PART I

ANTI-HYPERTENSIVE ACTIVITY OF

THENNAMPOO CHOORANAM

(Cocos nucifera,linn)

&

PART II

ANTI-ULCER ACTIVITY OF "GUNMA NOIKKU MEZHUGU"

The dissertation Submitted by

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Under the Guidance of

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PART –I

ANTI-HYPERTENSIVE ACTIVITY

OF

THENNAMPOO CHOORNAM

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ABBREVATIONS

Cn	-	Cocos nucifera
Bs	-	Bundle sheath
Cor	-	Cortex
Ct	-	Connective tissue
Ep	-	Epidermis
Ms	-	Microsporangia
Ov	-	Ovary
P	-	Parenchyma
Pe	-	Perianth
Pg	-	Pollen grains
Ps	-	Pollen sac
Tc	-	Tanniniferous cell
Te	-	Tepal
Vb	-	Vascular bundle
Vs	-	Vascular strand
HT	-	Hypertension
bdl	-	Below detection limit
HT	-	Hypertension
PUD	-	Pepttic ulcer disease
GNM	-	Gunma noikku mezhugu
BT	-	BEFORE TREAT MENT

AT	-	After treatment
HB	-	Haemoglobin
ESR	-	Erythrocyte sedimentation
FPC	-	Few pus cells seen
DC	-	diffrential count
CL	-	Chlosterol
pus	-	pus cells seen
P	-	Polymorphs
Gnm	-	Gunmanoikku mezhugu
PUD	-	Peptic ulcer disease
BDL	-	below detction level

INTRODUCTION

s

1.INTRODUCTION

gpzpapd;ik nry;tk; tpistpd;gk; Vkk;

mzpnad;g ehl;bw;fpt; ite;J.

-jpUf;Fws;

The above phrase is quoted by Thiruvalluvar in which says, good health, educations, good production; happiness and wealth are the five principle qualities for a good nation.

In the above said phrase the saint principally first quotes about good well being that is HEALTH. So an individual should maintain good health for happy life.

But nowadays mechanical lifestyle, changing environmental factors, and change in dietary habits play a vital role in emerging of life style disorders which are the causes of major threatening problems. *Kuruthiazhal noi"* (*Raktha kothippu)* is one among them. It initially, "**starts with mental stress and easily ends up human life."** Hence in this modern era **"Man needs more awareness than change."** That is human society has to know more about in severity and complications of the disease. This is,

“KJikapd; ez;gd;

fhydpd; Jhjd;

fUtpNy mizg;Nghk;;

fhg;gJ vspNj!”

In the literature “*Noinadal and Noi mudhal Nadal thiratu”* the disease *“Raktha Kothippunoi*” comes under the “*Kuruthiazhal noi”* which can be easily compared with hypertension in modern medicine.

Hypertension is a harmful disorder. The prevalence of hypertension is increasing day by day. According WHO, some of 500 million to one billion people suffer from the disorder. Globally, there are 20% people would be affected by hypertension.

Hypertension is also said to be a “**Silent Killer”.** It leads to damage of the target organs. It cannot be cured, only by controlled. “**Control is as good as cure**”. Because it reduce all risk factors, associated with the hypertension. So early detection and effective management of hypertension is important in reducing the morbidity and mortality. Hence proper medical care should be taken to control the disease.

The siddha system is traditional system of medicine. This system of medicine was founded by siddhars on the basic principles and complete study of human system. Our siddha system is service to humanity is not only preventive and the curative (therapeutic) methods but also focused on the physical, mental, spiritual and psychological well being thus giving a total perfection in life.

“**NATURE CURE IS WAY OF LIFE”**

Herbals play significant role in most of the formulation of siddha.Tremendous valuable herbal medicines of plant kingdoms to enhances control the *Raktha pittham* (Blood Pressure) one among the medicinal plant is *“Thennampoo”* which is postulated as **“Heavenly Bliss(G+Nyhf fw;gtpUl;rk;)** by our siddhars. Saint ***Agasthiyar*** who is the founder of siddha medicine in his famous literature “***Agasthiyar Gunavagadam***” flower indicated “***Thennampoo”*** which is a part of ***Cocos nucifera*** plant to control ***Raktha pittham (***Blood Pressure).

Coconut flower (paalai) is a well-known drug and easily available, eventhough thennai is mentioned in many siddha literatures for its medicinal value in different disease. But we are not using this medicine in our day to day life and hence i am interested in enumerating the scientific proof by various standard parameters.

"SAVE PLANTS TO SAVE LIVES"

2.AIM AND OBJECTIVES

Aim

Hypertension is also called High Blood Pressure. It is a current global disease burden and is as prevalent in many developing countries, as in the developed world. Most of people with hypertension feel fine and may not even know that they have high blood pressure. It induced major risk problem continuously across the whole blood pressure range. Since it may be life threatening if left untreated. Countries vary widely in capacity for management of hypertension, but worldwide the majority of diagnosed hypertensive is inadequately controlled. However, with proper care, hypertension can be adequately treated in most patients. Hence, i have selected a herbal drug of *Thennam poo chooranam* for the treatment of hypertension.

The aim of this trial is to validate the safety and efficacy of the Thennam poo chooranam on the disease of Hypertension by preclinical and clinical trial.

Objectives

The main objectives of the present study is to highlight the efficacy of *Thennam poo chooranam* was studied in view to various standard parameters like,

- **Review of literature [**Collection and detailed study in various aspect]
- **Pharmacognostical study: [**Details of the plant identification, Macroscopic characters &Microscopic characters]
- **Bio-chemical analysis**:[To ascess theQualitative &Quantitative analysis]
- **Toxicological study**: [Fixation of therapeutic dosage& safety, efficacy of the drug]

- **Pharmacological activity:** [To study the Anti hypertensive activity , General CNS behaviour activity &Diuretic activity]
- **Clinical assessment:** Clinical trial [clinical efficacy of the drug]

3.1 BOTANICAL ASPECT

***Cocos nucifera* (Linn.)**

Common name

Coconut palm, Coco palm, Coconut tree.

Describe the name

Man's most useful tree

King of the tree

Tree of life

Tree of heaven

Lazyman's crap

Nuts of India.

Scientific name

Cocos nucifera

Explanation of scientific name

Cocus **-** Spanish and Portuguese for "**monkey/grotesque face"** in reference to the face that appears on the stripped nut.

Nucifera - nut bearing.

Vernacular names

English - coconut tree

Hindi - Nariyal

Sanskrit - narikela

Malayalam - then

Gujrati - nariyal

Telugu - tenkayi chettu

Botanical classification (Benthem and hooker)

Kingdom - Plantae

Division - Magnoliophyta

Class - Liliopsida

Order - Arecales

Family - Areaceae

Genus - Cocos

Species - Nucifera

Coconut varieties

Under two broad groups,

- Tall or typical
- Dwarf or nana.

Habitat

It is found at the area of sea level on the costal areas. It is common worldwide on the costal region. In India whole peninsular region is being covered by it. Besides this it is found in SriLanka, African and South African countries.

Geographic distribution

Native to tropical eastern regions, today it is grown both over the Asian continent (India, Ceylon, Indonesia) and in Central and South America (Mexico, Brazil). In Africa, the largest producing countries are Mozambique, Tanzania and Ghana.

Morphological charecters

- Coconut is an unarmed, erect, tall palm reaching a height of 25 meters. Trunk is stout, 30 to 50 cm in diameter, thickened at the base; marked with annular scars.
- Leaves are crowded at the apex of the trunk, 3.5 to 6 meters long, with a stout petiole, 1 meter or more in length.
- Leaflets are bright green, numerous, linear-lanceolate, flaccid, 60 to 100 cm long.
- Spadix is about 1 meter long, erect, drooping, straw-colored, simply branched. Male flowers are small and yellowish with small, ovate, valvate sepals and oblong, valvate petals. Female flowers are much larger, rounded, with imbricate sepals and shorter convolute petals.
- Fruit is variable in size, shape and color, obovoid to subglobose, often obscurely 3-angled, 15 to 25 cm long.
- Endosperm forms a thick white layer of fleshy fibrous substance adherent to the membranous testa which is adherent to the stony-black shell. The shell is covered by a fibrous husk. The embryo is opposite one pore

Constituents

- Fixed oil, 57.5 - 71%; volatile oil, wax containing the myricyl ester of cerotic acid.
- Coconut oil is composed mostly of triglycerides of saturated fatty acids - Lauric (dodecanoic acid, 40 to 55%) and myristic acid (tetradecanoic acid, 15 to 20%), and other fatty acids at concentrations of 5 to 10 %.
- Meat: potein, 6.3%; vitamins A, B, and C; nonyl alcohol; methyl heptyl ketone; methyl undecyl ketone; capronic, decylic, caprylic, lauric and myristic acids; lecithin; stigmasterin, phytosterin; choline; globulin; galactoaraban; galactomannan.
- Water, 93%; protein, 0.5%; ash, 1%; saccharose; oxidase; catalase, diastase.
- Phytochemical screening of constituents of endosperm showed the presence of terpenoids, alkaloids, resins, glycosides and steroids.

Nutritional value

The coconut palm is so highly valued by them as both a source of food and medicine that it is called **"The Tree of Life."**

"Functional food", because it provides many health benefit beyond its nutritional content. It is highly nutritious and rich in fiber, vitamins, and minerals.

Table: 3.1

Cocunut-Nutritional value per 100 g	
Energy	1481 kJ(354 Kcal)
Carbohydrates	15.23 g
Sugar	6.23 g
Dietary fiber	9.0 g
Fat	33.49 g
Saturated	29.70 g
Monounsaturated	1.43 g
Polyunsaturated	0.37 g
Protein	3.3 g
Thiamine(vit.B1)	0.066 mg (6%)
Riboflavin(vit.B2)	0.02 mg (2%)
Niacin(vit.B3)	0.54 mg (4%)
Pantothenic acid(B5)	0.300 mg (6%)
Vitamin B6	0.054 mg (4%)
Folate(vit.B9)	26 µg (7%)
Vitamin C	3.3 mg (4%)
Calcium	14 mg (1%)
Iron	2.43 mg (19%)
Magnesium	32 mg (9%)
Phosphorus	113 mg (16%)
Potassium	356 mg (8%)
Zinc	1.1 mg (12%)

Percentage are relative to US recommendation for adults.

Source: USAD Nutrient Database.

Coconut in traditional medicine

In **traditional medicine** around the world coconut is used to treat a wide variety of health problems including the following: abscesses, asthma, baldness, bronchitis, bruises, burns, colds, constipation, cough, dropsy, dysentery, earache, fever, flu, gingivitis, gonorrhea, irregular or painful menstruation, jaundice, kidney stones, lice, malnutrition, nausea, rash, scabies, scurvy, skin infections, sore throat, swelling, syphilis, toothache, tuberculosis, tumors, typhoid, ulcers, upset stomach, weakness, and wounds.

Coconut in modern medicine

Modern medical science is now confirming the use of coconut in treating many of the above conditions. Published studies in medical journals show that coconut, in one form or another, may provide a wide range of health benefits. Some of these are summarized below:

- Kills viruses that cause influenza, herpes, measles, hepatitis C, SARS, AIDS, and other illnesses.
- Kills bacteria that cause ulcers, throat infections, urinary tract infections, gum disease and cavities, pneumonia, and gonorrhea, and other diseases.
- Kills fungi and yeasts that cause candidiasis, ringworm, athlete's foot, thrush, diaper rash, and other infections.
- Expels or kills tapeworms, lice, giardia, and other parasites.
- Provides a nutritional source of quick energy.
- Boosts energy and endurance, enhancing physical and athletic performance.
- Improves digestion and absorption of other nutrients including vitamins, minerals, and amino acids.
- Improves insulin secretion and utilization of blood glucose.
- Relieves stress on pancreas and enzyme systems of the body.
- Reduces symptoms associated with pancreatitis.
- Helps relieve symptoms and reduce health risks associated with diabetes.
- Reduces problems associated with malabsorption syndrome and cystic fibrosis.
- Improves calcium and magnesium absorption and supports the development of strong bones and teeth.
- Helps protect against osteoporosis.
- Helps relieve symptoms associated with gallbladder disease.
- Relieves symptoms associated with Crohn's disease, ulcerative colitis, and stomach ulcers.

- Improves digestion and bowel function.
- Relieves pain and irritation caused by haemorrhoids.
- Reduces inflammation.
- Supports tissue healing and repair.
- Supports and aids immune system function.
- Helps protect the body from breast, colon, and other cancers.
- Is heart healthy; improves cholesterol ratio reducing risk of heart disease.
- Protects arteries from injury that causes atherosclerosis and thus protects against heart disease.
- Helps prevent periodontal disease and tooth decay.
- Functions as a protective antioxidant.
- Helps to protect the body from harmful free radicals that promote premature aging and degenerative disease.
- Does not deplete the body's antioxidant reserves like other oils do.
- Improves utilization of essential fatty acids and protects them from oxidation.
- Helps relieve symptoms associated with chronic fatigue syndrome.
- Relieves symptoms associated with benign prostatic hyperplasia (prostate enlargement).
- Reduces epileptic seizures.
- Helps protect against kidney disease and bladder infections.
- Dissolves kidney stones.
- Helps prevent liver disease.
- Is lower in calories than all other fats.
- Supports thyroid function.
- Promotes loss of excess weight by increasing metabolic rate.
- Is utilized by the body to produce energy in preference to being stored as body fat like other dietary fats.
- Helps prevent obesity and overweight problems.
- Applied topically helps to form a chemical barrier on the skin to ward of infection.
- Reduces symptoms associated the psoriasis, eczema, and dermatitis.
- Supports the natural chemical balance of the skin.
- Softens skin and helps relieve dryness and flaking.
- Prevents wrinkles, sagging skin, and age spots.

- Promotes healthy looking hair and complexion.
- Provides protection from damaging effects of ultraviolet radiation from the sun.
- Does not form harmful by-products when heated to normal cooking temperature like other vegetable oils d.
- Is completely non-toxic to humans.

COCONUTFLOWERS

Figure: 3.1

Coconut flowers

In Hindu wedding ceremonies, a coconut is placed over the opening of a pot, representing a womb. Coconut flowers are auspicious symbols and are fixtures at Hindu and Buddhist weddings and other important occasions. In Kerala, coconut flowers must be present during a marriage ceremony. The flowers are inserted into a barrel of

unhusked rice (paddy) and placed within sight of the wedding ceremony. Similarly in Sri Lanka coconut flowers, standing in brass urns, are placed in prominent positions.

The Zulu Social Aid and Pleasure Club of New Orleans traditionally throws hand decorated coconuts—the most valuable of Mardi Gras souvenirs—to parade revelers. The "Tramps" began the tradition ca. 1901. In 1987, a "coconut law" was signed by Gov. Edwards exempting from insurance liability any decorated coconut handed from a Zulu float.

Inflorescence

The coconut plant is monoecious, producing both male and female flowers. The male flowers are located distally while the female flowers are found proximally on each inflorescence.The type of pollination is determined by the relative maturation times of the male and female flowers.In the Tall varieties the male flowers open before the female flowers, hindering self pollination while, an overlap of the opening phases of male and female flowers in Dwarf plants allows for self pollination and greater tendency toward homozygosity.

General uses

- Unopened flowers are surrounded by a sheath of modified leaves that resemble burlap. The sheath is used as a natural cloth for everything from shoes and caps to helmets for soldiers.
- If the flowers are bound together tightly to prevent their opening, and then cut at the tips, sap will drip from the wounds at a rate of up to one gallon per day.
- Opened flowers provide a good honey for bees.
- It contains 16-30 mg ascorbic acid/100 g. The cloudy brown liquid is easily boiled down to syrup, called coconut molasses, then crystalized into a righ dark sugar, almost exactly like maple sugar
- The sugar-rich fluid can be boiled down to a syrup that can be used much like maple syrup.

- If left standing, the fluid will ferment in a few days to yield an 8% alcohol drink commonly called *toddy*. It can be distilled to yield pure alcohol, or left to eventually become vinegar.

Medicinal uses of flower

- The juice extracted from the flowering panicle can be made into palm wine, toddy or arrack. A vinegar and coarse sugar, somewhat different from cane sugar, can also be made. When fermented and distilled, a clean spirit results, used for pharmaceutical purposes. The unfermented juice or *neera,* taken early in the morning, two or three times a week bypregnant women, has been seen to have a marked effect on lightening the complexion of the new-born baby.
- Take the dried coconut flowers with cold water. This very quickly removes stones from the bladder and kidney. Acute pain and distress common with this affliction is also relieved.
- In injury where bleeding occurs, applying the ash of coconut fibres will stop the flow of blood.
- Take fresh coconut flowers, fruit of gular (Ficus glomerata) and nagar motha (Cyperus rotundus) all in equal parts. Prepare a decoction which is drunk to reduce the chances of abortion.

3.2 GUNAPADAM ASPECT

'வாருரு கவரியின் வண்டுண விரிய முத்தின் அன்ன வெள் வீ' ... 'பூவொடு வளர்ந்த மூவாப் பசுங்காய்' = இளநீர்

– அகநானூறு335

பாடல் சொல்லும் செய்தி

மதுரையின் மதில்புறத்தில் இருக்கும் தென்னை மரத்தில் தூக்கணாங்குருவி கூடு கட்டியிருக்கும். அந்தத் தென்னையின் பாளை கொல்லன் தன் உலைக்களத்தில் வடிக்கும் வாள் இரும்பு போல் வயிற்றைக் காட்டிக்கொண்டு தோன்றும். பின் கவரி விசிறி போல் விரியும். விரியும் பாளையில் முத்துக்களைப் போல வீ(மலர்) மொட்டுகள் தோன்றும். அந்த மொட்டுகள் விளக்குமாற்றுச் சீவங்குச்சிகளில் தொங்கும் மழைநீர் ஆலங்கட்டிகள் போல வளரும். பின் இளநீர் ஆகும்.

njd;id kuk;

"njd;idkug; Ngh;jidNa nrg;gf;NfS

nrOikahq; ehhp NfshukhFk;

td;dkhk; urf;fe;j Rfe;j khFk;

Jhwnfw; rKkhe;jpW fbykhFk;

ed;dkhky jhtpUNrrhgykhtq; fhy;ypah

ehhpahe; njrhzhj; jpufkhFk;

td;dkhQ; RthJ rPjsKkhFk;

tFj;Jiuj;j njd;idkug; NgUkhNk.

-Nghf Kdpth; epfz;L 1200

NtW ngah;;;;;;

G+Nyhf fw;g tpUl;rk;;;

ehspNfuk;

jhio

,yhq;fyp

Gy;kuk;

Rit:- Jth;g;G> ,dpg;G

nra;if:-

rpWePh;g; ngUf;fp

Fsph;r;rpAz;lhf;fp

cly; cukhf;fp kw;Wk; grpj;jPj;Jhz;b

nghJ Fzk;:

Nkfk; mff;nfhjpg;G tPWtp **uj;jgpj;jk;**

Ntf mrp;h;f;fuNeha; tPOgpukp-Njfj;jpy;

tpd;dk;ghypf;Fk; tplghfk; Nghfntd;why;

njd;dk;ghisg;G+itj; jpd;.

(m.F)

tpsf;fk;:- ,sk;ghiyg; G+thy;;;> **FUjpaoy;>** nts;is> cl;fha;r;ry;> Nkfk; ngUk;ghL> eQ;RNeha; Mfpait ePq;Fk;.

tof;F Kiwfs;:

1. njd;dk; ghis nkhf;if, ed;whf ,bj;J ,jid ePuhtpapy; itj;J gpl;lhf;fp> ,ij gpope;J vLj;J Njd;> mjptplaj;Jhs;> ,ytk;gprpd; ,tw;iwf; fye;J mUe;j "fopr;ry; Ruk;" ePq;Fk;.
2. G+k;ghisapypUe;J vLf;fg;gLfpd;w Gspf;fhj fs;isg; gps;isj; jha;r;rp nfhLf;f> gpwf;Fk; Foe;ij mofhf ,Uf;Fk;.
3. njd;dk; G+ (ghis) rhW 3ehs; ju> cjpuKjyhd fopr;ry; Nghf;Fk;.

njd;dk; G+ NrUk; moy; (gpj;jk;) Neha;f;fhd kUe;Jfs;:

gpj;jg; gpzpia ePf;Fk; nghUs;fs;:

"rk;Geh ty;gPj; jhUr;

rUkKk; Kj;jf; fhRQ;

nrk;gUe; jpAQ;nr opj;j

njq;fpsk; G+Tk; fd;dy;".

tpsf;fk;:

rk;G ehty;> ngUkug;gl;il> Nfhiuf;fpoq;F> nrk;gUj;jp> njd;dk; G+> fUk;G.

njd;dk;G+ NrUk; kUe;Jfs;

1. mjpkJuFbePh;.
2. fhprhiy Nyfpak;
3. ntz;G+rzp Nyfpak;.
4. $o;ghz;l fpUjk;.
5. gpj;jj;jpw;F thrhjp fpUjk;.

njd;dk; G+tpd;-Ritapd; mbg;gilapy; tpsf;fk;:-

Rit – Jth;g;G> ,dpg;G. **jd;ik** – jl;gk;. **gphpT** - ,dpg;G.

Jth;g;G njhopy;:

1. **F**Ujpia Jha;ikahf;Fk;
2. moy;jhJit jd;dpiyg;gLj;Jk;;.
3. nfhOg;ig Fiwf;Fk;.

,dpg;G njhopy;:-

1. clw;fl;LfSf;F td;ikAk;> clYf;F Cl;lj;ijAk; mspf;fpwJ.
2. gpj;jk;> thA> tp\k; Mfpatw;iw ePf;fTk; gad;gLfpd;wJ.

jl;g tPhpaj;jpd; njhopy;:-

1. kdfspg;G> MAs; tpUj;jp Mfpa ,f;fhhpaq;fisr; nra;Ak;.
2. ,uj;jk; kw;Wk; gpj;jk; Mfpatw;iw Nghf;Fk;.

Kuruthi Azhal noi (Raktha kothippu noi) mainly caused by derangement of pitha thathu and the vascular morbidity is always attributed to the imbalance of “pitha” thathu.

The drug “Thennampoo” is indicated for kuruthi azhal and pitha(heat) related disorder and Blood related disorder.

Thennampoo (paalai) has got Thuvarppu (Astringent) and Enippu (Sweet) tastes.

“gpj;j kjpfhpg;gpd; NgRk; ghpfhuk;

Rj;j JtNuhL nrhy;ypdpg;G rj;jhFk;.”

-fz;Zrhkpak;

So increased pitha thathu in Kuruthi azhal noi is normalized by Thuvarppu and Enippu suvai.

Thannam poo has Thatpa veeryam. According to “Ethirurai theory” increased pitha thathu in Kuruthi azhal noi (Raktha kothippu) is neutralized by the Thatpa veeryam of the test drug.

3.3 SIDDHA ASPECT

,uj;jf; nfhjpg;G

NtW ngah;fs;:-

“,uj;jt Kf;fj;jpah; ngaU iuj;jpbw;

,uj;jhjpf;fk; aOj;jk; ,uj;jf; nfhjpg;G

ej;jpLk; ehb ,Wf;fKk; etpy;tPh;

gj;jpLq; fhuzk; gfuf; Nfz;Nkh”

-Vl;Lr;Rtb Neha;ehly; Neha;Kjy;ehly; ghfk; 2 gf;fk; 102

tpsf;fk;:

- ,uj;jr; #L>
- ,uj;j mKf;fk;>
- ,uj;j kpFjp>
- ,uj;j mOj;jk;>
- ,uj;jg; ngUf;fk;>
- ,uj;jhjpf;fk;>
- euk;gpWf;fk;
- ehb ,Wf;fk;.

Neha; tUk; top:

“Nfl;bL gd;dhl; nfLkyr; rpf;fy;

$l;bLk; kJf;fs; nfhs;sy; Gifapiy

ehl;bLk; khtif ew;nfhOg;gpiwr;rp>

Cl;Ljy; kpFjy; ciog;G kpFjp.”

“kpFkdf; fspg;G kpFehbj; Jbg;G

eFkd Nthl;lk; ehLjy; fhkk;>

jFNkf Neha;fs; jf;fgy; njhz;il

gFgpj; jg;ig gycWg; gpdpYk;.”

“cWk;gy Neha; ePhP uy; ePh;g;ig

tUk; gy Gz;fs; tsh;j;jpLq; ftiy>

jUk;gak; gjwy; jftpyhf; fhuk;>

kUtpL kPa eQ;nrd; Wiug;gh;.”

“ciug;g hpd;dKk; ctf;Fk;gy; <wpy;

kiurpW Gz;zhy; kUTnkd; Wiug;gh;

epiuGz; zhwpy; ePq;Fnkd; wpLth;

guk;giu ahf glh;tJ Kz;L.”

--Vl;Lr;Rtb Neha;ehly; Neha;Kjy;ehly; ghfk; 2 gf;fk; 102

tpsf;fk;:

,e;Neha; neLehl;fs; kyr;rpf;fy; Vw;gLtjhYk; kJghdk;(fs;> rhuhak;)Fbj;jy;>GifapicgNahfpj;jy;>khg;gz;lk;>nfhOg;G>,iwr;rp ,it mjpfk; cz;zy;>kpFe;j ciog;G>kpFe;jkdf;fspg;G>ehbapfd; kpFe;j Jbg;G>kdNthl;lk;(rpe;jid nra;jy;)>fhkk;>NkfNeha;fs;>gy; Neha;>njhz;il Neha;fs;>gpj;jg;ig Neha;fs;>gy;.<wpYz;lhk; rPo;>Gz; Mfpa ,f;fhuzq;fshy; ,e;Neha; cz;lhFnkdTk;>Nkw;$wpaGz;fs; Mwptpby; ,uj;jf; nfhjpg;G khwptpLnkdTk;>guk;giuahfTk;,e;Neha; tuf;$Lk;.

Neha; cz;lhf;Fk; top:

“Neha;tplk; euk;gpy; Ez;ikaha;r; nrd;W

fha;Tw %isapy; fye;J cjpuk;

Njha;Twf; nfhjpj;J njsptpyh kaf;fk;

Ma;TWe; Jd;gk; milANk ajdhy;.”

“tPq;fpa ,Ujak; Ntfj; Jbg;Gk;

thq;fpa %r;R tUe;jpj; jpzwy;

Vq;fpa %isapy; ,uj;j xOf;F

Xq;fpa ,Ujak; Xlj; jilahk;.”

tpsf;fk;;:

ehb euk;G ,uj;jf;Foha;fspy; ntg;gk; mjpfhpj;J> mjdhy; uj;jf; Foha;fs; KWf;Nfwp>,aw;ifahf Xbf; nfhz;bUf;Fk; uj;jk;Ntfq;Fd;wp> rpd;d rpd;d ,uj;jf; Foha;fspy; nghUkpf; fhZk; NkYk; ,t;ntg;gj;jpdhy; %isapYs;s ,uj;jf;Foha;fspy; ,uj;jk; nfhjpg;gile;J Nehapdpd; njspitf; Fd;wr; nra;J kaf;fk; >fpWfpWg;G Kjypa gytpj Jd;gq;fis cz;L gz;Zk;.

,jd; fhuzkhf ,Ujak; tPq;fp mjd; Ntfj; Jbg;Gk; %r;R thq;FjYk; tUj;jkile;J> jpzwYz;lha; %isapy; ,uj;j xOf;F> ,Ujak; XLtjpy; jilAk; Vw;gLk;.

“ tpj;jf tphpNt tphptKf;fhFk;

njhj;jpLk; Ftpjy; fUq;fKf; fhFk;.

ej;jpL kpe;epiy eOtpby; Jd;gk;

njhj;jpL kpjid nrhy;ypdh; RUf;fha;.”

“RUq;fKf;fk; kpFe;jpby; jPik

tphpe;jKf;fk; Fiwe;jpby; jPik

mwpe;j ed;wha; kUe;J nra; eP

epiwe;j Jd;gk; ,wq;Fkpe;Neha;.

,Ujaj;jpd; ,aw;ifj;njhopy; Ftpjy;> Xa;jy;> tphpjy; vd;gdthFk;.mjw;Nfw;g

Ehb euk;G uj;jf;Foha;fs; tphpe;J Xa;e;J RUq;FjyilAk;. ,Ujak; tphpAk; NghJ Vw;gLk; Nehia tphptKf;F vdTk;>FtpAk; NghJk; Vw;gLk; Nehia RUf;fKf;F vdTk; miog;gh;. ,t;tifapy; Vw;gLk; Jd;gq;fis MuhAq;fhy; RUf;fKf;fk; kpFe;jpby; jPik vdTk;> tphpe;jKf;fk; Fiwe;jpby; jPik vdTk; ,jid mwpe;J mjw;Nfw;g

kUe;Jfis jahhpj;Jf; nfhLf;f me;j ,uj;j mOj;j Neha; ,wq;Fk; vdTk; $wg;gl;Ls;sJ.

Neha; FwpFzq;fs;;:

- kaf;fk;
- fpWfpWg;G
- if>fhy;fs; Nrhh;T

- Qhgfk; Fd;wy;
- td;ik Fiwjy;.

vDk; FwpFzq;fis fhl;b %isapy; uj;jk; frpe;J jPbnud Ngr;Rk;> Qhgfkw;Wf; fpile;J NehahFk;.

Kf;Fw;w ,ay;;;:

kpFe;jeil> nta;apypy;jphpjy;> #lhd nghUl;fis kpFjpaha;Grpj;jy; Mfpa ,r;nray;fshy; **moy;(gpj;jk;) Fw;wk; jd;dstpy**; **kpFe;J**> clypy; ntg;gj;ij kpFjpahf;fp thAf;fisj; Jz;b ,e;Nehia vor;nra;Ak;.kpFe;j moy; Fw;wj;jpdsthfTk;> jd;dstpy; ngUfpa fhypd; (thAtpd;)msthfTk; **FUjpmoy**; NehAz;lhFk;

ehbeil:

“nghUshd **thjj;jpy; gpj;JQ;** Nrh;e;J

nghUe;J Fzq;fSl;z thA rf;jp

nrhpahik Gspj;Njg;gk; nghWky; ePhpw;

rptg;G kyk; gpbj;jYWjhJ el;lk;**”**

-rjf ehb

3.4 HYPERTENSION –MODERN ASPECT

Introduction

- Hypertension is a harmful disorder
- The people who are all affected by Hypertension is as follows

In worldwide - 1billion adult affect

India - 26.2% men & 23.6%women

Chennai - 21.1%

Urban area - 30.9%

Rural area - 21.2%

- Prevalence of Hypertension

  Diabetics, Obesity, Coronary Arterial disease

  BMI and Waist hip ratio-higher

  Age(17%)

- Hypertension is also said to be **silent killer**.

Definition

Persistent increase in systemic arterial blood pressure is known as '**Hypertension'**. clinically when Systolic BP >150 mm Hg, Diastolic BP>90 mm Hg.It is considered as hypertension.

Seventh report of the joint national committee

Table: 3.5

Classification	S.BP(mm Hg)	D.BP(mm Hg)
Normal	<120	<80
Pre hypertension	120 – 139	80 – 89
HT: Stage 1 Stage 2	 140 – 159 >160	 90 – 99 >100
Isolated SHT	>140	<90

Classification of HT:

Primary HT – 94%

Secondary HT – 6%

Primary ht

In this type the blood pressure is elevated & without any underlying disease . so this type is idiopathic HT or Essential HT.

Causes

Genetic predisposition – polygenic inheritance(angiotensinogen gene)

Racial – black > white

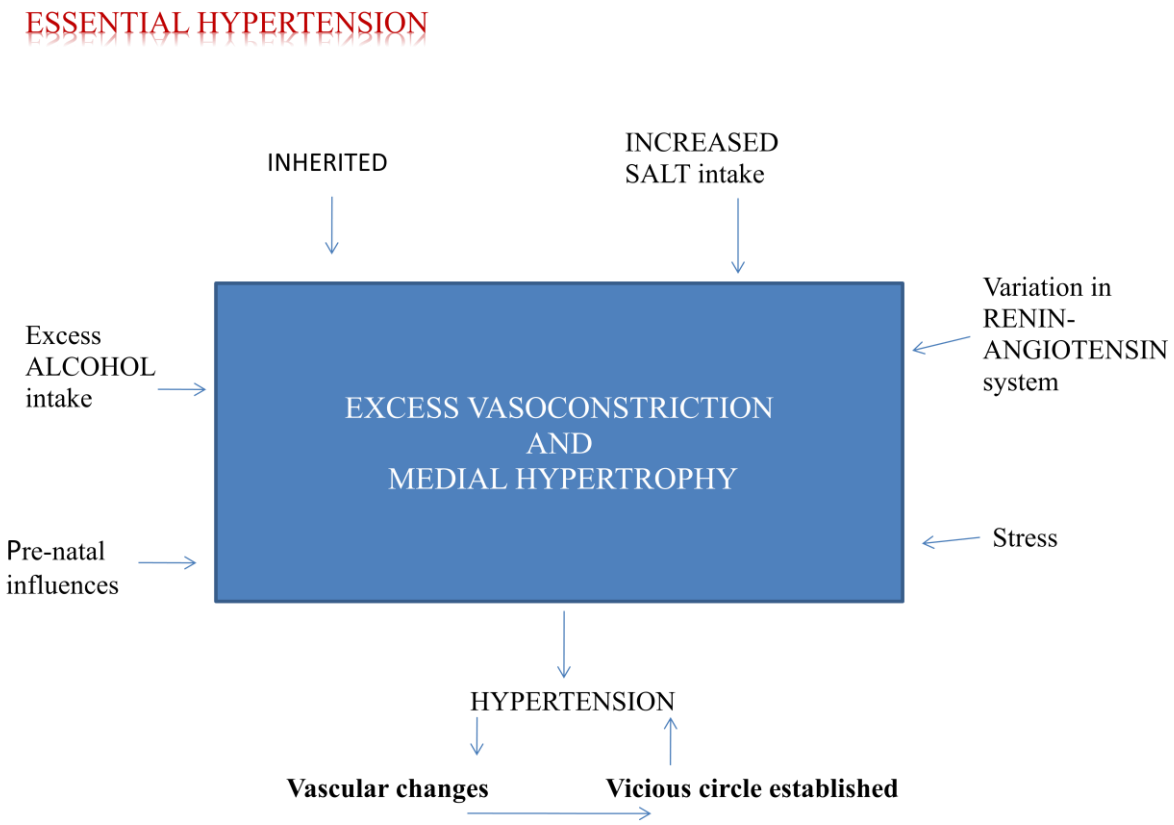
Age – commonly near 40 yrs varies from 25 – 50

Sex – commonly seen in male

Sodium homeostasis – increased salt intake

Stress – sympathetic nervous over activity

Miscellaneous - lack of exercise Alcohol,smoking , steroids ,low potassium intake, obesity.



Pathological changes:

Normally systolic BP controlled by—1)Cardiac actions

2)The elasticity and distensibility of the conducting arteries .

Diastolic BP controlled by ---Resistance(tone) of arterieoles.

Pathological changes occur in **cardiac** and **several** part of arterial tree.

In cardiac changes:[hyper trophy]

l)LV hypertrophy

2)Muscle fibers hypertrophy

3)Physiological hypertrophyThe extent hypertrophy&level of BP do not correlate in all case But hypertrophy more pronounced in those with early onset of Ht.

In arterial changes: [arteriosclerosis]

1)Arterial changes are will seen in kidney.

2)Atherosclerosis:Cer.ar,Re.ar,aorta,cor.ar.

3)Micro aneurysm in brain[charcot-bouchard aneurysm]

Clinical features of essential HT:

Onset – insidious

Symptoms are usually variable and at times very vague. The symptoms are:

Headache – throbbing headache , felt in suboccipital region on waking up after sleep is suggestive of HT

- Fatigue
- Dizziness
- Palpitation
- Insomnia

- Lack of concentration
- Loss of memory
- Breathlessness,
- epitaxis
- Lateral stage – target organs involved

There may be no symptom and the disease diagnosed routine medical examination in such subjects.

Complication:

- **Heart**

  Left ventricular hypertrophy&failure

  Atrial fibrillation

  Myocardial infarction

- **Retina**

  Hypertensive retinopathy

- **Kidneys**

  Renal failure

- **Central Nervous System**

  Stroke-Common complication of hypertension

  Carotid atheroma

  Transient cerebral ischaemic attacks

  Sub arachnoid haemorrhage

Hypertensive encephalopathy.

Investigation

- URINE analysis-protein,glucose,haematuria .
- Blood rotuine
- Blood urea/creatinine /electrolytes.
- Blood totalcholesterol,HDL&triglycerides
- Chest radiograph-Heart size,rib notching,mediastinal widening,
- ECG[LVH,ischaemia]

Others

Echocardiography,

Ultrasonogram,

Renal sonography,/aortography/urogream

MRI/angiography etc.

Lifestyle modifications

- Sodium restriction
- Weight reduction
- Diet
- Limit of alcohol intake
- Stop smoking ,
- Relaxation
- Regular exercise

Healthy diet for Hyper Tension

Do's:

- Sweet potatoes
- Leafy vegetables

- Carrot, beans,onion
- Garlic,almond,peanut
- Fish,freefat milk,
- Apples,oranges,red(or)black grapes &dry fruit.

Don't:

- Deep fried foods,
- Icecreams,
- salt,hydrogenated oil ,
- whloe milk
- Fat snacks,chips&cookies.

Proper control of bp

1]Reduction of strokes - [35-40%]

2]Coronary artery events -[20-30%]

3]Congestive hert failure -[50-60%]

4]Cardio vascular motality –[20%]

3.5. LATERAL RESARCH WORKS

Analgesic / Antioxidant

Antinociceptive and free radical scavenging activities of Cocos nucifera L. (Palmae) husk fiber aqueous extract: The study demonstrated the analgesic and radical scavenging properties of CN aqueous extract from the husk fiber. Topical treatment of rabbits with the extract did not induce significant dermico rocular irritation.

Antioxidant

In vitro evaluation of antioxidant properties of Cocos nucifera Linn. water: The antioxidant activity as most significant in fresh samples of coconut water, diminishing with heat. Maturity also drastically decreased the scavenging ability. The scavenging ability may be partly attributed to the ascorbic acid, an important constituent of coconut water.

Hypertension

The control of hypertension by use of coconut water and mauby: two tropical food drinks provided significant decreases, approximately double the largest values seen with single interventions.

Anti-neoplastic / Husk fiber

Study of aqueous extracts of the husk showed anti tumoral activity against a leukmia cell line. Study suggests a very inexpensive source of new anti neoplastic and anti-multidrug resistant drugs.

Burn wound healing property

Study concluded that the oil of Cocos nucifera is an effective burn wound healing agent. There was significant improvement in burn wound contraction in the group treated with the combination of CN and silver sulphadiazine. It suggests C nocifera can be a cheap and effective adjuvant to other topical agents.

Anti-ulcerogenic

A study of warm water crude extract of coconut milk and a coconut water dispersion showed that coconut milk and water had protective effects on ulcerated gastric mucosa. The coconut milk provided stronger protection on indomethacin-induced ulceration than coconut water in rats.

Anti-helmintic

A study of the liquid extracted from the bark of the green coconut and butanol extract on mice showed that the Cocos nucifera extracts may be useful in the control of intestinal nematodes.

Protein content

Study showed native coconut proteins consisted of four major polypeptides. The proteins had a relatively high level of glutamic acid, arginine and aspartic acid.

Anti-neoplastic activity

Study of aqueous extracts of Cocos nucifera showed antitumoral activity against leukemia cell line K562 and suggests a potential for an inexpensive source of new antineoplastic and anti-multidrug resistant drugs.

Antimicrobial / coconut oil cream formulation

Study showed that coconut oil can be formulated into an elegant cream which is active on both fungal and bacterial organisms.

Antimalarial

Study showed the crude methanol extract to contain phytochemical constituents that significantly reduced the parasitaemia in all 3 in vivo assessment assays. There was no significant increase in survival time of the infected mice. Results suggest the Malaysian folkloric medicinal application of C. nucifera has pharmacologic basis.

Cardiotonic activity of coconut water

Study showed undiluted coconut water showed better responses compared to diluted coconut water. The dilution of coconut water restores cardiac activity on Frog's heart, ie., decreasing rapidity and force of contraction.

Antihypertensive effect

Cocos nucifera Linn. endocarp was extracted with ethanol and characterized by HPLC. CNE(cocos nucifera endocarp) that the vasorelaxant and antihypertensive effects, through nitric oxide production in a concentration and endothelium-dependent manner, is due to direct activation of nitric oxide/guanylate cyclase pathway, stimulation of muscarinic receptors and/or via cyclooxygenase pathway.Role of oxidative stress and nitric oxide in regulation of spontaneous tone in aorta of DOCA-salt hypertensive rats.A possible correlation between the correction of endothelial dysfunction and normalization of high blood pressure levels by 1,3,4-oxadiazole derivative, an L-type Ca2 channel blocker in deoxycorticosterone acetate and N(G)-nitro-l-arginine hypertensive

BIO MEDICAL ARTICLES (2001-11)

- **Hypolipidemic and antiperoxidative effect of coconut protein in hyperchlosterolemic rats.** *[Indian journal of experimental biology;2002 june;V39(10);p1028-34,.]*
- **Anti-bacterial activity of cocos nucifera Linn**. *[Indian journal of pharmaceutical science;2004 Feb;V65(4);p417-18,]*
- **Studies on anti-microbial activity of coconut husk** .*[Deer-ghaya international, 2005 Feb;V-20(78); p26-27]*
- **Coconut fiber is used to treat water oriented pain and coconut oil mixed with camphor and heated cures chest pain**.*[Indian journal of Traditional knowledge;2010 Oct;V9(4);P770-71.]*
- **Burn wound healing property of cocos nucifera**.*[Indian journal of pharmacology;2008 Aug ;V40(4);p144-6.]*
- **Characterization of the antino ciceptive and anti –inflammatory activities from cocos nucifera.L.(Palmae)**.*[J.Ethnopharmacol;2009Apr21;122(3);p541-6.*
- **Modelling the growth of Listeria, monocytogenes in fresh green coconut (cocos nucifera) water**.*[Food microbial;2009 Sep;V26(6);p653-7,..]*
- **The husk fiber of cocos nucifera. L (palmae) is a source of anti -neoplastic activity**.*[Braz .J.med.Bio.res;2007 Oct;V40(10);p1339-43.]*
- **Evalution of the use of cocos nucifera as anti malarial remedy in Malaysian folk medicine**.*[J.Ethnopharmacol;2011 Apr; V134(3);p988-9..,]*
- **Anti ulcerogenic effects of coconut (cocos nucifera) extract in rats**.*[Phyto ther Res ;2008 July;V22(7);p970-2.]*
- **Vasorelaxant and anti – hypertensive effect of cocos nucifera Linn. Endocarp on isolated rat thoracic aorta and DOCA salt – induced hypertensive rats** .*[J.Ethno pharmacol;2o11 mar;V134(1);P50-4.,]*
- **Coconut (cocos nucifera .L.Arecaceae) In health promotion and disease prevention .***[Asian pac J Trop med;2011Mar; V4(3);p241-7.]*

4. MATERIALS AND METHODS

4.1 PREPARATION OF THE DRUG

Selection Drug

The Thennampoo chooranam (*Cocus nucifera*) was taken as a single drug for study. The drug has been selected for treating kuruthiazhal noi (Raktha pittham) as per given in the classical siddha literature "Gunapadam mooliga vaguppu (Theran porutpanbu nool) written by K.S.Murugesa mudaliyar page no-537-39.

Procurement of then drug

The flowers of Thennai was collected from my home town S.Malayanur, Villupuram, District, Tamilnadu, India and authenticated from Dr.Sasikala Ethirajulu, Asst.Director (Pharmacognosy), CCRI, Chennai-106.

Preparation of the test drug

After collection of the flower of Thennai was first cleaned by removal of the dust particles then dried. The dried whole flower was finely powdered by pulverizer and sieved through white cloth (vasthiragayam)

Purification of the chooranam

A mud pot half filled with milk was taken and its mouth was tied with a cloth. In the cloth the chooranam was placed. It was closed with another mud pot. The gap between the two mud pots was tied with a wet cloth to avoid evaporation. Then this arrangement was put on fire, boiled until the milk in the mud pot below is boiled to 1/4th the powder was taken and grinded to fine powder and preserved.

Storage of the drug

The chooranam was preserved in clean, a dried air tight container. It was supervising regularly for avoid the insects.

