Vol. 3/2 (2003) 212 - 214

Short Communication

JOURNAL OF NATURAL REMEDIES

Antiulcer activity of aqueous extract of *Basella rubra* in albino rats.

S. Deshpande[1], G. B. Shah[1], I. Deshpande[2], N. S. Parmar*[3]

1. K. B. Institute of Pharmaceutical Education and Research, Sector 23, Gh-6 Road, Gandhinagar (Gujarat) 382023
2. Ayushri Panchakarma Clinic, Satellite, Ahmedabad (Gujarat) 380 015, India
3. Institute of Pharmaceutical Sciences, Nirma University of Science and Technology, Ahmedabad - 382481, Gujarat.

Received 12 December 2002 : Accepted 28 March 2003.

Abstract

Objective: To evaluate the antiulcer activity of aqueous extract of *Basella rubra*. Materials and method: Aqueous extract of the leaves of *Basella rubra* was prepared and antiulcer activity was studied on ethanol and pylorus ligated induced gastric ulcers in rats. Results: Aqueous extract of the leaves of *Basella rubra* (10 and 20mg/kg p.o.) showed significant and dose-dependent antiulcer activity against ethanol and pylorus ligated induced ulcer in rats. Study was compared with ranitidine (50 mg/kg p.o.) as standard drug. Conclusion: The present results indicate the potential of aqueous extract of *Basella rubra* in the treatment of gastric ulcers.

Key words: *Basella rubra*, Antiulcer activity, pylorus ligation, gastric ulcer.

1. Introduction

Basella rubra L. possesses a variety of uses in the traditional system of medicine. *Basella rubra* leaves are locally known as pothi in gujarati and they have widely used as green vegetable throughout the country and in many other parts of the world [1]. Antiviral activities of *Basella rubra* L. seeds have been reported [2]. Two novel antifungal peptides, designated alpha and beta-basrubrins, respectively, were isolated from seeds of the Ceylon spinach *Basella rubra* [3]. Fresh aerial parts of *Basella rubra* L. contain triterpene oligoglycosides, basellasaponins A, B, C, and D [4]. *B. rubra* L. contains Vitamins A, B, calcium and iron [5]. It is used in urticaria, gonorrhoea, diuretic and as a cooling effect [6]. *Basella rubra* leaves have been reported as antiulcer activity [7]. Our objective was to study antiulcer activity of aqueous extract of *Basella rubra* (AEBR) leaves in comparison with ranitidine on ethanol and pylorus ligated induced gastric ulcers in rats.

* Corresponding author
E-mail address: parmarns@rediffmail.com

2 Materials and methods

2.1 Plant material

Basella rubra leaves were collected from local market and authenticated by our pharmacognosy department where the voucher specimen (hb/ 2002/09) is deposited.

2.2 Preparation of extract

Moderately coarse powder of Air dried leaves of *B. rubra* were extracted by maceration process below 60°C using distilled water (9.82% yield).

2.3 Anti-ulcer activity

Albino rats (150-190g.) of either sex were used. They were kept in standardized environmental conditions and maintained on a standard rodent diet and water *ad libitum*. Anti-ulcer activity was studied using pylorus ligation and ethanol [7] induced cytodestruction method [8] for primary screening. Aqueous extract (10 and 20 mg/kg) or ranitidine (50 mg/kg) were administrated orally 30 min before ethanol or pylorus ligation.

After 1 h of ethanol or 4 h of pylorus ligation rats were sacrificed using anaesthetic ether and stomach were isolated, and opened along the with cut from the greater curvature. Gastric fluid was collected separately for measurement total gastric volume and estimation of free and total acidity. Ulcer index were calculated using the methods described earlier [9].

2.4 Statistical analysis

Results were expressed as mean ± S.E.M. Difference between the means were analyzed by Student's *t* - test and level of significance was set at $P<0.05$.

Table 1
Effect of aqueous extract of *Basella rubra* (AEBR) on ethanol induced cytodestruction in the stomach of albino rats[a].

Treatment	Dose (mg / kg p.o.)	Ulcer Index	Protection (%)
Control Vehicle (1ml/kg)	—	27.41 ± 2.31	—
Ranitidine	50	11.45 ± 0.36*	58.23
AEBR	10	14.63 ± 0.21*	46.63
AEBR	20	07.32 ± 0.19*	73.29

[a] Values are mean ± S.E.M. (n = 6); *P < 0.05 vs control.

Table 2
Effect of aqueous extract of *Basella rubra* (AEBR) on gastric ulcers induced by Pylorus ligation method in rats[a].

Treatment	Dose (mg / kg p.o.)	Ulcer Index	Protection (%)
Control Vehicle (1ml/kg)	—	2.37 ± 0.42	—
Ranitidine	50	0.65 ± 0.08*	72.57
AEBR	10	1.12 ± 0.05*	52.74
AEBR	20	0.73 ± 0.03*	69.19

[a] Values are mean ± S.E.M. (n = 6); *P < 0.05 vs control.

3. Results and discussion

A dose dependent reduction in ulcer index was obtained in the both the models studied. Ranitidine treated group were observed better ulcer protection as compared to AEBR treated groups of pylorus ligation. Our results have been summarized in Table 1 and 2. It is evident that the aqueous extract of *B. rubra* possesses significant and dose dependent anti-ulcer and cytoprotective effects. AEBR treated groups did not produce any significant change in gastric volume, free and total acidity in comparison to control group.

Present study shows that AEBR does not have antisecretory effect. Further studies are being carried out to study its anti-ulcer activity using other models of gastric and duodenal ulceration and to isolate and characterize the active phytoconstituent (s) responsible for this action.

4. Acknowledgements

The authors are thankful to Kopran Ltd., Mumbai, for providing the pure sample of ranitidine hydrochloride.

References

1. Bolognesi A, Polito L, Olivieri F, Valbonesi P. (1997) *Wild. Planta* Dec; 203(4) : 422-9.

2. Geodakian RO, Erofeeva, T V Aviakosm Ekolog. (1996) *Med* ; 30(3):39-43 [Article in Russian]

3. Wang H, Ng T B. (2001) *Biochem. Biophys. Res. Commun.* 9; 288(4): 765-70

4. Murakami T, Hirano K, Yoshikawa M. (2001) *Chem. Pharm. Bull.* (Tokyo) 49(6): 776-9

5. Chopra RN, Nayar SL, Chopra IC. (1956) *Glossary of Indian Medicinal Plants*. National Institute of Science Communication: New Delhi.

6. Anonymous. (1988) *The Wealth of India*, Raw Materials Vol 2 : B. CSIR : New Delhi ; 52

7. Kirtikar KR, Basu BD. (1998) *Indian Medicinal Plants*, Part III, 3rd, International Book Distributors : Dehradun ; 2087 –88

8. Shay M, Komarov SA, Fels D, Meranze D, Gruenstein H, Siplet H. (1945) *Gastroenterology* ; 5 : 43-61.

9. Parmar NS, Desai JK. (1993) *Indian J. Pharmacol.* 25 : 120-135.