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Cytotoxicity study of *Nigella Sativa* and *Zingiber Zerumbet* Extracts in Human Myeloid Leukemia Cell Lines (HL60)

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The cytotoxicity effects of the *Nigella sativa* (Ns) and *Zingiber zerumbet* (Zz) plant extracts on acute Human myeloid leukemia cell lines (HL60) are reported. The HL60 cell lines were purchased from the American Tissue Culture Company (ATCC) to be treated with Petroleum ether (PE) and Aqueous (AQ) extracts of Ns and Zz extracts of Ethanol (ET) and Hexane (HEX). In an attempt to explain cytotoxicity effects of Ns and Zz extracts in these cell lines, in this experiment, we examined the effects of Doxorubin (Dox) on their sensitivity as anticancer drugs which act as a positive control. Different plant species were found to have different components of bioactive compounds. The different activities are represented by the presence of different compounds. It was observed that the cytotoxicity effects of plant species are differed based on the presence of the bioactive compounds. Therefore, this study is carried out to compare the cytotoxicity effects of Ns and Zz extracts on HL60 cell lines. In this study, Hexane extract of Zz significantly drop off the percentage of cell viability of HL60 cell with the lowest IC_{50} value of 45ug/ml. Hexane extract is more effective solvent compared to ethanol that gave IC_{50} value of 260ug/ml. Ns extract is less effective on HL60 cell lines that ~~gives~~ gave the highest IC_{50} value of 660ug/ml for PE and more than 1000ug/ml for AQ. It is concluded that the cytotoxicity effects of Zz is more compared to Ns in this cell lines. HEX extract is more effective for the Zz extraction which gave the lowest IC_{50} compared to ET. In addition, PE extract acts as a better solvent for Ns extraction compared to AQ solvent since it gave the lowest IC_{50} value. The mode of cell death was investigated through annexin-v flow cytometry method and it was resulted the way of cell death is through apoptosis.

Keyword: *Nigella sativa* (Ns), *Zingiber zerumbet* (Zz), Human myeloid leukemia cell lines (HL60), Doxorubin (Dox),