Cytotoxic Activity of Rambutan (Nephelium lappaceum) Fruit Skin Extract on Jurkat Leukemia Cell Line

Sim, Norman (School: Penang Free School)
Loo, Kee Khien (School: Penang Free School)

Rambutan fruit is a local fruit that can be found abundantly in Malaysia. The skin of rambutan has been reported to possess few phyto-constituents that has anti-cancer properties. Hence, the objective of this project is to investigate the cytotoxic activity of RFS Extract on Jurkat leukemia cell line. RFS Extract was extracted by conducting a maceration extraction method that involves the immersing of skins in methanol, ethanol and ethyl acetate separately for 48 hours. The presence of phytochemical compounds in RFS Extract was determined by conducting qualitative and quantitative phytochemical screenings. The presence of Antioxidant activities was determined by conducting few Antioxidant Assays. MTS Assay was performed to determine the cell viability of RFS Extract immersed in 3 solvents on Peripheral Blood Mononuclear Cells (PBMC) and Jurkat, Clone E6-1 cell line. RFS Extract (Methanol) exhibited an EC50 Value at concentration of 4.72±0.10 µg/mL which was closed to Reference Standard of Ascorbic acid (0.95±0.01 µg/mL). GC-MS Analysis evaluated that RFS Extract (Methanol) shows abundance of Octadecanoic acid, methyl ester as it showed the highest peak in the analysis. RFS Extract maintained cell viability of PBMC cells at concentration of 2 x10^-4 µg/mL but exhibited cytotoxic activity on Jurkat leukemia cell line with an IC50 Value at concentration of 1.8 x10^-4 µg/mL. Through cell cycle analysis, RFS Extract (Methanol) at concentration of 2 x10^-4 µg/mL induced apoptosis at sub-G0. Thus, RFS Extract (Methanol) has potential anti-cancer properties.

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