

Improvement of gastroprotective and anti-ulcer effect of kenaf seed oil-in-water nanoemulsions in rats

ABSTRACT

Kenaf seed oil-in-water nanoemulsions (KSON) and kenaf seed oil-in-water macroemulsions were produced to access their gastroprotective effect against indomethacin- and ethanol-induced ulcers in comparison with non-emulsified kenaf seed oil (KSO). Emulsifier mixture (EM) that used to emulsify KSO was also included in the study. Ulcer index, stomach tissue oxidative status, and histopathological changes in indomethacin-induced and ethanol-induced ulcer models were both evaluated. KSON had demonstrated good gastroprotective effect against both ulcer models than non-emulsified KSO and KSOM. In addition, the gastroprotective effect of KSON was comparable to the standard drug, Omeprazole. EM also exhibited gastroprotective effect, especially in indomethacin-induced ulcers. This may be attributed to its high antioxidant activity and cytoprotective effect of sodium caseinate contained in the EM. Results supported that KSON enhanced the bioavailability of native KSO; therefore it offers gastroprotective effect for the prevention of gastric ulceration as a natural alternative to the synthetic drug.

Keyword : Kenaf seed oil; Nanoemulsions; Gastroprotective effect; Indomethacin-induced ulcers; Ethanol-induced ulcers