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Original Article

ESTIMATION AND OPTIMIZATION OF ANALGESIC, ANTIPYRETIC AND ANTI-INFLAMMATORY EFFECTS OF ETHANOLIC LEAVES EXTRACT OF Luffaacutangula (L.) Roxb

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ABSTRACT

The present research entitled "Evaluation of analgesic, antipyretic and anti-inflammatory effect ethanolic leaves extract of Luffa acutangula (L.)Roxb." deals with the exploration of pharmacological and phyto chemical screening of the selected Indian medicinal plant Luffa acutangula (L.)Roxb.belonging to the family Cucurbitaceae. The results obtained fromthe preliminary phytochemical screening of Luffa acutangula (L.) Roxb.extract showed the presence of flavonoids, alkaloids, tannins. It was reported that the flavonoids frequently found in plants possess analgesic, antipyretic and anti-inflammatory activity. The Present study showed that the ethanolic leaves extract of Luffaacutangula (L) Roxb, possess peripheral and central analgesic activity inanimal model. The Luffa acutangula (L) Roxbleaves extract shows anti-pyretic activity in animal model in rats and Luffa acutangula (L) Roxb showed anti-inflammatory activity in different animal model. Flavonoids and tannins are the major constituents of Luffaacutangula(L)Roxb leaves, which maybe responsible for its Analgesic, Anti-pyretic and Anti-inflammatory activity. Further detailed study on Luffa acutangula (L) Roxb plant using different flogestic agents in this area will enable us to understand the mechanism of action under line the above mention activity.

Key Words: Luffa acutangular, Analgesic, Anti-pyretic and Anti inflammatory

INTRODUCTION

Luffa acutagula (L).Roxb. is a large monoeious annual climber. It is indigenous to western, central and southern regions of india, and regarded as wild variety of cultivated species. It has smaller leaves, flower, fruits and seeds. A large climber with palmately 5-7 angled or lobed leaves found wild in northwest india, bihar, bengal, sikkim and assam, and also in madras. seeds much compressed, 10-12 mm. Long, slightly corrugated on edges, black when rip. Mostly its culivated in a warm-season, cold – sensitive genus orginating in india. Propagation of Luffa acutangula (L.) Roxb. by seeds. Luffa acutangula (L.) Roxb. can grow in all type of soils and can be grown in rainy Season. Seeds can accordingly be down either in February- marth (or) june- July. Luffa is grown mostly as a novelty in florida grdens. However, some have been tried commertially for the sale of the sponges. Being cold sensitive, luffas should be grown during the warm season.

The reported chemical examination of Luffa acultangula (L.) Roxb. showed the Presence carbohydrates, carotene, fat, protein, phytin, aminoacid, alanine, arginine, cystine, glutamicacid, glycine,hydroxyproline, leucine, serine, tryptophan,pipecolic acid. And also presence of alkaloids, carotenoidsm and terpenoid, flavonoids, tannins, luffangulin, sapogenin, oleanolic acid, cucurbetacin B,E and anthraquinones. Leaves are a healthy food and contains good amount of fiber, differents types of vitamins such as Vitamin B2, Vitamin C, Calcium, phosphorus,iron and small quantities of iodine and fluorine. Seeds shows presence of saturated and unsaturated fatty acid palmatic, stearic, oleic, linoleic and traces of lignoceric acid. Plant shows presence of oleanane type triterpene saponins- acutoside A, B, C, D, E, F, and G.

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Luffa acutangula (L.) Roxb.is the source of many therapeutically important chemical constituents. Studies releaved its use in diabetes, immunomodulation, tumor suppresion, parkinsonism, antimicrobial, ulcer and hepato protection. And used as antioxidant, antipyretic, anti-proliferative, anticataleptic, antimicrobial, analgesic and anti-inflammatory agents

OBJE CTIVE OF THE WORK:

Non–steroidal anti-inflammatory drugs (NSAIDs) are used worldwide for their wide range of activity. However, its side effects are high. Natural products from medicinal plants have more pharmacological significance with improved efficacy and lesser side effects Luffa acultagula (L.)Roxb. Is an Indian traditional medicine used for analgesic, anti-inflammatory activity. Hence the present work was aimed to explore the use of extract of Luffa acultagula (L.) Roxb. With proper validation.

