

Study of Antiulcer Activity of *Bauhinia racemosa* Lam in rats

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Abstract

An experiment was conducted to study the antiulcer effect of the dried fruit powder of the plant *Bauhinia racemosa* in Wistar albino rats. Thirty Wistar rats of either sex weighing between 150 - 200gm were selected and divided into five groups, each comprising of six rats. The rats were divided into 5 groups T₁, T₂, T₃, T₄, and T₅ and were given 0.5 ml normal saline, aqueous extract in the dose rate of 100mg/kg body weight, 200mg/kg body weight, alcoholic extract @100mg/kg body weight and 200mg/kg body weight respectively. After one hour all the groups were administered Paracetamol at a dose rate of 200mg/kg body weight orally. After 24hrs, the number of ulcers, ulcer score, percent incidence, ulcer index and healing index were recorded. From the results obtained it was concluded that aqueous extract in the dose rate of 200mg/kg body weight and alcoholic extract (100mg/kg & 200mg/kg body weight) could produce antiulcer activity.

Keywords: *Bauhinia racemosa*, Paracetamol, antiulcer activity

Introduction

The use of herbal medicine is a rich tradition particularly among the people of India, China, Egypt and Brazil. Traditional system of medicines in India includes Ayurveda, Siddha and Unani which are based on the use of herbal medicine. Francesca and Angelo, (2000) reported the use of plant flavonoids from *Bauhinia racemosa* as antiulcer remedies and for the prevention and treatment of peptic ulcer. They reviewed the anti-ulcer properties of *Bauhinia racemosa* and also reported that phytochemical compounds with anti-ulcer activity includes flavonoids (i.e. quercetin, naringin, silymarin, anthocyanosides and sophoradin derivatives), saponins and tannins. Chulabhorn *et al*, (2002) investigated the bioactivity of *Bauhinia racemosa* and suggested that the plant also showed antiulcer and anti-inflammatory properties. Veterinary pharmacologist and toxicologist are exploiting plants for ethno-veterinary uses and are converting the extracted parts of the plants into medicine for the livestock. Therefore, there is need to undertake relative pharmacological evaluation on different varieties of the plant from different regions

Table-1. Experimental Design

Groups	No. of Animals	Treatments
T ₁	6	Paracetamol @200mg/kg b.w +Normal saline 0.5ml.
T ₂	6	Paracetamol @200mg/kg b.w +Aqueous extract I (100 mg/kg b.w)
T ₃	6	Paracetamol @200mg/kg b.w +Aqueous extract II (200 mg/kg b.w)
T ₄	6	Paracetamol @200mg/kg b.w +Alcoholic extract I (100 mg/kg b.w)
T ₅	6	Paracetamol @200mg/kg b.w +Alcoholic extract II (200 mg/kg b.w.)

and also to carry out the phytochemical and clinical research work of the indigenous plants to prove and substantiate the traditional phytotherapies of the local people.

Materials and methods

Thirty Wistar albino rats of either sex weighing between 150 to 200gm were selected and divided into five groups, each comprising of six rats. The experiment was planned on the line of Sahani *et al*, (1990). The rats were fasted for 24 hours prior to the beginning of experiment but water was provided ad-libitum. The extracts were administered orally 1 hour prior to oral administration of Paracetamol. Drugs were administered to rats as follows.

Twenty four hours after the treatment, the rats were sacrificed. Abdomen was opened by midline incision and the stomach was dissected along the greater curvature in order to see the after effects. The ulcer reading, ulcer index and healing index were recorded as per the method employed by Sahani *et al*,(1990).

Shedding of epithelium, petechial hemorrhages, one or two small ulcers, many ulcers, perforated ulcers

Table-2. Analysis of anti-ulcer activity of *Bauhinia racemosa* Lam in albino rats

Groups	Drugs with dosage (mg/kg)	Number of ulcers	Ulcer Score	Percent	Incidence	UlcerIndex	Healing Index
I	Paracetamol(200)	4±0.68	33±0.258	100	17.8	—	—
II	Paracetamol (200) + Aqueous extract (100)	3.5±0.42	82.8±0.30	78	7.5	15.6	12.3
III	Paracetamol (200)+ Aqueous extract (200)	2.5±0.428*	2.3±0.42	1	62.5	11.2	37
IV	Paracetamol (200)+ Alcoholic extract (100)	2.3±0.333*	1.5±0.56	2*	57.5	10.2	42.6
V	Paracetamol (200)+ Alcoholic extract (200)	1.6±0.333*	1.1±0.30	7*	40	7.1	60.1

(p<0.01) ± S.E. = Standard Error Mean with common superscripts do not differ significantly.

were considered to be positive ulcerogenic response. Mean number of ulcers formed on the gastric mucosa per mice was counted. Ulcer score was given as +, ++, +++, ++++ according to severity of ulceration. Percent incidence of ulceration was also determined in drug treated and control groups of rats. Ulcer index and healing index (percent improvement) were calculated by applying the following formulae.

Ulcer Index = Number of ulcer + ulcer score + % incidence/Number of Animals

Healing index = $\frac{\text{Ulcer Index (control)} - \text{Ulcer Index (drug)}}{\text{Ulcer Index (control)}} \times 100$

Results and Discussion

The antiulcer activity of aqueous and alcoholic extracts of the stem bark of *Bauhinia racemosa* Lam was observed as per the method described by Sahani *et al.*, (1990). The results of antiulcer activity of aqueous and alcoholic extracts of *Bauhinia racemosa* are presented in table. To study the antiulcer activity, the ulcer no. and ulcer score were calculated and analyzed for the significant reduction towards normal. There was significant reduction in the ulcer no. on administration of aqueous (200mg/kg body weight) and alcoholic extracts (100 and 200mg/kg body weight) of *Bauhinia racemosa* (P<0.01), when compared with control group. There was also significant reduction in the ulcer score when administered alcoholic extracts (@100 and 200mg/kg body weight) of *Bauhinia racemosa* (P<0.01), when compared with control group.

From the results obtained, it was observed that, there was decrease in percent of incidence of ulcer and ulcer index in a dose dependent manner when compared with control group. After calculating the healing index (percent improvement), there was an increase in healing index in dose dependent manner when compared with control group. So it was considered that the plant *Bauhinia racemosa* has significantly decreased the no of ulcers in Paracetamol induced gastric ulcers in rats. This may due to the presence of flavonoids which may reduce the gastric

secretion and peptic activity and prevent the formation of gastric ulcer. Desai (1975) reported the application of plucked stem bark of *Bauhinia racemosa* in case of wound and mouth ulcer. Similar results were also obtained by Francesca and Angelo (2000) who reported the use of plant flavonoids from *Bauhinia racemosa* as antiulcer remedies and are used for the prevention and treatment of peptic ulcer.. Akhtar and Ahmad (1995) reported the anti-ulcerogenic activity of the methanolic *B. racemosa* (flower buds) in aspirin-induced gastric ulcers in rats. Their effects were studied on the volume of gastric juice secreted; acid output, peptic activity, mucin activity and curative ratio were recorded. *B. racemosa* (flower buds) decreased the ulcer index significantly, and showed some decreased in the ulcer index. Thus the result from our study suggested that the plant *Bauhinia racemosa* has the potent anti-ulcer property.

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