



Total Alkaloids from *Solanum lyratum* Thunb. Inhibited HeLa Cells Proliferation Through Induction of Apoptosis and Cell Cycle Arrest

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SUMMARY. The object of the present study was to investigate the anticancer properties of total alkaloids from *Solanum lyratum* Thunb (SLT-A), including the inhibitory effect of SLT-A on HeLa cells and the apoptosis-inducing capacity *in vitro*. In our study, cytotoxicity was measured by the growth inhibition assay and detection of apoptosis was performed by Hoechst33324 and Tdt-mediated dUTP nick end labeling (TUNEL) staining assays. The *in vitro* cytotoxic studies were complemented by the cell cycle analysis and determination caspase-3 activity. Reverse transcription-polymerase chain reaction (RT-PCR) assay was applied on the expression of apoptosis-associated genes. The result showed that treatment of HeLa cells with SLT-A resulted in the growth inhibition effect, and the IC₅₀ value was approximately 82 µg/ml. SLT-A (80 µg/ml) induced more cell apoptosis of HeLa cells and accumulated the cells in the G₂/M phase compared with the control cells. On the other hand, the expression of p53 and Bax gene was increased in the cells treated with SLT-A (80 µg/ml), with an increase in the activity of caspase-3, while Bcl-2 expression was not changed compared to the control cells. Our results demonstrated that SLT-A presented antiproliferative activity in HeLa cells and might be a potential anticancer drug.

KEY WORDS: Alkaloids, Anticancer, Apoptosis, HeLa cells, *Solanum lyratum* Thunb.

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