STUDY ON ANTI-INFLAMMATORY EFFECTS OF EMBELIN IN ASTHMATIC HUMAN AIRWAY EPITHELIAL CELLS AND TISSUES

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Allergic asthma is the most common type of asthma and is defined as a chronic inflammatory disease of the lung. In this study, we investigated whether embelin (Emb), the major component of Ardisia japonica BL. (AJB), has anti-inflammatory effects on allergic asthma via inhibition of NF-κB activity. Inflammation was induced in A549 cells, a human airway epithelial cell line, by IL-1β (10 ng/ml) treatment for 4 h. The effects of Emb on NF-κB activity and COX-2 protein expression in inflamed airway epithelial cells and human asthmatic airway epithelial tissues were analysed via western blot. The secretion levels of NF-κB-mediated cytokines/chemokines, including IL-4, 6, 9, 13, TNF-α and eotaxin, were measured with a multiplex assay.Emb significantly blocked NF-κB activity in IL-1β-treated A549 cells and in human asthmatic airway epithelial tissues. COX-2 protein expression was reduced in IL-1β-treated A549 cells and asthmatic tissues after Emb application. Emb significantly reduced the secretion of IL-4, IL-6 and eotaxin in human asthmatic airway epithelial tissues by inhibiting NF-κB activity. The results of this study suggest that Emb may be used as an anti-inflammatory agent that inhibits NF-κB and its related cytokines.