MATERIALS AND METHODS

Preparation of the plant extract:

The coarse powder was packed tightly in the soxhlet apparatus and extracted with ethanol for 72 hours with occasional shacking maintained at 60ºc throughout the extraction process. The extract was concentrated to of its original volume by evaporation. The resulting ethanolic extract of the Luffa acutangula (L.) Roxb. was subjected to phytochemical study.

Phytochemical analysis:

The ethanolic extract of Luffa acutangula (L.) Roxb. were subjected to qualitative phytochemical tests for different constituents such as alkaloids, carbohydrates, glycosides, flavonoids, phenolic compounds, proteins, and free aminoacids and triterpenoids.

1. Test for carbohydrates: Small quantity of extract was dissolved in 5ml of water and filtered

Molisch test: The filtrate was treated with a few drops of α-napthol (20% in ethyl alcohol). Then 1 ml of concentrated H2SO4 was added along the sides of inclined test tube and observed for formation of violet coloured ring at the interface.

2. Test for glycosides and anthraquinones: Borntrager's test: A small amount of ethanolic extract was hydrolysed with hydrochloric acid for few hours on water bath and the hydrosylate was extracted with benzene. The benzene layer was treated with dilute ammonia solution and observed for the formation of reddish pink colour. Legal test The extract was dissolved in pyridine and made alkaline with few drops of 10% NaOH and freshly prepared sodium nitroprusside was added and observed for formation of blue colour.

3. Test for flavonoids: Ammonia test Filter paper strips were dipped in the dilute solution of the extract, ammoniated and observed for colour change from white to yellow.

4. Test for Tannins and Phenolic compounds: The extract was dissolved in distilled water and dissolved into three portions. Sodium chloride (10%) was added to one portion, 1% gelatine to second portion and gelatine salt reagent to third portion. Precipitation with later or both gelatin salt reagents was indicative of the presence of tannins. Precipitation with salt solution indicates a false positive test. Positive tests were further confirmed by the addition of a few drops of dilute ferric chloride (1%FeCl3) to the test extract which gave blue or green black coloration.

5. Test for Proteins and Aminoacids: Small amount of extract was dissolved in distilled water and filtered.

Biuret's test: To the ammoniated alkaline filtrate add 2-3 drops of 0.002% copper sulphate and observed for appearance of red or violet colour.

Millon's test: To 2 ml of filtrate 5-6 drops of millons reagent (1 g of mercury + 9 ml of fuming nitric acid solution) was added and observed for red precipitates.

Ninhydrin test: To the filtrate lead acetate solution was added to precipitate tannins and filtered. The filtrate was spotted on paper chromatogram and sprayed with ninhydrin reagent and heated at 110ºC for five minutes and observed for red or violet colour.

Xanthoprotein test: To the filtrate a few drops concentrated nitric acid was added by the side of test tube and observed for appearance of yellow colour.

6. Test for sterols and triterpenes: The extract was refluxed with alcoholic potassium hydroxide until the completion of saponification. Then the mixture was diluted with distilled water and extracted with diethyl ether. The ethereal extract was evaporated and the unsaponifiable matter was subjected to the following tests.

Libermann - Buchard's test: The ether soluble residue was dissolved in chloroform and a few drops of acetic anhydride was added followed by a few drops concentrated sulphuric acid form sides of the test tube and observed for the formation of blue to blue- red colour.

RESULTS AND DISCUSSION:

Table 1: Qualitative phytochemical Evaluation of Luffa acultagula (L) Roxb.

Parameters	value
1. Alkaloid	+
2. Carbohydrates	+
3. Glycosides	-
4. Flavonoids	++
5.Tannins & Phenolic compounds	+

6.Proteins & Aminoacids	+
7.Saponins	+
8.Sterols orTriterpenes	+

++: highcontent,+:moderate,-:Negative,

From the qualitative phytochemical analysis of ethanolic extract of Luffaacultagula (L)Roxb.It content alkaloids, Tannins, phenolic compound,sterols,saponins,proteinandaminoacidsandhighamou ntofflavonoids.

