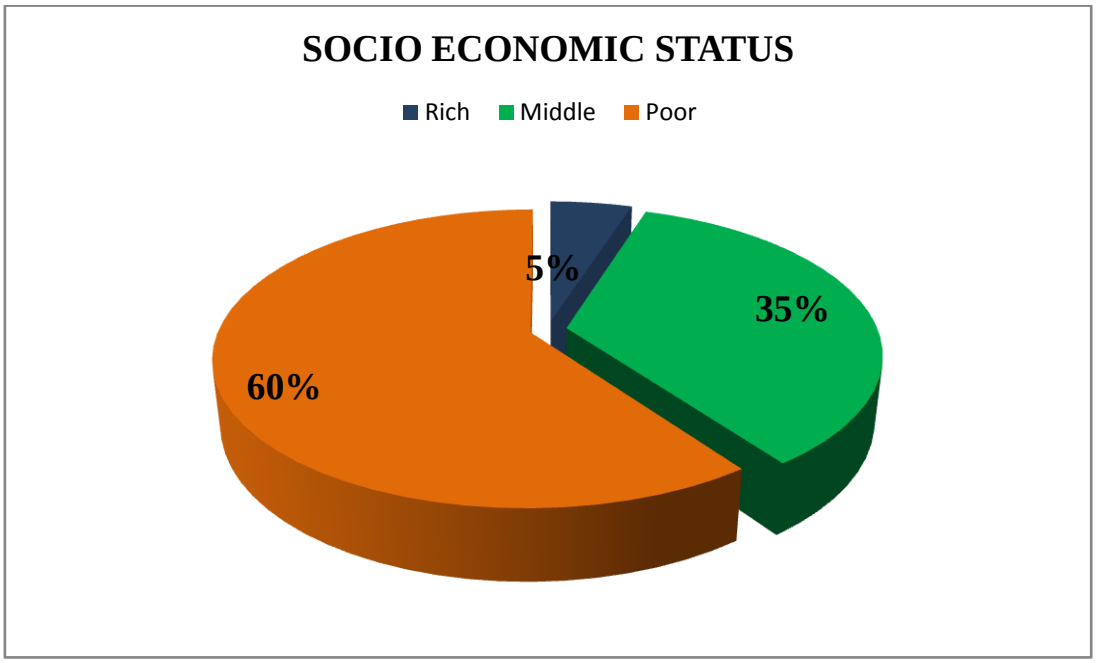


Inference

Among the 40 cases for this present study, 15(37.5%) children were female and 25(62.5%) children were male. According to modern theory there is no apparent sex prediction.

SOCIO ECONOMIC STATUS

S.NO.	STATUS	NO. OF CASES	PERCENTAGE
1	Rich	2	5%
2	Middle	14	35%
3	Poor	24	60%

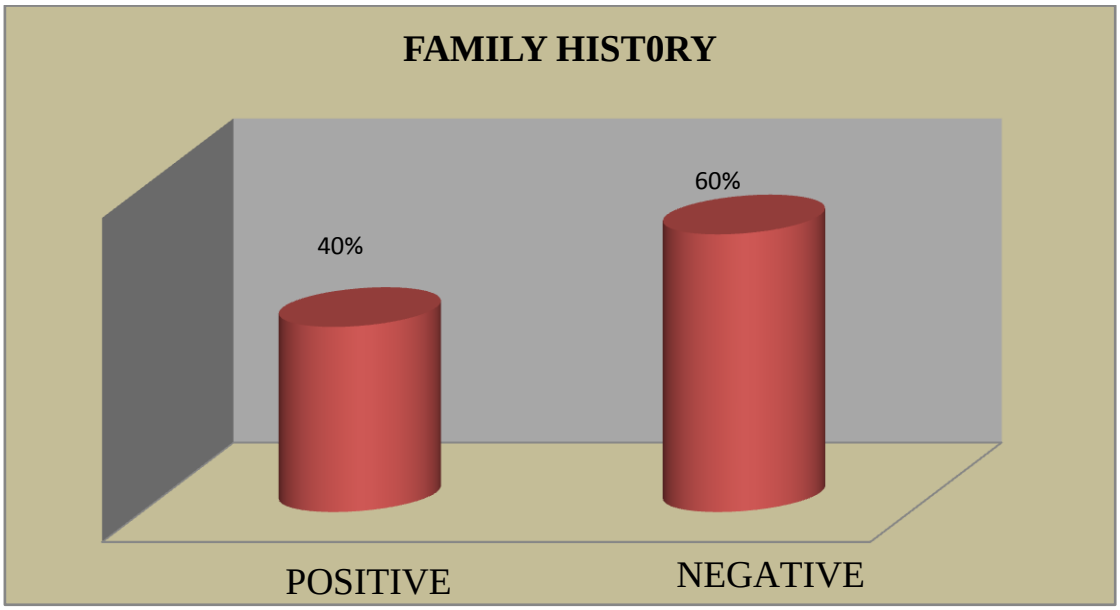


Inference

Regarding socio-economic status, 24(60%) cases were belong to poor status, 14(35%) cases were belong to middle class and 2(5%) cases belong to high class.

FAMILY HISTORY

S.No	Family History	No. Of Cases	Percentage
1.	Positive	16	40%
2.	Negative	24	60%

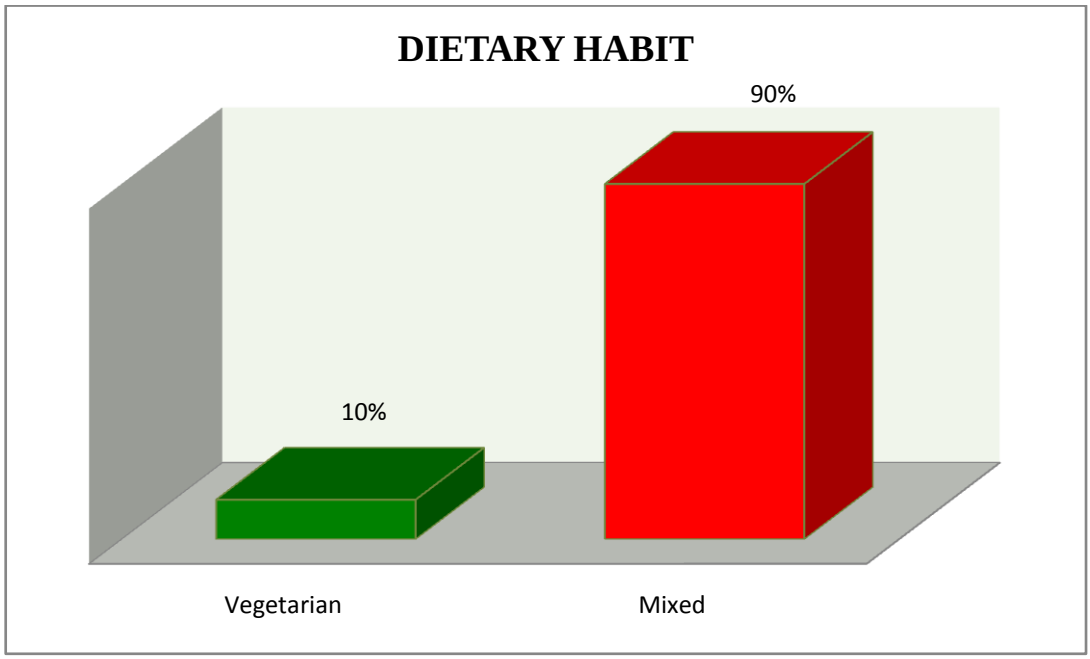


Inference:

Among the 40 patients, 24(60%) of the patients showed negative family history, 16(40%) patients showed positive family history .

DIETARY HABITS:

S.NO	Diet	No. of cases	Percentage
1.	Vegetarian	4	10%
2	Mixed	36	90%

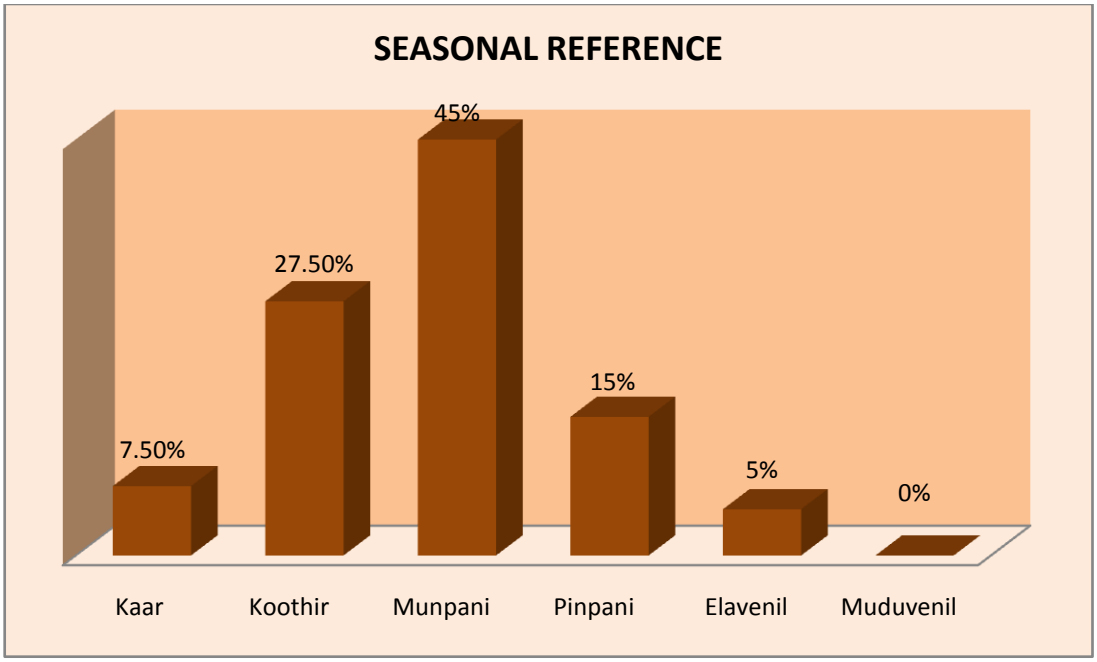


Inference:

90% belonged to mixed diet and 10% belonged to vegetarian diet habit.

SEASONAL REFERENCE

S.NO.	KAALANGAL	NO.OF CASES	PERCENTAGE
1	Kaar(Aavani, purattasi)	3	7.5%
2	Koothir (Iypasi, karthigai)	11	27.5%
3	Munpani (Margazhi, Thai)	18	45%
4	Pinpani (Masi, Pankuni)	6	15%
5	Elavenil (Chithirai, Vaikasi)	2	5%
6	Muduvenil (Aani, Aadi)	0	0%

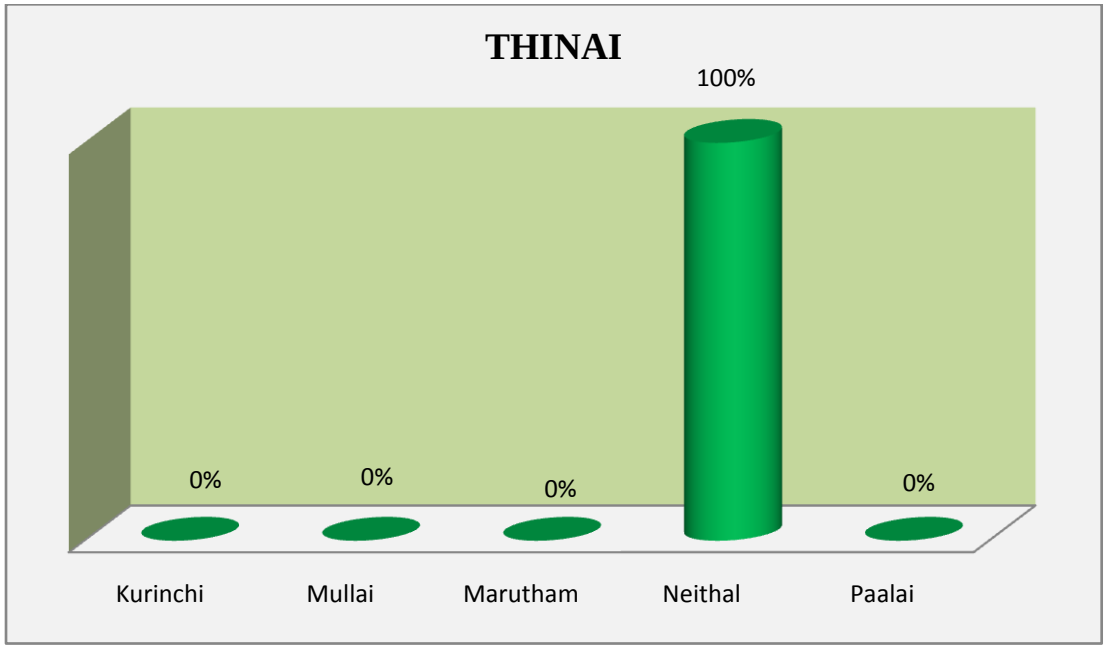


Inference

Regarding *Paruvakaalam* among 40 cases, 3(7.5%) cases were reported in Kaarkaalam, 11(27.5%) cases were reported in *Koothirkaalam*, 18(45%) cases were reported in *Munpanikaalam*, 6(15%) cases were reported in *Pinpanikaalam* ,2(5%) cases were reported in *ElavenilKaalam* .

REFERENCE TO THINAI:

S.NO.	NILAM	NO. OF CASES	PERCENTAGE
1	Kurinchi	0	0%
2	Mullai	0	0%
3	Marutham	0	0%`
4	Neithal	40	100%
5	Paalai	0	0%



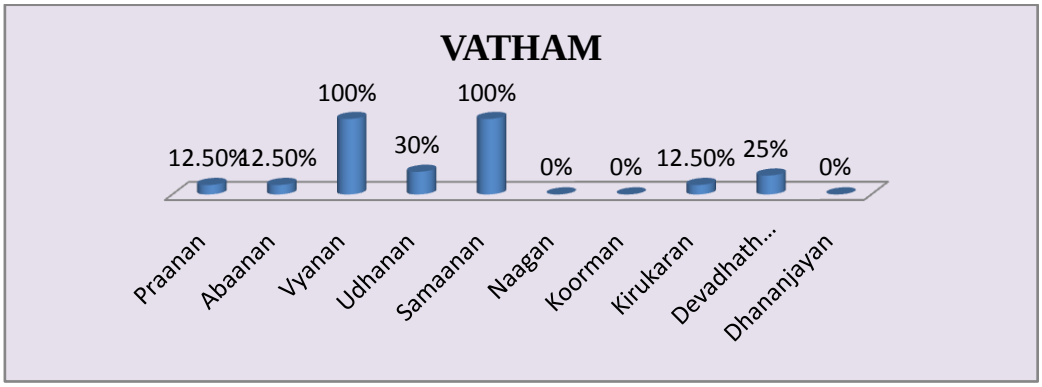
Inference

All the 40 cases,were reported from surroundings of Chennai which belongs to *Neithalnilam.* This is due to the fact that the study was conducted at Chennai a Neithal land and so majority of the cases were from that land.

UYIR THATHUKKAL

a)AFFECTED VATHAM:

S.No.	Vatham	No. of cases	Percentage
1	*Praanan*	5	12.5%
2	*Abaanan*	5	12.5%
3	*Vyanan*	40	100%
4	*Udhanan*	12	30%
5	*Samaanan*	40	100%
6	*Naagan*	0	0%
7	*Koorman*	0	0%
8	*Kirukaran*	5	12.5%
9	*Devadhathan*	10	25%
10	*Dhananjayan*	0	0%

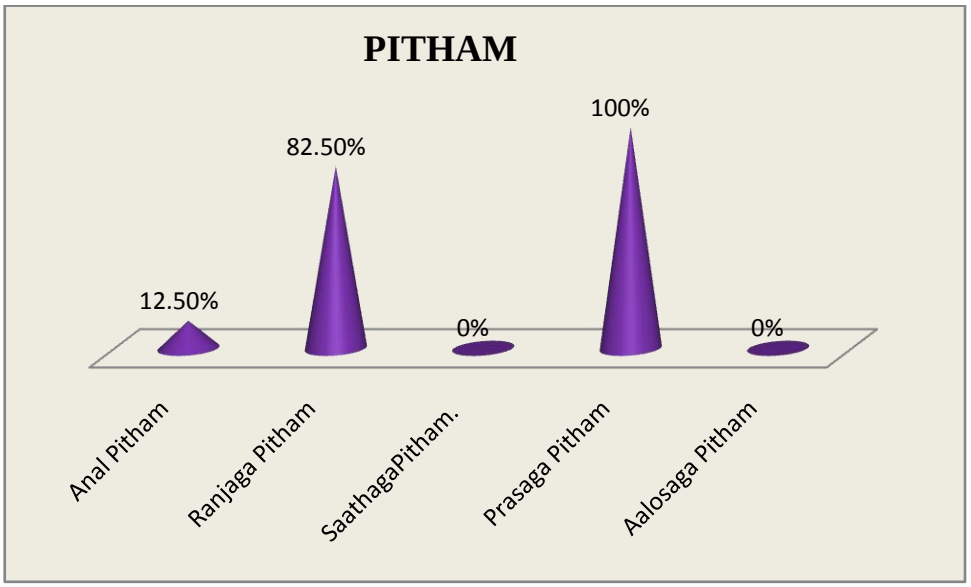


Inference:

In 40 cases, among 10 types of *Vaatham*, *Praanan* were affected in 5 (12.5%) cases, *Abaanan* were affected in 5 (12.5%)cases,vyanan were affected in 40(100%) cases, *Udhanan* were affected in 12(30%) cases, *samaanan* were affected in 40(100%) cases, *kirukaran* were affected in 5 (12.5%)cases, *Devadhathan* were affected in 10 (25%) cases repectively .

b) AFFECTED PITHAM

S.NO.	PITHAM	NO. OF CASES	PERCENTAGE
1	Anal Pitham	5	12.5%
2	Ranjaga Pitham	33	82.5%
3	SaathagaPitham.	0	0%
4	Prasaga Pitham	40	100%
5	Aalosaga Pitham	0	0%

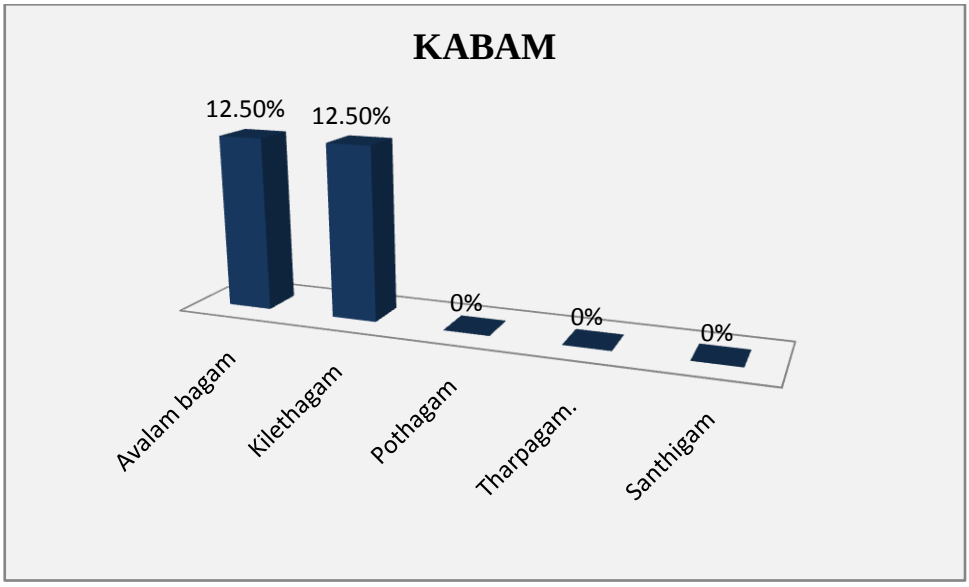


INFERENCE:

Among 5 types *of Pitham* , *Anal pitham* were affected in 5(12.5%) cases, *Ranjaga pitham* were affected in 33 (82.5%) cases , *Prasaga pitham* were affected in 40 (100%) cases respectively.

c) AFFECTED KABAM

S.NO.	KABAM	NO. OF CASES	PERCENTAGE
1	*Avalam bagam*	5	12.5%
2	*Kilethagam*	5	12.5%
3	*Pothagam*	0	0%
4	*Tharpagam.*	0	0%
5	*Santhigam*	0	0%

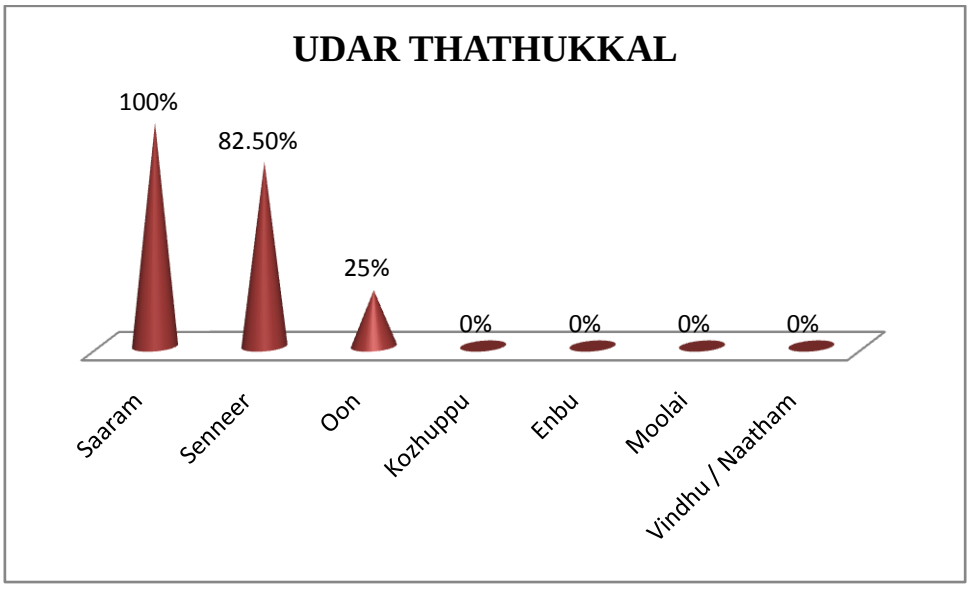


INFERENCE:

Among 40 cases, *Avalambagam and Kilethagam were* affected in 5 (12.5%) cases respectively.

