

Anti-inflammatory and analgesic effects of ketoprofen in palm oil esters nanoemulsion

ABSTRACT

Ketoprofen is a potent non-steroidal anti-inflammatory drug has been used in the treatment of various kinds of pains, inflammation and arthritis. However, oral administration of ketoprofen produces serious gastrointestinal adverse effects. One of the promising methods to overcome these adverse effects is to administer the drug through the skin. The aim of the present work is to evaluate the anti-inflammatory and analgesic effects from topically applied ketoprofen entrapped palm oil esters (POEs) based nanoemulsion and to compare with market ketoprofen product, Fastum® gel. The novelty of this study is, use of POEs for the oil phase of nanoemulsion. The anti-inflammatory and analgesic studies were performed on rats by carrageenan-induced rat hind paw edema test and carrageenan-induced hyperalgesia pain threshold test to compare the ketoprofen entrapped POEs based nanoemulsion formulation and market formulation. Results indicated that there are no significant different between ketoprofen entrapped POEs nanoemulsion and market formulation in carrageenan-induced rat hind paw edema study and carrageenan-induced hyperalgesia pain threshold study. However, it shows a significant different between POEs nanoemulsion formulation and control group in these studies at $p < 0.05$. From these results it was concluded that the developed nanoemulsion have great potential for topical application of ketoprofen.

Keyword: Nanoemulsion; Ketoprofen; Palm oil esters