

α -Mangostin from *Cratoxylum arborescens* (Vahl) Blume demonstrates anti-ulcerogenic property : a mechanistic study

Abstract

Cratoxylum arborescens (Vahl) Blume is an Asian herbal medicine with versatile ethnobiological properties including treatment of gastric ulcer. This study evaluated the antiulcerogenic mechanism(s) of α -mangostin (AM) in a rat model of ulcer. AM is a prenylated xanthone derived through biologically guided fractionation of *C. arborescens*. Rats were orally pretreated with AM and subsequently exposed to acute gastric lesions induced by ethanol. Following treatment, ulcer index, gastric juice acidity, mucus content, histological and immunohistochemical analyses, glutathione (GSH), malondialdehyde (MDA), nitric oxide (NO), and nonprotein sulfhydryl groups (NP-SH) were evaluated. The anti-*Helicobacter pylori*, cyclooxygenase-2 (COX-2) inhibitory effect, and antioxidant activity of AM were also investigated in vitro. AM (10 and 30 mg/kg) inhibited significantly ($P < 0.05$) ethanol-induced gastric lesions by 66.04% and 74.39 %, respectively. The compound induces the expression of Hsp70, restores GSH levels, decreases lipid peroxidation, and inhibits COX-2 activity. The minimum inhibitory concentration (MIC) of AM showed an effective in vitro anti-*H. pylori* activity. The efficacy of the AM was accomplished safely without presenting any toxicological parameters. The results of the present study indicate that the antioxidant properties and the potent anti-*H. pylori*, in addition to activation of Hsp70 protein, may contribute to the gastroprotective activity of α -mangostin.

Keyword: *Cratoxylum arborescens*; α -Mangostin; Gastroprotective activity; Mechanistic study.