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Apoptotic Induction of Skin Cancer Cell Death by Plant Extracts

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Abstract

Objective: The aim of the present study was to investigate the effects of plant extracts on cancer apoptotic induction.

Material and Method: Human epidermoid carcinoma A431 cell line, obtained from the American Type Culture Collection (ATCC, Manassas, VA), was maintained in Dulbecco's Modified Eagle Medium (DMEM) supplemented with 10% fetal bovine serum (FBS) at 37°C, 5% carbon dioxide (CO₂). Plant extract solutions were obtained from S & J international enterprises public company limited. These plant extracts include 50% hydroglycol extracts from *Etlingera elatior* (Jack) R.M.Smith (torch ginger; EE), *Rosa damascena* (damask rose; DR) and *Rafflesia kerrii* Meijer (bua phut; RM). The cell viability, time and dose dependency were determined by MTT (3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay. A431 cells were treated with the plant extracts and stained with Hoechst 33342 fluorescent staining dye.

Results: Cell viability was demonstrated by the inhibitory concentration 50% (IC₅₀). The anti-proliferative effects were shown to be dependent on time and dose. Typical characteristics of apoptosis which are cell morphological changes and chromatin condensation were clearly observed.

Conclusion: The plant extracts was shown to be effective for anti-proliferation and induction of apoptosis cell death in skin cancer cells. Therefore, mechanisms underlying the cell death and its potential use for treatment of skin cancer will be further studied.

Keywords: *Etlingera elatior*, *Rosa damascena*, *Rafflesia kerrii*, Skin cancer, Apoptosis

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