PART -1

A STUDY ON SENNAYURUVI
(Achyranthes bidentata Blume)
For Paandu Noi

PART-11

A STUDY ON MANDOORA PODI
For gunmam

Dissertation submitted to
The Tamilnadu Dr.M.G.R.Medical University,Chennai
In partial fulfillment of the requirements for
the award of Degree of

DOCTOR OF MEDICINE (SIDDHA)
BRANCH-11GUNAPADAM

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INTRODUCTION

Siddha is one of the ancient systems of medicines. Siddha system of medicine is a science, which deals with the perfection of life. This perfection was attained by persons who were called as “Siddhars”.

They were men of highly cultured intellectual and spiritual faculties’ combined with supernatural powers.

Siddha system is the mother of all healing arts in plants and it predates all healing systems.

Nature has given us a wide variety of medicinal plants to preserve good health and cure diseases.

“Health is Wealth”

Siddha science considers nature and mass as essentially one. Man is the part and parcel of the universal nature. Nature functions well in the human system.

The siddha medicine is well founded on the basic principles of nature and its elements after a careful and detailed study of the human system.

It defines the relative changes of the human body in responsible to the universe viz “Panjaboothic principles”, seasonal variations.

The forces behind the three are respectively referred to as vatham, pitham and kapham in the case of human body.

In a healthy person the respective ratio is 1:1/2:1/4. Any imbalance in the ratio can cause disease.

“நமிது தூய்மித்து தென்மெடும் மரியா 
 கூறிப் பெற்றோ அசையியும் சதும்”
The lifestyle of people, induce stress which is one of the causes of Gunmam (Acid peptic disorder). Adding fuel to the fire, the advent of the fast foods, tinned food and the other junk one are giving more trouble to the gastro intestinal tract.

Hence over straining of the gastro intestinal tract may lead to a lot of Acid peptic disorders. This is becoming a common disease of the world. It’s called Gunmam in Siddha concept.

It is estimated that roughly 10% of population is expected to develop Gunmam (Acid peptic disorder) during their life time and the percentage seems to be rising at an alarming rate.

By following the sample basic disciplines of habits and food laid down by our ancestors, the disease of stress such as peptic ulcer disease can be prevented and even cured.

In Siddha, many drugs are available for peptic ulcer (Gunmam) and “Mandoora podi” is one of them.

Mandoora podi has strong evidence in our siddha literature for Gunmam. Hence, I have chosen the drug as the trial.
AIMS & OBJECTIVES

Aim:
To prove the efficacy of “Mandoora podi” in the treatment of gunmam.

Objectives:
One of the stressful diseases in present life is peptic ulcer. Though there are several medicines for peptic ulcer in our system only few are in use.

The author K.C. Murugesamuthaliyar in his book Gunapadam Mooligai has mentioned that Mandoora podi can be used for peptic ulcer disease.

The dissertation deals with the Anti-Ulcer activity of Mandoora podi in the treatment of gunmam.

Mandoora podi was subjected to the following studies
1. Bio-chemical study
2. Anti-microbial study
3. Acute toxicity
4. Anti – Ulcer activity
5. Clinical study
REVIEW OF LITERATURE

Mandooram - Mandooram

心仪的文本

1. "Mandooram" 
2. "Kovanam" 
3. "Madhava" 
4. "Kerim" 
5. "Abhaya" 
6. "Gopakumar" 
7. "Murali"

3. "Kovanam" 
4. "Gopakumar" 
5. "Murali"

3. "Kovanam" 
4. "Gopakumar" 
5. "Murali"

"Murali 2071 - 2072"
உள்ளது - இல்லம்

பாரதக்காணம்:

"பாரத்தினுள் விளைவு கண்டு காண வேண்டும் கட்டும
பாலம். சிற்றெல்லையலை புகலையில் - முக்கியமான
சூருமதியுடன் சேர்த்தியலாம் ஒன்றுகே செய்யி
மறு எளிக்குதல் செய்யவும்"

பாரதம்:

பாரத, விளைவு, காணல், குடும்ப, அதிகாரிகள் குழு, திணவுப்
சாத்து பெண்சூரை தீர்த்து.

"சிற்றெல்லையலாய் விளைவு கண்டு காண வேண்டும் கட்டும
பாலம். சிற்றெல்லையலை புகலையில் - முக்கியமான
சூருமதியுடன் சேர்த்தியலாம் ஒன்றுகே செய்யி
மறு எளிக்குதல் செய்யவும்"

பாரதம்:

பாரத்தினுள் வாச விளைவு பெண்சூரை தீர்த்து குழுக்கள், அதிகாரிகள்,
சாத்து பெண்சூரை, செயன்பு, அதிகாரிகள், சாத்து பெண்சூரை, பெண்சூரை
தீர்த்து குழுக்கள்.

சொய்லை நோக்கிச் செய்து குழந்தை, செயன்பு குழந்தை
செயன்பு குழந்தை
செயன்பு குழந்தை
செயன்பு தீர்த்து
1. நூற்றுக்கணவு12

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3. மாநில நூற்றுக்கணவு15
4. அணு தொட்டம் கிலோ கிரமீன்

புக்களில் கரை - 3 மலர்
மாலைப்பு அரை கரை - 3 மலர்
அரைப்பு கரை - ¼ மலர்
சுற்று கரை - 1 மலர்.

திறந்து பேருந்து விளக்கு கரை

மாநிலங்களின் குறிப்பிட்டிடம் தொடர் தொடர்கள் மற்றும் மாநிலங்கள் மற்றும் குறிப்பிட்டிடம் தொடர் தொடர்கள்

அணு - 1 மலர் 2 மலராக - ஒன்று குழுவா
துணை மாநிலங்கள் - முக்கியம், தோற்றம் முதலிய குழு - அணு தொட்டமாக கிரமீன்

5. சுருக்கம் குறிப்பிட்டிட

6. குழுநிலையில் குறிப்பிட்டிட

7. துணை துணை

8. துணை துணை குழு (குழு குழு)

9. குழு துணை

10. துணை துணை

11. இணை துணை

12. இணை துணை

13. துணை

14. துணை

15. துணை

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பிற முக்கியக்கள்:
Mandooram:

Ferroso – Ferric oxide

Ferric oxide precipitatum fuscum (BSP)

Vernacular Names:

San – Mandooram
Eng – Iron rust, impure oxide of iron
Tam – Irumbo chittam
Hin – Lohaka – Zang
Tel – Innupa chittumu
Ben – Logar – gu
Gui – Lodhano – kata

Ferric oxide precipitatum fuscum (BPC) or ferric peroxidum Rubrum is prepared iron rust consisting of small particles of iron (or) forge scales scattered round the black smith’s anvil. When hot iron is beaten on it, these by exposure to air become rusty and brittle. Then they are considered fit for use.
They are then roasted again and powdered very finely. Mandooram is thus purified and prepared for use like cast iron. The properties of Mandooram are similar to those of cast iron.

Indications:
- Chronic bowel complaints
- Dyspepsia
- Intestinal worms
- Nervous diseases
- Anaemia
- Amenorrhoea
- Dysmenorrhoea
- Menorrhagia

Uses:
- Guda Mandura is a favourite medicine for dyspepsia with pain after taking food.
- Dose is 2 grains each twice a day after food for dyspepsia congested liver.
- It is used in haemoptysis and haematuria.
Gunapadam Aspect:

துருக்கம்

ஆப்பைக்கிளி, காதிக்கி,
சம்கி, கீசிக்கி, குறிகி,
சந்திக்கி, சித்தாந்தா,
செந்தாயி, இயுபாயாம்,
மாமாரி, இயுபபாந்தாம்,
மாமாரி, இயுபாத்தாண்டி,
சதிகி, சதஸ்வதிகி,
சதஸ்வதிகி, சதஸ்வதிகி,
சதஸ்வாந்தி, முப்பாந்தி, தேகி, தந்தாந்தி,
பாந்தாம்.

மத்தியம்:

இன்று ருத்தரபாடு என்று உட் காலம்போடு.

சம்பந்தம்:

சம்பந்தம், சம்பந்தம், சம்பந்தம்

சுருக்கம்:

சம்பந்தம்

பயன்பாடு என்றக்:

சம்பந்தம்
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சுருக்க:

தேவாஸியா

நிஜப்போது

செல்லவிட்டு

நெறுத்துக்கான

மீண்டுது

மக்கள் எண்வட்டம்

முதல் கல்வி:

“சுருக்கம் தொடர்பு அமெரிக்காவில் நூற்றுக்கண்ட விளைவு சேர்த்து கி.நூற்று வரையில் லியா நாட்டு ஆண் தருணத்தில் போர்த்தின வரிசைப் பிரிவை மறுபக்க பல்வேறு தொழில்நுட்ப இருக்கின்ற டீசர பல்கலைக்கழகம் பல்கலைக்கழகம்”

மூலக்கூறு:

சுருக்கம் அமெரிக்காவில் நூற்றுக்கண்ட விளையாட்டு, வசாக்தம், எம் திரும்பி, மின்கலம், கால்மா விளையாட்டுப் பல்கலைக்கழகம். இரு பல்கலைக்கழகம், புறநிலை பல்கலைக்கழகக் குறித்து அல்பீக்கு வாய்வு பல்கலைக்கழகம்

முலக்கூறு:

சுருக்கம் தொடர்பு துணை - பார்வை விளையாட்டு நூற்று

தொடர்முறை பல்கலைக்கழகம், சுருக்கம் விளையாட்டு

தொடர்முறை அமெரிக்காவில் நாட்டு ஆண் தருணத்தில் பயிற்சிப் பள்ளிகள், புறநிலை பல்கலைக்கழக குறித்து தொடர்முறை.

சுருக்கப்பட்டது 325 நிலையான நூற்று தொடர்முறை பல்கலைக்கழகம்

முன்னிலமை விளையாட்டு துணை முன்னிலமை முன்னிலமை தொடர்முறை அமெரிக்காவில் பல்கலைக்கழகம்

முன்னிலமை பல்கலைக்கழக குறித்து தொடர்முறை முன்னிலமை தொடர்முறை

தொடர்முறை பூந்தூர பகுதியை காணும் துணை பல்கலைக்கழக பெண்கள்

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அதிநா புத்தாம்

அதிநா

தூரபொதிக் தல மம்மா

மண்டியம் தூரபொதிக் தல மம்மா உன் அதிநாக்கு விளக்காக கணிக் கோரியல்களில் கூட்டம். இவ்விலை நீண்டு கப்பர் என உரையாட்டு பல்லியமண்.

அலை - 244 ம.மி. (½ பாய்விளை)

சின்ன பிரிவு - தொல்லடக்கி, கைலம்

அழகமான - அருள்நிறாத்

பகுதி தொகுதிய புத்தாம்:

குறிப்புத் தொல்லடக்கி பெண்ணாடா

அழகமானது எச் சந்திக்கி பெண்ணாடா

புத்தாண்டு எச் சந்திக்கி பெண்ணாடா

சின்னாண்டு எச் சந்திக்கி பெண்ணாடா

குறிப்பு

இந்துக்களாடாமலைகள் குறாட்டம் முழுக்கு உத்ரகாய்கள் கூட்டகளு இந்துக்களாடாமலைகள் குறாட்டம் முழுக்கு உத்ரகாவர் வல்லிகள் அருள் குறித்து வாகியச் சுடை பெண்ணாடா

அலை: 4 - 8 அல்லைமை நீண்டு

சுற்றுக் குறிப்பு - கல்லினார்க், வருடக்கார்கினார்க்

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சின்ன பிரிவு - சுற்றுக் குறிப்பிட்டு கல்லினார்க்

- அதிகாரங்கள், மாநிலங்கள் கூட்ட வேற்பாடுகள் உள்ளது.

