Anti-inflammatory Effect of the *Strobilanthes crispus* methanolic extract on Lipopolysaccharide-stimulated RAW 264.7 Macrophages

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Abstract

Background, Inflammation is rapid response by body to deal with injuries, foreign particles and damaged cells. An unattended inflammation could lead to complication in cerebrovascular, cardiovascular system, joint and intestines. However, currently available conventional drugs exhibited adverse effects on many organ systems besides treating inflammation. *Strobilanthes crispus*, a native plant is believed to have anti-inflammatory property as it has been used in folk medicine to treat various diseases. Nevertheless, no scientific studies have been conducted to prove this traditional claim. Hence, this study focused on investigating the anti-inflammatory property of *S. crispus* on lipopolysaccharide (LPS)-stimulated RAW 264.7 macrophages experimental model. **Methods,** The maximum non-toxic dose (MNTD) of *S. crispus* methanol extracts and optimum LPS concentration were determined prior to determination of anti-inflammatory effect of *S. crispus*. MNTD of *S. crispus* was determined using MTT assay and the optimum LPS was determined based on the production of nitric oxide (NO) using Griess reaction. Finally, the anti-inflammatory effect of *S. crispus* was determined by examining the NO and cytokines levels, namely interleukin-6 (IL-6) and interleukin-10 (IL-10) using Procarta immunoassay kit. **Results,** The MNTD for *S. crispus* leaves and stem extracts was 160 µg/mL and 1.5 µg/mL, respectively. The optimum LPS needed to induce maximum inflammation was 1 µg/mL. Upon pre-treatment with half MNTD (1/2MNTD) of leaf extract, the production of NO was significantly reduced while MNTD of stem extract resulted in an increase in IL-10 level. On the other hand, no significant reduction of IL-6 production was seen upon treatment except for indomethacin, which acted as the positive control drug. **Conclusions,** The present results showed that *S. crispus* could possess anti-inflammatory properties on lipopolysaccharide-stimulated RAW 264.7 macrophages through suppression of NO production and increase in IL-10 level.