RESEARCH ARTICLE

Antiulcer Activity of *Trianthema portulacastrum* Linn. in Gastric Ulcers Caused by Alcohol

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ABSTRACT

Trianthema portulacastrum Linn. is an ancient Indian medicinal plant widely used in the treatment of ulcers, wounds, inflammation and pain. The leaves, flowers, and roots are the most important parts that are used traditionally. In the present investigation, antiulcer screening of etOH and aqueous leaves extract was screened in ethanol-induced gastric ulcers in rats at the selected doses. The results thus obtained were compared with standard drugs and it was found that EATPL exhibited significant results when compared with AETPL.

Keywords: Extract, Ethanol, Ulcer, *Trianthema portulacastrum,* Leaves.

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INTRODUCTION

The most common gastrointestinal ailment, ulcers, are characterized by breaks in the stomach, small intestine, and occasionally the lower esophagus' lining. The ulcer is primarily linked to symptoms including nausea, vomiting, bloody or dark feces, burning pain in the abdomen that radiates to the chest, loss of appetite, and unexplained weight loss.[1,2] Together, ulcers, which is also known as gastric ulcers and duodenal ulcers, are referred to as peptic ulcers PU. *Trianthema portulacastrum,* commonly known as black pigweed (E) and patharchata (H) belongs to the family Lamiaceae is a flowering medicinal pants. The plant contains various bioactive compounds such as trianthenol, leptormol, cinnamic acid, beta cyanin and ecdysterone. Traditionally, almost every part of the plants is used for the treatment of inflammation, fungal infection, pain, liver disorders etc.[3]

METHODOLOGY

Gathering and Verification of Leaves

Leaves of *T. portulacastrum* Linn. were gathered from the Indore area, MP and were verified by Prof Dr. S.N. Dwivedi, Botanist, Rewa, MP and voucher specimen no J/Bot/TPL-011 was assigned.

Extract Preparation

Approximately 500 gm of coarsely dried powdered leaves of selected plants were loaded in soxhlet using ethanol or water as solvent to obtain the ethanolic and aqueous extract.[4]

Preparation of Niosomes

Acute toxicity of extract

The dose of ethanolic and aqueous extract of the selected plant was determined using OECD-423.[5]

Antiulcer activity ethanol induced

Rats having 150 to 200 gm weight were separated in five groups of six animals in each. Group I is considered as control and receive normal saline, i.e., 5 mL/kg bw. Group II is standard and received ranitidine, i.e., 150 mg/bw. Groups III and IV are treated group received 200 mg/kg bw extract dose of EETPL and AETPL.[6,7] The animals were given the test dose and after that, they were slaughtered to take stomach and finally, ulcer score was determined.

Statistical analysis

The Dunnet comparison test was used after one-way ANOVA to determine the statistical significance. ANOVA was utilized to compare nonparametric ulcer scores, and then the nonparametric Dunn post-test was employed.

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Table 1: Dose calculation of selected extract

Animals	*Dose of extract in mg/kg*	*Death of animals in numbers*	
		EETPL	*AETPL*
3	5	0	0
3	50	0	0
3	300	0	0
3	2000	0	0

Table 2: Gastric UI and %inhibition of the extract

Groups	*Dose in mg/kg*	*Gastric UI*	*%Inhibition*
Control	-	5.44 ± 0.22	-
Standard	150	2.10 ± 0.18	54.29**
EETPL	200	3.11 ± 0.20	43.44*
AETPL	200	4.22 ± 0.11	24.11**

Note: Reading are X[Mean] ± SEM, n = 6; * p <0.01, **p <0.001 is significant

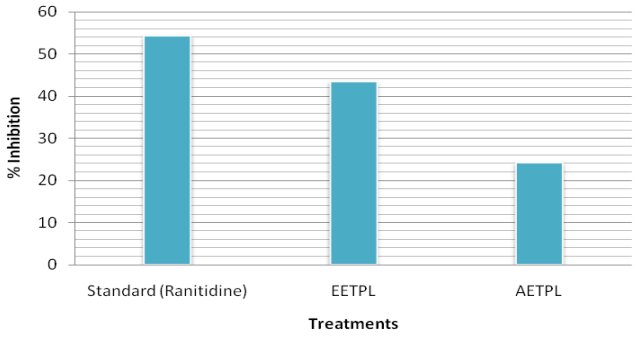

Figure 1: Comparative %inhibition

RESULTS AND DISCUSSION

The toxicity of EATPL and AETPL was determined using OECD-423 via acute oral toxicity experiments in order to ascertain the LD_{50}. According to the findings, the extracts fit under group 5 (unclassified). Consequently, the ED_{50} was 200 mg/kg and the LD_{50} was 2000 mg/kg. Thus, 200 mg doses were taken in consideration for the study. Table 1 presents the detailed results.

In the ethanol-induced ulcer model, EETPL and HAESCS had a significantly lower ulcerogenic effect than the control group. The percentage of inhibition in the animal group treated with extract with 200 mg/kg dose was determined to be 54.29, 43.44, and 24.11%, respectively, when compared to the standard, EETPL, and AETPL. These findings suggest that EETPL produces better results than AETPL. Table 2 and Figure 1 show the results.

CONCLUSION

From the results, it was clearly depicted that EETPL was more effective in reducing ulcers than AETPL when compared to the reference.

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