சின்னாண்டு வளாகத் தனிக்கான தனிப்புத்துச் செய்யும் வழிகோள் கள்: தமிழ் எழுத்துமுறை முறை 18

தமிழ் எழுத்துமுறை 18
மகா நிராகரம்

இருவர் காரணம் மார்க்கல்

சுப்பூ பாசு

காத்தி குரு குரீடம்

மார்க்கங்கள் நாள் நூற்றாண்டு

மார்க் கைலாண்டு திங்களம்

பாதுகாப்பு குரீடம்

அன்னாலும் அப்படி காணத்

காவல்வாய் மார்க்கல்

மார்க்கங்களில் வியாகம்

ெடுக்கவாள மார்க்கல்

சுண்ணவாள் குரீடம்

மறைவத்து கிலோமீட்டர்
Botanical aspect:
Achyranthes aspera linn.

Benthem and Hookers classification:
Kingdom – plantae
Division – Magnaliophyta
Class – Dicotyledons
Subclass – Monochlamydeae
Series – Curvembryeae.
Family – Amaranthaceae
Genus – Achyranthes
Species – aspera

Syn

Areva aspera

Vernacular Names:
Eng – prickly chaff flower
Hindi – chirchita, chichanda
Kan – Utlarani
Mal – katalati, vankatalati
Tel – Apamargamu
Unani – chirchita
Oriya – Apamaranga, Apamargo
M.P – Agya, korrochi

Distribution:
Through out India, upto an altitude of 2100m and in the south and haman island, commonly seen in as a weed of way side waste place through India.
Phytography\textsuperscript{38} (or) Botanical description:

Annual or perennial herbs.
30 - 90 cm tall, often with a woody base.
Branches obtusely - 4 - angled, striate, pubescent.

Leaves:
Leaves thick, ovate – elliptic or obvate – rounded, but variable in shape and size.

Flowers:
Greenish white, numerous in axillary or terminal spikes up to 75 cm long.

Seeds:
Seeds subcylindric truncate at the apex, rounded at the base reddish brown.

PART USED: Whole plant

ACTIONS\textsuperscript{38}:
The plank is acrid
Bitter
Thermogenic
Expectorant
Carminative
Digestive
Stomachic
Anodyne
Depurative
Anthelmintic
Diuretic
Lithotripic
Haematinic &
Anti inflammatory

USES:
It is useful in asthma
bronchitis
flatulence
colic
painful inflammation
vomiting
leprosy
dropsy
skin diseases
piles
Renal and vesical calculi
cardiac disorder
Anaemia

Ayurvedic properties:
Rasa – Katu, Tikta
Guna – Laghu, Ruksha, Teekshna
Veera – Ushna
Vipaka – katu
Doshaghnata – kaphavatashamaka
Doses:

Juice 10 – 20 ml
Root powder – 3-6 gm
Seeds – 3 gm
Kshar (water soluble extract of ash) – ½ - 2 gm

CHEMICAL CONSTITUENTS:

Root:

Ecdysone
Ecdysterone
Inokosterone
Oleanolic acid
Glycoside

Seeds:

Saponin A (C_{50} H_{80}O_{18}, mp 187 – 91)
Saponin A (C_{55} H_{90}O_{24}, mp 200 – 05)

Fruit:

Saponin - C
Saponin - D
Oleanolic acid

Whole plant:

Alkaloids- achyranthine
Plant ash – rich in betaine potash

The dried, dehused seed have,

Moisture – 9.1%
Proleins – 22.5%
Fat – 4.7%
Carbohydrates – 56.1%
Fibre – 1.8%
Ash – 4.6%
Calcium – 0.1%
Phosphorus – 0.46%
Iron – 0.0093%

PHARMACOLOGICAL ACTIVITIES³:
  Diuretic
  Spasmolytic
  Hypoglycaemic
  Antibiotic
  Antifungal
  Abortifacient
  Hypotensive
  Purgative
  Vasodilator
  Cardiac depressant
  Cardiac stimulant

THERAPEUTIC EVALUATION:
  • Decoction of whole plant to useful for leprosy along with improvement in general health.
  • The ash of the plant clears stomach problems of the delivered ladies and correct the menstrual cycle.
  • The ash along with rice gruel cures ascities.
  • Opium along with the juice of the leaves is kept in the sun for drying, the mixture dried could be used externally for herpes.
  • The clear water of the soaked ash is used for treating ear disorders.

FORMULATIONS AND PREPARATIONS³ (Ayurveda)
Agastya haritaki
Kaphaketu rasa
Apamarga kshara taila
Apamarga taila
Apamargadi vati
Gulmakalanal ras
Mahashankha vati

**Compnd. Ind. Med. plants** – 1990-1994 page-7

*Aspera. L* (compend. Ind. Med plants Vol.4)

Shoot essential oil showed antifungal activity against Aspergillus carneus.

**Compnd. Ind. Med. plants** – Vol2 page-8

Seeds used as emetic and in treatment of hydrophobia.

Stem bark extract showed significant abortifacient activity in mice.

**Ecdysterone (polypodine A) from roots**

Two oleanic acid based saponins from fruits and ecdysone from roots.

**Biological activity:**

Mixed of seed saponins increased force of contraction of isolated guinea pig and rabbit heart and this effect at lower dose war plo.

Saponins also increased tone of hypodynamic heart and force of contraction of failing papillary muscle.
Investigation of the antimicrobial activity of Achyranthes aspera.

The crude methanolic extract was active against microorganisms except E.coli, Bas.subtilis, y.enterocotitica and candi albicans.

The non-alkoloid fraction was found to be more effective against the tested microorganism giving inhibition zone diameters of 14mm using discuss with a diameter of 6mm.

From the results obtained it could be concluded that the Non-alkaloid fractions is proved to be responsible for the antimicrobial effect.

Effect of namak chirchita (Achyranthes aspera)

The effect of khakistar chirchita in bronchial asthma has been evaluated. The overall average relief in clinical features was found as 72.8 per cent in bronchial asthma cases.

Evaluation of analgesic and anticonvulsant of alcoholic extract of Achyranthes aspera.

The ethanolic extract of Achyranthes aspera was used for the study. The acetic acid induced writhings and tail immersion test were used to evaluate analgesic effect while anticonvulsant activity was performed by maximal electroshock induced convulsions.
The phytoconstituent of plant materials of nefrostone has been shown to facilitate expulsion of urinary calculi of moderate size. The traditional usage of multi-ingredient formulation Nefreostone exhibits significant diuretic and antimicrobial activity for the management of sub-clinical and clinical UTI. Each 500mg capsule of Nefrostone contains plants such as Apamarg(Achyranthes aspera), Gokku, punarnava.
Gunapadam Aspect

பிள்ளை:

கோவில், குத்தி, கண்டவியல், கோஞ்சங்கல், நீதிமலர், நோர்சுகுத்து கனவியல் பாடல் கல்வியல், மற்றப்படி

பலம்:

கிளோமால், கும்பகோண நாக நீதியாலாவது.

பரண்டம் இரட்டி:

விளையாட்டு, விளையாட்டு

காளம்:

காளம், காளம்

செபாப்பன்:

அடையாளப்பட்டும்
பூனையைக்குறித்து
எழுப்புகள்கரை
நோய்களத்தாக்கிய
மருந்துகள்
நூற்றாண்டிக்கு
"ஏனையின் பரம்பரை நாயக்கர் கதைகள்
ஏற்றியும் புனிதவர் சாதேஷியர் - கால்கு
சாதேஷியர் மார்சு கதையின் முதலில்
தொன்நம்பி கி.வி.சென்னிக்கியல் கூறு."

"ந.க."
பலவாத:

பிறக்க வலியும், அமையும், குறுக்குகளை அலங்கரித்து நுழைவின் மூலமாகவும்.

பிறக்க வேதம் மூழ்ச்சியில் சான்றிகொள்வது:

ஜூர் தசாய்ச்சி திசை கிராமம்

குண்டு

பிறக்க

முறுமி

கல்லாலராக

இவர்களே நம்பக்கூற்று சான்றிகொள்வது காரணத்துடன் நேரடியாக வேதத்தில் குறுத்து தவும் தியானமாக.

சார்பார் குரலம்:

பிறக்க

முறுமி

பலம்-1

சுருக்கம்

சிறிதும்

பலம்-¾

சீரமைக்கக்கூற்று

பலம்-½

இவர்கள் நின்றே தான் தான்கூற்று பகுதியாக அலங்கரித்து வேதம் நேரடியாகவும் நம்பக்கூற்று சான்றிகொள்வது தவும். வலியும் குறுமியிலேயே, அலங்கரித்து குறுமியிலே, தன் தான்கூறு வேதம் நேரடி.

75

2. ஆராய்ச்சியும் குரலம்

3. அழுது மட்டுமே குரலம்
Botanical Aspect:

Kingdom – Plantae – Plants
Subkingdom – Tracheobionata – Vascularplants
Superdivision – Spermatophyta – Seed Plants
Division – Magnaliphyta – Flowering Plants
Class – Magnoliopsida – Dicotyledons
Sub Class – Magnolidae
Order – Piperales
Family – Piperaceae
Genus – Piper
Species – nigrum.

Vernacular Names:

Sans – Maricham
Eng – Black Pepper
Hind – Kali-mirich
Habitat:
Mostly found in southern India Cultivated in Tamil Nadu and Kerala.

Description:
The pepper plant is a weak climbing or trailing shrub with adventitious roots, reaching a length of about 9 meters in the wild state.

Leaves:
Leaves are large, broad, ovate and round.

Flowers:
Flowers appear in long spikes.

Fruits:
A berry gathered from ripe and dried, forms a black pepper corn which are 6 mm across
Fruits are turning red when ripe.

Parts Used:
Berries collected as soon as becoming red and dried.
Action:

Stimulant
Carminative
Stomachic
Anti-blennorrhagic

Medicinal Uses:

It increases appetite and fortifies the digestive system.

It is used to treat dyspepsia, Malaria, Haemorrhoids, tremors and delirium.

It is used as an aphrodisiac.

Pepper mixed with Cinnamon is used for treating migraine.

It possesses preservative properties and is used to preserve perishable foods.

It is used in confectionery beverages, canning, picking and baking.

Identify, Purity, Strength and Assay:

Foreign Organic Matter – Nil

Purity - 100%

Physico-chemical Constants (%):

Total ash - 5.60
Water-soluble ash - 3.57 – 5.15
Acid insoluble ash - 0.03 – 0.55
Volatile oil - 1.0 to 2.5%
Chemical Constituents

Starch
Resin
A volatile essence
Cellulose
Albumin
Malic Acid
Mineral Salts

The Alkaloid piperine is responsible for filling taste of black pepper.
MATERIALS & METHODS

Collection of drug:
The raw drugs

Mandooram – Ferric Oxide
Dried Nayuruvi – *Achyranthus aspera* (Whole Plant)
Mizhagu – *Pepper nigrum*

were collected from the raw drug shop at Chennai.

Purification of all Ingredients:
The trial drug **Mandoora Podi** was taken from **Mooligai Vaguppu**, written by K.C.Murugesan Mudaliyar.

**Administration of the drug:**

Form of medicine – Choornam
Route – Enteral
Dose 1 gm twice a day after food
Vehicle – Lukewarm Water(50ml).
3. C ANTI MICROBIAL STUDIES:

The anti bacterial activities of different extracts of Mandoora podi/Sennayuruvi Chooranam (Acyranthes bidentata) were studies by Disc diffusion method against the following organisms.

1. Streptococcus mutans
2. Staphylococcus aurens
3. Escherichia coli
4. Klebsiella pneumoniae
5. Pseudomonas aeruginosa.

METHODOLOGY:

Extracts of Sennayuruvi /Mandoora podi Chooranam were used in the concentration of 100, 50 and 25 ml using their respective solvents. Ciprofloxacin (50 mcg/disc) was used as standard. The disc diffusion method was employed for the screening of anti-bacterial activity.