1. Analgesic activity

Hot plate Method in Mice

The analgesic activity of ethanolic leaves extract of Luffaacutangula (L)Roxb was assessed using hot plate method inSwiss albino mice. The ethanolic leaves extract of Luffa acutangula(L) Roxb Showed significant analgesic activity at 200 and 400 mg/kg. Analgesic activity was comparable with standard drug pentazocine. Among the two doses, 400 mg/kg showed maximum analgesic activity at reaction time120 min (7.2±0.44) is slightly lower than the standard drug pentazocine (9.9±0.34) in this analgesic testing model, pentazocine significantly prolonged the reaction time of animals with relatively extended duration of stimulation, confirming centrally active drugs. In the present study, all extracts showed significant ($p<0.05$ and $p< 0.01$) analgesic activity but among the two doses, 400 mg/kg showed highest analgesic activity at reaction time 120min.

Table:2 Analgesic effect of ethanolic extract of ofLuffaacutangula(L)Roxbon hot plate test in Swiss albinomice

GROUP	Paw licking or jumping in seconds			
	30min	60min	90min	120min
Group-IControl	2.2±0.22	2.6±0.12	2.9±0.21	2.8±0.10
Group-IIPentazocine(3 mg/kg)	2.8±0.18	6.9±0.62**	9.8±0.64**	9.9±0.34**
Group-III (200mg/kg)	2.7±0.20	3.7±0.15*	4.6±0.21**	4.1±0.41**
Group-IV(400mg/kg)	2.8±0.14	5.8±0.37**	7.4±0.39**	7.2±0.44**

Values were mean ± SEM, (n=6),*P<0.05**P<0.01 Vs control.

Data were analyzed by using One-way ANOVA followed by Dunnett's test.

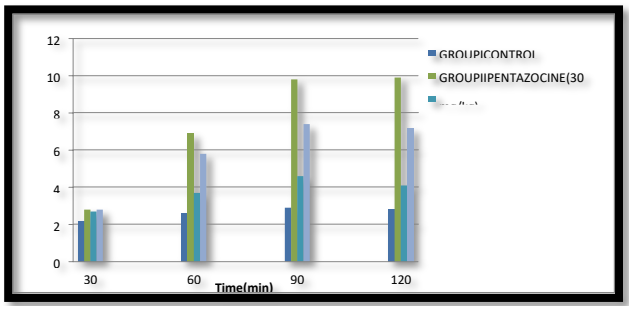


Fig 1: Analgesic effect of ethanolic leaves extract of of Luffaacutangula (L) Roxb on hot plate method in mice.

Tail Immersion Method

There was a significant reduction of pain full sensation due to tailimmersioninwarmwater.ThemaximuminhibitoryeffectofLuffa acutangula (L) Roxb. Showed significant ($p< 0.01$) at 90 min post dose in400 mg/kg. The maximum anti- nociceptive properties of the plant extract (3.5±0.04) were not as effective as that of pentazocine, 3mg/kg(5.8±0.06)

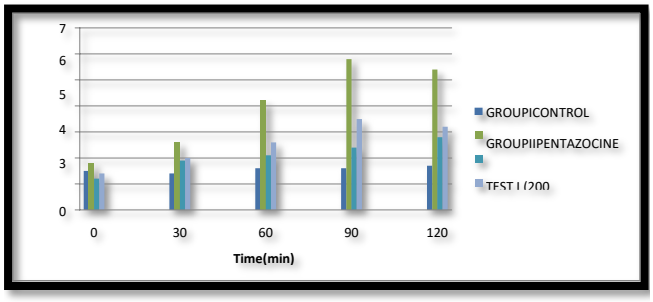


Fig 2: Analgesic Effect of Ethanolic Leaves Extract Of Luffa Acutangula (L) Roxb On Tail Immersion Method In Rats.

Table: 3 Analgesic effect of ethanolic leaves extract of Luffaacutangula (L) Roxbontail immersion method in rats

GROUP	Meanlatencytotailimmersion inseconds				
	0min	30min	60min	90min	120min
Group-I Control	1.5±0.04	1.4±0.02	1.6±0.01	1.6±0.03	1.7±0.04
GroupII Pentazocine(3mg/kg)	1.8±0.06	2.6±0.04**	4.2±0.02**	5.8±0.06**	5.4±0.02**
Group III(200mg/kg)	1.2±0.02	1.9±0.01*	2.1±0.04*	2.4±0.02	2.8±0.04*
GroupIV (400mg/kg)	1.4±0.01	2.0±0.04*	2.6±0.01**	3.5±0.04**	3.2±0.01**

Values were mean ± SEM, (n=6), *P<0.05** P<0.01 Vs control. Data were analyzed by using One-way ANOVA followed by Dunnett's test.

