



The Medicinal Effects of Various *Bahia Racemosa* Lam Bark Extracts on Cystamine-Induced Viruses

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ABSTRACT

An experiment was undertaken to examine the antiulcer efficacy of the dried bark powder of the herb *Bauhinia racemosa* in wistar albino rats. Cysteamine produced duodenal ulcer in the rat is commonly utilized as a model of peptic ulcer disease. 36 wistar rats of either sex weighing between 180 -200gm were chosen and placed into six groups, each comprised of 6 rats. 6 groups of rats were given with 0.5% CMC solution, 50 mg/kg of Ranitidine, 200 mg/kg of aqueous extract of *Bauhinia racemosa*, 400mg/kg of aqueous extract of *Bauhinia racemosa* (AEBR), 200 mg/kg of methanolic extract of *Bauhinia racemosa* and 400mg/kg of methanolic extract of *Bauhinia racemosa* (MEBR) respectively. After one hour all the groups were treated with cysteamine at a dosage of 400 mg/kg body weight orally. After 24 hours, write down the number of ulcers, ulcer score, percent incidence, ulcer index and healing index were recorded. From the data collected it was determined that the methanolic extract at a concentration of 400mg/kg demonstrates antiulcer action.

KEYWORDS: *Bauhinia racemosa*, cysteamine, antiulcer activity.

INTRODUCTION

The ancient Indian medical practice of Ayurveda is a prominent example of supplementary and alternative medicine. [1] Similar to other herbal systems, ayurveda relies heavily on traditional herbal remedies; practitioners of the discipline are required to have an in-depth understanding of medicinal plants so they can prescribe the most effective ones to patients. [2] in A more harmonious environment, with less pollution, would provide greater joy to people everywhere. Keep alive for future generations the wisdom passed down from one generation to another on the use of plants, spices, herbs, and other natural cures for health problems. the third As early as 78 A.D., when Dioscorides penned "De Materia Medica," listing hundreds of medicinal plants, the Western world had evidence of the use of natural substances for medical reasons. four, five] People all throughout the globe have long recognized medicinal plants as a vital resource for maintaining good health. The therapeutic characteristics of medicinal plants are very effective in treating a wide range of disorders, and the fact that these plants are completely natural is an added bonus. 6, 7 People are more sensitive to illnesses now, and there are thousands of harmful and polluted items flooding the market. Medicinal herbs may provide the strongest defense against these threats. [8]

Three of India's oldest medical systems—Ayurveda, Siddha, and Unani—rely on a wide range of herbal remedies. Flavonoids derived from For both the treatment and prevention of peptic ulcers, the antiulcer capabilities of *Bauhinia racemosa* are used. Flavonoids (such as quercetin, naringin, silymarin, anthocyanosides, and derivatives of sophoradin), saponins, and tannins are phytochemical substances that have anti-ulcer action [10]. Anti-inflammatory and anti-ulcer effects were also shown by the plant *Bauhinia racemosa* [11]. [12] Plants are being used for ethno-veterinary and human purposes by pharmacologists and toxicologists, who are also turning the plant components into a medicine for the cattle. As a result, comparative pharmacological testing of various plant components is required.

MATERIALS AND METHODS

Collection of Plant material

The plant material i.e. bark of *Bauhinia racemosa* was collected from in and around tirupati. The plant material was coarsely powdered with the help of rotary grinder and the powder is stored in airtight plastic containers. The prepared powder was used for the preparation of extracts.

Preparation of extract

After drying, the bark of *Bauhinia racemosa* was ground into a coarse powder, which was then utilized for extraction. To make AEBr, the powder was mixed with 1400 ml of distilled water in a 1:20 ratio in a conical flask and then heated on a heating mantle to 40 degrees Celsius for three hours. Filtration followed cooling of the flask after three hours. really took place. The resulting filtrate was heated to 100 °C and evaporated on a heating mantle. The gathered debris had a dark brown hue.

In order to make MEBr, 100 g of powder was extracted using a Soxhlet apparatus and 400 cc of petroleum ether for about 48 hours. A hot air oven was used to dry the marc after defatting it. Then, 400 ml of methanol was added to the Soxhlet apparatus for further extraction until no residue was left on evaporation.

The resulting product was stored for lyophilization using a freeze-dryer in order to create powdered extracts. Lyophilization stabilizes the formulation by removing solvents from the solutes, allowing it to maintain enough pharmacological action during long-term storage. The sterile dark brown bottles containing the freeze-dried goods were kept in a refrigerator at 4 °C until they were needed.

Animals used in experiments

Thirty-six mature male and female Wistar rats weighing 180–200 grams were kept in separate cages. For the first 48 hours, the animals were allowed to adjust to the environment in the animal room. They were kept in a controlled environment with a temperature of 22±2°C, humidity of 12 hours, and light and dark cycles. They were given a regular pellet diet from Hindustan Lever in Bangalore, and they had access to drinking water.

