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Analgesic, Anti-Pyretic and Anti-Inflammatory Activity of *Cassytha filiformis*

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Abstract
The present study was undertaken to evaluate The Analgesic, Antipyretic, Anti-inflammatory activity of *Cassytha filiformis*. The analgesic activity of *Cassytha filiformis* Chloroform, methanol extracts (200mg, 400 mg) was studied by using Haffner 's tail clip method in rats and Tail immersion method in mice. The antipyretic activity was studied in Brewer 's yeast induced pyrexia in rats. The anti-inflammatory activity was studied in carrageenan induced rat paw odema method in western rats. The chloroform, methanol extracts of *Cassytha filiformis* produced significant increase in the reaction time by Haffner 's Tail clip method and tail immersion method in rats and mice. Which was compared with standard Diclofenac sodium. The extracts (chloroform, methanol) shows significant increase in the reaction in the elevated body temperature of rat. Which was compared with standard paracetamol. The extracts (chloroform, methanol) shows significant decrease in the reaction of odema, inflammation in carragenan induced rats. Which was compared with standard Diclofenac sodium.

Keywords
Chloroform methanol extract of *Cassytha filiformis*, analgesic , anti-pyretic , anti-inflammatory , pyrexia , carragenan induced paw odema method, Tail immersion method , Haffener ' s tail clip method, anti-pyretic testing in rats.

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INTRODUCTION:

ANALGESIC

Analgesic can be defined as the reduced awareness to the pain. The analgesic property of a compound can be studied in animals by noting the reaction time to the painful stimuli. In general, analgesics fall in to two broad categories.

The simple analgesics, such as aspirin, are most effective against pain of integument origin, headache, and muscle ache; the narcotics are more useful for deep or visceral pain. Narcotic analgesics such as morphine produce more profound effects than simple analgesics, and are potentially addicting, with the development of tolerance and physical dependence. The morphine-like analgesics appear to work through interaction with the endorphin/enkephalin system of the CNS; many, if not all of the simple, on-narcotic analgesics to work by inhibition of prostaglandin synthetase. The effect of narcotics is to elevate the pain threshold above the normal level; the non-narcotic analgesics are antagonized by compounds such as nalxone; the non-narcotic analgesics are not.

ANTIPYRETICS

Fever occurs when the body's internal "thermostat" raises the body temperature above it normal level.

This thermostatis found in the part of the brain called the hypothalamus knows the body temperature should be (usually around 98.6 Fahrenheit, or about 37 celsius) and will send messages to keep it that way. Fever is most accurately characterized as a temporary elevation in the body's thermoregulatory set-point, usually by about 1-2 C.

The elevation in thermoregulatory setpoint means that the previous "normal body temperature" is considered hypothermic, and effector mechanism kick in the fever is associated with cold sensetion, and an increase in heart rate, muscle tone and shivering attempt to counteract the preceived hypothermia, reaching the new thermoregulatory set-point. A fever is one of the bodies be it bacteria or a virus.

ANTI-INFLAMMATORY

Inflammation is usually regarded a pathological state however it is physiological response of the living tissue to injury, provided the injury is not of such a degree as to cause nercrosis (sell death) or loss of vitality. The response involves reaction in tissue cells, blood vessels and blood cells (WBCs) and it consists of a sequence of changes that have ultimate aim of destroying the causality agent and heating of wound. The clinical signs of inflammation are redness, swelling, heat and pain. Injury may be due to trauma, ligature (mechanical), heat, electricity, ultraviolet rays (physical factors), strong acid, alkalis, poison (chemical factors), bacteria, protozoa or fungi (living agents).

Inflammation may be of two types

1. Acute inflammation
2. Chronic inflammation

Acute inflammation is characterized by vascular phenomenon and exudation. Chronic inflammation is characterized by proliferative changes. Acute inflammation tasks for a short time and involves poly mono nuclear cells – chronic inflammation tasks for a longer time and involved by lymphocytes. When inflammatory cells are stimulates or damaged mediator system is generated i.e., eicsanoids. They are derived from arachidonic acids. Arachidoinic acid is derived from phospholipids through phospholipase A2. Steroidal drug act on this enzyme and prevents inflammation. Non-steroidal agent inhibits genesis of eicosanoids like prostacyclin, thromoboxanes and prostaglandins by inhibiting cyclo-oxygenase (COX-2). Another important factor in the mediation of inflammation is platelet acting factor (PAF) derived from inflammatory cells like neutrophils, macrophages, platelets. There are two COX enzymes COX-1 housekeeping enzyme involved in tissue homeostasis. COX-2 induced in inflammatory cells and produces mediators of inflammation. COX-3 recently been discovered.