Acetic Acid-Induced Writhing Response in Mice

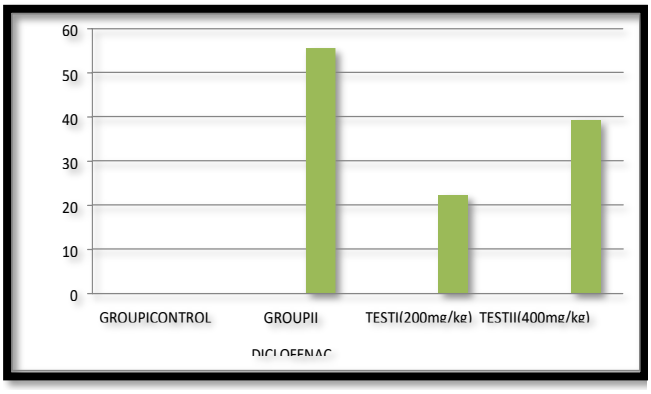
The oral administration of ethanolic leaves extract of Luffaacutangula (L)Roxb. Showed a dose dependent analgesic activity. Injection of acetic acid into control mice produced 51.4±6.4 writhes. Pre-treatment with ethanolic extract of Luffaacutangula (L.) Roxb. at doses of 200 and 400 mg/kg reduced the number of writhes 39.4±2.4 (23.34 %protection) and 31.2±2.1 (39.29 % protection) respectively. Among the two doses 200, 400 mg/kg showed the slightly lower analgesic activity than standard drug Diclofenac Sodium 22.8±1.9 (55.64 % protection) it was observed that the onset of writhing was delayed and duration of writhing was shortened.

Table: 4 Analgesic effects of ethanolic leaves extract of Luffaacutangula(L)Roxb, (on acetic acid writhing test in Swiss albinomice)

GROUP	Number of writhes	%Inhibition
Group-I Control	51.4±6.4	____
Group-II DiclofenacSodium(10mg/kg)	22.8±1.9**	55.64
Group-III (200mg/kg)	39.4±2.4**	23.34
Group-IV(400mg/kg)	31.2±2.1**	39.29

Values were mean ± SEM, (n=6), **P<0.01Vs control Data were analyzed by using One-way ANOVA followed by Dunnett's test.

Fig 3: Analgesic effect of ethanolic leaves extract of ofLuffaacutangula (L) Roxb, on acetic acid induced writhing response in mice



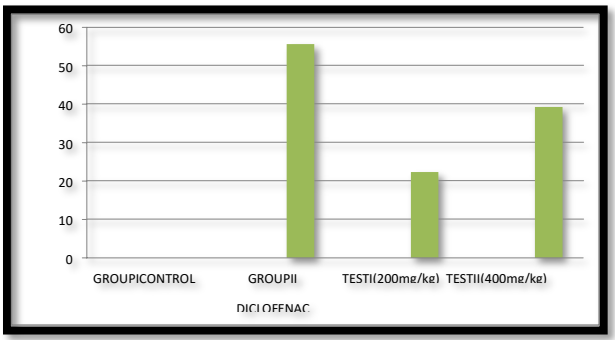


Fig 4: Analgesic effect of ethanolic leaves extract of ofLuffaacutangula (L) Roxb, on acetic acid induced writhing response in mice. Results are expressed as a percentage of inhibition.

1. Anti-pyreticactivity

Brewer's Yeast Induced Pyrexiain Rats

The anti-pyretic activity of ethanol leaves extract of Luffaacutangula (L.) Roxb. against yeast induced pyrexia is shown in Table 6.Theethanolic leaves extract of Luffacutangula (L.)Roxb at a doses of 200 and 400mg/kgs howed significant effect against Brewer's yeast induced pyrexia method. There was a progressive dose dependent reduction in the temperature of rats treated with the extract. The reduction caused by the extract was significant when compared to control

Table: 5 Anti-Pyretic Activity Of Ethanolic Extract OfLuffaAcutangula (L) Roxb On Brewer's Yeast Induced Pyrexia In Rats

