



Antiulcer activity of Aqueous Alcoholic Extract of Leaves of *Prenanthes Sarmentosus* (AAPS) on Male Albino Rats

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ABSTRACT

Ulcer can get developed inside the inner lining of the stomach (gastric ulcer) or the small intestine (duodenal ulcer). Both the ulcers are also cumulatively referred as peptic ulcers. This *Prenanthes Sarmentosus* leaves were used for reducing gastric irritation by people. This study was performed to avoid folklore belief. The present study was carried by pylorus ligation, aqueous alcohol induced ulcer models in albino rats. The antiulcer activity of AAPS (150, 300 mg/kg p.o. for 10 days) was compared with standard drug (Omeprazole 0.5 mg/kg body weight). In pyloric ligation induced ulcer model, the studied parameters were gastric volume, pH, total acidity, free acidity, and ulcer index were determined for observing the severity of ulcers. In this study the volume of gastric content, total/free acidity was significantly decreased at $p < 0.05$ and $p < 0.01$ and pH of the gastric juice was significantly increased at $p < 0.05$ and $p < 0.01$ in AAPS treated groups as compared to control group. All the doses of AAPS showed dose dependent antiulcer effect as well as significant ($p < 0.05$ and $p < 0.01$) reduction in the ulcer index as compared to control group in all the experimental models.

Keywords: Antiulcer effect, Pylorus ligation, Ulcer index

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INTRODUCTION

Botanical name: *Prenanthes Sarmentosus* linn

Family : Compositae

Kingdom : Plantae

Genus : *Prenanthes*

Species : *Sarmentosus*

Tamil Name: Ezhuthani poondu ,Mutherukan Chevi ,Small Shrub having Ovoid leaves with serrate, broad ,long petiole and violet flowers on it, grows during rainy season

Methods:

The fresh Leaves of *Prenanthes Sarmentosus* were collected from the surrounding area of western ghats hills and dried under room temperature for 15 days. In-vivo antiulcer study was performed from April 2019 to May 2019 and the Animal ethical approval no: SARPC/IAEC/009/18-19 was permitted from our college vadakkankulam Tirunelveli district, Tamilnadu, India. The plant was identified and authenticated with certificate by Dr. M. Syed Ali Fathima, Assistant Professor & Head., Department of Botany, Sadakathullah Appa college affiliated to manonmaniam sundaranar university Tirunelveli, where the voucher specimen was deposited for further reference in Pharmacognosy department of S.A.Raja College of Pharmacy.

Experimental Animals

Adult albino rats (30 numbers) of 150 - 200g of body weight of male sex were procured from the animal house of S.A.RAJA Pharmacy College, Vadakkangulam tirunelveli ,India. The study protocol was approved from the Institutional Animal Ethics Committee (IAEC) under the reference no SARPC/IAEC/009/18-19, and CPCSEA guidelines were adhered during the maintenance and experiment. All animals were maintained under standard husbandry conditions with food and water ad libitum.

In all the experimental models, male *albino* rats were selected and divided into four groups of six animals each. Animals were fasted for 24 hour before the study¹, but had free access to water. Group I treated as vehicle control, received only distilled water; group II is standard(Omeprazole 0.5 mg /kg body weight) ,Group III and IV treated as treatment groups, received the graded dose of aqueous alcoholic extract of leaf extract² of *Prenanthes Sarmentosus* at 150 and 300 mg/kg, (P.O.) for 8days (once in a day) respectively.

Scoring: Normal colored stomach (0), Red coloration (0.5), Spot ulcer (1), Haemorrhagic streak (1.5), Deep ulcers (2) and Perforation (3). Mean ulcer score for each animal was expressed as ulcer index [12]. Ulcer index (U) was calculated by using following formula:

$$U = U + U + U \times 10 - 1$$

Where, U (Ulcer Index); U (Average number of ulcers per animal); U (Average number of severity score); U (Percentage of animals with ulcers). The percentage inhibition of ulceration was calculated and compared with control.

Ulcer index = $10/x$ where x is Total mucosal area / Total ulcer area

Ulcer % protection = $\frac{\text{ulcer index control} - \text{ulcer index test}}{\text{ulcer index control}}$

Observation:

AAPS showed 28.56, 48.42 % of ulceration inhibition at Doses of 150 and 300 mg/kg respectively whereas Omeprazole showed 54.87% ulceration inhibition. The active constituents will be separated by column chromatography and the active constituents of the drug may be established



Table 1

Group	Dose	Ulcer index mean \pm SEM	% of ulcer protection
Group I	Normal control	2.75 \pm 0.52	00.00
Group II	Omeprazole 0.5mg/kg	1.52 \pm 0.26**	54.87
Group III	Low dose 150 mg/kg test drug	2.15 \pm 0.26	28.56
Group IV	High dose 300 mg/kg test drug	1.75 \pm 0.38**	48.42

Table 2 Effect of AAPS on percentage of ulcer inhibition by pyloric ligation, ethanol induced ulcers in Albino rats.

Group	Dose	Gastric juice volume (ml/4h)	Free Acidity	Total output(mEq/L/100 gm)	Acidity	PH of the gastric fluid	Pepsin activity (m/h)	Ulcer Index	Ulcer Index
Group I	Normal control	3.5 ± 0.11	0.43 ± 0.16	140 ± 0.10		1.1 ± 0.09	2.95 ± 0.18	5 ± 0.26	5 ± 0.26
Group II	STD Omeprazole 0.5 mg/kg	2.1 ± 0.10	0.34 ± 0.15	180 ± 0.14		1.8 ± 0.07	1.74 ± 0.78	2.1 ± 0.22	2.1 ± 0.22
Group III	Low dose 150mg/kg test drug	2.8 ± 0.29	0.40 ± 0.17	130 ± 0.20		1.9 ± 0.09*	2.82 ± 0.45	2 ± 0.05	2 ± 0.05
Group IV	High dose 300mg/kg test drug	1.8 ± 0.41**	0.39 ± 0.16**	124 ± 0.55**		2.1 ± 0.05**	1.90 ± 0.22**	1.5 ± 0.39**	1.5 ± 0.39**

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