Administration of the drug:

Form of the medicine : *Chooranam*

Route of Administration : Enteral

Dose : 1gm

Anubanam (Vehicle) : water (Boiled and cooled form)

Times of Administration	: Two times a day; before food
Duration	: 7 weeks

Flower of Cocos nucifera

Thennam poo chooranam

4.2 STANDARDIZATION OF THE DRUG

STANDARDIZATION:

The process of evaluating the quality and purity of raw drugs by means various parameters like,

- **Pharmacognostical study: [**Details of the plant identification, Macroscopic characters &Microscopic characters]

- **Bio-chemical analysis**:[To ascess theQualitative &Quantitative analysis]

- **Toxicological study**: [Fixation of therapeutic dosage& safety, efficacy of the drug]

- **Pharmacological activity: [**To study the pre clinical activity]
  Observations is called "S**tandardisation**"

NEED OF STANDARDISATION:

- To assess the quality of the raw material.
- To estimate the amount of the active principle present.
- To achieve batch to batch consistency of furnished product.
    - Physiological/ organoleptic charecters.
    - Efficacy and safety.
    - Shelf life .
- Cost effectiveness
- Reproducibility

4.2.1 PHARMACOGNOSTIC STUDY

Introduction

- Pharmacognosy is the study of drugs of natural origin. The term comes from two Greek words: "pharmakon" meaning drug or medicine, and "gnosis meaning knowledge

- The study of drugs from plants includes the subjects of botany, chemistry and pharmacology.
- Botany includes the identification (taxonomy), genetics, and cultivation of plants.
- Chemical characterization of includes the isolation, identification and quantification of constituents in plant materials.
- Pharmacology is the study of the biological effects that the chemicals in medicinal plants have on cell cultures, animals and humans.
- The renaissance of herbal medicine in this country creates a demand for studies in the field of pharmacognosy.
- From a practical perspective this includes:
    - quality control (identity, purity, consistency)
    - efficacy (therapeutic indications, clinical studies, pharmacological investigations)
    - safety (adverse reactions, drug interactions, contraindications, precautions

Materials and method

Tender and unopened inflorescence, after removal of spathe and trimming of the peduncle were used for the present study. They were fixed in FAA solution (70% ethyl alcohol, formalin and acetic acid in the ratio of 90 ml : 5 ml : 5 ml) in the field itself. The materials were left in the fluid for three days, after which they were washed in water and dehydrated with tertiary butyl alcohol. Paraffin wax was infiltered and the specimens were embedded in wax for sectioning. 20 – 30 μm thickness sections were taken and double stained.

Alcoholic safranin (0.5%) counter stained with 0.25 % fast green. 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 xylol-alcohol (50-50) and passed through xylol and mounted in DPX mountant (Johansen, 1940).

Photomicrographs were taken with the help of Nikon Eclipse E200 Microscope.

Macroscopic

Spathe encloses a spadix, 4 – 6 ft long, stout, straw or orange coloured and simply branched. The female flowers are relatively few, borne at the base of the panicle. They are larger than the male, 2.5 cm long, sub-globose supported by broad bracteoles. Perianth greatly accrescent. Perianth lobes slightly differentiated into sepals and petals. Sepals 3, round, 2.5 cm diam. concave, imbricate; petals 3, shorter than the sepals, convolute with imbricate tips. Ovary 3 celled, ovule one in each cell. Style short; stigma 3, recurved.

The male flowers are numerous unsymmetric, small and sweet scented, borne towards the top of the panicle. Sepal small, ovate, valvate, petals 6 mm long, oblong, acute, valvate. Stamens 6, filaments subulate; anthers linear erect, Pistilode minute or O.

Branch of spadix

Transverse section of branch of spadix (Fig. 2 A) shows the outer most epidermis madeup of small rectangular cells, covered by thick cuticle. It is followed by the cortex consisting of many layers of round, thin walled parenchymatous cells, most of them contain tannin. The most characteristic feature of the cortex is the presence of numerous scattered closed vascular bundles (Fig. 2 B). Each vascular bundle is enclosed within a sheath of 2 or 3 layers of unlignified fibres. The inner ground tissue is composed of numerous closely scattered vascular bundles encircled by bundle sheath (Fig. 2 C). Bundle sheaths are single layered and madeup of oval shaped parenchyma cells. Most of these parenchyma cells contain tannin.

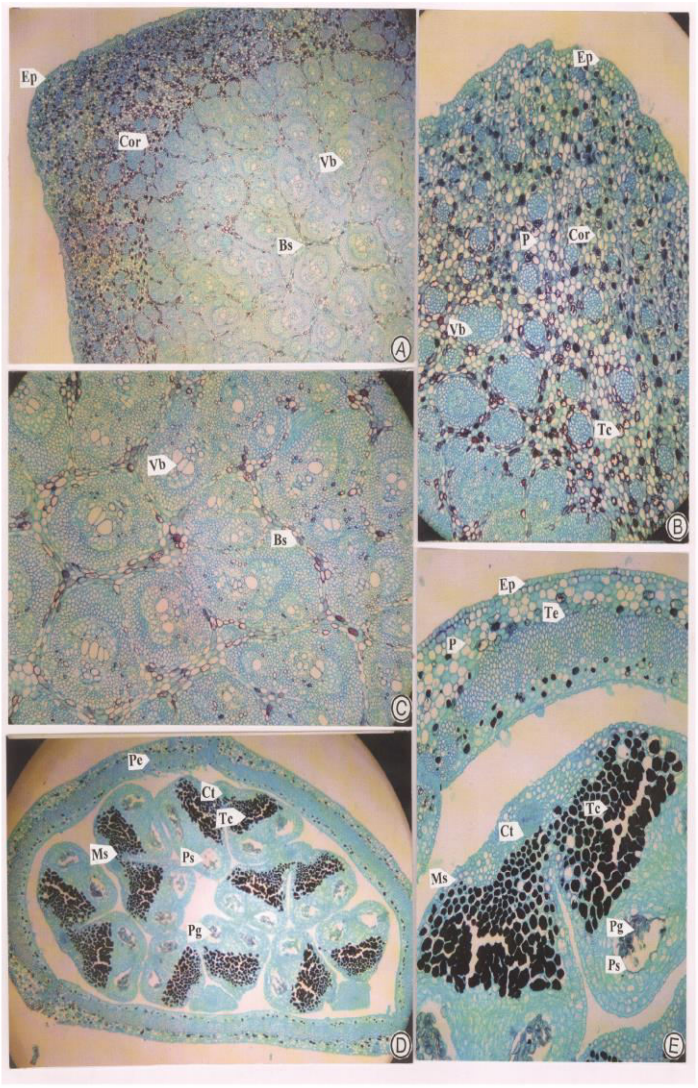
Primordium of male flower

Transverse section of primordium of male flower is rectangular in shape (Fig. 2D) with small projection on the adaxial side. A division of a perianth ie.tepal shows outer and inner epidermal cells of which the inner ones one smaller in size. The hypodermal region of adaxial and abaxial sides are composed of 3 or 4 rows of round, thin walled parenchyma cells. Some of these cells contain tannin. The mid region is madeup of thick walled closely arranged polyhedral parenchyma cells (Fig. 2E) without any inclusions. In the centre, 6 pairs of microsporangia representing six stamens are seen. Each pair of

microsporangia or anther lobes is connected by connective tissue (Fig. 2 D, E). Each anther lobe contains 2 pollen sac, which contain spherical pollen grains (Fig. 2 E). Tanniniferous cells are noticed on the adaxial side of the pollen sac (Fig. 2 E).

Primodium of female flower

Longitudinal section of primordium of female flower is conical in shape (Fig. 3 F, G). Each tepal shows adaxial and abaxial epidermis made up of small radially elongated cells (Fig. 4 J, M). The ground tissue is parenchymatous and madeup of small round thin walled cells. Most of the cells contain tannin (Fig. 4 N). Closed vascular bundles are scattered in the ground tissue (Fig. 4 J, K, L). Each vascular bundle is surrounded by 2 or 3 layers of thick walled parenchyma cells (Fig. 4 J, K). Ovary is seen in the centre. In the basal region vascular strands are noticed (Fig. 3 H, I; 4 O).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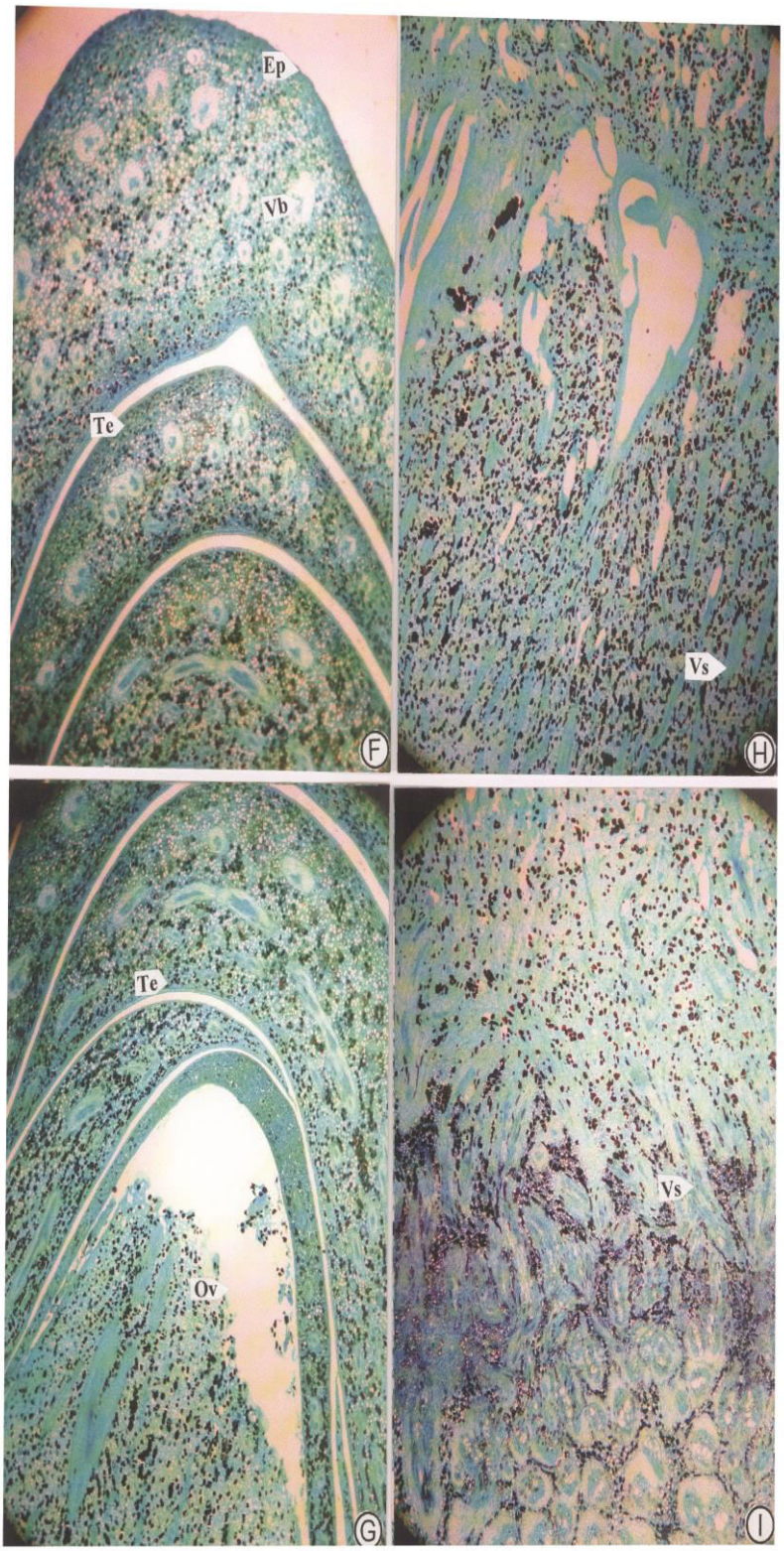
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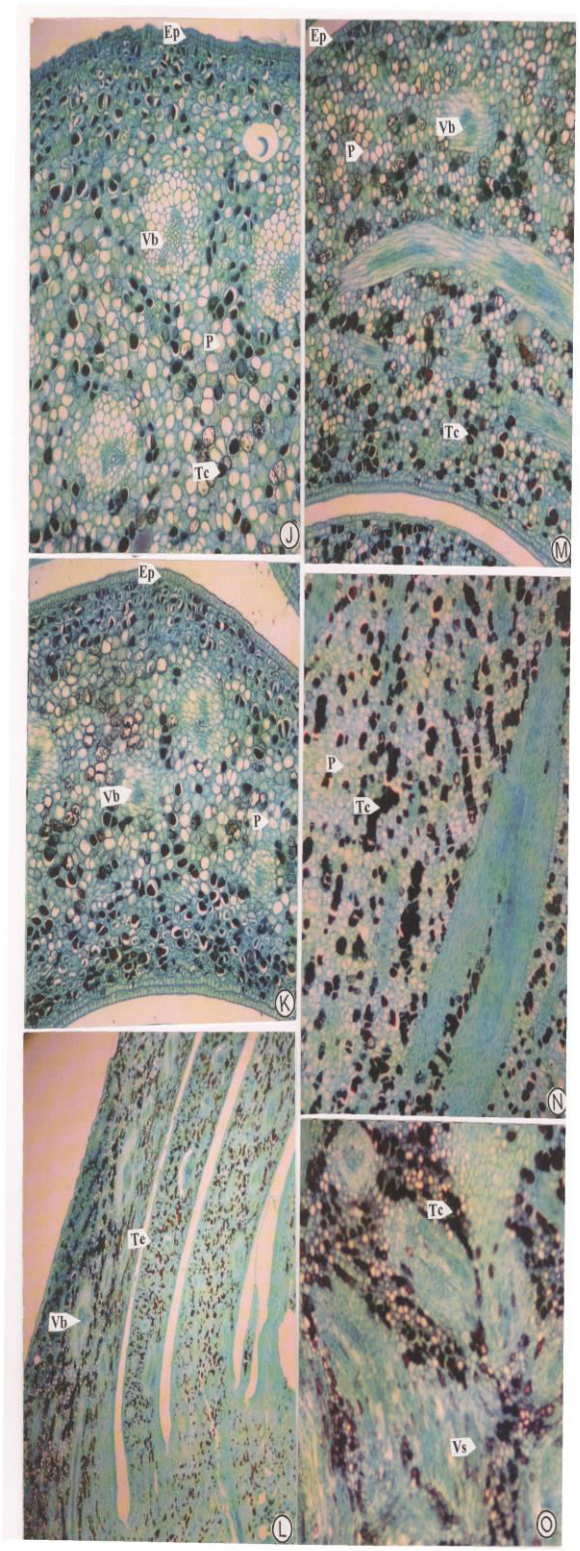


Fig. 1 - Inflorescence

Fig. 2

A - Branch of spadix – A portion enlarged

B - Branch of spadix – Cortex enlarged

C - Branch of spadix - Central region enlarged

D - T. S. of primordium of male flower

E - T.S. of primordium of male flower – A portion enlarged

Fig. 3

F - L.S. of primordium of female flower

G - L.S. of primordium of female flower showing perianth and ovary

H - L.S. of primordium of female flower – Basal region enlarged

I - L.S. of primordium of female flower - Lower portion showing vascular strands

J, K, M- L.S. of primordium of female flower - Perianth enlarged

L - L.S. of primordium of female flower - perianth side view enlarged

N - L.S. of primordium of female flower – Ovary enlarged

O - L.S. of primordium of female flower - Basal region showing vascular supply

4.2.2 PHYSICOCHEMICAL ANALYSIS

Introduction:

Is a method of investigating physicochemical systems that makes possible a determination of the nature of the interactions between the components of a system through a study of the relations between the system's physical properties and composition.

Physicochemical analysis involves the measurement of various physical properties of systems, most often phase transition temperatures and other thermal properties (thermal conductivity, heat capacity, thermal expansion), electrical properties (conductivity, dielectric permittivity), and optical properties (refractive index, rotation of the plane of polarization of light). Also measured are the density, viscosity, and hardness, as well as the dependence of the rate of the transformations occurring in a system on the system's composition. X-ray diffraction analysis and techniques of microscopic metallography are extensively used in physicochemical analysis.

Colour and character of Powder of *Thennam Poo Chooranam*.

Table: 4.2.1.1

S No	Solvent used	Under ordinary light	Under ultra violet light
1	PPM	Light Yellow	Light Yellow

PPM-Powdered plant material

Ash and acid insoluble ash:

To the ash add 1:5 Hcl: Distilled water 15 ml boil, cooled and then filtered using whatman filter paper (No.41) repeat 3 to 4 times till the yellow colour disappear or colourless, then remove the filter paper and add to the filter to the original dish and keep it in the muffle furnace at 600^{o} C and take constant weight and calculate the acid insoluble ash value.

Acid insoluble ash (%) = (Weight of acid insoluble residue x 100) / Weight of the sample

Acid insoluble residue = Acid insoluble ash value – Empty weight of the dish

Physicochemical properties of Powder of Thennam Poo Chooranam

Table: 4.2.1.2

S.No	Parameter	I	II	Mean
1	Loss on Drying at 105°C	:7.612%,	7.628%,	6.62%
2	Total Ash	:5.697%,	5.502%,	5.599%
3	Acid insoluble Ash	:0.390%,	0.469%,	0.429%
4	Water Soluble Extractive	:14.501%,	14.486%,	14.494%
5	Alcohol Soluble Extractive	:21.069%,	21.554%,	21.312%
6	Ph		: 6.77	

THIN LAYAR CHROMATOGRAPHY

Introduction:

Chromatography may be preparative or analytical. The purpose of preparative chromatography is to separate the components of a mixture for further use (and is thus a form of purification). Analytical chromatography is done normally with smaller amounts of material and is for measuring the relative proportions of analytics in a mixture. Thin layer chromatography can be used to

monitor the progress of a reaction, identify compounds present in a given mixture, and determine the purity of a substance.

Solvent system:

Toluene : Ethyl acetate (5:1.5).

TLC plate:

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

Developing chamber:

Camag's twin trough chamber.

Visualizing reagent:

Vanillin-sulphuric agent.

Extract Preparation:

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

Procedure:

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

4.2.3 CHEMICAL ANALYSIS

Introduction:

Analytical chemistry has been important since the early days of chemistry, providing methods for determining which elements and chemicals are present in the object.The study of the separation, identification, and quantification of the chemical components of natural and artificial materials. It consists of two type of analysis present.

1] Qualitative analysis

2] Quantitative analysis

Qualitative analysis gives an indication of the identity of the chemical species in the sample and **quantitative analysis** determines the amount of one or more of these components. The separation of components is often performed prior to analysis. During this period significant analytical contributions to chemistry include the development of systematic elemental analysis and systematized organic analysis based on the specific reactions of functional groups.

I. Qualitative inorganic analysis

Preparation of extract:

2gm of *Thennam poo chooranam* is added with 5gm of sodium carbonate and taken in a 100ml clean beaker and added with 20ml of distilled water .The solution is boiled well for 10 minutes ,then it is cooled and then filtered in 100ml volumetric flask .the filtrate is called sodium carbonate extracts.

Then the following tests for the presence of acid radicals, basic radicals and miscellaneous were done.

Sl.no	Test Name	Observation	Results
1	Test for Acid Radicals: Sulphate	White Precipitate is obtained	Presence of sulphate
2	Chloride	Absence of White Precipitate	Absence of chloride
3	Phosphate	Presence Yellow Precipitate	Presence of phosphate
4	Carbonate	Absence of White Precipitate	Absence of corbonate
5	Sulphide	Absence of Rotten egg smelling	Absence of sulphide
6	Nitrate	Absence of reddish brown gas.	Absence of nitrate
7	Fluoride and oxalate	Absence of White precipitate	Absence of Fluride and oxalate
8	Nitrite	Absence of yellowish red colour	Absence of nitrite
9	Borate	Absence of Green tinged flame	Absence of borate
10	Test for basic radicals lead	Absence of Yellow precipitate	Absence of lead
11	Copper	Absence of Bluish green coloured flame .	Absence of copper
12	Aluminium	Absence of White precipitate.	Absence of aluminium
13	Iron	Presence of Blood red colour .	Presence of Iron
14	Zinc	Absence of White precipitate	Absence of zinc
15	Calcium	Presence of White precipitate .	Presence of calcium
16	Magnesium	Presence of White precipitate.	Presence of magnesium
17	Ammonium	Absence of Reddish brown precipitate.	Absence of ammonium
18	Potassium	Presence of Yellow precipitate	Presence of potassium
19	Sodium	Presence of Yellow colour flame	Presence of sodium
20	Mercury	Absence of yellow precipitate	Absence of mercury
21	Arsenic	Absence of yellow precipitate	Absence of Arsenic
22	Starch	Absence of Blue colour .	Absence of starch
23	Reducing Sugar	presence of Green colour .	Presence of reducing sugar
24	Alkaloids	Presence of Red colour	Presence of alkaloids

II. Qualitative analysis for phytochemical

Sl.no	Phytochemical test	Observation	Results
1	Test for Tannins	Forms a brownish-green or bluish- black colour.	Presence of Tannins
2	Test for Phlobatannins	A red precipitate is not deposited	Absence of phlobatannin
3	Test for Saponin	A permenant or persistant froth is not formed.The froth is not turned in to emulsion by adding three drops of olive oil.	Absence of saponin
4	Test for Flavonoids	Yellow colour formed and disappears on standing.When 1% Alluminium solution is added in this mixture re-formation of yellow colour.	Presence of flavonoids
5	Test for steroids	No colour changes	Absence of Steroids
6	Test for Cardiac glycosides	A brown ring indicates deoxy sugar of cardenolides/violet ring appears below brown ring/ in acetic acid layer a green ring is formed	Presence of cardiac glycosides
7	Test for Terpenoids	A reddish brown interface layer is formed	Presence of Terpenoids
8	Test for Carbohydrates	A green or brick red or red precipitate shows the presence of reducing sugar	Presence of carbohydrates
9	Test for Alkaloids Wagner's reagent	Forms a brown or dark reddish precipitate	Presence of alkaloids
10	Test for Glycosides	Forms pink colour	Presence of glycosides
11	Test for Protein	Formation of light blue or Pale violet colour is absent	Absence of protein
12	Test for Phytosterols	Not appeared greenish blue layer on the upper surface	Abesence of phytosterols
13	Test for Phenolic compounds	Formation of deep bluish green colour is absent	Absence of phenolic compounds
14	Test for Volatile oil	Red colour is appeared	Presence of volatile oil
15	Test for Fixed oil	Formation of a clear blue solution is absent	Absence of fixed oil

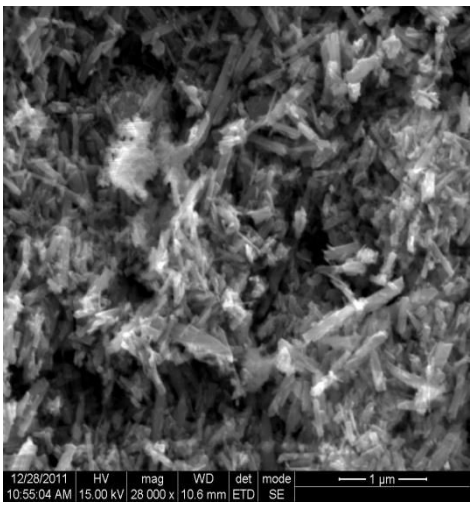
Results are discussed in table 4.2.3.1

SCANNING ELECTRON MICROSCOPE (SEM)

Introduction:

The **scanning electron microscope** (**SEM**) is a type of electron microscope that images the sample surface by scanning it with a high-energy beam of electrons in a raster scan pattern. The electrons interact with the atoms that make up the sample producing signals that contain information about the sample's surface topography, composition and other properties such as electrical conductivity. The types of signals produced by an SEM include secondary electrons, back scattered electrons (BSE), characteristic x-rays, light specimen current and transmitted electrons. These types of signal all require specialized detectors. The signals that derive from electron-sample interactions reveal information about the sample including external morphology (texture), chemical composition, and crystalline structure and orientation of materials making up the sample. In the most common or standard detection mode, secondary electron imaging or SEI, the SEM can produce very high-resolution images of a sample surface, revealing details about 1 to 5nanometers in size. Due to the way these images are created, SEM micrographs have a very large depth of field yielding a characteristic three-dimensional appearance useful for understanding the surface structure of a sample.

SEM PICTURE OF COCONUT FLOWER



It have good nano particle size that indicates absorption is very good and pharmaco therapeutic value is good.

INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETRY (ICP-OES)

Special features

- It is an analytical technique used for the detection of trace metals.
- To produce excited atoms and ions that emit electromagnetic radiation at wavelengths characteristic of a particular element.
- The intensity of this emission is indicative of the concentration of the element within the sample.

ICP-OES

HEAVY/TOXIC ELEMENTS	CONCENTRATION
Ar	BDL
Cd	BDL
Hg	BDL
Pb	BDL

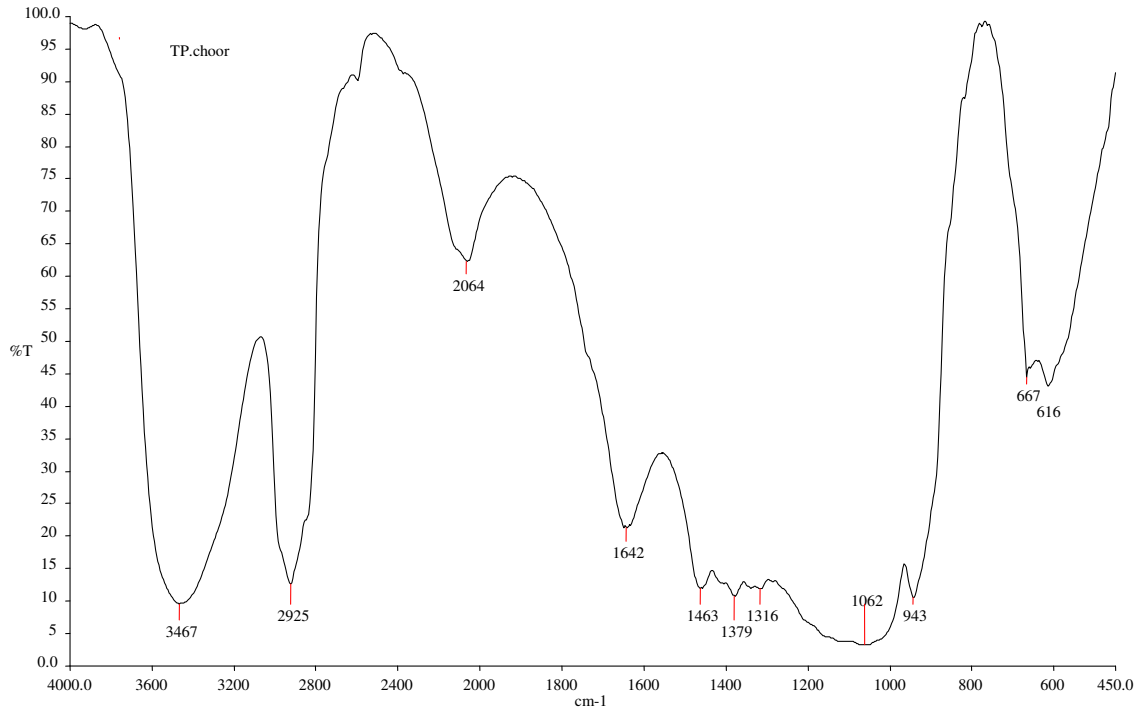
OTHER ELEMENTS	CONCENTRATION
Ca	65.125mg/L
Fe	1.594mg/L
Mg	18.362mg/L
K	250.568mg/L
Na	153.154mg/L
P	54.285mg/L
S	1.746mg/L

FOURIER TRANSFORM INFRARED SPECTROSCOPY (FTIR)

Features

- Fourier Transform Infrared Spectroscopy (FTIR) is an analytical technique used to identify mainly organic materials.
- Itis useful in identifying the functional groups like -OH, -CN, -CO, -CH, -NH2, etc.
- Especially capable of identifying the chemical bonds of organic materials
- Identifies water, phosphates, sulphates, nitrates, nitrites, and ammonium ions

Report of FTIR



4.2.4 TOXICOLOGICAL STUDIES

Introduction:

- Is the science of poisons and the harmful or noxious effects these substances have on living things.
- Acute toxicity, sub chronic, chronic, and reproductive tests are the principal experiments conducted in a toxicology laboratory.

Acute

In most acute (short-term) toxicity tests, a single dose of a test substance is given to an animal. One measure of acute toxicity is the lethal dose 50 (LD50), or the dose of a substance that kills 50 percent of the animals tested.

Subchronic

These studies are 13 to 26 weeks in duration. The animals are dosed daily by the same route that the substance would normally be administered to humans. They are then observed for any toxicity, as well as changes in body weight or food consumption. At

the end of the dosing regimen, the animals are euthanized and their tissues evaluated for evidence of toxicity.

Chronic

The studies assess the longer-term toxic as well as carcinogenic (cancer-causing) potential of various substances. The test animals are observed for the same parameters as those on sub chronic testing, only the observation period is longer (up to two years) and checked for tumours. Post mortem analysis includes evaluation for toxicity as well as carcinogenicity (determined by the presence of tumours).

Reproductive

Reproductive tests are devised to detect changes in the reproductive cycle caused by the compound being tested and the toxic effects of the compound on fertility, organ development, and behaviour.

ACUTE TOXICITY STUDY

Materials and methods

Drug, Reagents and Stock solution preparation

Since the test drug is partially soluble in distilled water and hence the Thennampoo chooranam was mixed uniformly in 2% CMC solution to achieve 100mg/ml of suspension as main stock solution and used in this study.

Animals

Mice of either sex weighing 25-30g and male Wistar rats weighing 150-200g were obtained from the animal house of Vels University. Animals were fed on conventional diets and water *ad libitum* and they were maintained under standard conditions of humidity, temperature (20-24°C) and light (12-h light: 12-h dark cycle). The rats were randomly assigned to control and different treatment groups, six animals per group. The Institutional Animal Ethics Committee approved the experimental protocol and the conditions in the animal house approved by Committee for Supervision

on Experiments on Animals. The study was conducted in accordance with IAEC guidelines The animals were acclimatized for one week under laboratory conditions.

Acute toxicity study

Acute oral toxicity test for the Thennampoo chooranam was carried out as per **OECD Guidelines 425 up and down method**. Animals are observed individually after dosing at least once during the first 30 minutes, periodically during the first 24 hours, with special attention given during the first 4 hours, and daily thereafter, for a total of 14 days, except where they need to be removed from the study and humanely killed for animal welfare reasons or are found dead.

All observations are systematically recorded and Observations include changes in skin and fur, eyes and mucous membranes, and also respiratory, circulatory, autonomic and central nervous systems, and somatomotor activity and behaviour pattern. Attention was directed to observations of tremors, convulsions, salivation, diarrhoea, lethargy, sleep and coma. The principles and criteria summarised in the Humane Endpoints Guidance Document taken into consideration. Animals found in a moribund condition and animals showing severe pain or enduring signs of severe distress was humanely killed. When animals are killed for humane reasons or found dead, the time of death was recorded. The higher bound dose from tolerable dose levels 500 and 1000mg/kg were taken for further pharmacological study.

4.2(5) PHARMACOLOGICAL STUDY

ANTI-HYPERTENSIVE EFFECT OF THENNAM POO CHOORANAM

General CNS behaviour of the test drugs

Motor coordination - Rotarod Test

The motor coordination was evaluated using the rota rod test. All the animals (n=5, per group) were pre-tested for their ability to remain on the rotating rod at a speed of 25 rpm for minimum 3min. Each animal was individually given a minimum of two trials to complete the task. After 1 h, the animals were again tested for motor impairment after administration of various doses of test drugs (500 mg and 1 g/kg). Each rat was tested 60 min after drug or before drug treatment and three trials was made with gap of

30 seconds between each. Latency to fall off from the rotating rod was noted in each trial.

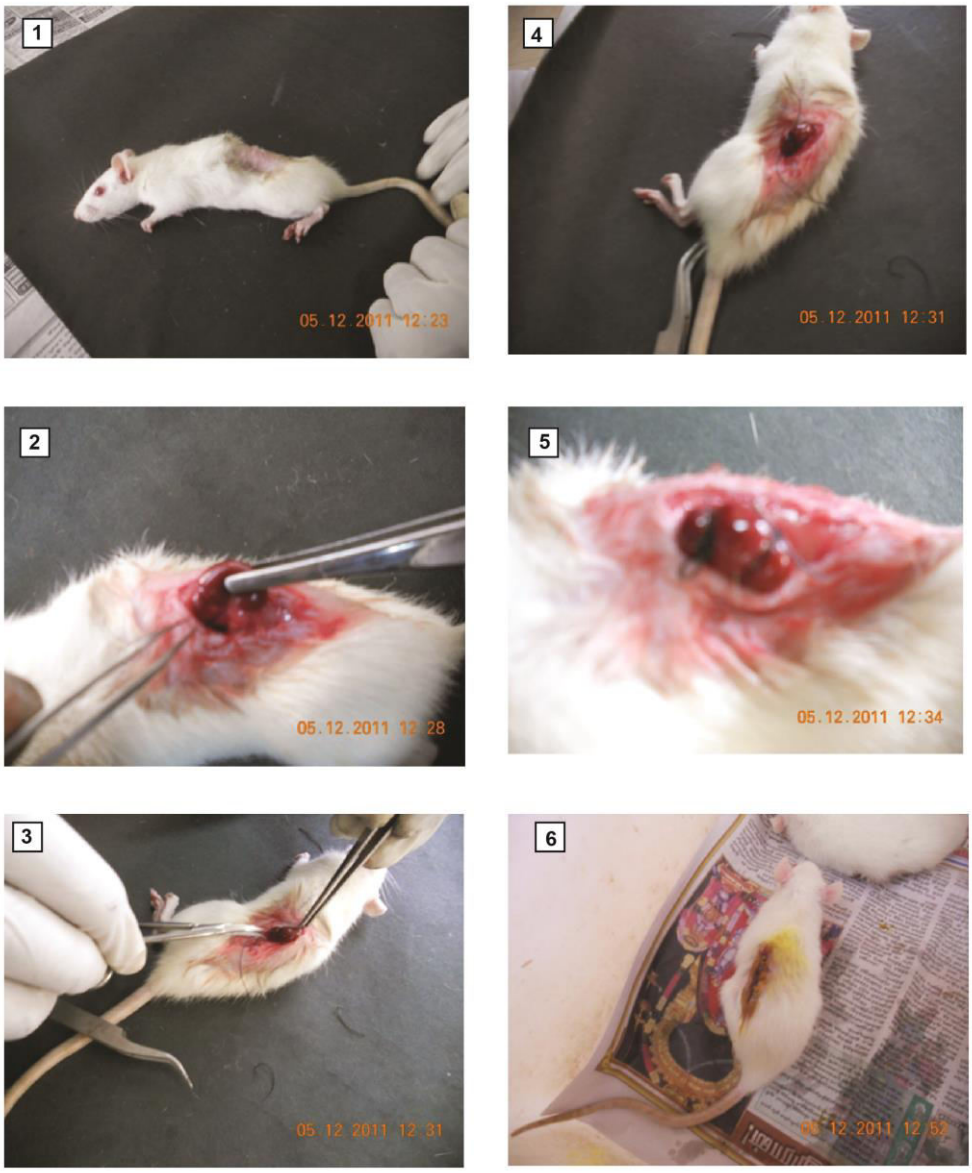
Locomotory Behavoir - Actophotometer

Locomotor behavioral pattern of the animals (n=5) treated with various doses of test drugs (500 mg/kg and 1 g/kg) or before drug treatment was monitored using actophotometer. Sixty minutes after test drug administration, the rats were individually placed in the actophotometer (20x50x20 cm) with three infrared light beams pointing to photocells and ambulatory activity was registered for 5 mins period. The locomotor activity was expressed in terms of total photo beam counts / 5 mins per animal.

Anxiety – Elevated plus Maze test

Elevated plus maze was made of wood and had two open arms (50 cm X 10 cm) and two closed arms of same size with 40 cm high walls and was elevated 50 cm above the ground. Each rat was placed in the centre square (10 cm X 10 cm) and observed for number of entries into the type of arm (all four paws defining an entry) and the time in the open and closed arms. The parameter was recorded for 5 min.

HYPERTENSION INDUCED BY 2 KIDNEY 1LIGATURE METHOD
(GOLDBLATT MRTHOD)



Induction of hypertension in rats - Goldblatt method

Animals are anesthetized with ketamine + xylazine (75 +25 mg/kg i.p). Small 1 cm incision was made near lumbar region and left kidney and left renal artery was identified and occluded with surgical thread 4-0 silk suture. The occluded kidney is replaced in its original position and wound is closed with surgical catgut. All the animals are allowed to free access to food and *ad libitum*. The test drug is administered orally from the next day for 10 days. The systolic and diastolic Blood pressure of the animals was done with tail cuff BP apparatus.

The present study highlights the anti-hypertensive effect of Thennampoo chooranam in hypertensive in rats. The hypertension is induced by standard surgical procedure Gold blatt by permanently occluding one kidney and its arterial blood supply. This surgical method in rodents is well-validated model and which mimic the rennin-angiotensin induced hypertension. Hypertension is one of the leading causes of disability, morbidity and mortality among the populace; it is the most common chronic illness the world faces. In this study, we measured the arterial BP and the heart rate of both the normotensive and hypertensive (renal-occlusion method) rats, with a view to analyze the scientific basis for the use of Thennampoo Chooranam. The mechanism for hypertension development in renal artery occlusion model is via the renin-angiotensin system.

This method produces powerful vasopressor activity. Thus, hypertension induced by renal artery occlusion in animals including man cannot be relieved by agents which do not have action on the peripheral blood vessels. It is possible that the reduction in BP by the Thennampoo Chooranam without any alteration in HR may be due to the vasopressive effect. That is, the depressor effect of the Thennampoo Chooranam is probably due to the action on alpha-1 adrenoceptors, resulting in reduction of peripheral cardiovascular (specifically the blood vessels) drive.

Alternatively, the Thennampoo Chooranam may contain agonist-like agents that act on the beta-2 adrenoceptors to produce a relaxant action on the vascular smooth muscles. In renovascular hypertension, it is reported to trigger the release of renin from the kidneys that activates the renin-angiotensin system to produce a potent vasoconstrictor (angiotensin II) causing vasopressor effect. It has also been shown that there is an increase in catecholamine synthesis (increased tyrosine hydroxylase activity) in the adrenal glands of renovascular hypertensive rats. Thus, the release of adrenaline

from the adrenal medulla would remain depressed as a consequence of enhanced feedback control and/or inhibition of the mechanism by the Thennampoo Chooranam.

This concept has been used in the present investigation to evaluate antihypertensive activities of Thennampoo Chooranam in renal artery occlusion induced renovascular hypertension. High blood pressure is a prevalent risk factor for cardiovascular disease, affecting more than one billion people worldwide. The prevalence of hypertension and stroke mortality rates is higher in the South-eastern United States than in other regions. Hypertension affects 20% to 30% of the adult population in most developed countries, and its prevalence appears to increase with the age of the patient. In present investigation occlusion of renal artery results in ischemia mediated renal damage. It is reported that kidney is one organ, which is extremely sensitive to changes in oxygen tensions within its complex architecture making it very prone to hypoxic injury when the renal artery is occluded. Renal cells were found to be more sensitive in oxidative damage induced by occlusion of renal artery and useful tool as marker reflecting the systemic symptoms of oxidative stress

Many data suggest that there is a striking racial difference in hypertension-related progressive renal disease. Hypertension is certainly more common, more severe, less well managed, and more capable of causing renal insufficiency. The mechanisms responsible for such a renal susceptibility are still unknown. Epidemiological data on the risk of hypertensive patients to develop renal failure offer contrasting results. Hypertensive nephrosclerosis may be responsible for a progressive renal disease in only a subset of hypertensive patients. In these patients, hemodynamic factors might co-cluster with other non-hemodynamic factors, such as geneticdeterminants, metabolic abnormalities and local immune reaction, thus inducing progressive renal insufficiency. In addition, autopsy studies on patients with pure essential hypertension suggest that severe renal damage consequent to high blood pressure, in the absence of associated renal parenchymal disease, is either rare or non-existent. The results from the present investigation reveals that the test drug at the dose of 1gm/kg body weight Thennampoo chooranam administered orally for 10 days to the hypertensive rats significantly decrease the systolic and diastolic Blood pressure.

The antihypertensive activity of Thennampoo Chooranam may be resulted through the action on rennin angiotensin system. However the anti hypertensive effect

was not observed in hypertensive rats treated with 500 mg/kg dose. Further its, is interesting note that the similar dose has CNS depressant effect in normal rats. One day administration of Thennampoo chooranam 1g/kg significantly influence rats locomotion / central motor coordination which suggests the CNS effect of the Thennampoo chooranam in rats. Interestingly, the Thennampoo chooranam possess significant anxiolytic effect tested in elevated plus maze. It is not clear that the anti-hypertensive effect of the Thennampoo chooranam is due to ACE inhibition or central depressent property. Further experiments will clarify the exact pharmacological mechanism of the drug.

Diuretic property of thennam poo chooranam

Introduction

Diuretics relieve pulmonary congestion and peripheral edema. These agents are useful in reducing the syndrome of volume overload, including orthopnea and paroxysmal nocturnal dyspnoea. They decrease plasma volume and subsequently venous return to the heart. This decreases cardiac workload, oxygen demand and plasma volume, thus decreasing blood pressure. Thus, diuretics play an important role in hypertensive patients. Diuretics increase urine volume, which results in the reduction of supersaturation of crystals forming salts and also help in the expulsion of already formed crystals.

Materials and methods

Drugs and chemicals

2% CMC in normal saline (2 ml/kg) was used as vehicle. Furosemide was obtained from loba chemicals pvt Ltd. All experiments are conducted under ambient temperature and humidity.

Pharmacological evaluation

Diuretic activity

Animals

Male Wistar rats weighing between 150 and 180 g were used for investigating the Diuretic effect *in vivo*. All animals were conditioned in standard metallic cages (6 rats per cage), fed standard laboratory diet *ad libitum* and allowed free access to drinking water. The animals were also kept in 12:12 hour light/dark cycle. The experimental rats were handled in strict compliance with CPCSEA and IAEC guidelines.

Grouping and Treatment

Four groups of six rats each were used. Rats were kept for fasting for 18 hrs before the study. The dose of Thennam Poo Chooranam was decided on the basis of acute toxicity study. The doses were given by oral route Group-I received 2% CMC in normal saline (2 ml/kg). Another group received Thennam Poo Chooranam 500mg/kg. The third group received Thennam Poo Chooranam 1000mg/kg while the fourth group received Frusemide (20 mg/kg).

Immediately after administration of the drug, the rats were each placed in metabolic cages for 4hrs, specially designed to separate urine and feacal matter and observed at room temperature. The animals were denied food and water during the experiment. The urine volume (ml/day) was measured and then assayed for Na^+ and K^+ and Cl^- concentrations in mMol/l was measured by using routine methods.

Statistical analysis

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

This study was performed on male Wistar rats. Moreover, diuretic and natriuretic effects were also observed, suggesting an action on the renal function. Administration of Thennam Poo Chooranam to rats increased urine output. Sodium, potassium and chloride concentrations increased and further studies are necessary to clarify the diuretic effect.

4.3 CLINICAL TRIAL

Clinical study for Anti-hypertensive activity of *Thennam poo chooranam*

Aim

Hypertension is a widespread health problem affecting the one billions adults of total population in the world. It is a one of the harmful disorder, Although hypertension is defined as systolic blood pressure (SBP) equal to and greater than 140 and/or diastolic blood pressure (DBP) equal to and greater than 90 mmHg, risk factors of hypertension can be seen in blood pressure (BP) as low as 115/75 mmHg and will begin to double in risk for every 20/10 mmHg increase. The new classification of “pre-hypertensive” (SBP 120-139 and DBP 80-89 mmHg) has been introduced to identify individuals who are at a higher risk of developing hypertension, pointing out an important fact that hypertension is a modifiable risk factor.

The rise in hypertensive patients causes concern and calls for action in the prevention and treatment for this condition. It can only be controlled.Because it reduces all the health risk associated with hyper tension. As hypertension is associated with an increase in risk for cardiovascular disease, it is vital that effective interventions are advocated to reduce overall morbidity and mortality. Although pharmacological treatments can be costly and necessary for treating some BP conditions, lifestyle modifications should also be implemented whenever possible. The role of exercise has been shown to be consequential in lowering both systolic and diastolic BP.

The aim of this trial is to select the cases of **pre hypertension**, **hypertensive patients** and administer them with the trial medicine as per time of treatment and clinically to evaluate the potency of the ***"Thennampoochooranam"***

Objective

The main objective of this clinical study is to highlight the efficacy of this trial drug clinically.

Study design

A. Open clinical trial

B. Parameters for study:

- Blood pressure,
- Giddiness,
- Palpitation ,
- Head ache,
- Insominia,
- Fatiguability,
- Breatheless ness

C. Line of Treatment

- Route of administration : Enteral
- Drug and Dosage : Thennam poochooranam 1gm Before food with water (Boiled&cooled form) twice a day.

- Duration : 40-70 days (according to prognosis

Selection of patients

52 patients were selected for the clinical trial. This selection was based on the inclusion and exclusion criteria. Patients of different age group and different socio economic status were selected, 42 patients were selected outpatient treatment and 10 patients were selected for inpatient treatment.

Study centre

The clinical study was carried out in Gunapadam post graduate out patient and inpatient department, Government Aringar Anna Hospital for Indian Medicine and Homoeopathy, Chennai – 106.

Consent form

Patients were included in this clinical study only after getting the concern form accordance of 'Helsinky'. Before including of clinical trial all the patient were kept to inform detailed report of trial drug, its properties, potency and Duration of the treatment.

After getting the Institutional Ethical committee approval, had started the clinical trail as per the guidelines of IEC.

The patients were selected for clinical trials as per the following criterias, which are listed below:

Inclusion Criteria

Patients newly diagnosed to have Primary or Essential Hyper tension.Both Male and Female belonging to the age group of 30-75, with out any complications.