DISC DIFFUSION METHOD:

A suspension of organism was added to sterile soya bean casein digest agar media at 45°C, the mixture was transferred to sterile petridishes and were allowed to solidify. Sterile discs, 5mm in diameter, dipped in solutions of different extracts, standard and a blank was placed on the surface of agar plates. The plates were left standing for one hour at room temperature as a period of pre incubation different solutions. Then the plates were incubated at 37°C for 18 hours and observed for anti-bacterial activity. The diameter of zones of inhibition were observed and measured. The average area of zones of inhibition were calculated and compared with that of standards.
RESULTS

Zone of inhibition in mm

<table>
<thead>
<tr>
<th>Organism</th>
<th>Standard drug</th>
<th>Test drug (MP µl/disc)</th>
<th>Zone of incubation in mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ciprofloxacin 50mcg/disc</td>
<td></td>
<td>10µl</td>
</tr>
<tr>
<td>Srep. Mutans</td>
<td>29</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Staph. Aurens</td>
<td>30</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
<td>E.coli</td>
<td>32</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>K.pneumoniae</td>
<td>31</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>Ps. areginosa</td>
<td>30</td>
<td>19</td>
<td>22</td>
</tr>
</tbody>
</table>

14 mm – Low sensitive, 15mm – Moderate, above 16mm – Highly sensitive

Note

Sample concentration:

4gm – 400ml of solvent in 25 µl, 50 µl and 100 µl / disc

Standard for Bacteria:

Ciprofloxiacin HCL, 50 mcg / disc.

3. D. BIO-CHEMICAL ANALYSIS:

Preparation of Extract:

5g of Mandoora podi chooranam is weight accurately and placed in a 250 ml clean beaker and added with 50ml of distilled water. Then it is boiled well for about 20 minutes. Then it is cooled and filtered in a 100ml volumetric flask and made up to 100 ml with distilled water.
### Qualitative analysis of Acidic/Basic radicals and phytochemical constituents in test drugs

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Observation</th>
<th>Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test for Calcium</strong></td>
<td>2 ml of extract is taken in a clean test tube. To this add 2 ml of 4% ammonium oxide solution.</td>
<td>No white precipitate is formed</td>
</tr>
<tr>
<td><strong>Test for Sulphate</strong></td>
<td>2 ml of the extract is added to 5% barium chloride solution.</td>
<td>White precipitate is formed</td>
</tr>
<tr>
<td><strong>Test for Chloride</strong></td>
<td>The extract is treated with Silver nitrate solution</td>
<td>White precipitate is formed</td>
</tr>
<tr>
<td><strong>Test for carbonate</strong></td>
<td>The substance is treated with Conc. HCl.</td>
<td>Effervescence is formed</td>
</tr>
<tr>
<td><strong>Test for Starch</strong></td>
<td>The extract is added with weak iodine solution</td>
<td>Blue colour is formed</td>
</tr>
<tr>
<td><strong>Test for Iron (Ferric)</strong></td>
<td>The extract is treated with glacial acetic acid and potassium ferrocyanide</td>
<td>No blue colour is formed</td>
</tr>
<tr>
<td><strong>Test for Iron (Ferrous)</strong></td>
<td>The extract is treated with Conc. HNO₃ and ammonium thiocyanate</td>
<td>Blood red colour is formed</td>
</tr>
<tr>
<td><strong>Test for phosphate</strong></td>
<td>The extract is treated with ammonium molybdate and conc. HNO₃</td>
<td>Yellow precipitate is formed</td>
</tr>
<tr>
<td><strong>Test for Tannic acid</strong></td>
<td>The extract is treated with Ferric chloride</td>
<td>Blue black precipitate is formed</td>
</tr>
<tr>
<td><strong>Test for Unsaturation</strong></td>
<td>1 ml of Potassium permanganate solution is added to the extract.</td>
<td>Get decolourised</td>
</tr>
<tr>
<td>Procedure</td>
<td>Observation</td>
<td>Inference</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>------------------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td><strong>Test for saponins</strong></td>
<td>Dilute extract + 1ml of distilled water shake well.</td>
<td>Froth formation</td>
</tr>
<tr>
<td><strong>Test for sugars</strong></td>
<td>Dilute extract + 1ml of distilled water shake well.</td>
<td>Presence of carbohydrate</td>
</tr>
<tr>
<td><strong>Benedict method</strong></td>
<td>5ml of Benedict solution heated gently then add 8 drops of diluted extract then heated in a boiling water bath.</td>
<td>Colour change</td>
</tr>
<tr>
<td><strong>Molisch test</strong></td>
<td>Dilute extract + 2 drops of Molisch + 3ml conc.H₂SO₄</td>
<td>Reddish violet zones appeared</td>
</tr>
<tr>
<td><strong>Test for steroids</strong></td>
<td>Liberman Burchard test; Dilute extract + 2 ml acetic anhydride + conc.H₂SO₄</td>
<td>No formation of red colour</td>
</tr>
<tr>
<td><strong>Test for amino acids</strong></td>
<td>Dilute extract + 2ml of Ninhydrin’s soln.</td>
<td>Formation of violet colour</td>
</tr>
<tr>
<td><strong>Test for proteins</strong></td>
<td>Biuret method; 1ml of dilute extract + 1ml of 5% CuSO₄ + 1% NaOH</td>
<td>Formation of violet colour</td>
</tr>
<tr>
<td><strong>Test for Flavanoids</strong></td>
<td>Dilute extract + mg bits + 2 drops of conc. HCl and gently heated.</td>
<td>No formation of pink colour</td>
</tr>
<tr>
<td><strong>Test for phenol</strong></td>
<td>Dilute extract + 2 drops of FeCl₃ soln.</td>
<td>No deep green colour is formed</td>
</tr>
<tr>
<td><strong>Test for Tannins</strong></td>
<td>Dilute extract + 2ml of 10% lead acetate add.</td>
<td>White precipitate formed</td>
</tr>
<tr>
<td><strong>Test for alkaloids</strong></td>
<td>Mayer’s method; 1ml of dilute extract + 1ml reagent.</td>
<td>Appearance of cream colour precipitate</td>
</tr>
<tr>
<td>Dragendroff’s method; 1ml of dilute extract + 1ml of reagent.</td>
<td>Appearance of orange colour precipitate</td>
<td>Presence of alkaloids</td>
</tr>
</tbody>
</table>
RESULT:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Constituents</th>
<th>MP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Calcium</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Iron (Ferric)</td>
<td>Trace</td>
</tr>
<tr>
<td>3.</td>
<td>Iron (Ferrous)</td>
<td>+</td>
</tr>
<tr>
<td>4.</td>
<td>Sulphate</td>
<td>+</td>
</tr>
<tr>
<td>5.</td>
<td>Chloride</td>
<td>+</td>
</tr>
<tr>
<td>6.</td>
<td>Carbonate</td>
<td>+</td>
</tr>
<tr>
<td>7.</td>
<td>Starch</td>
<td>+</td>
</tr>
<tr>
<td>8.</td>
<td>Phosphate</td>
<td>+</td>
</tr>
<tr>
<td>9.</td>
<td>Tannic acid</td>
<td>+</td>
</tr>
<tr>
<td>10.</td>
<td>Unsaturated</td>
<td>+</td>
</tr>
<tr>
<td>11.</td>
<td>Sugar</td>
<td>+</td>
</tr>
<tr>
<td>12.</td>
<td>Alkaloids</td>
<td>+</td>
</tr>
<tr>
<td>13.</td>
<td>Steroids</td>
<td>-</td>
</tr>
<tr>
<td>14.</td>
<td>Protein</td>
<td>+</td>
</tr>
<tr>
<td>15.</td>
<td>Tannins</td>
<td>+</td>
</tr>
<tr>
<td>16.</td>
<td>Phenols</td>
<td>-</td>
</tr>
<tr>
<td>17.</td>
<td>Flavanoids</td>
<td>-</td>
</tr>
<tr>
<td>18.</td>
<td>Saponins</td>
<td>+</td>
</tr>
<tr>
<td>19.</td>
<td>Amino acid</td>
<td>+</td>
</tr>
<tr>
<td>20.</td>
<td>Glycosides</td>
<td>+</td>
</tr>
</tbody>
</table>

INFEERENCE:

The inorganic analysis of Mandoora podi/ Senayuruvi chooranam showed the presence of following chemicals.

**Acid radicals**

- Sulphate
- Chloride
- Phosphate
Basic radicals
- Iron (Ferrous)
- Potassium
- Magnesium

Miscellaneous
- Strarch
- Sugar
- Amino acid
- Protein

Phytochemical
- Tannic acid
- Tannins
- Alkaloids
- Suponins

PHARMACOLOGICAL STUDY
Test Drugs:

The drug Mandoora podi was used in the study was collected and processed by the methods prescribed in Gunapadam Mooligai Vaguppu.

Preparation of drug for dosing

The drug used for the study was suspended each time with water before administration.

Drugs and chemicals

Fine chemicals used in these experiments were obtained from Sigma Chemicals company, U.S.A. other analytical grade chemicals were obtained from S.d. fine Chemicals Ltd., Mumbai.

Experimental animals
Colony inbred animals strains of Wistar albino mice of either sex weighing 15-20g used for the pharmacological and toxicological studies. The animals were kept under standard conditions 12:12 (day/night cycles) at 22 °C room temperature, in polypropylene cages. The animals were fed on standard pelleted diet (Hindustan Lever Pvt Ltd., Bangalore) and tap water *ad libitum*. The animals were housed for one week in polypropylene cages prior to the experiments to acclimatize to laboratory conditions. The experimental protocol was approved by the Institutional Animal Ethical Committee (IAEC).

**ACTE ORAL TOXICITY STUDY METHODOLOGY**

Acute oral toxicity was conducted as per the OECD guidelines (Organization of Economic Cooperation and Development) 423 (Acte Toxic Class Method). The acute toxic class method is a stepwise procedure with 3 animals of single sex per step. Depending on the mortality and/or moribund status of the animals, on the average 2-4 steps may be necessary to allow judgment on the acute toxicity of the test substance. This procedure results in the use of a minimum number of animals while allowing for acceptable data based scientific conclusion.

The method uses defined doses (5, 50, 300, 2000 mg/kg body weight) and the results allow a substance to be ranked and classified according to the Globally Harmonized System (GHS) for the classification of chemicals which cause acute toxicity.
Wister albino albino mice of either sex weighing 15-20 g were fasted overnight, but allowed water ad libitum. Since the formulation is relatively non toxic in clinical practice the highest dose of 2000 mg/kg/p.o (as per OECD guidelines “Unclassified”) was used in the acute toxicity study.

The animals were observed closely for behavioural toxicity, if any by using FOB (Functional observation battery).

**ACUTE TOXICITY STUDY**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>1 hr</th>
<th>2 hr</th>
<th>3 hr</th>
<th>4 hr</th>
<th>8 hr</th>
<th>24 hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Activity</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>Gait</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Reaction to stimulus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. sound</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>b. Touch</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>c. Light</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Lacrimation</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Salivation</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Pilo erection</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Stimulant</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Depressant</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Defecation</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Rearing</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Licking of paw</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Convulsions</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

N - Normal
RESULT

Mandoora podi at the dose of 2000mg/kg/po did not exhibit any mortality in rates. As per OECD 423 guidelines the dose is said to be “Unclassified” under the toxicity scale. Hence further study with higher doses was not executed.
Gastric ulcers in rats were procedured by 4 hrs pylorous ligation (Goel R.K, 1985). Briefly ulcer was induced in 18 hrs fasted rats Pylorous Ligation (PL). Gastric ulcer was induced by ligating the pyloric end of the stomach without causing any damage to the blood supply under diethyl ether anaesthesia. The animals in pyloric ligation induced GU were sacrificed after 4 hrs. The ulcer index in the above groups were calculated by adding the total number of ulcer per stomach and total severity of ulcers as +1 per stomach. Ulcer index was scored based upon the product of length and width of the ulcer present in the glandular portion of the stomach (mm²/rat).