UDARTHATHUKKAL

S.NO.	*NAME*	NO. OF CASES	PERCENTAGE
1	*Saaram*	40	100%
2	*Senneer*	33	82.5%
3	*Oon*	10	25%
4	*Kozhuppu*	0	0%
5	*Enbu*	0	0%
6	*Moolai*	0	0%
7	*Vindhu / Naatham*	0	0%

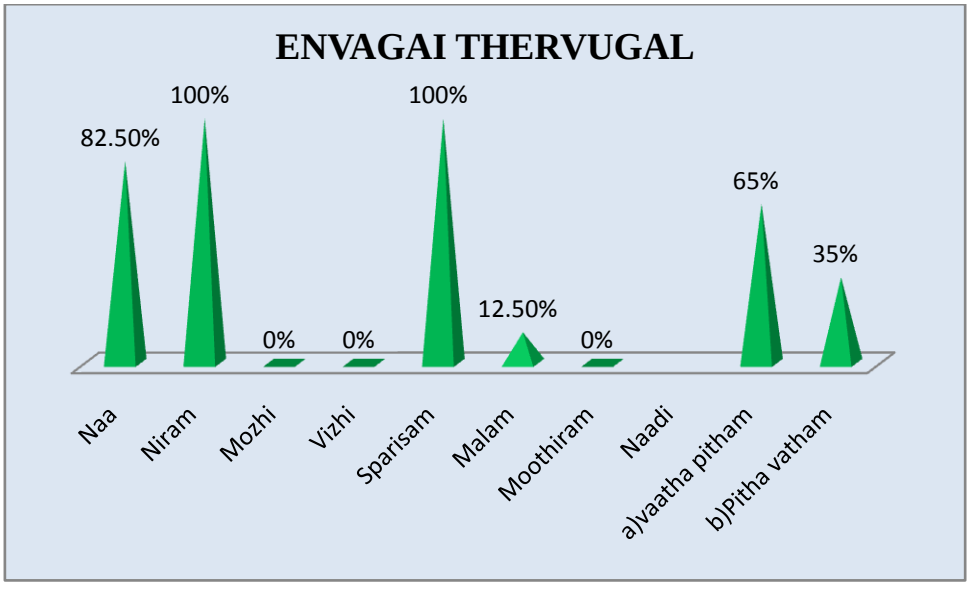


INFERENCE:

In *Udalthathukkal, Saaram* were affected in *40(100%)* cases and *Senneer* were affected in 33(82.5%) cases and *Oon* were affected in 10(25%) cases.

ENVAGAI THERVUGAL

S.NO.	SIDDHA PARAMETERS	NO. OF CASES	PERCENTAGE
1	*Naa*	33	82.5%
2	*Niram*	40	100%
3	*Mozhi*	0	0%
4	*Vizhi*	0	0%
5	*Sparisam*	40	100%
6	*Malam*	5	12.5%
7	*Moothiram*	0	0%
8	*Naadi*		
	a)vaatha pitham	26	65%
	b)Pitha vatham	14	35%

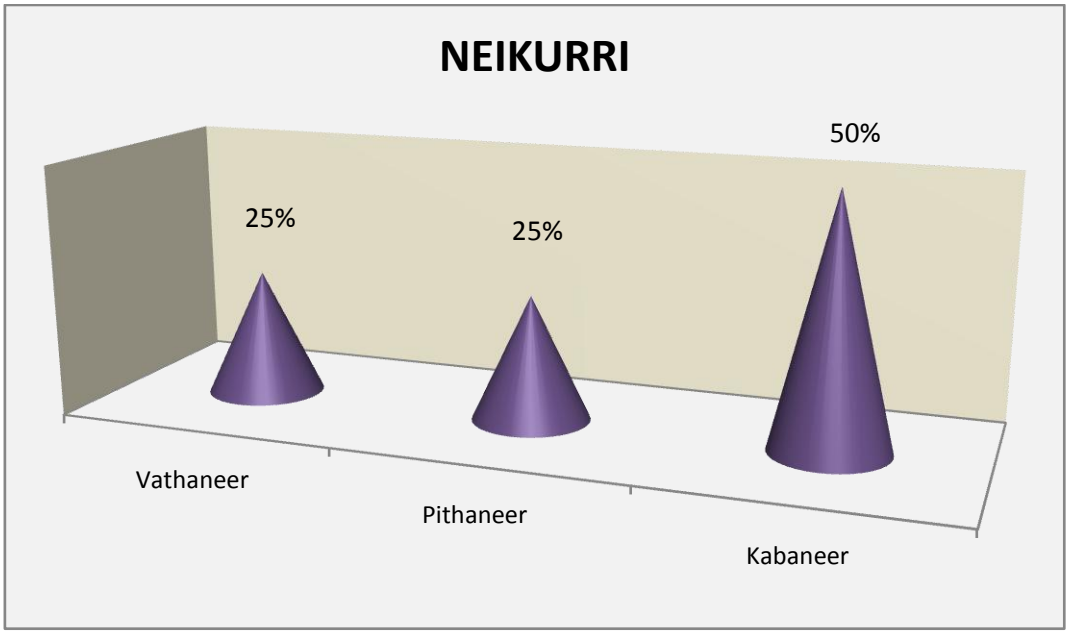


INFERENCE:

Among the Ennvagaithervukal ,*Naa* were affected in 33(82.5%) cases, *Niram and Sparisam* were affected in all 40(100%) cases , *Malam* were affected in 5 cases (12.5%) and in *Naadi* 26 (65%) cases were *vaatha pitham and* 14 (35%) cases were *Pitha vatham.*

NEIKKURI

S.NO.	TYPE OF NEER	CHARACTER	NO. OF CASES & PERCENTAGE
1	*Vathaneer*	*Aravenaneendal*	10(25%)
2	*Pithaneer*	*Aazhipolparavuthal*	10(25%)
3	*Kabaneer*	*Muththothunitral*	20(50%)

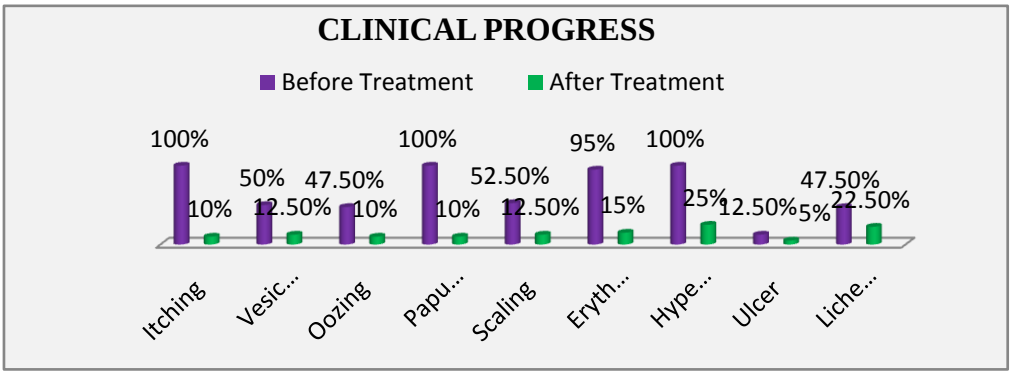


Inference

Among 40 cases, *Vathaneer*was observed in 10(25%) cases, *Pithaneer* was observed in 10(25%) cases, *Kabaneer* was observed in 20(50%) cases.

REFERENCE TO CLINICAL FEATURES

S.NO	Clinical features	Before Treatment		After Treatment	
		No.of cases	Percentage	No.of cases	Percentage
1	Itching	40	100%	4	10%
2	Vesicles	20	50%	5	12.5%
3	Oozing	19	47.5%	4	10%
4.	Papules	40	100%	4	10%
5	Scaling	21	52.5%	5	12.5%
6	Erythema	38	95%	6	15%
7	Hyperpigmentation	40	100%	10	25%
8	Ulcer	5	12.5%	2	5%
9	Lichenification	19	47.5%	9	22.5%



Inference

The above table reveals that, among all the 40 cases , Itching was reduced in 36 cases among 40 , vesicles was reduced in 15 cases among 20 , Oozing was reduced in 15 cases among 19 , Papules was reduced in 36 cases among 40 , scaling was reduced in 16 cases among 21 , Erythema was reduced in 32 cases among 38 , Hyperpigmentation was reduced in 30 cases among 40 , Ulcer was reduced in 3 cases among 5 , Lichenification was reduced in 10 cases among 19 .

CASE SUMMARY OF THE PATIENTS

S.NO	OP.NO	NAME	AGE/ SEX	REMARKS
1	929	Senthil kumar	7 /MC	MODERATE
2	1930	Loshini sahana	7/ FC	GOOD
3	1943	Deva dharsini	3/ FC	GOOD
4	5537	Ragothamman	7/MC	GOOD
5	246	Abdul ajeesh	3/MC	MODERATE
6	897	Soundar rajan	7/MC	MODERATE
7	5358	Karunya	5/FC	GOOD
8	5597	Parthiban	4/MC	MODERATE
9	6219	Yadhavan	5/MC	GOOD
10	5971	Ilanga	6/MC	MILD
11	6659	Mohammed	7/MC	MODERATE
12	6979	Nandhini	5/FC	GOOD
13	7398	Mei iniyavan	3/MC	GOOD
14	7846	Steephan	5/MC	GOOD
15	9560	Niksha	6/FC	GOOD
16	814	Sushil	5/MC	MODERATE
17	1536	Gokul	6/MC	GOOD
18	1622	Karthiga	4/FC	MILD
19	3050	Dharsini	3/FC	MODERATE

20	**3452**	**Jeevanandham**	**5/MC**	**GOOD**
21	**3753**	**Krishnan**	**6/MC**	**GOOD**
22	**3889**	**Gowtham**	**6/MC**	**GOOD**
23	**5085**	**Sharmila**	**5/FC**	**GOOD**
24	**6106**	**Ayisha meeran**	**6/MC**	**GOOD**
25	**6399**	**Swetha**	**6/FC**	**GOOD**
26	**6895**	**Divya**	**5/FC**	**GOOD**
27	**7692**	**Harish**	**5/MC**	**MODERATE**
28	**7783**	**Aakash**	**5/MC**	**GOOD**
29	**8113**	**Natraj**	**7/MC**	**GOOD**
30	**8647**	**Naveena**	**3/ FC**	**GOOD**
31	**671**	**Praveen**	**7/MC**	**GOOD**
32	**2677**	**Viyaya raj**	**4/MC**	**MODERATE**
33	**3235**	**Yuva sri**	**7/FC**	**MILD**
34	**3954**	**Arul raj**	**3/MC**	**GOOD**
35	**5119**	**Preethi**	**5/FC**	**GOOD**
36	**6786**	**Archana**	**6/FC**	**MILD**
37	**8523**	**Santhosh**	**7/MC**	**GOOD**
38	**741**	**Priya**	**4/FC**	**GOOD**
39	**9622**	**Prabhu**	**7/MC**	**MODERATE**
40	**9965**	**Thiru**	**6/MC**	**MILD**

LABORATORY INVESTIGATION REPORT OF THE PATIENTS

SL .NO	OP/ No	Name	Age/ Sex	Haematological analysis														Urine analysis					
				Before treatment				After Treatment				ESR (mm)				Hb (gms %)		BT			AT		
				TC (cu/mm)	DC			TC (cu/mm)	DC			BT		AT									
					P %	L%	E %		P %	L%	E %	½ hr	1 hr	½ hr	1 hr	BT	AT	Alb	Su g	Dep	Alb	Sug	Dep
1	929	Senthilkumar	7/MC	11800	58	34	8	12000	67	27	5	25	48	12	26	11.9	12.1	N	N	N	N	N	N
2	1930	Loshinisahana	7/FC	9900	51	42	7	9800	59	36	4	8	15	6	12	10.7	10.9	N	N	N	N	N	N
3	1943	Deva dharsini	3/FC	10900	40	51	9	11000	61	34	5	7	15	6	11	13.2	13	N	N	N	N	N	N
4	5537	Ragothamman	7/MC	6400	42	51	7	6800	65	31	4	3	7	3	7	13.6	13.8	N	N	N	N	N	N
5	246	Abdul ajeesh	3/MC	11600	70	25	5	11700	49	48	3	15	50	9	24	12.3	12	N	N	N	N	N	N
6	897	Soundarrajan	7/MC	10600	60	33	7	11000	58	38	4	5	15	5	15	14	13.9	N	N	N	N	N	N
7	5358	Karunya	5/MC	8300	37	56	7	8600	63	32	2	12	22	7	18	12.3	12.5	N	N	N	N	N	N
8	5597	Parthiban	4/MC	7400	60	36	4	7300	69	29	2	3	5	3	5	12.1	12.3	N	N	N	N	N	N
9	6219	Yadhavan	5/MC	8600	66	29	5	8600	58	40	2	5	15	4	11	11.3	11.4	N	N	N	N	N	N
10	5971	Ilango	6/MC	14500	68	26	6	14400	62	35	2	10	21	8	19	11.5	11.8	N	N	N	N	N	N
11	6659	Mohammed	7/MC	6600	54	40	6	6800	72	24	4	3	10	4	9	10.7	10.4	N	N	N	N	N	N
12	6979	Nandhini	5/FC	8000	62	31	7	8200	68	29	3	12	26	10	21	12	12.2	N	N	N	N	N	N
13	7398	Mei iniyavan	3/MC	10500	41	51	8	10400	56	40	4	8	12	5	9	11.2	11.5	N	N	N	N	N	N
14	7846	Steephan	5/MC	7900	55	39	6	8200	59	38	3	8	18	8	16	12.9	12.8	N	N	N	N	N	N
15	9560	Niksha	6/FC	10100	61	32	7	10000	68	28	4	5	12	5	11	11.9	12.1	N	N	N	N	N	N
16	814	Sushil	5/MC	9200	69	25	6	9400	66	31	3	10	21	6	16	10.9	10.8	N	N	N	N	N	N
17	1536	Gokul	6/MC	6600	49	43	8	7000	58	38	4	7	18	5	12	11.3	11.5	N	N	N	N	N	N
18	1622	Karthiga	4/FC	6800	46	46	8	7100	63	32	5	3	12	4	15	12.3	12.4	N	N	N	N	N	N
19	3050	Dharsini	3/FC	9600	57	37	6	9200	67	30	3	16	24	12	20	10.7	10.9	N	N	N	N	N	N
20	3452	Jeevanandham	5/MC	6600	51	42	7	6800	54	43	3	3	5	3	6	11.8	12.1	N	N	N	N	N	N

LABORATORY INVESTIGATION REPORT OF THE PATIENTS

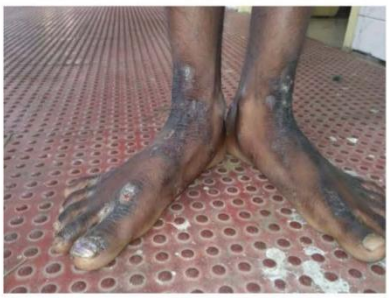
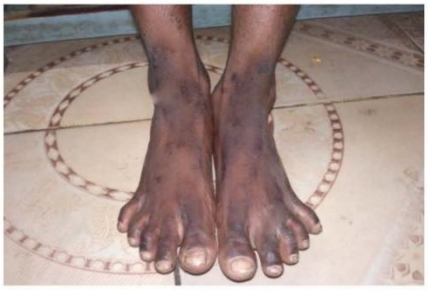
SL .NO	OP/ No	Name	Age/ Sex	Haematological analysis														Urine analysis					
				Before treatment				After Treatment				ESR (mm)				Hb (gms %)		BT			AT		
				TC (cu/mm)	DC			TC (cu/mm)	DC			BT		AT									
					P %	L%	E %		P %	L%	E %	½ hr	1 hr	½ hr	1 hr	BT	AT	Alb	Sug	Dep	Alb	Sug	Dep
21	3753	Krishnan	6/MC	7000	42	49	9	7400	49	46	5	10	21	8	19	12.2	12.2	N	N	N	N	N	N
22	3889	Gowtham	6/MC	7300	48	45	7	7600	57	39	4	3	5	3	6	12	12.1	N	N	N	N	N	N
23	5085	Sharmila	5/FC	8300	68	26	6	8200	68	30	2	12	25	9	18	10.8	10.8	N	N	N	N	N	N
24	6106	Ayishameeran	6/MC	11600	74	21	5	11400	71	27	2	6	20	8	21	11.8	12	N	N	N	N	N	N
25	6399	Swetha	6/FC	7300	53	43	4	7500	56	43	1	20	42	16	35	12.2	12	N	N	N	N	N	N
26	6895	Divya	5/FC	6700	65	29	6	6900	58	39	3	5	12	5	12	12.6	12.8	N	N	N	N	N	N
27	7692	Harish	5/MC	6900	65	28	7	7100	72	24	4	14	35	8	22	13.5	13.3	N	N	N	N	N	N
28	7783	Aakash	5/MC	9600	48	46	6	9800	51	47	2	3	10	4	8	11.6	11.8	N	N	N	N	N	N
29	8113	Natraj	7/MC	10200	65	28	7	10000	55	42	3	8	17	5	11	10.7	10.9	N	N	N	N	N	N
30	8647	Naveena	3/MC	9500	44	48	8	9100	57	39	4	3	10	3	8	12.4	12.6	N	N	N	N	N	N
31	671	Praveen	7/MC	14100	66	29	5	13800	62	36	2	5	10	3	8	11.7	11.9	N	N	N	N	N	N
32	2677	Viyaya raj	4/MC	145000	63	33	4	14000	64	34	2	6	10	4	8	11.9	12.1	N	N	N	N	N	N
33	3235	Yuvasri	7/FC	7300	50	43	7	7600	58	38	5	8	15	6	12	12	12.2	N	N	N	N	N	N
34	3954	Arul raj	3/MC	9800	67	26	7	9500	49	48	3	3	5	3	5	12	12.4	N	N	N	N	N	N
35	5119	Preethi	5/FC	8400	57	37	6	8600	54	44	2	14	30	11	28	11.7	11.8	N	N	N	N	N	N
36	6786	Archana	6/FC	12500	59	36	5	12400	65	32	3	6	15	4	11	12.9	13	N	N	N	N	N	N
37	8523	Santhosh	7/MC	9800	53	38	9	10000	56	39	5	6	18	5	15	10	10.2	N	N	N	N	N	N
38	741	Priya	4/FC	8200	59	33	8	8500	59	37	4	13	28	11	23	10.5	10.9	N	N	N	N	N	N
39	9622	Prabhu	7/MC	9600	67	26	7	9800	67	30	3	18	33	11	26	12.1	12.4	N	N	N	N	N	N
40	9965	Thiru	6/MC	7800	68	24	8	8000	64	31	5	15	28	10	21	10.8	11	N	N	N	N	N	N