PLANT PROFILE

Taxonomical classification of *Cassytha filiformis*

Kingdom	:	Plantae
Sub kingdom	:	Tracheobionta
Super divison	:	Spermatophyta
Division	:	Magnoliophyta
Class	:	Magnoliopsida
Subclass	:	Magnoliidae
Order	:	Laurales
Family	:	Lauraceae
Genus	:	*Cassytha*
Species	:	*Cassytha filiformis*

Vernacular names

Sanskrit	:	Amaravalli Aakashbela
Hindi	:	Amaravel Khavalli
English	:	Lovevine
Telugu	:	Nulu thega

Common name: Laurel dodder

Synonyms:

Cassytha americana var. brachystachya
Cassytha americana var. brasiliensis
Cassytha americana var. puberula
Cassytha aphylla

Chemical constituents:

It contain rich source of aporphine alkaloids. Three major aporphine alkaloids actinodaphnine, cassythine, dicentrine. Aporphine alkaloids are isolates from this plant, cathafiline (1), cathaformine (2), actinodaphnine (3), cassyformine (4), N-methylactinodaphnine (5), predicentrine (6), and ocoteine (7), oxoaporphine alkaloid, filiformine (8), cassythine (9)and a lignan(+)-diasyringaresinol (10),

Description

Habit:

All species of *Cassytha* are at maturity rootless, perennial, herbaceous, chloro-phyllous, obligate parasites, lacking tendrils but attached to their hosts by haustoria along the stems.

Distribution:

It is mostly found in India in Jammu and Kashmir, Pakistan, Sri lanka and Africa, central America and Caribbean and South America.

Stem and Leaf:

A slender, multi stemmed, parasitic vine not exceeding a stem diameter of 2 cm almost assimilate into the stem. Leaves scale-like, about 0.5-2 L x 0.5-0.75 W mm.

Flower:
Inflorescence about 2-2.5 cm long. Flowers sessile, spicate about 2.5 mm diam.
Tepals arranged in two whorls of three. Outer tepals triangular, each about 1 mm long. Inner tepals about 2 mm long.
Stamens in two whorls, the outer whorl of six and the inner whorl of three. Stamens about 1.5 mm long. Anthers about 0.5 mm long. Staminodes three. Two large glands present at the base of each stamen. Ovary green, about 1.5 mm long, ovule one.
Fruit:
Fruits about 4-10 mm diam. perianth lobes persistent at the apex.
Seeds:
Seeds about 3.5-6 mm diam. radicle central, about 2 mm long. Embryo oily**.**
Ethno-medicinal uses:
The plant is used traditionally for treatment of human birthing issues. Taking the juice made from crushed vines for 4 weeks before the expected date of birth in order to ease labor pains and to quicken labor time and lubricate the birth canal.
Cassytha filiformis is reported to be useful medicine against gonorrhoea, kidney Ailments and diuretic. In Africa it was used to treat the cancer. It is also used as vasorelaxant, and adrenoreceptor antagonist antitrypanosomal Agent. The sap from stem is used as shampoo and hair conditioner. The plant is used for sorcery.
Chemicals
chloroform, methanol, Potassium bismuth iodide solution, Potassium mercuric iodide solution, Iodine-Potassium iodide solution, Picric acid, α– naphthol, conc. H_2SO_4, Fehling's solutions A and B, Benedict's reagent, Barfoed's reagent, 4% NaOH, 1% $CuSO_4$ solution, 5% Ninhydrin reagent, Millon's reagent, 5% ferric chloride solution, 10% lead acetate solution, bromine water, acetic acid, sodium nitroprusside, sodium hydroxide solution, glacial acetic acid, magnesium turnings, concentrated hydrochloric acid.