**Effect of on gastric ulceration induced by 4 hrs pyloric ligation in rats**

<table>
<thead>
<tr>
<th>Oral treatment</th>
<th>Pyloric ligation (4 hrs)</th>
<th>pH of samples</th>
<th>Morphological observation of ulcer index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ulcer index (Unit/100ml)</td>
<td>% protection</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>2.76 ± 0.810</td>
<td>-</td>
<td>1.85 ± 0.660</td>
</tr>
<tr>
<td>Standard.</td>
<td>4.43 ± 0.127</td>
<td>62.5</td>
<td>5.24 ± 0.261</td>
</tr>
<tr>
<td>Test drug (MP) (500mg/kg. p.o.,)</td>
<td>5.46 ± 0.633***</td>
<td>64.6</td>
<td>5.36 ± 0.172***</td>
</tr>
</tbody>
</table>

n=6; Values are expressed as mean ± S.D followed by Students Paired ‘T’ Test

***P<0.001 as compared with control.
Mandoora podi (MP) treatment protected the animals from experimental gastric ulcer induced by pyloric ligation in rats (Table 5). The test drug gave a protection of 46% against 62.5% protection given by standard antiulcer H₁ receptor antagonist ranitidine.

Mandoora Podi exhibited significant gastric protection effect against pyloric ligation gastric ulcer model. There was significant reduction in the ulcer index with almost nil mucosal damage as evidenced by morphological examination of gastric mucosa of treated rats. Ranitidine the standard H₁ receptor blocker used as the standard drug for comparison did not exhibit gastric protection. The pH of the gastric contents showed an increase in pH when compared to control animals. The volume of gastric juice is also reduced in the treated animals. All these parameters observed in experimental study have good correlation with the clinical study reported in this thesis.
CLINICAL ASSESSMENT

The drug *Mandoora podi* has chosen as a therapeutic agent for gunmam.

About the disease

“அச்சை”

About the disease:

According to the siddher, “Yogi the aetiology of gunmam is

“எண்ப காரணம் தையம்

நர்பிகை வில்லசை டெலாண்பார்

நேரம் பிக்குமை

நேரம் பிரிந்து வலித

நேரம் அம்பிரு விளக்க

நேரிலும் மையந்து”

“அக்கையாம் காரணம் காரணம் - 1500”

In our system of medicine, it is mainly caused by

i. Dietic Variations

ii. Karmic law
1. Excessive consumption of astringent food.
2. Excessive indulgence in sexual intercourse.
3. Excessive intake of roots and spices.
4. Unhealthy food habits – especially not adhering to a proper time schedule.
5. Emotional imbalance – anger, fear, anxiety etc.

These lines portray, gunmam as the cumulative effect of sins committed by an individual, they are
1. Spoiling the harmony of a family.
2. Despicable thoughts, words and action.
3. Talking ill of others especially noble men and
4. Not sharing the food with poor and needy.

These-ill-attitudes of the people can cause perpetual tension to them and to their neighbours.
CLINICAL STUDY

The clinical study was carried out in Gunapadam post graduate out patient department, Aringar Anna Govt.hospital, Chennai-106.

Study- Design:

This was an open non comparative clinical trial.

Selection of patients:

40 patients were selected in both male and female, and the selection of patients was based on the following including and excluding criteria.

Including criteria:

- Age 20-60 yrs, sex, occupation, personal habits, diets and socio-economic status
- Epigastric pain
- Heart burn
- Loss of appetite
- Abdominal discomfort

Excluding criteria:

- Nausea, vomiting
- Eructation
- Radiating abdominal pain as in pancreatitis, appendicitis.
- Acute abdominal colics
- Cancer of the stomach.
- Complication of peptic ulcer as haemorrhage, perforation, malignancy at the site of the ulcer.
Withdrawal criteria:
- Irregular treatment
- Patients who followed dual treatment

Line of treatment:
The patients were orally administered with Mandoora podi of dose 1gm twice a day with 50ml of water before food.

Study Procedures:
40 patients were selected for clinical trial on the basis of inclusion criteria. For all the cases full clinical data was recorded and they were diagnosed on the basis of siddha principles and modern parameters.

No symptoms    - 0
Presence of mild symptoms       - 1
Presence of moderate symptoms - 2
Presence of severe symptoms     - 3
Presence of very severe symptoms – 4

The total score was calculated before and after treatment. The patients were followed up for 6 weeks and score evaluations were recorded at the end of each week and a complete clinical and the follow up investigations were done at the end of 6th week
- Urine routine
- Blood
  TC, DC, ESR, Hb%
  Sugar, Urea, Cholesterol
  Endoscopy
Medical Advice and Diet:

Our Siddhars have said

“ஓட்டு மன்னம் மன்னர்கள் ஓட்டு”

Do’s:
Following food to be taken more

  - Banana, grapes
  - Almond milk
  - Raw goats milk
  - Carrots and cabbage juice
  - Butter milk

  chew every morsel thoroughly
  Meals must be small and frequent

Don’ts:

1. Intake of food stuff during stress and anxiety.
2. Foods, drinks which are too hot or too cold can be avoided.
3. Spicy foods, carbonated drinks to be avoided.
Observation and Results of Clinical Study:

The clinical study was subjected to 40 selected cases.
The following parameters were observed during the course of treatment:

Age
Sex
Socio-economic status
Personal habits and diet
Occupational status
Signs and symptoms

AGE:
Among 40 patients
25% of the patients belong to the age group 21-30yrs
30% of the patients belong to the age group 31-40yrs
35% of the patients belong to the age group 41-50yrs
10% of the patients belong to the age group 51-60yrs

Table

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Age</th>
<th>No. of patients</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21-30</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>31-40</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>41-50</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>4</td>
<td>51-60</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>
SEX:

Among 40 patients

45% were male and the remaining 55% were female patients observed.

**Table**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Sex</th>
<th>No.of patients</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>male</td>
<td>18</td>
<td>45</td>
</tr>
<tr>
<td>2</td>
<td>female</td>
<td>22</td>
<td>55</td>
</tr>
</tbody>
</table>

PERSONAL HABITS AND DIET:

Among 40 patients

Non-Vegetarian diet was recorded in 45%, smoking in 8%, Alcohol consumption in 25% were observed.

**Table**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Personal habits and diet</th>
<th>No.of patients</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Non-veg</td>
<td>22</td>
<td>55</td>
</tr>
<tr>
<td>2</td>
<td>Smoking</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Alcohol</td>
<td>10</td>
<td>25</td>
</tr>
</tbody>
</table>
SOCIO-ECONOMIC STATUS:

Among 40 patients

50% were poor, 37.5% were middle and 12.5% were rich.

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Socio-economic condition</th>
<th>No. of patients</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Poor</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>Moderate</td>
<td>15</td>
<td>37.5</td>
</tr>
<tr>
<td>3</td>
<td>Rich</td>
<td>5</td>
<td>12.5</td>
</tr>
</tbody>
</table>

OCCUPATIONAL STATUS:

Among 40 patients

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Occupational status</th>
<th>No. Of patients</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Labours</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>House wife</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>Students</td>
<td>5</td>
<td>12.5</td>
</tr>
<tr>
<td>4</td>
<td>Tailor</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Others</td>
<td>9</td>
<td>22.5</td>
</tr>
</tbody>
</table>
## SIGNS AND SYMPTOMS

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Signs and Symptoms</th>
<th>No. of Patients</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Epigastric Pain</td>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Heart Burn</td>
<td>35</td>
<td>87.5</td>
</tr>
<tr>
<td>3.</td>
<td>Regurgitation</td>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td>Vomiting</td>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>5.</td>
<td>Abdominal Distension</td>
<td>38</td>
<td>95</td>
</tr>
</tbody>
</table>

## IMPROVEMENT

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Signs and Symptoms</th>
<th>Before Treatment</th>
<th>After Treatment</th>
<th>Improvement</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Epigastric Pain</td>
<td>40</td>
<td>10</td>
<td>30</td>
<td>75</td>
</tr>
<tr>
<td>2.</td>
<td>Heart Burn</td>
<td>35</td>
<td>7</td>
<td>28</td>
<td>70</td>
</tr>
<tr>
<td>3.</td>
<td>Regurgitation</td>
<td>40</td>
<td>12</td>
<td>28</td>
<td>70</td>
</tr>
<tr>
<td>4.</td>
<td>Vomiting</td>
<td>40</td>
<td>15</td>
<td>25</td>
<td>62.5</td>
</tr>
<tr>
<td>5.</td>
<td>Abdominal Distension</td>
<td>38</td>
<td>8</td>
<td>30</td>
<td>80</td>
</tr>
</tbody>
</table>

Among 40 patients, 100% had Epigastric Pain, Regurgitation, Vomiting, 75%, 70%, 62.5% had improvement. 87.5% had Heart burn 70% had improvement, 95% had abdominal distension 80% had improvement.
DISCUSSION

Today’s fast moving life style with its unhealthy food habits and increased stress are taking its role on human health and among the disease caused due to the occurrence of gunmam is increasing at an alarming rate.

Maruthuvar Murugesu Mudha良ar in his book Gunapadam-Mooligai has mentioned that Mandoora podi can be used to treat gunmam.

According to siddha system, Gunmam is caused by the derangement of vadha thathu.

“இன்னோ இந்த .... தனம் சாராத - விளக்க”

“வர்கள் நுக்கை

நூற்றிய நுள்ளை திண்டம்...

குருக்கமிக துவாராக விளக்க.”

“(ம.ட.ம) கிழா.”

காரார் குறைழாக தொடர் முடிய தொடரிசைதலாம், லேபிழிய புதிகில்வாக லாங்கா.

“இன்னோடேந்தீ....

குலல் குரைல் அல்ல தொடர்ம் தொடர்மாக

குலல் யூரியம் இந்தே எண்ணக - கிழா.

அல்ல இந்த தொடரிசைதலாம், அருங்கிய அழை தொடம் அனிதே

அரியாம், அருங்கிய பனகாலும் பானகாலும் தொடர்மாக தொடர்பாலாம்.

இயற்கைத்து நேவியம் இல்லாகத்தே.
The taste of Mandoora podi is karpu (Vayu+Theyu) and it has veppa veriyam. Even though the drug Mandoora podi has got kaarpu suvai, it helps to decrease the deranged vatham which is the root cause for Gunmam disease. So the drug acts on basis of oppurai theory.

40 patients of age from 20 to 60 were selected.
The heart burn was found to decrease in 30 patients.
epigastric pain was found to be 40 patients, decreased in 32 patients.
Abdominal discomfort was found to be 38 patients, decreased in 30 patients.
Vomating was found to be 40 patients, decreased in 25 patients.

The clinical findings have shown that the people belonging to the age group 20 to 40 years are mostly affected and the people of poor socio-economic status, particularly females are affected and especially drivers and labours are prone to gunmam. The people who have taken much of non vegetarian food items and alcohol are commonly affected.

The anti microbial study of Mandoora podi shows that it is hypersensitive to Staph aurens, E.coli, anti-bacterial agent.

The bio chemical analysis of Mandoora podi shows the presence of carbonate, phosphate, Iron, Alkaloids, proteins and chloride.

The Anti-ulcer activity of Mandoora podi passifies the activity levels of the gastric juice and protects the gastric mucosa from injury. Hence, it is proved to be good for Gunmam.
The clinical study has been conducted under the following criteria: Age, Sex, Socio-economic status, personal habits, Diet and occupation.

On giving Mandoora podi the people belonging to the following category showed better improvement. Male, Middle class and rich people, 20 to 40 years age group students and housewife.

The Alcoholists, Non vegetarians and smokers showed late recovery.

From the above studies it is found that Mandoora podi works good in the treatment of Gunmam.

