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

Tipsuda Plumchai[1], Tada Sueblinvong [2], Wacharee Limpanasitthikul[1], Pathama Leewanich [3]

[1]*Department of Pharmacology,* [2]*Department of Biochemistry, Faculty of Medicine, Chulalongkorn University,* [3]*Department of Pharmacology, Faculty of medicine, Srinakarinviroj University, Bangkok, Thailand.*

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 10^5 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 IC_{50} (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 (IC_{50}) 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.