CYTOTOXICITY EFFECTS OF *MELASTOMA MALABATHRICUM* LEAVES METHANOLIC EXTRACT ON CELL VIABILITY

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ABSTRACT

Melastoma malabathricum has a wide distribution around this part of the world. It has been reported to be found growing wild in Southeast Asia including Malaysia. The present study aims to determine the anticancer activities of methanolic extracts from the leaves of *Melastoma malabathricum* using various established *in vitro* assays. Four types of cell lines were utilized in this study which were breast cancer cells (MCF-7), hepatocellular carcinoma cells (HepG2), colon cancer cells (HCT 116) and normal liver cells (WRL 68). Cells were plated in 96-well plates and incubated in conditions at 37^0C under 95% O_2 and 5% CO_2. Five concentrations of *M. malabathricum* extracts; 0.1 µg/ml, 1 µg/ml, 10 µg/ml, 100 µg/ml, 1000 µg/ml were selected to verify the anticancer activities and MTT assay was chosen as the method to measure the cell viability. Concentration response curve for methanol extract of *M. malabathricum* were constructed to determine the effects of concentration on cell viability and the median inhibitory concentration (IC_{50}) was calculated for each cell line. IC_{50} for methanolic extract of *M. malabathricum* in MCF-7 cells, HepG2 cells, HCT 116 cells and WRL 68 cells were 126.9 ± 19.9µg/ml, 130.6 ± 29.3µg/ml, 124.9 ± 44.1µg/ml and 261.4 ± 17.7µg/ml respectively. . From the result, MCF-7, HepG2 and HCT 116 cells showed greater cytotoxic activity compared to WRL 68 cells as IC_{50}, the concentration of the extract that provides 50% inhibition to the cells is lower compared to WRL 68. This study can contribute to the development of more effective, safer and cheaper natural based anticancer drugs.