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Research Article

ANTI ULCER ACTIVITY OF ETHANOLIC EXTRACTS OF FLOWERS OF *LEUCAS ASPERA* WILD

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ABSTRACT

The ethanolic extract of flowers of *Leucas aspera* were screened to evaluate anti-ulcer activity in healthy rats, using aspirin induced ulcer method. The leaves of *Leucas aspera* were collected from the local areas of Thanjavur and shade dried. The dried powdered flowers were extracted from the maceration and soxhlet extraction methods, by using methanol and water. Healthy rats weighing 180-250 gm were taken for the experiment. The anti ulcer activity was noted after drug administration. All data were analysed with one-way ANOVA fallowed by Dunnet's test. The flower extract of *Leucas aspera* showed significant anti ulcer activity at a dose of 300 mg/ kg body weight, which was near equivalent to that of ranitidine.

KEY WORDS: *Leucas aspera*, anti-ulcer activity, acetyl salicylic acid induced ulcer method.

INTRODUCTION

Current treatment of ulcers in developing countries has been largely suppression of pain, with little or no strategy aimed at a cure. Herbal medicine is fast emerging as an alternative treatment to available synthetic drugs for treatment of ulcer possibly due to lower costs, availability, fewer adverse effects and perceived effectiveness. Gastric ulcer, one of the most widespread, is believed to be due to an imbalance between aggressive and protective factors[1].The gastric mucosa is continuously exposed to potentially injurious agents such as acid, pepsin, Bile acids, food ingredients, bacterial products (*H.pylori*) and drugs[2]. These agents have been implicated in the pathogenesis of

gastric ulcer including enhanced gastric acid and pepsin secretion, inhibition of prostaglandin synthesis and cell proliferation growth, diminished gastric blood flow and gastric motility[3]. The goals of treating peptic ulcer disease are to relieve pain, heal the ulcer and prevent ulcer recurrence. Currently there is no cost effective treatment that meets all these goals. Hence, efforts are on to find a suitable treatment from natural product sources.

Leucas aspera (Family:Lamiaceae) commonly known as "Thumbai" is distributed throughout India from the Himalayas down to Ceylon. The plant is used traditionally as an antipyretic and insecticide. Flowers are valued as stimulant, expectorant, aperient, diaphoretic, insecticide and emmenagogue. Leaves are considered useful in chronic rheumatism, psoriasis and other chronic skin eruptions. Bruised leaves are applied locally in snake bites. Medicinally, it has been proven to possess various pharmacological activities like antifungal, antioxidant, antimicrobial, antinociceptive and cytotoxic activity[4-9].

MATERIALS AND METHODS

Collection of Plant materials:

The flowers of *Leucas aspera* were collected from local area Thanjavur in the month of Feb- April 2011. It was authenticated by Department of Siddha Medicine.

Preparation of extracts:

The flowers of *Leucas aspera* were collected and shade dried. Then the dried flowers were powdered to get a coarse powder. The dried powdered flowers were extracted by the maceration and soxhlation process by using ethanol. The extracts are collected and concentrated to a dry mass by using vacuum distillation. Preliminary phytochemical tests showed presence of triterpenoids, steroids, flavonoids and carbohydrates. The suspensions of ethanol extracts were prepared by using 0.6 % of Na-CMC solution.

Selection of animals:

Wistar albino rats of either sex weighing between 180–250gms were used for the antiulcer activity study. The animals were stabilized for 1 week; they were maintained in standard condition at room temp; 25±30C, 35-60% relative humidity and 12 h light dark cycle. They had been given standard pellet diet supplied by Hindustan Lever Co. Mumbai. And water *ad libitum* throughout the course of the study. The animals were handled gently to avoid giving them too much stress, which could result in an increased adrenal output.

Acute toxicity studies:

Acute toxicity study was carried out in female albino rats as per staircase method 5 and OECD guidelines 425. There was no

mortality and no signs of toxicity were found upto 2,000 mg/kg/body weight and found to safe up to 2,000 mg/kg body weight. All the experiments were performed within the guidelines of the Institutional ethical committee.

Anti-ulcer activity

Aspirin-induced ulcer

The wistar albino rats weighing 100-200 g of either sex were divided into four groups, each group consists of 6 animals. All the animals received 200 mg/kg of aspirin once daily for three days. GroupI served as control received 1% carboxy Methyl Cellulose (p.o) of , group II treated with 50 mg/kg (p.o) ranitidine as standard, group III treated with 150 mg/kg (p.o) ethanol extract, group IV treated with 300 mg/kg (p.o) ethanol extract. On the fourth day pylorus part was ligated following 36 hr fasting. Four hrs after the pylorus ligation the animals were sacrificed by de-capitation. The stomach was opened and the ulcer index was determined. The gastric contents were titrated against 0.01 N NaOH to determine the free acidity, pH, % protection and total acidity.