Cysteamine induced ulcer model.^[13]

Duodenal ulcers were induced by administration of cysteamine hydrochloride at adose of 400 mg/kg p.o, in aqueous solution at an interval of 4 h for two times. All the animals are divided into 6 groups of 6 animals in each group. The treatment protocol for each group is as follows:

Group 1: 0.5% CMC solution (Control) Group 2: 50 mg/kg of Ranitidine (Standard)

Group 3: 200 mg/kg of aqueous extract of *Bauhinia racemosa* (AEBr)

Group 4: 400mg/kg of aqueous extract of *Bauhinia racemosa* (AEBr)

Group 5: 200 mg/kg of methanolic extract of *Bauhinia racemosa* (MEBr)

Group 6: 400mg/kg of methanolic extract of *Bauhinia racemosa* (MEBr)

After the respective treatment all the animals were sacrificed 48 h after the administration of Cysteamine by over dose of ether anesthesia and the duodenum were excised carefully and make a longitudinal cut, open and expose the mesenteric area.

Evaluation parameters Ulcer scoring^[14]

After sacrificing the rat, duodenum was removed and make a longitudinal cut, open and washed it slowly under running tap water. Put it on the galss slide and observe under 10x magnification and score the ulcer as above. Note down the number of ulcers per animal and severity scored by observing the ulcers microscopically with the help of 10x lens and the ulcers were given scores based on their intensity as follows.

0 = no ulcer,

1 = superficial mucosal erosion,

2 = deep ulcer

3 = perforated or penetrated ulcer.

Ulcer index^[15]

The ulcer index was calculated by using the following equation

U.I. = Arithmetic mean of + number of ulcer positive animals × 2 intensity in a group Total number of animals

Statistical analysis of data

Results were expressed as mean ± S.E.M. the statistical difference between the groups in the term of the mean rate of wound healing was calculated in terms of ANOVA mean ± S.E.M. the difference was considered significant if p<0.01

RESULTS

In the control group Cysteamine induced characteristic lesions in the glandular portion of rat duodenum which appeared as elongated bands of thick, black & dark red lesions. But Administration of MEBr at a dose of 400 mg/kg shown significant protection against ulcers with that of the standard group receiving Ranitidine as standard drug and is represented in Table 1. So by observing the results, MEBr is having the antilucer activity.

Table 1: Effect of AEBr and MEBr on cysteamine induced duodenal ulcers.

Treatment groups	Dose	Ulcer area (mm ²)	Ulcer score	Ulcer index
Control	---	5.50± 0.258	3.0±0.365	7.5±0.458
Ranitidine	50 mg/kg	2.8±0.24**	1.4±0.23**	4.8±0.35**
AEBR	200 mg/kg	4.2±0.21	2.7±0.24	6.5±0.21
AEBR	400 mg/kg	3.8±0.215*	2.4±0.18*	5.9±0.23*
MEBR	200 mg/kg	4.23±0.43*	2.1±0.23*	6.2±0.24*
MEBR	400 mg/kg	2.9±0.43**	1.7±0.21**	5.0±0.31**

Values are mean ± SEM, n =6.* $p < 0.05$ and ** $p < 0.01$, when compared to control

DISCUSSION

In order to reduce acid secretion or to enhance mucosal defense systems, many therapeutic drugs are used.

improving mucosal production, regulating prostaglandin synthesis, or stabilizing surface epithelial cells. On pages 16 and 17, Cysteamine inhibits the production of acidic mucus the rate of stomach acid secretion and promotes secretion from the Brunner's glands located in the proximal duodenum. Additionally, serum gastrin concentration is raised, and gastric emptying is postponed. Due to its location, this chemically generated ulcer looks similar to duodenal ulcers in humans. Injuries to the gastric mucosa begin with the pathophysiology of large intracellular calcium buildup. As a result, the surface epithelium dies and sheds its cells. [18] in Bauhinia racemosa stem bark aqueous and methanolic extracts showed antiulcer efficacy. When compared to the control group, the findings showed that the percentage of ulcer incidence and ulcer index decreased in a dose-dependent way. Therefore, it was thought that the Bauhinia racemosa plant considerably reduced the number of ulcers in rats that developed gastrointestinal ulcers caused by cysteamine. This might be because flavonoids are present, which have the potential to inhibit stomach acid production and peptic activity, thereby avoiding gastric ulcer development.

CONCLUSION

In this work, the anti-ulcer properties of Bauhinia racemosa extracts in both water and methanol are examined. We draw the following findings from the research. The mucosa is protected from cysteamine's ulcerogenic effects when Bauhinia racemosa is administered before therapy. Consequently, our study's results indicate that the Bauhinia racemosa plant has strong anti-ulcer properties.

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