Treatment	Rectal temperature (°C)			
	18 hafter yeastadministration	Temperature after treatment		
		1h	2h	3h
Group-I Control	38.1±0.1	38.4±0.2	38.0±0.1	38.3±0.2
Group-IINegative control	40.2±0.1	40.4±0.3**	40.1±0.2	39.8±0.1
Group-III paracetamol	39.8±0.2	37.9±0.2	38.2±0.2	38.0±0.1
Group-IV (200mg/kg)	40.2±0.1	39.4±0.3	39.1±0.1	39.0±0.2
Group-V (400mg/kg)	40.1±0.1	38.8±0.1	38.5±0.2	38.4±0.1

Values were mean ± SEM, (n=6), **P<0.01 Vs control. Data were analyzed by using One-way ANOVA followed by Dennett's test.

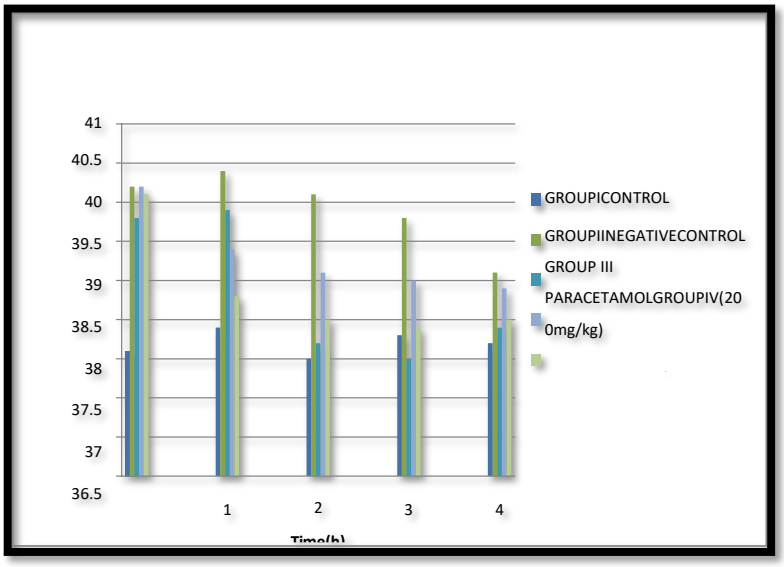


Fig 5: Anti-Pyretic Activity of Ethanolic Leaves Extract of Luffa Acutangula (L) Roxb, On Brewer's Yeast Induced Pyrexia in Rats

Table: 6 Anti-inflammatory activity of ethanolic extract of Luffa acutangula (L)RoxbonCarrageenaninducedpaw edemamethodin Wistarrays.

GROUP	Paw thicknessinmm					% Inhibition at 3hr
	0hr	1hr	2hr	3hr	4hr	
Group-I Carrageenan(control)	1.4±0.03	3.4±0.06	4.9±0.06	6.4±0.05	4.8±0.02	------
Group-IIIndomethacin (10mg/kg)	1.4±0.04	2.2±0.03**	2.9±0.04**	3.1±0.02**	2.2±0.04**	52
Group-III(200mg/kg)	1.2±0.02	3.0±0.04	4.2±0.03	4.7±0.01*	3.5±0.04**	27
Group-IV(400mg/kg)	1.1±0.01	2.7±0.04**	3.5±0.02*	3.3±0.06**	2.8±0.04**	48

Valuesweremean±SEM,(n=6),*P<0.05,P<0.01Vscontrol.DatawereanalyzedbyusingOne-wayANOVAfollowedbyDunnett'stest**