BT – Before Treatment, AT – After Treatment, N - Nil.TC – Total Blood Count, DC – Differential Blood Count, P – Polymorphs, L – Leucocytes, E – Eosinophils

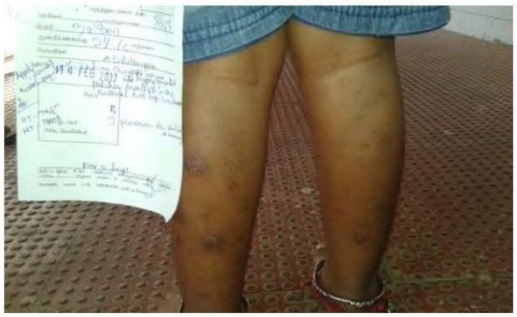
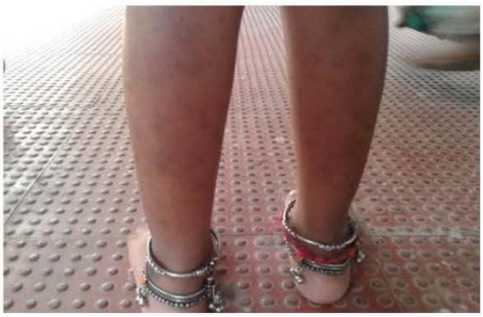
3ESR – Erythrocytes Sedimentation Rate, mm – Milli meter Hb – Hemoglobin, Alb – Albumin, Sug – Sugar, Dep – Deposits, FE – Few Epithelial cells, FP – Few Pus cells

PATIENTS PHOTOS

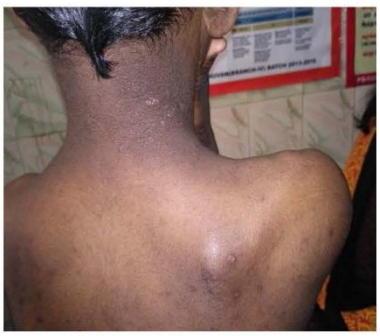
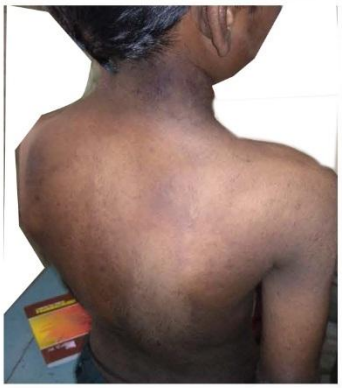
BEFORE TREATMENT **AFTER TREATMENT**

OP No. 897 Name: Soundarajan -7/MC

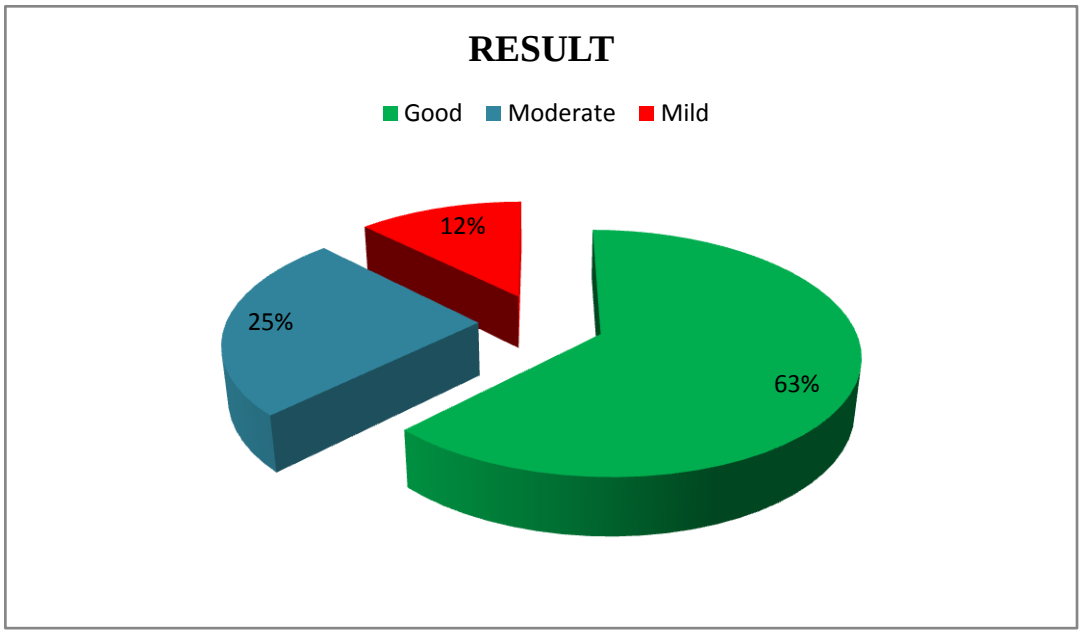
OP No. 8647 Name: Naveena -3/FC

OP No. 8523 Name: Santosh -7/MC

RESULTS

S.NO	RESULTS	NO.OF CASES	PERCENTAGE
1	Good	25	62.5%
2	Moderate	10	25%
3	Mild	5	12.5%



Inference

Among 40 patients ,25(62.5%) cases showed good improvement , 10 (25%) cases showed moderate improvement , 5 (12.5%) cases showed mild improvement .

DISCUSSION

Bala karappan is a common skin disease in paediatric age group. This disease mostly resembles Atopic dermatitis in modern system.It is a chronic relapsing pruritic inflammatory skin disease in children associated with personal or family history of other atopic dermatitis like asthma, allergic rhinitis . Symptoms of atopic dermatitis are dryness, erythema, excoriation, exudation, fissuring, hyperkeratosis, lichenification, papulation, scaling and vesiculation .In this study 40 cases are treated in OPD of postgraduate department of Kuzhanthai Maruthuvam in Govt. Siddha Medical College, attached to Arignar Anna Hospital of Indian Medicine, Chennai-106 from 2015-2017.

The patients were examined on siddha system of diagnosis with the help of modern investigations. The patients are treated with the trial drug Poovarasu Nei (Internal) for 28 days.

The observations are described here.

1. Sex Distribution:

Among the 40 cases 25 patients were male children and 15 patients were female children.Mostly male children were affected.

2. Age Distribution:

Among the 40 cases, maximum numbers of patients 52.5% were in the age group of 3 to 5 years, 47.5% were in the age group of 6 to 7 years

3. Socio Economic status

Among the 40 cases, maximum numbers of patients 60% were in poor status, 35% were in middle class and 5% were in high class . The highest incidence was observed in poor class children due to poor hygienic, mal nutrition , exposure to polluted environment lower their immune response , so the poor children are more prone to the disease.

4. Family History

Among the 40 cases, 60% of the patients showed negative family history, 40% patients showed positive family history.

5. Dietary Habits

Among the 40 cases, 90% of the cases were mixed diet.10% of cases were vegetarians.

6. According to Paruvakalam

Among the 40 cases, highest incidence 45% cases were observed in *Munpanikalam* and 27.5% of cases in *Koothirkalam*.This study shows dryness of the skin due to cold climate may cause the skin diseases in this season .

7. Distribution of Thinai

Out of 40 cases, highest incidence 100% of cases were from in *Neithal* thinai.This is due to the fact that the study was conducted at Chennai a *Neithal land* and so majority of the cases were from that land. As per siddha literature *kabam* is affected in *neithal nilam* so it may aggravate the skin diseases.

8. Uyir Thathukkal

Vatham

Among the 40 cases,*Vyanan and Samanan* was affected in 100% patients ,*Udhanan* was affected in 30% of patients, *Devadhathan* was affected in 25% of patients, *Abanan* was affected in 12.5% of patients and *Kirukaran* was affected in 12.5% of patients.*Pranan* was affected in 12.5% of patients. .

Pitham

Among the 40 cases,*Prasaga pitham* was affected in 40 patients. *Anarpitham* was affected in 12.5% of the patients and *ranjaga pitham* was affected in 82.5% of the patients. *Prasaga pitham* is responsible for complexion of the skin so it was affected in all cases.

Kabam

Out of 40 cases, *Kilethagam and Avalambagam* was affected 12.5% of the patients.

9. Ezhu Udal Kattugal

Out of 40 patients *Saaram* was affected in all the cases, *Seneer* was affected in 33 (82.5%) cases and *Oon* was affected in 25% cases.

10. Ennvagai Thervugal

Out of 40 patients,*Niram and Sparisam* were affected in all the cases, *Naa* were affected in 82.5% of cases and *Malam* were affected in 12.5% of the patients .In this study 65% of patients have *Vatha Pitha Naadi* and 35% patients have *PithaVathaNaadi.*

11. Neikuri

Among the 40 cases,25% of patients were having *Vatha neer*, 25% of patients were having *Pitha neer* and 50% of patients were having *Kaba neer.*

12. Clinical Features

Among the 40 patients. 100% of cases have itching, papules, and hyperpigmentation 95% of cases have erythema, 52.5% have scaling, Oozing and Lichenification have 47.5%, 50% have vesicles12.5% have ulcer . After treatment 5% of cases have Ulcer, 10% of cases have Itching, 0ozing and Papules,12.5% cases have Scaling and Vesicles, 15% cases have Erythema and 22.5% of cases have lichenification.

13. Lab investigation

Routine examination of blood and urine were done before and after treatment. In most of the cases (85%) were having elevated ESR and increased eosinophil count and it has decreased after treatment.

14.Biochemical analysis

Qualitative analysis of the Poovarasu Nei presence of iron, which is more soluble and readily absorbable from that helps treating children who have associated

anaemia. The study also indicates the presence of chloride, flavonoids, glycosides, steroids, carbohydrates, triterepnoids, coumarins, phenols, saponins .

15. Toxicity study of the drug:

The Acute and Sub-acute toxicity of the trial drug was carried out in Wistar albino rats reveals that the drug has no adverse effects, so it is safe to human beings.

16. Physicochemical analysis:

Poovarasu Nei:

Loss on Drying at 105 °C (%)	:	4.73 ± 2.54
Ash value	:	0.68 ± 0.33
pH	:	6
Specific Gravity	:	1.095
Viscosity at 50^{o}C (Pa s)	:	16.87
Refractive index	:	1.52
Weight per ml (gm/ml)	:	1.1
Iodoine value (mg I2/g)	:	139.7
Saponification Value (mg of KOH to saponify 1gm of fat)	:	248.17
Total Iron content (mg/ml)	:	0.235

17. Pharmacological analysis:

Pharmacological analysis showed the internal drug has significant Anti-histamine activity,Immunomodulator activity.

18. Statistical Analysis

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 **BalaKarappan(Atopic Dermatitis).**Hence it is concluded that the treatment was **effective and significant.**

19. **Result**

Among the 40 patient's good improvement is observed in 25 cases (62.5%), moderate improvement in 10 cases (25%) and mild improvement in 5cases (12.5%) and no adverse events observed clinically during the course of treatment.

SUMMARY

The clinical study was conducted with the trail drug *Poovarasu Nei* as Internal medicine for the disease *Bala karappan* in children . 40 patients were selected based on protocol. The study is conducted after being screened by the screening committee and approved by the Institutional Ethics committee(IEC) of Govt siddha medical college, chennai. Animal studies are carried, Hence, the study is safely executed on human volunteer patients and there was no adverse drug reactions noted during the study period.

40 children with Bala karappan diagnosed clinically treated in out patient department of Arignar Anna Hospital of Indian Medicine, Chennai-106. They were under gone laboratory investigation treated with trial drug, observed for clinical improvement and any adverse reaction of the drug .

I like to summarize this clinical study by the following:

- The efficacies of the trial drug Poovarasu Nei were studied and observed in this study.
- Clinical diagnosis of Bala karappan was done on the basisof clinical features described in kuzhanthai maruthuvam (Bala vagadam) and Noi muthal nadal thirattu.
- The cost of the trial medicines are low, comparatively economic. These drugs are easily available, and the dosage is also convenient.
- The potency of the trial drug reveals that the presence of chloride, Iron, flavonoids, glycosides, steroids, carbohydrates, triterepnoids, coumarins, phenols, saponins .
- The physico chemical analysis of the trial drug shows the safe and effectiveness of the drug with the following:

Loss on Drying at 105 °C (%)	:	4.73 ± 2.54
Ash value	:	0.68 ± 0.33
pH	:	6
Specific Gravity	:	1.095
Viscosity at 50^{o}C (Pa s)	:	16.87
Refractive index	:	1.52
Weight per ml (gm/ml)	:	1.1
Iodoine value (mg I2/g)	:	139.7
Saponification Value (mg of KOH to saponify 1gm of fat)	:	248.17
Total Iron content (mg/ml)	:	0.235

- The pharmacological analysis of the drug reveals that it possesses very good acute and chronic anti histamine and immuno modulatory activity.
- Among the 40 cases treated 62.5% cases had shown Good improvement, 25% cases had shown Moderate improvement, 12.5% had shown Mild improvement.
- Observation made during the clinical study showed that the trial drug was clinically effective and has no adverse reaction among children.

CONCLUSION

Bala karappan is a common skin disorder in children and mainly caused by derangement of *kabha kuttram* followed by *vatham and pitham.* In this clinical study *"Poovarasu Nei"*was taken as internal drug respectively.The deranged kuttram is settled down by the *kaippu suvai and inipu suvai* present in the trial medicine Poovarasu Nei (Internal medicine) there by the medicine acts as *Ethirurai maruthuvam* to cure the disease.Also,kasa kasa has transquilliser action and sadamanjil has Anti depressant action

Toxicological studies shows no acute and sub acute toxicity of the drug. The drug has Anti-Histamine and Immunomodulator activity.

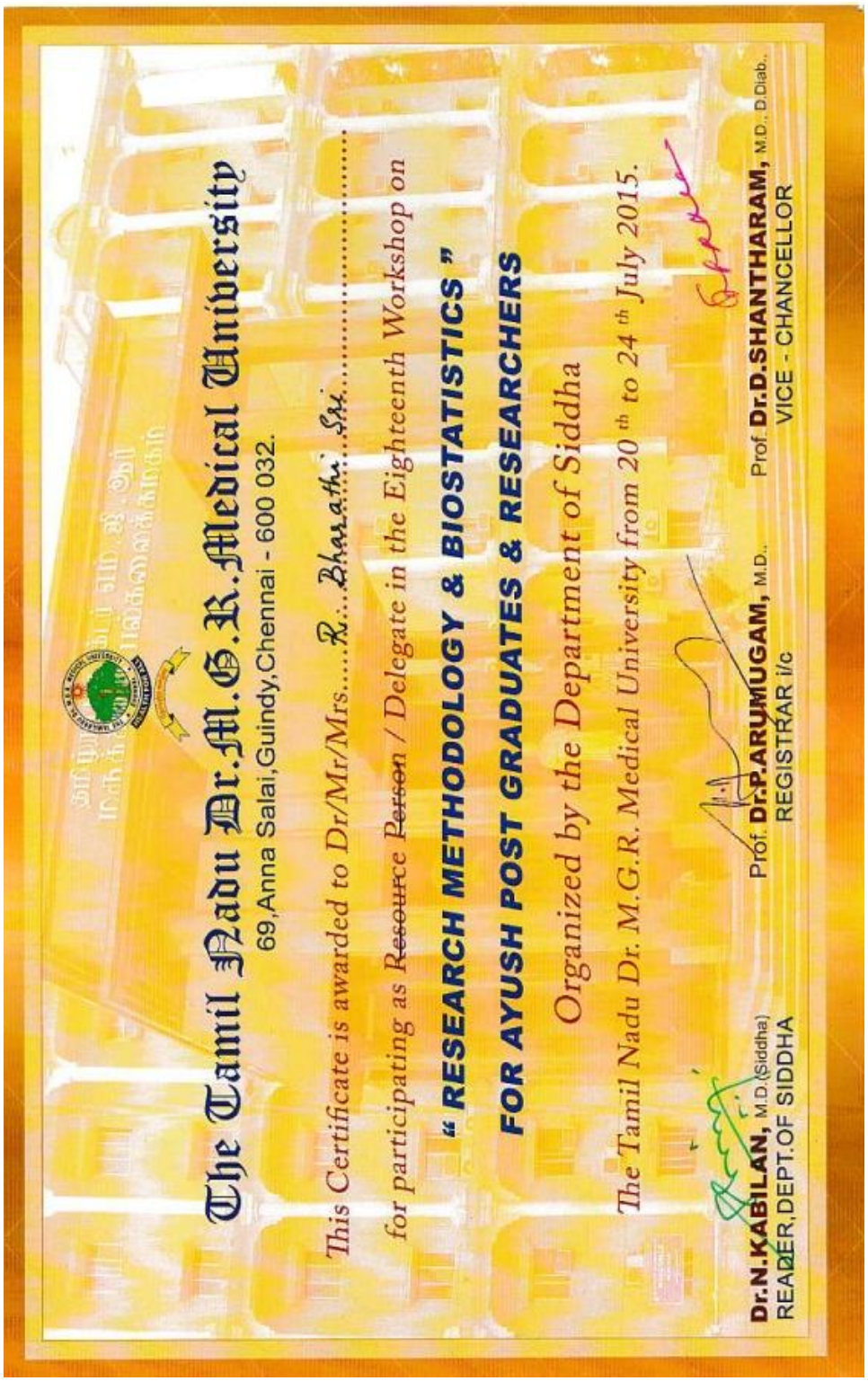
The cost of the trial medicines are low.

During the clinical study no adverse events were observed.

The clinical study confirms the efficacy of the trial drugs by reducing the clinical signs and symptoms like itching, Papules, Oozing and scaling. . Clinical study results found to be Good in 62.5% cases, Moderate in 25% cases, and Mild in 12.5% cases.

The Clinical trial conducted in selected patients was satisfactory and encouraging.The trial medicine is effective for *Bala karappan* in children. Through this study, the effectiveness of trial drug is confirmed and re-established by the author.

ANNEXURE- I



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

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

This Certificate is awarded to Dr/Mr/Mrs.....R...Bharathi Sai.....

for participating as ~~Resource Person~~ / Delegate in the Eighteenth 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 20 th to 24 th July 2015.

Dr.N.KABILAN, M.D.(Siddha)
READER,DEPT.OF SIDDHA

Prof. **Dr.P.ARUMUGAM,** M.D.,
REGISTRAR i/c

Prof. **Dr.D.SHANTHARAM,** M.D., D.Diab.,
VICE - CHANCELLOR

GOVERNMENT SIDDHA MEDICAL COLLEGE
Arumbakkam, Chennai-106

Communication Of The Decision Of Institutional Ethics Committee (IEC)

IEC No: GSMC-CH-ME-4/017/2015

Protocol title:

AN OPEN CLINICAL STUDY ON BALA KARAPPAN (ATOPIC DERMATITIS) IN CHILDERN WITH THE EVALUATION SIDDHA TRAIL DRUG POOVARASU NEI(INTERNAL)

Principal Investigator: DR. R.BHARATHI SRL

Name & Address of Institution:

Government Siddha Medical College,

Arumbakkam, Chennai-106

☑ New Review ☐ Revised Review ☐ Expedited Review

Date of review (DD/MM/YY): 26-03-2015

Date of Previous Review, If Revised Application:

Decision of the IEC

☑ Recommended ☐ Recommended with suggestions

☐ Revision ☐ Rejected

Suggestions / Reasons / Remarks:
Duration of Treatment is 7 days. Immunological profile should be included.
Photo evidence should be shown before and after treatment.
Confidentiality of patients should be preserved.

