P13  INDUCTION OF APOPTOSIS BY THE EXTRACT FROM STEPHANIA VENOSA RHIZOME ON LYMPHOCYTE

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ABSTRACT

It is widely accepted that apoptosis is a new therapeutic target of cancer research. A variety of new anticancer drugs can inhibit the growth of carcinoma cells by inducing cell apoptosis. Stephania venosa (Bl.) Spreng. is a herb of Thai folk medicine. Its rhizome has been used for various disease including cancer. This study aims to investigate the effect of Stephania venosa rhizome on apoptotic activity in human circulating lymphocytes. Lymphocytes were collected and separated from peripheral blood of healthy female donors from National Blood Bank, the Red Cross Society and cultured in RPMI medium at the density of 4 x 10⁵ cells/ml. Cells were culture in a 96-multi-well plate and treated with the water extracted compound from the herb at the final concentration of 0, 18.75, 37.5, 75, 150, 300 and 600 µg/ml. After 48 hours incubation, the cytotoxic effects of the extracts were determined by trypan blue dye exclusion method. Apoptotic activity was compared between 4 conditions: control, water extract at IC₅₀ (300 µg/ml) and lower concentration (100 µg/ml), and radiation exposure using 0.5 Gys. ⁶⁰ Co gamma ray as positive control groups. The apoptotic cells were detected by using in situ terminal deoxynucleotidyl transferase assay. Furthermore, the stability of this compound was also determined by cell viability assay and pH measurement for 12 weeks. The results revealed that the water extract of S.venosa possessed cytotoxic effect, with 50% inhibitory concentration (IC₅₀) at 300 µg/ml. The extract solution was stable at least 12 week at -20°C. Its apoptotic activity on cultured lymphocytes was similar to low dose radiation, with % apoptotic index at 9.8 ± 0.97, 17.9 ± 2.25, 28.1 ± 1.48 and 27.5 ± 2.17; for negative control, the extract at 100 and 300 µg/ml, and radiation, respectively. These data suggest that the water extract of S.venosa exhibited cytotoxic and apoptotic activity on lymphocytes. These results may encourage for future investigations on the effects of S.venosa as an anticancer agent.