Studies
***IN-VIVO* SCREENING**
Analgesic activity
Tail Immersion method
Haffner 's tail clip method
Antipyretic activity
Antipyretic testing in rats
Anti-inflammatory activity
Carrageenan induced rat paw edema
Analgesic activity
Tail immersion method
Animals
Female western Rats, weighing 170-210gm is used for the study. The animals were kept in polypropylene cages in a room maintained under controlled atmospheric conditions. The animals were fed with standard diet and had free access to clean drinking water and *libitum*.
Requirements
Diclofenac sodium, Thermometer, Arachis oil, heating mantle, Beakers, Stopwatch.
Method
In our study we have used tail immersion method Luiz *et.al*. Rats divided in the groups were held in position in a suitable restrainer with the tail extending out 3-4 cm area of tail was marked and immersed in the water bath thermostatically maintained at 55° C. The tail flick latency which is defined as time-lag between the application of heat from water bath and the withdrawal of the tail from hot water (in seconds) was noted as the reaction time or tail flick latency analgesic increases the reaction time.
The pain stimulus was always interrupted when the time of exposure reached a maximum of 12 sec to prevent injury to the tissue.
Procedure
Pattern of experimental procedure one day of experiment the animals were weighed and marked. Divided the animals six groups having six animals each group. These animals were fasted for 16 hours prior to the experiments (Table 1).

Table 1: Animal pattern for *cassytha filiformis* extracts

Group		Name of the drug (orally)
Group I	Control	arachis oil
Group II	Standard	Diclofenac sodium
Group III	Test	Chloroform extract (200mg)
Group IV		Chloroform extract (400mg)
Group V		Methanol extract (200mg)
Group VI		Methanol extract (400mg)

The tail flick response measured immediately before and after the administration of control or drug. The measure of latency time obtained before the administration was used to establish control value

for each rat. The reaction time for each rat was recorded at 30, 60, 120 and 240 minutes after administration of test substances.

Tail flick latency difference or mean increase in latency after drug administration was used to indicate the analgesia produced by test and standard drugs. Analgesia tail flick latency difference was calculated as follows:

Analgesia = signifies past – drug tail flick latency – pre drug tail flick latency.

HAFFNER'S Tail clip method

Animals

Male mice, weighing 18-25gm is used for the study. The animals were kept in polypropylene cages in a room maintained under controlled atmospheric conditions. The animals were fed with standard diet and had free access to clean drinking water and *libitum*. The experimental protocol was approved by the Institutional Animal Ethics Committee of Vaagdevi College of pharmacy.

Requirements

Matel artery clip, diclofenac sodium, arachis oil, stopwatch.

Method

An artery clip is applied to the root of the tail of mice and the reaction time is noted. Male mice (Charles River strain or other strains) with a weight between 18 and 25 g are used. The control group consists of 10 mice. The test compounds are administered subcutaneously to fed mice or orally to fasted animals. The drug is administered 15, 30- or 60-minutes prior testing. An artery clip is applied to the root of the tail (approximately 1 cm from the body) to induce pain. The animal quickly responds to these noxious stimuli by biting the clip or the tail near the location of the clip. The time between stimulation onset and response is measured by a stopwatch.

Procedure

Pattern of experimental procedure one day of experiment the animals were weighed and marked. Divided the animals six groups having six animals each group. These animals were fasted for 16 hours prior to the experiments (Table 2).

Table 2: Animal pattern for *cassytha filiformis* extracts

Group		Name of the drug (orally)
Group I	Control	arachis oil
Group II	Standard	Diclofenac sodium
Group III	Test	Chloroform extract (200mg)
Group IV		Chloroform extract (400mg)
Group V		Methanol extract (200mg)
Group VI		Methanol extract (400mg)

The noxious stimulation tail biting or dislodge response measured immediately before and after the administration of control or drug. The measure of tail biting or dislodge time obtained before the administration was used to establish control value for each rat. The reaction time for each mouse was recorded at 30, 60, 120 and 240 minutes after administration of test substances. Tail biting or dislodge time difference or mean increase in latency after drug administration was used to indicate the analgesia produced by test and standard drugs. Analgesia tail biting or dislodge response latency difference was calculated as follows: Analgesia = signifies past – drug tail biting or dislodge response latency –pre drug tail biting or dislodge response latency.