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 may visit the site to review the trial with prior intimation.

26/3/15

Dr.P.Jeyaprakashnaray
Chairman

Dr.V.Banumathi
Member Secretary

INSTITUTIONAL ETHICS COMMITTEE

Date:

Sub: IEC review of research proposals.

Ref:Your letter dated

MEMBERS	PARTICIPATION	SIGNATURE
DR.P.JEYAPRAKASH NARAYANAN M.D(S)., Chairman		
DR.V.BANUMATHI M.D(S)., Member Secretary		
DR.N.KABILAN M.D(S)., Clinician- Siddha	✓	26/3/15
DR.P.SATHIYA RAJESWARAN M.D(S)., Clinician- Siddha	✓	26/3/15
DR.G.AADINAAATH REDDY,M.Pharm, Ph.D., Pharmacologist	✓	Aadinaath 26/03/15
DR.S.THILAGAVATHY Msc.,Ph.D., Social Scientist	✓	
DR.T.MAHALAKSHMI M.A.,Ph.D., Linguistic Expert	✓	26.03.15
DR.P.VIDYA M.B.B.S., DMRD., Modern Medicine Expert	✓	26/3/15
MR.P.SARAVANAN., Puplic Person	✓	

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E-mail: nobleresearchsolutions@gmail.com
Contact: 9710437419, Admin: 044 - 42691289

Date: 29.03.2017

To,

Dr. R.Bharathi Sri
Govt Siddha Medical College,
Arumbakkam, Chennai, Tamil Nadu 600106

Project Id : **NRS/AS/0017/01/2017**

This is to certify that Dr. R.Bharathi Sri from Govt Siddha Medical College, Arumbakkam, Chennai has carried out the following activity at our facility for the trial drug *Poovarasu Nei (PN)*

S.No	Study Description	Annexure no
1.	Standardization and Physicochemical Evaluation of study drug *Poovarasu Nei (PN)*	I
2.	Anti-Microbial Profiling of trial drug *Poovarasu Nei (PN)*	II
3.	Docking study against selective receptors	III

Note:

- *Annexures was attached as a separate enclosure along with this report.*

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E-mail: nobleresearchsolutions@gmail.com
Contact: 9710437419, Admin: 044 - 42691289

Issued to : Dr. R.BHARATHI SRI
Purpose : Physicochemical Analysis
Project ID : NRS/AS/0017/01/2017
Formulation : Poovarasu Nei
Protocol : As per PLIM Guideline

Date: 29/3/2017

Test report

- Organoleptic Evaluation Report of Poovarasu Nei

Parameter	Observation
Color	Reddish Brown
Smell	Characteristic Odour
Touch	Oily
Appearance	Translucent

- Physicochemical Evaluation Report of Poovarasu Nei

S.No	Specific Test	Poovarsu Nei
1.	Specific Gravity	1.095
2.	Viscosity at 50°C (Pa s)	16.87
3.	Refractive index	1.52
4.	Weight per ml (gm/ml)	1.1
5.	Iodoine value (mg I2/g)	139.7
6.	Saponification Value (mg of KOH to saponify 1gm of fat)	248.17
7.	Total Iron content (mg/ml)	0.235
8.	*Loss on Drying at 105 °C (%)*	4.73 ± 2.54
9.	*Total Ash (%)*	0.68 ± 0.33
10.	*pH*	6

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E-mail: nobleresearchsolutions@gmail.com
Contact: 9710437419, Admin: 044 - 42691289

Test report

Issued to : Dr. R.BHARATHI SRI

Date: 29/3/2017

- Heavy Metal Analysis Report of Poovarasu Nei

Element	Concentration (mg/L)	Upper Limit (mg/L)
Cadmium (Cd)	BDL	0.299

BDL – Below Detective Level

- Preliminary Phytochemical Evaluation Report of Poovarasu Nei

PHYTOCOMPONENTS	PN
ALKALOIDS	-
FLAVONOIDS	+
GLYCOSIDES	+
STEROIDS	+
CARBOHYDRATES	+
TRITEREPNOIDS	+
COUMARINS	+
PHENOLS	+
CARDIAC GLYCOSIDES	-
TANNINS	-
SAPONINS	+
PROTEINS	-
ANTHOCYANIN	-
BETACYANIN	-
QUINONES	-

\+ Indicates positive

\- Indicates Negative

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Noble Research Solutions
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E-mail: nobleresearchsolutions@gmail.com
Contact: 9710437419, Admin: 044 - 42691289

Test report

Issued to : Dr. R.BHARATHI SRI

Date: 29/3/2017

- Sterility Test report of Poovarasu Nei

Test	Specification	Result	Method
E-coli	Absent	Absent	As per AYUSH specification
Salmonella	Absent	Absent	
Staphylococcus Aureus	Absent	Absent	
Pseudomonas Aeruginosa	Absent	Absent	

CERTIFICATE

This is to certify that the project entitled "**ACUTE AND SUB-ACUTE TOXICITY EVALUATION OF POOVARASU NEI IN RATS**" has been approved by the Institutional Animal Ethics Committee of Sathyabama University, Chennai.

IAEC Approval No.: **SU/CLATR/IAEC/VII/043/2016**
Principal Investigator: Dr. R. Bharathi Sri
Animal Sanctioned: *Rattus norvegicus* / Wistar albino rats
Female: 12; Male:6; Total: 18 (Eighteen)
Date: 05.10.2016

DR. R. SELVARAJ
Member Secretary

DR.R.ILAVARASAN
CPCSEA Nominee

सिद्ध केंद्रीय अनुसन्धान संस्थान
(सी.सी.आर.एस., चेन्नई, आयुष मंत्रालय, भारत सरकार)
अण्णा सरकारी अस्पताल परिसर, अरुम्बाक्कम, चेन्नई - 600106
SIDDHA CENTRAL RESEARCH INSTITUTE
(Central Council for Research in Siddha, Chennai,
Ministry of AYUSH, Government of India)
Anna Govt. Hospital Campus, Arumbakkam, Chennai - 600106
E-mail: crisiddha@gmail.com Phone: 044-26214925, 26214809

24th May 2016

CERTIFICATE

Certified that the plants/drugs submitted for identification by Dr. R. Bharathisri, PG 2nd year, Department of Kuzhanthai maruthuvam, Government Siddha Medical College, Arumbakkam, Chennai - 600 106, are identified as

1. Seeragam	-	*Cuminum cyminum* L. (Fruit)
2. Karpogarisi	-	*Cullen corylifolium* (L.) Medik. Syn. *Psoralea corylifolia* L. (Fruit)
3. Kirambu	-	*Syzygium aromaticum* (L.) Merr. & L.M. Perry (Flower bud)
4. Nuna ver	-	*Morinda coreia* Buch. -Ham (Root) Syn. *Morinda tinctoria* L.
5. Manjal karisalai Samulam	-	*Sphagneticola calendulacea* (L.) Pruski (W. plant) Syn. *Wedelia calendulacea* (Osb.) Merr.
6. Sadamanjil	-	*Nardostachys jatamansi* (D. Don) DC. (Rhizome) Syn. *N. grandiflora* DC.
7. Poovarasam pattai	-	*Thespesia populnea* (L.) Sol. ex Correa (Stem bark)
8. Elarici	-	*Elettaria cardamomum* (L.) Maton (Seed)
9. Kasakasa	-	*Papaver somniferum* L. (Seed)
10. Karunjeeragam	-	*Nigella sativa* L. (Seed)

Sasikala Ethirajulu

Sasikala Ethirajulu
Consultant (Pharmacognosy)

24/5/16

P.Sathiyarajeswaran
Assistant Director Incharge

ANNEXURE -II

Bio Chemical analysis of trial medicine *BALA KARAPPAN*

Preparation of sodium carbonate extract

2 gm of Poovarasu Nei sample is mixed with 5gm of sodium carbonate and taken in a 100 ml beaker and 20 ml of distilled water is added. The solution is boiled for 10 minutes,cooled and then filtered. The filtrate is called sodium carbonate extract.

S.No	Experiment	Observation	Inference
Test for acid radicals			
1A.	**Test for sulphate:** 2ml of the above prepared extract is taken in a test tube.to this add 2ml of 4 % Ammonium oxalate solution.	Absence of white precipitate	Absent
B.	2ml of extract is added with 2ml of dilute Hydrochloric acid until the effervescence ceases off.Then 2ml Barium chloride solution is added.	Absence of white precipitate	Absent
2.	**Test for chloride :** 2ml of extract is added with dilute Nitric acid till the effervescence ceases.Then 2ml of silver nitrate solution is added.	Presence of white precipitate	Present
3.	**Test for phosphate:** 2 ml of the extract is treated with 2 ml of Ammonium molybdate solution and 2 ml of concentrated nitric acid.	Absence of Yellow precipitate	Absent
4.	**Test for carbonate:** 2 ml of the extract is treated with 2 ml of Magnesium sulphate solution.	Absence of white precipitate	Absent

5.	**Test for sulphide:** 1 gm of the substance is treated with 2 ml of concentrated Hydrochloric acid.	Absence of Rotten egg smelling	Absent
6.	**Test for Fluoride and oxalate :** 2ml of extract is added with dilute Acetic acid and 2 ml of Calcium chloride solution and heated.	Absence of white precipitate	Absent
7.	**Test for Borate :** 2 pinches of the substance is made into paste by using Sulphuric acid and alcohol (95%) and introduced into the blue flame.	Absence of Green tinged flame	Absent
TEST FOR BASIC RADICALS			
8.	**Test for lead:** 2 ml of the extract is added with 2 ml of Potassium iodide solution.	Absence of yellow precipitate.	Absent
9.	**Test for copper:** One pinch of substance is made into paste with concentrated Hydrochloric acid in a watch glass and introduced into the non-luminous part of the flame.	Absence of Bluish green colored flame	Absent
10.	**Test for aluminium:** To the 2 ml of extract Sodium hydroxide solution is added in drops in excess.	Absence of whiteprecipitate	Absent
11.	**Test for iron:** To the 2 ml of extract 2ml of Ammonium thiocyanate solution and 2ml of concentrated Nitric acid is added.	Presence of Blood red colour	Present
12.	**Test for zinc:** To the 2 ml of extract Sodium hydroxide solution is added in drops in excess.	Absence of green tinged flame.	Absent

13.	**Test for calcium:** To the 2 ml of extract Ammonium oxalate solution solution is added.	Absence of white precipitate	Absent
14.	**Test for magnesium:** To the 2 ml of extract Sodium hydroxide solution is added in drops in excess.	Absence of white precipitate	Absent
15.	**Test for ammonium:** To the 2 ml of extract few ml of Nessler's reagent and excess of Sodium hydroxide solution are added.	Absence of white precipitate	Absent
16.	**Test for sodium:** 2 pinches of the substance is made into paste by using Hydrochloric acid and introduced into the blue flame	Absence of white precipitate	Absent
17.	**Test for mercury:** 2 ml of extract is treated with 2ml of Sodium hydroxide solution.	Absence of Yellow precipitate	Absent
18.	**Test for arsenic:** 2 ml of extract is treated with 2ml of Silver nitrate solution.	Absence of white precipitate	Absent
19.	**Test for starch:** 2 ml of extracts treated with weak iodine solution.	Absence of white precipitate	Absent
20.	**Test for reducing sugar** 5ml of Benedicts qualitative solution is taken in a test tube and allowed to boil for 2 minutes and added 10 drops of the extract and again boiled for 2minutes.The colour changes are noted.	Absence of white precipitate	Absent
21.	**Test for alkaloids :** 2 ml of the extract is treated with 2ml of Potassium iodide solution.	Absence of white precipitate	Absent

RESULT

The given sample *Poovarasu Nei* contains **Chloride, Iron**

ANNEXURE – III

PHYSICO CHEMICAL ANALYSIS

ICP-MS- Heavy Metal Analysis Report

ICP-MS

Inductively Coupled Plasma Mass Spectrometry (ICP-MS): ICP-MS is a type of mass spectrometry that is highly sensitive and capable of the determination of a range of metals and several non-metals at concentration below one part in 1012 (parts per trillion). Samples are decomposed to neutral elements in high temperature argon plasma and analyzed based on their mass to charge ratios. It is an automated, simple and unique quantitative and qualitative analysis. It measures elemental isotopes ratio.

Procedure

Digestion of sample is carried out by transforming 2.5 ml of the sample into a closed beaker and 5 ml of concentrated HNO3 was added and digested to near dryness. 16 M nitric acid was further added each time to the sample and digested until the clear solution was obtained. 5ml of 12 M Hydrochloric acid was added to ensure complete digestion .The digested solution was cooled to room temperature and made to the final volume of 100 ml with deionized water. Sample solutions were then filtered through membrane (0.45micron) filter. Finally, the digested samples were used for metal analysis using inductively coupled plasma Mass Spectrometry (Perkin Elmer DRC-e Model) .Each sample was digested in triplicate. A blank solution was also prepared in a similar manner.

Machine Model: **Agilent 7700 ICPMS**

Sample ID: PN

Element	Concentration (mg/L)	Upper Limit (mg/L)
Cadmium (Cd)	**BDL**	0.299

BDL – Below Detective Level

PHYSICO CHEMICAL ANALYSIS

Organoleptic Evaluation

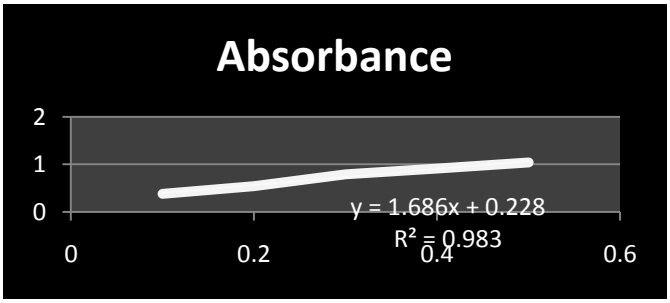
Parameter	**Observation**
Color	Reddish Brown
Smell	Characteristic Odour
Touch	Oily
Appearance	Translucent

Preparation of standard solution:

0.2g of ferric ammonium sulphate was dissolved in distilled water containing 10ml of concentrated hydrochloric acid and the volume was made up to 250ml with distilled water 3. From this stock solution 1, 2, 3, 4 & 5ml was pipette out into 5 different 50ml volumetric flask and 5ml of 10% aq. hydroxyl ammonium chloride solution was added and the pH was adjusted between 3 to 5 using 2M sodium acetate buffer solution and 4ml of 1, 10-phenanthrolin was added and finally the volume was made up to 50ml with distilled water. After 15-20 min. the absorbance was noted at 515nm. The standard curve of concentration Vs absorbance was plotted.

Preparation of Test Solution

0.21g of test sample was taken with 50ml of 6N hydrochloric acid and boiled for 2-3 min. Then it was filtered and the volume was made up to 250ml with distilled water. From this 5ml of solution was pipette out into 50ml volumetric flask and the same procedure was followed as in the preparation of standard solution. After 15-20 min. the absorbance was noted at 515nm. From the absorbance the corresponding concentration was determined by extrapolation of calibration curve.



Concentration mg/ml	Absorbance
0.1	0.382
0.2	0.545
0.3	0.792
0.4	0.911
0.5	1.042
Test Sample	0.625

Result:

The amount of iron present in the sample provided for analysis is 0.235 mg/ml

Physicochemical evaluation

Project ID : NRS/AS/0017/01/2017

Institute : Govt Siddha Medical College, Chennai

Sample Name : PoovarasuNei

Sample ID : PN

Percentage Loss on Drying

10gm of test drug was accurately weighed in evaporating dish .The sample was dried at 105^{o}C for 5 hours and then weighed.

Percentage loss in drying = Loss of weight of sample/ Wt of the sample X 100

Determination of Total Ash

3 g of 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.

Total Ash = Weight of Ash/Wt of the Crude drug taken X 100

Determination of pH

Sample being oily in nature the direct litmus evaluation method was adopted to check the pH of the sample.

Determination of specific gravity

Fill the dry sp. gravity bottle with prepared samples in such a manner to prevent entrapment of air bubbles after removing the cap of side arm. Insert the stopper, immerse in water bath at $50^{O}C$ and hold for 30 min. Carefully wipe off any oil that has come out of the capillary opening. Remove the bottle from the bath, clean and dry it thoroughly. Remove the cap of the side and quickly weigh. Calculate the weight difference between the sample and reference standard.

Determination of Iodine value

About 20 gm of oil was transferred into Iodine flask. To which 10 ml of chloroform was added and warmed slightly and cooled for 10 minutes. Followed by this about 25 ml of Wiji's solution was added in the same flask and shaken well. The flask was allowed to stand for 30 mins and refrigerated for anhour.T About 10 ml of KI solution was added to this and titrated against 0.1 N Sodium thiosulphate solutions until the appearance of yellow colour. 1 ml of starch indicator was added and again titrated against the sodium thiosulphate solution from the burette. Disappearance of blue colour indicates end point. Repeat the above procedure without taking sample and note the corresponding reading for blank titration.

Determination of saponification value

About 2 gm of test sample was transferred into the round bottomed flask. To this about 20 ml of 0.5 N alcoholic KOH solutions was added to the round bottomed flask. Repeatthe same procedure with out taking the sample for blank titration . Reflux both sample and blank round bottomed flasks for 1 hour. After reflux, allow both the round bottomed flasks to cool. Titrate the samples using 0.5 N HCl with phenolphthalein indicator. The disappearance of pink indicates the end point.

Final Test report

Parameter	**Observation**
Color	Reddish Brown
Smell	Characteristic Odour
Touch	Oily
Appearance	Translucent

S.No	**Parameter**	**Mean (n=3) SD**
1.	***Loss on Drying at 105 ℃ (%)***	4.73 2.54
2.	***Total Ash (%)***	0.68 ± 0.33
3.	***pH***	6

S.No	**Specific Test**	**PoovarsuNei**
1.	Specific Gravity	1.095
2.	Viscosity at 50^{o}C (Pa s)	16.87
3.	Refractive index	1.52
4.	Weight per ml (gm/ml)	1.1
5.	Iodoine value (mg I2/g)	139.7
6.	Saponification Value (mg of KOH to saponify 1gm of fat)	248.17
7.	Total Iron content (mg/ml)	0.235

PHYTOCHEMICAL ANALYSIS

Sample Preparation

PoovarasuNei (PN) was extracted with hexane and the extract was subjected to the following analysis

1) Test for alkaloids:

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

2) Test for coumarins:

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

3) Test for saponins:

To 1 ml of the extract, 5 ml of water was added and the tube was shaken vigorously. Copious lather formation indicates the presence of Saponins.

4) Test for tannins:

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

5) 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.

6) Test for flavonoids:

To 0.1ml of 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.

7) Test for phenols:

Lead acetate test: The extract was taken; 3 ml of 10% lead acetate solution was added. A bulky white precipitate indicated the presence of phenolic compounds.

8) Test for cardial glycosides:

Keller-Killani Test: Plant extract treated with 2 ml glacial acetic acid containing a drop of FeCl3 .A brown colour ring indicates the presence of positive test.

9) Test for steroids:

To the test solution 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.

10) Test for Quinones:

The extracts were treated separately with Alc. KOH solution. Appearance of colors ranging from red to blue indicates the presence of Quinones.

11) Test for Cyanins

A. Aanthocyanin:

To 2 ml of the leaf extract, 1 ml of 2N sodium hydroxide was added and heated for 5 min at 100^0C. Formation of bluish green colour indicates the presence of anthocyanin.

