

GASTROPROTECTIVE AND ANTIOXIDANT ACTIVITIES OF AQUEOUS AND ETHANOLIC EXTRACTS OF *Commiphora africana* GUM RESIN

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ABSTRACT

Gastric ulcer is a major health hazard with multifactorial pathogenesis that includes imbalance between some endogenous aggressive and cytoprotective factors. Other causes are excessive use of NSAIDs, inadequate dietary habits, and infection by the bacterium; *Helicobacter pylori*. Gastroprotective and Antioxidant effects of aqueous and ethanol extracts of *Commiphora africana* gum resin (Murr), were determined in indomethacin-induced damaged, gastric regions of Albino rats. The preliminary phytochemical screening of the extracts, revealed the presence of flavonoids, tannins, cardiac glycosides, terpenes, saponins, alkaloids and reducing sugars, with higher levels of saponins, flavonoids and terpenes observed in the ethanol extract. Acute toxicity study revealed a safe dose of the extracts at a highest concentration of 5000mg/kg body weight ($LD_{50} > 5000\text{mg/kg}$). Pretreatment of indomethacin induced gastric damage albino rats with the extracts significantly ($P < 0.05$) reduced the gastric lesion of the stomach tissues, with Preventive Index (% inhibition) of 47.8%, 53.1%, 61.3% and 74.3% at a dose of 250 and 500mg/kg body weight of the aqueous and ethanol extracts respectively. The highest gastroprotective effect of 74.3% inhibition was exhibited by the ethanol extract (500mg/kg), compared to Ranitidine (25mg/kg) (62.2%) and Lansoprazole (30mg/kg) (83.5%) positive controls used. The Superoxide dismutase (SOD) and Catalase (CAT) activities were elevated significantly ($P > 0.05$), with a significant decrease ($P < 0.05$) in Malondialdehyde (MDA) levels upon administration of the extracts at a doses of 250 and 500 mg/kg body weight in serum and stomach tissues of the experimental animals, with the ethanol extract been more effective at 500mg/kg body weight. In-vitro antioxidant activity of the extracts (1mg) via linoleic acid peroxidation assay revealed the inhibition of linoleic acid peroxidation at 57.4% and 64.9% respectively compared to the positive control (Ascorbic acid) with 54.1%. This study showed that the aqueous and ethanol extracts of *Commiphora africana* gum resin, possess potent gastroprotective and antioxidant activities, and can greatly complement the use of NSAIDs.

Keywords: Gastroprotection; *Commiphora africana* gum resin; NSAIDs; Aqueous and Ethanol extracts.

