Cytotoxic effects and evidence of apoptosis from Avecennia alba extracts on human breast cancer cell line (MCF-7) / Nurul Huda Rahman, Sevakumaran Vigneswari, Aziz Ahmad, Habsah Mohammad, Tengku Sifzizul Tengku Muhammad

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Abstrak

ABSTRAK
Breast cancer is the second leading cause of cancer death and the most common form of cancer affecting women worldwide. The search for natural products for cancer therapy is an area of great interest. The main aim of this study was to determine the cytotoxic effects and the mechanisms of cell death of the crude extracts from mangrove plant, Avecennia alba on human breast carcinoma cell line, MCF-7. Diethyl ether, butanol and methanol extracts were prepared from the leaves of Avecennia alba. cytotoxicity study using MTS assay demonstrated that all the three extracts produced dose-dependent inhibition on MCF-7 cell growth, albeit at different levels. Diethyl ether extracts produced the most potent cytotoxicity, followed by butanol and methanol extracts with IC50 values of 25.1, 27.1 and 28.9 µg/mL, respectively, after 72 h incubation. The DeadEndTM Colorimetric Apoptosis Detection System suggested that all the three extracts exerted cytotoxicity on MCF-7 cells via apoptosis. TLC proling demonstrated the presence of phenolic and alkaloid compounds in methanol, diethyl ether and butanol extracts which may be responsible for mediating the cytototoxicity. the methanol, diethyl ether and butanol extracts of Avecennia alba may contain potential compounds to be developed as anti-cancer agents against breast cancer.