B. Betacyanin:

To 2 ml of the leaf extract, 1 ml of 2N sodium hydroxide was added and heated for 5 min at 100□C. Formation of yellow colour indicates the presence of betacyanin.

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

To 0.5 ml of test drug 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.

13) Test for terpenoids:

Salkowski test: 5ml of extract was mixed in 2ml of chloroform, and concentrated sulphuric acid was carefully added to form a layer. A reddish brown colouration of the interface indicates the presence of terpenoids.

RESULT ANALYSIS

PHYTOCOMPONENTS	PN
ALKALOIDS	-
FLAVONOIDS	+
GLYCOSIDES	+
STEROIDS	+
CARBOHYDRATES	+
TRITEREPNOIDS	+
COUMARINS	+
PHENOLS	+
CARDIAC GLYCOSIDES	-
TANNINS	-
SAPONINS	+
PROTEINS	-
ANTHOCYANIN	-
BETACYANIN	-
QUINONES	-

\+ Indicates positive

\- Indicates Negative

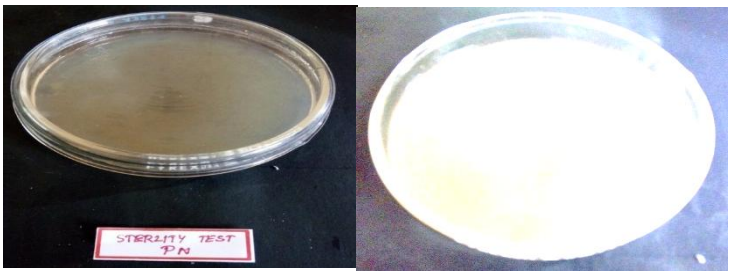
STERILITY TEST BY POUR PLATE METHOD

Objective

The pour plate techniques were adopted to determine the sterility of the product. Contaminated / un sterile sample (formulation) when come in contact with the nutrition rich medium it promotes the growth of the organism and after stipulated period of incubation the growth of the organism was identified by characteristic pattern of colonies. The colonies are referred to as Colony Forming Units (CFUs).

Methodology

About 1ml of the test sample was inoculated in sterile petri dish to which about 15 mL of molten agar 45^{o}C were added. Agar and sample were mixed thoroughly by tilting and swirling the dish. Agar was allowed to completely gel without disturbing it. (about 10 minutes). Plates were then inverted and incubated at 37^{o} C for 24-48 hours. Grown colonies of organism was then counted and calculated for CFU.



Observation

No growth was observed after incubation period. Reveals the absence of specific pathogen

Result

No growth / colonies were observed in any of the plates inoculates with the test sample.

Test	**Specification**	**Result**	**Method**
E-coli	Absent	Absent	As per AYUSH specification
Salmonella	Absent	Absent	
Staphylococcus Aureus	Absent	Absent	
Pseudomonas Aeruginosa	Absent	Absent	

ANNEXURE IV

ACUTE AND SUB ACUTE TOXICITY STUDY ON *POOVARASU NEI*

Name	Dr. R.BHARATHI SRI
IAEC	SU/CLATR/IAEC/VII/043/2016
Name of the Formulation	Poovarasu Nei
Abbreviation	PN

ACUTE TOXICITY STUDY

Acute toxicity study of the study drug *Poovarasu Nei* was carried out as per OECD guideline (Organization for Economic Co-operation and Development) Guideline-423.

Animal

Healthy adult Wistar albino rat weighing between 170-200 g were used for the study. The animals were housed in poly propylene cages and were kept in well ventilated with 100% fresh air by air handling unit (AHU). A 12 light / dark cycle were maintained .Room temperature was maintained between 22 $\pm$ 2^0 Cand relative humidity 50–65%. They were provided with food (Sai feeds, Bangalore, India) and water *ad libitum*. All the animals were acclimatized to the laboratory for 7 days prior to the start of the study.

The experimental protocol was approved by The Institutional Animal Ethics Committee of Sathyabama University, Chennai, Tamil Nadu, India.

Acute toxicity Study

Acute toxicity study will be carried out in accordance with OECD guideline 423 [1]. The animals were fasted overnight with free access to water. The study was conducted with single oral dose administration of *Poovarasu Nei*.

IAEC SU/CLATR/IAEC/VII/043/2016

Animal Grouping

One group consist of 6 female rats were used for this study. The dose utilized for evaluation of acute toxicity study is about 2000 mg/kg higher than that of the therapeutic dose.

Dose Equivalent = 1ml is equivalent to 1.0690 gm

Animal Grouping

GROUP I : Animals received Test drug 2000 mg/kg (p.o)

The animals were fasted overnight (12- 16 hrs) with free access to water. The study was conducted with single oral administration of study drug*Poovarasu Nei* 2000mg/kg equivalent to 0.4ml (p.o). The animals were observed continuously for first 72 h and then 14 days for emerging signs of behavioral changes, body weight changes and for mortality.

Occurrence of toxicity in animals were observed continuously for the first 4 to 24 h and observed periodically for the next 14 days. Observation includes the change in skin, fur, eyes and mucus membrane. Appearance of C.N.S,C.V.S and A.N.S related toxicity such as tremors, convulsions, sedation, steric behavior, respiratory distress, cardiovascular collapse, response to sensory stimuli, salivation, diarrhea, lethargy, sleep, coma and mortality were observed with special attention.

Body weight was recorded periodically. At the end of the experiment all animals were subjected for gross necropsy and observed for pathological changes.

SUB-ACUTE TOXICITY STUDY

Sub-acute toxicity study was carried out as per OECD guidelines Guideline-407 [2].

Animals

Healthy adult Wistar albino rat weighing between 170-200 g were used for the study. The animals were housed in poly propylene cages and were kept in well ventilated with 100% fresh air by air handling unit (AHU). A 12 light / dark cycle were maintained .Room temperature was maintained between 22 $\pm$ 2^{o} Cand relative humidity 50–65%. They were provided with food (Sai feeds, Bangalore, India) and water *ad libitum*. All the animals were acclimatized to the laboratory for 7 days prior to the start of the study.

The experimental protocol was approved by The Institutional Animal Ethics Committee of Sathyabama University, Chennai, Tamil Nadu, India.

Animal Grouping

Animals were divided into three groups of 06 animals each consist of 3 male and 3 female rats.

GROUP I : Animals received saline 5 ml/kg b.w (p.o)

GROUP II : Animals received low dose of test drug 200 mg/kg (p.o)

GROUP III : Animals received high dose of test drug 400 mg/kg (p.o)

The animals were randomly divided into control group and drug treated groups for two different doses viz. low dose (200 mg/kg b.w) equivalent to 0.2 ml and high dose (400 mg/kg b.w) equivalent to 0.4 ml,p.o per rat.

The animals were administrated with the study drug once daily for 28 days. The animals in group I (control group) received normal saline 5 ml/kg b.w. The animals in group II received low dose of *Poovarasu Nei* 200 mg/kg b.w (p.o) and group III received high dose of *Poovarasu Nei* 400 mg/kg b.w (p.o).

The rats were weighed periodically and observed for signs of toxicity pertains to C.N.S, C.V.S, A.N.S including behavioral changes, food - water intake and morphological changes. At the end of 28^{th} day, the animals were fasted for overnight with free access to water. On 29^{th} day the animals were sacrificed with excess anesthesia. Blood samples were collected from aorta and stored in EDTA (ethylenediamine –tetra actate) for Hematological analysis and for serum generation for biochemical analysis.

The vital organs including heart, brain, lungs, spleen, kidneys, liver, stomach, testes, and ovary were harvested and carefully examined for gross lesions. The organs were preserved in 10% formalin for histopathological assessment and interpretation.

Hematological analysis

Blood samples were analyzed using established procedures and automated Bayer Hematology analyzer. Parameters evaluated include Packed Cell Volume (PCV), Red Blood Cells (RBC) count, White blood cell count (WBC), Platelet Count, Hemoglobin (Hb), Mean cell Haemoglobin Concentration (MCHC), Mean Red Cell

Volume (MCV), Mean Cell Hemoglobin (MCH), Mean platelet volume (MPV), Neutrophils, Eosinophil's, Basophils, Lymphocytes and Monocytes.

Biochemical analysis [3]

Serum samples were analyzed for High Density Lipoprotein (HDL), Low density Lipoprotein (LDL) , Very low density Lipoprotein (VLDL) , Triglycerides (TGL), Total Cholesterol , Blood urea nitrogen (BUN), Creatinine, Albumin, Total Protein, Glucose, Uric acid, Aspartate Transaminase (AST), Alanine amino Transaminase (ALT) and Alkaline Phosphatase (ALP) using Mind ray auto analyzer model BS 120.

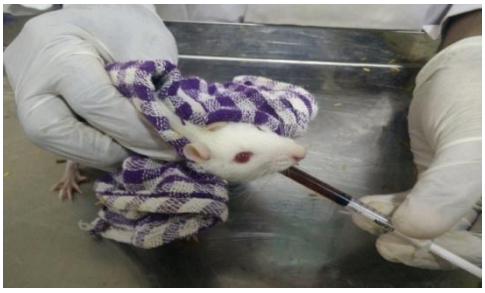
Histopathological evaluation [4]

Organs included of heart, brain, lungs, spleen, kidneys, liver, stomach, testes and ovary. Histological slides of organs were made and observed under the microscope. The pathological observations of cross section of these organs were performed on gross and microscopic bases. Histological examinations were performed on the preserved tissues with particular emphasis on those which showed gross pathological changes.

Statistical analysis

The statistical analysis was carried by one way ANOVA (GRAPH PAD PRISM 5 computer program). Results were expressed as mean ± standard error .A statistical comparison was carried out using the Dunnet's test for the control and treatment group.

DRUG DOSING



Fecal Pellet Analysis

Methodology

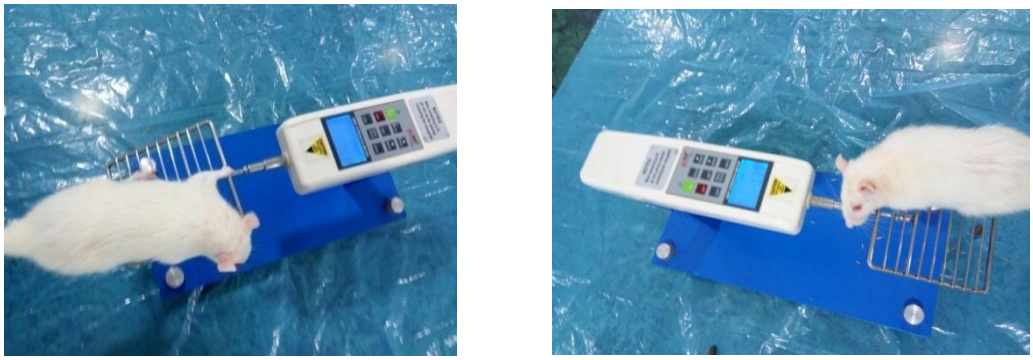
Rats of control and treatment group were allowed to explore to open field on clean and sterile Stainless steel tray. The collected pellets were analyzed for consistency, color, Shape, Presence of blood cells etc

Acute Toxicity Study	
Analysis	**Group I**
Consistency	Soft –Pasty
Shape	Oblong
Colour	Dark Green
Mucous Shedding	Absence
Blood Cells	Absent
Signs of Infection	None Observed

Sub-Acute Toxicity Study			
Analysis	**Group I**	**Group II**	**Group III**
Consistency	Soft	Soft	Soft -Pasty
Shape	Oblong	Round ended	Round ended
Colour	Greenish	Pale Brown	Pale Brown
Mucous Shedding	Absence	Absence	Absence
Blood Cells	Absent	Absent	Absent
Signs of Infection	None Observed	None Observed	None Observed

Muscle Grip Strength Analysis

The grip strength test is a simple non-invasive method designed to evaluate rat muscle force in vivo. Rats of control and drug treated group was allowed to hold the pull bar with both the hind limbs firmly then the animal was gently pulled back with the tail until the animal lost the grip toward the bar. The procedure was repeated to get the average value. Muscle grip ness of the drug treated group was compared to that of the control rat to ensure the change in coordination.



Metabolic Cage for Urine Collection

Rat of control and treatment group was placed individually in metabolic cage with free access to feed and water. Urine dropping from the animal was collected using specialized wire mesh system fixed at the base of the cage having provision to trap the fecal pellet mixed with urine sample. The collected urine sample was subjected to analysis with respect to colour, pH, glucose, ketone bodies, pus and blood cells.

RESULTS

Assessment of clinical signs in rats treated with *Poovarasu Nei* on Acute toxicity study

Acute	
Parameter	**Group I**
Clinical Signs Parameters for the duration of 14 days	Test Drug 2000mg/kg
Number of animals observed	6 Female
Lacrimation	Absence
Salivation	Absence

Animal appearance	Normal
Tonic Movement	Absence
Clonic Movement	Absence
Laxative action	Mild
Touch Response	Normal
Response to Sound	Normal Response
Response to Light	Normal Response
Mobility	Normal Response
Respiratory Distress	Nil
Skin Color	Normal
Stereotype behavior	Absence
Piloerection	Absence
Limb Paralysis	Absence
Posture	Normal
Open field behavior	Normal
Giat Balancing	Normal
Freezing Behaviour	Absent
Sings of Stress and Anxiety	None Observed
Muscular coordination	Normal
Muscle grip	Normal
Sedation	Absence
Social Behavior	Normal
Urine Analysis	No Abnormality
Urine Colour	Yellowish
Urine pH	6
Urine -Glucose	Absence
Urine -Ketones	Absence
Urine- Bilirubin	Absence
Urine-Blood Cells	Negative
Urine - Pus cells	Negative
Mortality	Nil

Quantitative data on the body weight of rats treated with *Poovarasu Nei* in Acute toxicity study

Group I	Before Treatment Weight in Gms	After Treatment Weight in Gms
Mean	174.3	184.2
Std. Deviation	1.751	2.927
Std. Error	0.7149	1.195

Values are mean ± S.D (n = 6 per group). Statistical significance carried out using one way ANOVA followed by Dunnett's test.

Assessment of clinical signs in rats treated with *Poovarasu Nei* on Sub-Acute toxicity study

SUB ACUTE			
Parameter	**Group I**	**Group II**	**Group III**
Clinical Signs Parameters for the duration of 28 days	Control	Test Drug 200mg/kg	Test Drug 400mg/kg
Number of animals observed	3 Males and 3Females	3 Males and 3Females	3 Males and 3Females
Lacrimation	Absence	Absence	Absence
Salivation	Absence	Absence	Absence
Animal appearance	Normal	Normal	Normal
Tonic Movement	Absence	Absence	Absence
Clonic Movement	Absence	Absence	Absence
Laxative action	Absence	Mild	Mild
Touch Response	Normal	Normal	Normal
Response to Sound	Normal Response	Normal Response	Normal Response
Response to Light	Normal Response	Normal Response	Normal Response
Mobility	Normal	Normal	Normal

	Response	Response	Response
Respiratory Distress	Nil	Nil	Nil
Skin Color	Normal	Normal	Normal
Stereotype behavior	Absence	Absence	Absence
Piloerection	Absence	Absence	Absence
Limb Paralysis	Absence	Absence	Absence
Posture	Normal	Normal	Normal
Open field behavior	Normal	Normal	Normal
Giat Balancing	Normal	Normal	Normal
Freezing Behaviour	Absent	Absent	Absent
Sings of Stress and Anxiety	None Observed	None Observed	None Observed
Muscular coordination	Normal	Normal	Normal
Muscle grip	Normal	Normal	Normal
Sedation	Absence	Absence	Absence
Social Behavior	Normal	Normal	Normal
Urine Analysis	No Abnormality	No Abnormality	No Abnormality
Urine Colour	Yellowish	Yellowish	Yellowish
Urine pH	6	6	6
Urine -Glucose	Absence	Absence	Absence
Urine -Ketones	Absence	Absence	Absence
Urine-Bilirubin	Absence	Absence	Absence
Urine-Blood Cells	Negative	Negative	Negative
Urine - Pus cells	Negative	Negative	Negative
Mortality	Nil	Nil	Nil

Effect of *Poovarasu Nei* on Body weight of Rats in Sub-acute toxicity study

Group I	**Before Treatment Weight in Gms**	**After Treatment Weight in Gms**
Mean	184	195.5
Std. Deviation	5.177	5.958
Std. Error	2.113	2.432
Group II	**Before Treatment Weight in Gms**	**After Treatment Weight in Gms**
Mean	185.7	199.2
Std. Deviation	7.633	8.681
Std. Error	3.116	3.544
Group III	**Before Treatment**	**After Treatment Weight in Gms**
Mean	184	194.8
Std. Deviation	7.294	7.305
Std. Error	2.978	2.982

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females). Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

Quantitative data on the food and water intake of rats treated with *Poovarasu Nei* for 28 days in Sub-acute toxicity study

GROUP I	**Food intake**	**Water intake**
Mean	17.42	22.25
Std. Deviation	3.573	6.437
Std. Error	1.787	3.219
GROUP II	**Food intake**	**Water intake**
Mean	16.25	28.33
Std. Deviation	1.524	2.211

Std. Error	0.7622	1.106
GROUP III	**Food intake**	**Water intake**
Mean	17.92	34.25
Std. Deviation	2.315	2.379
Std. Error	1.158	1.189

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females). Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

Effect of *Poovarasu Nei* on Haematology profile of rats in sub-acute toxicity study.

GROUP I	**WBC count (×103 µl)**	**RBC ($\times 10^6$ µl)**	**PLT ($\times 10^3$ µl)**	**MCV (fl)**	**MCH (pg)**	**MCHC (g/dl)**	**HGB (g/dl)**
Mean	9.933	6.6	679.8	58.83	19.22	32.75	13.27
Std. Deviation	1.483	1.103	174.3	6.218	2.232	1.299	1.089
Std. Error	0.6053	0.4502	71.15	2.538	0.9112	0.5303	0.4447
GROUP II	**WBC count (×103 µl)**	**RBC ($\times 10^6$ µl)**	**PLT ($\times 10^3$ µl)**	**MCV (fl)**	**MCH (pg)**	**MCHC (g/dl)**	**HGB (g/dl)**
Mean	10.38	6.433	857.8	60.35	19.22	31.4	13.15
Std. Deviation	2.473	1.454	191.8	3.792	2.084	1.387	1.117
Std. Error	1.01	0.5937	78.3	1.548	0.8507	0.5663	0.4559
GROUP III	**WBC count (×103 µl)**	**RBC ($\times 10^6$ µl)**	**PLT ($\times 10^3$ µl)**	**MCV (fl)**	**MCH (pg)**	**MCHC (g/dl)**	**HGB (g/dl)**
Mean	10.27	6.05	970.7	58.27	18.92	32.28	13.37
Std. Deviation	1.655	0.9418	173	2.7	1.696	1.843	1.174
Std. Error	0.6756	0.3845	70.64	1.102	0.6925	0.7525	0.4794

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females). Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

Effect of *Poovarasu Nei* on Haematology profile of rats in sub-acute toxicity study.

