Anti-inflammatory Effects of Limonoids from Chisocheton Plants in Inhibition of NF-κB Activation Pathway of LPS-stimulated THP-1 Cells

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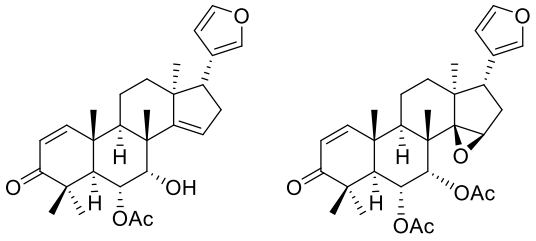
Chisocheton plants from the Meliaceae family have been used traditionally to treat several diseases with limited scientific evidence[1]. The chemical constituents that are abundantly found in this plant are limonoids which have been known for their various biological activities, including anti-inflammatory[2]. In previous studies, 17 limonoid compounds were isolated from *Chisocheton* plants[3]. The anti-inflammatory effects and underlying mechanisms of action of the constituents derived from the *Chisocheton* plants have not been fully explored. In this report, we evaluated the anti-inflammatory activity of the compounds by measuring the effects of pro-inflammatory cytokine production in the LPS-stimulated THP-1 cells using ELISA assay and evaluating the activation of NF-kB via the TLR4 signaling pathway in HEK-Blue™ hTLR4 cells using SEAP reporter gene assay. Compounds **3** and **4** showed potent inhibitory effects on IL-6, IL-1β, and MCP-1 with no cytotoxic effect on the cells. SEAP reporter gene assay indicated that these compounds did not activate NF-kB through TLR4/MD-2. Taken together, these compounds may be useful for treating inflammation disease by suppressing the inflammatory cytokine.



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