Hence Mandoora podi has been proved to be clinically effective against Gunmam.
SUMMARY & CONCLUSION

- Mandoora podi is a herbomineral product, easily available and economical, moreover the preparation is simple.
- There are many strong evidences in Siddha literature that the trial drug treats Gunmam effectively.
- The anti microbial study shows its anti-bacterial activity.
- The pharmacological study of mandoora podi showed it as a passifer of gastric acidity by protecting the gastric mucosa.
- The results of clinical study clearly indicates the effectiveness of mandoora podi in treating gunmam by proving good in 82% and moderate in 14%
- The above evidence concludes beyond doubt that Mandoora podi is very effective in treating gunmam.
**INTRODUCTION**

In the ancient ages, man during his wanderings in search of food came across many plants which could not be used as food has certain properties which could cure diseases in man. This was the beginning of medicine.

Any system of medicine is only an evolution and not an overnight invention also the traditional tamil system evolved with the development of mankind.

Siddha is a tamil word that is derived from the root ‘cit’ which means perfection in life (or) heavenly bliss, it greatly refers to Astamasiddhi (eight kinds of supernatural power)

The persons who have achieved such miraculous powers in life are known as “siddhars”. They were men of highly cultured intellectual and spiritual faculties combined with supernatural power.

Siddhars has a sound knowledge about all kinds of plants, metals and other poisonous drugs and their physical and chemical properties.

Siddhars, the ancient spiritual scientists have prepared medicines using plants, animals minerals and products of marine origin. Which selecting the line of treatment their first for manufacturing a plant origin.

The siddha system of medicine in its advanced spheres are keeping several things as secret remedies.

A scientific invention may bring many effective medicines from this vegetable kingdom.

The present study of Sennayuruvi (Achyranthes bidentata) is tried for the disease panndu (Anaemia).
Now-a-days people are shifting over to herbal medicine to avoid side effects.

Anaemia is a common in rural and remote places due to poor standard of living ignorance about diet. Though varied reasons are enumerated for deficiency state, imbalanced diet accounts the first and most some of our people are seen with pale look and shiny appearance, which are some landmarks of under nourishment.

This condition is called paandu noi in our siddha system. This condition is called anaemia in modern aspects.

In modern system of medicine, paandu (anaemia) is classified according to cause viz, blood loss, impaired red cell and their haemoglobin content viz, normocytic, hypochromic.

Moreover, economically growing countries like India, above 60% of the women population suffering from paandu noi (anaemia). This is the most common cause of ill-health in them.

This is probably due to the result of many factors, such as poor intake of food and absorption, together with loss of iron during menstruation, repeated pregnancies, prolonged lactation and parasitic infestation.

This has furtherly created an idea to study a suitable herb Sennayuruvi (Achyranthes bidentata) for above disease.

So, I have selected Sennayuruvi Chooranam (Acyranthes bidentata) (Achyranthes bidentata) for its haematinic activity and efficacy for paandu noi (Anaemia).
AIMS & OBJECTIVES

AIM:

To prove the efficacy of Sennayuruvi choornam (Achyranthes bidentata) as Haematinic to treat paandu noi.

OBJECTIVES:

Sennayurvi (Achyranthes bidentata) is a well known drug throughout India, as a tremendous remedy for dental diseases. In siddha literature Sennayuruvi is also mentioned for “Paandu noi”. Which from various causes like iron deficiency, worm infections etc.

The herb Sennayuruvi (Achyranthes bidentata), which is commonly available in Tamil Nadu, is a herbal drug possessing medicinal properties to cure anaemia. This study has been carried out because of the herb is abundantly available; but there has little research work been done. Sennayuruvi choornam (Achyranthes bidentata) in treatment of paandu with scientific parameters.

Sennayuruvi choornam was subjected to the following studies

1- Pharmacognostic study
2- Phytochemical study
3- Bio chemical study
4- Pharmalogical study
5- Anti-microbial study
6- Clinical study
Gunapadam Aspect

Bot. Name → Achyranthes bidentata

 breve: Achyranthes bidentata is commonly found in Tamil Nadu, India. It is a herbaceous plant with alternating leaves and white flowers. The plant is known for its medicinal properties, particularly in treating gastrointestinal disorders.

- “Nakka Pathi Pathiyar” – 1200”

• Achyranthes Bidentata
• B. Bidentata
• Medicinal Uses
• Arthritis
• Tumours
• Cystitis
• Hepatitis
→ A herbaceous plant with white flowers, commonly found in Tamil Nadu, India. It is used for its medicinal properties, particularly in treating gastrointestinal disorders.

Samaptham: Karpagam

Karmam: Karpagam

Saham: Karpagam

Pongal: Karpagam

Samaptham: Karpagam
“நான் வெறுமல்பின் புனர் சாக்கையற்றுக்கு எனும் நல்லே மெய்குற்றப்பட்டு - நல்லே மானிடும் என்று நான் கூறினேன் காலனித்துவம் காற்றால் குறிப்பிடும் நோல் இவற்றின் காலம்”

-“அக்கிழவர் சன்னதியான”

அம்மக்:

• யூனியன் எப்பிரியின் நடைபெறும் பாடல் நிற்க முற்பரப்பில் நடைபெறும் நாட்களில், நூற்றாண்டுகள் முற்பக்காக, மேற்கு அம்மகக் குழு நூற்றாண்டுகளில் புனர்முற்பக்காக, கூறுவதாக, என்பது, இத்தன்மை, இயற்றக்குடிய இயற்றால் என்பதை அறிவதைப் போற்றும் நீக்க வேண்டும்.

• மக்கள் மூன்றாம் பாதை வழியில் நீக்க, மன அம்மகக் குழு என்பதை அறிவதைப் போற்றும்.

• இயற்றப்பட்ட நிலை உள்ளது அரசு அம்மகக் குழுவின் புனர்முற்பக்காக நூற்றாண்டுகள் கூறுவதாக, என்பதை மூலமே முதன்மையான அவர்கள் உள்ள போற்றும் நீக்க வேண்டும்.

• புனர்முற்பக்காக நிலை உள்ளது அரசு அம்மகக் குழு என்பதை அறிவதைப் போற்றும்.

• என்றாலும் அம்மகக் குழு முற்பக்காக, சுற்றும் போற்றும் நீக்க வேண்டும்.

• புனர்முற்பக்காக, போன்ற வழியில் நீக்க வேண்டும்.

• புனர்முற்பக்காக, போன்ற வழியில் நீக்க வேண்டும்.

• தோற்றவளி முற்பக்காக, குறிப்பிட்டு அமைக்கும் வகை அம்மகக் குழுவின் புனர்முற்பக்காக மூன்றாம் பாதை முற்பக்காக நூற்றாண்டுகள் கூறுவதை அறிவதைப் போர்ப்பான முற்பக்காக நீக்க வேண்டும்.

• வைத்தியப்பாடுகள் முற்பக்காக நூற்றாண்டுகள் % அளவுக்கு 1 முற்பக்காக வைத்தியப்பாடுகள் விளக்கம் முற்பக்காக நூற்றாண்டுகள் கூறுவதை அறிவதைப் போற்றும்.

• இன் வைத்தியக் காலம் முற்பக்காக நூற்றாண்டுகள் விளக்கம்.

• காலமிட்டு வைத்தியப்பாடுகள் முற்பக்காக விளக்கம்.

• முற்பக்காக முற்பாடுகள் விளக்கம் நூற்றாண்டுகள் விளக்கம்.
1) பார்வா: உருவக்கலை "சாஸ்கரோஜன் சார்க்கால்" 13

2) மேற்கு புறமும்:

3) கிருட்பமாக மேம்படுத்தும்

4) புறமாக மேம்படுத்தப்பட்டது செய்யப்பட்டுள்ள வரலாற்றுலக தலைப்புகள், எழுதிய உரைகள், பொறுப்பானவைகள் அடையாளமாக காணப்படுகின்றன. இது பெருமான் தொழிலாளர் முனைவரின் கீழ், அதாவது முனைவரால் தயாரித்த உரைகளாக காணப்படுகின்றன.
அனுமா - ஜுத்ம் பலகிட
அவர்கள் - பிள்ளி தோற்ற
இதுவே விளம்ப - மாற்று

பரந்தவழியில் ஒரு பல பாசத்திட்டம் மறுக்கும்:

• இந்த ஒன்றாக ஐந்துகள்
  அனுமா - காட்டட்டப்புக்களால்
  காட்டத் பல ஒக்கை

• கிராமத்தில் விளம்பம்
  அனுமா - காட்டட்டப்புக்களால்
  காட்டத் பல ஒக்கை

• பலகை போக்கும்
  குறுகிய கோயில் அறிமுகம் கைத்த்த கை 
  மறுக்கும், தன்னாராய் போக்கும் என்னை

• சென்று பாயும் கிராமத்தில்
  குறுகிய கோயில் அறிமுகம் கைத்த்த கை 

• கிராமத்தில் கிளம்பா
• பலகை போக்கும் கிராமத்தில் விளம்பம்
• தீவும் விளம்பம் - விளம்ப (தீவு)
  அனுமா - காட்டட்டப்புக்களால்

4. காரணம், பலகை போக்கும் மறுக்கும்:

இந்தத் தீவும் போக்கும் கோயில் விளம்பம் கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த கைத்த்த 

Achyranthes bidentata Blume

Kingdom - Plantae - plants
Division – Magnoliophyta
Class – Dicotyledons
Subclass – Monochlamydeae
Series – cuvembryeae.
Family – amaranthaceae
Genus – Achyranthes
Species – bidentata

Syn: 38

Achyranthes wightiana
   A. lanceolata
   A. aspera wall

Veenacular Names: 38
   Asm. Apamarga
   bankhat
   Lushai – vangvathus
   Tamil – nagaranji,
   Sigappu naaiyurvi

The word apamarga is from Apa or Ap, Water, Marga, a washer man. This is in allusion to a large quantity of alkaline ashes the fruits contain, and which is used by washer man along with water for cleaning cloths.

Distribution:

It is distributed at the hilly districts throughout India at altitudes of 1,200-3,200 m and is common in waste places and in shady-oak forests.
Ecology and Cultivation:

Grows in shady places, forest borders, wastelands, wild.

Phytography:

Leaves:

Leaves elliptic - oblong or oblong - Lanceolate rounded or cuneate at the base, thinly hair present

Flowers:

White or green in axillary and terminal spikes.

Fruits:

Fruits have one – seeded.

Seeds:

The Seeds are used as food during times of scarcity as a substitute for cereals.

Phenology: 38

Flowing peak during November – March, fruiting almost through out the year

Parts Used: Whole plant

Action: 38

Haematinic
Diuretic
Astringent
Stomachic

**Indications:**
- Cough
- Asthma
- Bronchitis
- Dyspepsia
- Dropsy
- Leprosy
- Anaemia.

**Thearapeutic Uses:**
- The leaves are used as a cure for gonorrhoea
- In the alkaloid ‘achyrol’ present in Achyranthes bidentata is useful in treating leprosy.
- Alcoholic and aqueous extracts of the leaves showed antibiotic action against micrococcus phyogenes var. aureus and E. coli.
- The leaves along with pepper and garlic are made into tablets to treat periodic fever.
- Fresh tender leaves along with turmeric are a good external application for fistula.

**Flowers:**
The flowers ground and mixed with curd and sugars are given as a medicine for menorrhagia.
The flower – tops are slated to the employed for the treatment for rabies.

**Seeds:**

- Powdered seeds are soaked in butter milk and given for blindness
- Seed are used to emetic.

**Root:**

- Root decoction terminates pregnancy, the root decoctions also could be used to check stomach ache, indigestion, warm infection, belching, oedema and jaundice.
- The metaled zinc and lead could be calcinised with this root.
- The juice of Sennayuruvi is applied in tooth ache.
- It has a great reputation in dog bites and bites of snakes and other venomous Reptiles.

- A Medicated oil is dropped into the ear in deafness and noises in the ears.
- The ash along with rice gruel cures for ascites.
- The ash of the plant clears stomach problems of the delivered ladies and corrects the menstrual cycle.

**Chemical contents**

- Et OH (50%) extract of plant spasmol
- Root: edysterone,
  - Inokosterone,
  - Rubrosterone,
Alkaloid contents of root and stem at different growth stages.