Exclusion Criteria

- Secondary Hypertension
- Hypertension in pregnancy
- Malignant Hypertension

- Hypertension associated with,
  - Stroke,
  - Diabets mellitus,
  - Ischaemic heart disease,
  - Renal & other complication

Criteria for withdrawal

- Acute conditions-Sudden severe elevation of Bp(S.Bp>210/ D.Bp>130mmHg)
- Irregular follow up,
- Incooprative patient
- Alcohol abuse
- Biphasic treatment method
- Incase of Emergency

Investigation criteria

- **Measurement of Blood pressure**
  - Blood pressure used as an important clinical sign in analyzing progress.

Following a few simple rules is important before measurement of Bp

- First, don'tsmoke or drink alcohol or coffee within 15 minutes of a blood pressure measurement and the Bp were recorded when the patients were in relaxed state.
- Second, the cuff should be encircled arround the arm. The center of the bladder should be over the brachial artery. Thick arms need a larger bladder, while children need a smaller bladder.
- Third, your posture is important. Sit withyour back supported and your elbow at about the level of your heart with your arm supported. It's better if you rest for several minutes in that position before the measurement. Don't talk during the measurement.
- In standing and sitting positions the arm must be horizondal with 4^{th} intercostal space at the sternum.
  - Three reading at intervals were taken and recorded the average.
  - A weekly record of blood pressure was maintained.

- **Blood**
  - Total count,
  - Differential count,
  - Erythrocyte sedimentation rate,
  - Haemoglobin,
  - Blood sugar,
  - Blood urea,
  - Serum creatinine,
  - Serum cholesterol.

- **Urine**
  - Albumin,
  - Sugar,
  - Deposite

Criteria for assessment of response to therapy:

1) Marked response - 80-95% complete relief in signs and symptoms, complete normalcy of the pathological conditions.

2) Moderate response - 60-75% relief in the presenting signs and symptoms, marked normalcy in pathological conditions.

3) Mild response - 50%relief of signs and symptoms, moderate normalcy of the pathological conditions.

4) Poor response - Below 50% or No changes in the symptoms & sign, in pathological investigation.

Diet and medical advice

- Take low salt diet(1500mg/day),
- Avoid non vegetarian food expect fish,
- Avoid fatty diet, Avoid smoking and tobacco chewing,
- Avoid consumption of alcohol,
- Maintain ideal body weight,

- Take regular, moderate exercise.
- Maintain physically active life,
- Avoid both physical and mental stress,
- Maintain normal sleep pattern

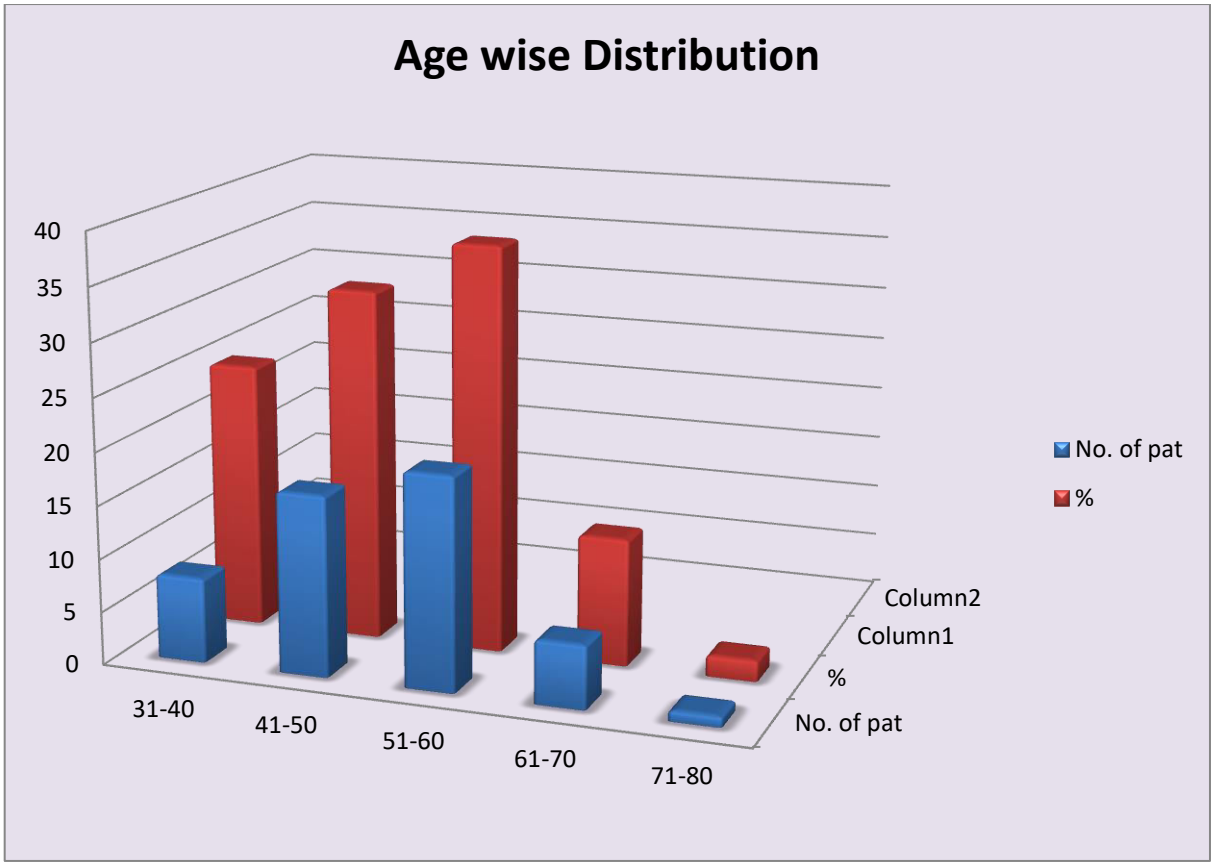
Observations

The following parameters were observed during the course of the treatment.

- Age
- Sex
- Socio economic status
- Occupational status
- Family History ,
- Past history
- Diet
- Personal Habits & Clinical features.

HT-CLINICAL CHART

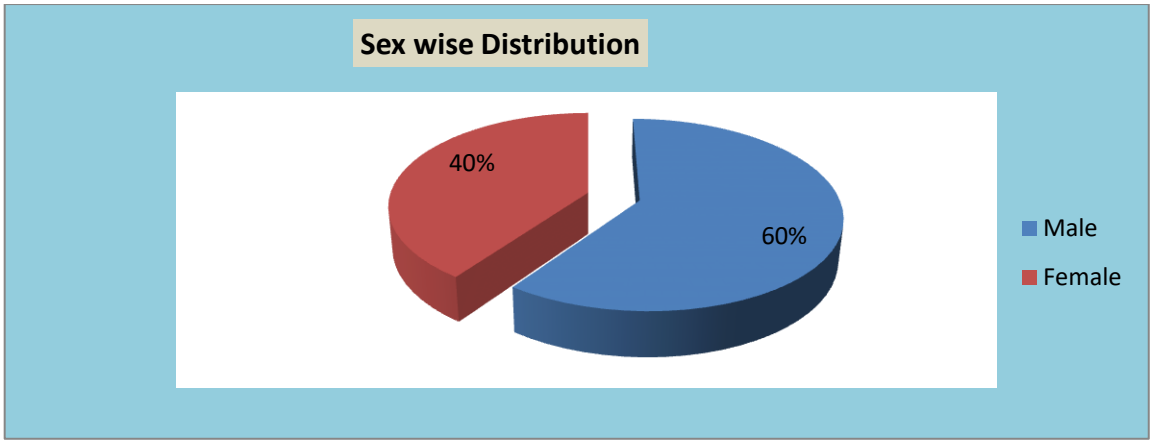
Age wise		
age	**No. of pat**	**%**
31-40	8	15
41-50	17	33
51-60	20	38
61-70	6	12
71-80	1	2



Inference:

Among 52 patients, the data shows that it is mainly distributed in the 41-50 and 51-60 age groups.

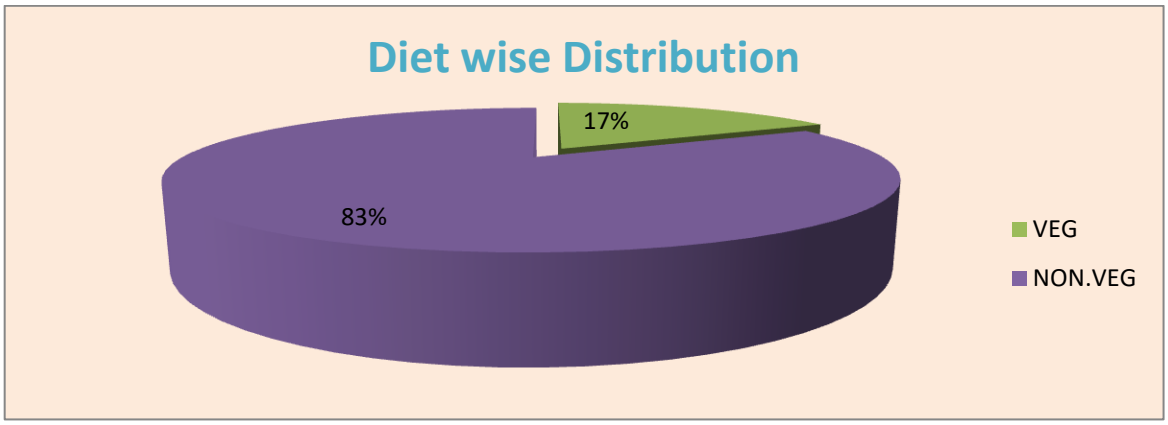
Sex wise		
Sex	**No. of pat**	**%**
Male	31	60
Female	21	40



Inference:

Among 52 patients, the data shows that 60% of male and 40% of females are affected by this disease.

Diet wise		
Diet	**No. of pat**	**%**
Vegetarian	9	17
Non-Veg.	43	83

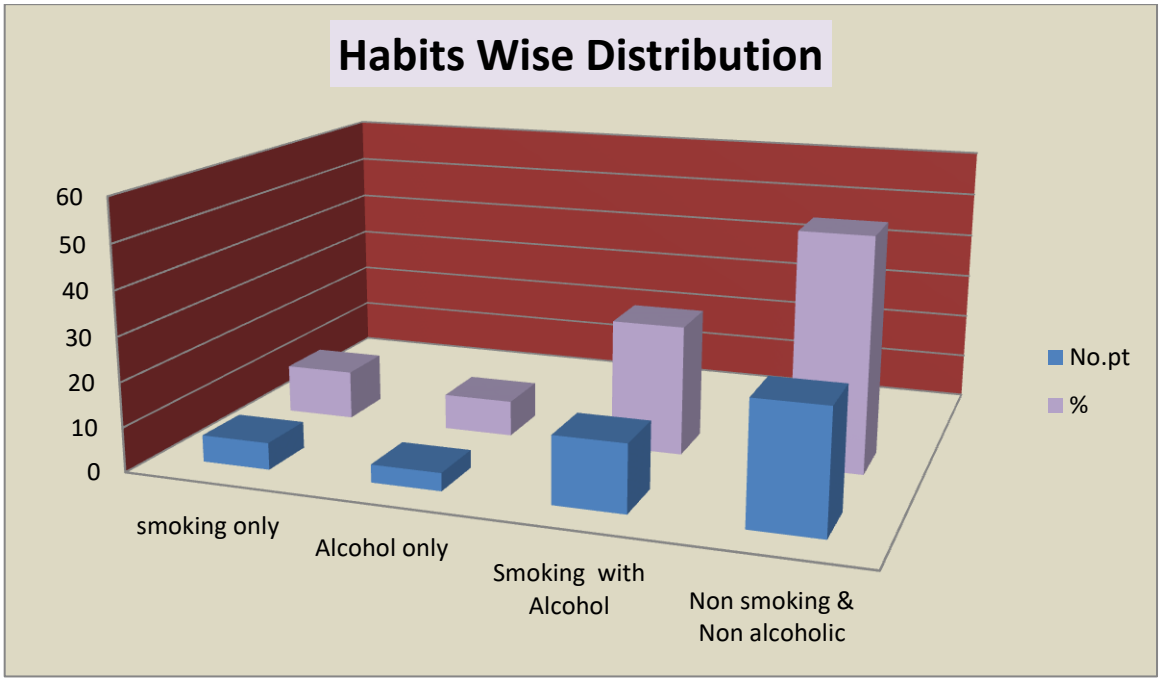


Inference:

Among 52 patients, the data shows that the people who consumed non vegetarian diet (83%) are more susceptible to hypertension than vegetarian food eaters(17%).

Habits wise Distribution

Habits	No. of pat	%
Smoking	6	11
Alcohol	4	8
Smoking with Alcohol	15	29
Non Smoking & Alcohol	27	52

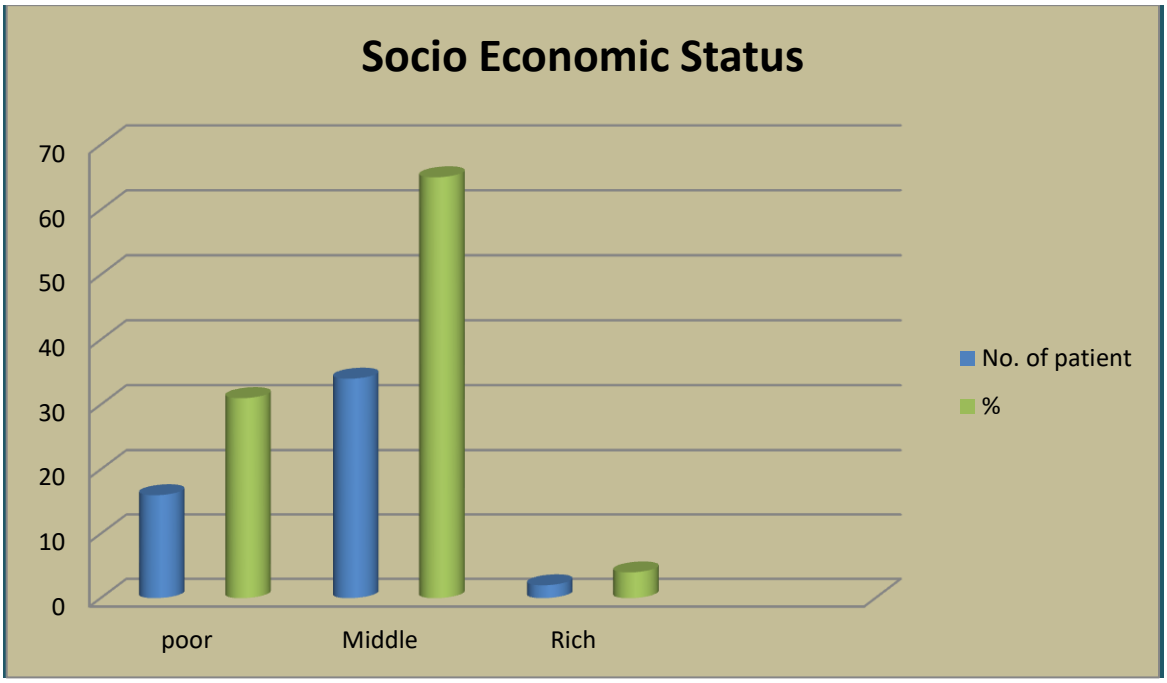


Inference:

Among 52 patients, the data shows that smoking and alcohol plays notable role in the occurrence of the diseases.

Socio Economic		
Status	**No. of pat**	**%**

Poor	16	31
Middle	34	65
Rich	2	4

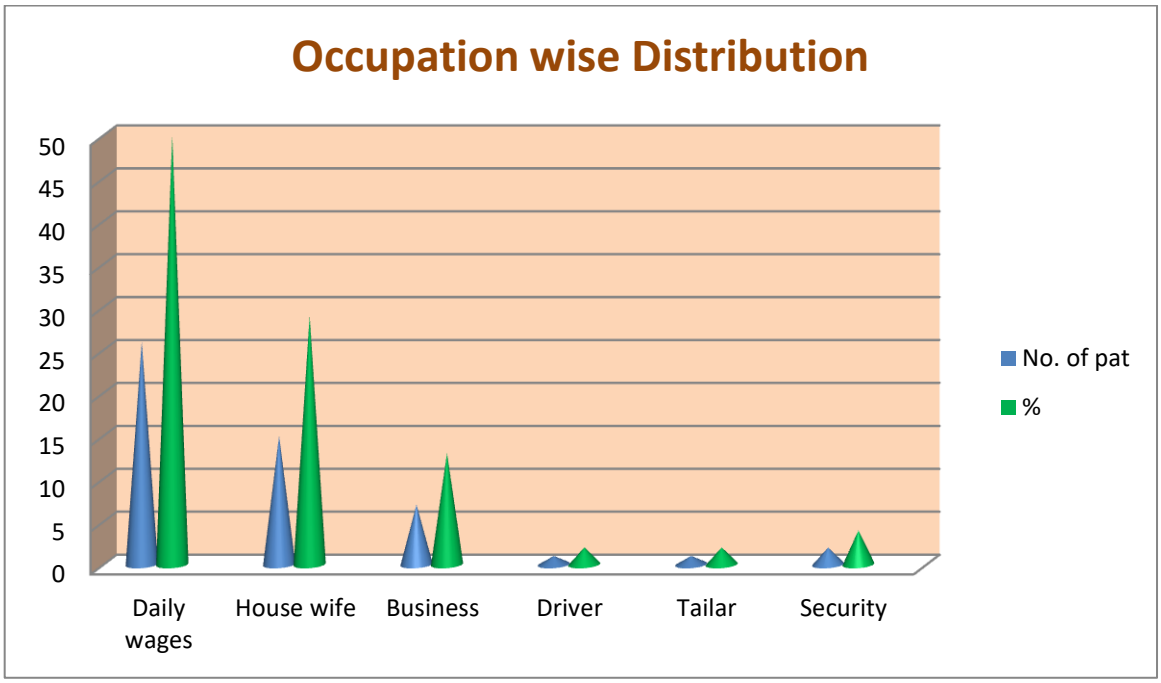


Inference:

Among 52 patients, the data shows that the diseases is almost prevalent in middle (65%) class people.

Occupation wise		
Occupation	**No. of pat**	**%**
Daily wages	26	50
House wife	15	29

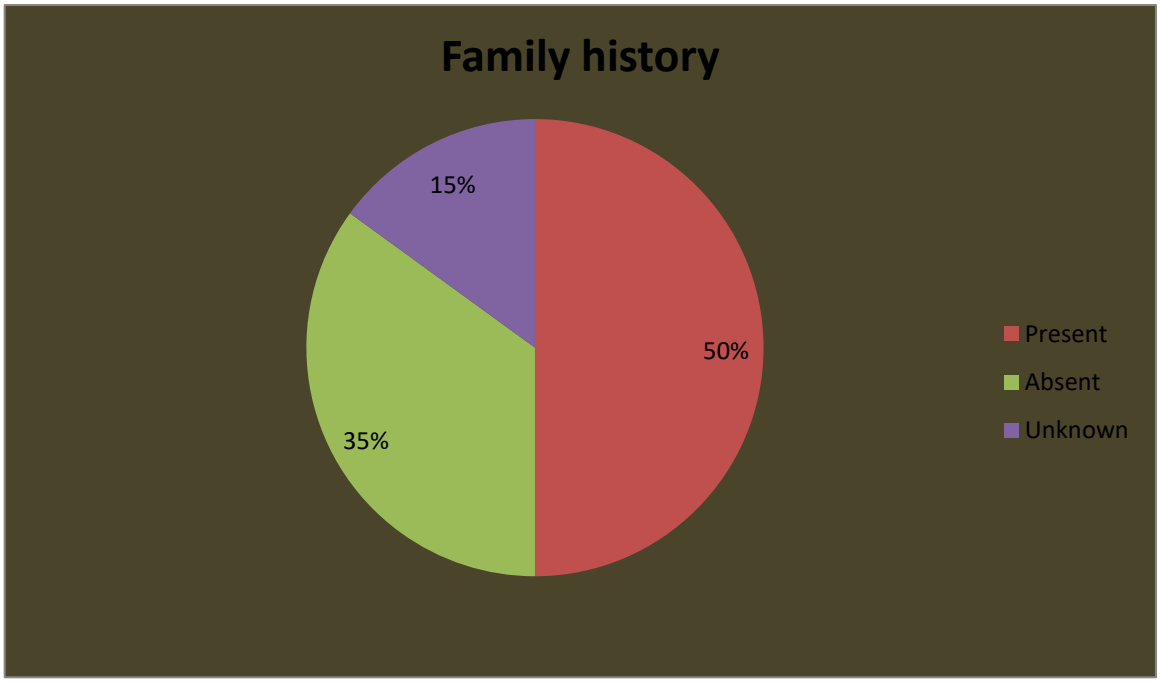
Business	7	13
Driver	1	2
Tailors	1	2
Security	2	4



Inference:

Among 52 patients, the data shows that the diseases is almost predominant in the Daily wages and House wife occupational groups.

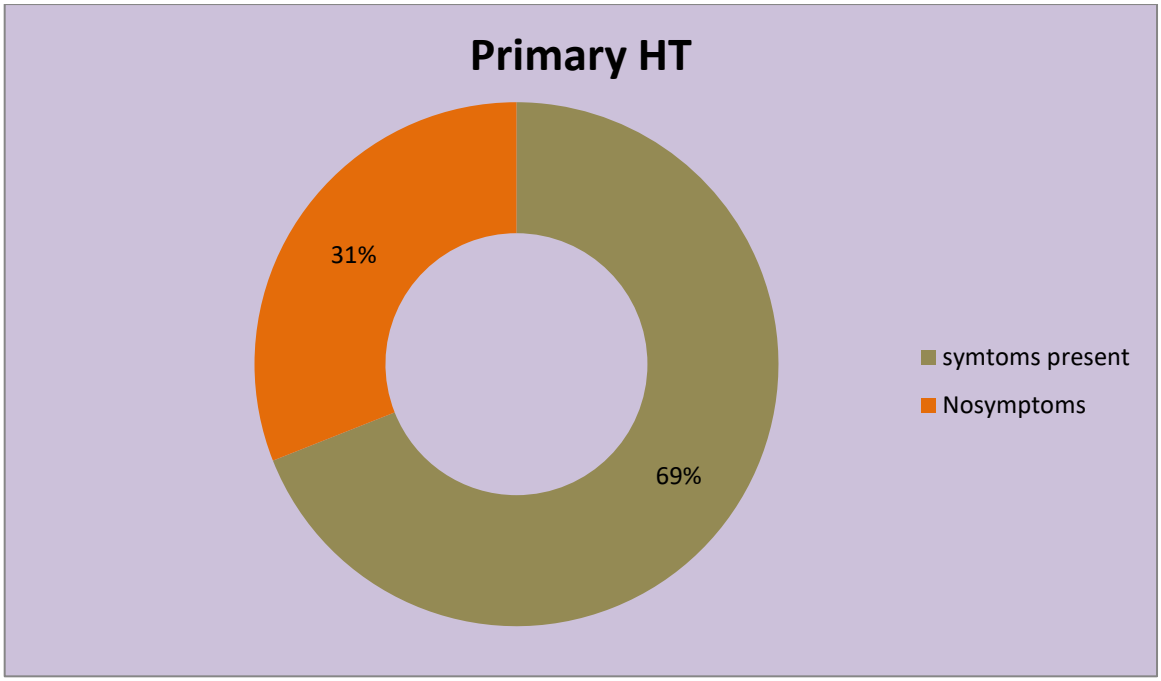
Family History		
Inference	**No. of pat**	**%**
Present	26	50
Absent	18	35
Unknown	8	15



Inference:

Among 52 patients, the results shows that the family history (50%) plays a notable role in the diseases .

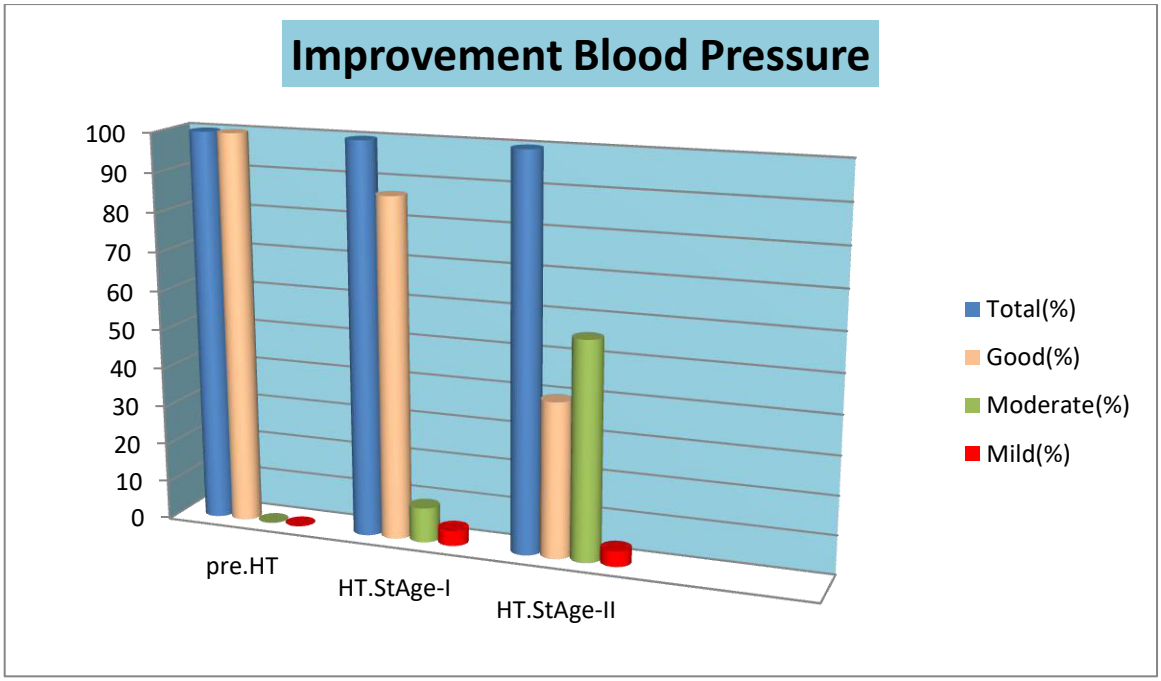
Primary or Essential HT		
Primary.HT	**No. of pat**	**%**
Symptoms	36	69
No symptoms	16	31



Inference:

Among 52 patients, the data shows that 69% cases present the symptoms , 31% Cases having symptomless.

Improvement Blood Pressure				
HT	**Total(%)**	**Good(%)**	**Moderate(%)**	**Mild(%)**
pre.HT	100	100	0	0
HT.stage-I	100	87	9	4
HT.Stage-II	100	40	56	4



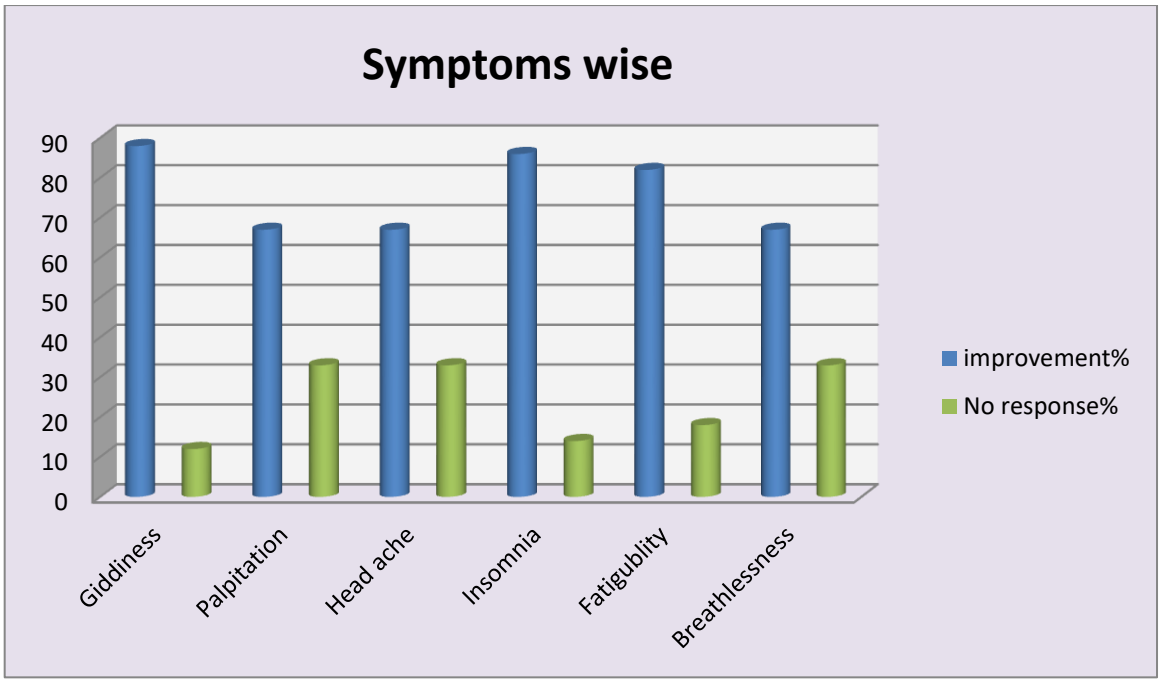
INFERENCE:

Among 52 patients,the data shows that

- 4out of 4 PREHYPERTENSION patients were complete control from the BP.
- 20out of 23 HT.STAGE-I patients were complete control from the BP.
- 10out of 25 HT.STAGE-II patients were were complete control from the BP.

Symptoms wise

Symptoms	Improvement (%)	No Response (%)
Giddiness	88	12
Palpitation	67	33
Head ache	67	33
Insomnia	86	14
Fatigue	82	18
Breathlessness	67	33

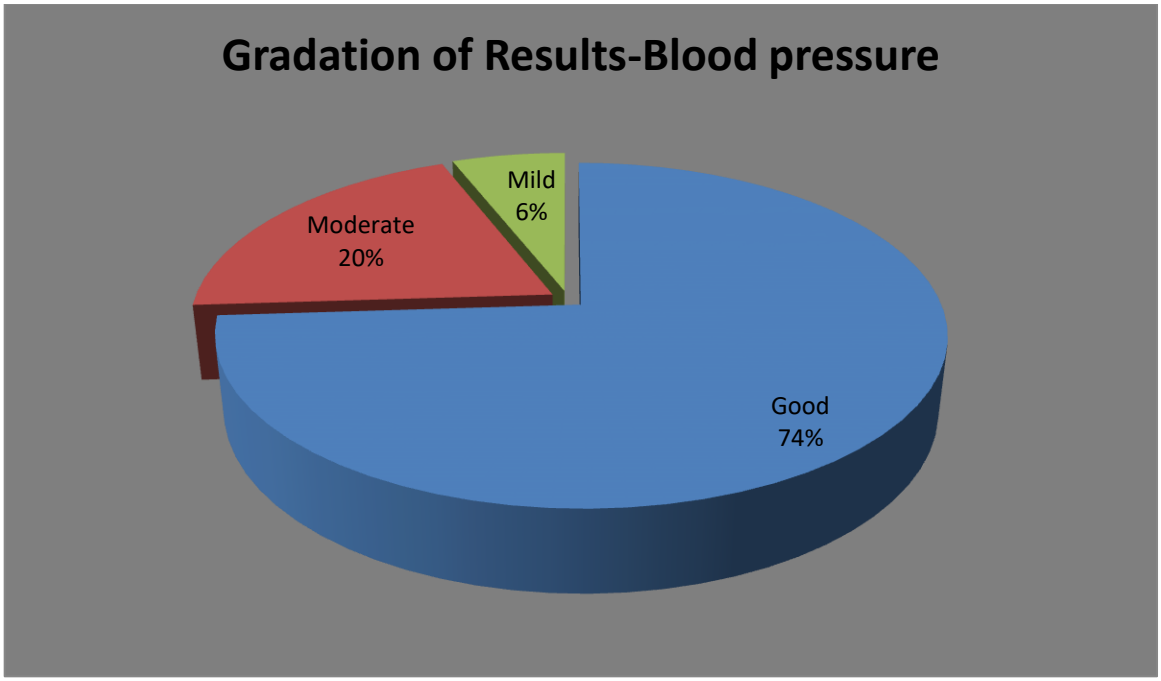


Inference:

Among 52 patients,36 patient present the symptoms, Another remaining 16 patient has no symptoms

- 23out of 26 patients were relieved from Giddiness.
- 6out of 9 patients were relieved from Palpation
- 8out of 12 patients were relieved from Head ache
- 18out of 21 patients were relieved from Insomnia.
- 14 out of17patients were relieved from Fatigublity.
- 2out of 3 patients were relieved from Breathlessness

Gradation of Results		
Grade	**No. of pat**	**%**
Good	33	74
Moderate	17	20
Mild	2	6

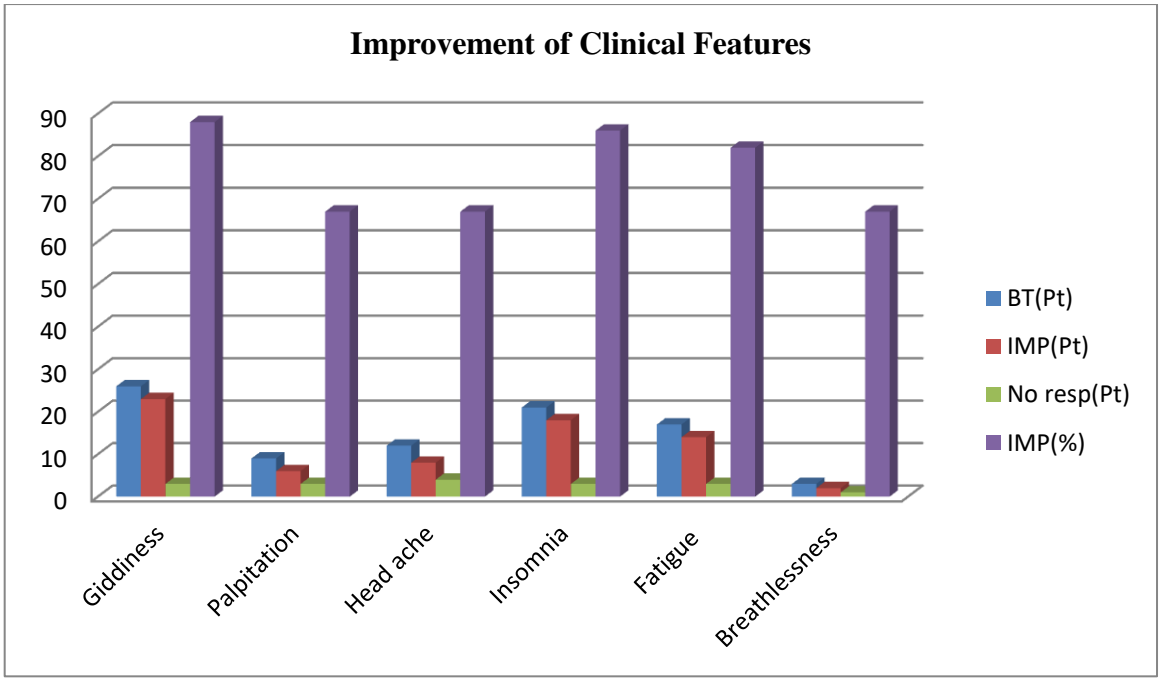


Inference:

Among 52 patients shows that the trial drug has good effect in 74% of cases,moderate effect in 20% of cases and mild response in 6 % of cases in reducing the blood pressure.

Improvement of Clinical Features

Sl.No.	Symptoms	No. of Patient			Imp (%)
		BT	IMP	No resp	
1	Giddiness	26	23	3	88
2	Palpitation	9	6	3	67
3	Head ache	12	8	4	67
4	Insomnia	21	18	3	86
5	Fatigue	17	14	3	82
6	Breathlessnes s	3	2	1	67



5. RESULTS AND DISCUSSION

The dried flower of coconut (*Cocos nucifera*) was selected to assess its efficacy in the treatment *kuruthiazhal noi (Hypertension)* as per given in the classical siddha literature"Gunapadam mooliga vaguppu" (Theran porutpanbu nool) part-I.

From various literary collections the author has an idea about identification, botanical aspect, Gunapadam aspect, therapeutic effect in Raktha Kothippu (Hyper tension).

From the siddha literature Raktha kothippu noi (Hypertension) mainly caused by derangement of pitha thathu and the vascular morbidity is always attributed to the

imbalance of “pitha” thathu. The drug“coconut flower” is indicated for *Raktha kothippu* and pitha(heat) related disorder and Blood related disorder.

Suvai and Veeryam are the important aspects in therapeutic value of the drug. The test drug Coconut flower has got Astringent (Thuvarppu) and Sweet(Enippu) tastes.

“gpj;j kjpfhpg;gpd; NgRk; ghpfhuk;

Rj;j JtNuhL nrhy;ypdpg;G rj;jhFk;.”

-fz;Zrhkpak;.

So increased pitha thathu in Kuruthi azhal noi is normalized by Thuvarppu and Enippu suvai. Thannam poo has Thatpa veeryam. According to “Ethirurai theory” increased pitha thathu in Kuruthi azhal noi (Raktha kothippu) is neutralized by the Thatpa veeryam of the test drug

Physio chemical analysis

Colour characters of Powder of Coconut Flower.Table:4.2.1.1

S.No	Solvent used	Under ordinary light	Under UV light
1	PPM	Light Yellow	Light Yellow

Physico chemical analysis:

Table: 4.2.1.2

S.No	Parameter	I	II	Mean
1	Loss on Drying at 105°C	7.612%,	7.628%,	6.62%
2	Total Ash	5.697%,	5.502%,	5.599%
3	Acid insoluble Ash	0.390%,	0.469%,	0.429%
4	Water Soluble Extractive	14.501%,	14.486%,	14.494%
5	Alcohol Soluble Extractive	21.069%,	21.554%,	21.312%
6	pH	6.77		

Results of the physical properties of the test drug shows the total Ash value, Acid insoluble ash value, Loss on drying values are helping us to interpret the digestion and solubility capacity of the crude extract. As per the result the tested sample contains good percentage of solubility as well as digestive capacity. pH was found to be 6.77 which is a neutralizes form.

Thin layer chromatography Table: 4.2.1.3

S. No	Rf. Value	Color of the spot
1	0.04	Purple
2	0.21	Purple
3	0.27	Purple
4	0.31	Purple
5	0.38	Purple
6	0.74	Violet
7	0.79	Purple
8	0.89	Brownish orange

TLC of *Coconut flower Chooranam* shows under 5 Purple colour spots,1violet colour spots and another one is brownish spots present in the UV light .

Chemical analysis

Qualitative inorganic analysis

Table: 4.2.3.1

SI.NO	CONSTITUENTS	RESULT
1	Phosphate	+
2	Sulphate	+
3	Calcium	+
4	Potassium	+
5	Sodium	+
6	Magnesium	+
7	Iron	+
8	Sugar	+
9	Alkaloids	+

Inference

The test drug showed the presence of Phosphate, Sulphate, Calcium, potassium, Sodium, Magnesium, Iron and Sugar, Alkaloids.

- **Potassium ,Calcium and magnesium** are dietary minerals that show positive effect against high blood pressure

- **Potassium** ions are essential for contraction of cardiac and skeletal muscles, Studies revealed that potassium appears to lower blood pressure by creating a healthy balance of sodium in body cells**.**
- Studies revealed that taking **Calcium** supplement would help to reduce blood pressure.
- **Magnesium** helps to keep the mind calm and cool there by reducing stress and keeps nerve relaxed. it prevents building up of cholesterol and a consequence atherosclerosis which is one of the major complications of hypertension, It also prevents the building of excessive fat and auto intoxication, it may be helpful. Some studies shown that magnesium can lower blood pressure slightly, particularly in people whose blood pressure is over 140/90 mm Hg.
- **Iron** is an essential constituent of haemoglobin, and main functions of irons are, transport of oxygen to tissues and participation in cellular oxidation mechanism.
- **Chloride** is necessary for glandular hormone secretions. It also prevents the building of excessive fat, which may be beneficial effect in the prevention of atherosclerosis

By the available **inorganic** elements presence in the trial drug has the therapeutic potency that show positive effect against high blood pressure.

II.Qualitative analysis for phytochemical

Table: 4.2.3.2

S. No	Constituents	Result
1	Alkaloids	Trace
2	Terpinoids	+
3	Flavanoids	+
4	Volatile oil	+
5	Cardio glycoside	+
6	Tannin	+
7	Glycosides	+

8	Carbohydrates	+

Inference:

The phytochemical analysis of drug showed the presence of following phytochemicals like ,Alkaloids (Trace)Terpinoids, Flavanoids, Volatile oil, Cardio glycosides, Tannin, Glycosides& Carbohydrates.

- **Alkaloids** are protective agents, it regulates in physiological activities, it act anti toxic effect.
- **Tannins** are effective in protecting the kidneys and also has important medicinal roles. Such as stable and potent anti-oxidants.
- **Glycosides** are therapeutical important and used for growth and development and also regulates activities of the body and helps in protein synthesis. it is a nervine tonic.
- **Cardiac glycosides** are essential in the treatment of Cardiac disorders and vascular complications.
- **Flavonoids are the** compounds in the trial drug clearly indicates the drug's potency against the degenerative changes and aging process by the anti-oxidant property. It act vasorelaxant properties
- **Terpinoids i**s a good anti oxidand property,when body's cells burn oxygen, they form free radicals that are thought to cause damage, to the body cells through oxidative stress, leading to cellular damage .High blood pressure can cause production of free radicals. Anti-oxidant treatment can reverse oxidative stress, suggesting the potential therapeutic procedure beneficial effect of anti oxidant treatment.
- **Volatile oil** acts a sedative property, it promoting by reducing stress. Helps to mind relaxed.

By the available **phytochemical** presence in the trial drug has the therapeutic potency that shows positive effect against high blood pressure.

Quantitative analysis for SEM, ICP-OAS & FTIR

SEM Results Table: 4.2.3.2

S.No.	Extract Solvents	Colour	Nature	% Yield(w/w)	SEM Particle size in micron	pH
1	Water	Light yellow	Solid	45	0.5-1	6.77

It have good nano particle size that indicates absorption is very good and pharmaco therapeutic value is good.

ICP-OES Results

- The ICP data shows,Heavy/toxic elements concentration shows Below detection limit
- Other elements like: Calcium, Iron, Magnesium, Potassium, Sodium, Phosphate & Sulphate.

FTIR Results

- The absorbance frequency around 3467 and 2925 cm^{-1} is corresponding to either for O-H of alcohols/phenols or for N-H stretch of amines.
- The absorbance frequency around 1463 and 993 cm^{-1} arises from the C-H stretch of Alkanes.
- Further the bands around 1629 cm^{-1} and 1383 cm^{-1} are corresponding to the bending frequency of N-H and stretching frequency of C-N of amines.
- Fourier transform infrared spectroscopy (FTIR) data shows oxide forms of potassium, calcium, ferrous, sodium.

Toxicological study

In the AOT study, the trial drug given coconut flower chooranam mixed with CMC) animals were survived after 48 hrs showing good response in Alertness,

Aggressive earlier and settle down lately, Touch response, Gripping, Increased motor activity, and Normal respiration.

From the AOT studies as per the OECD guide lines 425, the trial drug doesn't shows any adverse effects or mortality even at the dose of 5000mg/kg, so its proves that herbal drug is so safe. It proves that the herbal preparation dosen't has any heavy metal or any microbial contamination also.

Table 4.2.4.1 Dose finding experiment and its behavioural Signs of Toxicity

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

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

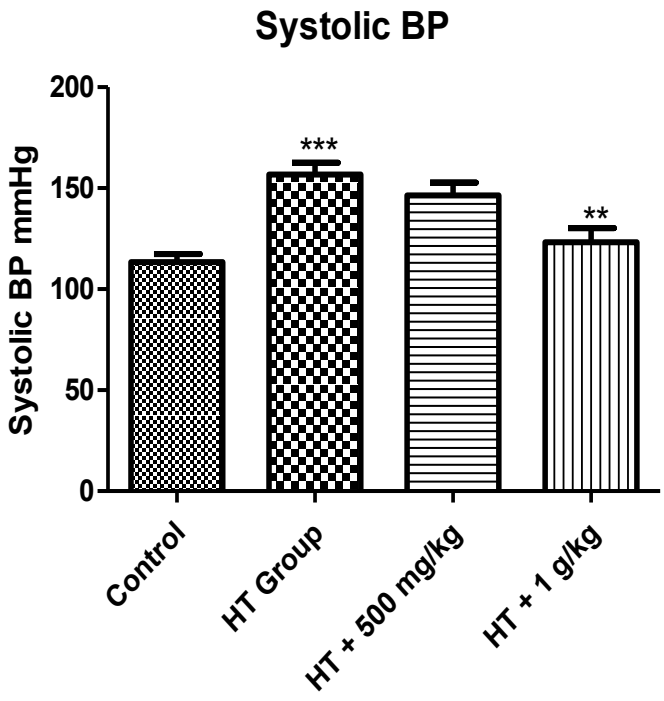
Pharmacological study

Anti-hypertensive study

Hypertension is certainly more common, more severe, less well managed, and more capable of causing renal insufficiency. The mechanisms responsible for such a renal susceptibility are still unknown. Epidemiological data on the risk of hypertensive patients to develop renal failure offer contrasting results. Hypertensive nephrosclerosis may be responsible for a progressive renal disease in only a subset of hypertensive

patients. In these patients, hemodynamic factors might co-cluster with other non-hemodynamic factors, such as geneticdeterminants, metabolic abnormalities and local immune reaction, thus inducing progressive renal insufficiency. In addition, autopsy studies on patients with pure essential hypertension suggest that severe renal damage consequent to high blood pressure, in the absence of associated renal parenchymal disease, is either rare or non-existent. The results from the present investigation reveals that the test drug at the dose of 1gm/kg body weight Thennampoo chooranam administered orally for 10 days to the hypertensive rats significantly decrease the systolic and diastolic Blood pressure.