Antipyretic activity

Antipyretic testing in rats

Animals

Female western Rats, weighing 180-220gm is used for the study. The animals were kept in polypropylene cages in a room maintained under controlled atmospheric conditions. The animals were fed with standard diet and had free access to clean drinking water and *libitum*. The experimental protocol was approved by the Institutional Animal Ethics Committee of Vaagdevi College of pharmacy.

Requirements

Paracetamol, arachis oil, brewer's yeast suspension, tele thermometer, saline solution.

Procedure

In the present study, the antipyretic activity of extract of *cassytha filiformis* was evaluated by using digital thermometer. The antipyretic activity was screened by using yeast induced hyperpyrexia method. Male wistar rats (180-220gms) were selected and divided into six groups each having six animals. The animals were administered control, standard and test extracts as shown in the table. They were maintained at constant temperature of 24-25^{o} C for 24 hours before pyrexia was induced by subcutaneous injection of 2ml of 15% Brewer's Yeast (saccharomyces cerevisiae) suspension (obtained from Bio-Ethical Pharms Ltd. Huble, Karnataka) in saline solution. Before Yeast injection the body temperature was recorded. Then Yeast injection was given to all the groups. After 18 hours of Yeast injection, control (Arachis oil), the extracts at a dose

of 200mg and 400mg/kg were administered orally to each group as a suspension in Arachis oil. Standard drug paracetamol (200mg/kg) was also administered to a group. Rectal temperature were noted using digital thermometer probe was inserted 3-4cms deep into the rectum by lubricating tip of digital thermometer with a lubricant (petroleum jelly), insert the lubricated digital thermometer into the anal opening ½ inch to 1 inch (about 1.25 to 2.5cms) after fastened the tail and recorded the rectal temperature (Table 3).

Table 3: Animal pattern for *cassytha filiformis* extracts

Group		Name Of The Drug (Orally)
Group I	Control	arachis oil
Group II	Standard	Paracetamol
Group III	Test	Chloroform extract (200mg)
Group IV		Chloroform extract (400mg)
Group V		Methanol extract (200mg)
Group VI		Methanol extract (400mg)

Anti-inflammatory activity

Acute inflammation

Acute inflammation is induced in animals by the injection of an irritant in the hind paw of the rat to produce oedema. Many phlogistic (irritants) agents have been used, such as formaldehyde, dextran, egg albumin, sulfonated polysaccharides like carrageenan etc.

Many acute inflammatory models involve the injection of irritants into the hind paw of the rat to induce oedema. A famous and good irritant known was carrageenan. The volume of hind paws measured prior and after inducing the inflammation by using plethysmometer. The amount of inflammation in untreated animals and animals treated with test drugs was measured.

Animals

Female or male western Rats, weighing 150-200gm is used for the study. The animals were kept in polypropylene cages in a room maintained under controlled atmospheric conditions. The animals were fed with standard diet and had free access to clean drinking water and *libitum*. The experimental protocol was approved by the Institutional Animal Ethics Committee of Vaagdevi College of pharmacy.

Requirements

Plethysmometer, 1% carrageenan suspension.

Method

In our study we have used chemical method and inflammation produced by carrageenan in hind paw of the rat. The volume of hind paw is measured prior and after inducing the inflammation by using plethysmometer. If the inflammation in the treated animals is less than that of untreated animals, then the drug is considered to have anti-inflammatory activity.

Plethysmometer: Plethysmometer technique is based on the principle of mercury displacement technique. It is a simple apparatus which consists of two glass arms containing mercury to one of the arms and a scale is fixed. The mercury displacement due to dipping of the paw can be directly read from the scale attached to the mercury column. The net Oedema volume cane calculated by subtracting paw volume before the induction of oedema from the paw volume after the inflammation.

Procedure

Preparation of test suspensions: Suspension of extracts of leaves was prepared with 2% gum acacia mucilage due to their poor solubility and dispersibility in distilled water. 1% carrageenan suspension was used to induce acute inflammation in hind paw of the rat. From above suspension 0.05ml was injected in to dorsal region of sub plantar surface of hind paw of rat subcutaneously with the help of no.26 sterile needle. Control group injected with 0.05ml of normal saline. Standard drug and all the suspensions of extracts were administered orally one hour prior to the carrageenan injection.

