Potential anti-inflammatory effects of some palmitic acid esters in rats: impact on nuclear factor kappa-B

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List of abbreviations

Arachidonic acid	**(AA)**
Croton oil	**(CO)**
Cyclooxygenase	**(COX)**
Enzyme linked immunosorbent assay	**(ELISA)**
Ethyl palmitate	**(EP)**
Horseradish Peroxidase	**(HRP)**
Inhibitor-κB	**(I-κB)**
Inhibitor kappa B kinase complex	**(IKK)**
Interleukin	**(IL)**
Lipopolysaccharide	**(LPS)**
Methyl palmitate	**(MP)**
Myeloperoxidase	**(MPO)**
Nitric oxide	**(NO)**
Non-steroidal Anti-inflammatory Drugs	**(NSAIDs)**
Nuclear factor kappa B	**(NF-κB)**
Prostaglandin E2	**(PGE2)**
Rheumatoid Arthritis	**(RA)**
3,3',5,5' tetramethyl-benzidine	**(TMB)**
Tumor necrosis factor alpha	**(TNF-α)**

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Abstract

Abstract

Methyl palmitate (MP) and ethyl palmitate (EP) are naturally occurring fatty acid esters reported as macrophage inhibitors. In the current study, the potential anti-inflammatory activity of MP and EP was evaluated in different experimental rat models. Results showed that MP and EP caused reduction of carrageenan-induced rat paw edema in addition to diminishing prostaglandin E2 (PGE2) level in the inflammatory exudates. In lipopolysaccharide (LPS)-induced endotoxemia in rats, MP and EP reduced plasma levels of tumor necrosis factor-α (TNF- α) and interleukin-6 (IL-6). MP and EP decreased nuclear factor kappa-B (NF-κB) expression in liver and lung tissues and ameliorated histopathological changes caused by LPS. Topical application of MP and EP reduced ear edema induced by croton oil in rats. In the same animal model, MP and EP reduced neutrophil infiltration, as indicated by decreased myeloperoxidase (MPO) activity. In conclusion, this study demonstrates the effectiveness of MP and EP in combating inflammation in several experimental acute models.

Introduction