

**ANTI-ULCER ACTIVITY OF THE ALKALI PREPARATION OF
THE ROOT AND FRESH LEAF JUICE OF
MORINGA OLEIFERA LAM.**

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Abstract: *The alkali preparation of the root and fresh leaf juice of moringa oleifera possessed significant dose –dependent anti-ulcer activity in experimentally induced acute gastric ulcers with aspirin, the anti-ulcer effect of the alkali preparation of the root seems to be more pronounced than that of the fresh leaf juice. The anti-ulcer activity of the alkali preparation of the root could be due to its content of alkaloids or its anticholinergic and antihistaminic activities, or a combination of these factors.*

INTRODUCTION

Moringa oleifera lam (family- moringaceae) is a soft wooded deciduous tree. It grows to a height of 25 to 30ft. leaves are generally light green in colour, alternate, having opposite and entire leaflets. The plant is well known for its various medicinal properties (1). The powdered seeds were traditionally utilized for water purification purpose (2). And juice of leaves are being applied in eye infections (3). Different parts of *Moringa oleifera* viz, leave, fruits and flowers have been reported to contain minerals and vitamins (4). The leaves contain the alkaloidal substances: Niaziminin A, Niazimicin B, Niazimin A and Niaziminin B (5). The present study was undertaken to find out the anti-ulcer activity of alkali preparation or the root and fresh leaf juice.

EXPERIMENTAL

Plant material

The plant used in this study was collected from Trichy, Tamilnadu and identified by the botanist of St. Joseph's College, Trichy. A voucher specimen herbarium (M-18) is

kept in the department of pharmacology for future reference.

Alkali preparation of the root:

The freshly detached roots were cut to small bits and dried under mild sunshine. The dried material (1kg) was burnt to ashes (46.66gs).

The ash was added with ten times (470 ml) as much as water, mixed well and strained through a cloth. The liquid thus obtained was further boiled over a mild fire till the water evaporated. The residual water was evaporated by sun. The fine powder (26.66gs) was collected and stored in a closed container.

Extraction of the juice from the leaves

The fresh leaves (100 g) were collected, washed with water and made into a paste with a little quantity of water. Then the paste was squeezed and the juice (12.5ml) was collected.

Anti-ulcer Screening

The alkali preparation of the root and fresh leafy juice were screened for ulcer protective action against ulcers induced with aspirin (6).

Male albino rats weighing 150 -200g were used in this study. The rats were divided into five groups each group consisting of 6 rats. They were fasted for 24 hours prior to commencement of the experiment, housed in metal cages with a mesh floor to prevent coprophagy. Group 1 was treated with distilled water 2ml/kg and groups 2 to 5 were dosed b gastric intubation with increasing doses of alkali preparation (20,40 mg/kg, PO) and fresh leafy juice (0.5ml, 1 ml/kg, PO) respectively. The rats were given aspirin (200mg/kg) in Tween -20 (mg/ml) PO. 60 minutes later.

The animals were sacrificed after 5 hours, the stomachs were taken out and they were opened along the greater curvature.

Ulcers were examined using a Dissecting microscope 10x magnification and scored according to the severity in arbitrary units (7).

0 Normal – No ulcer

- 1- Isolated haemorrhagic spots
- 2- Dense haemorrhagic
- 3- Dense haemorrhagic spots and small ulcers
- 4- Large ulcers

5- Perforation

The data were analysed using student's 't' test.

Results and Discussion

The results of the experiment re given in the table 1. It indicates ha the alkali preparation of the root and the fresh leaf juice of *Moringa oleifera* have potent anti-ulcer activity.

The anti-ulcer activity of these is evident by a dose dependent reduction in the ulcer score in rats. The anti- ulcer effect of the alkali preparation of the root seems to be more pronounced than that of the fresh leafy juice. It will be interesting to note that *Moringa oleifera* also possesses significant anti-inflammatory and analgesic activity. Generally compounds possessing analgesic and anti-inflammatory effect induce gastric ulceration (eg.aspirin) It is a rare phenomenon that a combination of analgesic anti-inflammatory and anti-ulcer effects are observed.

The anti-ulcer activity of the fresh leaf juice may be due o its antihistaminic activity (8) and the alkaloidal substances present in it.

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Table I

Effect of alkali preparation of the root and fresh leaf juice of *M. oleifera* on aspirin induced ulcer in rats

Group	Treatment	Ulcer score mean \pm SEM	Percentage protection from ulcer
I	Control (Distilled water 2ml/kg)	3.2 \pm 0.33	-
II	Alkali preparation 20mg/kg	2.2 \pm 0.37a	31.25%
III	Alkali preparation 40mg/kg	1.0 \pm 0.19c	68.75%
IV	Leaf juice 0.5 ml/kg	2.4 \pm 0.41b	25.00%
V	Leaf juice 1 ml/kg	1.2 \pm 1.1d	62.50%

Number of animals used in each group = 6

P values are: a < 0.01, b < 0.05, c < 0.001 and d < 0.001

Reference:

1. Nadkarni, K.M. Nadkarni, A.K. and Chopra, R.N., The Indian Materia Medica, Popular prakasan, Bombay, Vol 1, 811-816. (1954).
2. Chopra's Indigenous Drugs of India, Academic Publication, Calcutta, 2nd edn 364-367, (1958).
3. The wealth of India, Published by C.S.I.R., New Delhi, Vol 6 426-429, (1962).
4. Gopalan, C., Rama satri, B.V., and Balasubramanian, S.C., Nutritive value of Indian Food., 6,78, (1984).
5. Faizi, S., Siddiqui, B.S., Saleem, P., Siddiqui, S., Aftab, K., and Gilani, A.V.H., J Chen Soc. Paerkin Trans. I. 23, 3237 – 3241, (1992).
6. Hemmati, M., Rezvani, A. and Djahanquini B., Pharmacology, 374, (1973).
7. Bonny castle, D.D. In, Evaluation of Drug activities pharmacometrics, vol. II, Eds, Laurance and A.L. Bacharach, Academic press, London, 510, (1964).
8. Siddiqui, S., and Khan, M.I., Pak J. Sci. Ind Res. 11, 268-271, (1968).