

Study of Different Extracts of Clitoria Ternatea Leaves Protection Against Ulcer

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Abstract: Evaluation of the two different extracts of clitoria ternatea leaves shows that indomethacin induced ulcer is protected by the extracts of clitoria ternatea leaves. Indomethacin produces ulcer within three days of the drug administration. This drug stops the cox pathway which is helpful in the formation of mucus membrane. The extracts of the leaves protect the animals against ulcer in animals.

Keywords: clitoria leaves, ulcer index, protection, ulcer induced

1. Introduction

A peptic ulcer is a sore in the lining of your stomach. The duodenum is the first part of your small intestine. If peptic ulcers are found in the stomach, they're called gastric ulcers. If they're found in the duodenum, they're called duodenal ulcers. You can have more than one ulcer. Peptic ulcers are open craters or sores that develop in the inner lining (mucosa) of the stomach or the duodenum (the first section of the small intestine). A coating of mucus and other chemicals normally shield the stomach and duodenum from digesting themselves. When these protective mechanisms are disrupted, powerful digestive acids can erode into the lining of these organs and cause peptic ulcers. Ulcers can develop in the esophagus, stomach or duodenum, at the margin of a gastroenterostomy, in the jejunum, in Zollinger-Ellison syndrome, and in association with a Meckel's diverticulum containing ectopic gastric mucosa. Peptic ulcer disease is one of several disorders of the upper gastrointestinal tract that is caused, at least partially, by gastric acid. Patients with peptic ulcer disease may present with a range of symptoms, from mild abdominal discomfort to catastrophic perforation and bleeding.

A rambling, pretty, indigenous climber up to 2-3m in height, extensively grown in gardens for its flowers and also found commonly as an escape in hedges and thickets throughout India, up to an altitude of 1500m and in the Andaman Islands. Stem scandent; leaves pinnately 5-foliolate, 6-13 cm long; leaflets ovate or oblong, 2-5 cm long flowers papilionaceous, white or bright blue with yellow or orange centre pods flat, beaked, seeds yellowish brown

2. Collection & Extraction

2.1 Collection and authentication of crude drug

The fresh leaves of *Clitoria ternatea* was collected during the month of September 2011, from the pratap Nursury, karamchari nagar Bareilly. The plant materials was taxonomically identified and authenticated by Dr.umesh chand pandey, HOD and in charge Botany Department, Bareilly college, bareilly BCB/BOT /376/24-01-2012.

2.2 Extraction

The leaves of *Clitoria ternatea* were shaded dried until cracking sound was observed during breakage, and then

these are made into coarsely powdered from using dry grinder. The powder leaves of the plant (500 gm) was macerated with each different solvents methanol, water, chloroform, petroleum ether (1500 ml) at room temperature for 72 hours with occasionally stirring. The extracts were separated from the residues by filtering 1st through several layers of muslin cloth for coarse filtration and then through what man No. 1 filter paper. The residue was further extracted using the same procedure. The filtrates obtained were combined and then evaporated to dryness at temperature not exceeding 40°C and then give moderate heating on water bath at temp 40±5°C. The extracts were kept indifferent Petri dish and it was stored in refrigerator (-4c) at cool place till use. During experiment the crude extracts were diluted (100 mg of the extract was dissolved in 0.5 ml water) with distilled water just before administration to the animal.

3. Antiulcer Activity

Evaluation of anti-ulcer activity was done using following model

3.1 Indomethacin induced gastric ulcer

Indomethacin manufactured by Sisco Research laboratories Pvt. Ltd Mumbai, India and the dose of 10 mg/kg body weight was given orally to rats in two doses at an interval of 15 hour through a feeding tube. 1h after administration of indomethacin, animals was sacrificed by cervical dislocation and the stomach was taken out. Stomach was then examined for the presence of ulcers.

3.2 Methodology for Anti-Ulcer Activity

For determination of antiulcer activity the following experiments were performed. All the models used in the pharmacological experiments was consist of the below 5 groups consisting of 6 animals in each group. Separate set of animals were used for individual test.

3.3 Animals

Male swiss albino mice of body 150-200 gm weight were taken before and after experiment with the help of single pan balance were used for the study. The animals were housed in clean metabolic cages and maintained in controlled temperature (27± 2°C) and light cycle (12 hrs. light and 12

hrs. dark). They were fed with standard pellet diet (Gold mohar brand, Lipton India Ltd.) and water. The protocol was approved by Institutional animal ethics committee (1452/Po/a/11/CPCSEA). (19). They were divided into six groups of five rats each for individual extract

All the doses were given in the following manner

- 1st Group- normal control group received vehicle.
- 2nd Group-Received standard drug i.e. omeprazole (20 mg /Kg. in Vehicle) orally
- 3th Group- Received methanol extract at dose of 200 mg/Kg orally.
- 4th Group- Received methanol extract at dose of 400 mg/Kg. orally.
- 5th Group- Received chloroform extract at dose of 200 mg/Kg orally.
- 6th Group- Received chloroform extract at dose of 400 mg/Kg. orally.