GROUP I	**Lymph (%)**	**Mon (%)**	**Neutrophils 10^3/mm3**	**Eosinophils (%)**	**Basophils (%)**	**MPV (fl)**
Mean	80.92	3.6	2.5	1.667	0.1667	5.833
Std. Deviation	6.151	0.9033	0.6033	0.2251	0.4082	1.14
Std. Error	2.511	0.3688	0.2463	0.09189	0.1667	0.4652
GROUP II	**Lymph (%)**	**Mon (%)**	**Neutrophils 10^3/mm3**	**Eosinophils (%)**	**Basophils (%)**	**MPV (fl)**
Mean	75.33	3.017	2.433	1.533	0.3333	5.967
Std. Deviation	6.904	0.6616	0.7033	0.2251	0.5164	1.054
Std. Error	2.818	0.2701	0.2871	0.09189	0.2108	0.4302
GROUP III	**Lymph (%)**	**Mon (%)**	**Neutrophils 10^3/mm3**	**Eosinophils (%)**	**Basophils (%)**	**MPV (fl)**
Mean	82.98	2.75	2.733	1.55	0.3333	6.167
Std. Deviation	9.26	1.169	0.7528	0.2881	0.5164	1.104
Std. Error	3.78	0.4773	0.3073	0.1176	0.2108	0.4507

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females). Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

Effect of *Poovarasu Nei* on Serum Bio-chemistry profile of rats in sub-acute toxicity study

GROUP I	Blood sugar (mg/dl)	BUN (mg/dl)	Serum creatinine (mg/dl)	Serum total cholesterol (mg/dl)	Serum triglycerides level (mg/dl)	Serum HDL cholesterol (mg/dl)	Serum LDL cholesterol (mg/dl)	Serum VLDL cholesterol (mg/dl)
Mean	77	18.83	0.6833	117	74.33	69.17	31.33	16.45
Std. Deviation	6.066	2.317	0.1722	4.942	5.888	3.545	5.007	2.971
Std. Error	2.477	0.9458	0.07032	2.018	2.404	1.447	2.044	1.213
GROUP II	**Blood sugar (mg/dl)**	**BUN (mg/dl)**	**Serum creatinine (mg/dl)**	**Serum total cholesterol (mg/dl)**	**Serum triglycerides level (mg/dl)**	**Serum HDL cholesterol (mg/dl)**	**Serum LDL cholesterol (mg/dl)**	**Serum VLDL cholesterol (mg/dl)**
Mean	73.83	12.83	0.7	109.9	84	63.67	32.83	13.42
Std. Deviation	8.542	2.483	0.2191	10.62	13.96	10.01	9.239	1.888
Std. Error	3.487	1.014	0.08944	4.334	5.698	4.088	3.772	0.7709

GROUP III	Blood sugar (mg/dl)	BUN (mg/dl)	Serum creatinine (mg/dl)	Serum total cholesterol (mg/dl)	Serum triglycerides level (mg/dl)	Serum HDL cholesterol (mg/dl)	Serum LDL cholesterol (mg/dl)	Serum VLDL cholesterol (mg/dl)
Mean	81.67	14.67	0.8167	126	90.5	67.67	41.67	16.67
Std. Deviation	7.659	3.615	0.1472	11.22	8.55	4.082	10.19	4.517
Std. Error	3.127	1.476	0.06009	4.582	3.49	1.667	4.161	1.844

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females). Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

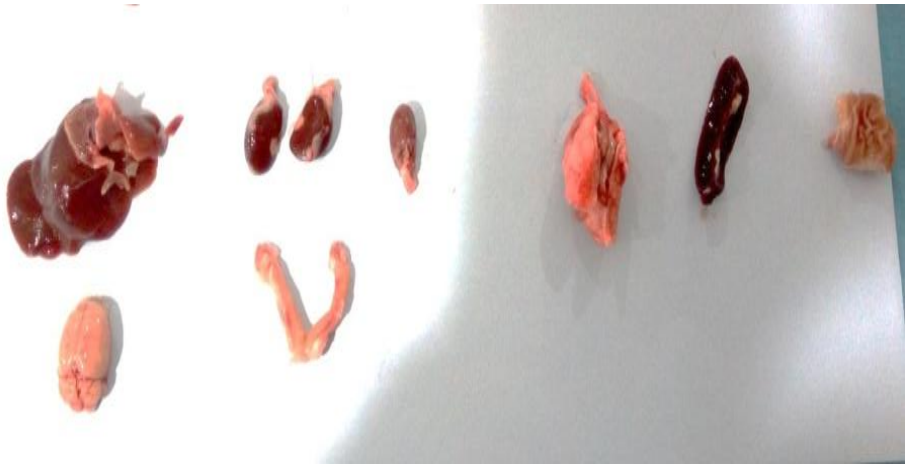
Effect of *Poovarasu Nei* on Serum Bio-chemistry profile of rats in sub-acute toxicity study

GROUP I	**Serum total protein (g/dl)**	**Serum albumin (g/dl)**	**(AST) (IU/ml)**	**(ALT) (IU/L)**	**(ALP) (IU/L)**
Mean	6.35	3.6	102.3	36.5	112
Std. Deviation	0.9995	0.08944	13.87	7.714	15.47
Std. Error	0.408	0.03651	5.661	3.149	6.314
GROUP II	**Serum total protein (g/dl)**	**Serum albumin (g/dl)**	**(AST) (IU/ml)**	**(ALT) (IU/L)**	**(ALP) (IU/L)**
Mean	6.017	3.9	107.3	28.67	158.2
Std. Deviation	0.7574	0.6899	19	7.174	48.99
Std. Error	0.3092	0.2817	7.757	2.929	20
GROUP III	**Serum total protein (g/dl)**	**Serum albumin (g/dl)**	**(AST) (IU/ml)**	**(ALT) (IU/L)**	**(ALP) (IU/L)**
Mean	6.517	3.933	103.2	32.17	126.2
Std. Deviation	1.023	0.5086	16.53	8.085	14.82
Std. Error	0.4175	0.2076	6.75	3.301	6.052

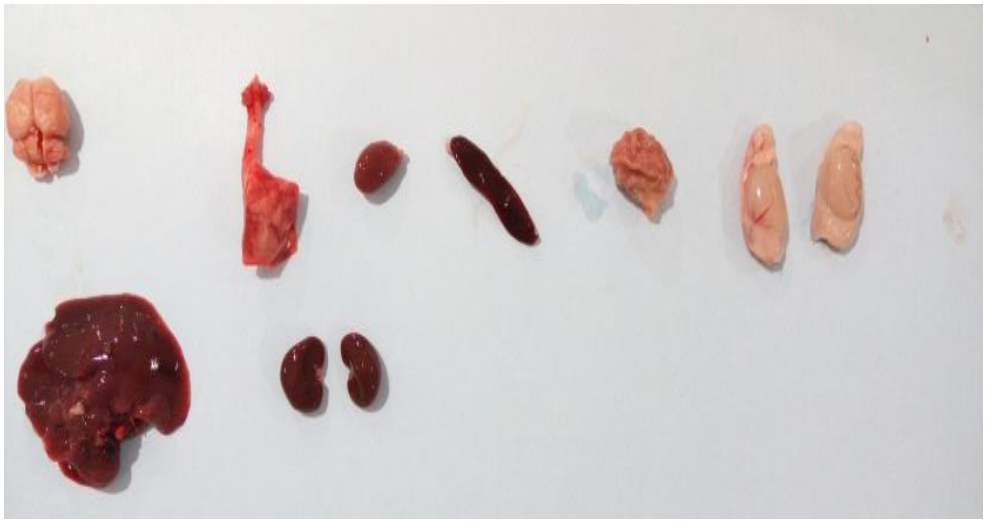
Values are mean ± S.D (n = 6 per group of which 3 males and 3 females). Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

Organ Gross Observation of rats treated with *Poovarasu Nei* for 28 days in Sub-acute toxicity study.

Treatment Female



Treatment Male



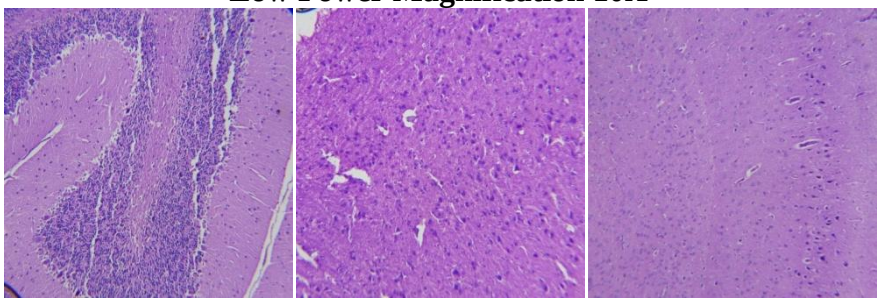
Quantitative data on absolute organ weight of rats treated with *Poovarasu Nei* for 28 days in Sub-acute toxicity study.

GROUP I	HEART (gms)	LIVER (gms)	KIDNEYS (gms)	SPLEEN (gms)	BRAIN (gms)	LUNG (gms)	STOMACH (gms)	TESTES (gms)	UTERUS & OVARY (gms)
Mean	0.7683	5.948	1.617	0.5667	1.483	1.6	1.15	1.833	0.8667
Std. Deviation	0.05636	0.9834	0.2137	0.1633	0.1472	0.3162	0.501	0.4933	0.4041
Std. Error	0.02301	0.4015	0.08724	0.06667	0.06009	0.1291	0.2045	0.2848	0.2333
GROUP II	**HEART (gms)**	**LIVER (gms)**	**KIDNEYS (gms)**	**SPLEEN (gms)**	**BRAIN (gms)**	**LUNG (gms)**	**STOMACH (gms)**	**TESTES (gms)**	**UTERUS & OVARY (gms)**
Mean	0.5917	5.932	1.583	0.5667	1.5	1.533	0.9667	3.6	0.9667
Std. Deviation	0.1357	0.4362	0.1472	0.1366	0.2191	0.1862	0.3502	0.755	0.2082
Std. Error	0.0554	0.1781	0.06009	0.05578	0.08944	0.07601	0.143	0.4359	0.1202
GROUP III	**HEART (gms)**	**LIVER (gms)**	**KIDNEYS (gms)**	**SPLEEN (gms)**	**BRAIN (gms)**	**LUNG (gms)**	**STOMACH (gms)**	**TESTES (gms)**	**& OVARY (gms)**
Mean	0.63	5.487	1.35	0.5	1.45	1.45	0.9333	3.067	0.8
Std. Deviation	0.1702	0.9404	0.1049	0.1414	0.2074	0.3271	0.3327	0.4726	0.4359
Std. Error	0.06947	0.3839	0.04282	0.05774	0.08466	0.1335	0.1358	0.2728	0.2517

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females) for Heart, Liver, Kidney, Brain, Spleen, Lung, Stomach. Values are mean ± S.D (n = 3 per group per sex) for testes , ovary and uterus for Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

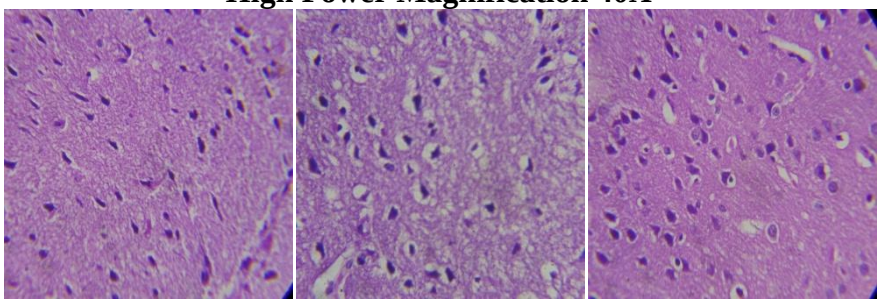
Histopathology of Brain (Female Rat) in Sub-acute toxicity Study

Low Power Magnification 10X



GROUP I **GROUP II** **GROUP III**

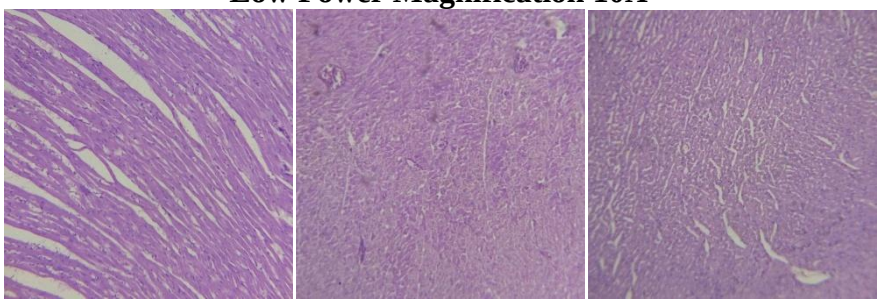
High Power Magnification 40X



GROUP I **GROUP II** **GROUP III**

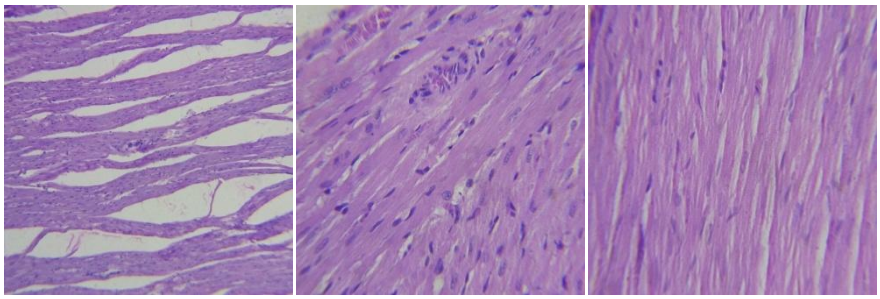
Histopathology of Heart (Female Rat) in Sub-acute toxicity Study

Low Power Magnification 10X



GROUP I **GROUP II** **GROUP III**

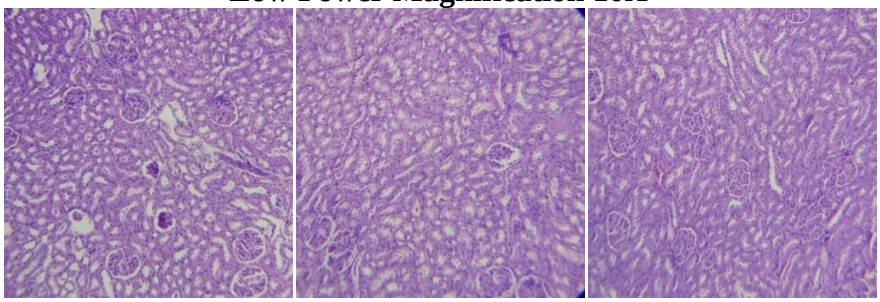
High Power Magnification 40X



GROUP I **GROUP II** **GROUP III**

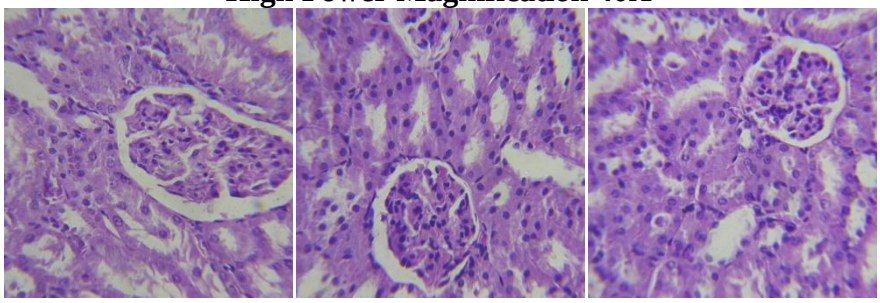
Histopathology of Kidney (Female Rat) in Sub-acute toxicity Study

Low Power Magnification 10X



GROUP I **GROUP II** **GROUP III**

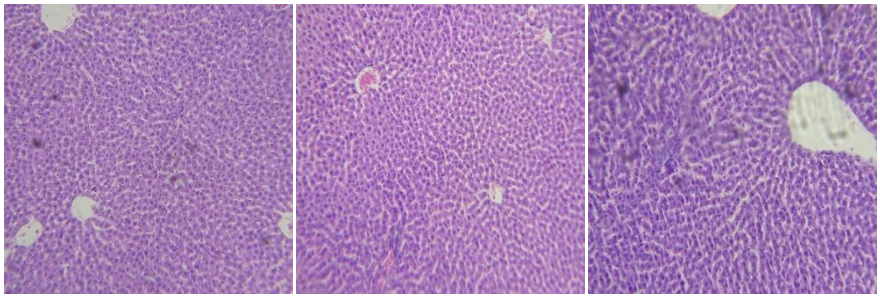
High Power Magnification 40X



GROUP I **GROUP II** **GROUP III**

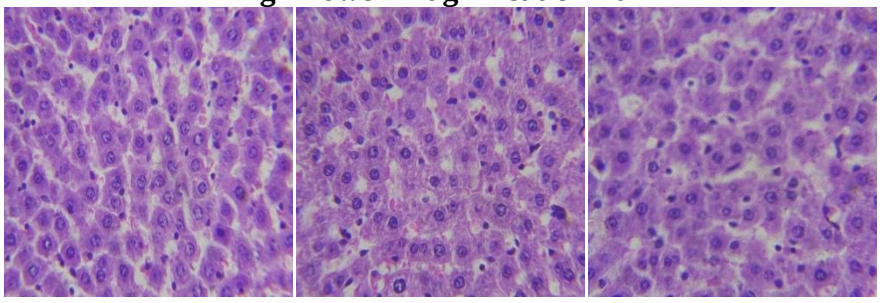
Histopathology of Liver (Female Rat) in Sub-acute toxicity Study

Low Power Magnification 10X



GROUP I **GROUP II** **GROUP III**

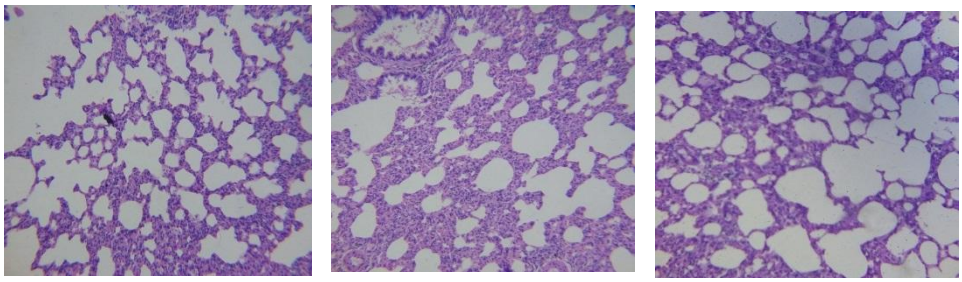
High Power Magnification 40X



GROUP I **GROUP II** **GROUP III**

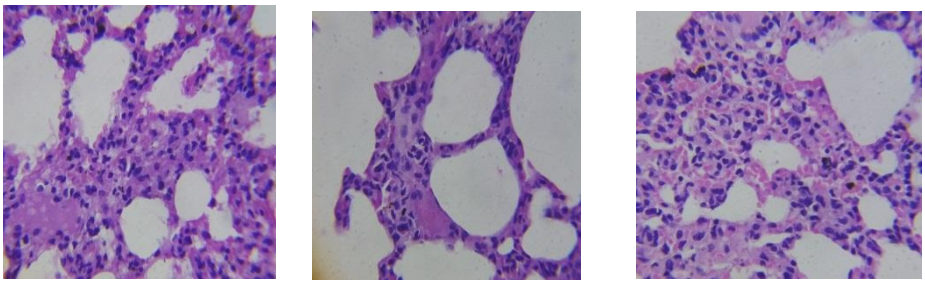
Histopathology of Lung (Female Rat) in Sub-acute toxicity Study

Low Power Magnification 10X



GROUP I **GROUP II** **GROUP III**

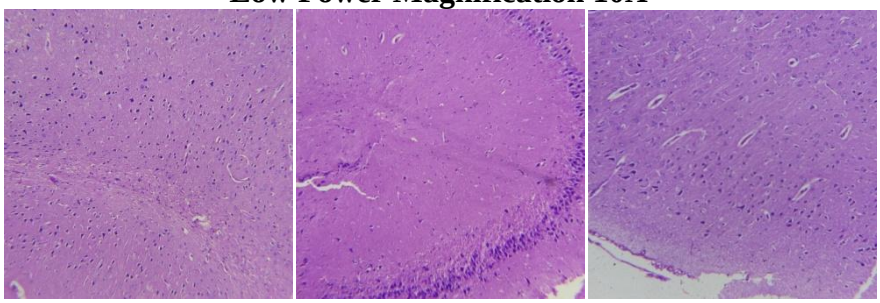
High Power Magnification 40X



GROUP I **GROUP II** **GROUP III**

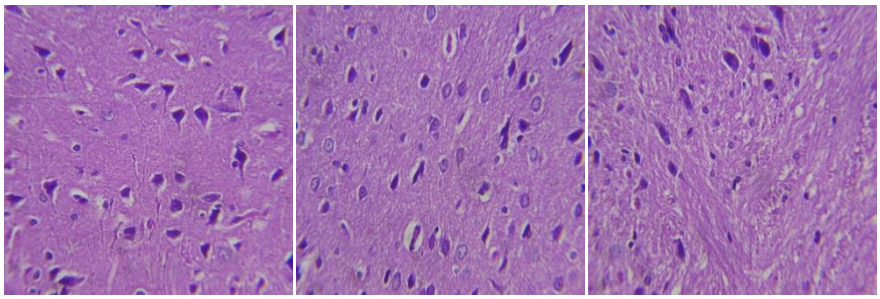
Histopathology of Brain (Male Rat) in Sub-acute toxicity Study