Pattern of experimental procedure

One day of the experiment the animals were weighted and marked. Divide the animal six groups having six animals each group for each plant.

A mark was made on both the hind paws just beyond the tibiotarsal junction, so that every time the paw is dipped in the mercury column up to the marked level to ensure constant paw volume (Table 4).

Table 4: Animal pattern for *cassytha filiformis* extracts

Group		Extracts given orally	1hr after oral administration
Group I	Control	2% Gum acacia	Carrageenan injection(0.05ml)
Group II	Standard	Diclofenac sodium	Carrageenan injection(0.05ml)
Group III	Test	Chloroform extract (200mg)	Carrageenan injection(0.05ml)
Group IV		Chloroform extract (400mg)	Carrageenan injection(0.05ml)
Group V		Methanol extract (200mg)	Carrageenan injection(0.05ml)
Group VI		Methanol extract (400mg)	Carrageenan injection(0.05ml)

Mention the initial paw volume of each rat before drug administration. Then administered the different doses of test drugs orally one hour before carrageenan suspension injection. Then the paw volume is measured at the end of 1, 2, 3, 4, 6th hours. Any change in the paw volume of rats was obtained by subtracting initial paw volume from the paw volumes of different time points.

The average volumes of oedema were calculated by taking the average of each group at different hours. The standard deviation was calculated.

The per cent inhibition of oedema as calculated for each group with respect to its vehicle-treated control group.

$$Percentage\ \ inhibition = \frac{A - B}{A} \times 100$$

Where 'A' – Means increase paw volume in rats treated with control. 'B' – Means increase paw volume in rats treated with test.

Cassytha filiformis was subjected to maceration method extraction with solvents of chloroform, methanol results of percentage yield, phyto-chemical investigation and analgesic antipyretic and anti-inflammatory of the extracts were shown below in respective tables:

Maceration extraction:

Table 5: Percentage yield extracts of *Cassytha filiformis*

Extracts	Percentage of yield
CECF	10.59%w/w
MECF	12.62%w/w

Preliminary Photochemical screening:

Table 6: Preliminary Phytochemical screening of the extracts of *Cassytha filiformis*

PHYTOCHEMICAL TESTS			
Category	**Test**	**Observation**	
		CECF	**MECF**
Alkaloids			
	Drangendroff's test	+	+
	Mayer's test	+	+
	Wagner's test	+	+
	Hager's test	+	+
Carbohydrates			
	Molisch test	+	+
	Fehlings test	+	-
	Benedicts test	-	-
	Barfoed's test	-	-
	Selivanoff's test	-	-
Steroids			
	Salkowski test	+	+
	Libermann-Burchard test	+	+
Proteins			
	Ninhydrin test	-	-
	Biuret test	-	-
	Million test	-	-

Glycosides		
Anthraquinone glycosides		
Borntrager's test	-	-
Cardiac glycosides		
Baljet'stest	-	-
Legal test	+	+
Keller-Killiani test	+	+
Flavonoids		
Shinoda test	+	+
Alkaline reagent test	+	+
Saponins		
Foam test	-	-
Phenolic compounds and Tannins		
Ferric chloride test	+	+
Lead acetate test	+	+
Iodide test	+	+
Acetic acid test	+	+

The percentage yield of extracts CECF and MECF 10.59%w/w, 12.62%w/w respectively. By performing various chemical tests, it was found that the extracts of *Cassytha filiformis* was showing positive results for alkaloids, flavonoids, steroids, carbohydrates, cardiac glycosides and phenolic compounds.

Analgesic Activity

Table 7: Effect of Analgesic activity of *Cassytha filiformis* by Tail immersion method in rats

Group	Mean Reaction time in seconds				
	0 min	**30 min**	**60 min**	**90 min**	**120 min**
Control	2.52±0.02	2.57± 0.04	2.49± 0.04	2.53± 0.10	2.40 ±0.12
Standard	2.80± 0.01	3.20±0.03	3.31±0.03	3.05±0.08	2.70±0.00
CECF 200mg/kg	1.21±0.87	1.28±0.28	1.34±0.28	1.25±0.67	1.20±0.24
CECF 400mg/kg	1.78±0.28	1.80± 0.18	1.95± 0.23	1.77±0.48	1.73±0.97
MECF 200mg/kg	1.18±0.29	1.22±0.20	1.51±1.25	1.27±0.47	1.19±0.95
MECF 400mg/kg	1.60±0.27	1.57±0.22	1.80±0.72	1.59±0.76	1.41±0.27