**Seeds:**

Sapogenins which contain B-amyrine  
The dried, dehusked seed have  
  Moisture 9.1  
  Protein 22.5  
  Fat 4.7  
  Carbohydrates 5.6%  
  Fibre 1.8  
  Ash 4.6  
  Calcium 0.1  
  Phosphorus 0.46  
  Iron 0.0093%

**2002-02-0872-MAPA**  
Triterpene saponins from the roots of achyranthes a bidentata.  
Three saponins oleanolic acid 28-0-beta-D-glucopyranosyl, chikusetsu sapanonin and 3-0-Beta-D- glucopyranosyl – oleanolic acid – 28-0-beta- D-glucopyranosyl side were isolated from the roots of achyranthes bidentata.
Trietrepene saponins from Achyranthes bidentata
Isolation, structural, determination and biologicals tests of three
further triterpene saponins have been investigated.

Achyranthes bidentata Blume

Root extract showed anti-microbial activity (J. Ind. Chem.
Soc.1990)
3. A. PHARMACOGNOSTICAL STUDIES

Sennayuruvi (Achyranthes bidentata):

The plant of Sennayuruvi chooranam Bl. (Fam. Amaranthaceae) was collected from Theni, identified by Dr. Sasikala Ethirajula, Botanist, Central Research Institute, Arumbakam, Chennai-106. Free hand as well as microtome sections were taken and double stained.

Alcoholic safranin (0.5%) counter stained with 0.25% fast green. This schedule gave good results for studying the histology of different tissues of the plant organs. All sides, after staining in safranin were dehydrated by employing graded series of ethyl alcohol (30%, 50%, 70%, 90% and absolute alcohol) and stained fast green in clove oil and xylil-alcohol (50-50) and passed through xylol and mounted in DPX mounted (Johansen 1940).

Clearing of leaf was done by using 5% sodium hydroxide solution supplemented by concentrated chloral hydrate (Wallis 1997). Photomicrographs were taken with the help of Nikon Eclipse E200 Microscope.

**Macroscopic:**

**Stem:** Angular, ribbed, simple or branched from the base, reddish purple.

**Leaf:** Leaves very variable, elliptic, ovate – lanceolate or linear, acuminate, membranous, pubescent, about 2 cm. long in some cases upto 8 cm. long, 1.5 cm broad.

**Microscopic:**
Stem: Transverse section of stem is angular with small ridges. (Fig II A). Epidermis is single layered, covered by thick cuticle having uniseriate, 2 to 4 celled trichomes. Cortex is divided into 2 zones. In the outer cortex, the sub epidermal region of ridges composed of collenchyma cells and other regions made up of chlorenchyma cells. (Fig. II. B). Inner cortex is made up of oval shaped parenchyma cells. It is followed by vascular cylinder, which separates cortex and pith (Fig. II. A).

Vascular bundles are arranged as a ring and capped by pericyclic fibres. (Fig. II, C,D). Pith is large and composed of thin-walled parenchyma cells. Two medullar bundles are situated in the centre. Microsphenoidal calcium oxalate crystals present in cortical and pith parenchyma cells.

Transverse section of mature stem shows thin-walled cork cells. Pericycle is made up of lignified fibres arranged as a discontinuous ring. Vascular tissues show anomalous secondary growth having 4 to 6 incomplete rings of xylem and phloem. Pith wide consisting of oval to polygonal parenchyma cells with two medullary bundles in the centre.

Leaf:

Midrib: Shows a large protrusion on the adaxial face and convexity on the abaxial side (Fig. III E). Epidermis single layered and some cells elongate to form uniseriate trichomes. Epidermis followed by 2 or 3 layered collenchyma on upper side 1 or 2 layered on lower side. Ground tissue consisting of thin-walled parenchymatous cells having four vascular bundles in the centre. Three vascular bundles are arranged as an arc, and one on the adaxial side.

All the bundles are capped by thick-walled, non-lignified 2 or 3 layers of pericycle. Large druses of calcium oxalate crystals are found scattered in
the ground tissue. Large druses of calcium oxalate crystals are found scattered in the ground tissue (Fig. III F, H).

**Lamina:** Dorsiventral; shows single layered tangentially elongated epidermal cells having covering trichomes which are similar to those of steam found on both surfaces. Palisade tissue consists of 2 or 3 layered of slightly elongated parenchyma cells. Spongy tissue made up of 3 or 4 layers thick more or less isodiametric parenchymatous cells. Idioblast containing large rosette (druses) crystal;s of calcium oxalate are distributed in mesophyll tissue (Fig. III G). Stomatal index 18 to 26/mm² for lower surface.

**Trichomes:** Trichomes are uniseriate, with 3 or 4 cells (Fig. III K)

**Epidermis in surface view:**

The adaxial foliar epidermis is composed of hexagonal straight walled cells and devoid of stomata (Fig. III I). The abaxial foliar epidermis is made up of smaller cells and their walls are wavy in nature. It is perforated by anomocytic stomata (Fig. III. J).

<table>
<thead>
<tr>
<th>Fig.</th>
<th>A</th>
<th>-</th>
<th>Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>I I A</td>
<td>-</td>
<td>T.S. of stem – ground plan</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>-</td>
<td>T.S. of stem showing medullary bundles</td>
<td></td>
</tr>
<tr>
<td>C&amp;D</td>
<td>-</td>
<td>T.S. of stem – enlarged showing vascular bundles &amp; sclerencyma fibres.</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>-</td>
<td>T.S. of leaf</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>-</td>
<td>T.S. of leaf – upper portion enlarged</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>-</td>
<td>T.S. of lamina</td>
<td></td>
</tr>
</tbody>
</table>
H - T.S. of lamina
I - Adaxial folia epidermis
J - Adaxial folia epidermis
K - Uniseriate trichomes

Abbreviations

Chl - chlorenchyma
Co - Collenchyma
Cor - Cortex
Dr - Druses of calcium oxalate crystal
Ep - Epidermis
Mb - Medullary bundle
P - Parechyma
Pa - Palisade tissue
Ph - Phloem
Sf - Sclernchyma fibre
Sp - Spongy tissue
St - Stoma
Tr - Trichome
Vb - Vascular bundle
Vc - Vascular cylinder
3. B. PREPARATION OF CHOORANAM:

The trial drug Sennayuruvi Chooranam (*Acyranthes bidentata*) was taken from a Siddha literature “Gunapadam Mooligai” written by Murugesan Mudaliyar.

**Collection of drug:**

The drug Sennayuruvi (*Acyranthes bidentata*) was collected from Theni district, and the identification was confirmed by Botanist, CRRI, Arumbakkam and then it was purified.

**Purification of the drug:**

The whole plant were cleaned by fresh water and dried.

**Method:**

The purified dried plant of Sennayuruvi (*Acyranthes bidentata*) were finely powdered and filtered by using a white cloth (Vasthira Kayam).

**Storage of Choornam:**

The choornam was stored in a clean dry, tightly stoppered container. As the life of choornam is for 3 months it was used within that period.

**Administration of drug:**

- Form of medicine: Choornam (Powder)
- Route: Enteral route
- Dose: 1 gm twice a day after food
- Vehicle: water
ANTIMICROBIAL STUDY

The anti-bacterial activities of different extracts of Sennayuruvi Chooranam (Acyranthes bidentata) were studied by Disc diffusion method against the following organisms.

1. Streptococcus mutans
2. Staphylococcus aurens
3. Escherichia coli
4. Klebsiella pneumoniae
5. Pseudomonas aeruginosa.

METHODOLOGY:

Extracts of Sennayuruvi Chooranam (Acyranthes bidentata) were used in the concentration of 100, 50 and 25 ml using their respective solvents. Ciprofloxacin (50 mcg/disc) was used as standard. The disc diffusion method was employed for the screening of anti-bacterial activity.

DISC DIFFUSION METHOD:

A suspension of organism was added to sterile soya bean casein digest agar media at 45°C, the mixture was transferred to sterile petridishes and were allowed to solidify. Sterile discs, 5mm in diameter, dipped in solutions of different extracts, standard and a blank was placed on the surface of agar plates. The plates were left standing for one hour at room temperature as a period of pre incubation different solutions. Then the plates were incubated at 37°C for 18 hours and observed for anti-bacterial activity.
The diameter of zones of inhibition were observed and measured. The average area of zones of inhibition were calculated and compared with that of standards.

RESULTS

<table>
<thead>
<tr>
<th>Organism</th>
<th>Standard drug</th>
<th>Test drug(SUC/disc)</th>
<th>Zone of inhibition in mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ciprofloxacin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 mcg/disc</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strep. Mutans</td>
<td>29</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Staph. Aurens</td>
<td>30</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>26</td>
</tr>
<tr>
<td>E.coli</td>
<td>32</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>K.pneumoniae</td>
<td>31</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>Ps. aeruginosa</td>
<td>30</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>

14 mm – Low sensitive, 15mm – Moderate, above 16mm – Highly sensitive

Note

Sample concentration:

4gm – 400ml of solvent in 25 µ l, 50 µ l and 100 µ l / disc

Standard for Bacteria:

Ciprofloxacin HCL, 50 mcg / disc.

BIO-CHEMICAL ANALYSIS
Preparation of Extract:

5g of Sennayuruvi Chooranam (Acyranthes bidentata)(Achyranthes bidentata) is weight accurately and placed in a 250 ml clean beaker and added with 50ml of distilled water. Then it is boiled well for about 20 minutes. Then it is cooled and filtered in a 100ml volumetric flask and made up to 100 ml with distilled water.

Qualitative analysis of Acidic/Basic radicals and phytochemical constituents in test drugs

