

Immunomodulatory effects of zerumbone isolated from roots of Zingiber zerumbet.

ABSTRACT

In this study, the immunomodulatory effects of zerumbone isolated from Zingiber zerumbet were investigated by evaluating the effects of this compound towards the lymphocytes proliferation (mice thymocytes, mice splenocytes and human peripheral blood mononuclear cells, PBMC), cell cycle progression and cytokine (interleukin 2 and 12) induction. Lymphocyte proliferation assay showed that zerumbone was able to activate mice thymocytes, splenocytes and PBMC at dosage dependent pattern where the best concentration was 7.5 microg/ml. Flow cytometry analysis showed the highest population of PBMC entered into G2/M phase after treatment for 72 h with 7.5 microg/ml zerumbone. The production of human interleukin-2 and human interleukin-12 cytokines in culture supernatant from zerumbone activated lymphocytes was prominently upregulated at 24 hour and decreased from 48 h to 72 h. The above results indicate that zerumbone can be used as immunomodulatory agent which can react toward the immune cell cytokine production in dosage dependent pattern.

Keyword: Zingiber zerumbet; Zerumbone; Immunomodulation; Interleukin 2.