Crude extract of *Oleum cinnamomi* induces apoptosis in murine leukemia WEHI-3 cells through the caspase-dependent pathways

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Leukemia is the major cancer in children and the treatment for this disease still unsatisfactory. *Oleum cinnamomi* is a natural plant, however, there is no any information to show the crude extract of *Oleum cinnamomi* (CEOC) affect cancer cells in vitro, thus, we investigated the cytotoxic effects of CEOC on mouse leukemia WEHI-3 cells in vitro. WEHI-3 cells were placed in 12-well plate and then were treated with various doses of CEOC for different time periods. Then cells from each treatment were harvested for determining the percentage of viable cells by using trypan blue exclusion method and also confirmed by flow cytometric assay. Results showed that CEOC reduced cell viability and induced chromatin condensation in WEHI-3 cells. CEOC induced cell death through the cell cycle arrest and induction of apoptosis in WEHI-3 cells. Further examinations showed that CEOC affect cell cycle distribution was due to the G0/G1 phase arrest and this effect is dose-dependent. Flow cytometric assay was used for examining the productions of reactive oxygen species (ROS), Ca$^{2+}$ release and loss of mitochondrial membrane potential ($\Delta$Ψ$m$) and results indicated that CEOC promoted the production of ROS and Ca$^{2+}$ but decreased the levels of $\Delta$Ψ$m$. Additionally, the levels of caspase-8, -9 and -3 activities were promoted in CEOC-treated WEHI-3 cells that was also measured by flow cytometer. These effects are dose-and time-dependent manners. Owing to these findings, we concluded that CEOC-provoked apoptotic death might be involved in the cascade-dependent mitochondrial pathway and CEOC processes a potent anti-leukemia effect in vitro.

Biography

Jen-Jyh Lin graduated from School of Chinese Medicine, China Medical University, Taichung, Taiwan, R.O.C. Right now, he is a Ph.D. student at School of Chinese Medicine, China Medical University, Taichung, Taiwan, R.O.C. In addition, he is interested in basic medicine research for tumor research regarding the active compounds of traditional Chinese medicine (TCM). He also joined many medical associations and published more than 10 papers in reputed journals.

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