

IMMUNOMODULATORY EVALUATIONS OF *THUNBERGIA LAURIFOLIA*
CRUDE WATER EXTRACT ON HUMAN PERIPHERAL BLOOD MONONUCLEAR
CELLS

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ABSTRACT

The immune system has been developed to defend the host against invading pathogens and/or tumor cells. Immune responses are the results of an efficient cooperation between innate and adaptive components of the immune system. To ensure immune homeostasis, immune system needs a delicate control of the balance of immune reactions through the production of a network of immunomodulators. Currently, there are only a few actual immunomodulators used in clinics and most of these did not originate from the plants. Various plants have been reported on concerning immune response. Therefore, investigation of plant-derived immunomodulators have become of great interest. *Thunbergia laurifolia* Lindl. (Acanthaceae) has been used in Thai traditional medicine as an antidote for poisons. Several constituents in *T. laurifolia* water extract (TLL) have been reported to display immunomodulatory activities. Nevertheless, there are no previous studies focusing on the effects of TLL on its immunomodulatory potential. Therefore, promising properties of TLL encourage us to evaluate its immunomodulatory activities.

In the present study, we evaluated the *in vitro* immunomodulatory effects of TLL at various concentrations (0-100 µg/ml) on peripheral blood mononuclear cells (PBMCs). Our study on immunotoxicity measurement by MTT assay suggested that TLL up to 250 µg/ml was not toxic to PBMCs compared to untreated cells. TLL did not show any modulations on T, B or NK cells distribution and expression of T cell subsets (CD4⁺ and CD8⁺) evaluating by immunophenotyping following by flow cytometry. Furthermore, TLL did not promote NK cells-mediated cytotoxicity against SK-N-SH among all evaluated effector:target (E:T) ratios. In contrast, our study showed that T cells proliferative capacity interfered with the suppressive effects of TLL as a dose dependent tendency, especially at 50 and 100 µg/ml ($p < 0.01$). In addition, the cytokine profiles exploited the fact that TLL extract selectively induced Th1-mediated responses by insignificant enhancing the production of IL-2, a Th1-type cytokine, in a proportional manner to the concentrations of TLL. In contrary, IL-10, a Th2 cytokine, was significantly reduced the release at dose 100 µg/ml ($p < 0.05$). Collectively, these results showed that TLL acted as an immunosuppressive agent and may directly polarize Th cells into Th1 sub-lineages and may provide benefit as immunosuppressant used in Th2 mediated pathologies in immunological related diseases like asthma and allergy.

KEY WORDS: *THUNBERGIA LAURIFOLIA* / IMMUNOMODULATION / FLOW
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