Figure: 4.2.5.1 Effect of Thennampoo chooranam on systolic BP on renal hypertensive rats.



It represents the effect of Thennampoo chooranam on systolic BP on hypertensive rats. There is a significant ($P<0.001$) increase in systolic BP was noted in renal hypertensive rats (RHR) as compared with normal control group. Per oral administration of Thennampoo chooranam 1g /kg b.wt. for 10 days significantly decrease the Systolic BP ($P < 0.05$) as compared with Hypertensive animal group. There is no significant anti-hypertensive effect was noted in 500 mg/kg.

Figure: 4.2.5.2 Effect of Thennampoo chooranam on Diastolic BP on renal hypertensive rats.

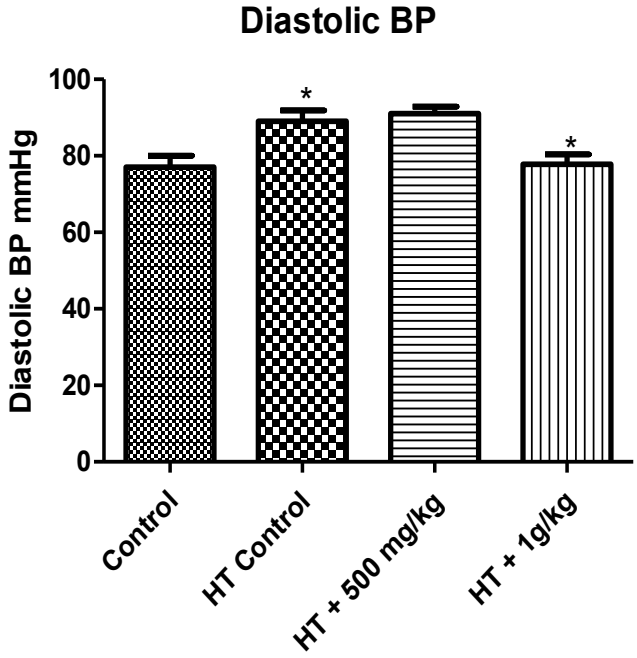


Fig4.2.5.2 represents the effect of Thennampoo chooranam on diastolic BP on hypertensive rats. There is a significant (P<0.001) increase in diastolic BP was noted in renal hypertensive rats (RHR) as compared with normal control group. Per oral administration of Thennampoo chooranam 1g /kg bwt for 10 days significantly decrease the diastolic BP (P < 0.05) as compared with Hypertensive animal group. There is no significant anti-hypertensive effect was noted in 500 mg/kg.The inhibition of the noradrenaline-induced increase in BP by the Thennampoo Chooranam further supports the implication of the sympathetic nervous system. In Thennampoo Chooranam treated animals significantly reduced the heart rate (p<0.001). Administration of Thennampoo Chooranam 1000mg kg^{-1} animals showed significant reduction in heart rate (p<0.001).

The result thus indicated that occlusion of renal artery showed significant increase in hemodynamic parameters such as SBP and DBP which confirmed that renal artery occlusion results in hypertension. Administration of Thennampoo Chooranam in renal artery occlusion induced hypertensive rat .

The results from the present investigation reveals that the test drug at the dose of 1gm/kg body weight Thennampoo chooranam administered orally for 10 days to the hypertensive rats it possess significant($p<0.05$) decrease the systolic and diastolic Blood pressure.

General CNS behavior of the test drugs

Figure: 4.2.5.3 Effect of Thennampoo chooranam on locomotion behavior in rats tested in actophotometer

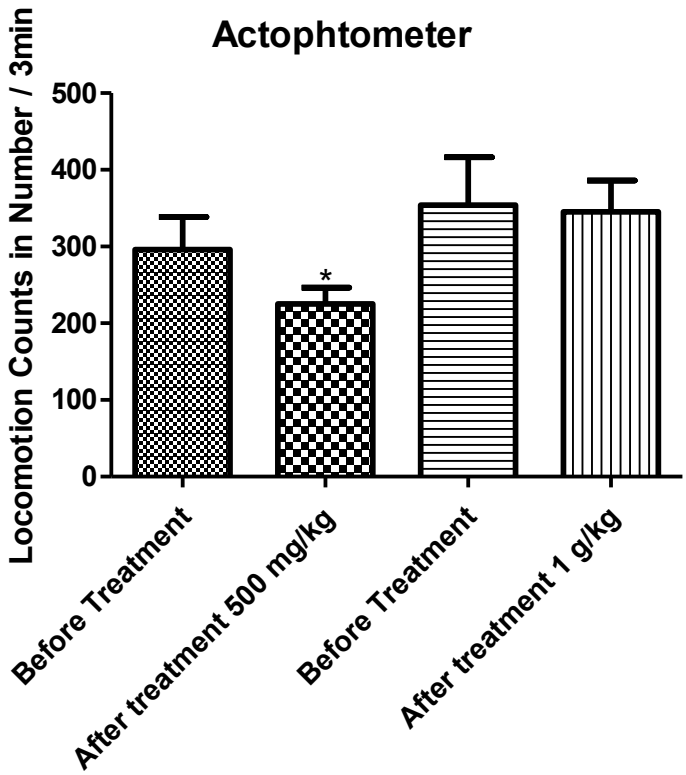


Figure 1 Represents the per se locomotor effect of Thennampoo chooranam on rats tested in actophotometer. Per oral administration of Thennampoo chooranam at the dose of

500 mg/kg b.wt significantly decrease the locomotion (P<0.05) as indicated by decrease in locomotion counts when compared with before treatment.

However there is no such effect was observed in 1 g/kg treated animals which behaved as similar locomotion as before drug ingestion.

Figure: 4.2.5.4 Effect of Thennampoo chooranam on animal motor coordination test in rotorod apparatus

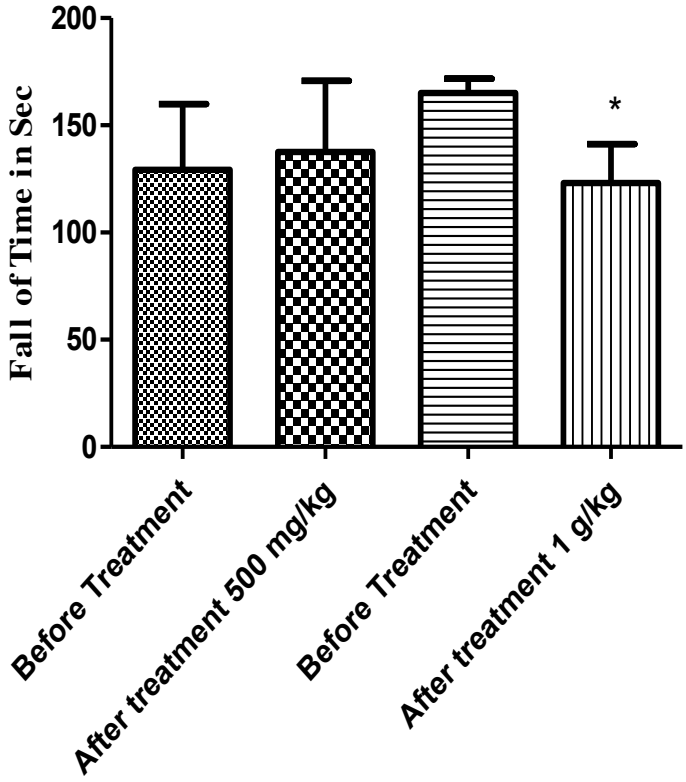


Figure 2 depicts the per se effect of Thennampoo chooranam administered at the dose of 500 & 1 kg/ b.wt. on normal rats. It is clearly observed from the graph that 1g/kg dose of Thennampoo chooranam significantly (P<0.05) decrease the motor coordination as indicated by decrease in fall of time from the rotorod as compared with before drug treatment. Whereas there is no decrease in motor coordination was observed in 500 mg/kg treated animal groups.

Figure: 4.2.5.5 Effect of Thennampoo chooranam on animal's anxiety behavior test in elevated plus maze apparatus

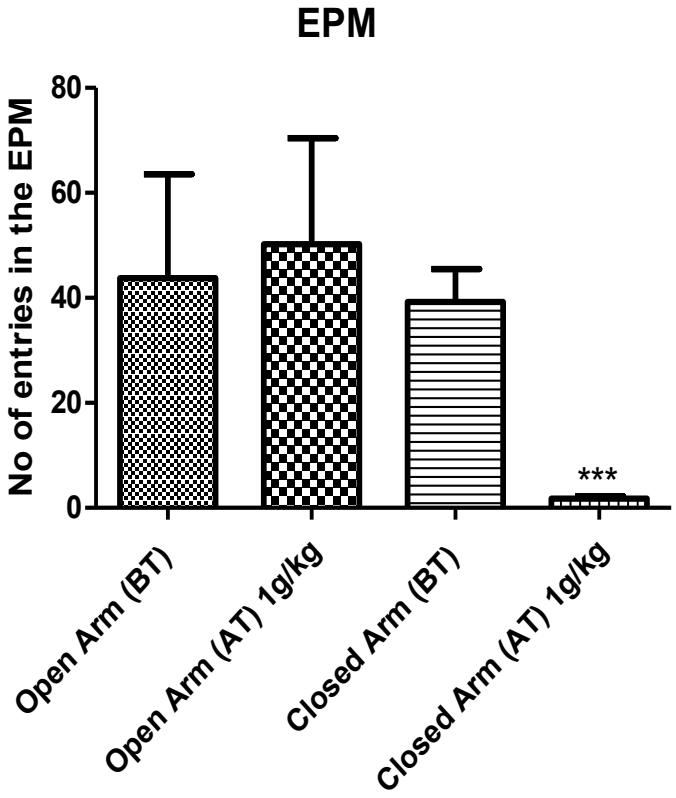


Figure 4.2.5.5 Depicts the effect of Thennampoo chooranam at the dose of 1 grams on anxiety parameter test in rats. It is clearly observed from the graph that 1g/kg dose of Thennampoo chooranam significantly ($P<0.001$) decrease the closed arm entries as indicated by decrease in number of entiries as compared with before drug treatment closed arm. However, 1 g /kg dose did not influence the open arm entries as evidenced by insignificant effect of 1 g dose before drug and after drug treatment. The dose 500 mg/kg b.wt did not influence the rats on EPM behavior (data not shown).

From the study shows the antihypertensive activity of Thennampoo Chooranam may be resulted through the action on rennin angiotensin system. However the anti hypertensive effect was not observed in hypertensive rats treated with 500 mg/kg dose. Further its, is interesting note that the similar dose has CNS depressant effect in normal rats. One day administration of Thennampoo chooranam 1g/kg significantly influence rats locomotion / central motor coordination which suggests the CNS effect of the Thennampoo chooranam in rats. Interestingly, the Thennampoo chooranam possess significant anxiolytic effect tested in elevated plus maze. It is not clear that the anti-hypertensive effect of the Thennampoo chooranam is due to ACE inhibition or central depressent property. Further experiments will clarify the exact pharmacological mechanism of the drug.

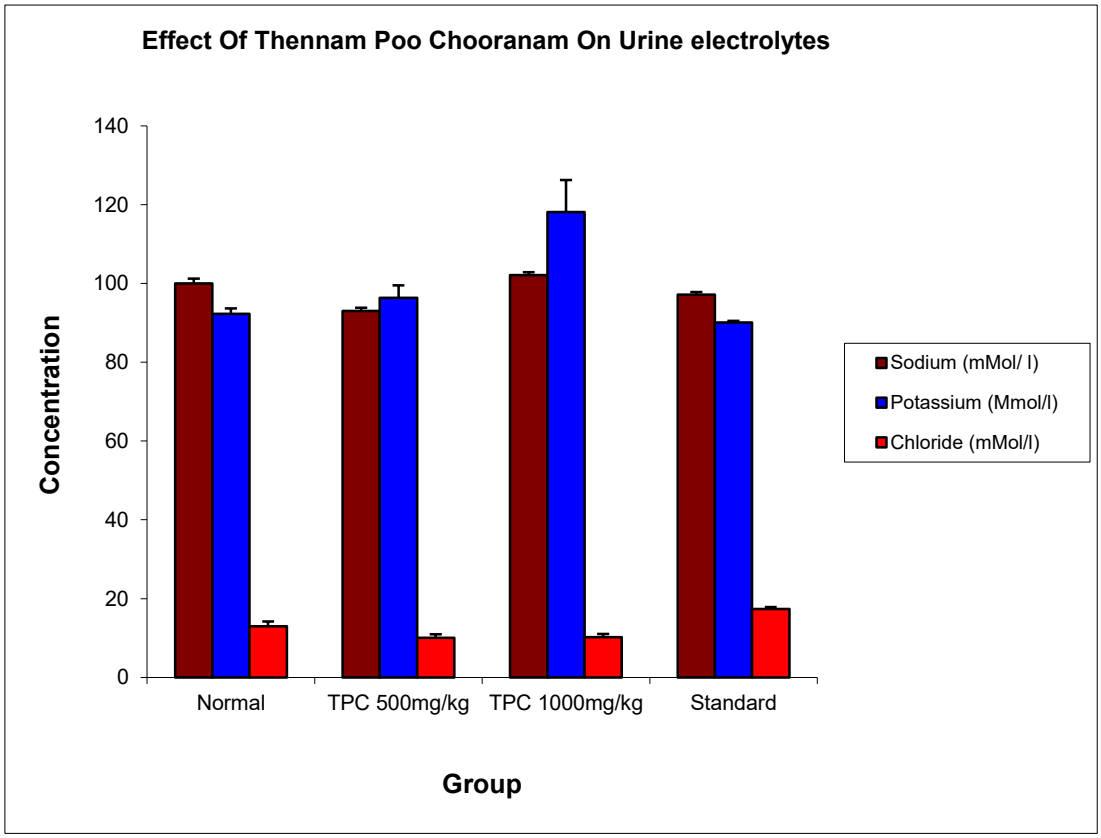
Diuretic study

Table: 4.2.5.6. Effect of Thennam Poo Chooranam On Urinary Parameters

Group	Urine volume (ml) (4h)	Urine Electrolytes		
		Sodium (mMol/ l)	Potassium (Mmol/l)	Chloride (mMol/l)
Normal	**1.60±0.21**	**100.02±1.11**	**92.28±1.30**	**13.02±1.22**
ThennamPoo Chooranam 500mg/kg	**3.39±0.66****	**93.00±3.10****	**96.36±3.18***	**10.08±0.90**
ThennamPoo Chooranam 1000mg/kg	**3.42±0.63****	**102.14±0.54***	**118.16±8.21****	**10.19±0.98**
Furosemide (20 mg/kg)	**5.12±0.48****	**97.20±0.39***	**90.12±0.10**	**17.33±0.62***

Values are expressed as mean±standard error of mean (S.E.M) (N=6). Effects are statistically significant,

$P<0.05$; $^{**}P<0.01$ compared to normal control



Results and discussion

In the present study, Frusemide treated rats showed a significant increase in volume of urine and urinary excretion of sodium, potassium and chloride ($p<0.01$) as compared to control while untreated rats did not show any significant increase in urine volume but has high electrolyte excretion potential ($p<0.01$). Higher electrolyte excretion ($p<0.01$) was observed in Thennam Poo Chooranam and significant increase in urine volume.The Thennam Poo Chooranam at high dose of 1000 mg/kg showed significant increase in volume of urine and also urinary excretion of sodium, potassium and chloride. The Thennam Poo Chooranam has shown diuretic activity ($p<0.01$) wherein significant increase in K+ but not in Na+ excretion when compared to control was observed.

Results of present investigation showed that Thennam Poo Chooranam is most effective in increasing urinary electrolyte concentration of all the ions i.e. Na^+, K^+ and Cl^-.The control of plasma sodium is important in the regulation of blood volume and pressure; the control of plasma potassium is required to maintain proper function of cardiac and skeletal muscles. The regulation of Na+/ K+ balance is also intimately related to renal control of acid-base balance. The K+ loss that occurs with many diuretics may lead to hypokalemia. For this reason, generally potassium-sparing diuretics are recommended.

Clinical study

Open clinical trial is performed with a sample size of 52 patients for period of 40-70 days. The clinical study was carried out in Gunapadam post graduate out patient and inpatient department, Government Aringar Anna Hospital for Indian Medicine and Homoeopathy, Chennai – 106.

The test drug was administered in the form of chooranam at the dose of 1gm twice a day with warm water(In cold form) . Hot water (coldform) which was used as vehicle also has hypertension control property as per classical siddha literature.

Mwpa nte;ePh; nfhz;lhy;

mjpuj;j gpj;j khWq;

ghly;226(Xiyr;Rtbapd;W gjpf;fg;gl;l %ypif tpsf;fk;)

From the clinical study following features were observed

Hyper tension mainly distributed in 41-60 age group. Patients who consumed mixed diet (83%), alcoholics and smokers are more susceptible to the disease .Family history plays notable role in the occurrence of the disease.

Clinical parameters

Blood pressure - Pre HT - 4 patient suffer and relived from the 100%

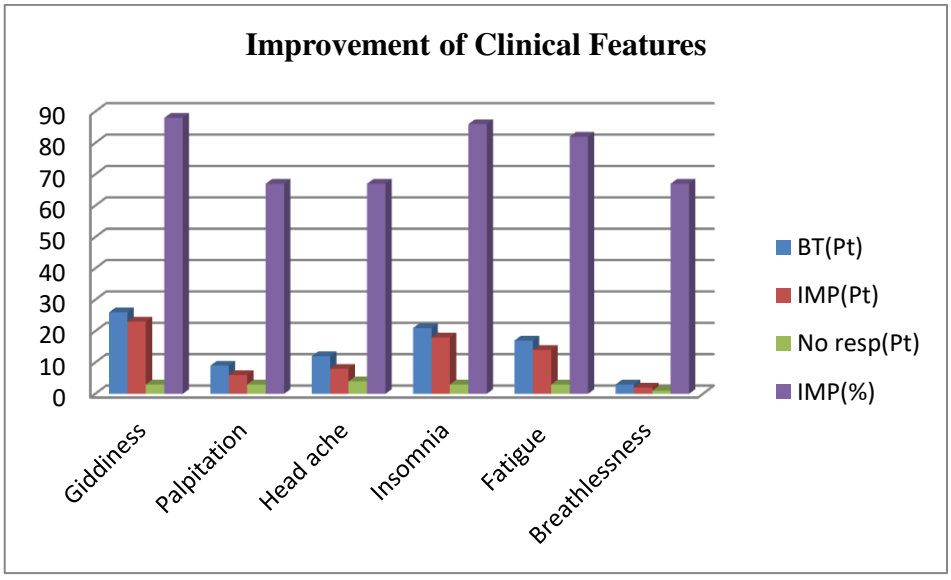
HT stage I - 23patient suffer and the relived from 87%,

T stage II - 25 patient suffer and relived from 40% .

Among 52 patients, the data shows that 69% cases having symptoms, 31% cases having symptom less(31%).

Improvement of Clinical Features Table: 5.1

Sl.No.	Symptoms	No. of Patient			Imp (%)
		BT	IMP	No response	
1	Giddiness	26	23	3	88
2	Palpitation	9	6	3	67
3	Head ache	12	8	4	67
4	Insomnia	21	18	3	86
5	Fatigue	17	14	3	82
6	Breathlessness	3	2	1	67



The study revealed that giddiness, insomnia, fatiguae the common symptoms. Giddiness was reduced in 88% cases. Insomnia was reduced in 86% cases. Fatiguablity

in 82% cases. Palipitation ,Head ache, Breathlessness was reduced in 67% of cases. The blood pressure gradually with in 2 weeks of treatment in about 64% cases.

It has no adverse effect was noted during the period of treatment.

Statistical analysis

Outcome of the Pre-clinical and Clinical study were evaluated by the two tailed students t test in unpaired for pre-clinical and paired for clinical study to nullify the bias in the study.

Pre-Clinical

DC vs KCUnpaired *t* test results

P value and statistical significance

The two-tailed P value equals 0.0009

By conventional criteria, this difference is considered to be extremely statistically significant.

Confidence interval

The mean of Group One minus Group Two equals 2.83

95% confidence interval of this difference: From 1.80 to 3.87

Intermediate values used in calculations

t = 7.0589

df = 5

standard error of difference = 0.401

Sl.no	Treatment	Mean	SD	SEM
1	Before	14.67	8.36	3.41
2	After	11.83	7.91	3.23

Table: 5.2

Improvements of signs and symptoms by statistical analysis shows the two tailed "p" value equals 0.0009, by conventional criteria, this difference is considered to be very statistically significant. From the above results $p < 0.05$, it shows the improvement in the subjective parameters produced by Thennam poo chooranamstatistically significant.

All above studies of "***Coconut flower chooranam***" appears to be a good efficacy in the treatment of ***Hypertension.***

6. CONCLUSION

The drug was studied thoroughly with regards to various standardization methods and the effect was noted.

Toxicologically, the trial drug doesn't show any adverse effects or mortality even at the dose of 5000mg/kg, so it proves that herbal drug is so safe.

Pharmacologically, the drug shows significant Anti hypertensive effect and good Diuretic, Anxiolytic effect.

It had no adverse effect during the entire period of treatment and the preparation is also very simple.

Clinically it can be treated safely and satisfactorily with the test drug and further investigations out to be done for long trem therapy of hypertention

From above the data, it is concluded that coconut flower chooranam is effective Anti-hypertensive drug.

7. SUMMARY

The drug "dried flower of *Cocos nucifera* chooranam has taken for study to prove its efficacy on the management of *High Blood Pressure*.

The herb *Cocos nucifera flower* was collected from S.Malaiyanur, Villupuram (Dt.) Tamilnadu and purified then powered and stored. This drug was subjected to various studies.

Literary collections revealed the test drug's effectiveness in the treatment of Raktha kothippu (Hypertension).

Botanical aspect of the drug of coconut flower was studied regarding its identification, description, and chemical constituents from the siddha and modern literature.

Gunapadam aspect 'Cocos nucifera flower is indicated for treating Raktha Kothippu comes under the 'Pitha ' disease .So the therapeutic efficacy to use in hypertensive patients at Government Siddha Madical college,Chennai.

Pharmacognostic study is performed in CRI Arumbakkam, Chennai-106, for identification and botanical aspect of the test drug.

Physio-chemical analysis and TLC pattern of the study was was performed in CRI

Arumbakkam, Chennai-106 for physical properties and separation and identification of various compounds present in the test drug.

The Bio chemical analysis of the test drug carried out in SAIF IITM, Chennai-36 and its showed the presence of Calcium, Potassium, Iron, Magnesium, Sulphate, Chloride, Phosphate.

The phytochemical study is performed in Government Siddha Medical College of Botany lab,Chennai-106, and it showed the presence of Tannin, Alkaloids, Flavanoids, Volatile oil ,Cardio glycosides (trace) ,Carbohydrates.

The toxicological study & pharmacological study was carried out Vels University of Pharmacological Department, Pallavaram,Chennai-117,and the study showed that the test drug has safety and no toxic effect, it has significant the Anti-hypertensive and good Diuretic, Anxiolytic effect.

The therapeutic trials were conducted Gunapadam post graduate out patient and inpatient department, Government Aringar Anna Hospital for Indian Medicine and Homoeopathy, Chennai – 106,and the study showed that drug has act the blood pressure gradually comes down with in 2 weeks and to become good response in 74% cases.

PART-2

ANTI-ULCER ACTIVITY

OF

GUNMA NOIKKU MEZHUGU

INTRODUCTION

1. INTRODUCTION

"Health **is a basic human right and a social goal"**

Nowadays the Indian system of medicine is undergoing revolutionary changes. Siddha system of medicine is one of most important Indian system of medicine. This is a gift to the mankind by the ancient siddhars.

Siddhars are human beings capable of performing extraordinary deeds. They were the men of highly cultured intellectual, spiritual faculties and combined super natural powers. Siddhars had unparalleled knowledge in medicine also. All siddhars were basically alchemist and they invariably used the entire mineral wealth. They were experts in metallurgy, geology and chemistry.

Siddha methodology of preparing medicine is more effective, because the inorganic substance present in medicine that medicine are brought in to their atomic forms. In that specialized siddha preparations of medicine are available, and it is more opted for chronic and incurable diseases.

Since, siddhars have selected the drugs to treat the diseases by knowing the taste and combination of elements present in the drug and by knowing the essence of thathus.In such a manner they not only subsides the pathological sign and symptoms but not also rectifies the root cause of particular disease

The siddha system, drugs are mainly classified into three types they are thatch, thavara, jeevam.In that had chosen a Herbo-mineral formulation which is a compound drug.

Because now a days recurrent modification in life style and diet leads to a lot of diseases. Immorality in the dietary habits results in gastro-intestinal disorders. Gunmam is one of the above disorders.

Gunmam was very well explained by great siddhars clinically. This can be easily compared with peptic ulcer in modern medicine.

Peptic ulcer is a very serious medical problem and it is an upper gastro-intestinal disorder. With the range of symptoms, from mild abdominal discomfort, pain (or) Nausea. If, not treated an ulcer can lead to life threatening complication such as perforation and haemorrhage.

Approximately 500,000 new cases are reported each year and the risk of contracting peptic ulcer disease are those generations born around the middle of the 20th century.

Hence a proper medical care should be taken to cure the disease. The traditional siddha system has many effective remedies for more disease. **"*Gunmam noi "(Peptic ulcer*)** being one among them can be treated safely and satisfactorily with "***Gunma noikku mezhugu"*** mentioned in **"*Anubhava siddha vaidhya muraikal*."**

So, I preferred this trial drug and its efficacy in the treatment of Gunmam was studied to specify the scientific proof by various standard parameters.

AIM AND OBJECTIVES

2. AIM AND OBJECTIVES

Aim

To prove the efficacy of the **"*Gunma noikku mezhugu*"** in the treatment of **"*Gunmam*" (Peptic ulcer)** clinically.

Objectives

In this Industrialized and modernized world, changes in the food pattern of the people and faster pace of life. That is immorality in the dietary habits, recurrent modification of life style with increased stress and strain, the occurrence of **peptic ulcer** have shown a disturbing rise.

The peptic ulcer is highly important in the world be dangerous, destructive and disastrous clinically. Many drugs have been tried so far in the siddha system of medicine for peptic ulcer. The author selects the drug "**Gunmma Noikku Mezhugu**" from **Anubhava Siddha Vaidhya Muraikal.**

The main objective of the present study is to highlight the efficacy of Gunma Noikku Mezhugu was studied in view to various standard parameters like,

- Review of literature
    - Botanical aspect
    - Chemical aspect
    - Gunapadam aspect
    - Siddha& Modern aspect of disease
    - Lateral aspect
- Bio-chemical analysis
- Toxicity study
- Pharmacological study
- Clinical study

REVIEW OF LITERATURES

3.1BOTANICAL ASPECT

CUMINUM CYMINUM-JEERAGAM

Botanical classification

- Kingdom - Plantae
- Division - Magnoliophyta
- Class - Magnoliopside
- Order - Apiales
- Family - Apiaceae
- Genus - Cuminum
- Species - Cyminum

Habits

It is found in temperate climate. It is found in more of the middle Asian and South Asian countries. It is more prominently cultivated in region of Asia Minor and Iran and Middle East. **In India it is found every where and especially it is grown in areas like Punjab, Rajasthan, and Uttar Pradesh**

Morphology

- **Plant** has a small shrub attaining a height of 1 foot.
- **Stem** is multiply branched and is angular. It has stripes over it.
- **Leaves** are divided into 2 to 3 parts. These bears strip over it. Bluish green in colour.
- **Flowers** are of white to pinkish in colour.
- **Fruit** is of light brown in colour. It is ¼ inch in length. Its apex and base are thin and bears strips all over it.

Chemical constituents:

- **cumin** with its odor and taste.
- It contains **20% cumaldehyde**.
- Besides these seeds contain 10 % **stable oils**, 11.9 % **moisture**, 18.1 % **protein,** c**arbohydrate** 36.6 %, **minerals oils** 4.5 %, **calcium** 1.08 %, **phosphorus** 0.49 % and **Iron** 31 %
- Per 100 grams **vitamin A** is 870 E.U. and **vitamin c** 3 mg

Cumin seed Composition

- From the water-soluble portion of the methanol extract of cumin, which has been used as a spice and medicine since antiquity, monoterpenoid glucosides have been isolated.
- The main components from the volatile oil of cumin are cuminal and safranal (accounting for 32% and 24% respectively in the components identified).
- The other compounds with contents all over 1% are monterpenes, sesquiterpenes, aromatic aldehydes and aromatic oxides etc.
- The components with relatively small amounts are chiefly terpenes, terpenols, terpenals, terpenones, terpene esters and aromatic compounds.

Useful part- Seeds

Medicinal uses

- It is used in applying on pain and inflammation on any part of the body.
- It is also applied on skin related problems and also on itching. It is also applied on pile masses to get instant relief from hemorrhoids and its pain.
- It is also applied on insect bite and scorpion bites.
- It is used for applying in eyes in case of eyes related problems.
- It is given in case of indigestion, abdominal distension, loss of appetite, tastelessness, vomiting, abdominal pain and worms.
- In such cases first cumin seeds are roasted and the made powder. It is also given in cases of heart related ailments and blood disorders.
- It is very effective in urine related problems like renal calculi and females related problems.

General indications

- Body aches
- Inflammation
- Appetizer
- Worm infestation
- Diarrhea
- Blood purifier
- Dysurea
- Skin diseases
- Fever
- Vomiting and nausea
- General body weakness
- Gonorrhea
- Female tonic
- Menstrual disturbances
- Leucorrhea

Uses of Cumin

- Cumin seeds are used in cooking and the oil is used to flavor food and scent cosmetics.
- Components may have antioxidant, anticancer, hypoglycemic, antiepileptic, antiosteoporotic, ophthalmic, antibacterial, and larvicidal effects; however, there is no clinical evidence to support these claims.
- Cumin is generally recognized as safe for human consumption as a spice and flavoring.

Toxic effect

It has **no toxic effect** on the body and is safe for human consumption

Piper nigram [milagu]

Botanical classification

- Kingdom -Plantae
- Division -Magnoliophyta
- Class -Magnoliopsida
- Order -piperales
- Family -piperaceae
- Genus - piper
- Species -Nigram

Habitat

It is found in Malaysia, Indonesia, Sri Lanka and India. It is seen in warm and humid climatic conditions. **In India it is found in Kerala, Tamil Nadu, Karnataka and some parts of Assam.**

Morphology

- It is a **perennial shrub** or a creeper.
- **Leaves** are 5 to 7 inch long and are present in 2 to 3 pairs.
- **Flowers** are small and monoceous.

- **Fruits** are round or oval in shape. These are red when raw and become black when it ripes.
- **Seeds** are round and its pulp is very hard.

Chemical constituents

- The fruit coat contains **piperine** which is 5 to 10 %, **piperidine** 5 %, **piprettine** and **chavicine**.
- These are responsible for the **pungent taste** that black pepper possesses.
- It contains certain **aromatic oils** that are 1 to 2.3 %, **minerals** 4.4 %, **calcium** 460 mg/100gm**, phosphorus** 198 mg/100gm, **iron** 16.8 mg/100gm**, thiamine** 0.09 mg/100gm**, riboflavin** 0.14 mg/100gm, **nicotinic acid** 1.4 mg/100gm.

Plant part used

Dried unripe Fruit, Known as peppercorns

Uses

- Piper Nigrum or Black pepper oil can be used to help in the treatment of pain relief, rheumatism, chills, flu, colds, increase circulation, exhaustion, muscular aches, physical and emotional coldness, nerve tonic and fevers.
- It furthermore increases the flow of saliva, stimulates appetite, encourages peristalsis, tones the colon muscles and is a general digestive tonic.
- Sometimes it is used in place of cubebs for gonorrhoea.
- As a gargle it is valued for relaxed uvula, paralysis of the tongue.
- On account of its stimulant action it aids digestion and is especially useful in atonic dyspepsia and turbid condition of the stomach. It will correct flatulence and nausea.
- It has also been used in vertigo, paralytic and arthritic disorders.
- It has also been advised in diarrhoea, cholera, scarlatina and in solution for a wash for tinea capititis.
- Externally it is used for its rubefacient properties and as a local application for relaxed sore throat and some skin diseases. Its oleoresin has bacteriostatic and fungistatic properties.

- Applying on the skin related problems and also helps in relieving from the toothache. It is also used in disorders of oral cavity
- It is very effective in strengthening the nervous system.
- It is also very effective in regularizing the digestive tract.
- It stimulates liver for better functioning.
- It expels out the extra mucus present in the respiratory tract and cleans it.
- It works as aphrodisiac agent and also help sin controlling the menstrual disorders. It tones up the heart muscles.

General indications

- Skin related problems
- Inflammation
- Toothache
- Nervine weakness
- Indigestion
- Loss of appetite
- Liver related problems
- Abdominal disturbances
- Heart related troubles
- Rhinitis
- Cough
- Asthma
- Dysurea
- Impotency
- Erectile dysfunction
- Fever

Toxic effect:

It is safe for human consumption when taken in normal dosage.

Zingiber officinalis - Dry Ginger

Botanical classification

- Kingdom - Plantae
- Sub-kingdom - Phanerogamae
- Division - Spermatophyta
- Subdivision - Angiospermae
- Class - Monocotyledonae
- Series - Epigynae
- Order - Scitaminales
- Family - Zingiberaceae

Morphology

- It is a **slender, perennial rhizomatous** herb.
- **Leaves** are linear, sessile andglabrous.
- **Flowers** are yellowish green, arranged in oblong, cylindric spikes and ensheathed in a few scarious,glabrous bracts.
- **The stem** extends roughly 12 inches above ground with long, narrow, ribbed
- **The rhizomes** are white to yellowish brown in colour, irregularly branched, somewhatannulated and laterally flattened. The growing tips are covered by a few scales.
- The surface of the rhizome is smooth and if broken a few fibrous elements of the vascular bundles project out from the cut ends (Warrier *etal*, 1996).

General Description

- Ginger is a plant that grows the best in the warm climates of China, India, and Jamaica.
- Commercial Ginger is called black or white, according to whether it is peeled or unpeeled; for both kinds the ripened roots are used, after the plant has died down.
- The black are scalded in boiling water, then dried in the sun.
- The white (best) are scraped clean and dried, without being scalded.
- Ginger flowers have an aromatic smell and the bruised stem a characteristic fragrance, but the root is considered the most useful part of the plant.

Chemical Constituents

- Volatile oil

- Acrid soft resin
- Resin insoluble in ether and oil
- Gum, starch, lignin, vegeto matter, asmazone
- Acetic acid, acetate of sulphur
- Pungent phenol compounds (such as **gingerols and shogaols**)

Taste and Aroma

Pungent, hot, penetrating and slightly biting

Traditional Activity

- Stimulant, carminative.
- The rhizome (underground stem) of ginger has been used as a spice or flavoring agent.
- In manufacturing ginger can be used as an ingredient added to soaps and cosmetics.

Benefits of dry ginger

- Ginger is used e to treat stomachaches, and diarrhea.
- Many digestive, antinausea, and cold and flu dietary supplements.
- Ginger is used to alleviate post surgery nausea as well as nausea caused by motion, chemotherapy, and pregnancy.
- It has been used for rheumatoid arthritis, osteoarthritis, and joint and muscle pain.
- The dry ginger is useful in dropsy, otalgia, cephalalgia, asthma, cough, colic, diarrhoea, flatulence, anorexia, dyspepsia, cardiopathy, pharyngopathy, cholera, nausea, vomiting, elephantiasis and inflammations. (Warrier *et al*, 1996)
- It is used as a household remedy for indigestion, flatulence, dypepsia, sore throat, etc. by adding it to tea

Main Indications

- Osteoarthritis ,Rheumatoid arthritis

- Muscle pain, spasm
- Cold, sore throat, flu
- Loss of appetite

Lemon (Citrus limonum L.)

Botanical classification

- Scientific name - Citrus limonum
- Order - Sapindales
- Family - Rutaceae
- Genus - Citrus
- Species - Citrus limonum L.

Chemical constituents

- They contain a **terpene** called D-limonene which gives their characteristic lemon smell and taste.
- Lemons contain significant amounts of **citric acid**; this is why they have a low pH and a sour taste.
- They also contain **Vitamin C (Ascorbic acid**) which is essential to human health. 100 millilitres of lemon juice contains approximately 50 milligrams of Vitamin C (55% of the recommended daily value) and 5 grams of citric acid.
- Lemons can be processed to **extract oils and essences**.

Active ingredients

Fruits of Citrus limonum contain

- Essential oil about 2,5 %: main components are: D-limonene (amount: 90%)citral (amount 3 – 5 %), nonanal, decanal, dodecanal, linalyl acetate, geranylacetate, citronelyl acetate, anthranil acid methylester flavonoids: naringine, neohesperidine, rutin, hesperidine, eriocritin
- Some sources state that lemons contain unique flavonoid compounds that have antioxidant and anti-cancer properties.
- . Limonins found in lemons could also be anti-carcinogens.

- Citrus flavonoids improve the permeability of vascular vessels, they show antiphlogistic effects and diuretic properties. Medicine that a cup of hot water with lemon juice in it tonifies and purifies the liver.

Actions

- Expectoration
- Carminative
- Astringent
- Stimulant
- Anti-septic

Pharmacology

- It is very much helpful in indigestion.
- It regulates all the digestive tract and improves digestion.
- It also helps in secretion of digestive enzymes.
- It also a good heart muscle tones.
- It also a good heart muscles tones,
- It also improves taste of the mouth.
- It increases appetite.
- It also stimulate liver for proper secretion
- .It is very good remedy in nausea
- It improves circulation of the blood and helpful in conditions like atherosclerosis.

Indications

- Tastelessness
- Dehydration
- Vomiting
- Indigestion
- Constipation
- Liver related disorders & Depression

3.2 Induppu - Modern aspect

3.2 Figure of rock salt (induppu)

Define **:** as a solid substance that occurs naturally

Common name: Halte, is a form of sodium chloride.

Chemical name: Sodium chloride impure(or)sodium chloridum impure

Vernacular name:

Eng: Rock salt, sea salt, Bay salt, sodium chlorate.

Hin:Sendhalon, sedhalon.

Mal: Intu-uppu

Sans: Saindhava

Tam: Indu-uppu.

Impurities **:** such as sylvite as well as potassium sulphate.

Properties

- It is normally colourless,
- In case there are impurities it appears pink, yellow or blue much depending upon what kind of impurities one comes across in it.
- Chemical constituents are fluorine, chlorine, iodine and bromine. Many of them are very soluble in water.
- Rock salt has many minerals which are essential for the body, it contains calcium, magnesium, copper as well as iron.

Actions

- Small dose-highly carminative, stomachic and digestive.
- Stronger purgative than cream of tartar.

Benefits

- Regulating the water content throughout your body.
- Promoting a healthy pH balance in your cells, particularly your brain cells.
- It improves digestion and stimulates one's appetite
- Rock salt improves bowel movement, it also lessens acidity
- Absorption of food particles through your intestinal tract.
- Promoting blood sugar health and helping to reduce the signs of aging.
- Assisting in the generation of hydroelectric energy in cells in your body.
- Supporting respiratory health.
- Promoting sinus health.
- Prevention of muscle cramps.
- Promoting bone strength.
- Regulating your sleep -- it naturally promotes sleep.
- Supporting your libido.
- Promoting vascular health.
- In conjunction with water it is actually essential for the regulation of your blood pressure.

AMMONIUM CHLORIDE

Chemical properties

- An acid-forming salt, ammonium chloride occurs as colourless crystals or as white, fine or course, crystalline powder.
- It has a cool, saline taste.
- When dissolved in water, the temperature of the solution is decreased.
- One gram is soluble in approximately 3 ml of water at room temperature; 1.4 ml at 100°C.
- One gram is soluble in approximately 100 ml of alcohol.
- One gram of ammonium chloride contains 18.7 mEq of ammonium and chloride ions. The commercially available concentrate for injection (26.75%) contains 5 mEq of each ion per ml and

Actions

- Expectorant
- Diuretic
- Diaphoretic
- Systemic acidifying agent.

Uses

- Ammonium chlorid is said to be absorbed more quickly than any other salt, and in general has saline properties.
- Its vapours have been used for inhalation in cases of nasopharyngeal catarrh and as an expectorant in bronchitis..
- It is used in the treatment of severe metabolic alkalosis, to maintain the urine at an acid pH in the treatment of some urinary-tract disorders or in forced acid diuresis.
- Tohelp prevent and dissolve certain types of uroliths (*e.g.,* struvite), to enhance renal excretion of some types of toxins (*e.g.,* strontium) or drugs (*e.g.,* quinidine), or to enhance the efficacy of certain antimicrobials (*e.g.,* chlortetracycline, methenamine mandelate, nitrofurantoin, oxytetracycline, penicillin G or tetracycline) when treating urinary tract infections.

Toxic effect

- Hepatic encephalopathy
- Hepatic failure
- Convulsion & death

Cuminum cyminum-jeeragam

Chemical properties

- The main chemical components of cumin oil are cuminic, cymene, dipentene, limonene, phellandrene and pinene.
- Cumin include volatile oil (cymol and cuminic aldehyde), fatty oil, resin, mucilage, gum, malates, albumin and tannin
- Molecular Formula C_9H_{12}, molecular weight 120.19. Also known as cumin.
- A colourless liquid aromatic odour
- . -96 ° C melting point, boiling point of 152 ° C to 153.
- Density (20 / 4 ° C) 0.862g/cm^3.
- Do not dissolve in water, soluble in alcohol, benzene, ether and carbon tetrachloride and other organic solvents.
- In strong inorganic acid under Decomposable for phenol and acetone.

Cumin uses

- Cumin is also being studied currently for its possible anti-carcinogenic and andioxidant properties.
- The therapeutic properties of cumin oil are antiseptic, anti-spasmodic, antitoxic, bactericidal, carminative, digestive, diuretic, emmenagogue, nervine, stimulant and tonic.
- Cumin is useful as a warming oil and helps relieve muscular pains and osteoarthritis.
- For the nervous system, it is a tonic and has a beneficial effect on headaches, migraine and nervous exhaustion.
- In the digestive system, it is a stimulant that helps with colic, dyspepsia, flatulence, bloating and indigestion.
- Cumin has been used in medicine to improve liver function, and new research is looking into the herb's ability to enhance the liver's detoxification enzymes,

which would not only support liver health, but would also have far-reaching health benefits for its ability to detoxify the body and improve overall well-being.

Piper nigram - black pepper

Chemical properties

- The black pepper contains **piperine** which is 5 to 10 %, **piperidine** 5 %, **piprettine** and **chavicine.**
- Piperidine (Azinane after the Hantzsch–Widman nomenclature) is an organic compound with the molecular formula $(CH_2)_5NH$,a cyclic six membered amine that results from hydrolysis of piperine.
- The chemical formula for piperine is C17H19NO3
- It has a molecular weight of 285.338 g/mol.
- Piperine's IUPAC name is 1-[5-(13-Benzodiozodiozol-5-yl)-1-oxo2,4-pentadienyl].
- Density-1.193g/cm3

Uses of piperine

Digestive stimulant

It increases the secretion of digestive juices and cleanses the alimentary canal. It is used for constipation, dry haemorrhoids, gas and loss of appetite.

Anthelmintic

Used with honey to combat worms in the large intestine.

Cough

Black pepper is used to reduce phlegm. With honey, it is powerful expectorant and mucus cleanser, drying up secretions.

Urticaria and swelling

Helps in dermatitis. Used externally, it helps ripen boils and promote suppuration.

Immuno enhancer

The polysaccharide fractions from Piper nigrum act as immuno enhancer.

Anti bacterial activity

The oil fraction from Piper nigrum has anti microbial activity.

Bio availability enhancer

Piperine is one of the active principles, which is used as bioavailability enhancer by helping in efficient permeability across the barriers.

Hepato protective activity

Piperine has hepato protective activity against tert-butyl hydroperoxide and carbon tetrachloride induced toxicated animal model.

Anti oxidant property

Phenolic amides compounds present in the Piper extract has anti oxidant property.

Anti Colon cancer

Piper nigrum extract protects the colon by decreasing the activity of beta-glucuronidase and mucinase.

Anti-inflammatory activity

Piperine has anti-inflammatory activity against carrageenin-induced rat paw oedema, cotton pellet granuloma, and croton oil-induced granuloma pouch in animal model.

