Xanthone attenuates mast cell-mediated allergic inflammation

AYE-AYE1,2, Yong-Deok Jeon1, Yong-Jae Song1, Jong-Sik Jin1
1Department of Oriental Medicine Resource, Chonbuk National University, 79 Gobongro, Iksan, Jeollabuk-do, Republic of Korea
2 Department of Lifestyle Medicine, Chonbuk National University, 79 Gobongro, Iksan, Jeollabuk-do, Republic of Korea

ABSTRACT

Xanthone is a kind of polyphenolic compounds that contain a distinctive chemical structure with a tricyclic aromatic ring found in a few higher plant families e.g. gentian root. This compound had a variety of biological activity, for instance antioxidant, antibacterial, anti-inflammatory, and anticancer effects. However, the effect of xanthone on mast cell-mediated allergic inflammation and its associated mechanism have not been elucidated. Therefore, the aim of this study was to elucidate the anti-allergic inflammatory effects and the underlying molecular mechanism of xanthone in PMACI-stimulated human mast cells-1 (HMC-1). In this result, xanthone treatment decreased the production of histamine, pro-inflammatory cytokines such as tumor necrosis factor-α (TNF-α), IL-6, and IL-8 and expressions of TSLP in PMACI-stimulated HMC-cells. In addition, xanthone significantly suppressed the phosphorylation of MAPKs and the activation of NF-κB signal pathway in activated mast cells. Furthermore, xanthone inhibited the activation of caspase-1, an IL-1β converting enzyme, in PMACI-stimulated HMC-1 cells. These findings provide evidence that xanthone could be a potential therapeutic agent for allergy-related inflammatory disorders.

Keywords: Xanthone; human mast cells; pro-inflammatory mediators

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