p-Hydroxyacetophenone suppresses nuclear factor-jB-related inflammation in nociceptive and inflammatory animal models

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ABSTRACT

p-Hydroxyacetophenone (HAP) is a crucial chemical compound present in plants of the genus Artemisia, which are used in traditional therapies for treating jaundice, hepatitis, and inflammatory diseases. Nevertheless, the bioactivity of HAP remains to be identified in order to prove its importance in the plants of genus Artemisia. This study investigated the antioxidative, antinociceptive, and anti-inflammatory effects of HAP, and probed its possible molecular mechanisms. Our results revealed that HAP (80 mg/kg, intraperitoneally) in vivo reduced the acetic acid-induced writhing response and formalin-induced licking time. Moreover, in the k-carrageenan-induced acute-inflammatory paw edema model in mice, HAP significantly improved hind paw swelling and neutrophil infiltration. In a homogenized paw tissue examination, HAP attenuated pro-inflammatory cytokines, such as tumor necrosis factor-a, interleukin-1b, and interleukin-6. Simultaneously, HAP also inhibited the production of nuclear factor kappa B, cyclooxygenase-2, and nitric oxide (NO). Another examination revealed that HAP exerted anti-inflammatory activity by decreasing malondialdehyde levels in the edematous paw through increasing the activities of superoxide dismutase, glutathione peroxidase, and glutathione reductase in the liver. These findings may be beneficial in understanding the therapeutic effects of some plants of the genus Artemisia in the pretreatment of inflammation-associated diseases.

Keywords: p-Hydroxyacetophenone, Inflammation, Nuclear factor-kB, Cyclooxygenase-2, Nitric oxide

REFERENCES