Low Power Magnification 10X



GROUP I **GROUP II** **GROUP III**

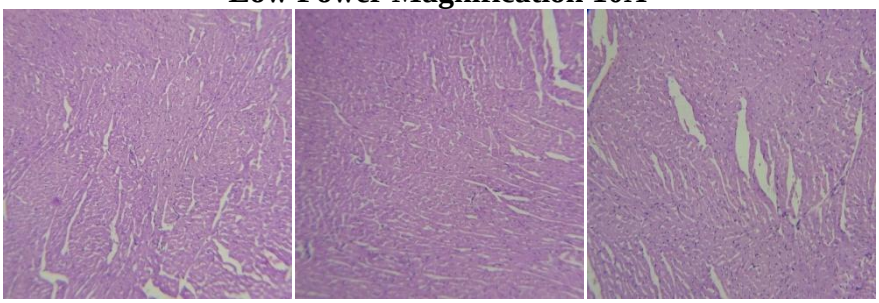
High Power Magnification 40X



GROUP I **GROUP II** **GROUP III**

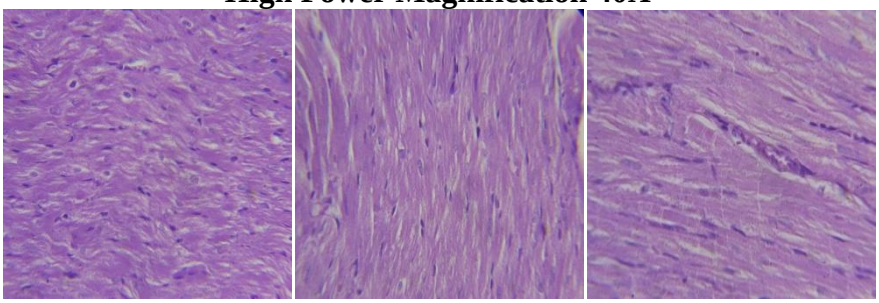
Histopathology of Heart (Male Rat) in Sub-acute toxicity Study

Low Power Magnification 10X



GROUP I **GROUP II** **GROUP III**

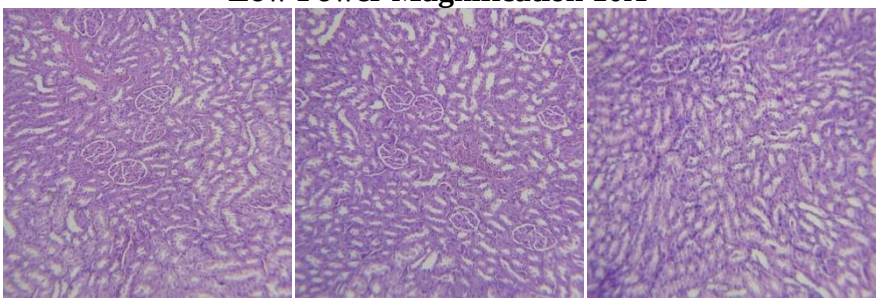
High Power Magnification 40X



GROUP I **GROUP II** **GROUP III**

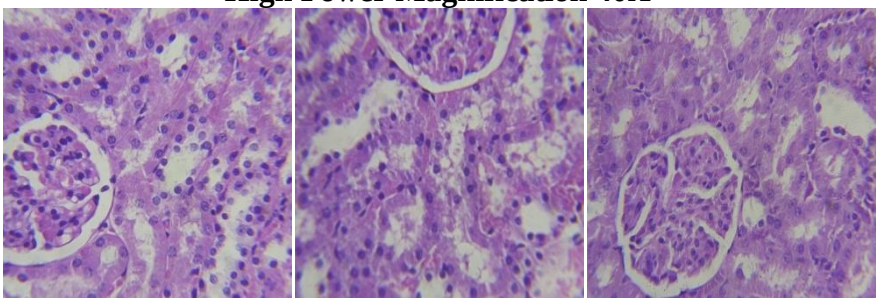
Histopathology of Kidney (Male Rat) in Sub-acute toxicity Study

Low Power Magnification 10X



GROUP I **GROUP II** **GROUP III**

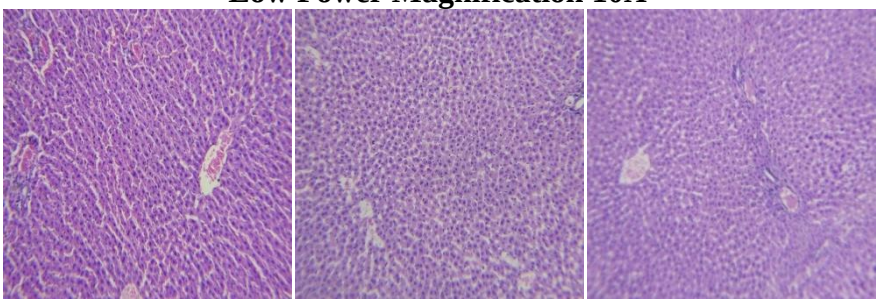
High Power Magnification 40X



GROUP I **GROUP II** **GROUP III**

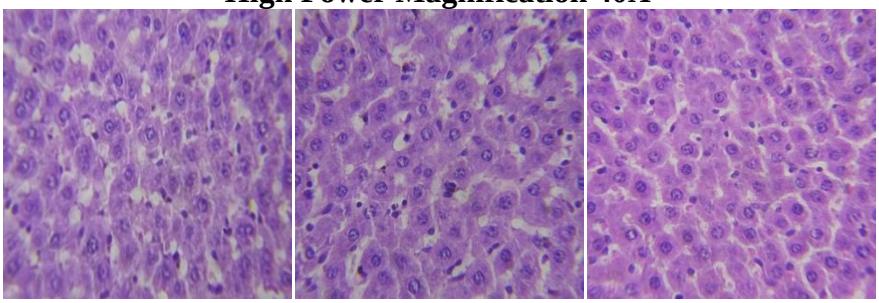
Histopathology of Liver (Male Rat) in Sub-acute toxicity Study

Low Power Magnification 10X



GROUP I **GROUP II** **GROUP III**

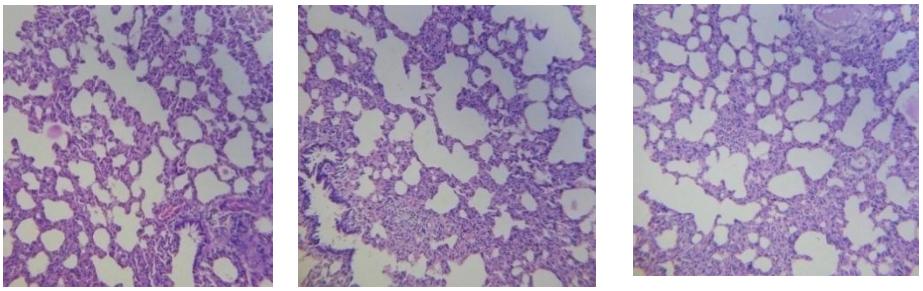
High Power Magnification 40X



GROUP I **GROUP II** **GROUP III**

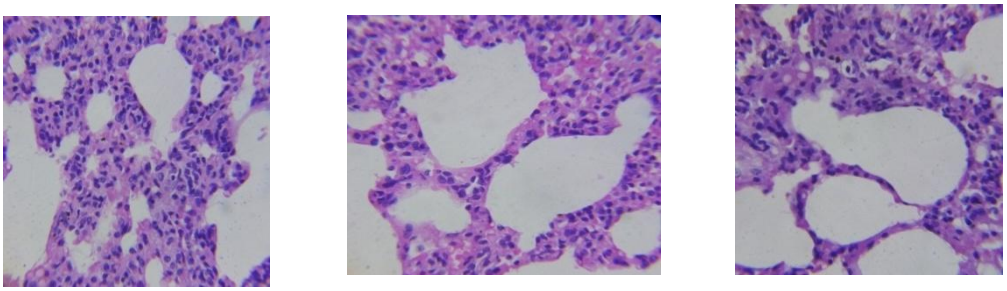
Histopathology of Lung (Male Rat) in Sub-acute toxicity Study

Low Power Magnification 10X



GROUP I **GROUP II** **GROUP III**

High Power Magnification 40X



GROUP I **GROUP II** **GROUP III**

HISTOPATHOLOGY REPORT

BRAIN

Arrangement of the neurons appears intact with no sings of degeneration or apoptotic changes. No signs of ischemia or lesion were observed in sample belongs to group I,II and III.

HEART

Appearance of cardiomyocyte was normal with dark nuclear region. The nuclei of muscle fibers appear central arrangement. Perfectly -arranged myocardial fibers, clear transverse striation and normal structure were observed in samples belongs to group I, II and III.

LUNG

Light microscopic examination of lung revealed normal alveoli and alveolar sac with no signs of infiltration in both control and treated rats.

STOMACH

Light microscopic observation stomach reveals normal histology of gastric wall composed of normal mucosa, muscularismucosa, submucosa, muscularispropiria and adventitia. No signs of ulceration were observed in sample belongs to group I, II and III.

LIVER

Appearance of hepatic sinusoid and hepatic cord was normal. Hepatocellular architecture, including hepatic sinusoid and hepatic cord was normal

SPLEEN

Marginal vascular zone radiated in between red and white pulp. No signs of f immunological activities. Appearance of LF – lymphoid follicle; PALS – periarterial lymphoid sheath was normal with no significant signs of enlargement were observed in sample belongs to group I, II and III.

KIDNEY

Appearance of glomerular basement membrane was normal. No evidence of lymphocytic infiltrate and inflammation in sample belongs to group I,II and III.

TESTES

Histo cytology of testicular tissue shows well differentiated germ cells with respect of spermatogonia includes spermatid and sperm were observed in sample belongs to group I,II and III.

UTERUS

Appearance of endometrium, myometrium and uterine glands was normal. Arrangement of stratum basale, functionale and surface epithelium seems normal in samples belongs to group I,II and III.

OVARY

Histopathological analysis of ovary showing normal corpus luteum (CL) and Primordial follicles with few mature ovarian follicles with no signs of abnormality. Appearance of antral follicle, primary oocyte and secondary follicles are normal in sample belong to group I,II and III.

ANNEXURE V

ANTI- HISTAMINE & IMMUNOMODULATOR ACTIVITY OF POOVARASU NEI

Molecular Docking Study Report

Name of the Client: Dr. R.BHARATHI SRI

Purpose: Computational Analysis

Project ID : NRS/AS/0017/01/2017

Formulation : Poovarasu Nei

Indication : **DERMATITIS (ECZEMA) / Immuno Modulatory Activity**

Source: Thespesia Populena

Phytocomponents	Action	Reference
Thespone	Anti histamine	http://fulltext.study/download/2548450.pdf
Mansonone	Anti bacterial	https://www.ncbi.nlm.nih.gov/pubmed/18274639
Kaempferol	Anti inflammatory	https://www.ncbi.nlm.nih.gov/pubmed/27680587

Compounds / Drug Selected for Docking based on literature

- Thespone
- Mansonone
- Kaempferol

Receptors / Target protein Selected for Docking

Name of the Protein	PDB code	Standard antagonist
Histamine 1 receptor	3RZE	Cetirizine
TNF alpha	2AZ5	Diclofenac
IL6 Interleukin	1P9M	Diclofenac
Cyclooxygenase I	3KK6	Ibuprofen
Cyclooxygenase 2	6COX	Celecoxib

Final Docking Result Analysis

Cyclooxygenase 1 Receptor

Rank	Amino Acid interaction	Compound	Amino Acid Sequence						
	10	**Ibuprofen**	205 PHE	209 PHE	348 TYR	352 LEU	381 PHE	385 TYR	387 TRP
1	**9**	**Kaempferol**	205 PHE	209 PHE	344 VAL	348 TYR	349 VAL	352 LEU	375 ASN
2	**5**	**Mansonone**	349 VAL	352 LEU	385 TYR	387 TRP	518 PHE	523 ILE	527 ALA
2	**5**	**Thespone**	349 VAL	381 PHE	384 LEU	385 TYR	387 TRP	518 PHE	523 ILE

Out of three compound's kaempferol has 9 interactions (90%) similar to that of the standard ibuprofen hence it has promising COX I inhibition activity similarly other two compounds has 50% percentage similar interaction to that of the standard ibuprofen hence all three compounds has COX I inhibition activity

Cyclooxygenase 2 Receptor

Rank	Amino Acid interaction	Compound	Amino Acid Sequence						
	5	Celecoxib	54 GLN	55 TYR	56 LYS	57 CYS	67 GLU		
1	2	Kaempferol	35 PRO	38 SER	40 PRO	42 GLN	55TYR	67GLU	68 ASN
0	0	Mansonone	38 SER	40 PRO	42 GLN	68 ASN	165 VAL	166 LYS	465 GLU
2	1	Thespone	67 GLU						

Out of three compound's kaempferol has 2 interaction (40%) similar to that of the standard Celecoxib hence it has promising COX 2 inhibition activity similarly other compound Thespone has 20% percentage similar interaction to that of the standard hence both compounds has COX 2 inhibition activity. Compound mansonone has no COX2 inhibition activity.

TNF Alpha Receptor

Rank	Amino Acid interaction	Compound	Amino Acid Sequence					
	5	Diclofenac	57 LEU	59 TYR	61 GLN	119 TYR	151 TYR	
3	3	Kaempferol	59 TYR	119 TYR	151 TYR			
1	5	Mansonone	57 LEU	59 TYR	61 GLN	119 TYR	151 TYR	155 ILE
2	4	Thespone	59 TYR	61 GLN	119 TYR	151 TYR		

Out of three compound's Mansonone has all 5 interactions (100%) similar to that of the standard Diclofenac hence it has Excellent TNF alpha inhibition activity similarly other two compounds Thespone has 90% percentage and Kaemferol has 75 % similar interaction to that of the standard hence all three compounds has promising TNF alpha inhibition activity.

IL 6 Receptor

Rank	Amino Acid interaction	Compound	Amino Acid Sequence						
	4	Diclofenac	66 LYS	168 ARG	169 SER	172 GLU			
1	4	Kaempferol	66 LYS	67 MET	74 PHE	168 ARG	169 SER	172 GLU	176 SER
1	4	Mansonone	66 LYS	67 MET	168 ARG	169 SER	172 GLU	173 PHE	176 SER
2	3	Thespone	66 LYS	67 MET	169 SER	172 GLU	173 PHE	176 SER	

Out of three compound's Mansononeand kaempferol has all 4 interactions (100%) similar to that of the standard Diclofenac hence it has Excellent IL6 inhibition activity similarly other compud Thespone has 75% percentage similar interaction to that of the standard hence all three compounds has promising IL 6 inhibition activity.

Histamine 1 Receptor

Rank	Amino Acid interaction	Compound	Amino Acid Sequence													
	15	Citrazine	84 ASN	103 TRP	107 ASP	108 TYR	111 SER	158 TRP	179 LYS	194 THR	424 PHE	428 TRP	431 TYR	432 PHE	435 PHE	454 ILE	458 TYR
1	9	Kaempferol	107 ASP	108 TYR	111 SER	112 THR	158 TRP	179 LYS	195 ALA	198 ASN	431 TYR	432 PHE	454 ILE	458 TYR			
0	0	Mansonone	No interaction														
2	7	Thespone	107 ASP	108 TYR	111 SER	115 ILE	198 ASN	199 PHE	424 PHE	428 TRP	431 TYR	432 PHE					

Out of three compound's kaempferol has 9 interactions (60%)similar to that of the standard Citrazine hence it has promising H1 receptor blocking activity similarly other compound Thespone has 46% percentage similar interaction to that of the standard hence both compounds has H1 receptor blocking activity. Compound mansonone has no H1 receptor blocking activity.

Conclusion

Based on the results of the computational analysis it was concluded that the compound's such as kaempferol,Thespone and mansonone present in the formulation Poovarasu Nei possess **significant inhibition of COX 1& 2, Histamine 1,TNF alpha and IL 6 inhibition activity** there it was concluded that this formulation **may have promising immuno modulatory activity and may effective against Atopic dermatitis.**

ANNEXURE VI

BIOSTATISTICAL ANALYSIS

Treatment for BalaKarappan(Atopic Dermatitis):

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

S. No	Clinical Features	Before Treatment	After Treatment
		n%	n%
1.	Itching	40(100)	4(10)**
2.	Vesicles	20(50)	5(12.5)**
3.	Oozing	19(47.5)	4(10)**
4.	Papules	40(100)	4(10)**
5.	Scaling	21(52.5)	5(12.5)**
6.	Erythema	38(95)	6(15)**
7.	Hyperpigmentation	40(100)	10(25)**
8.	Ulcer	5(12.5)	2(6)*
9.	Lichenification	19(47.5)	9(22.5)*

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

Software: spss17 version

Number of cases: 40

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 **BalaKarappan(Atopic Dermatitis).**Hence it is concluded that the treatment was **effective and significant.**

ANNEXURE -VII

GOVERNMENT SIDDHA MEDICAL COLLEGE

ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE

CHENNAI – 600 106

CLINICAL STUDY ON **"POOVARASU NEI "** IN THE TREATMENT OF **"BALA KARAPPAN'' (ATOPIC DERMATITIS IN CHILDREN)**

FORM l - SCREENING AND SELECTION PROFORMA

1.OP NO: .....

2. NAME: …….

3. AGE: …… 4.GENDER: …….....

5. F.OCCUPATION: …….. 6.F.INCOME: ……

7. ADDRESS: ……

……

……

8. CONTACT NO: ……

INCLUSION CRITERIA:

- Age : 3-7 Yrs Yes / No
- Itching Yes / No
- Patient having symptoms of erythema,vesicles,oozing. Yes/No
- Patient having symptoms of lichenification Yes/No
- Patients who are willing to undergo Laboratory investigation. Yes / No
- Patients who are willing to sign the informed consent stating that he/ she will conscientiously stick to the treatment during 48days but can opt out of the trial of his/ her own conscious discretion. Yes / No

EXCLUSION CRITERIA

(Clinical history)

History of scabies

History of photo dermatitis

History of secondary bacterial infection

History of furunculosis

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

CLINICAL STUDY ON **"POOVARASU NEI "** IN THE TREATMENT OF **"BALA KARAPPAN'' (ATOPIC DERMATITIS IN CHILDREN)**

FORM lI -HISTORY TAKING PROFORMA

1. SERIAL NO OF THE CASE: …….

2.OP/IP NO: .....

3. NAME: ……

4. AGE: ……..

5. GENDER: ……..

5.F. OCCUPATION: ……

6.F. INCOME: …….

.

7.COMPLAINTS & DURATION:

8.PERSONAL HISTORY:

9. HISTORY OF PREVIOUS ILLNESS

10. BIRTH HISTORY

11. DIETARY HABIT:

1.Vegetarian

2.Non-vegetarian

12. 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 ----------

Date:

Station

Signature of the Guide **Signature of the Investigator**

GOVERNMENT SIDDHA MEDICAL COLLEGE

ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE

CHENNAI – 600 106

CLINICAL STUDY ON **"POOVARASU NEI "** IN THE TREATMENT OF

"BALA KARAPPAN'' (ATOPIC DERMATITIS IN CHILDREN)

FORM III CLINICAL ASSESSMENT PROFORMA

1. SERIAL NO: ……

2.OP / IP NO: .....