All the values are expressed in Mean ± SD (n=6) of latency time in seconds; comparisions are done by One Way ANOVA followed by Dunnet's test for multiple comparisions. Values were expressed as Mean ± SD; ($p<0.05$), ($p<0.01$), ($p<0.001$) as compared to Control group.

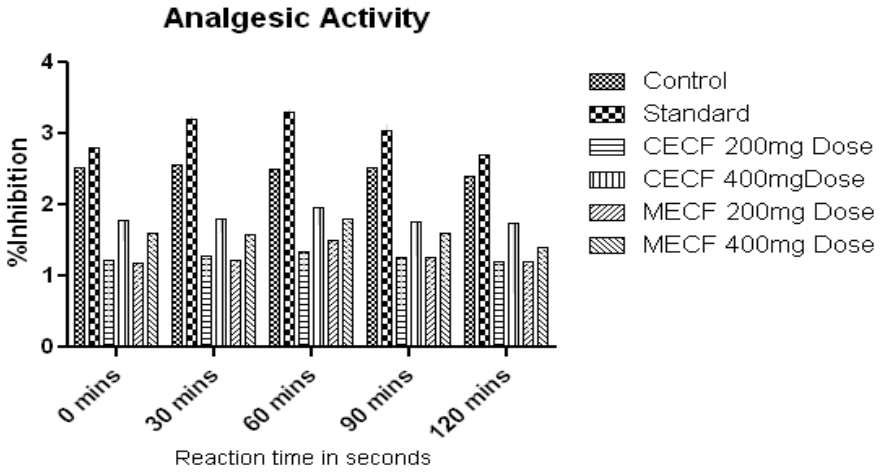

Fig 1: Analgesic activity of CECF, MECF extracts of *Cassytha filiformis* by Tail immersion method in rats.

Table 8: Analgesic activity of CECF, MECF extracts of *Cassytha filiformis* by Tail Clip method in mice

Group	Mean Reaction time in seconds				
	0 min	30 min	60 min	90 min	120 min
Control	1.59±0.02	1.80± 0.08	2.40± 0.07	2.07± 0.03	1.43 ±0.11
Standard	2.50±0.02	2.70±0.05	3.05±0.09	2.69±0.03	2.30±0.00
CECF 200mg/kg	1.01±0.23	1.09±0.44	1.41±0.87	1.19±0.40	1.05±0.34
CECF 400mg/kg	1.10±0.63	1.17± 0.87	1.79± 0.54	1.26±0.84	1.15±0.91
MECF 200mg/kg	1.03±0.10	1.09±0.35	1.37±0.40	1.17±0.30	1.05±0.12
MECF 400mg/kg	1.12±017	1.21±0.37	1.98±0.45	1.32±0.34	1.18±0.10

All the values are expressed in Mean ± SD (n=6) of latency time in seconds; comparisons are done by One Way ANOVA followed by Dunnet's test for multiple comparisons. Values were expressed as Mean ± SD; (p<0.05), (p<0.01), (p<0.001) as compared to Control group