Zingeber offcinalis-dried ginger

Chemical properties

- Dried ginger contains about 10% moisture and 1-3% of volatile oil
- Itconstituent is a sesquiterpene, called zingiberene (C15H24).
- The pungent principle of ginger is zingerone(C11H14O3) which is present in the oleoresin.
- Pungent phenol compounds (such as **gingerols and shogaols)** Ginger is dried, gingerol undergoes a dehydration reaction forming shogaols, which are about twice as pungent as gingerol. This explains why dried ginger is more pungent than fresh ginger.

- The essential oil contains approximately a-pinene 0.4%,camphene 1.1%, ß-pinene 0.2%, myrcene 0.1%, limonene 1.2%, 1,8-cineole 1.3%, ß-phellandrene 1.3%,

  p-cymene 0.1%, methyl heptanone 0.1%, nonanal 0.1%, decanal 0.2%, neral 0.8%, geraniol 1.4%, 2 –nonanol 0.2%, linalool 1.3%, bornyl acetate 0.1%, d-borneol 2.2%, geraniol 0.1%, a -selinene 1.4%, ß-elemene1.0%, ß-zingiberene 35.6%, ß-bisabolene 0.2%, arcurcume 17.0% and ß -farnesene 9.8% (Krishnamurthy *etal*, 1970; Kami *et al*, 1972; Akhila and Tewari, 1984
- **Nutrients**:high in potassium,manganese which builds resistance to disease, protects lining of heart, blood vessels and urinary passages ,silicon which promotes healthy skin, hair, teeth and nails,helps assimilate calcium,also contains Vit. A, C, E, B-complex, magnesium, phosphorus, sodium, iron, zinc, calcium, beta-carotene

Gingerol uses

Act in Digestion

- cleanses colon
- reduces colon spasms and cramps
- helps clear gas
- relieves indigestion
- excellent for nausea, vomiting and motion sickness
- stimulates production of digestive juices
- helps bowel disorders

Other uses

- gingerol (an extract of ginger) inhibits **pancreatic cell growth**
- beneficial to prevent **constipation-related cancer**
- an effective ani-tumor agent in **leukemia cells**
- an extract of ginger causes **lung cancer cell death**
- gingerols inhibited the growth of Helicobacter pylori associated with dyspepsia, peptic ulcer disease and the development of **gastric and colon cancer**

- ginger extract raises significantly the thymus index, spleen index, percentage of phagocytosis, and thus improves the immunologic function relating to **tumors**
- gingerol inhibits cell adhesion, invasion, motility and activities of **breast cancer cell lines**
- gingerol induces viability reduction (killed) **gastric cancer cells**
- a ginger extract causes apoptosis (cell death) of **breast carcinoma cells**
- ginger inhibits cell growth and modulates angiogenic factor in **ovarian cancer cells**
- 6-shogaol (component of ginger) induces cell death in **colorectal carcinoma cells**
- compounds of ginger inhibits proliferation (stops growth) of **ovarian cancer cells**
- a component of ginger suppresses **metastasis (stops the spread) in any type of cancer cell including leukemic, skin, kidney, lung, and pancreatic cancer cells** - one of the most exciting and powerful health benefits of ginger!

3.3 GUNAPADAM ASPECT

rPufk; : Chirakam

rPuj;jpd; NgHjidNa nrg;gf;NfS

nrayhd Jj;jhuk; gyKkhF

Nkhfj;jpd; nkj;jpgQ; rparhhpahfp

kpLf;fhd cogFk; gk; kPukhFk;

fhufj;jpd; fhspfh RugQ;rpahFq;

fbrhd FQ;rpfh gpwj;jp tpfhahFk;

jhufj;jpd; gpj;j ehrdpAkhFe;

jSf;fhd rPufj;jpd; ehkkhNk. – 710.

NtWngah;:

- mir>
- rPhp>
- cgFk;ggPrk;>
- ew;rPhp>
- Jj;jrhk;gyk;>
- gpue;jp-tpfh>
- gpj;jehrpdp>
- NghrdFNlhp>
- Nkj;jpak;.

g-c: tpij.

Rit: fhh;g;G> ,dpg;G.

jd;ik: jl;gk;.

gphpT: ,dpg;G.

nra;if:

- mf;l;Ltha;tfw;wp
- ntg;gKz;lhf;fp
- grpj;jPj;J}z;b> kw;Wk; Jth;g;gp

Fzk;:

,jdhy;> moy; Nghk;. tapw;Wtyp> tha;Neha;> <uy; Neha;> fhrk;> fy;yilg;G> FUjpf;fopr;ry;> ,iug;G> fk;ky;> %f;FePh; gha;r;ry;> ntwp> ntspNeha;fs; ,it tpyFk;> ,/J clYf;F tYitj; je;J> fz;Zf;Ff; Fspr;rpiaAk; cz;Lgz;Zk;.

Rj;jp Kiw rPufk:;

rPufk; ,UtifAk; cyh;j;jp

rpWf tWf;f Rj;jp

- c.k.thflk;>86

tpsf;fk;:

ew;rPufk;> fUQ;rPufk; ,uz;ilAk ntapypNy MW kzp Neuk; cyh;j;jpr; rpWf tWf;fr; Rj;jpahFk;.

rPufj;jpd; gad;fs;;:

gpj;jnkD ke;jphpiag; gpd;dg; gLj;jpatd;

rj;JUit Ae;Jwe;J rhjpj;J-kj;jndDk;

uhridA kPntd;W ez;igg; gyg;gLj;jp

NghrdF lhhpnrAk; Nghh;.

- Njud; ntz;gh

tpsf;fk;:

,J jPf;Fw;wj;ijj; jd;dpiyg;gLj;jp> tapw;wpd; ke;jj;ijg; Nghf;fp> grpia cz;lhf;fp> czitr; nrhpf;FkhW nra;Ak;.

the;jp aUrpFd;kk; tha;Neha;gP ypfkpiug;

Ngw;wpUky; fy;yilg;gp yhQrdKl;-Nrh;e;jfk;ky;

MrdF lhhpnaDk; me;jf; fufzpAk;

NghrdF lhhpAz;zg; Nghk;.

-Nj.F

rPuf fw;gk;:

Nghrd Flhhpiag; Grpf;fpy;Neh nayhkWq;

fhrkp uhjf; fhuj;jp Yz;bl

- Njud; ntz;gh

tpsf;fk;:

Nghrdf;Flhhp nad;Dk; rPufj;ijj; jdpNa ghfg;gLj;jp cl;nfhs;spd;> vy;yh Neha;fSk; ePq;Fk;.

ew;rPufe; Jth;ifg; G\;z rPj

eWkz Nkhuk;kpa t\;j;J thFe;

Jw;fpUkp fgthA gpj;j K\;lzj;

Jiyf;F kUrpiag; Nghf;Fk; tpfhue;jPh;f;F

Kw;wFd;ke; jidkhw;Wq;..... Xiyr;Rtbapdpd;W gjpf;fg;gl;l E}y;.130.

tpsf;fk;:

ew;rPufk; Jth;g;Gk; ifg;Gk; cilaJ. ntg;gj; jd;ikAila ,J eWkzkpf;fJ. fpUkpfs;> fgthA> gpj;jk;> ntg;gk; ,tw;iwg; Nghf;Fk;. Ritapd;ikiag; Nghf;fp tpfhq;aisj; jPh;f;Fk;. Fd;k Nehiag; Nghf;Fk;.

rPufk;

thA tlrhJ td;gpj;jk; thuhJ

fhak; epfohJ fz;FspUk; - Xahky;

fhusfg; ngz;kapNy iffz;l jpj;jidAk;

rPufj;jpd; jz;zPh;j; jpuk;! Xiyr;Rtbapdpd;W gjpf;fg;gl;l E}y;199.

tpsf;fk;:

rPufk; cz;lhy; thA> gpj;jk; ,it mk;kdpjid ehlhJ. fz; Fsphpr;rp milAk;. ,it ahTk; rPufj;jpd; FzkhFk;.

tof;FKiwfs;;:

- rPufj;ijg; nghbj;J ntz;izapy; nfhLf;f vhp Fd;kk;.
- rPufk;> Vyk;> gr;irf; fw;G+uk;> ,itfisg;nghbj;J Xustha; vLj;J> Neu;epiw rh;f;fiu Nrh;j;J %d;W rpl;bif fhiy khiy rhg;gpl> ke;jthA jPUk;.
- rPufk; 200 fpuhk;> cyh;e;j fw;whio 170 fpuhk;> gid nty;yk; 170 fpuhk;> ,tw;Wld; ghy; nea; jf;f msT Nrh;j;J> ,Nyfpakhfr; nra;J rhg;gpl> tw;Wtyp> ePh;r;RUf;F> vhpT> ntg;gk;> mrPuzk;> fz;nzhpT> if fhy; cly; vhpr;ry;> Mrdf; fLg;G> kyf;fl;L ,itfs; ePq;Fk;.
- gQ;rjPghf;fpdp Nyfpak; rhg;gpl;L tu thA> cisT> Fj;Jtyp> fLg;G> vhpr;ry;> fopr;ry; nghUky;> epzf;fopr;ry; Kjypd jPUk;.

Rf;F

NtW ngah;:

mUf;fd;> mjfk;> Mh;j;ufk;> cgFy;yk;> cyh;e;j ,Q;rp> fLgj;jpuk;> Rf;F> Rz;b nrhz;b> nrsgd;dk;> nrsth;zk;> etRW> ehfuk;> knes\jk;> tpr;tNg\[k;> tpl%ba mkph;jk;> Nth;nfhk;G.

Rf;fpd; Ngh;

Rf;FDlg; Ngh; - jidNa nrhy;yf;NfS

Rd;bahq;fhy; tPjk; tpRtkhFk;

Kf;FDl ehfkhk; Ng\KkhFk;

Kf;fpukhq; fw;gj;jpuQ; rpWq;fpd;Ngh;

ef;fpDl jhJjphpgQ; rhjfKkhFk;

rhq;fkh Awg;Gkhq; frg;GkhFk;

gf;fpDlj; jpwpNjh\ khdpahFk;

gupghi\ ehknky;yhQ; Rf;Ff;fhNk. rl;lKdp epfz;L 699.

NtW ngah;:

mUf;fd;> mjfk;> Mh;j;ufk;> cgFy;yk;> cyh;e;j ,Q;rp> fLgj;jpuk;> Rf;F> Rz;b nrhz;b> nrsgd;dk;> nrsth;zk;> etRW> ehfuk;> knes\jk;> tpr;tNg\[k;> tpl%ba mkph;jk;> Nth;nfhk;G.

Rf;F Fzk;:

nrhz;b c\;l;zQ; rpWfho;g;ghQ;

Nrhig Njf ty;ypke;j

kpz;L fgk;th NjhjhQ;

Rthr kUrp Ruk;tpyf;Fq;

Xiyr;Rtbapdpd;W gjpf;fg;gl;l E}y; 132

tpsf;fk;:

Rf;F ntg;gr;nra;ifiaAk; fhur;RitAk; nfhz;lJ. Nrhig> cly;typ> ke;jk;> fgk;> thjk;> RthrNeha;> Ritapd;ik> Ruk; ,tw;iwj;jPh;f;fk;.

g – c: cyh;e;j fpoq;F.

Rit: fhh;g;G.

jd;ik: ntg;gk;.

gphpT: fhh;g;G.

nra;if:

- ntg;g;;Kz;lhf;fp>
- grpj;jPj;J}z;b>
- mfl;Ltha;tfw;wp.

Fzk;:

#iyke;jk; neQ;nrhpg;G Njhlk;Nkg; gk;koiy

%yk; ,iug;gpUky; %f;FePu;-thyfg

Njhlkjp rhue; njhlu;thj Fd;kePu;j;

Njhlk;M kk;Nghf;FQ; Rf;F.

(mfj;jpah; Fzthflk;)

R**j;jp Kiw Rf;F:**

Rf;F rPtpj; Njhy;Nghf;fp

Rz;zhk;G G+rp ntapYyj;jp

mf;aQ; rhk nkhd;Wnrd;why;

mofha; fOtp Ayj;jRj;jp.

c.k.thflk;>85

tpsf;fk;:

Rf;ifj; Njhy;Nghf;fp Rz;zhk;G G+rp %d;W kzp Neuk; ntapypy; cyh;j;jp fOtp vLf;f Rj;jpahFk;.

Rf;F gad;fs;:

jPuh thj Fd;kq;fs;

rpwe;j th;k kjprhuk;

ghP hPis ,UkYld;

gapd;w fgr Rthrk;Nghk;

Muh jpirA kUrpfz;Nzh

mtw;W ikak; tpj;JtpLq;

fhuhh; Foypd; klkapNy

fbd Rf;fpd; FzkpJNt

gjhh;j;j Fz rpe;jhkzp 192

tpsf;fk;:

jPuhj thj Fd;kq;fs;> th;k mjprhuk;> <is> ,Uky;> fhrk;> Rthrk;> mUrp ,tw;iwg; Nghf;Fk; Fzk; Rf;fpw;F cz;L.

Rf;iff; fha;r;rp cz;gPuha;r;

#iy thj fgNjh\k;

epw;F ke;j neQ;nrhpg;Gk;

NeNu nrhpahg; Gspj;Njg;ge;

jf;Fe; jiyapy; ePNuw;wQ;

ryNeha; kpfTe; jhd;tpOjy;

kpf;f fz;zPh; Gz;Zk;

tpUk;gpw; nrtpAk; ntspahNk

%ypif tpsf;fk; 194

tpsf;fk;:

Rf;ifr; fha;r;rpf; FbePuhf;fp cz;lhy; #iy> thj> fgNjhlq;fs;> neQ;nrhpg;G> nrhpahg;Gspj;Njg;gk;> jiyePNuw;wk;> ryNjhlk;> fz;Nzha;> nrtp Neha;fs; Nghd;wtw;iwg; Nghf;Fk;.

Rf;Ff; fw;gk;;:

Rf;fpidg; nghb nra;J #uzkhf;fp

apf;fpuj; jpYz;bltapw; nwhpTNghq**;**

(Njud; ntz;gh)

tof;F Kiwfs;:

- Rf;FjJ}is rhuilNth; ,t;tpuz;ilAk; Xh;vilapy; Nrh;j;J FbePh;nra;J cz;z> ke;jk; vd;Dk; Neha; ehl;iltpl;Nl XbtpLk;.
- Rf;FFbePh; nra;J cz;z ke;ek;>tapw;Wtyp>the;jp>tapw;WnghUky; Nghk;.
- Rf;if thapypl;L nky;y gy;typ Nghk;.
- Rf;F %l;L tPf;fSf;F G+r>tPf;fk; ehSf;F ehs; FiwAk;.
- Rf;Fj;J}ispy; Kt;tpuy; msT>mg;NghJ fwe;j gRtpd;ghy; 170kpyp Nrh;j;J nfhLf;fg; grpAz;lhk;.
- Rf;if nkd;W rhuj;ij khj;jpuk; tpOq;f njhz;ilf;fl;L>Fuw;fk;ky; ePq;Fk;.

kpsF:

kpsfpd;Ngh;

KsfpDlg; Ngh;jidNa tpsk;gf;NfhU

KjpHe;J epd;wj; jpiu Nghf;fp kuprpahFk;

tsfpDl tyrKkh jPl;rzKkhFk;

kfj;jhdJ td;khQ; rpahkkhFq;

FsfpDl %\pzkhk; gj;Jt Ne\q;

Nfhyf khQ;ruEe; jdpAkhFk;

tsfpDl thjj;ij aWf;Ffpd;w

kfj;jhd KsFf;F ehkkhNk. – (r.K.ep1000)

NtWngah;:

fypid>fwp>fhak;>Nfhsfk;>jpuq;fy;>kpupak;>rUkgejk;>ts;sprk;>khrk;> FWkpsF>kiyahsp.

gad;gLk; cWg;G: tpij

Rit: ifg;G>fhh;g;G

jd;ik:ntg;gk;

gphpT:fhh;g;G

nra;if:

- fhwYz;lhf;fp
- mfl;Ltha;fw;wp
- Kiwntg;gfw;wp
- jbg;Gz;lhf;fp
- ntg;gKz;lhf;fp
- tPf;fq;fiur;rp
- thjKz;lhf;fp
- er;rhp

Fzk;

msitAwhf;fhuk; mile;jpUf;Fk; thj

tpisitnay; yhkWf;Fk; nka;Na- kpsfpd;fha;

fz;ltu;f;Fk; ,d;gkhk; fhhpifNa! (m.F)

tpsf;fk;;

,J tsp Neha;fs; ahtw;iwAk; ePf;Fk;.

Rj;jp Kiw kpsF:

nfhbNtypr; rhw;wpy; $h;jpg;gpyp iaAw

tbth ed;kpsfpd; thh;Nkhiu-gbaNt

Cwtpl;Lj; jhDzj;jp Xl;b ypstiuaha;

NjwtWj; Jr;Rj;jp nra;.

-m.it.39

tpsf;fk;:

kpsifg; Gspj;j Nkhhpy; xd;Nw fhy; kzp Neuk; Cwg;Nghl;L tWf;fr; rj;jpahFk

kpsfpd; Fzk;

nfhz;l fhsg;g khPrpA\;l;bz

ryit ahFq; nfhLQ;Nrj;k

kz;L fpUkp ePNuw;wk;

tha;nthL gPdre; jPh;f;Fk;!

rPjRuk; ghz;L rpNyj;kq; fpuhzpFd;kk;

thjk; mUrpgpj;jk; kh%yk;-XJrd;

ahrkg]; khuk; mld;Nkfk; fhrkpit

ehrq; fwpkpsfpdhy;

-m.F 132

tpsf;fk;

kpsF Ritapd;ik> ntg;gk; Nghf;Fk;. rpNyj;Jkk;> fpUkp> ePNuw;wk;> thA> gPdrk; ,tw;iwj;jPh;f;Fk;.

va;Aq; fpuhzp gpj;jKl

dpUky; tha;T jiyNeha;Nghk;

ieAk; gbNa nra;JtpLk;

ehTf; Fhpir cz;lhFk;

ita kjdp yhh;f;FnkhU

khjh tJNgh yhFkpJ

ngha;ah jhdh Uiuj;jnkhop

Gfo;Nrh; kpsF jidf;nfhs;Ns!

%ypif tpsf;fk 196

tpsf;fk;:

fpuhzp> gpj;jk;> ,Uky;> thA> jiyNeha; ,tw;iw kpsF Nghf;fpLk;. ehTf;Fr; Rit jUk;. kdpjh;f;F khjh Nghy kUe;jpw;F kpsF khjhthFk;

,e;Jg;G

NtWngah;;:

,e;Jg;gpd; Ngh;jidNa ,ak;gf;NfS

Vopyhd nre;Jhuj;jQ; rae;JkhFk;

Re;jpuhd Kg;gjhk; jdpj;j kjpf; fhh;ik

Jaq;fhj Ntiy jdpw;wsh;e;j gdpf;$h;ik

ke;jpuk; Nghy; tsh;e;j kjpAf;Gr; rPyhyk;

kjpnad;w G+uj;jpd; kpj;JUthFk;

ke;jpuk; Nghy; ghz;lj;jpy; rike;jTg;G

Mr;rh;a kpe;Jg;Gg; NgUkhNk.

-r.K.ep1000 -28

NtWngah;

ire;jtk;> rpe;J}uk;> re;jpuDg;G> kjp$h;ik **kjp**Ag;G> kpe;jhr;nrhy;.

gz;Gfs;

- epiw- 2 Kjy; 10 gTz;L
- ,jd; Nkw;gf;fk; mOf;F gbe;j fgpy epwk;> cl;gf;fk; ntz;ikaha; ,Uf;Fk;.

- ,J kz;G+jr; ruf;fhFk;.

Rj;jp Kiwfs;

nts;shl;L ePhpy; %d;W ehopif (Kf;fhy; kzp Neuk;) kj;jpJ ntapypy; cyh;j;jp nfhs;s Rj;jpahFk;.

nra;if

- mfl;L thafw;wp>
- rpWePh; ngUf;fp>
- grpj;jPj; J}z;b>
- kyKz;lhf;fp nra;if cs;sJ

nghJFzk;:

ml;lFd;k ke;jk; mrph;f;fuQ;#h; rPjgpj;je;

Jl;litak; ehbg;Gz; Njhlq;fs;- nfl;lkyf;

Rl;Ltpl tpe;ijaf; fhkpaNeha; td;fug;ghd;

tpl;Ltpl tpe;Jg;ig tps**;.**

tpsf;fk;

vz;tpjFd;kk;>myrk;>mrpu;f;fuk;>fggpj;jk;>fghjpf;fk;>euk;Gf;fpue;jp>jphpNjhk;>kyge;jk;> tp\k;>Rf;fpyk**;>**fLtd; fg cgjk;gk;

etr;rhuk;

NtWngah;:

,\;l;bif> ry;ypif> #spif> gL.

gz;Gfs;:

- ghh;itf;F fl;bahAk;> thrid ,d;wpAk>; ehh; ehuhAk; J}s; nra;af; fbdkhAk; ,Uf;Fk;.
- ePhpYk; rhuhaj;jpYk; fiuaf;$baJ
- mOf;Fg; gbe;j ntz;ik my;yJ fgpy epwKs;sJ.
- Rit- frg;G>Gspg;G>
- kzk; - %j;jpu ntFl;lYs;sJ

Rj;jp Kiwfs;

,jid gR %j;jpuj;jpy; fiuj;J> tbfl;br; Rz;l vhpj;J ntapypy; cyh;j;jp vLf;f Rj;jpahFk;.

nra;if:

- Nfhioafw;wp>
- tpah;it ngUf;fp>
- rpWePh; ngUf;fp>
- tpuzKz;lhf;fp>
- gpj;jkfw;wp.

msT:

Fiwe;jstpy; - clw;Njw;wpahf;Fk;>

mjpf mstpy; – ntg;gKz;lhf;fp nra;if cs;sJ.

nghJFzk;:

“**Fd;kk**; Flw;#iy nfhy;Yk; kNfhjuj;ij

td;ikAW fy;yilg;ig khw;Wq;fhz;-rd;kf;

ftpr;RKj; Njhlq; fdthj ePf;Fk;

etr;rhu khNj etpy;”

tpsf;fk;:

Fd;kk;> Flypy; Fj;jy;> ngUtapW> fy;yilg;G> rUkj;jpy; Gyhy; thrk;> jphpNjhlk;> fd thA ePq;Fk;.

Fd;kNeha;f;fhd gpwkUe;Jfs;

,e;Jg;G NrUk; Fd;kNeha;f;F kUe;Jfs;

Fd;kFNlhhp Nyfpak;.

gQ;ryz nkOF

,ytz #uzk;

Ie;Jg;Gr; nre;Juk;

Kfh rq;f jpuhtfk;

gh];fu ytzk;

]hKj;uhjp #uzk;

rPufk; NrUk; Fd;kNeha;f;F kUe;Jfs;:

ml;lhjpr; #uzk;

Nfrhp Nyfpak;

Nfsrpfh; Fok;G

ruGq;f tpy;th Nyfpak;

rPufr; #uzk;

jpuhl;rhjp #uzk;

ee;jp nkOF

gQ;r jPghf;fpdp #uzk;

Gspahiu nea;

jphpfLr; #uzk;

Rf;F NrUk; Fd;kNeha;f;F kUe;Jfs;:

ehy;ghkuhjp nea;

gpuz;il vz;nza;

Fd;k typr; nre;Jhuk;

rhuz nea;

Nfhl#hp khj;jpiu

,urNyhf khj;jpiu

Ff;fpyhjp khj;jpiu

Fyhe; jf khj;jpiu

Fd;kj;jpw;F fy;fk;

mfj;jpah; Fok;G

tr;ruty;yp Fok;G

NfhopfL

vYkpr;ir gor;rhW NrUk; Fd;kNeha;f;F kUe;Jfs;:

Fkl;bf; Fok;;G

Nfrhp Nyfpak;

rPuf #uzk;

jpupfLf #uzk;

ethr;rhuk; NrUk; Fd;kNeha;f;F kUe;Jfs;:

Fd;k FNlhhp

et cg;G nkOF

mDghdj;jpd; tpsf;fk;

nte;ePu; Fzk;

thj Fd;k kWQ; #iy

rPj Nrj;kQ; rPWQ; Ruk;NghFq;

fhJk; Gz;Zq; fz;Ze; jPU

%Je; jz;zP Uz;zPU Uz;zPNu! (%ypif tpsf;fk;)

nte;ePiug; gUfpdhy; thj Fd;kk; mWk;. #iy> Nrj;Jkk; ,it kpFk;. Ruk; ePq;Fk;. fhJ> fz; ,tw;wp;;;;y; Njhd;Wk; Gz; ePq;Fk;.

3.4 SIDDHA ASPECT OF THE DISEASE

Fd;kk;

NtWngah;fs;:

Fy;kk; , tapw;Ws; Gusy; , tapw;Ws; GusYld; Nehjy;.

,ay;G:

nrhpahik, tapw;wpy; vhpr;ry;, the;jp, cly;td;ik Fiwjy;, Njfk; nkypjy;, kdk; Fd;wy; , Mfpa Fzq;fisAila Nehahk;.

NkYk; tapw;Ws; czT nrhpf;fhky; fhw;Wf;$b typAld; ge;J Nghy; Gusr;nra;Ak; Neha; vdTk; , ,e;Nehahy; tUe;Jk; NghJ kdk; Fd;Wk; fhuzj;jhYk;, typ tUk; NghJ Nehapdid Kd;gf;fk; Fd;witf;Fk; fhuzj;jhYk; ,jidf; **Fd;kNeha**; vdTk; $Wth;.

Neha;tUk;top:

1. “fakhd FlYDs;Ns fy;Ykp ney;YkhNk

fy;nyhL kapuhAs;s frlJ Flypw;gw;wp

ty;yghq;fJth ad;dQ; nrhpahj khrpdhNy

nky;ypa fpUkpnfhz;L Fd;kNeha; kUTq;fhNd” (guuhrNrfuk;)

2. “nra;ahd Fd;kj;jpd; Njhw;we; jd;idr;

nrg;gplNt Jth;g;ghd nghrpg;gpdhYk;

ka;ahd kq;ifAld; kUt yhYk;

tifahFk; fpoq;F tifaUe;j yhYk;

ca;ahd kpsF tifAiug;gp dhYk;

cWgrpia alf;fpLk; ke;jj; jhYk;

ja;ahs rz;lhs Nfhgj; jhYk;

rypg;ghYk; Fd;kk; te;jilAk; ghNu” -A+fp rpe;jhkzp

3. “Fd;kkJ jhndOk;Gk; tptunkd;dpy;

Fly;jdpNy fy;YkpAk; ney;Y%f;Fk;

gpd;dKld; tUk;gpj;jk; Nfhiur;rhh;e;jhy;

gPSkJ FlNyhNl khRgw;wp

md;dkJ nrhpahJ kaphpdhNy

mrdKQ; nry;yhJ fpUkpJf;fk;

td;dkapy; FoyhNs Fd;kNuhfk;

khrw;why; Fd;kkw tifjhd;ghNu” -gjpnzd; rpj;jh; ehbE}y;

kpFjpAk; #Ls;s nghUs;fisAk; thAg;nghUs;fisAk; ,

kz;, ckp, fy;, J}R, kaph;, ney;ypd; %f;F Mfpa ,it fye;j nghUs;fis cz;gjpdhYk; ,

RidePh;, Xl;lkw;wePh; ,itfis mUe;jyhYk;, Njq;fha;ghy; Nghd;w ke;jg;nghUs;fis kpFjpahf cz;gjyhYk; ,

mbf;fb rpdq;nfhs;sy; , gl;bdpapUj;jy; , kdr;rypg;G, Jf;fk; Mfpatw;whYk; ,e;Neha; cz;lhFk;.

Neha; vz;:

Fd;kk; vz; tifg;gLk;:

1. tsp Fd;kk;

2. moy; Fd;kk;

3. fg Fd;kk;

4. Kf;Fw;w Fd;kk;

5. thA Fd;kk;

6. vhp Fd;kk;

7. the;jp Fd;kk;

8. typ Fd;kk;

nghJ FwpFzq;fs;:

1.,e;Neha; ngUk;ghd;ikAk; , 25 taJ Kjy; 45 taJila Mz;kf;fSf;F tUtjhFk;. MapDk; rpWghd;ik ngz;fSf;Fk; tUtJz;L.

2.grpapd;ik, tha;Fkl;ly; , gpj;J gpj;jhf the;jpnaLj;jy; , cz;l czT nrhpahky; Vg;gkply;, GspNag;gk; .

3.tapW gSthf ,Ug;gJ Nghd;w Njhw;wk; , tapW Guz;L Nehjy; , Nghf Nghfj; jhq;f Kbahj typ Kjypad Vw;gLk;.

Fd;k Nehapd; Kf;Fw;w NtWghLfs;:

“njhlh;thj ge;jkyhJ Fd;kk; tuhJ” vd;gjw;fpzq;f thjkhdJ czthjp nray;fshy; jd;dstpy; kpFe;J cjhdd;, mghdd;, rkhdd; (Nky;Nehf;Fq;fhy;, fPo;Nehf;Fq;fhy;, eLf;fhy;) vd;Dk; %d;W Kf;fpakhd thAf;fs; J}z;lg;gLtjhy; mitfs;S jk;jk; njhopy;fisr; rhpahf epiwNtw;whky; Fd;kNehiag; gpwg;gpf;Fk;. tspf;Fw;wKk; , thAf;fSk; Nfliltjhy; cz;l czitr; nrhpahjgb nra;J FUjpapd; td;ikiaAk; Fiwf;fpwJ.

ehbeil:

“rpwg;ghf **gpj;jj;jpy; thj ehb**

NrhpYWe; jhJel;l Kjpu gPil

ciwg;ghfr; nrhpahik Fd;kQ; #iy

cw;wRuq; fpuhzp tapw;wpiur;ry; ke;jk;

miwg;ghd Xq;fhu GwePh;f; Nfhit

Mahrq;fpuf;f nkhL kaf;f %h;r;ir

Kiwf;fha;T tpltPf;fk; %ytha;T

Kulhd Neha;gyT KUFk; gz;Ng” -rjfehb

czT

1.xU Kiw tbj;j NrhWk;, fQ;rp tiffs;, ,sq;fha;fwpfs;(,sq;fj;jphp, KUq;if, ntz;il, gPh;f;F, Glyq;fha; Nghd;wit) Nrh;j;Jf; nfhs;syhk;.

2.Njq;fha;, cSe;J, nfhs;S, Ml;Lf;fwp, kPd; Kjypaitfis ePf;fp itg;gJ eyk;.

3.,Q;rp, gpuz;il Jitay; nra;J rhg;gplyhk;.

rpj;j kUj;Jtj;jpd; mbg;gilapy;

tapw;Wy; czT nrhpf;fhky; fhw;Wf; $b typAld; ge;J Nghy; Gusy; nra;Ak; Neha; **Fd;kNeha**; vd;gh;.

“njhlh;thj ge;jky;yhJ Fd;kk; tuhJ” - Njud;

,f;$w;wpd;gb> Fd;k Neha;f;F thjFw;wNk fhuzkha; ,Ue;jhYk;>thjk; cz;lhtjw;F Kjw;fhuzk; ke;jNk ahFk;.

“**ke;jky;yhJ thA tuhJ”** – Njud;.

Suvai and Veeryam are the important aspects in the therapeutic value of the drug

Ritapd; mbg;gilapy;>

,k;kUe;jpy; NrUk; ruf;Ffspy; xt;nthd;Wk; ntt;NtW tpjkhd Ritfis nfhz;Ls;sJ. mjhtJ Kypif> jhJf;fspd; ruf;fhd>

rPufk; - fhh;g;G>,dpg;G

Rf;F - fhh;g;G

kpsF - fhh;g;G>ifg;G

vYkpr;ir - Gspg;G

,e;Jg;G>etr;rhuk; - cg;G

Mf ,k;kUe;jpy; Ie;Jtpjkhd Ritfisf; nfhz;Ls;sJ. ,r;Ritfspd; nra;ifapd; mbg;gilapy;> ,e;Nehapd; FwpFzq;fs; FiwfpwJ vdyhk;.

,dpg;G ",dpg;Gu Nko; jhJf; fPAk;-rDg; ghy;" (kUj;Jtj; jdpg;ghly;) VO clw;fl;LfSf;Fk; kpf;f gyk; jUk;.

Gspg;G - "nrhpg;gh ndhpiaj; J}z;btpLk; czitr;

Rhpaha;r; nrhpg;gpj; J}z;tpUg; Gah;j;Jk;" (kUj;Jtj; jdpg;ghly;)

tapw;wpYs;s rPuzpf;Fk; njhopiy cila gpj;jj;ijj(rluhf;fpdpia) J}z;Lk;. Czit Neh;ikAwr; nrhpg;gpj;J cztpy; tpUg;gj;ij kpfT+l;Lk;.

ifg;G – "NtW fhuzk; tpisj;j T+z;ntWg;

Nghl;L kpay;gh Naw;f tpUk;ghr;

Ritahk;... (kUj;Jtj; jdpg;ghly;)

gy;NtW fhuzq;fshy; Vw;gLk; mUrp (mNuhrfk;) vdg;gl;l Cz; ntWg;ngDk; Nehia tpul;babf;Fk;. vspjpy; rPuzkhFk;.

fhh;g;G - "nfl;l Tg;gprk; Jl;l Nrhif

ePf;Fk; Gz;fisg; Nghf;Fk;" (kUj;Jtj; jdpg;ghly;)

fhh;g;ghdJ> cz;l czT rPuzkhfky; tapw;wpy; Cjy; jUk; mfl;LthA> mrPuzk;> tapw;WnghUkiy ePf;fp> ew;RitiaAk;> jPgdj;ijAk;> nrhpg;igAk; cz;lhf;fp> ke;jijAk; Nghf;Fk; jd;ikAilaJ.

cg;G : "mOf yfw;Wk; mrdtpUg; ghf;Fk;

kye;js;Sk; Nrjdp jPl;rzpah Kg;gpd;

eyk; gaf;FQ; nra;if etpy;" (kUj;Jtj; jdpg;ghly;)

czTg; cl;nfhs;s tpUg;gj;ij jUk;> kyk; Flypy; jq;fhky; xOq;fhf ntspahfr; nra;Ak;.

,k;kUe;jpid thapypl;L Ritf;F NghJ Kjd;ikaha; ,Ug;gJ cg;G>fhh;g;G>RitNa.>Jizaha; ,Ug;gJ Gspg;GNg czug;gLfpwJ. tPhpak;-ntg;gk;>

gphpT-fhh;g;G MFk;. ntg;g tPhpakhdJ tpiutpy; nrhpg;gpj;jy; njhopiy nra;tJ kl;Lky;yhky; mJ thjj;ij rkg;gLj;Jk;.

So the trial drug, helps to decrease the deranged vatham which is the root cause for gunmam disease. And veepa veeriyam also help in bringing down the deranged vatham to normal condition.so the drug acts on the basis of 'Ethirurai theroy'.

3.4 PEPTIC ULCER IN MODERN ASPECT

Introduction

A **peptic ulcer**, also known as **PUD** or **peptic ulcer disease**, is the most common ulcer of an area of the gastro intestinal tract. It is usually acidic and thus extremely painful. **It is defined as mucosal erosions equal to or greater than 0.5 cm**. A peptic ulcer in the stomach is called a gastric ulcer. An ulcer in the duodenum is called a duodenal ulcer.

Classification

Location

- Duodenum(called duodenal ulcer)

- Oesophagus(called esophageal ulcer)
- Stomach (called gastric ulcer)
- Meckel's diverticulum(called Meckel's diverticulum ulcer; is very tender with palpation)

Modified Johnson Classification of peptic ulcers:

- Type **I**: Ulcer along the body of the stomach, most often along the lesser curve at incisura angularis along the locus minoris resistentiae.
- Type **II**: Ulcer in the body in combination with duodenal ulcers. Associated with acid oversecretion.
- Type **III**: In the pyloric channel within 3 cm of pylorus. Associated with acid oversecretion.
- Type **IV**: Proximal gastroesophageal ulcer
- Type **V**: Can occur throughout the stomach. Associated with chronic NSAID use (such as aspirin).

Chronic peptic ulcers:

1) The first part of the duodenum is the commonest site,

2) Gastric ulcers usually affects the antrum on the lesser curve,

3) Reflux acid may lead to oesophageal ulcers.

Aetiology:

Normally gastric mucosal damage is prevented by a balance between the damaging agents and the mucosal defences.

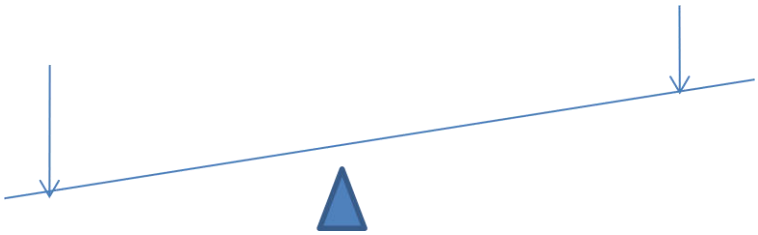
Damaging agents	**Mucosal defences**
ACID(**+** pepsin)	Surface mucus layer +

Epithelial cell integrity

Balanced

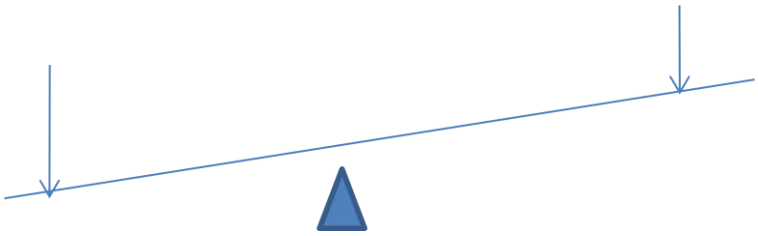
(A) **INCREASED ACID(+PEPSIN)** **Normal defence**

(e.g) Zollinger Ellison Syndrome



(B) Normal ACID(+ pepsin)

DECRESED DEFENCES



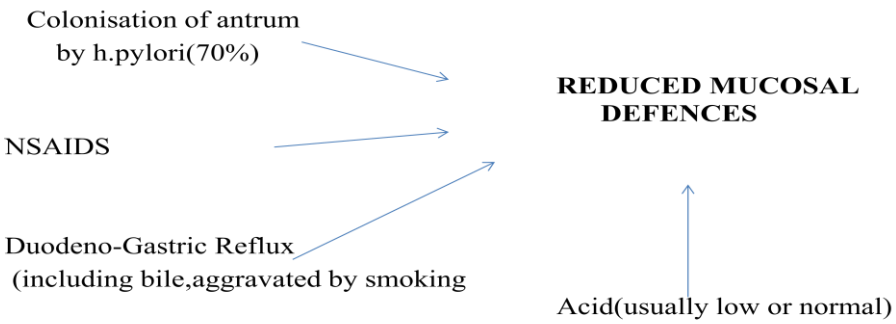
Although the mechanisms in gastric and duodenal ulcers differ in both,HELICOBACTER PYLORI infection is important.

The following also raise your risk for peptic ulcers:

- Drinking too much alcohol
- Regular use of aspirin, ibuprofen, naproxen or other non steroidal anti-inflammatory drugs (NSAIDs).

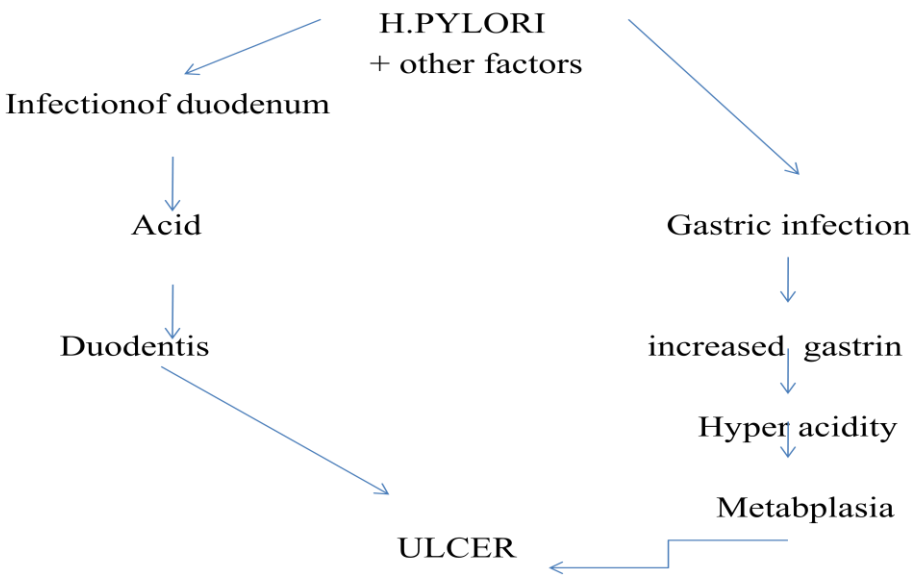
- Smoking cigarettes or chewing tobacco
- Being very ill, such as being on a breathing machine
- Having radiation treatments
- Stress

Gastric ulcer



Duodenal ulcers:

The main factors are hyper acidity and H.pylori infection (>95%of ca



Symptoms

- Small ulcers may not cause any symptoms. Some ulcers can cause serious bleeding.
- Abdominal pain is a common symptom, but it doesn't always occur. The pain can differ from person to person

Other symptoms include:

- Feeling of fullness -- unable to drink as much fluid
- Hunger and an empty feeling in the stomach, often 1 - 3 hours after a meal
- Mild nausea (vomiting may relieve this symptom)
- Pain or discomfort in the upper abdomenUpper abdominal pain that wakes you up at night

Other possible symptoms include:

- Bloody or dark tarry stools
- Chest pain
- Fatigue
- Vomiting, Possibly bloody

- Weight loss

Character of pain:

Pain has got several important features,

CHARACTER OF PAIN:	**DUODENAL ULCER**	**GASTRIC ULCER**
LOCATION(POINTING SIGN)	Epigastric region more towards right side	Epigastric region more towards leftside
ONSET	2-4 hrs after food	Immediately after intake of food
CHARACTER	Burning	Dull aching (or)stitching
RADIATION	Upwards in the chest	Backwards over the paravertebral region.
RELIEVING FACTORS	After take soda,antacid or alkali	Induced vomiting
NOCTURNAL/HUNGER PAIN	Pain appears at midnight or late night often awakening.	Absent
PERIODICITY	During winter months pain is prominent, summer month pain is disappear.	Absent
CLOCK –LIKE REGULARITY	Same type of food taken in same hours induce same type of pain in the same hours	Absent

Complications:

- Hemorrhage
- Perforation of ulcer
- Gastric outlet obstruction (obstruction in terminal part of stomach)
- preigastric adhesion
- Subdiaphargmatic abscess,
- penetration into pancreas.

Diagnosis:

Diagnosis of Peptic ulcers is confirmed by:

- Endoscopy to evaluate ulcers
- Biopsy may be required
- Barium meal (double contrast)

• Stool examination

• Complete blood count

Differential diagnosis:

- Chronic Gasteric ulcer,
- Chronic intestinal amoebiasis,
- Chronic Gastritis
- Recurrent appendicitis
- Chronic Chlecystitis.

Avoid in case of Peptic ulcer disease:

• Spicy foods, pungent things

• Excess of alcohol

• Oily foods

• Heavy meals

• Allopathic painkillers

• Above all avoid worrying!

Balance Diet

- Patient suffering from peptic ulcer should take diet rich in green leafy vegetable, fruits, milk, cheese, etc.
- However, they should never eat junk foods, oily and unhealthy foods.
- Drink lots of water, milk, etc., this too will keep the body temperature low and also controls acidity. However, do not add sugar to the milk.
- Patient suffering from peptic ulcer should live a stress-free life, should go for morning and evening walk, and do mild exercises, and yoga and meditations.
- Never eat in hurry, take food timely and full of nutrients, eat small meals 3-4 times a day, chew your food properly, all this will help in digestion of food, will prevent acidity and other diseases.

3.6 LATERAL RESARCH WORKS

Cuminum cyminum -jeeragam

- **Hypolipidemic effect** of Cuminum cyminum L. on alloxan-induced diabetic rats. Pharmacol Res. 2002
- Cumin seeds contain flavonoids, many of which are now generally recognized to have **antioxidant activity .J** Food Prot. 2001
- Evaluation of **reversible contraceptive activities** of Cuminum cyminum in male albino rats.
- C. cyminum treatment resulted in **the inhibition of spermatogenesis and fertility** without producing apparent toxic effects.
- **Enhancement of digestive enzymatic activity** by cumin (*Cuminum cyminum* L.) and role of spent cumin as a **bionutrient**
- **Antimicrobial Activity** of Cuminum cyminum L.Cumin (Cuminum cyminum) is a widely used ingredient in Indian food.
- In mice, cumin seeds demonstrated the ability to **inhibit the induction of gastric squamous cell carcinomas.** Cumin also demonstrated a protective effect against induced colonic cancer in rats.
- Extracellular application of the essential oil of C. cyminum 1% and 3% dramatically **reduced epileptic activity** induced by pentylenetetrazol by decreasing the firing rate of F1 neuronal cells, causing a significant depolarization in the resting membrane potential ($\mathbf{P} < 0.05$) and **reducing the amplitude of after hyperpolarization** potential as well as increasing the duration ($\mathbf{P} < 0.05$).
- Cumin may serve as a potential treatment option in estrogen-related conditions such as **postmenopausal osteoporosis**
- Cumin may **delay the development of cataracts** as demonstrated in diabetic rats An aqueous extract of cumin delayed progression and maturation of streptozotocin-induced cataracts in rats by preventing glycation of total soluble protein and alpha-crystallin in the lense
- **Stimulation of bile acid secretion and pancreatic enzymes** has been demonstrated in rats given a continuous intake of dietary cumin
- Cumin extract **inhibited arachidonate**-induced platelet aggregation in human platelets in a dose-dependent manner .