Statistical Analysis

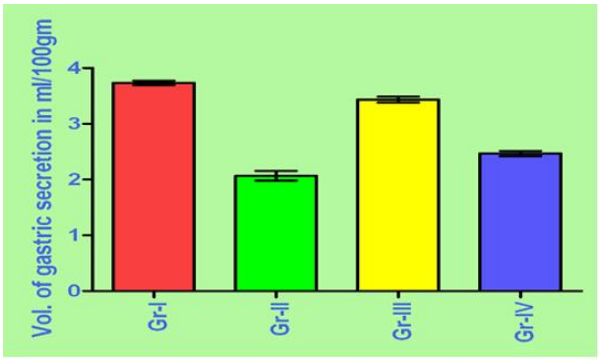
All the values are analysed by using One-way ANOVA, followed by Dunnett t-test in GraphPad Prism version 5.

RESULTS AND DISCUSSION

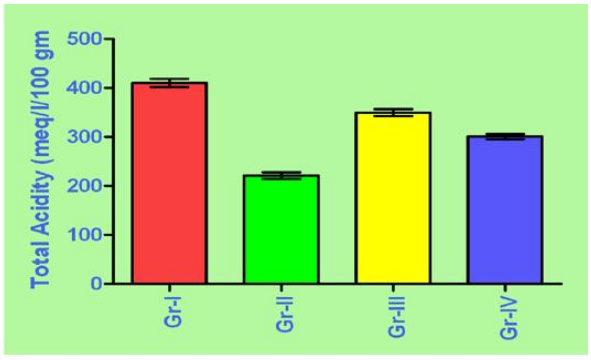
Table 1: Antiulcer Activity of ethanolic extracts of *Leucas aspera*

Group	**Treatment**	**Dose mg/kg**	**Total volume of gastric secretion (ml/100 gm)** (Mean± SEM)	**Total acidity (meq/l/100g)** (Mean± SEM)	**PH** (Mean± SEM)	**Ulcer score** (Mean± SEM)	**% Protection**
I	Ulcer control	Aspirin in 1%CMC	3.73± 0.04	409.8± 8.58	2.56±0.05	4.61±0.12	0.00
II	Standard control	50mg/kg Ranitidine	2.06± 0.08 ***	221.2±6.61***	3.61±0.07***	1.55±0.16***	66.37
III	Ethanol extract	150mg/kg/p.o	3.43± 0.05**	349.3±7.03***	2.83±0.04*	3.90±0.12*	15.40
IV	Ethanol extract	300mg/kg/p.o	2.46± 0.05***	300.07±5.40***	3.05±0.05***	3.75±0.22**	18.65

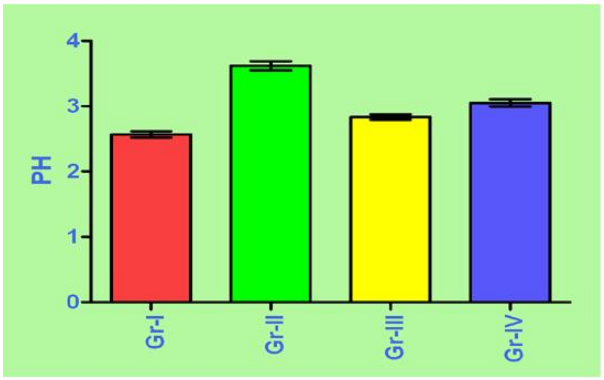
Values are expressed as Mean± SEM in n= six animals, *P<0.05, **P<0.01 and ***p<0.001



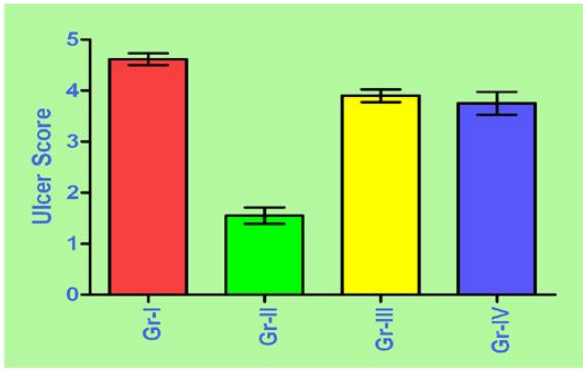
Graph 1: Total volume of gastric secretion



Graph 2: Total Acidity



Graph 3: P^H of Gastric Secretion



Graph 4: Ulcer Score

The ethanol extract of *Leucas aspera* was found to possess remarkable ul cer protection 18.65% at 300mg/kg and standard drug Ranitidine at 66.37%. Pretreatment of rats with ethanolic extract of *L.aspera* preventedgastric ulcerogenesis significantly. But it is seemed to be less efficient than standard drug like Ranitidine. The result of the present study substantiates the traditional claim that the flowers of *L. aspera* possess antiulcer activity.

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