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Observation</th>
<th>inference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test for Calcium</strong> : 2 ml of extract is taken in a clean test tube. To this add 2 ml of 4% ammonium oxide solution.</td>
<td>white precipitate is formed</td>
<td>Presence of calcium</td>
</tr>
<tr>
<td><strong>Test for Sulphate</strong> : 2 ml of the extract is added to 5 % barium chloride solution.</td>
<td>white precipitate is formed</td>
<td>Presence of Sulphate</td>
</tr>
<tr>
<td><strong>Test for Chloride</strong> : The extract is treated with Silver nitrate solution</td>
<td>white precipitate is formed</td>
<td>Presence of Chloride</td>
</tr>
<tr>
<td><strong>Test for carbonate</strong> : The substance is treated with Conc. HCl.</td>
<td>No effervescence is formed</td>
<td>Absence of carbonate</td>
</tr>
<tr>
<td><strong>Test for Starch</strong> : The extract is added with weak iodine solution</td>
<td>Blue colour is formed</td>
<td>Presence of starch</td>
</tr>
<tr>
<td><strong>Test for Iron (Ferric)</strong> : The extract is treated with glacial acetic acid and potassium ferrocyanide</td>
<td>Blue colour is formed</td>
<td>Presence of Ferric iron</td>
</tr>
<tr>
<td><strong>Test for Iron (Ferrous)</strong> : The extract is treated with Conc. HNO₃ and ammonium thiocynate</td>
<td>No Blood red colour is formed</td>
<td>Absence of Ferrous iron</td>
</tr>
<tr>
<td><strong>Test for phosphate</strong> : The extract is treated with ammonium molybdate and conc. HNO₃</td>
<td>Yellow precipitate is formed</td>
<td>Presence of phosphate</td>
</tr>
<tr>
<td><strong>Test for Tannic acid</strong> : The extract is treated with Ferric chloride</td>
<td>Blue black precipitate is formed</td>
<td>Presence of Tannic acid</td>
</tr>
<tr>
<td><strong>Test for Unsaturation</strong> : 1 ml of Potassium permanganate solution is added to the extract.</td>
<td>Does not get decolourised</td>
<td>Absence of unsaturated compound</td>
</tr>
<tr>
<td>Test for saponins</td>
<td>No changes</td>
<td>Absence of saponins</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Test for sugars: Benedict method</td>
<td>Colour change</td>
<td>Presence of sugar</td>
</tr>
<tr>
<td>Molisch test</td>
<td>Reddish violet zones appeared</td>
<td>Presence of carbohydrate</td>
</tr>
<tr>
<td>Test for steroids: Liberman Burchard test</td>
<td>Formation of red colour</td>
<td>Presence of steroids</td>
</tr>
<tr>
<td>Test for amino acids:</td>
<td>Formation of violet colour</td>
<td>Presence of amino acids</td>
</tr>
<tr>
<td>Test for proteins: Biuret method</td>
<td>Formation of Violet colour</td>
<td>Presence of proteins</td>
</tr>
<tr>
<td>Test for Flavanoids</td>
<td>No formation of pink colour</td>
<td>Absence of Flavanoids</td>
</tr>
<tr>
<td>Test for phenol</td>
<td>Deep green colour is formed</td>
<td>Presence of phenols</td>
</tr>
<tr>
<td>Test for Tannins</td>
<td>White precipitate formed</td>
<td>Presence of tannins</td>
</tr>
<tr>
<td>Test for alkaloids: Mayer’s method</td>
<td>Appearance of cream colour precipitate</td>
<td>Presence of alkaloids</td>
</tr>
<tr>
<td>Dragentoff’s method</td>
<td>Appearance of orange colour precipitate</td>
<td>Presence of alkaloids</td>
</tr>
</tbody>
</table>
RESULT:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Constituents</th>
<th>SUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Calcium</td>
<td>+</td>
</tr>
<tr>
<td>2.</td>
<td>Iron (Ferric)</td>
<td>Trace</td>
</tr>
<tr>
<td>3.</td>
<td>Iron (Ferrous)</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Sulphate</td>
<td>+</td>
</tr>
<tr>
<td>5.</td>
<td>Chloride</td>
<td>+</td>
</tr>
<tr>
<td>6.</td>
<td>Carbonate</td>
<td>-</td>
</tr>
<tr>
<td>7.</td>
<td>Starch</td>
<td>-</td>
</tr>
<tr>
<td>8.</td>
<td>Phosphate</td>
<td>+</td>
</tr>
<tr>
<td>9.</td>
<td>Tannic acid</td>
<td>+</td>
</tr>
<tr>
<td>10.</td>
<td>Unsaturated</td>
<td>-</td>
</tr>
<tr>
<td>11.</td>
<td>Sugar</td>
<td>+</td>
</tr>
<tr>
<td>12.</td>
<td>Alkaloids</td>
<td>+</td>
</tr>
<tr>
<td>13.</td>
<td>Steroids</td>
<td>+</td>
</tr>
<tr>
<td>14.</td>
<td>Protein</td>
<td>+</td>
</tr>
<tr>
<td>15.</td>
<td>Tannins</td>
<td>+</td>
</tr>
<tr>
<td>16.</td>
<td>Phenols</td>
<td>+</td>
</tr>
<tr>
<td>17.</td>
<td>Flavanoids</td>
<td>-</td>
</tr>
<tr>
<td>18.</td>
<td>Saponins</td>
<td>-</td>
</tr>
<tr>
<td>19.</td>
<td>Amino acid</td>
<td>+</td>
</tr>
<tr>
<td>20.</td>
<td>Glycosides</td>
<td>+</td>
</tr>
</tbody>
</table>

INFERENCE:

The inorganic analysis of Senayuruvi chooranam (Achyranthes bidentata) showed the presence of following chemicals.

Acid radicals

- Sulphate
- Chloride
- Phosphate
Basic radicals

- Calcium
- Iron (Ferrous)
- Potassium
- Magnesium

Miscellaneous

- Starch
- Sugar
- Amino acid
- Protein

Phytochemicals

- Tannic acid
- Tannins
- Alkaloids
- Saponins

Pharmacological study:

Test Drugs

The medicinal plant Sennayuruvi (Acyranthes bidentata) was used in the study was collected and processed by the methods prescribed in Gunapadam-Mooligai Vaguppu.

Preparation of drug for dosing

The drug used for the study was suspended each time with water before administration.
**Drugs and chemicals**

Fine chemicals used in these experiments were obtained from Sigma Chemicals company, U.S.A. Other analytical grade chemicals were obtained from S.d. fine Chemicals Ltd., Mumbai.

**Experimental animals**

Colony inbred animals strains of Wister albino mice of either sex weighing 15-20g used for the pharmacological and toxicological studies. The animals were kept under standard conditions 12:12 (day/night cycles) at 22 °C room temperature, in polypropylene cages. The animals were fed on standard pelleted diet (Hindustan Lever Pvt Ltd., Bangalore) and tap water *ad libitum*. The animals were housed for one week in polypropylene cages prior to the experiments to acclimatize to laboratory conditions. The experimental protocol was approved by the Institutional Animal Ethical Committee (IAEC).
ACUTE ORAL TOXICITY STUDY

METHODOLOGY

Acute oral toxicity was conducted as per the OECD guidelines (Organization of Economic Cooperation and Development) 423 (Acute Toxic Class Method). The acute toxic class method is a stepwise procedure with 3 animals of single sex per step. Depending on the mortality and/or moribund status of the animals, on the average 2-4 steps may be necessary to allow judgment on the acute toxicity of the test substance. This procedure results in the use of a minimum number of animals while allowing for acceptable data based scientific conclusion.

The method uses defined doses (5, 50, 300, 2000 mg/kg body weight) and the results allow a substance to be ranked and classified according to the Globally Harmonized System (GHS) for the classification of chemicals which cause acute toxicity.

Wistar albino mice of either sex weighing 15-20g were fasted overnight, but allowed water ad libitum. Since the formulation is relatively non toxic in clinical practice the highest dose of 2000 mg/kg/p.o (as per OECD guidelines “Unclassified”) was used in the acute toxicity study.

The animals were observed closely for behavioural toxicity, if any by using FOB (Functional observation battery).
ACUTE TOXICITY STUDY

Name of the drug : Sennayuruvi Chooranam (Acyranthes bidentata)
Dose 2000 mg/kg/po : 40 mg
Volume administered : 1 ml
Wt. of the animal : 20gm
Sex of the animal : Male

<table>
<thead>
<tr>
<th>Parameters</th>
<th>1 hr</th>
<th>2 hr</th>
<th>3 hr</th>
<th>4 hr</th>
<th>8 hr</th>
<th>24 hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Activity</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>Gait</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Reaction to stimulus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. sound</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>b. Touch</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>c. Light</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Lacrimation</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Salivation</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Pilo erection</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Stimulant</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Depressant</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Defecation</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Rearing</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Licking of paw</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Convulsions</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

N - Normal
P - Present
A - Absent
+ - Present minimum
++ - Present medium
+++ - Present maximum
++++ - Highly observable
RESULT:

Sennayuruvi Chooranam (Acyranthes bidentata) at the dose of 2000mg/kg/po did not exhibit any mortality in rates. As per OECD 423 guidelines the dose is said to be “Unclassified” under the toxicity scale. Hence further study with higher doses was not executed.

Effect of Sennayuruvi Chooranam (Acyranthes bidentata) on Haematological parameters after 15 days repeated oral dosing (500 mg/kg)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Hb (gm/100ml)</th>
<th>RBC (millions/cu.mm)</th>
<th>WBC (Cells/comm.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>9.166 ± 1.125</td>
<td>3.068 ± 0.3874</td>
<td>5243 ± 3.78</td>
</tr>
<tr>
<td>SUC (500mg/kg, p.o.,)</td>
<td>13.76 ± 0.225***</td>
<td>4.61 ± 7.321***s</td>
<td>5332.00 ± 3.01 ns</td>
</tr>
</tbody>
</table>

N=6; Values are expressed as mean ± S.D followed by Students Paired ‘T’ Test

***P<0.001 as compared with control.
ns – non significant when compared to control groups.

<table>
<thead>
<tr>
<th>Groups</th>
<th>PCV %</th>
<th>MCV</th>
<th>MCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>27.56 ± 3.284</td>
<td>90.15 ± 0.678</td>
<td>29.856 ± 0.278</td>
</tr>
<tr>
<td>SUC (500mg/kg, p.o.,)</td>
<td>41.6 ± 1.084***</td>
<td>89.267 ± 0.372 ns</td>
<td>29.86 ± 4.98 ns</td>
</tr>
</tbody>
</table>

n=6; Values are expressed as mean ± S.D followed by Students Paired ‘T’ Test

***P<0.001 as compared with control.
ns – non significant when compared to control.

Result:
Sennayuruvi Choornam (Achyranthes bidentata) is used as a hematinic in siddha system of medicine. In the present study rats treated with Sennayuruvi choornam for 21 days exhibited significant increase (Table 2 and 3) in Hb% (P<0.001). Though the chemical analysis of Sennayuruvi choornam reveal the presence of ferric iron, the hematinic effect of Sennayuruvi choornam can be attributed to the elemental of ferric iron beneficial in the treatment of iron deficiency anemia. The presence of protein, amino acid, calcium may be responsible for the nutritional factors to increase the Hb% and Sennayuruvi choornam is proved to be effective in Nutritional deficiency anemia.

Sennayuryvi Choornam (Achyranthes bidentata) exhibited significant increase in Hb% when compared with animals treated with drug at the dose of 500 mg/kg/p.o for 15 days. The mechanisms of haematinic effect of the drug could be evaluated.

**BIO STATISTICAL ANALYSIS**

**Statistical test of Significance of Hb:**

To test increase of Hb level in blood, paired ‘t’ test as been used. To compare the difference of Hb level in between before treatment and after treatment independent ‘t’ test has been employed.
The drug Sennayuruvi Choornam has chosen as a Haematinic agent for Paandu noi (Anaemia).

**About the disease:**

"பாண்டு நை"
“அம்மா பெண்ணும் தானோடை செய்ப்பா அம்மாவு மறைவிகளில் பூத்த பெண்டும் பாட்டையாமல் பெண்டும் பூத்த பெண்டும் பாட்டையாமல் பெண்டும் பூத்த பெண்டும் பாட்டையாமல் பெண்டும் பூத்த பெண்டும் பாட்டையாமல்”

“பாது பலத தெளிவும் தெளிவுமாக்கும் பாது பலத தெளிவும் தெளிவுமாக்கும் பாது பலத தெளிவும் தெளிவுமாக்கும் கூடம்கின்றார் மறைவு பூத்தையாமல் கூடம்கின்றார் மறைவு பூத்தையாமல் கூடம்கின்றார் மறைவு பூத்தையாமல் கூடம்கின்றார் மறைவு பூத்தையாமல்”

- “புகி”
As per Yogi the following are supposed to be the cause for ‘Paandu noi’

- Recurrent attacks of diarrhoea
- Increased intake of salt and sour taste food items
- Sorts of action inducing heat production in the body
- Excess pan chewing
- Alcoholism
- Developing the habit to sleep in day time
- Poisoning
- Starvating Cows
- Ill treating others
- Blaming others

Anaemia:
**Definition:**

It is a condition of reduction in the hemoglobin concentration of the peripheral blood below the normal level in relation to age and sex.

**Classification of Anemia**

Aetiology of Anemia

Red cell Morphology

**Classification of Anaemia based on Aetiology**

1. Anaemia due to blood loss
   a. Acute
   b. Chronic

Haemolytic Anaemias due to destruction of RBC

Impaired RBC production

**Classification of anaemia based on RBC Morphology**

1. Normocytic Anaemia
2. Macrocytic Anaemia
3. Microcytic Anaemia

Iron deficiency Anaemia.

It is the commonest type of anaemia recognized clinically.
Cause:

Defective intake:
1. In children
2. Psychiatric patients
3. Patients having anorexia due to any cause.

Defective absorption:
1. Grastrectomy
2. Gastrojujunostomy

Excessive Demand:
  b. Growing children
  c. Females during reproductive period of life(eg) pregnancy, lactation
  d. Thyroloxicosis.

Excessive loss:
  a. Hookwarm Anaemia.
  b. Bleeding piles.
  c. Menorrhagia in females.
  d. Recurrent haematemesis and Malena from acute and chronic ulcerations of G.I. tract (or) rupture of Oesophageal varisus gastro intestinal Malignancy.