3. NAME: …… 4.AGE: …… 5.GENDER: .....

GENERAL EXAMINATION:

Height (cms) : …….

Weight (kg) : …….

Temperature(°F) : …….

Pulse rate(/min) : …….

Heart rate(/min) : …….

Respiratory rate(/min) : …….

Blood pressure(mm/Hg) : …….

	Present	Absent
Pallor		
Jaundice		
Cyanosis		
Lymphadenopathy		
Pedal edema		
Clubbing		
Jugular vein pulsation		

SYSTEMIC EXAMINATION

CardioVascular System : …….

Respiratory system : …….

Gastro-intestinal system : …….

Central Nervous System : …….

Urogenital system : …….

Endocrine System : …….

SIDDHA SYSTEM OF EXAMINATIONS:

1. THEGI: [BODY CONSTITUTION]

1. Vatha udal
2. Pitha udal
3. Kaba udal
4. Thon

2. NILAM: [LAND WHERE PATIENT LIVED MOST]

1. Kurinji (Hilly terrain)
2. Mullai (Forest range)
3. Marutham (Plains)
4. Neithal (Coastal belt)
5. Paalai (Arid regions)

3. KAALAM:

1. Kaar kaalam
2. Koothir kaalam
3. Munpani kaalam
4. Pinpani kaalam
5. Ilavenil kaalam
6. Muthuvenil kaalam

4. GUNAM:

1.Sathuvam 2.Raasatham 3.Thaamatham

5. IMPORIGAL (SENSORY ORGANS):

Normal/Affected

Mei - ----------

Vaai ----------

Kann ----------

Mukku ----------

Sevi ----------

6. KANMENDHIRIYAM (MOTOR ORGANS):

Kai ----------

Kal ----------

Vaai ----------

Eruvai ----------

Karuvaai ----------

7. KOSANGAL (SHEATH):

Annamaya kosam ----------

Pranamaya kosam ----------

Manomaya kosam ----------

Vignana maya kosam ----------

Anandamaya kosam ----------

8. UYIR THAATHUKKAL: [THREE HUMORS] (VALI, AZHAL, IYAM)

A) VALI

Pranan –----------

Abanan ----------

Samanan ----------

Uthanan ----------

Vyanan ----------

Naagan ----------

Koorman ----------

Kirukaran ----------

Devathathan ----------

Dhananjayan ----------

B) AZHAL

Analakam ----------

Ranjakam ----------

Sathakam ----------

Prasakam ----------

Alosakam ----------

C) IYAM

Avalambagam ----------

Kilethagam ----------

Pothagam ----------

Tharpagam ----------

Santhigam ----------

9. SEVEN UDAL THATHUKKAL: (SEVEN SOMATIC COMPONENTS)

Saram ----------

Senneer ----------

Oon ----------

Koluppu ----------

Enbu ----------

Moolai ----------

Sronitham ----------

10. ENVAGAI THERVU:

I. NAADI: [PULSE PERCEPTION]

II. SPARISAM: [PALPATION]

III. NAA: [TONGUE]

IV.NIRAM: [COMPLEXION]

1. Vadham
2. Pitham
3. Kabam

V.MOZHI: [VOICE]

1. High Pitched
2. Low Pitched
3. Medium Pitched

VI.VIZHI: [EYES]

VII. MALAM: [BOWEL HABITS / STOOLS]

Niram

Irugal

Ilagal

Others

VIII. MOOTHIRAM [URINE EXAMINATION]

NEERKKURI:

Niram

Manam

Edai

Nurai

Enjal

NEIKKURI

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 KUZHANTHAI MARUTHUVAM

CLINICAL STUDY ON **"POOVARASU NEI "** IN THE TREATMENT OF

"BALA KARAPPAN'' (ATOPIC DERMATITIS IN CHILDREN)

FORM IV : LABORATORY INVESTIGATIONS PROFORMA

1. SERIAL NO OF THE CASE: ……

2.OP / IP NO: .....

3. NAME: …… 4.AGE: …… 5.GENDER: .....

A) BLOOD INVESTIGATIONS:

BLOOD INVESTIGATIONS		**BEFORE TREATMENT**	**AFTER TREATMENT**
Hb (gm/dL)			
Absolute eosinophil count (Cells/ul)			
ESR (mm)	**½ hr.**		
	1 hr.		
T.WBC (Cells / Cu.mm)			
Differential Count (%)	**Polymorphs**		
	Lymphocytes		
	Monocytes		
	Eosinophils		
	Basophils		

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

CLINICAL STUDY ON **"POOVARASU NEI "** IN THE TREATMENT OF **"BALA KARAPPAN'' (ATOPIC DERMATITIS IN CHILDREN)**

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 to my satisfaction.***

***I consent voluntarily to participate my chid in this study and understand that I have the right to withdraw my child from the study at any time without in any way it affecting my chid further medical care**".*

"I have received a copy of the information sheet/consent form".

Date:

Signature of the participant:

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:

Signature of a witness Left thumb Impression of the Participant

(Selected by the participant bearing no connection with the survey team)

Date:

Station:

Signature of participant:

Signature of the Guide: **Signature of the Investigator:**

அரசு சித்த மருத்துவக் கல்லூரி, சென்னை-106

அறிஞர் அண்ணா மருத்துவமனை, சென்னை

பால கரப்பான் நோய்க்கான சித்த மருந்தின் **(பூவரசு நெய்)**

பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கான தகவல் படிவம் ஒப்புதல் படிவம் ஆய்வாளரால் சான்றளிக்கப்பட்டது.

நான் இந்த ஆய்வை குறித்த அனைத்து விபரங்களையும் நோயாளிக்கு புரியும் வகையில் எடுத்துரைத்தேன் என உறுதியளிக்கிறேன்.

தேதி: கையொப்பம்:

இடம்: பெயர்:

நோயாளியின் பெற்றோர் ஒப்புதல் படிவம்

என்னிடம் இந்த மருத்துவ ஆய்வின் காரணத்தையும், மருந்தின் தன்மை மற்றும் மருத்துவ வழிமுறை பற்றியும், தொடர்ந்து எனது உடல் இயக்கத்தை கண்காணிக்கவும், அதனை பாதுகாக்கவும் பயன்படும் மருத்துவ ஆய்வுக்கூட பரிசோதனைகள் பற்றி திருப்தி அளிக்கும் வகையில் ஆய்வு மருத்துவரால் விளக்கிக் கூறப்பட்டது.

நான் எனது குழ்ந்தையின் இந்த மருத்துவ ஆய்வின் போது காரணம் எதுவும் கூறாமல், எப்பொழுது வேண்டுமானாலும் இந்த ஆய்விலிருந்து எனது குழந்தையை விடுவித்து கொள்ளும் உரிமையை தெரிந்திருக்கின்றேன். நான் என்னுடைய சுதந்திரமாக தேர்வு செய்யும் உரிமையைக் கொண்டு நோய்க்கான சிற்றாமுட்டி நெய் மருந்தின் பரிகரிப்பும் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கு என்னை உட்படுத்த ஒப்புதல் அளிக்கிறேன்.

தேதி: கையொப்பம்:

இடம்: பெயர்:

தேதி: சாட்சிக்காரர் கையொப்பம்:

இடம்: பெயர்:

உறவுதுறைத்தலைவர் கையொப்பம்: ஆராய்ச்சியாளர் கையொப்பம்:

GOVERNMENT SIDDHA MEDICAL COLLEGE, CHENNAI

CLINICAL STUDY ON **"POOVARASU NEI "** IN THE TREATMENT OF **"BALA KARAPPAN'' (ATOPIC DERMATITIS IN CHILDREN)**

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

CLINICAL STUDY ON **"POOVARASU NEI"** IN THE TREATMENT OF

"BALA KARAPPAN'' (ATOPIC DERMATITIS IN CHILDREN)

FORM VII – PATIENT INFORMATION SHEET

Name of Co- Investigator: R.Bharathi sri

Name of the college: Govt.Siddha Medical College, Arumbakkam, Chennai-106.

INFORMATION SHEET FOR PATIENTS PARTICIPATING IN THE OPEN CLINICAL TRIAL.

I,R.Bharathi sri studying M.D (Siddha) at Govt.Siddha Medical College, Chennai, is doing a clinical trial on ''Balakarappan" – **(**Atopic dermatitis)in children . 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"Poovarasu nei" (Internal medicine) 4 ml once in morning for 28 days.

The information I am collecting in this study will remain between you and the Co- investigator (myself). I will ask you few questions through a questionnaire. I will not write your name on this form. I will use a code instead.

The questionnaire will take approximately 20 minutes of your time.

If you wish to find out more about this study before taking part, you can ask me all the questions you want or contact R.Bharathi sri, PG Scholar cum Co-investigator of this study, attached to Govt. Siddha Medical College, Chennai-106. You can also contact the Member-secretary of Ethics committee, Govt.Siddha Medical College, Chennai.

அரசு சித்த மருத்துவக் கல்லூரி, சென்னை-106

அறிஞர் அண்ணா மருத்துவமனை, சென்னை

பால கரப்பான் நோய்க்கான சித்த மருந்தின் **(பூவரசு நெய்)**

பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கான தகவல் படிவம்

ஆராய்ச்சியாளர் பெயர்: மருத்துவர். ரா.பாரதி ஸ்ரீ

நிறுவனத்தின் பெயர்:அரசு சித்த மருத்துவக் கல்லூரி,அரும்பாக்கம்,சென்னை-106

அரசு சித்த மருத்துவக் கல்லூரியில் பட்டமேற்படிப்பு பயின்று வரும் நான் மருத்துவர் ரா.பாரதி ஸ்ரீ **பால கரப்பான்** என்னும் நோயில் மருத்துவ ஆராய்ச்சியில் ஈடுபட்டுள்ளேன்.

இந்த நோய் பரம்பரையாகவும் ஒவ்வாத உணவுப்பொருட்களை உட்கொள்வதாலும் ஒவ்வாமையை ஏற்படுத்தும் பொருட்களின் மேல் அடிக்கடி உராய்வதினாலும் உண்டாகிறது.

இது பரவக் கூடிய நோயல்ல.

இந்த ஆராய்ச்சி சம்பந்தமாக சில கேள்விகளைக் கேட்கவும், தேவையான ஆய்வகப் பரிசோதனைக்கு தங்கள் குழந்தையை உட்படுத்தவும உள்ளேன்.

இந்த ஆராய்ச்சிக்கு தங்கள் விருப்பத்தின் பேரில் உட்படும் பட்சத்தில் உள்மருந்நாக பூவரசு நெய் நெய் 4 மிலி பயன்படுகின்றது.

இந்த மருந்து சிறப்பாக பாண்டு நோய்க்காக அங்கீகரிக்கப்பட்ட சித்த மருத்துவ நூலில் கூறப்பட்டுள்ளது

இந்த ஆராய்ச்சியில் தங்களை அனுமதித்த பிறகு உங்களுக்கு விருப்பம் இல்லையெனில் எப்போது வேண்டுமானாலும் ஆராய்ச்சியில் இருந்து விலகிக் கொள்ள உரிமை உள்ளது.

இந்த ஆராய்ச்சிக்கு சம்பந்தமாக நோயின் தன்மை பற்றியும் மற்ற விபரங்களுக்கும் **ஆராய்ச்சியாளர் மருத்துவர்:** ரா.பாரதி ஸ்ரீ (பட்டமேற்ப் படிப்பாளர், குழந்தை மருத்துவத் துறை) அவர்களை எந்த நேரத்திலும் தொடர்பு கொள்ளலாம். கைப்பேசி எண்: 9597531340. மேலும் இந்த ஆராய்ச்சிக்கு தக்க அனுமதிச் சான்று (IEC) பெறப்பட்டுள்ளது.

இந்த்ரிலும் பாதுகாப்பான மூலிகை பொருட்களைக் கொண்டு தயாரிக்கப்பட்டுள்ளது. பக்க விளைவுகளை ஏற்படுத்தாது. மேலும் உணவு முறையில் மருத்துவரால் கூறப்படும் பத்தியம் காக்குமாறு அறிவுறுத்தபடுகிறது.

இது சம்பதமான தங்களது அனைத்து விவரங்களும் ரகசியமாக வைக்கப்படும் என உறுதி அளிக்கிறேன்.

இதில் பயணப்படி முதலிய எந்த உதவித் தொகையும் வழங்கப்படமாட்டாது. இந்த ஆராய்ச்சியின் போது உடலுக்கு வேறு பாதிப்பு ஏற்படும் பட்சத்தில் அறிஞர் அண்ணா மருத்துவமனையில் தக்க சிகிச்சை அளிக்கப்படும்.

அரசினர் சித்த மருத்துவக் கல்லூரி

அறிஞர் அண்ணா இந்திய மருத்துவமணை சென்னை-106

கரப்பான் நோயாளிகள் கடைப்பிடிக்க வேண்டிய உணவு வழிமுறைகள்

உணவில் சேர்க்க வேண்டியவை :

- **பச்சைகாய்கறிகள்**
- **கீரைவகைகள்**
- **திரிதோடசமபொருட்கள் (ஏலம், மஞ்சள், சீரகம், பெருங்காயம், மிளகு, சுக்கு, வெந்தயம், பூண்டு)**
- **முளைகட்டியதானியங்கள்**
- **பழவகைகள்**
- **தண்ணீர்**

உணவில் தவிர்க்க வேண்டியவை

- **கரப்பான்பண்டங்களானவரகு, கம்பு, சோளம், வாழைக்காய், பாகற்காய்**
- **மீன்வகைகள், முட்டை, கருவாடு, கோழிக்கறி**
- **கத்தரிக்காய்**
- **புளி**
- **ஊறுகாய்வகைகள்**
- **அதிகஅளவுஉப்பு**

GOVERNMENT SIDDHA MEDICAL COLLEGE

ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE

CHENNAI – 600 106

CLINICAL STUDY ON **"POOVARASU NEI"** IN THE TREATMENT OF

"BALA KARAPPAN'' (ATOPIC DERMATITIS IN CHILDREN)

FORM X - ADVERSE REACTION REPORTING FORM

SERIAL NO:

OP/IP NO:

NAME: **AGE:** **GENDER:**

DATE OF TRIAL COMMENCEMENT:

DATE OF OCCURRENCE OF THE ADVERSE REACTION:

TIME:

DESCRIPTION OF ADVERSE REACTION:

MANAGEMENT:

Date:

Station:

Signature of the Guide **Signature of the Investigator**

DEPARTMENT OF KUZHANTHAI MARUTHUVAM
DISSERTATION STUDY ON POOVARASU NEI IN
BALA KARAPPAN(ATOPIC DERMATITIS IN CHILDREN)
INVESTIGATOR- DR.R.BHARATHI SRI
ANNA HOSPITAL OPD-CHENNAI-106

OPNO/DATE:

Name:

Age/sex:

Parent name:

Address:

Pnone no:

COMPLAINTS AND DURATION:

Erythema,itching,papules,oozing,scaling,

Vesicles,pustules,oedema,ulcer/

Lichenification

SITES:

STAGE: ACUTE / SUBACUTE/ CHRONIC

MODE OF ONSET: ACUTE/ CHRONIC

ECONOMIC STATE: POOR / MIDDLE / RICH

DIET: VEG/MIXED

FAMILY HISTORY:

PAST HISTORY:

CONTACY ALLERGY/FOOD ALLRGY:

ON EXAMINATION:

PALLOR

HT

WT

CVS

RS

OTHERS

ENVAGAI THERVU:

NaaMalam

Niram Moothiram

MozhiNaadi

VizhiSparisam

INVESTIGATION

	BEFORE TREATMENT	AFTER TREATMENT
Blood Tc Dc Hb Esr Urine Alb Sug Dep Motion Ova Cyst others		

TREATMENT

WEEKS/DATE	Erythema	itching	Vesicles, oozing	Scaling/ pustules	Oedema/ ulcer	lichenification
I						
II						
III						
IV						
V						
VI						
VII						

RECURRENCE:

RESULTS:

ANNEXURE -8

GOVT SIDDHA MEDICAL COLLEGE AND HOSPITAL CHENNAI

Branch -IV KUZHANTHAI MARUTHUVAM

PROFORMA OF CASE SHEET FOR *BALA KARAPPAN*

OP. No : Nationality :

Name : Religion :

Age : Date of Admission :

Sex : Date of Discharge :

Address : Diagnosis :

Informant : Medical Officer :

1. Complaints and duration :

2. History of present illness :

3. History of Past illness :

4. Antenatal history :

5. Birth history :

6. Neonatal history :

7. Developmental history :

8. Nutritional history :

9. Immunization history :

10. Family history :

11. Socio economic status :

General examination

1. Appearance and posture :

2. Nutritional status :

3. Anaemia :

4. Cyanosis :

5. Clubbing :

6. Jaundice :

7. Lymphadenopathy :

8. Abdominal distension :

9. Pedal oedema :

Vital Signs

1. Temperature :

2. Pulse rate :

3. Respiratory rate :

4. Heart rate :

5. Blood pressure :

Anthropometry

a. Height :

b. Weight :

c .Chest circumference :

SIDDHA ASPECTS

Nilam

1. Kurinji :

2. Mullai :

3. Marutham :

4. Neithal :

5. Paalai :

Paruvakaalam

1. Kaar :

2. Koothir :

3. Munpani :

4. Pinpani :

5. Elavenil :

6. Muthuvenil :

Poripulangal

1. Mei :

2. Vai :

3. Kan :

4. Mooku :

5. Sevi :

Kanmenthiriyam

1. Kai :

2. Kaal :

3. Vaai :

4. Eruvai :

5. Karuvai :

Uyir thathukkal

Vadham

1. Praanan :

2. Abaanan :

3. Viyaanan :

4. Uthaanan :

5. Samaanan :

6. Naagan :

7. Koorman :

8. Kirukaran :

9. Devathathan :

10. Dhananjeyan :

Pitham

1. Analpitham :

2. Ranjagam :

3. Saadhagam :

4. Praasagam :

5. Aalosagam :

Kabam

1. Avalambagam :

2. Kiletham :

3. Pothagam :

4**.** Tharpagam :

5**.** Santhigam :

Udal kattugal

1. Saaram :

2. Senneer :

3. Oonn :

4. Kozhuppu :

5. Enbu :

6. Moolai :

7. Sukkilam / Suronitham:

Envagai thervugal

1. Naadi :

2. Sparisam :

3. Naa :

4. Niram :

5. Mozhi :

6. Vizhi :

7. Malam :

8. Moothiram :

MODERN ASPECTS

1. Respiratory System :

2. Cardiovascular system :

3. Gastro intestinal system :

4. Central nervous system :

5. Excretory system :

Signs and Symptoms of Bala Karappan

Itching:

Papules:

Erythema:

Vesicles:

Scaling:

Oozing:

Hyperpigmentation:

Laboratory investigations

Blood

TC :

DC :

ESR :

1/2 hr :

1 hr :

Hb% :

Urine

Albumin :

Sugar :

Deposits :

Investigation - Siddha aspect

1. Neerkuri

Niram :

Edai :

Manam :

Nurai :

Enjal :

2. **Neikuri**

3. Trial Drugs:

Poovarasu Nei(Internal)

3-7 yrs: 4ml once in the morning

3.Daily progress

Date	**Symptoms**	**Medicine**

GOVT. SIDDHA MEDICAL COLLEGE AND HOSPITAL,

POST GRADUATE DEPARTMENT. CHENNAI.

Branch -IV KUZHANTHAI MARUTHUVAM

ADMISSION - DISCHARGE CASE SHEET

Name of the Medical Unit:

IP. NO :

Bed no :

Ward :

Name :

Age :

Sex :

Permanent address :

Temporary address :

Informant :

Occupation :

Income :

Nationality :

Religion :

Date of Admission:

Date of discharge:

Diagnosis :

Medicalofficer:

S.No	CLINICALFEATURES (Signs and Symptoms)	During Admission	During Discharge
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

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