

Immunomodulatory role of *Rhaphidophora korthalsii* methanol extract on human peripheral blood mononuclear cell proliferation, cytokine secretion and cytolytic activity.

Abstract

Rhaphidophora korthalsii methanol extract induce the immunomodulatory effect on human peripheral blood mononuclear cell (PBMC). The present study was performed to investigate the immunomodulatory potential of the extract through different tests: MTT assay, BrdU proliferation assay, Trypan blue direct cell counting, cytokine (IL-2, IL-12 and IFN- γ) ELISA assay and Annexin V cytotoxicity assay. Concanavalin A (Con A) and lipopolysaccharide (LPS) were used as positive control. The observed results from all MTT assay, BrdU proliferation assay and Trypan blue direct cell counting showed that the plant extract stimulated the PBMC at 48 and 72 h where 25 $\mu\text{g/ml}$ was the optimum concentration. On the other hand, the results of the cytokines study showed that 25 $\mu\text{g/ml}$ induced the secretion of IL-2 (433 ± 25 pg/ml) and IFN- γ (7336 ± 131.79 pg/ml) but not IL-12 at 72 h only. The activated PBMC also directed the effector cell (K562) in mix culture to undergo apoptosis ($12.96 \pm 0.57\%$ of early apoptosis and $10.60 \pm 0.21\%$ of late apoptosis) at the ratio of 2/1 of PBMC/K562. The present results indicate that *R. korthalsii* extract showed evidences of immunomodulating activity which may be potential to use as an immunotherapy agent.

Keyword: *Rhaphidophora korthalsii*; Immunomodulator; Proliferation; Cytokine; Natural killer.