

## ACE suppresses inducible nitric oxide synthase and cyclooxygenase-2 expression by down-regulating NF- $\kappa$ B, via the MAPK signaling pathway in LPS-activated RAW 264.7 cells

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### Abstract

The aerial parts of *Artemisia capillaris* Thunberg (Compositae) have been used in Chinese medicine as a liver protective agent, diuretic, and anti-inflammatory conditions. ACE was isolated from *A. capillaris*. ACE was evaluated for anti-inflammatory activity using LPS-induced inflammatory effect model in RAW 264.7 cells. The anti-inflammatory activity of ACE was evaluated by nitric oxide under MTT safety tests. ACE 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- $\kappa$ B (NF- $\kappa$ B) protein expressions in LPS-stimulated RAW264.7 cells by the western blot methods. When RAW264.7 macrophages were treated with ACE together with LPS, a significant concentration-dependent inhibition of NO production was detected. Western blotting revealed that ACE blocked the protein expression of COX-2, iNOS, and NF- $\kappa$ B in LPS-stimulated RAW264.7 macrophages, significantly. ACE also inhibited LPS-induced ERK, JNK, and p38 phosphorylation. The anti-inflammatory activities of ACE might be related to decrease the levels of iNOS, COX-2, NF- $\kappa$ B, p-MAPK through the suppression of nitric oxide synthesis. This study presents the potential utilization of ACE, as a lead for the development of anti-inflammatory drugs.

Key words: *Artemisia capillaris*, nitric oxide, cyclooxygenase-2