Hiatus Hernia
Iron sequestration
Pulmonary haemosiderosis
Clinical study – study design:

The clinical study was carried out in Gunapadam post graduate out patient department Aringar Anna Hospital Chennai -106

This was an open Non comparative clinical trail.

Selection of patients:

40 patients were selected in both male and female, the selection of patients were carefully examined before treatment for correct diagnosis and ruled out any other co-existing systemic illness. Selection of patients were based on the following including and excluding criteria.

Including Criteria:
Age, Sex,Socio-economical status,Occupational condition,

(i) Nutritional deficiency
(ii) Chronic blood loss
   - metorrhoea
   - menorrhagea
(iii) Hook Worm infestation
(iv) Patients having Haemoglobin
     Level 7-10 gm /dl
Excluding Criteria:

1. Iron deficiency anaemia due to
   oesophagal varices, hiatus hernia,
   peptic ulcer, Ca of stomach,
   colon, caecum, ulcerative colitis,
   haemorrhoids, Haematuria,
   Haemoptysis
   Repeated epistaxis
2. Megaloblastic anaemia,
3. Pernicious anaemia
4. Haemolytic anaemia
5. Sickle cell anaemia
6. Bone marrow disorders leukemia
7. Pregnant women
8. Lactating mothers.

Withdrawal Criteria:

Irregular treatment
   Patients who followed dual treatment

Line of treatment

1. The patients were orally administrated with sennayuruvi choornam
   of dose 1gm twice a day with 50ml of water after food.

Investigation parameters:
Before treatment a detailed clinical history was taken by regarding the history of present and past illness, personal history, family history, menstrual history and associated history such as occupation, socio-economical states etc.

The following lab investigations were carried out before and after treatment:

- Urine routine
- Blood
  Tc, DC, ESR, Hb%, PCV
  Sug, Urea, cholesterol
- Motion
  - Ova
  - Cyst.

**Medical Advice and Diet**

1. Patients were advised to take cereals, milk, lettuce, tomato, beans, apricots, almonds, walnuts, vegetable leaves, cauliflower, radish, dried peach dried apricot and pomegranate regularly
2. Patients were advised to take, mutton, liver, kidney, brain, egg yolk, oysters and fishes also
3. and patients advised to take rich sources of vit “C” like citrus fruits which promotes iron absorption
4. In severe cases with anorexia only kanji and soup are advised
5. Daily consumption of dates supports the therapy
6. Easily digestible food is preferred
7. Karisalai, ponnanganni, manathakaali Arukirai like iron rich greens also support the therophy.

**Observation and results of Clinical study:**
The clinical study was subjected 40 in selected cases.

The diagnosis of paandu (velupu Noi) was confirmed by the signs and symptoms, laboratory investigations.

Routine blood examination, Urine analysis, Motion test were done before and treatment.

The following parameters were observed during the course of treatment in selected patients.

1. Age
2. Sex
3. Socio-economic status
4. Personal habits and diets
5. Occupational status

**AGE**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Age</th>
<th>No. of patients</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11-20</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>21-30</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>31-40</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>41-50</td>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>51-60</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

Among 40 patients, Majority 40% of the patients age group between 41-50 yrs, 25 % of the patients between the age group of 31-40 yrs, 15 % of the patients age group between 21-30 yrs, 10 % of the patients age group between 11-20 yrs and the remaining ten per cent of the patients age group between 51-60 yrs.

The age table shows that paandu noi is common in all age groups.
**SEX DISTRIBUTION**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Sex</th>
<th>No. of patients</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>male</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>female</td>
<td>28</td>
<td>70</td>
</tr>
</tbody>
</table>

Among 40 patients 70% were female and 30% were male observed.

The sex distribution shows that the maximum incidence of paandu noi were observed in females.

**SOCIO ECONOMIC STATUS**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Socio-economic condition</th>
<th>No. of patients</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Poor</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>2</td>
<td>Moderate</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Rich</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Among 40 patients 80% were poor and 20% were moderate.

The table of socio-economical status shows the maximum incidence of paandu noi were observed in poor people.
## Table

### PERSONAL HABITS AND DIET

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Personal habits and diet</th>
<th>No. of patients</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Non-veg</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>Vegitarian</td>
<td>28</td>
<td>70</td>
</tr>
<tr>
<td>3</td>
<td>Smoking</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>Alcohol</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Tea, coffee</td>
<td>24</td>
<td>60</td>
</tr>
</tbody>
</table>

Among 40 patients vegetarian diet was recorded in 70%, smoking 15% and Tea, coffee drinking 60% were observed. Non-vegetarian were 35% and Alcohol consumes 10% only.

From this table paandu is more common in vegetarian people.

Tobacco used and Tea, coffee drinking people are more prone to paandu.
Among 40 patients 30% labours, 25% were House wife, 12.5% were students, 10% were Tailors and 22.5% were others.

The occupational data shows that the major incidence at paandu were among labours.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Occupational status</th>
<th>No. of patients</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Labours</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>House wife</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>Students</td>
<td>5</td>
<td>12.5</td>
</tr>
<tr>
<td>4</td>
<td>Tailor</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Others</td>
<td>9</td>
<td>22.5</td>
</tr>
</tbody>
</table>
## SIGNS AND SYMPTOMS

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Signs and Symptoms</th>
<th>No. of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Loss of appetite</td>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Triedness</td>
<td>25</td>
<td>62.5</td>
</tr>
<tr>
<td>3.</td>
<td>Pallor of skin, conjuctiva &amp; nailbeds</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

### Improvement

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Signs and Symptoms</th>
<th>Before Treatment</th>
<th>After Treatment</th>
<th>Improvement</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Loss of appetite</td>
<td>40</td>
<td>8</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>2.</td>
<td>Triedness</td>
<td>25</td>
<td>5</td>
<td>20</td>
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<td>3.</td>
<td>Pallor of skin, conjuctiva &amp; nailbeds</td>
<td>40</td>
<td>4</td>
<td>28</td>
<td>70</td>
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Among 40 patients 100% had loss of appetite, Pallor of skin, conjuctiva & nailbeds, 80%, 70% had improvement, 62.5% had triedness 80% had improvement
<table>
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<tr>
<th>Sl. No &amp; Name</th>
<th>Haemoglobin Before Rx gms%</th>
<th>Haemoglobin After Rx gms%</th>
<th>Difference (F-1)=d(gm)%</th>
<th>$d^2$</th>
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<td>40. Pitchai</td>
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<tr>
<td>Total</td>
<td></td>
<td></td>
<td>$\sum d=109$</td>
<td>$\sum d^2=207$</td>
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</table>
n=40  
\[d = \frac{\sum d}{n} = \frac{109}{40} = 2.723\]

\[\frac{\sum d^2 - (\sum d)^2}{n} = \frac{207 - (109)^2/40}{40-1} = \frac{207 - 11881/40}{39} = \frac{207 - 297.025}{39} = \frac{90.025}{39} = 2.308\]

\[t = \frac{d}{\sqrt{\frac{S^2}{n}}} = \frac{2.725}{\sqrt{\frac{2.308}{40}}} = \frac{2.725}{\sqrt{0.057}} = \frac{2.725}{0.2387} = 11.41\]

\[dt = n-1 = 39\]

For \(t = 11.41\) at degree freedom \(P<0.001\)

\(\therefore\) Sennayuruvi choornam therapy as bragt about a highly significant increase in Hb Content.
DISCUSSION

Paandu (Vellupu Noi) is one of the most common and widespread nutrition problem a vast majority of cases are due to Iron deficiency. The most common cause of ill health in women is affected by Paandu.

There is some side-effects are found in synthetic oral or parenteral Iron supplements which are available in market to treat Paandu.

Maruthuvar Murugesamudaliar in his book Gunapadam Mooligai has mentioned that Sennayuruvi (Achyranthes bidentata) can be used to treat PAANDU noi (Vellupu Noi)

As per siddha system, anaemia is caused by the derangement of kapha kutram.

“தானியான செருமானியாலினால்
.... பாண்டு சிறைய...”

“செருமானியான சிறை மேலானது
இல்லாவில் செருமானியான பின்னர்
.... பாண்டு சிறைய...”

என்ற தோட் தன்னுடைய சற்று காத்யுறவாக வெயிலாய்வாக கொண்டு, முற்றுகோயில் செல்லும் செய்யு செய்ய தூண்டிக்காண்த, சிறைநுழல் செய்ய என்னையூம் குறிப்பிட்டேன்.
ஒரு புரவத்தில் சிறு நூற்றண்டு நடந்தது. “எள்ளார் முந்தியம்” நாளில் முதலில் லக்கமுக்கிய குறுகிய “பாலை சின்னம்” என்று குறிப்பிட்டது.

“ஆனால் சூட்டுகள் எரிய புரவம்
ஒருவர் மேம்படுத்தாது ஓர்கு ஓராக
குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறு�த்தை எவ்வாறு குறிப்பிடும் என்பது ஸ்ரீசோத்தியன் நாளிலும் தெரிவித்தது.

நான்முகம் தோர்ந்த டாக்டர் ஆர்தர்
இம்மான் குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறு குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுकிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுகிய குறுத்துக்கு எவ்வாறு குறிப்பிடும் என்பது ஸ்ரீசோத்தியன் நாளிலும் தெரிவித்தது.
So the drug acts on the basis of Oppurai theory.

The antimicrobial study of sennayuruvi shows that it is hypersensitive to staph aurens E.coli.

So it can be concluded as an anti-bacterial agent

The Bio-chemical analysis of Sennayurvi (Achyranthes bidentata) shows the presence of chloride, terrus Iron, phosphate, Alkaloids, Glycoside, proleins, calcium sulphate

Ferrous Iron helps in the conservation of Iron into haemoglobin. It stimulates the growth of red blood cells.

The pharmacological studies were carried out in Baid Metha College of Pharmacy, Turaipakkam, Chennai.

In the pharmacological study rats treated with drug for 15 days exhibited significant increase in Hb % (P<0.001). The presence of protein, amino-acid, calcium may be responsible for the nutritional factors to increase the Hb% and Sennayaruvi Choornam (Achyranthes bidentata) proved to be effective in Nutritional deficiency anaemia (Paandu).

The clinical study has been conducted under following criteria age, sex, socio-economic status, personnel habits and diet, occupation.

40 patients of age from 15 to 60 are selected. They were subjected for clinical study regarding, clinical features and response for test drug.
The results of the clinical study reveals that Paandu is common in all age groups and the maximum incidence were observed in females.

Poor, socio-economic condition peoples were more prone for Paandu.

Personal habits and dietary intake also had some influence on the disease Paandu is more common in vegetarian diet peoples persons those who had the habit of Tobacco chewing, drinking coffee, tea were more prone to this clinical entity

Among 40 patients 100% had loss of appetite, Pallor of skin, conjuctiva & naibleds, 80%, 70% had improvement, 62.5% had triedness 80% had improvement

In Bio-statistical analysis, before and after treatment of Hb, paired ‘t’ value for Sennayuruvi choornam therapy as brought about a highly significant increase in Hb Content.

From the above studies, Sennayuruvi choornam seems to be a good drug in the treatment paandu noi.
**SUMMARY AND CONCLUSION**

- Sennayuruvi choornam (Achyranthes bidentata) is a purely herbal product, easily available and economical, more over the preparation is simple.

- There are many strong evidences in siddha literature that trial drug treats Paandu effectively.

- The antimicrobial study of sennayurvi proved it as an anti-bacterial agent.

- The pharmacological study proved that **Sennayuruvi choornam** increases Hb level significantly.

- The results of clinical study clearly indicates the effectiveness of sennayuruvi choornam (Achyranthes bidentata) in treating paandu by proving good in 80% and moderate in 15%

- The above evidence concludes beyond doubt that Sennayuruvi (Achyranthes bidentata) is very effective in treating paandu.
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