

Basic Health Sciences

Poster

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***Piper sarmentosum* induced apoptosis via mitochondrial pathway in human lung adenocarcinoma cells, A549**

Azila Sirajudeen | Aisyah Hanani Mohd Tahir | Radiah Abdul Ghani

Department of Biomedical Science, Kulliyah of Allied Health Sciences, International Islamic University Malaysia

Introduction: Lung cancer has been reported as one of the most common types of cancer worldwide. Current cancer treatments like chemotherapy do not result in a complete cure and are known to cause side effects in the patients. Therefore, alternative treatment strategies are being explored, one of which is to investigate the potential of the local herbs in this regard. *Piper sarmentosum* (daun kaduk) has received much attention due to its anti-cancer properties in A549 cells. In this study, the cell cycle profile and mechanisms of cell death induced by *P. sarmentosum* were investigated using a flow cytometer. **Methods:** The cell cycle profile changes were observed using propidium iodide staining while the type of cell death was analyzed using Annexin-V assay. Caspases -3/7,8 and 9 and cytochrome c assays were elucidated using flow cytometry analysis. **Results:** *P. sarmentosum* arrested the growth of A549 cells at G₀/G₁ phase. The Annexin V analysis revealed that *P. sarmentosum* exhibited significant induction of apoptosis after 24 h exposure. Caspases analysis showed that *P. sarmentosum* induced apoptosis through mitochondrial pathway, via the activation of caspase 3 and caspase 9. Meanwhile, cytochrome c analysis revealed that *P. sarmentosum* induced a mitochondrial pathway of cell death through the release of cytochrome c. **Conclusions:** Based on these preliminary findings, *P. sarmentosum* has a great potential as a dietary cancer treatment for lung cancer and may perhaps be used for lung cancer pharmacotherapy in the clinical settings in future.

KEYWORDS: nutritional cancer therapy, apoptosis, cancer, cell cycle