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ANTIULCER ACTIVITY OF *KIGELIA AFRICANA* FRUIT EXTRACTS

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ABSTRACT
Kigelia africana, a traditional medicinal plant widely used in Africa, has been the focus of considerable research interest due to its diverse pharmacological properties, including its potential antiulcer effects. This paper aims to provide a antiulcer activity of *Kigelia africana* fruit extracts. Pylorus ligation method was used to evaluate the antiulcer activity of soxhlet and maceration extracts. Various parameters like pH, total acidity, ulcer index, free acidity, volume and total protein were monitored during the study. The result of the study revealed that soxhlet and maceration extract of *Kigelia africana* showed significant ($P<0.001$) antiulcer activity as compared to control group.

KEYWORDS: *Kigelia africana*, antiulcer, total acidity, ulcer index, total protein.

INTRODUCTION
A rumored African traditional remedy, *Kigelia africana* DC is now widely available in India. It is a member of the Bignoniaceae family and has historically been used to treat a variety of illnesses. *Kigelia africana* bioactive molecules have been useful in identifying lead compounds for use in the creation of pharmaceuticals to treat human ailments. Plant-based remedies are used by almost half of the world's population in Latin America, Asia, and Africa.[1] *Kigelia africana* fruit has a cylindrical shape, measuring 25 to 50 cm in length and 7.5 to 15 cm in width. The fruits are characterized by their woody texture and take on a greyish brown color when fully ripe. The weight of the fruit can reach a maximum of 3-3.5 kg. The purpose of the study was to thoroughly investigate the anti-ulcer activity of *Kigelia africana* fruit extract using pylorus ligation method.[2]

MATERIAL AND METHODS
The *Kigelia africana* fruit was collected from local market of Agra (27.1929° N, 78.0231° E). The fruit was gathered from the tree. The dried plant parts were crushed to produce coarse powder, which was kept in polythene airtight containers at room temperature for future use. The fruit of *Kigelia africana* was dried in the shade and ground into coarse powders weighing 500g. The powders were then extracted using 500 mL of ethanol by the soxhlet technique, and maceration process. Following a 24 h. period, the crude extract underwent filtration and was subsequently evaporated to complete dryness using a water bath maintained at a temperature of 70°C. Albino male Wistar rats weighing between 150 and 230 grams were utilized for the experimental work. The Institutional Animal Ethics Committee sanctioned the experimental protocol.

Anti-ulcer Activity by Pylorus ligation-Induced Ulcer Model
Animals were categorized into four groups (n=6). The control group received saline at a dosage of 1 mL/kg via oral administration. The second and third groups received doses of *Kigelia africana* fruit soxhlet extract (200 mg/kg, p.o.) and *Kigelia africana* fruit maceration extract (200 mg/kg, p.o.), respectively. The last group was treated with omeprazole (20 mg/kg, p.o.) depending on the gastric antisecretory and gastric cytoprotective models respectively. Animals underwent a 36-hour fasting period prior to pylorus ligation, during which they were provided with water ad libitum and housed individually to prevent coprophagy and cannibalism. The volume of the content was measured and centrifuged at 2000 rpm for 10 min. Aliquots (1 mL each) were extracted from the supernatant for the determination of pH, free acidity, total acidity, and total volume content.

On the other hand, precipitate was used for the estimation of total proteins.

RESULTS AND DISCUSSION

The findings of Pylorus ligation are detailed in Tables I. Pylorus ligation is a process that leads to peptic ulcers and gastritis due to imbalances between offensive and defensive elements. The first step towards ulcer formation is abnormalities in the defensive system of stomach mucosa. The study indicated that dose-dependent SE and ME significantly lowers stomach ulceration, with a drop in ulcer index compared to the control. SE lowers the volume of gastric juice released, gastric free acidity, total acidity, total protein, pepsin, and increases the pH. This may be attributed to the enhancement of resistance of the mucosal barrier by a protective coating (Fig. 1). *Kigelia africana* have flavanoids which inhibit many enzymes, antagonizing aggressive factors and increasing defensive factors to protect the gastric mucosa from harm. Flavonoids also limit histamine production from mast cells and induce prostaglandin manufacture, which may contribute to the antiulcerogenic function of *Kigelia africana*.

Table I: The Effect of Soxhelt & Maceration Extract of *Kigelia africana* fruit on Gastric pH, Gastric Volume, Free Acidity, Total Acidity and total protein in Pylorous Ligation Model.

Treatment	Dose	Volume of acid	Total Acidity	Free acidity	pH	Ulcer index	Total protein
Control	1 mL/kg	5.11±0.35	146±8.21	80.6±5.28	1.86±0.28	7.9±0.32	3.4±0.02
SE	200 mg/kg	4.41±0.28**	127±8.21	65.78±5.1	2.52±0.28	5.19±0.22	3.49±0.01
ME	200 mg/kg	3.2±0.31**	118±6.21***	53.78±4.12	3.78±0.46	4.25±0.32**	2.85±0.04
Standard	Omeprazole (20mg/kg)	1.45±0.22***	72±5.82***	20.1±4.16***	5.12±0.38**	1.78±0.36***	0.62±0.02***

All the values are mean±SD n=6. ***P<0.001, **P<0.01, compare vs. control, data was analyzed using one way ANOVA followed by Tukey multiple comparison test. SE: Soxhlet extraction; ME: Maceration extraction.

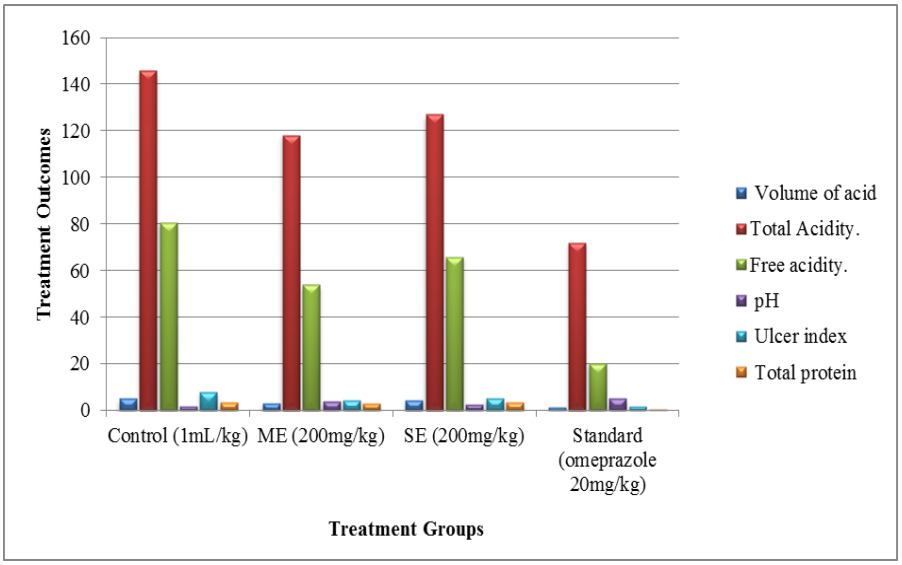

Fig. 1: The Effect of Soxhelt & Maceration Extract of *Kigelia africana* fruit on gastric pH, gastric volume, Free acidity, total acidity and total protein in Pylorous Ligation Model.

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