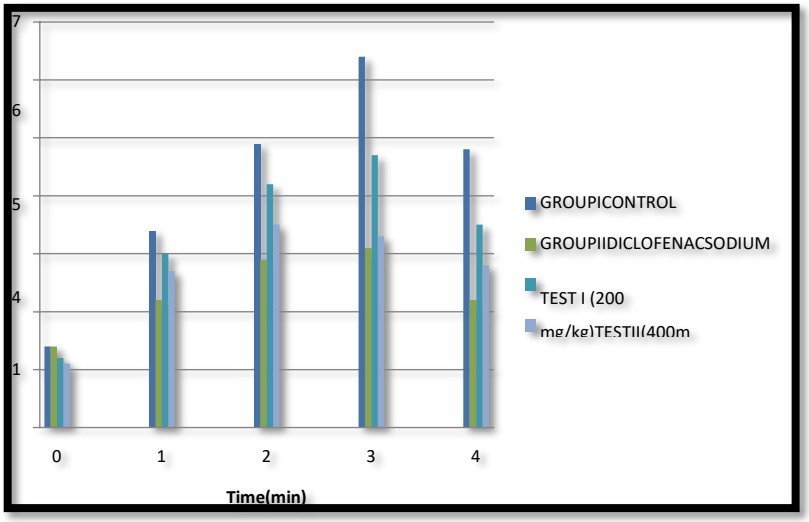


Fig: 6 Anti-inflammatory activity of ethanolic leaves extract of Luffaacutangular (L)Roxb, on carrageenan induced paw edema method in Wistarrats

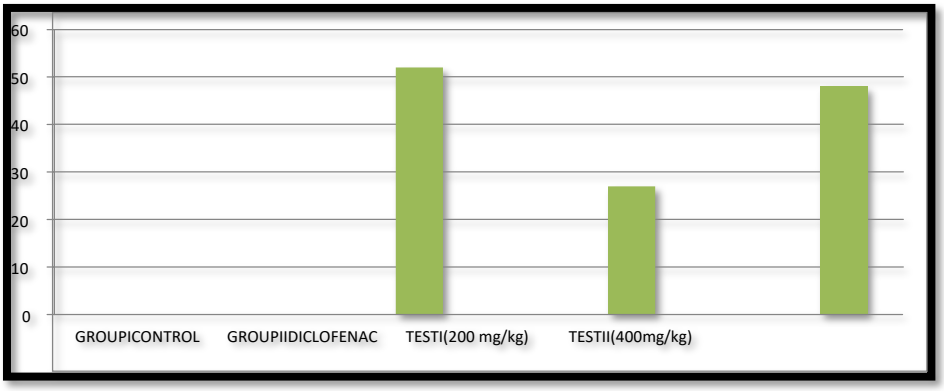


Fig7: Anti-inflammatory activity of ethanolic leaves extract of Luffaacutangular (L)Roxb, on carrageenan induced paw edema method in Wistar rats. Results are expressed as a percentage inhibition.

Cotton Pellet-Induced Granuloma Method in Rats

Theanti-inflammatory effect of the ethanolic leaves extract of Luffaacutangula (L.) Roxb. assessed by using cotton pellet induced granuloma method in Wistar rats. The ethanolic leaves extract of Luffaacutangula (L.) Roxb. Showed significant anti-inflammatory activity at 200 and 400mg/kg dose. After 7 days, the mean weight of granulomatous tissue surrounding the threads was significantly lower for the compared to the control group. Among the two doses 400 mg/kg showed maximum decreased formation of granuloma tissue. The results indicate that Luffaacutangula (L.) roxb. at dose level of 200mg/kg and 400 mg/kg produceda significant decrease in the weight of granuloma 38.16±0.04 (7.4%inhibition) and 34.58±0.04 (16.1% inhibition) respectively. Among the two dose 400mg/kgs howed the slightly lower reduced weight of granumola than standard drug dexamethazone 28.92±0.04 (29.8%inhibition).

Table.6Anti inflammatory activity of ethanolic extract of Luffaacutangula (LRoxbon cotton pellet induced granulomapouch model Wistarrats)

GROUP	Granulomaweight(mg)	%Inhibition
Group-I Control	41.24±0.04	
Group-IIDexamethazone(1mg/kg)	28.92±0.04**	29.8
Group-III 200mg/kg	38.16±0.04**	7.4
Group-IV 400mg/kg	34.58±0.04**	16.1

Values were mean±SEM,(n=6),P<0.01Vscontrol. Data were analyzed by using One-way ANOVA followed byDennett'stest.**