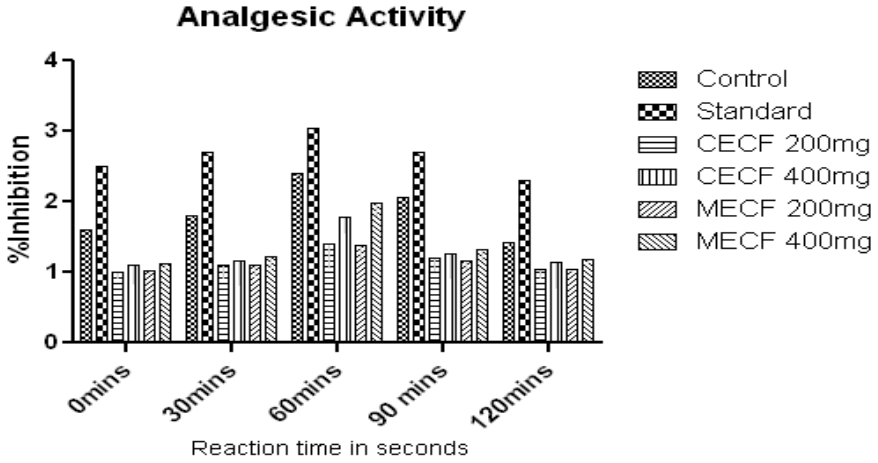

Fig 2: Analgesic activity of CECF, MECF extracts of *Cassytha filiformis* by Tail Clip method in mice

Antipyretic Activity

Table 9: Antipyretic activity of CECF, MECF extracts of *Cassytha filiformis* by Antipyretic testing in rats

Group	Rectal Temperature 0^0 C time(hours)					
	Normal(A)	18 hr	1hr	2hr	3hr	4hr
Control	37.04±0.11	38.82± 0.34	39.02±0.21 (41.4)	37.7± 0.11 (58.98)	37.75±0.20 (60.11)	37.70 ± 0.20 (62.92)
Standard	37.08±0.08	39.46±0.04	38.20±0.01 (52.9)	37.80±0.03 (69.7)	37.30±0.02 (90.7)	37.35 ± 0.28 (88.65)
CECF 200mg/kg	37.06±0.02	39.70±0.43	39.44±0.22 (9.84)	38.98±0.22 (28.27)	38.04±0.11 (62.87)	38.16 ± 0.12 (58.33)
CECF 400mg/kg	37.04±0.4	39.00± 0.11	38.68± 0.02 (16.32)	38.40±0.25 (30.61)	37.72±0.45 (65.30)	37.80 ± 0.12 (61.22)
MECF 200mg/kg	37.02±0.12	39.84±0.20	39.30±0.31 (19.14)	38.70±0.12 (40.42)	37.64±0.44 (78.01)	37.80 ± 0.11 (72.34)
MECF 400mg/kg	37.04±0.14	39.86±0.22	39.15±0.20 (25.17)	38.45±0.12 (50)	37.6±0.10 (80.14)	37.62 ± 0.41 (79.43)

All the values are expressed in Mean ± SD (n=6) of latency time in seconds; comparisons are done by One Way ANOVA followed by Dunnet's test for multiple comparisons. Values were expressed as Mean ± SD; c (p<0.05), b (p<0.01), a (p<0.001) as compared to Control group

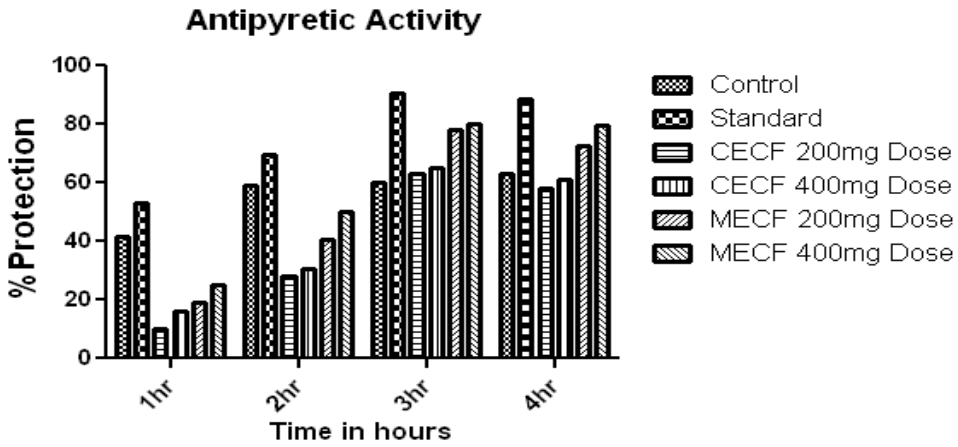

Fig 3: Antipyretic activity of CECF, MECF extracts of *Cassytha filiformis* by Antipyretic testing method in rat

Anti-inflammatory activity:

Table 10: Effect of Anti-inflammatory activity of *cassytha filiformis* by carrageenan induced paw edema in rats.

