

P12 CYTOTOXICITY OF *STEPHANIA VENOSA* TUBER EXTRACTS ON HUMAN PBMCs

Kheiamsawang M¹, Sueblinvong T², Leewanich P³, Cheepsunthorn P⁴,
Prachayasithikul S⁵, Limpanasittikul W¹

¹Department of Pharmacology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand.

²Department of Biochemistry, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand.

³Department of Pharmacology, Faculty of Medicine, Srinakharinwirot University, Bangkok, Thailand.

⁴Department of Anatomy, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand.

⁵Department of Chemistry, Faculty of Science, Srinakharinwirot University, Bangkok, Thailand.

This study aimed to compare cytotoxic activities of the water and the ethanol extracts of *Stephania venosa* tuber, which has been used for many medicinal purposes as well as cancer by boiling in water or soaking in alcohol. Both extracts significantly exhibited cytotoxic effects on human peripheral blood mononuclear cells (PBMCs) in a dose-dependent manner. The concentration at 50% inhibition (IC₅₀) of the water and the ethanol extracts were 200 and 40 μ g/ml, respectively, as determined by AlamarBlue reduction assay. This result was further confirmed by trypan blue dye exclusion assay. Thus, the ethanol extract was more potent than the water extract. The antiproliferative activities on mitogen-stimulated PBMCs were also compared between both extracts using MTT assay. The ethanol extract was more potent than the water extract in inhibiting phytohemagglutinin-, pokeweed mitogen-, and Staphylococcus protein A-stimulated PBMCs proliferation. The mitogen-activated cell proliferation was decreased more than 50% after being treated with both extracts at their IC₅₀'s. The extract-induced apoptosis was also investigated by fluorescence activated cell sorting (FACS) using annexin V and propidium iodide staining. Both extracts significantly induced apoptosis cell death in PBMCs. The ethanol extract had higher potency than the water extract. These results suggested that *S. venosa* tuber may possess anticancer action through its cytotoxicity, antiproliferation, and apoptosis induction. Furthermore, the ethanolic soaking solution of *S. venosa* appears to be more potent than the boiling water preparation when it was used as antitumor remedy. The caution should be addressed when it was prescribed in traditional medicine.

Keyword: *Stephania venosa*, PBMC, cytotoxicity, proliferation, apoptosis