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Abstract

Inhibitory Effect of Selected Medicinal Plants on the Release of Pro-Inflammatory Cytokines in Lipopolysaccharide-Stimulated Human Peripheral Blood Mononuclear Cells

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Abstract:

The inhibitory activities of the methanol extracts from 20 selected medicinal plants on the release of pro-inflammatory cytokines in human peripheral blood mononuclear cells (PBMCs) were evaluated. The major compound from the most active plant extract was also investigated. The inhibitory effect of the methanol extracts on the release of pro-inflammatory cytokines was tested by incubating PBMCs with the sample and then stimulating by lipopolysaccharide at 0.1 µg/ml. The level of cytokines was determined using enzyme-linked immunosorbent assay. Among the extracts tested, Andrographis paniculata extract demonstrated the strongest inhibition of interleukin (IL)-1β, IL-1α, and IL-6 release, with IC50 values of 1.54, 1.06, and 0.74 µg/ml, respectively. The IC50 value of A. paniculata extract was significantly higher than that of andrographolide on IL-1β, IL-1α, and IL-6 ($p < 0.001$) release. The IC50 values of andrographolide for IL-1β, IL-1α, and IL-6 were significantly higher ($p < 0.001$) than that of dexamethasone.

Cymbopogon citratus and Zingiber officinale strongly inhibited the release of IL-1β, with IC50 values of 3.22 and 3.17 µg/ml, respectively. To our knowledge, this is the first report that A. paniculata extract and its major compound andrographolide strongly inhibited the release of IL-1β, whereas previous studies only showed their inhibitory effect on the release of another IL-1 family member, IL-1α. The results show that these extracts and this compound have potential effects as anti-inflammatory agents by inhibiting the release of pro-inflammatory cytokines.

Biography:

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Recent Publications:

1. J Nat Med 2014 Jul;68(3):647-53. doi: 10.1007/s11418-014-0841-0. Epub 2014 May 6.

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