- Cumin oil and cuminaldehyde exhibited **strong larvicidal and antibacterial activity.** At in vitro concentrations of 300 or 600 ppm, cumin oil inhibited the growth of Lactobacillus plantarum Cumin essential oil demonstrated activity

PIPER NIGRUM –MELAZHU

- **Bacillus cereus and Escherichia coli:**

  The ripe fruit of P. nigrum showed anti-bacterial activity against penicillin G resistant strain of Staphylococcus aureus (Perez and Anesini, 1994).

- **Anti-Fungal:**

  P.nigrum essential oil was most active against S. cerevisiae (Hector et al, 2004).

- **Anti-Inflammatory:**

  Piperine acted on early acute changes in inflammatory processes an chronic granulative changes. It also acted partially througstimulation of pituitary adrenal (Mujumdar et al, 1990).

- **Anti-Neoplatic:**

  Simultaneous administration of piperine with tumour induction produced a significant reduction (95.2%) in tumour nodule formation induced by B16F-10 melanoma cells in C57BL/6 mice.

- **Antioxidant:**

  Supplementation with black pepper (0.25 g or 0.5 g/kg body weight) or piperine (0.02 g/kg body weight, Significantly elevated levels of thiobarbituric acid reactive substances (TBARS), conjugated dienes (CD) and significantly lowered activities of superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx), glutathione-S-transferase (GST) and reduced glutathione (GSH) in the liver, heart, kidney, intestine and aorta were observed in rats fed the high fat diet as compared to the control rats (Vijayakumar et al, 2004).

- **Hypolipidaemic:**

P.nigrum at 250 mg/kg body weight and 500 mg/kg body weight and its active principle, piperine at 20 mg/kg body weight administered to high fat fed rats for a period of 10 weeks resulted in a remarkable reduction in the levels of total cholesterol, free fatty acids, phospholipids and triglycerides in black pepper as well as in the piperine treated groups. (Vijayakumar et al, 2002).

- **Acetylcholinesterase Inhibition:**

  At concentration of 0.1 mg/mL, an extract of the seeds of P. nigrum showed 50-65% inhibitory activity on AChE (Ingkaninan et al, 2003).

- **Anti-Mutagenic:**

  Black pepper was effective against the promutagen agent ethyl carbamate but not the agent methyl methanesulfonate. (El Hamss et al2003

- **Anti-Thyroidal:**

  Daily oral administration of 2.50 mg/kg of piperine for 15 days lowered the serum levels of thyroxin (T (4)) and triiodothyronine (T (3)) as well as glucose concentrations with a simultaneous decrease in hepatic 5'D enzyme and glucose-6-phospatase (G-6-Pase) activity (Panda and Kar, 2003).

- **Cell Growth Promoter:**

  P. nigrum fruit extract was found to possess growth stimulatory. Piperine, the in alkaloid from P. nigrum fruit also significantly stimulated melan-a cell growth (Lin et al, 1999).

- **Gastric Acid Secretion Stimulatory:**

  Piperine was however about 40 times less effective than histamine in increasing gastric acid secretion. The effect of piperine was significantly antagonized by cimetidine (1 mg/kg but not by atropine (1 mg/kg) (Ononiwu et al, 2002).

- **Gastroprotective:**

P. nigrum may protect the colon by decreasing the activity of b-glucuronidase and mucinase. Histopathological studies also showed lesser infiltration into the submucosa, fewer papillae and lesser changes in the cytoplasm of the cells in the colon in black pepper groups (Nalini et al, 1998).

- **Hepatoprotective:**

  Piperine showed lower hepatoprotective potency than silymarin, a known hepatoprotective drug (Koul and Kapil, 1993).

- **Insecticidal:**

  Biologically active constituents of P. nigrum fruits (isobutylamide alkaloids: pellitorine, guineensine, pipercide, and retrofractamide A) showed activity against third instar larvae of Culex pipiens pallens, Aedes aegypti and A. togoi (Park et al, 2002).

- **Melanogenesis Stimulatory:**

  Methanolic extract from the leaves of P. nigrum showed significant stimulatory effect on melanogenesis in cultured murine B16 melanoma cells. (-)-cubebin and (-)-3,4-dimethoxy-3,4desmethylenedioxycubebin showed a significant stimulatory activity of melanogenesis without any significant effects on cell proliferation (Matsuda et al, 2004).

Zingiber officinale –dried ginger:

- **Antioxidant property:**

  Ginger significantly lowered lipid peroxidation by maintaining the activities of the antioxidant enzymes-- superoxide dismutase, catalase and glutathione peroxidase in rats.

- **Blood sugar and cholesterol management:**

  Anti-diabetic and hypolipidaemic properties of ginger (Zingiber officinale) in streptozotocin-induced diabetic rats.Br J Nutr. 2006.

- **Blood thinner:**

  Gingerols, the active components of ginger, represent a potential new class of platelet activation inhibitors

- **Anti-emetic effect :**

  Ginger (rhizomes of Zingiber officinale) has been shown to exert potent antiemetic properties and has been compared to standard drugs used in combating nausea and vomiting.

- **Colon Cancer:**

  Ginger appears to lower some indicators of inflammation in the colon which perhaps may help reduce the risk for colon cancer.

- **Gastrointestinal motility:**

  This herb may be helpful for conditions that involve slow GI motility.

- **Inflammation reduction:**

  Cyclooxygenase (COX) is an enzyme responsible for formation of important substances called prostanoids, including prostaglandins, prostacyclin and thromboxane. There are several types including COX-1, 2 and 3. Inhibition of COX can help provide relief from the symptoms of inflammation and pain. Non-steroidal anti-inflammatory drugs, such as aspirin and ibuprofen, exert their effects through inhibition of COX. Celecoxib, rofecoxib, and other members of this drug class inhibit COX-2.

- **Osteoarthritis:**

  A highly purified and standardized ginger extract had a statistically significant effect on reducing symptoms of osteoarthritis of the knee. This effect was moderate. There was a good safety profile, with mostly mild GI adverse events in the ginger extract group.

- **Ovarian cancer:**

Ginger killed the ovarian cancer cells in two different ways -- through a selfdestruction process called apoptosis and through autophagy in which cells digest themselves. Ginger spice has been shown to help control inflammation, which can contribute to the development of ovarian cancer cells.

- **Pregnancy:**

Ginger is effective for relieving the severity of nausea and vomiting of pregnancy Using it to quell morning sickness does not appear to raise the risk of birth.

- **Cold and Flu Prevention :**

Scientists have isolated several chemicals (sesquiterpenes) in ginger that have specific effects against the most common cold virus; the rhinoviruses. Some of these chemicals are remarkably potent in their anti-rhinovirus effects. Other constituents in ginger, gingerols and shogaols, help relieve cold symptoms because they reduce pain and fever, suppress coughing and have a mild sedative effect that encourages rest.

- **Migraine Relief:**

A case study presented ginger as a preventive agent for migraine headache. In this application, one subject was given non-steroidal anti-inflammatory medication to permit her migraine headaches to subside.

- **Improves Circulation:**

Ginger has been found to be beneficial in reducing platelet aggregation which leads to coronary artery disease, while having no effect on blood lipids or blood sugar. Healthy people, patients with C.A.D.(coronary artery disease) and non-insulin dependent diabetes sufferers were all the subjects of an Indian study which found that a 10g single dose of powdered ginger, "significantly reduced platelet aggregation" in C.A.D. patients.

- **Helps Manage Prostate Cancer**

A recent study evaluated the effect of whole ginger extract in mice given human prostate cancer xenografts (the transplantation of cells from one species to another). When the mice were fed whole ginger extract, growth and progression of the prostate cancer xenografts declined by about 56 percent when compared with mice not given ginger. It was found that whole ginger extract (GE) exerts significant growth-inhibitory and death-inductory effects in a spectrum of prostate cancer cells. It is believed that this is the first study to show anticancer activity of whole ginger extract for management of prostate cancer.

- **Rheumatism and Musculosketal disorders**

Powdered ginger against the arthritis patients more than three-quarters experienced, to varying degrees, relief in pain and swelling; all the patients with muscular discomfort experienced relief in pain, while none of the patients reported adverse effects during the period of ginger consumption which ranged from 3 months to 2.5 years. It is suggested that at least one of the mechanisms by which ginger shows its ameliorative effects could be related to inhibition of prostaglandin and leukotriene biosynthesis, i.e. it works as a dual inhibitor of eicosanoid biosynthesis.

- **Menstrual Cramp Relief**

Ginger rhizome powder four times a day for three days from the start of their menstrual period,At the end of the treatment, severity of dysmenorrhea decreased in all groups and no differences were found between the groups in severity of dysmenorrhea, pain relief, or satisfaction with the treatment,No severe side effects occurred.

MATERIALS AND METHODS

4. MATERIALS AND METHODS

4.1 PREPARATIONS OF DRUG

Selection Drug

The **Gunma noikku mezhugu** was taken as a **Compound drug** for study. The drug has been selected for treating Gunmam as per given in the siddha literature "Anubhava siddha vaithiya muraigal" written by Balaramaiya page no-41-42.

Procurement of then drug

The required drugs Dried Ginger,Cumin Seeds, Black Piper&Rock salt,Ammonium chloride for each amount of 500g was collected from, country drug shop,Cheenai, Tamil Nadu,and authenticated from HOD of Gunapadam Departmet,GSMC,Chennai-106.

Purification of the drug

After collection of the Raw drug and Salt material drug was first cleaned by removal of the dust particles.

- Then Raw drug like Cumin Seeds, Black Piper is roasted in a slow flame and then purified.
- The drug Dried Ginger, outer coat is removed for purification.
- The Rock salt is dissolved in Goats urine and then ground well for 3/4 hours, and then kept in sun light.
- Finally the Ammonium Chloride salt is dissolved in Cows urine and then heated, Until all the water content to evaporate and then dried in sun light.

Preparation of the Drug

- **Purified Dried ginger(Zinger officinale) : 500g**
- **Purified Cumin Seeds(Cuminum cyminum) : 500g**
- **Purified Black peper(Piper nigrum) : 500g**
- **Purified Rock salt(Sodium chloride impura) : 500g**
- **Purifed Ammonium sal(Ammonium chloride) : 500g**
- **Lime juice : Required Amount**

The above five the drugs were dried in shade and made into powder formed, Then the mixture is kept in a porcelain dish and soaked with lime juice for one week. Then the contents were transferred to Kalvam,And ground for 6hours, by adding lime juice. After attaining the consistency of Mezhugu, The contents were transferred and preserved in air tight glass container.

Storage of the drug

The Mezhugu was preserved in clean, a dry air tight glass container. Expiry period of Mezhugu is for5 years.

Administration of the drug:

Form of the medicine	: *mezhugu*
Route of Administration	: Enteral
Dose	: 1gm
Anubanam (Vehicle)	: Hot water
Times of Administration	: Two times a day; Afterfood
Duration	: 7 weeks

Purification Of The Drug

Ammonium Salt

Rock salt

Ingredients Of Gunma Noikku Mezhugu

Gunma Noikku Mezhugu

4.2.2 CHEMICALANALYSIS:

Qualitative analysis gives an indication of the identity of the chemical species in the sample

Preparation of extract:

2gm of **Gunmanoiku mezhugu** is added with 5gm of sodium carbonate and taken in a 100ml clean beaker and added with 20ml of distilled water .The solution is boiled well for 10 minutes ,then it is cooled and then filtered in 100ml volumetric flask .the filtrate is called sodium carbonate extracts.

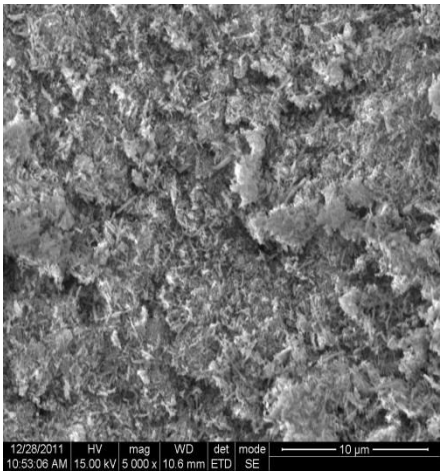
Then the following tests for the presence of acid radicals, basic radicals and miscellaneous were done.

I.QUALITATIVE INORGANIC ANALYSIS

S.no	Test Name	observation	Results
1	**Test for Acid Radicals**: Sulphate	White Precipitate is obtained	Presence of sulphate
2	Chloride:	Absence of White Precipitate	Absence of chloride
3	Phosphate	Presence Yellow Precipitate	Presence of phosphate
4	Carbonate:	Absence of White Precipitate	Absence of corbonate
5	Sulphide:	Absence of Rotten egg smelling	Absence of sulphide
6	Nitrate:	Absence of reddish brown gas.	Absence of nitrate
7	Fluoride and oxalate	Absence of White precipitate	Absence of Fluride and oxalate
8	Nitrite	Absence of yellowish red colour	Absence of nitrite
9	Borate	Absence of Green tinged flame	Absence of borate
10	Test for basic radicals lead	Absence of Yellow precipitate	Absence of lead
11	Copper	Absence of Bluish green coloured flame .	Absence of copper
12	Aluminium	Absence of White precipitate.	Absence of aluminium
13	Iron	Presence of Blood red colour .	Presence of Iron
14	Zinc	Absence of White precipitate	Absence of zinc
15	Calcium	Presence of White precipitate .	Presence of calcium
16	Magnesium	Presence of White precipitate.	Presence of magnesium
17	Ammonium	Absence of Reddish brown precipitate.	Absence of ammonium
18	Potassium	Presence of Yellow precipitate	Presence of potassium
19	Sodium	Presence of Yellow colour flame	Presence of sodium
20	Mercury	Absence of yellow precipitate	Absence of mercury
21	Arsenic	Absence of yellow precipitate	Absence of Arsenic
22	Starch	Absence of Blue colour .	Absence of starch
23	Reducing Sugar	presence of Green colour .	Presence of reducing sugar
24	Alkaloids	Presence of Red colour	Presence of alkaloids

SEM PICTURE of GUNMA NOIKU MELUGU

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



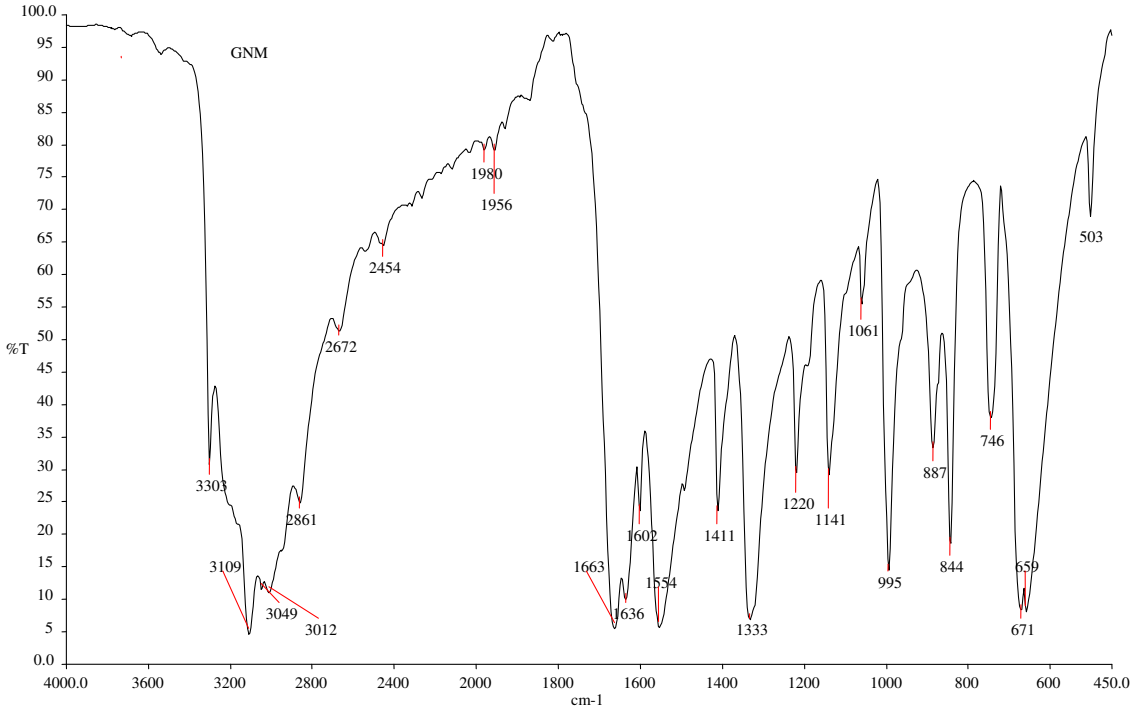
It have good nano particle size that indicates absorption is very good and pharmaco therapeutic value is good.

FOURIER TRANSFORM INFRARED SPECTROSCOPY (FTIR)

Features

- Fourier Transform Infrared Spectroscopy (FTIR) is an analytical technique used to identify mainly organic materials.
- Itis useful in identifying the functional groups like -OH, -CN, -CO, -CH, -NH2, etc.
- Especially capable of identifying the chemical bonds of organic materials
- Identifies water, phosphates, sulphates, nitrates, nitrites, and ammonium ions

Figure of ftir



PHYTO CHEMICAL ANALYSIS:

Sl.no	Phytochemical test	Observation	Results
1	Test for Tannins	Forms a brownish-green or bluish- black colour.	Presence of Tannins
2	Test for Phlobatannins:	A red precipitate is not deposited	Absence of phlobatannin
3	Test for Saponin	A permenant or persistant froth is formed.The froth is t turned in to emulsion by adding three drops of olive oil.	presence of saponin
4	Test for Flavonoids:	Yellow colour formed and disappears on standing.When 1% Alluminium solution is added in this mixture re-formation of yellow colour.	Presence of flavonoids
5	Test for steroids	No colour changes	Absence of Steroids

6	Test for Cardiac glycosides:	A brown ring indicates deoxy sugar of cardenolides/violet ring appears below brown ring/ in acetic acid layer a green ring is formed	Presence of cardiac glycosides
7	Test for Terpenoids:	A reddish brown interface layer is formed	Presence of Terpenoids
8	Test for Carbohydrates:	A green or brick red or red precipitate shows the presence of reducing sugar	Presence of carbohydrates
9	Test for Alkaloids: Wagner's reagent:	Forms a brown or dark reddish precipitate	Presence of alkaloids
10	Test for Glycosides:	Forms pink colour	Presence of glycosides
11	Test for Protein:	Formation of light blue or Pale violet colour is absent	Absence of protein
12	Test for Phytosterols:	Not appeared greenish blue layer on the upper surface	Abesence of phytosterols
13	Test for Phenolic compounds:	Formation of deep bluish green colour is absent	Absence of phenolic compounds
14	Test for Volatile oil:	Red colour is appeared	aresence of volatile oil
15	Test for Fixed oil:	Formation of a clear blue solution is absent	Absence of fixed oil

SL. No.	constituents	Result
1	Alkaloids	Trace
2	Terpinoids	+
3	Flavanoids	+
4	Volatile oil	+
5	Cardio glycoside	+
6	Tannin	+
7	Glycosides	+
8	Carbohydrates	+

Inference

The phytochemical analysis of *Thennam poo chooranam* showed the presence of following phytochemicals

- Alkaloids (Trace)
- Terpinoids
- Flavanoids
- Volatile oil
- Cardio glycosides
- Tannin
- Glycosides& Carbohydrates.

4.3 TOXICITY STUDY:

Introduction

Gastric and duodenal ulcers are illnesses that affect a considerable number of people in the world. Some of the causes of these disorders are: stress, smoking, nutritional deficiencies and ingestion of nonsteroidal anti-inflammatory drugs. The pathogenesis of gastroduodenal ulcers are influenced by various aggressive and defensive factors, such as acid-pepsin secretion, mucosal barrier, mucus secretion, blood flow, cellular regeneration and endogenous protective agents (Prostaglandins and

epidermal growth factor). In the present study an attempt was made to investigate the anti-ulcerogenic effects of Gunma Noikku Mezhugu in animal models of gastric ulcers induced by acid-alcohol in rats. The acute toxicity of the drug was also investigated in mice.

Acute toxicity study:

Acute oral toxicity test for the Gunma Noikku Mezhugu was carried out as per OECD Guidelines 425. Animals are observed individually after dosing at least once during the first 30 minutes, periodically during the first 24 hours, with special attention given during the first 4 hours, and daily thereafter, for a total of 14 days, except where they need to be removed from the study and humanely killed for animal welfare reasons or are found dead.

All observations are systematically recorded and Observations include changes in skin and fur, eyes and mucous membranes, and also respiratory, circulatory, autonomic and central nervous systems, and somatomotor activity and behaviour pattern. Attention was directed to observations of tremors, convulsions, salivation, diarrhoea, lethargy, sleep and coma. The principles and criteria summarised in the Humane Endpoints Guidance Document taken into consideration. Animals found in a moribund condition and animals showing severe pain or enduring signs of severe distress was humanely killed. When animals are killed for humane reasons or found dead, the time of death was recorded.

EVALUATION OF SUBACUTE ORAL TOXICITY OF GUNMA NOIKKU MEZHUGU

Materials and methods

Preparation of drug solution

Stock solution preparation:

The gummy tablet form of Gunma Noikku Mezhugu was mixed uniformly in 2% CMC solution to achieve 100mg/ml as main stock solution and used in this study.

Animals

Wistar rats of either sex (125–150 g) were used for subacute toxicity studies (OECD 407). They were reared at the animal house of department of Pharmacology and toxicology, Vel's University. Animals were kept in rat cages and fed on commercial pellets (Hindustan Lever Ltd, Mumbai, India) and allowed free access to fresh water *ad libitum*. The experimental protocols were approved by the Committee for the purpose of Control and Supervision of experiments on animals.

Sub-acute toxicity studies

The rats were divided at random into a control group and three experimental groups with six animals in each group. The vehicle control group received 0.2% Carboxy methyl cellulose (CMC), whereas the experimental groups received Gunma Noikku Mezhugu (250, 500, and 1000 mg/kg body weight, p.o.), administered by means of bulbed steel needle for 28days. Body weights were recorded on days 1 and 28 of the experiment, and daily observations were made for physiological and behavioral responses. Animals from sub-acute tests were fasted overnight after the dosage period, anaesthetized with diethyl ether, and then decapitated. Paired blood samples were collected into heparinized and nonheparinized tubes. The heparinized blood was used for hematological evaluation; the non-heparinized blood was allowed to coagulate, contents centrifuged, and the serum separated was analyzed for biochemical parameters.

Determination of hematological and serum biochemical parameters

The hematological and serum biochemical parameters were determined. Hematological parameters assayed included red blood cell (RBC) and white blood cell (WBC) counts inclusive of polymorpho nuclear leucocytes and lymphocytes, platelets, hematocrit, and hemoglobin (Hb) estimation. Erythrocyte indices (mean corpuscular volume (MCV), mean corpuscular hemoglobin concentration (MCHC), and mean corpuscular hemoglobin (MCH)) were determined from values obtained from red blood cell (RBC) count, Hb concentration, and packed cell volume (PCV) values. Serum was assayed for glucose, cholesterol, creatinine, urea, asparate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP) other lipid profile and protein.

Histopathology

Immediately after collection of blood samples, animals were opened up and various body organs such as liver, lungs, heart, kidney, spleen and brain were removed,

weighed individually, and fixed in 10% buffered formalin in labeled bottles. The organ pieces (3-5 µm thick) were washed in running water for 24 h. Samples were dehydrated in an auto technicon and then cleared in benzene to remove absolute alcohol. Embedding was done by passing the cleared samples through three cups containing molten paraffin at 50°C and then in a cubical block of paraffin made by the "L" moulds. It was followed by microtome and the slides were stained with Haematoxylin-eosin.

Statistical analysis

The results are reported as mean ± SEM for body weights, hematology, blood biochemistry, and organ weight data. The significant differences were assessed using one-way analysis of variance (ANOVA) using SPSS software package. P values less than 0.05 were considered significant.

ANTI- ULCER ACTIVITY OF GNM

Anti-ulcer evaluation

Hcl-ethanol-induced Gastric ulceration:

In Hcl-ethanol-induced gastric ulcer protocols, rats were starved of food but not for water 24 hours. Negative control group received saline and test group received Gunma Noikku Mezhugu at 500mg/kg, p.o. 120 minutes before receiving Hcl-ethanol and positive control group received ranitidine orally at 60 mg/kg 30 min prior were administered Hcl-ethanol. Ethanol was administered orally to these five groups at 1ml/200g. The volume of the saline, Gunma Noikku Mezhugu in suspension and ranitidine was 0.5ml/100g of body weight.

The ulcer index score for intensity of the gastric lesions was measured where score 0 = no ulcer, 1 = superficial mucosal erosion, 2 = deep ulcer or transdermal necrosis, and 3 = perforated or penetrated ulcer. Ulcer index = 1 O/X where,

$$X = \frac{\text{Total area of stomach mucosa}}{\text{Total ulcerated area}}$$

Gastric Secretion

The gastric juice was collected 4hrs after ulcerogen administration and centrifuged for 5 minutes at 2000 rpm and the volume of supernatant was noted. The pH of the gastric juice was recorded by the pH meter. Then the contents were subjected to analysis for free and total acidity. Free acidity and total acidity were determined using 0.01N NaoH and Topfer's reagent containing phenolphthalein as indicator.

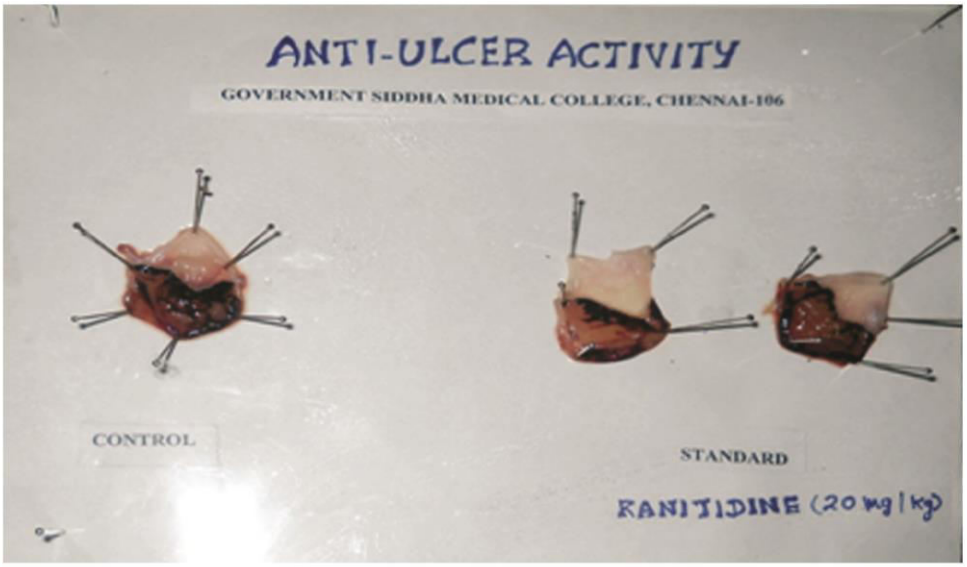
The acidity level was calculated by using the following formula:

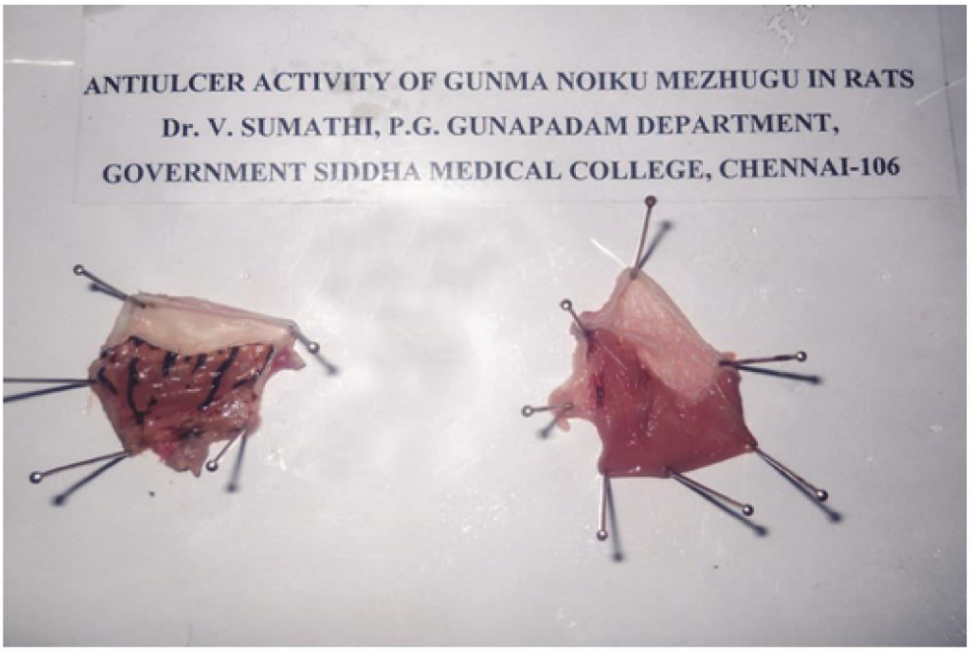
$$\text{Acidity} = \frac{\text{Volume of NaoH X Normality X 100}}{0.1}$$

Statistical analysis

The statistical analysis was carried out using one-way ANOVA followed by Dunnett's multiple comparison test. All the results obtained in the study were compared with the vehicle control group. P values <0.05 were considered statistically significant.

ULCER INDUCED BY HCL ETHANOL METHOD





4.3 CLINICAL TRIAL

CLINICAL STUDY FOR ANTI-ULCER ACTIVITY OF *GUNMA NOIKKU MEZHUGU*

Aim:

Gastric and duodenal ulcers are illnesses that affect a considerable number of people in the world. The disease had a tremendous effect on morbidity and mortality until the last decades of the 20th century. The pathogenesis of gastroduodenal ulcers are influenced by various aggressive and defensive factors, such as acid-pepsin secretion, mucosal barrier, mucus secretion, blood flow, cellular regeneration and endogenous protective agents (Prostaglandins and epidermal growth factor). If not treated an ulcer can lead to life threatening complications such as massive haemorrhage or perforation and peritonitis. So it necessary to cure this disease at early stages. Hence,i have selected a hebal-mineralo drug of Gunma Noikku Mezhugu for the treatment of peptic ulcer diseseas.

The aim of this trial is to select the cases of **Peptic ulcer patients** and administer them with the trial medicine as per time of treatment and clinically to evaluate the potency of the ***"Gunma Noikku Mezhugu"***

OBJECTIVE:

The main objective of this clinical study is to highlight the efficacy of this trial drug clinically.

STUDY DESIGN:

Open clinical trial(Phase-II Method)

Parameters for study:

- Epigastric pain
- Feeling of fullness
- Hunger/EmptyFeeling
- Water brash
- Regurgitation
- Vomiting
- Constipation & Heart burn

C. Line of Treatment:

- Route of administration : Enteral
- Drug and Dosage : Gunma noikku mezhugu 1gm after food with hot water(in cold form) twice a day.
- Duration : 40-70 days (according to prognosis)

Selection of patients

50 patients were selected for the clinical trial. This selection was based on the inclusion and exclusion criteria. Patients of different age group and different socio economic status were selected, 40 patients were selected outpatient treatment and 10 patients were selected for inpatient treatment.

Study centre

The clinical study was carried out in Gunapadam post graduate out patient and inpatient department, Government Aringar Anna Hospital for Indian Medicine and Homoeopathy, Chennai – 106.

Consent form

Patient were included in this clinical study only after getting the concern form accordance of 'Helsinky'.Before including of clinical trial all the patient were kept to inform detailed report of trial drug,its properties,potency and Duration of the treatment.

After getting the Institutional Ethical committee approval,had started the clinical trail as per the guidelines of IEC.

The patients were selected for clinical trials as per the following criterias, which are listed below:

Inclusion criteria

Age group from 20-70

- Nature of pain
  - Localisation of epigastrium ,
  - Relation to food,
  - Burning in nature,

- Hunger pain,
- Periodicity of pain,
- Pain radiated to backregion

- Feeling of fullness
  - Heart burn
  - Nausea/vomiting
  - Water brash
  - Regurgitation
  - Loss of appetite
  - Constipation

Exclusion criteria

- Gastritis
- Carcinoma of the stomach
- Pancreatitis
- Hepatic congestion
- Gastroesophagal reflux disease
- Cholecystitis
- Biliary colic
- Inferior myocardial infection
- Referred pain due to pleurisy, pericarditis

Withdrawal criteria

Acute conditions such as hemorrhage, perforations.

Irregular follow up

- Sudden increase in abdominal pain.
- Alcohol abuse
- Biphasic treatment method
- Inco-oprative patient

- In case of Emergency

INVESTIGATION :

All the 50 patients were investigated symptomatically.

They are also assesses for,

- Blood – TC, DC, ESR, Hb, Sugar, Urea, Cholesterol
- ,Urine-Albumin, Sugar ,Deposit
- Upper gastro intestinal endoscopy.

CRITERIA FOR ASSESSMENT OF RESPONSE TO THERAPY:

1) Marked response- 80-90% complete relief in signs and symptoms, complete normalcy of the pathological conditions.

2) Moderate response-75% relief in the presenting signs and symptoms, marked normalcy in pathological conditions.

3) Mild response- 60-75% relief of signs and symptoms, moderate normalcy of the pathological conditions.

4) Poor responser- Below50% relief of signs and symptoms with no marked change in pathological investigation.

DIET AND MEDICAL ADVICE:

Do's

Following foods to be taken more,

- Timely food
- Banana
- Almond milk
- Raw goat's milk
- Carrots and cabbage juice
- Butter milk
- He should chew every morsel thoroughly

- Meals must be small and frequent

Dont's

- Intake of food stuff during stress and anxiety
- Foods and drinks which are too hot or cold can be avoided
- Spicy foods, carbonated drinks
- Smoking and consumption of alcohol
- Intake of steroids and NSAIDS.

OBSERVATIONS

The following parameters were observed during the course of the treatment.

- Age
- Sex
- Socio economic status
- Occupational status
- Family History ,
- Past history
- Diet
- Personal Habits & Clinical features.

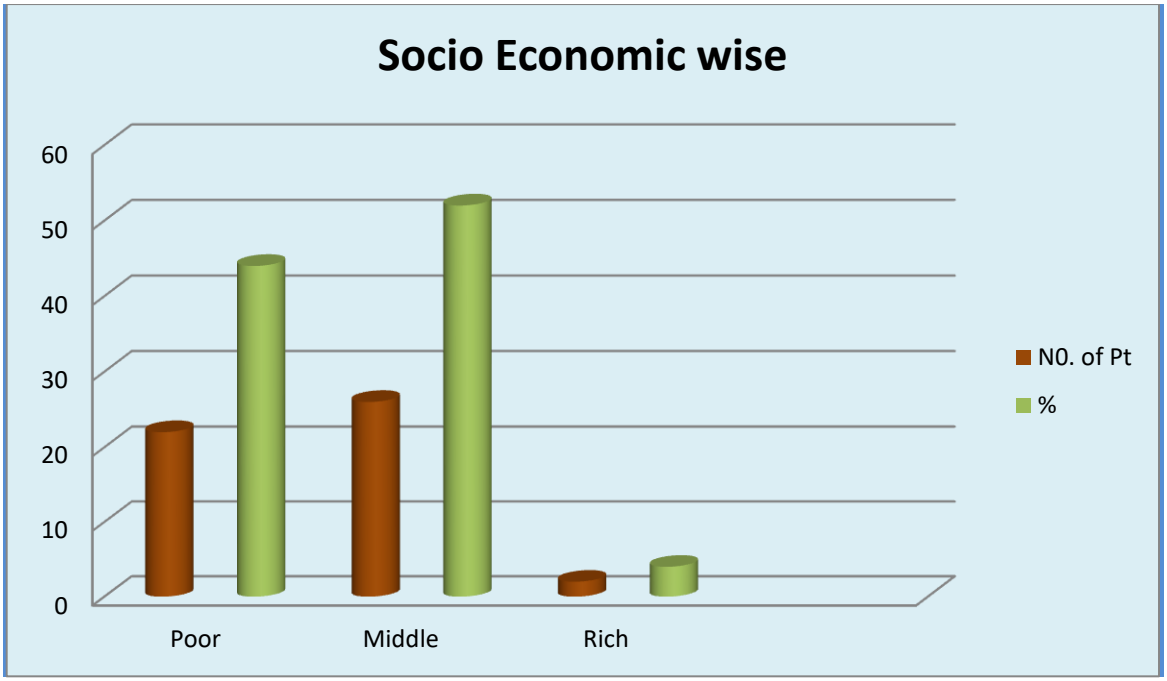
Age wise Distribution

Age	No.of PT	%
21-30	15	30
31-40	16	32
41-50	13	26
51-60	5	10
61-70	1	2

Inferrence:

Among 50 patients , the data shows that the disease is almost distributed in the 31-40 and 21-30 age groups.

Socio Economic wise		
Status	**No.of PT**	**%**
Poor	22	44
Middle	26	52
Rich	2	4

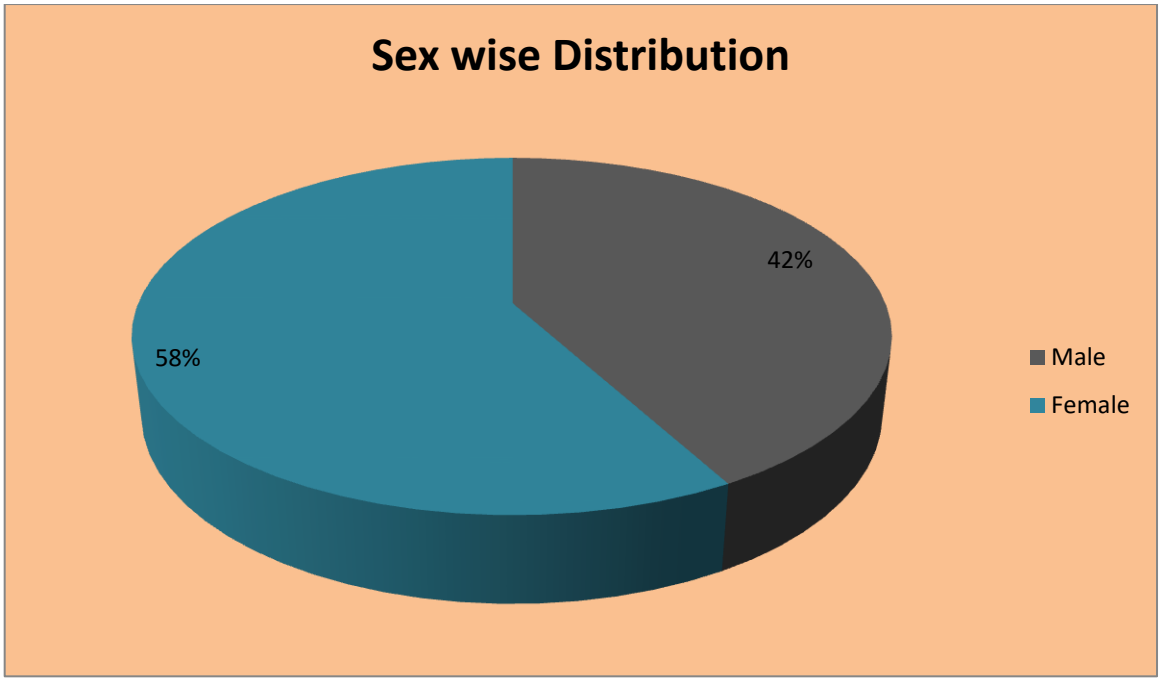


Inference:

Among 50 patients, the data shows that the diseases is almost prevalent in middle (52%) class people.

Sex wise Distribution

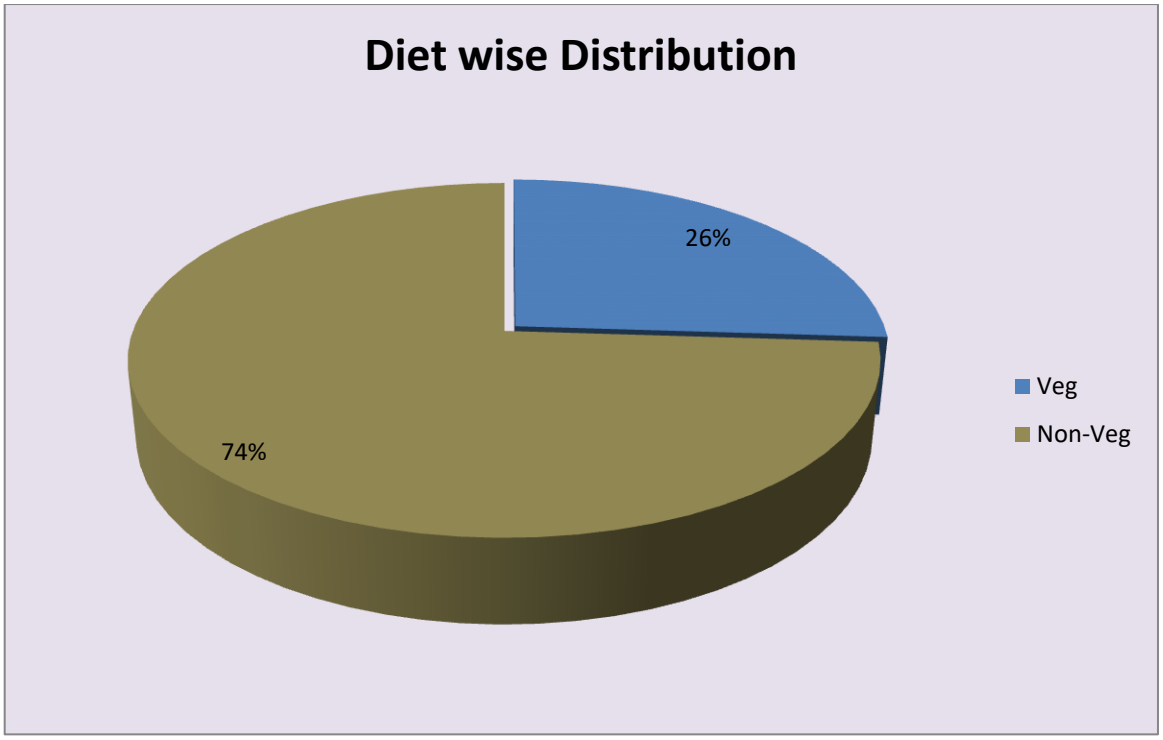
Sex	No.of PT	%
Male	21	42
Female	29	58



Inference:

Among 50 patients, the data shows that 42% of male and 58% of females are affected by this disease.

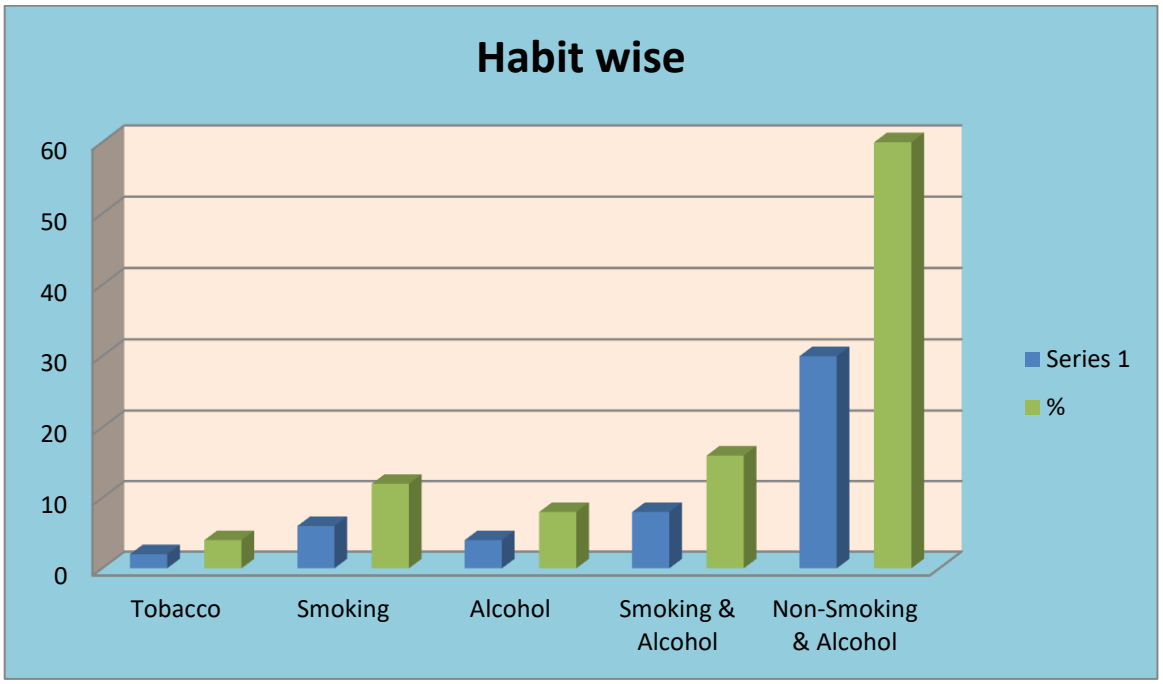
Diet wise Distribution		
Diet	**No.of PT**	**%**
Veg.	13	26
Non-Veg.	37	74



Inference:

Among 50 patients, the data shows that the people who consumed non vegetarian diet (74%) are more susceptible to hypertension than vegetarian food eaters(26%).