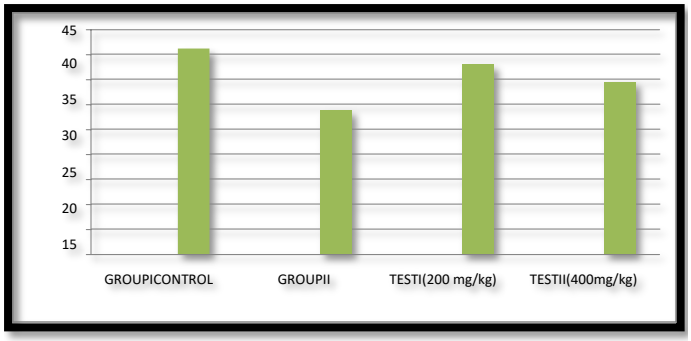


Fig 8: anti-inflammatory activityof ethanolic leaves extract of Luffaacutangula

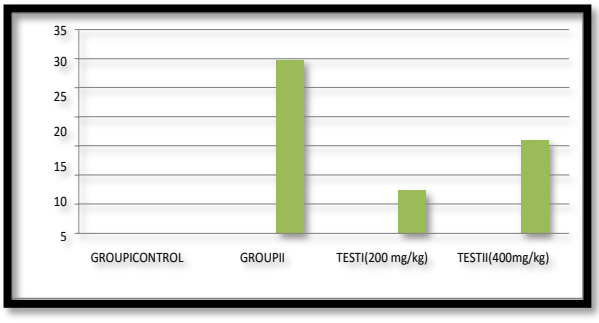


Fig 9:Anti-inflammatory activity of ethanolic leaves extract of Luffaacutangula (L) Roxb, on cotton pellet-induced granuloma in rats. Results are expressed as a percentage of inhibition

The inflammation is complex process, which is frequently associated with pain and involves several events, such as the increase of muscular permeability, increase of granulocytes and mono nuclear cell migration, as well as the granulomatous tissue proliferation. Pain is subjective experience, which is difficult to define exactly even though we all experience it. Pain distinguished as two types, peripheralor neurogenic pain may involve the following pathological states: peripheralnociceptive afferent neurons which are activated by noxious stimuli and central mechanism which is activated by different inputs pain sensation.

The hot plate model was selected to investigate central antinociceptive activity because it has several advantages particularly the sensitivity to strong antinociceptive and limited tissue damage. Prostaglandins and bradykinins were suggested to play an important role in pain. Phenoli ccompounds are reported to inhibits prostaglandin synthesis. A number of phenolic compounds have been reported to produce analgesic activity. Other studies have demonstrated that various flavanoids such as rutin, quercetin, luteolin, bi flavonoids and triterpenoids produced significant antinociceptive effect. As phytochemical test showed presence of flavonoids and tannins in ethanolic extract of Luffa acutangula (L) Roxb, they might suppress the formation of prostaglandin and bradykinins.

Acetic acid is known to trigger the production of noxious substances within the peritoneum, which induces the writhing response. The effect of the extract aganist the noxious stimulus may bean indication that it depressed the production of irritants and there by reduction in number of writhes in the animlas. The writhing induced by chemical substances is due to sensitization of nociceptors by prostaglandins. The abdominal constriction response induced by acetic acid is a sensitive procedure to establish peripherally acting anti-nociceptives. This response is thought to involve local peritoneal receptors. This result indicates that the analgesic effect of ethanolic extract of Luffa acutangula (L) Roxb, might be mediated by inhibiting the synthesis or action of prostaglandins.

The centrally acting analgesic activity of the extract was also corroborated in our study by tail immersion test results. The fact that in thermal stimuli (hot plate & Tail immersion tests), the anti-nociceptive effect should be shown by acting centrally on opioid receptors. Since the drugs had shown the analgesic activity in tail immersion test, it seems that the ethanolic extract can act centrally. Taking this in to consideration the ethanolic extract of Luffa acutangula (L) Roxb, possess peripheral and central analgesic properties.

The ethanolic extract of Luffa acutangula (L) Roxbshowed anti-inflammatory activity on an acute inflammatory process like in carrageenan induced pawede main rats paw. It is well known that leukocytes migration to the injured tissues in an important aspect of the inflammatory process. Histamine and serotonin are responsible for the immediate inflammatory response, where as kinins and prostaglandins mediate prolonged response. Anti-inflammatory activity of many plants has been attributed to their high sterol/triterpene or flavonoids content. The anti-inflammatory effect of ethanolic extract of Luffa acutangula (L)Roxb. in rats with carrageenan-induced paw was significant.