Group	Mean edema volume (ml) (percent protection)			
	0 hr	1 hr	2 hr	3 hr
Control	0.63±0.103	0.69± 0.152	0.65± 0.169	0.62± 0.109
Standard	0.76±0.020	0.95±0.020	0.82±0.021	0.79±0.025
CECF 200mg/kg	0.45±0.031	0.61±0.024	0.40±0.080	0.29±0.036
CECF 400mg/kg	0.61±0.019	0.68± 0.020	0.52± 0.029	0.46±0.023
MECF 200mg/kg	0.39±0.030	0.38±0.025	0.32±0.040	0.25±0.033
MECF 400mg/kg	0.64±0.021	0.59±0.026	0.42±0.032	0.40±0.028

All the values are expressed in Mean ± SD (n=6) of latency time in seconds; comparisons are done by One Way ANOVA followed by Dunnet's test for multiple comparisons. Values were expressed as Mean ± SD; ($p<0.05$), ($p<0.01$), ($p<0.001$) as compared to Control group.

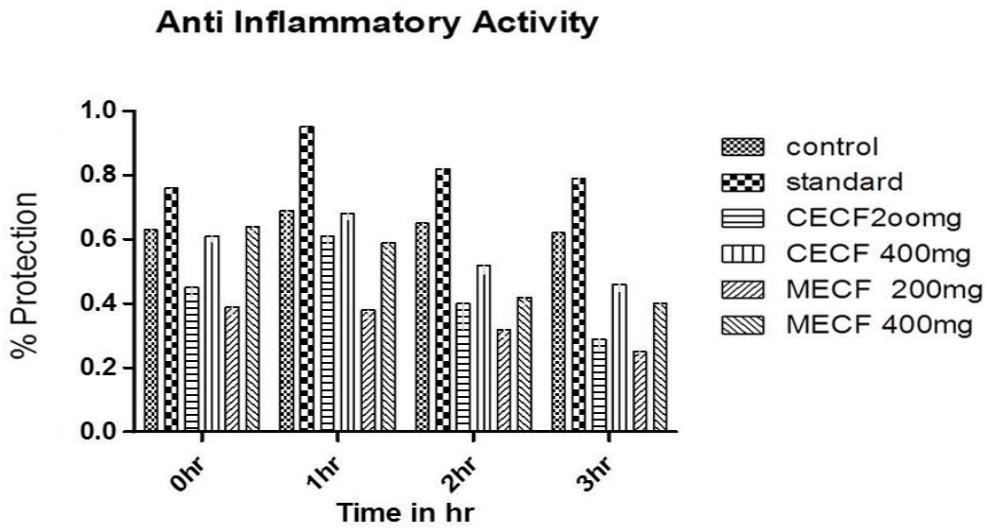

Fig 4: Anti-inflammatory activity of CECF, MECF extracts of *Cassytha filiformis* carragenan induced paw edema method in rats.

The most widely used primary test to screen new anti-inflammatory agents measures the ability of a compound to reduce local edema induced in the rat paw by injection of an irritant agent. This edema

depends on the participation of kinins and polymorph nuclear leukocytes with their pro-inflammatory factors including prostaglandins. The development of edema in the paw of the rat after the injection of carrageenan has been a biphasic event. The initial phase, observed around 1 h, is attributed to the release of histamine and serotonin; the second, accelerating, phase of swelling is due to the release of prostaglandin-like substances. It has been reported that the second phase of edema is sensitive to both clinically useful steroidal and non-steroidal anti-inflammatory agents. In present study the significant activity was observed in the suppression of the first and second phases of carrageenin-induced inflammation may due to inhibition of the release of the early mediators such as histamine, serotonin and kinins. The action on the second phase may be due to an inhibition of cyclooxigenase, a prostaglandin derivative. Both the extracts CECF and MECF showed significant reduction of inflammation in both phase in dose dependent manner (Fig 4)**.**

CONCLUSION:

The results revealed that powder of *Cassytha filiformis* showed a significant Analgesic, Anti-pyretic and Anti-inflammatory activity. This plant shows the activity owing to the presence of alkaloids, carbohydrates, steroids, flavonoids, glycosides, and tannins. So necessary steps to be taken in future to identify the active principles, TLC studies, study the toxicity and other pharmacological property.

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