Habit wise		
Habit	**No.of PT**	**%**
Tobacco	2	4
Smoking	6	12
Alcohol	4	8
Smoking & Alcohol	8	16
Non-Smoking & Alcohol	30	60

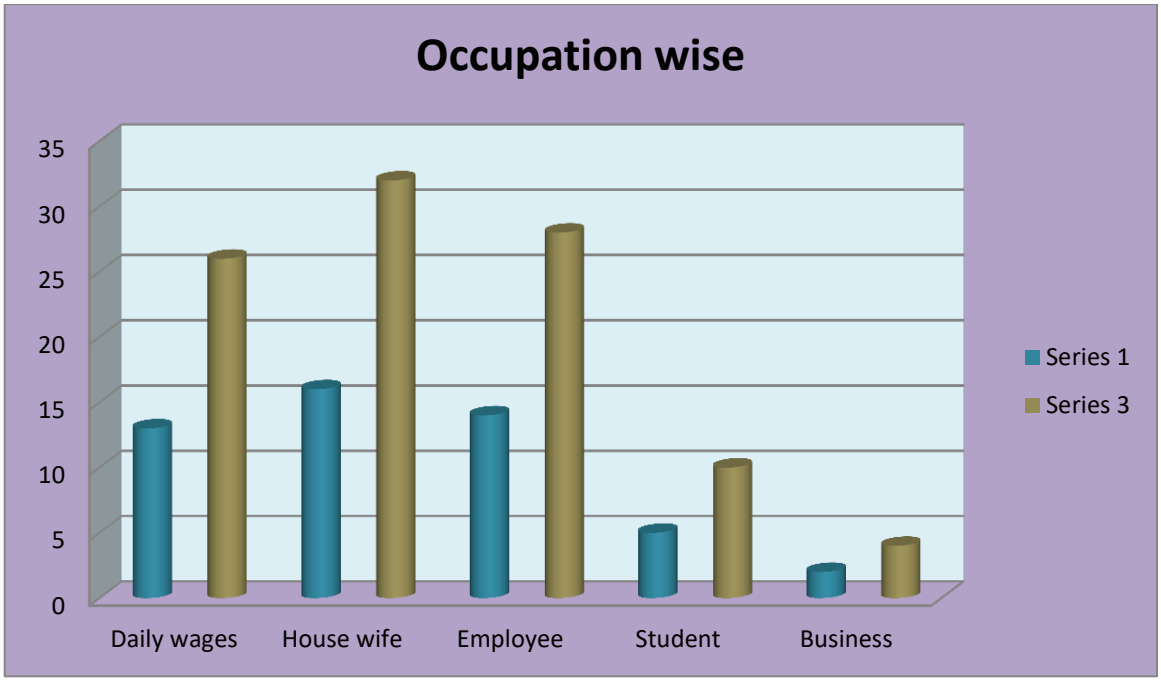


Inference:

Among 50 patients, the data shows that smoking and alcohol plays notable role in the occurrence of the diseases.

Occupation wise

Occupation	No.of PT	%
Daily wages	13	26
House wife	16	32
Employee	14	28
Student	5	10
Business	2	4

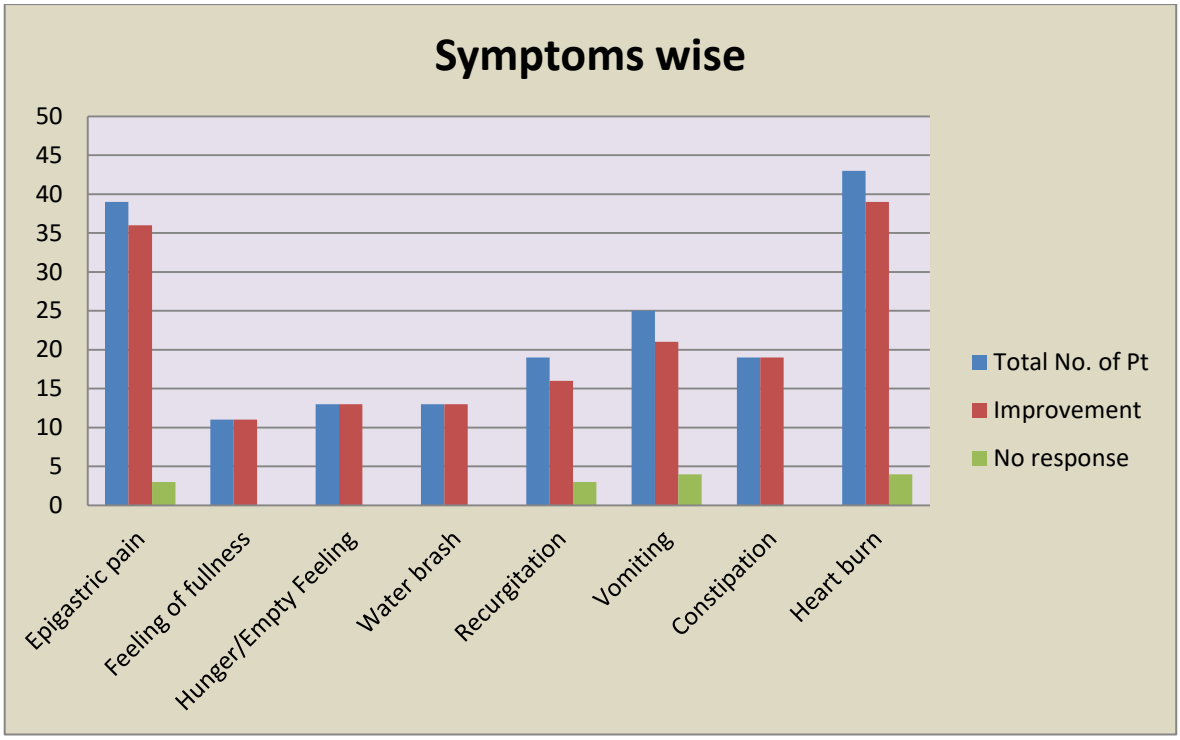


Inference:

Among 50 patients, the data shows that the diseases is commonly distributed in the House wife , Employee and Daily wages occupational groups.

Symptoms wise

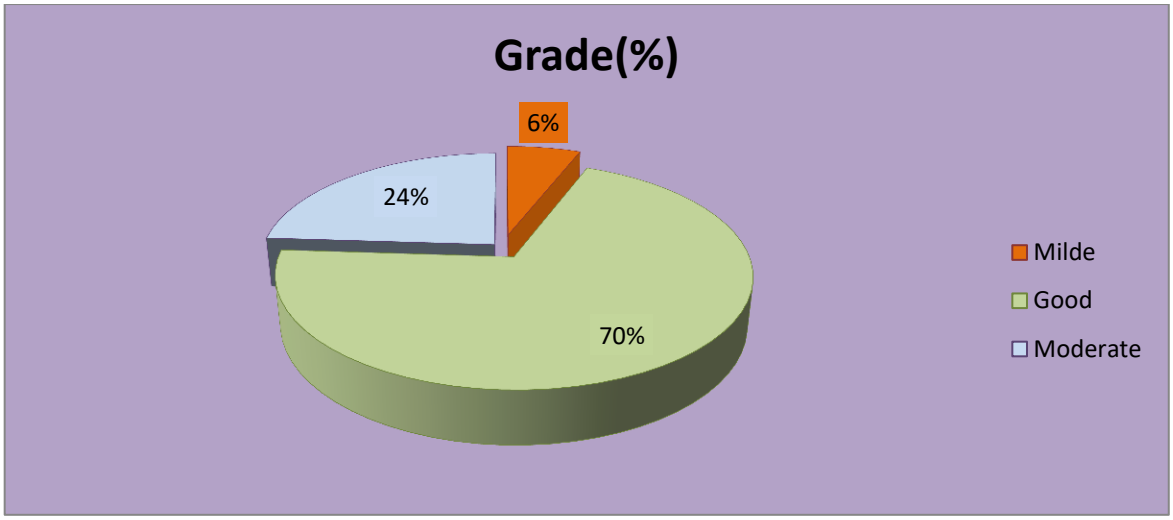
Symptom	Total No. of Pt	Improvement	No response
Epigastric pain	39	36	3
Feeling of fullness	11	11	0
Hunger/Empty Feeling	13	13	0
Water brash	13	13	0
Regurgitation	19	16	3
Vomiting	25	21	4
Constipation	19	19	0
Heart burn	43	39	4



Inference: Among 50 patients,

- 36out of 39 patients were relieved from Epigatric pain
- 11out of 11 patients were relieved from Feeling of fullness
- 13out of 13 patients were relieved from Hunger/Empty feeling
- 13 out of 13 patients were relieved from Water brash
- 16 out of 19patients were relieved from Regurgitation.
- 21out of 25 patients were relieved from Vomiting
- 19out of 19 patients were relieved from Constipation
- 39out of 43 patients were relieved from Heart burn

Gradation of Results		
Grade	**No.of PT**	**%**
Good	35	70
Moderate	12	24
Mild	3	6



Inference:

Among 50patients shows that the trial drug has good effect in 70% of cases,moderate effect in 24% of cases and mild response in 6% of cases in reducing the blood pressure.

RESULTS AND DISCUSSION

The herbo-mineral drug of Gunma noikku mezhugu was selected to assess it efficacy in the treatment of *Gunmam (Peptic ulcers)* as per given in the "Anubhava siddha vaidhya muraikal".

The present study is to highlight the efficacy of the drug was studied in view to standard **literary collections** about the drug detailed study in various aspect, Botanical aspect showed the details of the plant identification, description, cultivation and ethno medicinal importance of the plant. Gunapadam aspect expressed that the drug possess good anti ulcer property. Siddha and Modern aspect it shows in detailed study of the disease, Lateral research works expressed that drug possess various good scientific activity.

From the **ingredients of the test drug** , posses anta acid property(Nadkarni)

Cuminum cyminum **contains cumin** act antioxidant , anti bacterial effect. In the digestive system, it is a stimulant that helps with colic, dyspepsia, flatulence, bloating and indigestion. Cumin has been used in medicine to improve liver function, and new research is looking into the herb's ability to enhance the liver's detoxification enzymes, which would not only support liver health,

Piper nigram c**ontains piperine** act as digestive stimulant, immune enhancer anti bacterial activity.

Zinger officinale contains gingerol act *as* inhibited the growth of Helicobacter pylori associated with dyspepsia, peptic ulcer disease and the development of gastric and colon cancer thus improves the immunologic function relating to tumors. Gingerol induces viability reduction (killed) gastric cancer cells

The gingerol Act in Digestion cleanses colon, reduces colon spasms and cramps, helps clear gas, relieves indigestion, excellent for nausea, vomiting and motion sickness, stimulates production of digestive juices, helps bowel disorders

Citrus imonum **contain citric acid, vitamin-c, flavoinoids** thus compounds that have antioxidant and anti-cancer properties,antimicrobials ,It is very much helpful in indigestion.It regulates all the digestive tract and improves digestion.It also helps in secretion of digestive enzymes.

Ammonium chloride is said to be absorbed more quickly than any other salt,

Impure sodium chloride(Rock salt) improves digestion and stimulates one's appetite**,**and improves bowel movement, it also lessens acidity, Absorption of food particles through your intestinal tract. It naturally promotes sleep.

By the contents presence in the trial drug ,it has the therapeutic potency that show positive effect against peptic ulcer disease,

PHYSIO CHEMICAL PROPERTIES:

S.No	Solvent used	Under ordinary light	Under UV light
1.	PPM	Dark Brown	Dark Brown

(PPM-Powdered plant material)

By the above results the trial drug colour is Dark Brown by ordinary light &UV light.

Table-2.

Physicochemical properties of Gunma Noikku Melugu.

S No.	Parameters	Values obtained (%w/w)	Heavy/ toxic metals	
1	Total ash value	9.77	Lead	BDL
2	Acid insoluble ash	0.93	Cadmium	BDL
3	Water soluble ash	5.5	Mercury	BDL
4	Moisture content	8.65	Arsenic	BDL
5	Foreign organic matter	8.2		
6	Crude fibre content	28.35		
7	Alcohol soluble extractive	6.4		
8	Water soluble extractive	10.32		

Results of the physical properties of the test drug shows the total Ash value, Acid insoluble ash value, Loss on drying values are helping us to interpret the digestion and solubility capacity of the crude extract. As per the result the tested sample contains good percentage of solubility as well as digestive capacity

The qualitative inorganic analysis of *Gunma noikku mezhugu* showed, the presence of following chemicals: Phosphate, Sulphate, chloride, carbonate. Calcium, potassium, Sodium, Magnesium& Iron .Sugar,Starch

Calcium : This stimulates enzymes in the digestive process

Magnesium: Brings relief indigestion and promoting mineral thereby reducing stress. Magnesium Hydroxide that neutralize theHCL.

Potassium: It is essential for the maintaining gastric secretions

Iron : transport of oxygen to tissues ,

By the available **inorganic** elements presence in the trial drug has the therapeutic potency that show positive effect against the gastro intestinal disorder.

The **qualitative of phytochemical** analysis of the tes drug showed the presence of following phytochemicaatels like ,Alkaloids (Trace)Terpinoids, Flavanoids, Saponins ,Cardio glycosides, Glycosides&. Amino acids , Triterpenoids,Tannin

Alkaloids are protective agents, it regulates in physiological activities, it act anti toxic effect ,The availability of Flavonoids and Terpinoids compounds in the trial drug clearly indicates the drug's potency against the degenerative changes and aging process by the anti-oxidant property and also the gastro productive activity.Triterpenoid ,Cardio glycosides , Tannin act in anti-ulcer property(Sabiha et,al) By the available phyto-chemicals are presence in the trial drug has the therapeutic potency that show positive effect against the gastro intestinal disorder.

Quantitative analysis for SEM, ICPMS & FTIR

SEM Results:

S.No.	Extract Solvents	Colour	Nature	% Yield(w/w)	SEM Particle size in micron	pH

1	Water	Dark brown	Solid	45	1-10	7.1-7.5

It have good nano particle size that indicates absorption is very good and pharmaco therapeutic value is good. pH was found to be 7.1-7.5 which is slightly alkaline and neutralizes the acidic nature of the disease.

The ICP data shows,

- Heavy/toxic elements concentration shows Below detection limit
- Other elements like:Calcium, Iron, Magnesium,Potassium Sodium Phosphate & Sulphate

FTIR data shows oxide forms of potassium, calcium, ferrous, sodium.

sodium maintains the water& acid- base balance

TOXICOLOGICAL STUDY:

ACUTE ORAL TOXICITY STUDY

In the study, the trial drug given coconut flower chooranam mixed with CMC) animals were survived after 48 hrs showing good response in Alertness, Aggressive earlier and settle down lately, Touch response, Gripping, Increased motor activity, and Normal respiration.

Table 4.3: Dose finding experiment and its behavioral Signs of Toxicity

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

2	**1000**	+	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-
3	**2000**	+	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-
4	**5000**	+	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-

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

From the AOT studies as per the OECD guide lines 425, the trial drug doesn't shows any adverse effects or mortality even at the dose of 5000mg/kg, so its proves that herbal drug is so safe. It proves that the herbal preparation dosen't has any heavy metal or any microbial contamination also.

SUB ACUTE TOXICITY STUDY

There was no mortality or toxicity observed after oral administration of Gunma Noikku Mezhugu up to a dose level of 5000 mg/kg body weight. The general behavior of rats during Sub-acute toxicity studies after oral administration of Gunma Noikku Mezhugu caused no noticeable change in the general behavior of the rats and there were no significant changes in body weight or food intake of the rats as compared to the control group. Both the control and treated groups appeared relatively healthy during the period of study.

There were no deaths reported in any of the groups. Gunma Noikku Mezhugu on hematological parameters of rats showed no significant differences in any of the parameters examined in either the control or treated groups of both sexes. All the values remained within normal limits throughout the experimental period. Gunma Noikku Mezhugu on biochemical parameters of rats caused no significant

changes in blood glucose, urea, plasma creatinine, total proteins, total bilirubin and cholesterol whilst there was a limited increase in the activities of liver marker enzymes ALT and AST in group IV animals. Histopathological analysis has shown all tissues apart from liver of the treated groups to be morphologically similar to that of the negative control groups. The normal liver showed polygonal hepatocytes with a rounded nucleus, arranged in cords with the portal tract exhibiting a normal structure.

In the treated groups, rats of groups II and III also exhibit normal morphological features whilst that of Group IV showed mild focal portal inflammation with lymphocytes, the structure of hepatocytes being normal and intact with no necrosis. Sections of lung tissue of control and treated groups showed normal alveoli. The kidney of the control group consists of normal cortex and medulla. The glomeruli and renal tubules namely the proximal and distal convoluted tubules exhibit a normal structure. The treated groups also exhibited a normal architecture indicating the absence of renal toxicity.

The histological features of control and Groups II, III and IV showed a normal myocardium at 100 x magnification. The spleen of the control rats showed the white pulp-containing lymphocytes surrounded by a red pulp. The spleen of Gunma Noikku Mezhugu treated groups also exhibited the same structural features. Brain appears to be normal in the negative control group. The test drug treated brain also had similar structural features.

Siddha drugs have received greater attention as an alternative to allopathic therapy and the demand for these remedies has greatly increased recently. With the upsurge in the use of siddha remedies in the last two decades, there is need for

a thorough scientific evaluation of this traditional medicine. Hence to validate their claimed pharmacological properties and investigate their possible toxicity, preclinical toxicity studies were carried out on the Gunma Noikku Mezhugu in mice and rat models. In the present study, during acute toxicity evaluation, none of the animals died at the dose administered indicating that the Gunma Noikku Mezhugu was much tolerable and non-toxic in nature.

Further, there were no significant changes in food and water consumption. The determination of these parameters is important in the study of safety of a therapeutic drug, as proper intake of nutrients and water are essential to the physiological status of the animals and to the accomplishment of proper response to the drug tested. Body weight and organ weight changes serve as an indicator of adverse side effects since animals that survive cannot lose more than 10% of the initial body weight. In the present study, in body weight evaluation, no significant difference was found, suggesting that Gunma Noikku Mezhugu had no effect on the normal growth of rats, justifying the doses chosen.

This study has also shown that sub-acute treatment with the Gunma Noikku Mezhugu did not cause any change in hematological parameters. Hematological changes such as anemia are often accompaniments of bone marrow toxicity and analysis of blood parameters with respect to animal studies have a high relevance and predictive value for humans. In biochemical evaluation, there were no significant treatment related changes in blood glucose and serum cholesterol levels. Among the other parameters evaluated, AST and ALT are well known enzymes, which serve as biomarkers capable of predicting toxicity. AST is present in a wide variety of tissues, which includes heart, kidney, skeletal muscle and liver whereas ALT is primarily localized in the liver.

Both ALT and AST levels of groups II and III were not statistically different from that of control whereas the activities were slightly increased ($P<0.01$) in group IV animals. Histopathological examination of the selected organs from treated animals showed normal architecture in the groups II and III. Group IV animals exhibited mild infiltration of lymphocytes, but the hepatocyte structure was normal and intact with no necrosis thus establishing the hepatoprotective role of Gunma Noikku Mezhugu. The insignificant difference in urea and creatinine levels between the treated groups and the control group probably indicate that the Gunma Noikku Mezhugu did not interfere with the renal capacity to excrete the metabolite.

Indeed, creatinine is known as a good indicator of renal function. Any rise in creatinine levels is only observed if there is marked damage to functional nephrons.

Histopathological slides of kidney structure showed normal structural features suggesting the preserved renal integrity of Gunma Noikku Mezhugu treated rats. Heart, lung, brain and spleen of the treated rats also did not demonstrate significant changes in morphology indicating the protective effect of Gunma Noikku Mezhugu on these tissues. Further, stomach parts of treated animals did not show the development of ulcerative spots. The antiulcerogenic activity of Gunma Noikku Mezhugu has earlier been demonstrated along with this study.

Table 1. Body wt (g) of albino rats exposed to Gunma Noikku Mezhugu for 4 weeks.

Dose (mg/kg/day)	Days				
	1	**7**	**14**	**21**	**28**
Control	152±9.7	155±8.2	168±10.4	179±11.6*	202±11.5**
250	147±8.9	154±7.1	170±9.8*	182±8.8**	215±12.1**
500	155±10.6	160±10.0*	165±7.7**	176±9.4**	218±14.2**
1000	148±8.6	157±8.4	169±10.1*	188±9.2**	229±10.5**

Values are mean of 6 animals ± SEM (Dunnett's test). *P<0.05; N=6.

Table 2. Food (g/day) intake of albino rats exposed to Gunma Noikku Mezhugu for 4 weeks.

Dose	**Days (gms/rats)**

(mg/kg/day)	1	7	14	21	28
Control	42.25±2.22	40.12±2.20	44.56±2.15	42.11±2.15	43.18±2.15
250	45.10±1.28	40.15±2.27	43.10±1.29	43.12±2.16	42.22±2.82
500	42.11±1.46	42.12±2.10	45.10±2.10	43.25±2.10	45.10±2.19
1000	49.02±2.34	46.10±2.15	45.12±1.41	46.12±2.22	47.12±1.16

Values are mean of 6 animals ± SEM (Dunnett's test). *P<0.05; N=6.

Table 3.Water (ml/day) intake of albino rats exposed to Gunma Noikku Mezhugu for 4 week

Dose (mg/kg/day)	Days (ml/Group)				
	1	7	14	21	28
Control	52.26±1.70	50.60±2.72	52.40±2.15	51.12±2.34	51.15±2.00
250	48.34±2.18	46.16±2.45	56.10±1.20	48.10±2.10	58.20±1.16
500	42.12±2.27	41.02±2.22	42.17±2.65	42.23±2.15	40.16±2.32
1000	42.15±2.10	41.15±2.15	45.11±3.20	44.10±2.10	46.00±2.98

Values are mean of 6 animals ± SEM (Dunnett's test). *P<0.05; **P<0.01. N

Table 4. Hematological parameters after 4 weeks treatment with the Gunma

Noikku Mezhugu

Parameter	Control	250mg/kg	500 mg/kg	1000 mg/kg
RBC (mm^3)	4.86±0.38	4.91±0.36ns	4. 82±0.32ns	4.90±0.16ns
HB (%)	14.88±0.60	14.6±0.77ns	14.58±0.40ns	14.76±0.25ns

Leukocyte ($x10^3/mm^3$)	3.56±0.5	3.38±0.48ns	2.80±0.30**	2.72±0.37*
Platelets/ul	1.20±0.12	1.50±0.06**	1.42±0.25*	1.52±0.18**
MCV (gl)	86.15±4.9	88.12±6.00ns	86.31±3.12ns	86.78±6.22ns
N	49.72±1.8	49.55±5.10ns	47.30±2.34*	45.11±4.02*
L	47.00±0.5	48.10±4.82ns	48.35±1.56*	51.60±3.08*
M	4.60 ± 3.02	4.51 ± 3.16	3.55 ± 3.00	3.18 ± 2.12
E	2.04 ± 0.52	1.72 ± 0.47	1.90 ± 0.50	1.37 ± 0.39*
B	1.08 ± 1.01	0.89 ± 0.69	0.80 ± 0.51	0.66 ± 0.40
ESR (mm)	1±00	1±00	1±00	1±00
PCV	43.88±2.2	43.12±2.20ns	47.10±2.16**	44.10±3.10ns
MCH pg	28.60±1.8	29.20±1.92ns	30.40±1.29ns	32.17±0.88*
MCHC g/dl	33.55±0.9	33.42±0.73ns	34.70±1.48ns	35.27±3.20ns

Dose (mg/kg)	**Control**	**250mg/kg**	**500 mg/kg**	**1000 mg/kg**
Total Bilirubin (mg/dL)	0.08 ± 0.03	0.08 ± 0.03	0.09 ± 0.03	0.11 ± 0.03
ALP (IU/L)	61±4.42	63.17±7.6ns	57.17±5.4ns	70.0 ±4.68**

AST (IU/L)	84.00±5.2	90.33±9.55*	89.50±6.09*	93.8±7.22**
ALT (IU/L)	69.83±7.4	73.33±6.4ns	81.2±7.15**	92.5±7.55**
Protein (g/dl)	5.10±0.40	5.23±0.43ns	4.82±0.32*	4.9 8±0.35ns
Albumin (g/dl)	4.42±0.13	4.41±0.19	4.48±0.15	4.50±0.19

Table 5. Effect of treatment with Gunma Noikku Mezhugu on biochemical parameters- Values are mean of 6 animals ± SEM (Dunnett's test). *P<0.05; **P<0.01. *vs. control*

Table-6 RFT

Values are mean of 6 animals ± SEM (Dunnet 't' test). *P<0.05; **P<0.01 *vs control group* N=6

Table-7 lipid profile

Dose (mg/kg)	**Control**	**250mg/kg**	**500 mg/kg**	**1000 mg/kg**
Urea (mg/dl)	30.88±4.7	36.62±4.0**	38.02±6.2**	34.50±4.92ns
Creatinine (mg/dl)	0.98±0.18	0.70±0.27*	1.02±0.32*	0.98±0.38ns
Uric acid (mg/dl)	5.11±1.30	5.33±1.20	4.90±1.55	4.39±1.11
Sodium	145.07±2.28	145.07±2.41	145.60±2.41	146.00±2.52
Potassium	7.10±0.72	7.24±0.68	6.67±0.60	6.87±0.60
Chloride	104.71±1.30	102.29±1.40	104.53±2.12	103.30±1.99

Dose (mg/kg)	**Control**	**250mg/kg**	**500 mg/kg**	**1000 mg/kg**
Cholesterol (mg/dl)	72±2.31	78.12±6.4*	81.19±7.10*	80.11±6.7**

HDL (mg/dL)	13.11±2.42	13.10±2.28	14.01±2.44	12.51±2.12
LDL (mg/dL)	33.20±1.96	34.00±2.24	32.10±3.00	34.18±2.45
VLDL (mg/dl)	19.18±2.21	21.10±2.11	21.13±1.46	20.45±1.21
Triglyceride(mg/dl)	81.70 ± 22.20	87.84 ± 45.50	87.40 ± 34.20	74.32 ± 22.15
Glucose (mg/dl)	102±12.1	96±10.6*	107±17.4ns	114±12.29*

Values are mean of 6 animals ± SEM (Dunnet 't' test). *P<0.05; **P<0.01 *vs control group* N=6.

TABLE-8 URINE ANALYSIS

Parameters	**Control**	**250mg/kg**	**500 mg/kg**	**1000 mg/kg**
Colour	Yellow	Yellow	Yellow	Yellow
Transparency	Clear	Slightly turbid	Slightly turbid	Slightly turbid
Specific gravity	1.010	1.010	1.010	1.010
PH	7.2	>7.6	>8.0	>9.0
Protein	Nil	1+	1+	2+
Glucose	Nil	Nil	Nil	Nil
Bilirubin	-ve	-ve	+ve	+ve

Ketones	-ve	-ve	-ve	+ve
Blood	Absent	Absent	Absent	Absent
Urobilinogen	Normal	Abnormal	Abnormal	Abnormal
Pus cells	Nil	0-cells/HPF	Nil	Nil
RBCs	Nil	Nil	0-1cells/HPF	Nil
Epithelial cells	Nil	Nil	Nil	Nil
Crystals	Nil	Nil	Nil	Nil
Casts	Nil	Nil	Nil	Nil
Others	Bacteria seen	Bacteria seen	Bacteria seen	Bacteria seen

Values are mean of 6 animals ± SEM (Dunnett's test). *P<0.05; **P<0.01. *Vs. control group* N=6.

Table 9. Effect of oral administration of a Gunma Noikku Mezhugu on organ weight

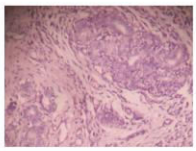
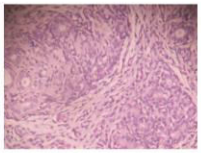
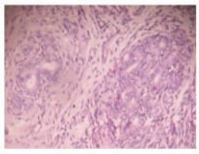
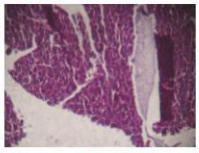
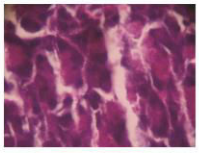
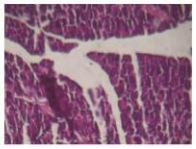
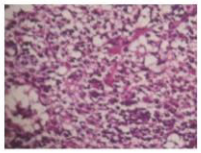
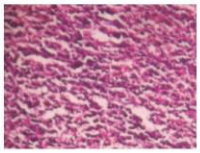
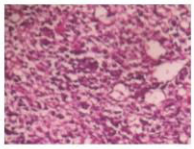
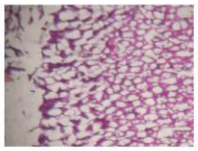
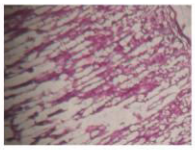
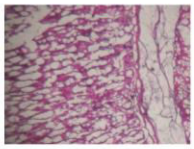
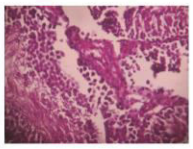
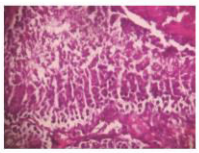
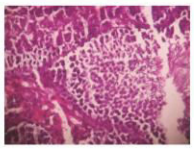
Dose (mg/kg)	**Control**	**250mg/kg**	**500 mg/kg**	**1000 mg/kg**
Liver (g)	4.77±0.58	4.28±0.38*	4.87±0.55*	4.62±0.40*
Heart (g)	0.64 ±0.06	0.58±0.14**	0.60±0.08**	0.57±0.05**
Lung (g)	0.72±0.04	0.68±0.06**	0.76±0.05*	0.68±0.2*
Spleen (g)	0.64±0.12	0 .69±0.04*	0.70 ±0.04*	0.64±0.05ns
Ovary (g)	0.04±0.02	0.04±0.01ns	0.04±0.02ns	0.04±0.02 ns
Testis (g)	1.02±0.03	0.98±0.05**	0.9 2±0.04**	0.94±0.03**

Brain (g)	1.40±0.18	1.31±0.15*	1.40±0.16	1.40±0.12
Kidney (g)	0.62±0.04	0.69±0.08	0.69±0.07	0.68±0.07
Stomach (g)	1.36±0.05	1.31±0.06	1.33±0.08	1.35±0.08

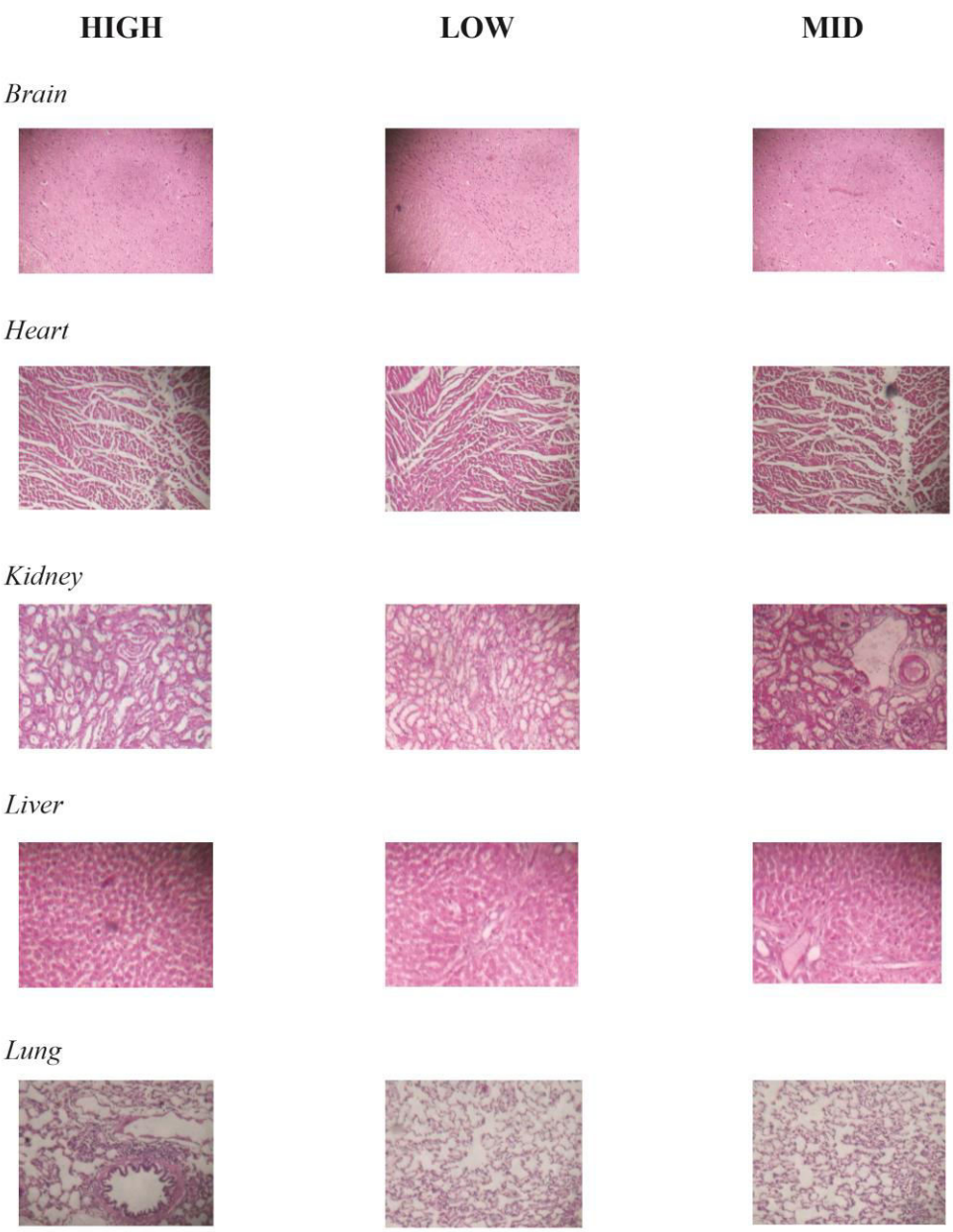
Values are mean of 6 animals ± SEM (Dunnett's test). *P<0.05; **P<0.01 *vs control*

N=6.

SUB ACUTE TOXICITY

	HIGH	LOW	MID
Ovary			
Pancrea			
Spleen			
Stomach			
Testis			

SUB ACUTE TOXICITY



Since, there were no significant adverse effects on the hematological and biochemical parameters, it may be concluded that the Gunma Noikku Mezhugu did not

induce any noteworthy damage to the vital organs. In conclusion, the present investigation demonstrates that at doses consumed in the traditional medicine, the Gunma Noikku Mezhugu may be considered as relatively safe, as it did not cause either mortality or produce severe toxicological effects on selected body organs, biochemical indices and hematological markers of rats during the acute and sub-acute periods of study.

CLINICAL STUDY:

Open clinical trial is performed with a sample size of 50 patients for period of 40-70 days. The clinical study was carried out in Gunapadam post graduate out patient and inpatient department, Government Aringar Anna Hospital for Indian Medicine and Homoeopathy, Chennai – 106

The test drug was administered in the form of mezhugu at the dose of 1gm twice a day with hot water .

From the clinical study following features were observed

Peptic ulcer disease mainly distributed in 21-40 age group. Patients who consumed mixed diet (74%), alcoholics and smokers are more susceptible to the disease .Family history plays notable role in the occurrence of the disease.

Clinical parameters

Symptom	Total No. of Pt	Improvement	No response	Improvement(%)
Epigastric pain	39	36	3	92
Feeling of fullness	11	11	0	100
Hunger/Empty Feeling	13	13	0	100
Water brash	13	13	0	100
Regurgitation	19	16	3	84
Vomiting	25	21	4	84

Constipation	19	19	0	100
Heart burn	43	39	4	91

Improvement in clinical features

Statistical analysis:

Out come of the Pre-clinical and Clinical study were evaluated by the two tailed students t test in unpaired for pre-clinical and paired for clinical study to nullify the bias in the study.

Paired *t* test results

P value and statistical significance:

The two-tailed P value equals 0.0358

By conventional criteria, this difference is considered to be statistically significant.

Confidence interval:

The mean of Group One minus Group Two equals 1.75

95% confidence interval of this difference: From 0.15 to 3.35

Intermediate values used in calculations:

t = 2.5934

df = 7

standard error of difference = 0.67

CONCLUSION

CONCLUSION

- The trial drug of "*Gunma noikku mezhugu*" has been selected and its efficacy was analyzed in the treatment of *Gunmam*.

- The drug was studied thoroughly with regards to various standardization methods and the effect was noted

..

- The drug is easily available.

- .The drug is safety and no toxic effect.

- The drug shows good Anti Ulcer activity.

- No adverse effects were produced during the entire course of treatment

From the above clinical observation, I conclude that the drug "*Gunma noikku mezhugu*" gives a new hope in the field of *Gunmam* Treatment.

SUMMARY

7. SUMMARY

The drug “Gunma noikku mezhugu has taken for study to prove its efficacy on the treatment of Gunmam(Peptic ulcer disease).

To collect the information about the drug, various text books, Literature were referred. From them, the author came to an idea about the drug and its efficacy on *Gunmam.*

A brief description about botanical aspect of the test drug and its identifying characters and Phyto chemical data’s were given.

The Phyto chemical analysis of the drug shows that it contains Potassium, Calcium, Sodium, , Magnesium, Iron, It is related in treatment of *Gunmam.*

.

The pharmacological analysis showed that the drug has got significant Anti ulcer activity.

In clinical study the drug has showed 70% of cases.

The patients were responding well from the beginning of the treatment and no adverse effects were reported.

This present study suggests that *Gunma noikku mezhugu* has the remarkable medicinal value against the disease *GUNMAM.*

Sl.no	Group	Mean	SD	SEM
1	Group I	22.75	12.16	4.30
2	Group II	21.16	10.73	3.79

Improvements of signs and symptoms by statistical analysis shows the two tailed "p" value equals 0.03 by conventional criteria, this difference is considered to be very statistically significant. From the above results $p < 0.05$, it shows the improvement in the subjective parameters produced by Gunma noikku mezhugu statistically significant.

All above studies of "***Gunma noikku mezhugu***" appears to be a good efficacy in the treatment of ***pepticulcerdisease.***

BIBLIOGRAPHY

8. BIBILIOGRAPHY

1. Agaththiyar paripooranam -400 page: 107
2. Anuboga vaithiya Navaneetham. Part -2
3. Anuboga vaithiya Navaneetham. Part -4 P.No: 54. Hakkim P Mohammed abdullah saibu.
4. Anuboga vaithiya Navaneetham. Part -5
5. Boga munivar nigandu-1200 page no-850,911,919
6. Bogar karukkidai nigandu-500 page; 39,40
7. Gunapadam Mooligai Vaguppu (Murugesa Mudhaliyar)– Indian Medicine and homeopathy Dept. – Chennai-106.p.no-404-406
8. Gunapadam Thathu – Seeva Vaguppu (Part (2 & 3) Dr.R .Thiyagarajan. L.I.M. Indian Medicine and Homeopathy Dept. Chennai-106. P.No:
9. Indian Material Medica – Vol -2, P.No: 1096. Dr. K.M. Nadkarni, “Popular Prakasham. Pvt
10. Aagarathi. P.No: 125, 298, 815, T.V. Sambasivam Pillai. Inidan medicine and Homeopathy Durai. Vol – V. PNo: 3105, 3156,3294.
11. Siddha Maruthuvanga Churukkam, Dr. K.S. Uthamarayan.
12. Yugi vaithiya Chintham,ani- 800 P.No: 95
13. Manmurugium – P.No : 110, 113, 145. Sarasvathi Mazhal – Thanjoor.
14. Theraiyar Vagadam Indian medicine & Homeopathy Durai. Chennai -106. P.No: 92.
15. Anuboga vaithiya Navaneetham. Part -4 P.No: 54. HAKKIM P
16. From Wikipedia, the free encyclopedia
17. Jump to: navigation,
18. For other uses, see
19. Mooligai marmam.
20. Nakkeerar thirumurugatruppadai
21. Noi nadal noi muthal nadal paagam1noiyilla neri page no25
22. Patharththa guna sinthamani
23. Paththuppattu
24. Sarebenthirar pitha roga sigichai page No: 1168,156
25. Sarebenthirar vauthya muraigal pg no:
26. Antihypertensive effect of an aqueous extract of the calyx of the *Hibiscus sabdariffa. Fitoterapia 78*: 292- 297.Atlas, S.A., 2007.
27. The renin-angiotensin aldosterone system: Pathophysiological role and pharmacologic inhibition. J. Manag. Care Pharm., 13: S9-S20.
28. Aunapuu, M., U. Pechter, W. Kuhnel, M. Ots and A. Arend, 2005. Morphological changes in experimental post ischemic rat kidney. A pilot study. Ann. of Anat., 187:

29. Gulec, B., K. Coskun, K. Oner, A. Aydin and C. Yigitler *et al*., 2006. Effects of perfusion solutions on kidney ischemia-reperfusion injury in pigs. Transplant. Proc., 38: 371-374.
30. Barengo, N.C., Hu, G., Kastarinen, M., Lakka, T.A., Pekkarinen, H., Nissinen, A., and Tuomilehto, J. 2005. Low physical activity as a predictor for antihypertensive drug treatment in 25-64-year-old populations in Eastern and south-western Finland. Journal of Hypertension, 23, 293-299.
31. Cheng JWM 2008. Aliskiren: Renin Inhibitor for Hypertension Management. *Clin Ther 30*: 31-47.
32. Dickinson, H.O., Mason, J.M., Nicolson, D.J., Campbell, F., Beyer, F.R., Cook, J.V., Williams, B., and Ford, G.A. 2006. Lifestyle interventions to reduce raised blood pressure: a systematic review or randomized controlled trials. Journal of Hypertension, 24, 215-233.
33. A.Chodera, K. Dabrowska, A. Sloderbach, L. Skrzypczak and J. Budzianowski. Effect of flavanoid fractions of Solidago virgaurea L. on diuresis and levels of electrolytes. Acta Pol Pharm.48: 35-37 (1991).
34. Lipschitz WL, Haddian Z, Kerpscar A1943. bioassay of diuretice. J Pharmacol Exp ther 79:110-116.
35. R. A. Turner, The Organisation of Screening.In: Screening Methods in Pharmacology, Vol. I, New York and London, Academic Press; pp. 21(1965).
36. R. Sood, A. Bajpai and M. Digits. Pharmacological and biological studies on saponins. Indian J Pharmacol. 17(3): 178-17Rathna sooriya WD, pieris KP, samaratunga U, Jayakody JR, J.Ethnopharmacol 2004 Apr; 91(2-3):317-20
37. S.H. Rizvi, A. Shoeb, R.S. Kapil and Satya P. Popli. Two diuretic triterpenoids from Antiderma menasu. Phytochemistry. 19(11): 2409-2410 (1980)
38. T. Murugesan, L. Manikandan, K.B. Suresh, M. Pal and B.P. Saha. Evaluation of diuretic potential of Jussiaea suffruticosa Linn. extract in rats. Indian J.Pharm.Sci. 62(2): 150-151(2000).
39. T. Vetrichelvan, M. Jegadeesan, M.S. Palaniappan, N.P. Murali and K. Sasikumar. Diuretic and anti-inflammatory activities of Aerva lanata in rats. Indian J. Pharm. Sci.62 (4): 300302 (2000).
40. Nash J, Lynn L, Deakin M. Histamine H2-receptor antagonist in peptic ulcer disease. Evidence for a prophylactic use. Drugs 1994;47:862-71.
41. Basil MD, Howard MS. Clinical gastroenterology. In: Companion Handbook. 4th ed. USA: McGraw-Hill; 1995.
42. Salas C. Fundamentos fisiopatológicos para el tratamiento de la úlcera péptica. Gen Revista de la Sociedad Venenzolana de Gastroenterología 1990;44:180-90.
43. Jafri MA, Farah, Javed K, Singh S. Evaluation of the gastric antiulcerogenic effect of large cardamom (fruits of Amomum subulatium Roxb). J Ethnopharmacol 2001;75:89-94
44. . Hollander D, Tarnawski A, Krause WJ, Gergely H. Protective effect of sucralfate against alcohol-induced gastric mucosal injury in the rat. Gastroenterology1985;88:366-74.