It is known that the inflammatory granuloma is a typical response of a chronic inflammatory process and it has been established that the weight of the pellets is well correlated with the granulomatous tissue. The chronic inflammation occurs by means of the development of prolifereative cells. These cells can be either spread or in granuloma form. The Luffa acutangula (L) Roxb extract showed significant anti-inflammtory activity in cotton pellet induced granuloma and thus found to be effective in chronic inflammatory conditions. It reflected its efficacy ininhibitingtheincreaseinthenumberoffibroblastsandsynthesisof collagen and mucopolysaccharide during granuloma tissue formation.

Brewer's yeast was used to induce fever in albino rats. Fever was recorded 18 hrs after yeast injection since yeast takes a total of about 18hrs to cause the elevation of body temperature. Subcutaneous injection of Brewer's yeast induces pyrexia by increasing the synthesis of prostaglandin. It is considered as a useful test for the screening of plants materials as well as synthetic drugs for their antipyretic effect. Yeast induced pyrexia is called pathogenic fever and its etiology could be the production of prostaglandins. The inhibition of prostagland in synthesis could be the possible mechanism of anti pyretic action as that of paracetamol and the inhibition of prostagland in can be achieved by blocking the cyclo-oxygen as eenzyme activity. There are several mediators for pyrexia and the inhibitions of these mediators are responsible for the anti-pyretic effect.

The oral administration of Luffa acutangula (L) Roxb significantly attenuated rectal temperature of yeast induced albino rats. Thus, it can be postulated that Luffa acutangula (L) Roxb, contained pharmacologically active principles that interfere with the release of prostaglandins. After three hours of the test period, the ethanolic leaves extract of Luffaacutangula (L) Roxb produced appreciable antipyretic activity against brewer's yeast induced pyrexia in albino rat. It was revealed that the extract showed dose dependent anti pyretic activity.

SUMMARY AND CONCLUSION

The present research entitled "Evaluation of analgesic, antipyretic and anti-inflammatory effect ethanolic leaves extract of Luffa acutangula (L.)Roxb." deals with the exploration of pharmacological and phyto chemical screening of the selected Indian medicinal plant Luffa acutangula (L.) Roxb. belonging to the family Cucurbitaceae. The results obtained from the preliminary phytochemical screening of Luffa acutangula (L.) Roxb. extract showed the presence of flavonoids, alkaloids, tannins as shown in Table 1. It was reported that the flavonoids frequently found in plants possess analgesic, antipyretic and anti-inflammatory activity. The plant was collected and got authentification from Botanical Survey of India, southern

regional centre, Telangana with the reference number BSI/SRC/5/23/2023/Tech/791. Approval was obtained from committee for the purpose of control and supervision of experimental animals (CPCSEA) and institutional animal ethics committee (IAEC), proposal number NCP/IAEC/NO:02/2023-24.

The plant was shade dried and crushed. It was pulverized and extracted with ethanol using soxlet apparatus. The resulting extract was concentrated. The study of the plant Luffa acutangula (L.) Roxb. was done by using mice with the oral doses of 5, 50, 100, 1000 & 2000 mg/kg body weight of extract and no mortality was observed for 24 hours. Thus, dose was identified as per OECD423 Guidlines.

As for the analgesic effect, the leaf extract appears to act via the central and peripheral mechanisms of analgesia by using hot plate, tail immersion and Acetic acid induced writhing animal model. Antipyretic activity of leaves extract was done by using yeast induced pyrexia method and finally anti-inflammatory effect of plant extract was done by using carrageenan-induced pawedemain rats and cotton pellet granuloma techniques.

The Luffaacutangula(L.)Roxb. has shown a significant anti-inflammatory, anti- pyretic and analgesic effects. These effects may be because of the presence of phytochemicals such as flavonoids, tannins and terpenoids present in the plant extract.

The Present study showed that the ethanolic leaves extract of Luffaacutangula (L) Roxb, possess peripheral and central analgesic activity inanimal model. The Luffa acutangula (L) Roxb leaves extract shows anti-pyretic activity in animal model in rats and Luffa acutangula (L) Roxbshowed anti-inflammatory activity in different animal model. Flavonoids and tannins are the major constituents of Luffaacutangula (L) Roxb leaves, which may be responsible for its Analgesic, Anti-pyretic and Anti-inflammatoryactivity.

Further detailed study on Luffa acutangula (L) Roxb plant using different flogestic agents in this area will enable us to understand the mechanism of action underline the above mention activity.

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