Six hours later, the rats are sacrificed in ether anesthesia and their stomachs removed. Formal-saline (2% v/v) is then injected into the totally ligated stomachs for storage overnight. The next day, the stomachs are opened along the greater curvature, then washed in warm water, and examined under a 3-fold magnifier. Mean ulcer score for each animal was expressed as ulcer index. The percentage of ulcer protection was determined as follows

$$U.I. = \frac{\text{No. of ulcer positive animals} \times 2}{\text{Total no. of animals}}$$

$$\text{Protective (\%)} = \frac{\text{Control mean UI} - \text{Test mean UI} \times 100}{\text{Control mean ulcer index}}$$

Control mean ulcer index

Scoring of ulcer

- 0 = Normal colored stomach
- 0.5 = Red coloration
- 1 = Spot ulcer
- 1.5 = Hemorrhagic streaks
- 2= Ulcers ≥ 3 but ≤ 5
- 3= Ulcers >5

Calculation of ulcer Index

$$U1 = UN + US + UP \times 10-1$$

U1 = Ulcer Index

UN = Average of number of ulcer per animal

US = Average of severity score

UP = Percentage of animal with ulcer

4. Result and Discussion

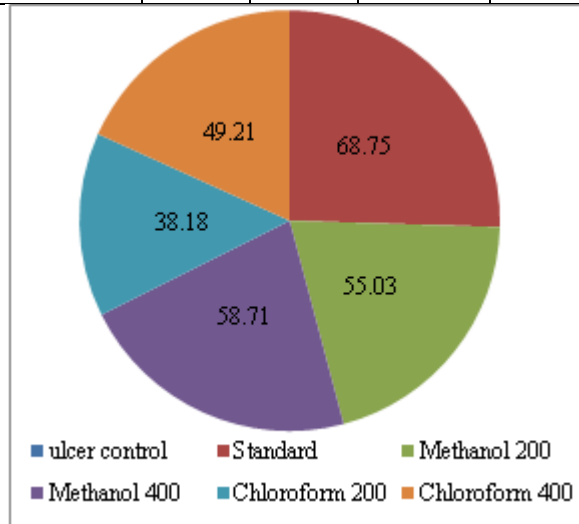
In the anti ulcer activity of different extract on the animals the petroleum ether Showed prominent result to control ulcer in animals among the all extracts. Standard drug shows maximum protection against the ulcer index methanol 400mg/kg showed 58.71% protection against ulcer but standard drug shows 68 %. methanol 200mg/kg shows 55.03 % protection. Chloroform extract showed minimum protection 42 % 49%, 200mg/kg, 400mg/kg respectively. Gastric juice volume reported highest in the chloroform group animal and ph of it was also maximum. methanol group animal among the test groups showed minimum gastric juice volume and also lowest ph. on the basis of results it is clear that clitorrea ternatea leaves have

significant antiulcer effect. All two extract methanol, chloroform has antiulcer activity higher to lower respectively. It also controls the secretion of acid and also maintains the acidity of the gastric juice.

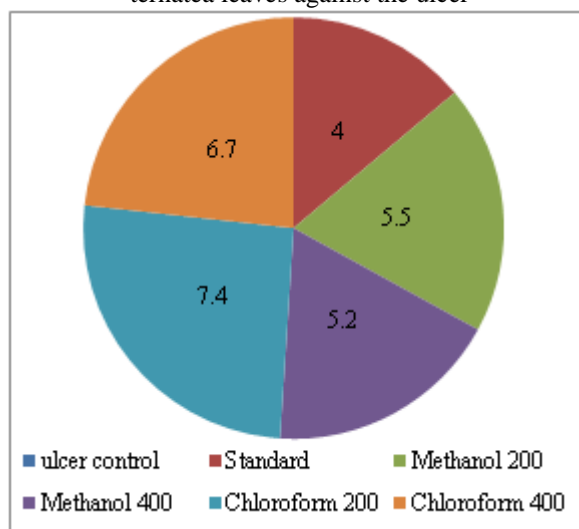
The anti ulcer activity of the different extract shows good results as in comparison of the standard drug the methanol extract is very much active to show the protect the animal against ulcer at the high does it shows better results. methanol extract also shows good protection against the ulcer. It is some much lower to the standard drug at the high dose. Chloroform extracts are least effective against the ulcer to protect the animals but methanol extract at lower dose are better than chloroform extracts at higher dose.

Table 5: Comparative antiulcer parameters of different extract of clitorrea ternatea leaves on mice

Parameters	Ulcer index	Protection (%)	Gastric juice vol.(ml)	pH of gastric juice
ulcer control				
Standard	4±1.45	68.75	3±0.00	4.8±0.74
Methanol 200	5.5±0.31	55.03	6.6±0.30	3±0.38
Methanol 400	5.2±0.33	58.71	5.9±0.03	3.4±0.36
Chloroform 200	7.4±0.23	38.18	7.3±0.00	4.2±0.37
Chloroform 400	6.7±0.78	49.21	6.8±0.15	4.8±0.89



Graph 1: protection% of different extract of clitorrea ternatea leaves against the ulcer



Graph 2: ulcer index of different extract of clitorrea ternatea leaves of ulcer

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