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Anti-inflammatory activities of Pipoxolan through the inhibition of NF-κB, and MAPK activation

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Abstract

Pipoxolan was used as a muscle relaxant. In order to evaluate the actions of this compound, this study was performed on anti-inflammatory activities. Pipoxolan was evaluated for anti-inflammatory activity using LPS-induced inflammatory effect model in RAW 264.7 cells. The anti-inflammatory activity of pipoxolan was evaluated by nitric oxide and MTT tests. pipoxolan was tested in the inhibitor of mitogen-activated protein kinase (MAPK) [extracellular signal-regulated protein kinase (ERK), c-Jun NH(2)-terminal kinase (JNK), p38], and nuclear factor-κB (NF-κB) protein expressions in LPS-stimulated RAW264.7 cells by the western blot methods. When RAW264.7 macrophages were treated with pipoxolan together with LPS, a significant concentration-dependent inhibition of NO production was detected. Western blotting revealed that pipoxolan blocked the protein expression of COX-2, iNOS, and NF-κB in LPS-stimulated RAW264.7 macrophages, significantly. Pipoxolan also inhibited LPS-induced JNK, and p38 phosphorylation. The anti-inflammatory activities of pipoxolan might be related to decrease the levels of iNOS, COX-2, NF-κB, p-JNK and p-p38 through the suppression of NO. This study presents the potential utilization of pipoxolan, as a lead for the development of anti-inflammatory drugs.

Key words: Pipoxolan, NF-κB, MAPK, anti-inflammatory activity