45. Organisation for Economic Co-operation and Development (OECD) 2001- Guideline on acute oral toxicity (AOT) Enviromental health and safety monograph series on testing and adjustment no 425.
46. Gunapadam Thathu – Seeva Vaguppu (Part (2 & 3) Dr.R .Thiyagarajan. L.I.M. Indian Medicine and Homeopathy Dept. Chennai-106. P.No:
47. Indian Material Medica – Vol -2, P.No: 1096. Dr. K.M. Nadkarni, "Popular Prak
48. Caisey JD, King DJ. 1980. Clinical chemical values for some common laboratory animals. Clin Chem 26:1877- 1879.
49. Chan PK, O'Hara GP, Hayes AW. 1982. Principles and methods for acute and subchronic toxicity. In: Hayes AW, editor. Principles and Methods of Toxicology. New York: Raven Press. p 17-19.
50. Feldman BF, Zinkl JG, Jain NC, Moor DM. 2000. Schalm's Veterinary Hematology. 5th ed. Philadelphia: Lippincott Williams & Wilkins.
51. Gregg L, Voigt DVM. 2000. Anemias and Polychythenias. In*:* Hematology Techniques and Concepts for Veterinary Technicians. U.S.A: Iowa State University Press. p 95-101.
52. Itthipanichpong C, Ousavaplangchai L, Ramart S, Thamaree S, Tankeyoon M. 1987. Acute toxicity and subacute toxicity study of *Phyllanthus emblica*. Chula Med J 31(5):367-376.
53. Levine BS. 2002. Animal Clinical Pathology. In: Derelanko MJ, Hollinger MA, editors. Handbook of Toxicology. 2nd ed. U.S.A: CRC Press. p 742-768.
54. Sacher RA, McPherson RA. 2000. Test of liver function. In: Sacher RA, McPherson RA, Campos JM, Widmann FK, editors. Widmann's Clinical Interpretation of Laboratory Test. 11th ed. U.S.A: F.A. Davis Company. p 562-599.
55. Woodman DD. 1996. Assessment of hepatotoxicity. In: Evans GO, editor. Animal Clinical Chemistry: a Primer for Toxicologist. London: Taylor & Francis. p 71-86.
56. The Organisation of Economic Co-operation and Development (OECD), 2001a.The OECD Guideline for Testing of Chemical: 407 Repeated Dose Oral Toxicity-Rodent: 28-day or 14-day Study, OECD, Paris, pp. 1–7.
57. Raza, M., Al-Shabanah, O.A., El-Hadiyah, T.M., Al-Majed, A.A., 2002. Effect of prolonged vigabatrin treatment on hematological and biochemical parameters in plasma, liver and kidney of Swiss albino mice. Scientia Pharmaceutica 70, 135–145.
58. Annino, J.S., Clinical Chemistry Principles and Procedures, (2nd ed) Little Brown and Co, Boston, 1960, pp. 203.
59. Mukherjee KL, Medical Laboratory Technology, Tata McGraw Hiss Publishing Company Limited, New Delhi, 1st ed. 1989; 3: 1124
60. Carleton MA, Drury RAB. Carleton's histological technique. (3rd ed) Oxford University Press, New York, Toronto, 196.
61. Saidu Y, Bilbis LS, Lawal M, Isezuo SA, Hassan SW, Abbas AY. Acute and sub-acute toxicity studies of crude extract of Albizzia chevalieri Harms (Leguminosae). Asian J Biochemistry 2007; 2: 224-236.

62. Feres CAO, Madalosso RC , Rocha OA, Leite JPV, Guimaraes TMDP, Toledo VPP, Tagliati CA. Acute and chronic toxicological studies of Dimorphandra mollis in experimental animals. J Ethnopharmacol 2006; 108: 450–456.
63. Antihypertensive effect of an aqueous extract of the calyx of the *Hibiscus sabdariffa. Fitoterapia 78*: 292- 297.
64. Atlas, S.A., 2007. The renin-angiotensin aldosterone system: Pathophysiological role and pharmacologic inhibition. J. Manag. Care Pharm., 13: S9-S20.
65. Aunapuu, M., U. Pechter, W. Kuhnel, M. Ots and A. Arend, 2005. Morphological changes in experimental post ischemic rat kidney. A pilot study. Ann. of Anat., 187: 63-70.
Gulec, B., K. Coskun, K. Oner, A. Aydin and C. Yigitler *et al*., 2006. Effects of perfusion solutions on kidney ischemia-reperfusion injury in pigs. Transplant. Proc., 38: 371-374.
66. Barengo, N.C., Hu, G., Kastarinen, M., Lakka, T.A., Pekkarinen, H., Nissinen, A., and Tuomilehto, J. 2005. Low physical activity as a predictor for antihypertensive drug treatment in 25-64-year-old populations in Eastern and south-western Finland. Journal of Hypertension, 23, 293-299.
67. Cheng JWM 2008. Aliskiren: Renin Inhibitor for Hypertension Management. *Clin Ther 30*: 31-47.
68. Dickinson, H.O., Mason, J.M., Nicolson, D.J., Campbell, F., Beyer, F.R., Cook, J.V., Williams, B., and Ford, G.A. 2006. Lifestyle interventions to reduce raised blood pressure: a systematic review or randomized controlled trials. Journal of Hypertension, 24, 215-233.
69. Hart PD et al: Hypertension control rates: time for translation of guidelines into clinical practice. Am J Med 2004;117: 62.
70. Kaplan NM et al: *Clinical Hypertension,* 8th ed. Lippincott Williams & Wilkins, 2002.
71. Kotchen TA 2008. Hypertensive vascular disease. In: Fauci AS, Braunwald E, Kasper DL, Hauser SL, Longo DL, Jameson JL, Loscalzo J Eds. *Principles of internal medicine.* McGraw Hill: USA, p.1549-62.
72. Mojiminiyi FBO, Dikoo M, Muhammad BY, Ojobor PD, Ajagbonna OP, Okolo RU, Igbokwe UV, Mijiminiyi UE, Fagbemi ME, Bello SO, Anga TJ 2007.
73. Sakat, S.S., S.S. Wankhede, A.R. Juvekar, V.R. Mali and S.L. Bodhankar, 2009. Antihypertensive effect of aqueous extract of *Elaeocarpus ganitrus* Roxb. seeds in renal artery occluded hypertensive rats. Int. J. PharmTech Res., 1: 779-782.
74. Sheridan S et al: Screening for high blood pressure: a review of the evidence for the U.S. Preventive Services Task Force. Am J Prev Med 2003;25:151.
75. Stefanadis, C., A. Manolis, J. Dernellis, C. Tsioufis and E. Tsiamis *et al*., 2001. Acute effect of clonidine on left ventricular pressure–volume relation in hypertensive patients with diastolic heart dysfunction. J. Hum. Hypertens, 15: 635-642.
76. Turner RA 1965. *Screening Methods in Pharmacology*. Academic press: New York.

77. Vogel, G.H. and W.H. Vogel, 1997. Cardiovascular Activity: Drug Discovery and Evaluation: Pharmacological Assays. 2nd Edn., Springer, USA., Pages: 172.
78. Zhang, L., M. Yang, Y. Song, Z. Sun, Y. Peng, K. Qu and H. Zhu, 2009. Antihypertensive effect of 3,3,5,5-tetramethyl-4-piperidone, a new compound extracted from Marasmius androsaceus. J. Ethnopharmacol., 123: 34-39.

79. Compendium Indian Medicinal Plants – P.No: 569. A Compendium of 500 Specierrs, Vol – 3 Rastosi & Mehrutra, PID , New Delhi – 1993.
80. Davidson's Principles and Practice of Medicine. 20th Edition By Nicholos A. Boon. International Editor John A.A. Hunter.
81. Fundamental of Bio-Chemistry for Medical student. P.No: 459.
82. Hutchinson's Clinical Methods . 402, 11-12, 79, P.No: 230, 285, 286, 222, 261.
83. Illustrated Indian Medicinal Plants Vol – 4, P.No: 57. Kitikar and Basu, Satguru Publication, Delhi.
84. LD CRC Hand book of Ayur medicinal plants
85. Manual of Practical Medicine. P.No: 485, 497. Dr. R. Alagappan.
86. Medical Physiology. Prof. Guyton. MD.
87. Pathologic basic of Disease. Dr. Robins.
88. Practical Medicine – Prof. P.J. Mehta's P.No: 211, 182, 193, 277, 256, 212, 284, 236-239.
89. Text Book of Bio-Chemistry by SathyaNarayanah P.No: 449 to 455.
90. Text Book Of Medical bio-Chemistry - S. Ramakrishnan. P.No: 245.
91. Text Book of Medicine. Prof. K.V. Krishnadas.
92. Text Book of Medicine. Prof. P.C . Das. P.No : 382, 383, 396.
93. The Wealth of India – Volume -2 (218). A. Krishnamoorthi, Chief Editor, Publications Information directorate, CSIR, New Delhi – 1100112.
94. 1, Ojewole JAO. Studies on the Pharmacology of echitamine, an alkaloid from the stem bark of Alstonia boonei L (Apocynaceae). Int J Crude Drugs Res 1984:22:121-43.
95. American Psychiatric Association (APA), Diagnostic and Statistical Manual of Mental Disorders, ed 4. American Psychiatric Association, Washington, DC (1994).
96. Azuzu IU, Ananga AO. Pharmacological screening of the aqueous extract of Alstonia boonei stem bark. Fitoterapia 1991;62:411-7.

CLINICAL STUDY ON "THENNAM POO CHOORANAM" IN THE MANAGEMENT OF 'RAKTHA KOTHIPPU'

[OBSERVATION AND RESULTS]

S.N	Op.no	Name age/sex	Complaints		BP		Dur	Investigation[Blood]											Urine			Grade BP
									DC[%]			ESR		Hb	Su	Chl	Ur	Cr				
			B.T	A.T	B.T	A.T		TC cells	P	L	E	1/2hr	1hr						Alb	Su	Dep	
1	1901	Vasuki 42/F	Headache, Giddiness, Insomnia	Nil	138/94	110/80	42	10900 10960	62 60	35 36	3 4	5 10	11 10	10 11	98 89	178 165	28 26	0.8 0.7	Nil Nil	Nil Nil	Nil Nil	Good
2	3215	Amirtharaj 63/M	Insomnia, Headache	Nil	158/96	120/80	56	9300 9800	55 50	41 46	4 4	10 8	12 10	10 12	128 124	196 184	24 20	0.6 0.6	Nil Nil	Nil Nil	OPC Nil	Good
3	3590	Chandrasekar 56/M	Fatigue , Palpitation, Giddiness	Palpitation	190/100	130/90	59	8000 9600	55 57	38 38	7 5	17 14	40 30	15.8 15	110 108	166 160	33 28	0.9 0.9	Nil Nil	Nil Nil	OPC Nil	Moderate
4	617	Alfoensa 43/F	Fatigue , Giddiness , Headache , Insomnia	Nil	150/94	120/80	56	9400 10200	57 62	38 34	5 4	12 4	20 15	10 10	96 94	138 136	18 18	0.4 0.4	Nil Nil	Nil Nil	OPC Nil	Good
5	1895	Thennappan 59/M	Insomnia , Giddiness , Headache	Nil	140/90	120/80	64	10800 10900	67 50	28 46	5 4	10 8	22 12	16 15	114 108	178 170	28 26	0.4 0.2	Nil NIl	Nil Nil	Nil Nil	Good
6	3274	Alli 41/F	Headache , Giddiness , Fatigue, Palpitation	Nil	160/100	120/80	56	9800 10200	68 60	29 36	5 4	18 14	26 20	15 15	124 128	140 138	28 18	0.9 0.6	Nil Nil	Nil Nil	OPC Nil	Good
7	5278	Chikandhar 52/M	No symptoms	-	150/110	120/80	56	9600 10200	59 67	36 32	5 1	16 12	20 18	10 10.2	120 126	184 168	23 18	0.4 0.2	Nil Nil	Nil Nil	OPC Nil	Good
8	1328	Jayachandran 37/M	Giddiness	Nil	162/90	110/80	59	10700 9900	66 59	28 37	6 4	10 17	33 28	15 15	88 92	180 186	32 30	0.5 0.4	Nil Nil	Nil Nil	Nil Nil	Good
9	7730	Vijaya 40/F	Insomnia Headache	Nil	140/100	120/80	60	9800 10500	60 60	36 35	4 5	15 16	20 20	12 16	100 114	196 198	23 24	0.6 0.4	Nil Nil	Nil Nil	Nil Nil	Good
10	7233	Krishnaveni 47/F	No symptoms	Nil	168/100	110/80	52	9400 10100	57 68	39 30	4 6	20 12	45 18	12 14	102 100	174 176	18 20	0.2 0.1	Nil Nil	Nil Nil	Nil Nil	Good

CLINICAL STUDY ON "THENNAM POO CHOORANAM" IN THE MANAGEMENT OF 'RAKTHA KOTHIPPU'

[OBSERVATION AND RESULTS]

S.N	Op.no	Name age/sex	Complaints		BP		Dur	Investigation[Blood]											Urine			Grade BP
									DC[%]			ESR		Hb	Su	Chl	Ur	Cr				
			B.T	A.T	B.T	A.T		TC cells	P	L	E	1/2hr	1hr						Alb	Su	Dep	
11	4424	Kannan 65/M	Headache, Insomnia	Nil	150/100	120/80	59	10700 9900	66 59	28 37	6 4	10 17	33 28	15 15	88 92	180 186	32 30	0.5 0.4	Nil Nil	Nil Nil	Nil Nil	Good
12	5451	Saraswathi 56/F	No symptoms	Nil	150/90	120/80	52	10000 9840	68 60	27 37	5 3	4 7	12 15	11 12	127 119	193 181	28 22	0.1 0.1	Nil Nil	Nil Nil	FEC Nil	Moderate
13	824	Arunachalam 67/M	No symptoms	Nil	180/110	120/90	56	10400 10100	65 59	32 37	3 4	9 12	23 22	11 11	125 110	195 181	28 22	0.1 0.1	Nil Nil	Nil Nil	Nil Nil	Good
14	3135	Baskaran 55/M	Fatigue , Giddiness	Nil	170/118	120/90	56	9400 9300	54 60	32 37	6 3	22 10	22 36	10 11.5	123 136	124 140	28 20	0.8 0.6	Nil Nil	Nil Nil	OPC Nil	Moderate
15	4581	Jayasri 32/F	No symptoms	Nil	150/90	120/80	59	9600 10200	59 67	36 32	5 1	6 11	15 24	10 10.5	120 128	185 188	25 18	0.4 0.6	Nil NIl	Nil Nil	OPC Nil	Good
16	2125	Senthilkumar 58/M	No symptoms	Nil	140/110	140/100	49	10000 9800	60 67	32 31	8 2	10 16	12 25	11 10.5	120 98	180 174	20 18	1.0 0.6	Nil Nil	Nil Nil	FEC Nil	Mild
17	7119	Bala 40/M	No symptoms	-	170/100	120/70	52	10000 9800	68 60	27 37	5 3	4 7	12 15	12 12.5	127 119	193 181	28 22	0.6 0.4	Nil Nil	Nil Nil	Nil Nil	Good
18	9432	Selvakumar 42/M	Insomnia	Nil	156/110	120/94	48	10400 10100	65 59	32 37	3 4	9 12	23 22	11 11	125 110	195 188	29 20	0.8 0.4	Nil Nil	Nil Nil	Nil Nil	Moderate
19	3322	Lakshmi 50/F	Fatigue , Giddiness, Palpitation	Nil	168/114	120/80	56	9400 10000	61 63	34 34	5 3	2 9	3 16	11 10.5	103 98	210 196	19 24	0.6 0.6	Nil Nil	Nil Nil	OPC Nil	Good
20	5750	Mahalakshmi 59/F	No symptoms	Nil	148/110	120/80	52	10100 9800	65 62	32 34	3 6	12 18	20 32	10.5 11	118 128	176 192	18 24	0.8 0.7	Nil Nil	Nil Nil	Nil Nil	Good

CLINICAL STUDY ON "THENNAM POO CHOORANAM" IN THE MANAGEMENT OF 'RAKTHA KOTHIPPU'
[OBSERVATION AND RESULTS]

S.N	Op.no	Name age/sex	Complaints		BP		Dur	Investigation[Blood]											Urine			Grade BP
								TC cells	DC[%]			ESR		Hb	Su	Chl	Ur	Cr				
			B.T	A.T	B.T	A.T			P	L	E	1/2hr	1hr						Alb	Su	Dep	
21	9726	Muruganantham 60/M	Palpitation, Breatheless Ness, Giddiness	Nil	150/110	120/90	56	10600 10300	62 60	35 36	6 4	8 11	20 24	11 10.5	110 120	196 178	24 23	0.6 0.4	Nil Nil	Nil Nil	Nil Nil	Mod
22	1478	Gopal 62/M	Insomnia, Headache, Fatigue , Giddiness	Giddiness	148/98	120/80	54	9800 9600	60 65	36 30	4 5	15 14	20 16	12 12	100 116	200 183	22 18	1.2 0.8	Nil Nil	Nil Nil	OPC Nil	Good
23	3323	Devika 45/F	No symptoms	Nil	174/100	130/190	56	10200 10000	62 64	31 30	7 6	5 2	9 6	12 10.5	87 110	186 192	25 20	0.6 0.4	Nil Nil	Nil Nil	Nil Nil	Mod
24	5259	Manokar 42/M	Insomnia	Insomnia	138/100	120/80	59	9800 10000	50 56	46 38	4 6	10 9	20 15	10 10	130 134	180 168	20 17	0.8 0.7	Nil Nil	Nil Nil	FEC Nil	Mod
25	3657	Rajesh 37/M	Insomnia , Giddiness , Palpitation, Fatigue	Palpitation	190/110	130/90	56	8900 9800	49 60	44 37	7 3	10 10	18 36	9.5 11.5	123 136	128 140	24 20	0.7 0.6	Nil NIl	Nil Nil	Nil Nil	Mod
26	7308	Jaganathan 60/M	Giddiness , Fatigue, Insomnia	Nil	170/100	140/190	60	10200 10400	62 67	30 32	8 1	15 18	6 14	10 10.5	125 118	184 178	29 20	0.9 0.8	Nil Nil	Nil Nil	FEC Nil	Mod
27	295	Kamalkannan 65/M	Giddiness , Headache	Headache	180/100	140/90	56	9600 9800	50 60	46 36	4 4	10 9	20 40	10 10.5	130 134	180 168	20 17	1.1 0.8	Nil Nil	Nil Nil	OPC Nil	Mod
28	9631	Sundarajan 52/M	No symptoms	Nil	148/90	128/80	49	10100 9800	65 62	32 34	3 6	12 18	20 32	10.5 11	118 128	176 192	18 24	0.4 0.4	Nil Nil	Nil Nil	FEC Nil	Good

CLINICAL STUDY ON "THENNAM POO CHOORANAM" IN THE MANAGEMENT OF 'RAKTHA KOTHIPPU'
[OBSERVATION AND RESULTS]

29	5975	Suresh 36/M	Insomnia Palpitation Giddiness Fatigue	Nil	138/92	110/70	49	9900 10100	60 67	34 32	6 1	8 11	20 24	11 10.5	110 120	196 178	24 23	0.9 0.6	Nil Nil	Nil Nil	Nil Nil	Good
30	1249	Vasukhi 43/F	Insomnia	Nil	150/100	110/80	56	9200 9600	57 60	38 35	5 5	11 16	28 20	10 10	138 136	183 118	29 25	0.6 0.5	Nil Nil	Nil Nil	Nil Nil	Good
31	1443	Anela 52/F	Insomnia Giddiness Headache	Headache	190/110	150/90	56	10500 10700	60 63	35 31	5 6	10 12	28 26	10.5 10	130 125	180 190	20 28	0.9 1.0	Nil Nil	Nil Nil	FEC Nil	Mild
32	1305	Perumal 48/M	No sympotoms	Nil	158/104	110/80	66	10200 10500	62 64	31 30	7 6	5 2	9 6	12 12.5	87 110	186 170	25 20	0.4 0.2	Nil Nil	Nil Nil	OPC Nil	Good
33	5927	Jeenath 50/M	No symptoms	Nil	160/100	110/90	56	9600 9800	62 67	30 32	8 1	15 18	6 14	10 10.5	125 118	184 178	20 18	0.6 0.1	Nil Nil	Nil Nil	Nil Nil	Mode
34	363	Nagendiran 47/M	Giddiness	Nil	160/98	120/80	49	9000 9400	54 68	41 40	5 2	11 5	20 30	8.5 9	120 84	183 154	19 20	0.8 0.7	Nil Nil	Nil Nil	OPC Nil	Good
35	7288	Krishnaveni 49/F	Fatigue , Giddiness Insomnia	Giddiness	168/120	130/90	42	10600 10400	62 60	33 36	5 4	12 14	25 26	11 11	110 98	178 182	24 28	0.6 0.4	Nil Nil	Nil Nil	Nil Nil	Mode
36	5451	Saraswathi 56/F	Giddiness Fatigue	Giddiness	180/100	130/80	56	10700 10500	62 60	32 37	6 3	22 10	22 36	10.5 11.5	123 136	128 140	21 28	1.1 0.9	Nil NIl	Nil Nil	Nil Nil	Good
37	283	Isaikiyammal 55/F	Giddiness Insomnia Fatigue Headache	Fatigue Headache	150/110	120/80	52	9200 9300	60 66	34 30	6 4	7 10	12 25	11 12	89 100	150 154	21 17	0.8 0.6	Nil Nil	Nil Nil	Nil Nil	Good
38	5144	Balan 49/M	Giddiness	-	138/90	140/70	42	10200 10400	63 59	31 38	6 3	12 21	7 15	10 11	95 117	169 147	18 16	0.8 0.9	Nil Nil	Nil Nil	Nil Nil	Good
39	2987	Govindammal 40/F	Palpitation Breatheless Ness	Palpitation	154/90	110/80	56	9900 10100	59 60	35 36	6 4	11 10	20 30	10.5 10.5	120 118	182 186	24 22	1.1 1.0	Nil Nil	Nil Nil	Nil Nil	Good

CLINICAL STUDY ON "THENNAM POO CHOORANAM" IN THE MANAGEMENT OF 'RAKTHA KOTHIPPU'
[OBSERVATION AND RESULTS]

40	2031	Thannegasalam 55/M	No symptoms	Nil	190/120	130/100	69	9800 9400	60 65	36 30	4 5	15 14	20 16	12 12	100 116	200 183	22 18	0.6 0.1	Nil Nil	Nil Nil	FEC Nil	Mod
41	5418	Kasthuri 60/F	No symptoms	Nil	170/90	120/80	49	10100 10108	55 60	41 34	4 6	22 18	48 30	10 11.5	147 127	179 192	26 20	0.9 0.1	Nil Nil	Nil Nil	Nil Nil	Good
42	4346	Kannammal 43/F	Giddiness Palpitation Fatigue	Nil	160/94	130/80	56	9600 9800	65 59	32 37	3 4	9 12	23 22	11 11	125 110	196 188	29 20	0.6 0.4	Nil Nil	Nil Nil	OPC Nil	Good

CLINICAL STUDY ON "THENNAM POO CHOORANAM" IN THE MANAGEMENT OF 'RAKTHA KOTHIPPU'

[OBSERVATION AND RESULTS]

S.N	IP.no	Name age/sex	Complaints		BP		Dur	Investigation[Blood]											Urine			Grade BP
									DC[%]			ESR		Hb	Su	Chl	Ur	Cr				
			B.T	A.T	B.T	A.T		TC cells	P	L	E	1/2hr	1hr						Alb	Su	Dep	
1	4518	Panjali 56/F	Fatigue , Giddiness, Insomnia	Fatigue	170/100	130/84	56	10600 10400	62 60	34 36	4 4	5 10	11 5	11 10	89 100	192 180	22 20	0.8 0.7	Nil Nil	Nil Nil	OPC Nil	Good
2	5472	Kumar 38/M	Giddiness	Nil	160/118	130/86	49	9000 9400	54 68	41 40	5 2	11 5	20 30	8.5 9	120 84	183 154	19 20	0.4 0.6	Nil Nil	Nil Nil	Nil Nil	Good
3	1969	Raju 58/M	Insomnia, Palpitation, Giddiness	Nil	160/100	130/80	52	9100 9800	63 60	30 37	7 3	15 15	15 32	11 12	233 124	129 128	29 18	1.0 0.6	Nil Nil	Nil Nil	Nil Nil	Good
4	9109	Chinnadurai 45/M	No symptoms	Nil	150/118	120/80	56	9200 10600	54 60	32 37	6 3	22 10	22 36	10.5 11.5	123 136	128 140	24 20	1.1 0.9	Nil Nil	Nil Nil	OPC Nil	Good
5	4995	Kunchulakshmi 60/F	Insomnia , Fatigue, Breatheless Ness	Insomnia	170/118	140/96	42	10100 10200	58 69	36 30	6 5	10 12	6 28	9 10.5	125 112	174 196	23 20	0.6 0.6	Nil NIl	Nil Nil	FEC Nil	Mod
6	1614	T.R.Ganesan 70/M	Insomnia , Giddiness	Nil	148/94	120/86	42	9800 9700	57 55	38 40	5 5	20 15	44 30	11 10	103 102	185 180	24 20	1.0 0.8	Nil Nil	Nil Nil	OPC Nil	Good
7	9353	Arumugam 45/M	No symptoms	Nil	150/110	120/80	56	9900 10100	57 61	38 33	5 5	5 7	12 18	11 11	83 103	159 131	14 17	0.8 0.6	Nil Nil	Nil Nil	OPC Nil	Good
8	4884	Jayalakshmi 52/F	Giddiness, Fatigue , Headache	Headache	150/118	110/80	49	10200 11000	59 60	36 33	5 7	12 10	25 23	10.5 11	130 128	210 200	26 18	1.1 0.9	Nil Nil	Nil Nil	OPC Nil	Good
9	5029	Parvathi 75/f	Fatigue	Nil	190/110	136/94	42	9500 9700	57 60	38 33	5 5	4 19	9 15	7 8.5	82 104	180 176	32 29	0.6 0.5	Nil Nil	Nil Nil	OPC Nil	Mod
10	6407	Govindasamy 56/M	Insomnia	Nil	140/90	120/80	42	10200 10100	61 58	34 40	5 2	11 9	24 21	12 11	116 98	165 182	18 19	0.4 0.6	Nil Nil	Nil Nil	OPC Nil	Good

Sl. No.	Op. .No.	Name age & sex	Complaints		Duration	Investigation														Escopy	Results
			BT	AT		BT AT	TC	DC			ESR		Hb	Su	Ur	Chl	Al	Su	Dep		
								P	L	E	½ hr	1 hr									
1	2839	Senthilkumar 32/M	Epigastric pain, Heart burn, Regurgitation, vomiting,	Nil	3.9.11 To 28.10.11		9800	59	37	4	7	12	10.8	81	24	159	NIL	NIL	FPC	-	Good
							9800	59	37	4	7	12	11	83	21	162	NIL	NIL	NIL		
2	2558	Umamaheswari 22/F	Epigastric pain, Regurgitation, constipation	Nil	2.9.11 To 19.10.11		9400	56	39	5	16	32	10.4	138	25	163	NIL	NIL	PCS	-	Good
							9400	56	39	5	10	20	10.5	135	22	161	NIL	NIL	NIL		
3	2743	Yogeshwari 32/F	Epigastric pain, Heart burn, vomiting, Feeling of Fullness	Vomiting, Heart burn	3.9.11 To 28.10.11		10200	63	34	3	4	8	13	110	20	171	NIL	NIL	NIL	BD Normal	Good
							9800	63	35	2	4	8	13	110	12	168	NIL	NIL	NIL		
4	1870	Manivannan 56/M	Epigastric pain, Heart burn, Hunger &Empty Feeling	Epigastric pain	30.8.11 To 28.10.11		10700	64	31	5	12	25	10	100	19	169	NIL	NIL	PCS	-	Poor
							10500	65	32	3	12	20	10	98	20	167	NIL	NIL	FPC		
5	2933	Thirupathi Rao 35/M	Epigastric pain, Heart burn, water brash, constibation	Nil	3.9.11 To 8.11.11		8200	62	35	3	5	10	12	118	23	158	NIL	NIL	FPC	-	Good
							8400	64	34	2	5	10	12	116	21	160	NIL	NIL	NIL		

Sl. No.	Op. .No.	Name age & sex	Complaints		Duration	Investigation														Escopy	Results
			BT	AT		BT AT	TC	DC			ESR		Hb	Su	Ur	Chl	Al	Su	Dep		
								P	L	E	½ hr	1 hr									
6.	8452	Ramasamy 35/M	Upper abdominal pain, Regurgitation, constibation	Regurgitation,	19.9.11 To 20.11.11		9000	52	44	4	14	20	9.2	90	19	148	NIL	NIL	PCS	-	Good
							9000	52	44	4	12	20	9.2	90	21	143	NIL	NIL	NIL		
7.	275	Shankari 53/F	Epigastric pain, Heart burn, Water brash, vomiting,	Nil	24.9.11 To 21.11.11		9100	58	37	5	12	20	10.4	103	24	167	NIL	NIL	NIL	-	Good
							9100	58	37	5	12	20	10.6	102	22	164	NIL	NIL	NIL		
8.	249	Salma 47/F	Epigastric pain, Heart burn, constipation. Hunger pain	Nil	24.9.11 To 25.11.11		9400	57	38	5	15	33	10.8	94	23	159	NIL	NIL	FPC	-	Good
							9400	57	38	5	15	30	11	94	20	167	NIL	NIL	NIL		
9.	1860	Shanthi 30/F	Feeling of fullness,Heart burn, Regurgitation, vomiting	Vomiting	26.9.11 To 18.11.11		7900	55	39	6	4	8	8.6	113	21	161	NIL	NIL	NIL	-	Good
							7800	55	39	6	4	8	8.7	110	18	157	NIL	NIL	NIL		
10.	847	Batsha 47/M	Epigastric pain, Heart burn, Regurgitation, vomiting, Hunger feeling.	Nil	28.9.11 To 5.11.11		8000	52	43	5	3	6	8.6	89	19	142	NIL	NIL	FPC	-	Good
							8000	52	43	5	3	6	8.6	89	20	140	NIL	NIL	NIL		

Sl. No.	Op. .No.	Name age & sex	Complaints		Duration	Investigation														Escopy	Results
			BT	AT		BT AT	TC	DC			ESR		Hb	Su	Ur	Chl	Al	Su	Dep		
								P	L	E	½ hr	1 hr									
11.	8451	Valli 28/F	Epigastric pain, Heart burn, vomiting, Feeling of Fullness	Nil	29.9.11 To 24.11.11		9000	59	38	3	5	10	10	100	23	147	NIL	NIL	NIL	-	Good
							9200	60	37	3	5	10	10	100	21	149	NIL	NIL	NIL		
12.	1861	Anbarasan 35/M	Epigastric pain, Heart burn, Hunger &Empty Feeling	Nil	2.10.11 To 15.11.11		8400	68	29	3	6	12	12	113	19	159	NIL	NIL	PCS	-	Good
							8300	68	29	3	6	12	12	108	20	165	NIL	NIL	FPC		
13.	3924	Murugeshwari 38/F	Epigastric pain, Heart burn, water brash, constibation	Vomiting, Heart burn	4.10.11 To 12.12.11		8200	56	39	5	14	30	12	130	21	163	NIL	NIL	PCS	-	Moderate
							8300	59	39	2	10	20	12	118	18	162	NIL	NIL	FPC		
14.	6338	Ananthapriya 28/F	Upper abdominal pain, Regurgitation, constibation	Nil	11.10.11 To 12.12.11		8500	69	25	6	10	20	10	89	24	168	NIL	NIL	FPC	-	Good
							8500	65	30	5	10	24	10	89	21	166	NIL	NIL	NIL		
15.	3976	Alamelu 46/F	Epigastric pain, Heart burn, Water brash, vomiting,	Nil	11.10.11 To 13.12.11		8700	63	33	4	10	15	9	98	22	159	NIL	NIL	NIL	-	Good
							8500	65	32	3	6	12	10	93	18	158	NIL	NIL	NIL		

Sl. No.	Op. .No.	Name age & sex	Complaints		Duration	Investigation														Escopy	Results
			BT	AT		BT AT	TC	DC			ESR		Hb	Su	Ur	Chl	Al	Su	Dep		
								P	L	E	½ hr	1 hr									
16.	2465	Ganagavalli 38/Female	Epigastric pain, Heart burn, Regurgitation, vomiting,	Regurgitation,	12.10.11 To 14.12.11		8000	57	40	3	6	12	12	120	33	166	NIL	NIL	PCS	-	Good
							9400	60	36	4	4	10	15	100	24	150	NIL	NIL	NIL	Normal	
17.	6339	Prakash 26/M	Epigastric pain, Heart burn, Regurgitation, constipation	Nil	13.10.11 To 23.12.11		8500	58	40	2	15	25	12	85	21	159	NIL	NIL	FPC	-	Good
							8500	59	39	3	14	24	12	85	19	155	NIL	NIL	NIL		
18.	7173	Anjali 34/F	Epigastric pain, Heart burn, vomiting, Feeling of Fullness	Nil	13.10.11 To 8.12.11		8400	56	38	6	10	15	14	90	20	173	NIL	NIL	FPC	-	Good
							8400	56	38	6	10	15	14	90	18	168	NIL	NIL	NIL		
19.	7143	Rajan 45/M	Epigastric pain, Heart burn, Hunger &Empty Feeling	Vomiting	14.10.11 To 9.12.11		9800	54	42	4	3	6	9.4	87	23	164	NIL	NIL	FPC	-	Good
							9800	54	42	4	3	6	9.6	87	19	153	NIL	NIL	NIL		
20.	9244	Rajammal 38/F	Epigastric pain, Heart burn, water brash, constibation	Nil	19.10.11 To 18.12.11		9100	58	39	3	28	53	11.2	91	21	160	NIL	NIL	NIL	-	Moderate
							9100	58	39	3	25	40	11.3	91	23	158	NIL	NIL	NIL		

Sl. No.	Op. .No.	Name age & sex	Complaints		Duration	Investigation														Escopy	Results
			BT	AT		BT AT	TC	DC			ESR		Hb	Su	Ur	Chl	Al	Su	Dep		
								P	L	E	½ hr	1 Hr									
21.	523	Prabu 47/M	Upper abdominal pain,Heart burn, Regurgitation, constibation	Nil	22.10.11 To 21.12.11		8700	59	33	8	11	20	15	99	16	170	NIL	NIL	PCS	-	Good
							8900	59	35	6	11	20	15	98	19	171	NIL	NIL	NIL		
22.	2159	Sakthi 24/F	Epigastric pain, Heart burn, Water brash, vomiting,	Nil	29.10.11 To 21.12.11		9400	53	41	6	4	10	13	72	21	168	NIL	NIL	NIL	-	Good
							9600	55	41	4	4	10	13	72	20	161	NIL	NIL	NIL		
23.	2156	Kumari 29/F	Epigastric pain, Heart burn, constipation. Hunger pain	Vomiting, Heart burn	29.10.11 To 21.12.11		7600	55	34	6	10	20	9	113	23	171	NIL	NIL	FPC	-	Good
							7600	55	34	6	10	20	9	109	19	165	NIL	NIL	NIL		
24.	1918	Anbu 28/M	Feeling of fullness,Heart burn, Regurgitation,	Nil	30.10.11 To 16.12.11		8500	57	38	5	5	10	11	109	18	160	NIL	NIL	NIL	-	Moderat
							8500	57	38	5	5	10	11	109	20	168	NIL	NIL	NIL		
25.	1916	Prabha 28/F	Epigastric pain, Heart burn, Regurgitation, vomiting, Hunger feeling.	Nil	30.10.11 To 18.12.11		8400	58	39	3	15	20	12	98	26	158	NIL	NIL	FPC	-	Good
							8400	58	39	3	15	20	12	96	23	160	NIL	NIL	NIL		

Sl. No.	Op. .No.	Name age & sex	Complaints		Duration	Investigation														Escopy	Results
			BT	AT		BT AT	TC	DC			ESR		Hb	Su	Ur	Chl	Al	Su	Dep		
								P	L	E	½ hr	1 hr									
26.	1915	Moorthi 28/M	Epigastric pain, vomiting, Feeling of Fullness	Vomiting	28.10.11 To 15.12.11		10800	62	34	4	7	12	11.4	106	21	160	NIL	NIL	PCS	-	Good
							10300	62	34	4	7	14	11.5	106	20	162	NIL	NIL	FPC		
27.	527	Priyadharshini 29/F	Epigastric pain, Heart burn, Hunger &Empty Feeling	Epigastric pain	29.10.11 To 10.12.11		9800	63	34	3	12	20	13	96	18	157	NIL	NIL	PCS	-	Good
							9800	63	34	3	10	20	13	96	21	160	NIL	NIL	NIL		
28.	1914	Dhiviyarani 24/F	Epigastric pain, water brash, constibation	Nil	29.10.11 To 16.12.11		10500	62	34	4	6	12	11.4	87	21	162	NIL	NIL	FPC	-	Good
							10300	62	34	4	6	12	11.6	89	19	159	NIL	NIL	NIL		
29.	1917	Krishnan 32/M	Upper abdominal pain,Heart burn, Regurgitation, constibation	Regurgitation	30.10.11 To 18.12.11		9800	58	37	5	3	8	12	89	24	158	NIL	NIL	PCS	-	Mod
							9800	58	37	5	3	8	12	91	21	161	NIL	NIL	FPC		
30.	2155	Chinnasamy 26/M	Epigastric pain, Heart burn, Water brash, vomiting,	Nil	31.10.11 To 21.12.11		10700	63	34	3	12	20	14	87	22	153	NIL	NIL	NIL	-	Good
							10200	63	34	3	10	20	14	87	18	155	NIL	NIL	NIL		

Sl. No.	Op. No.	Name age & sex	Complaints		Duration	Investigation															Escopy	Results
			BT	AT		BT AT	TC	DC			ESR		Hb	Su	Ur	Chl	Al	Su	Dep			
								P	L	E	½ hr	1 hr										
31.	522	Ahammed 35/M	Epigastric pain, Heart burn, Regurgitation, vomiting,	Nil	22.10.11 To 5.12.11		10700	64	30	6	10	20	12	120	31	165	NIL	NIL	PCS		-	Mild
							10200	64	32	4	10	20	12	118	30	163	NIL	NIL	FPC			
32.	3506	Jayachandran 37/M	Epigastric pain, Heart burn, Regurgitation, constipation	Nil	3.11.11 To 18.12.11		9400	59	36	5	20	43	10.6	92	24	158	NIL	NIL	NIL		-	Good
							9600	59	36	5	20	40	10.8	92	22	160	NIL	NIL	NIL			
33.	3964	Thangam 37/F	Epigastric pain, Heart burn, vomiting, Feeling of Fullness	Vomiting, Heart burn	3.11.11 To 18.12.11		8700	59	38	3	10	15	10	105	19	170	NIL	NIL	FPC		-	Poor
							8700	59	38	3	10	15	10	102	21	169	NIL	NIL	NIL			
34.	3960	Renuka 46/F	Epigastric pain, Heart burn, vomiting, Feeling of Fullness	Epigastric pain	4.11.11 To 19.12.11		8400	52	38	10	8	11	11	109	28	164	NIL	NIL	NIL		-	Good
							8400	56	40	4	8	12	11	107	26	159	NIL	NIL	NIL			
35.	4473	Rahamat Bee 55/F	Epigastric pain, Heart burn, water brash, constibation	Nil	5.11.11 To 16.12.11		8400	53	40	7	22	52	8.8	89	19	159	NIL	NIL	PCS		-	Moderate
							8400	55	40	5	10	20	9	86	22	160	NIL	NIL	FPC			

Sl. No.	Op. .No.	Name age & sex	Complaints		Duration	Investigation														Escopy	Results
			BT	AT		BT AT	TC	DC			ESR		Hb	Su	Ur	Chl	Al	Su	Dep		
								P	L	E	½ hr	1 Hr									
36.	5428	Manoharan 48/Male	Upper abdominal pain,Heart burn, Regurgitation, constibation	Regurgitation,	9.11.11 To 14.12.11		9800	60	37	3	5	10	15	99	16	170	NIL	NIL	PCS	-	Good
							9700	60	38	2	5	10	15	98	19	171	NIL	NIL	NIL		
37.	5433	Baby 20/Female	Epigastric pain, Water brash, vomiting,	Nil	9.11.11 To 14.12.11		9600	57	41	2	7	14	13	72	21	168	NIL	NIL	PCS	-	Good
							9700	57	41	2	7	14	13	72	20	161	NIL	NIL	NIL		
38.	5722	Geetha 29/Female	Epigastric pain, Heart burn, constipation. Hunger pain	Nil	10.11.11 To 18.12.11		10200	62	34	4	8	15	9	113	23	171	NIL	NIL	FPC	-	Good
							9800	60	35	5	8	16	9	109	19	165	NIL	NIL	NIL		
39.	5974	Rajan 35/Male	Feeling of fullness,Heart burn, Regurgitation, vomiting	Vomiting	10.11.11 To 19.12.11		9800	60	35	5	7	14	11	109	18	160	NIL	NIL	FPC	-	Good
							9100	60	36	4	7	15	11	109	20	168	NIL	NIL	NIL		
40.	5707	Palani 33/Male	Epigastric pain, Heart burn, Regurgitation, vomiting, Hunger feeling.	Nil	10.11.11 To 21.11.11		9200	58	39	3	4	8	12	98	26	158	NIL	NIL	NIL	-	Mild
							9100	60	37	3	4	8	12	96	23	160	NIL	NIL	NIL		

CLINICAL STUDY ON G.N.M IN, IN-PATIENTS DEPT.IN THE MANAGEMENT OF GUNMAM

Sl. No.	Ip. .No.	Name age & sex	Complaints		Duration	Investigation														Escopy	Results
			BT	AT		BTAT	TC	DC			ESR		Hb	Su	Ur	Chl	Al	Su	Dep		
								P	L	E	½ hr	1 hr									
1	7739	Govindharaj 47/Male	Upper abdominal pain,Heart burn, constibation	Nil	18.8.11 To 27.8.11		9600	60	36	4	7	14	8.6	107	19	157	NIL	NIL	NIL	-	Mild
							9200	59	38	3	7	14	9	102	16	155	NIL	NIL	NIL		
2	3371	Murugasan 75/Male	Epigastric pain, Heart burn, Water brash, vomiting,	Nil	5.9.11 To 6.10.11		9000	60	37	3	6	12	10	115	23	167	NIL	NIL	PCS	-	Good
							8900	60	38	2	5	10	11	112	21	163	NIL	NIL	NIL		
3	5475	Vijayan 50/Male	Epigastric pain, Heart burn, constipation. Hunger pain	Heart burn	9.11.11 To 5.12.11		9200	58	39	3	7	16	11	100	26	159	NIL	NIL	PCS	-	Mild
							9200	56	41	3	7	14	11	97	24	161	NIL	NIL	FPC		
4	1643	Thiripura sundhari 45/Female	Feeling of fullness,Heart burn, Regurgitation, vomiting	Regurgitation	25.11.11 To 17.12.11		10200	62	36	2	10	20	8.7	98	16	162	NIL	NIL	NIL	-	Good
							9700	60	36	4	10	20	9	92	17	159	NIL	NIL	NIL		
5	4355	Srideevi 33/Female	Epigastric painRegurgitation, vomiting, Hunger feeling.	Nil	22.11.11 To 16.11.11		8400	52	41	7	25	54	9	90	22	159	NIL	NIL	PCS	-	Poor
							8300	55	41	4	15	25	9	92	20	158	NIL	NIL	FPC		

SI NO	IP. No	Name/ Age/ Sex	Complaints		Duration	BT AT	INVESTIGATION														Results
							BLOOD									Bl	Urine				
							TC	DC (%)			ESR(mm)		Hb gm	Sr	Ur		Sgr	Alb	Dep		
			BT	AT				P	L	E	½ hr	1 hr									
6.	2597	Avabee 44/Female	Epigastric pain, Heart burn, vomiting, Feeling of Fullness	Regurgitation,	28.11.11 To 18.12.11		8000	60	36	4	8	16	10.5	90	22	163	NIL	NIL	PCS	-	Good
							7500	59	37	4	4	8	10.8	85	20	155	NIL	NIL	NIL		
7.	6470	Gangadharan 55/Female	Epigastric pain, Heart burn, Hunger &Empty Feeling	Nil	4.12.11 To 29.12.11		7800	55	41	4	10	20	9.5	108	21	159	NIL	NIL	FPC	-	Good
							7400	58	38	4	7	14	10	102	17	151	NIL	NIL	NIL		
8.	6531	Jamela 48/Female	Epigastric pain, water brash, constibation	Nil	5.12.11 To 30.12.10		9800	58	37	5	5	10	11	106	20	168	NIL	NIL	FPC	-	Moderate
							9500	59	38	3	5	10	11.5	102	18	162	NIL	NIL	NIL		
9.	4770	Mohana 55/Female	Upper abdominal pain,Heart burn, Regurgitation, constibation	Vomiting	5.12.11 To 28.12.11		9300	61	36	3	3	6	9	104	23	165	NIL	NIL	FPC	-	Good
							9000	60	36	4	4	8	9.5	98	20	159	NIL	NIL	NIL		
10.	7071	Rani 45/Female	Epigastric pain, Heart burn, Water brash, vomiting,	Nil	10.12.11 To 29.12.11		8600	57	39	4	5	10	8.7	94	21	163	NIL	NIL	NIL	-	Good
							8400	58	38	4	4	8	9	90	19	158	NIL	NIL	NIL		