Cytotoxic Potential on Breast Cancer Cells Using Selected Forest Species Found in Malaysia

ABSTRACT

In vitro studies were carried out to evaluate the cytotoxic potential of three selected forest herbaceous species: Tectaria singaporeana (TS), Blechnum orientale (BO) and Tacca integrifolia (TCI). Methanol/methylene chloride extracts of three plant parts viz. leaves, roots and stems were assessed for their cytotoxic potential against human breast cancer cells (MCF-7wt.). Screening of these extracts was done using the microculture, followed by tetrazolium assay after a period of 72 h. There were significant differences between different parts of plants and dilution levels in terms of cytotoxicity, with roots and concentration of 100 Î¼g mL-1 showing the highest cell mortality of 19.58 and 36.59%, respectively. However, the leaves and the stems of all three plant species did not induce any cytotoxic activity on the cells. Overall, the most promising material (IC50 <100 Î¼g mL-1) were the methanolic extracts from the roots of all three plants. Tectaria singaporeana showed the highest cytotoxic potential with an IC50 value of 28.57 Â± 11.74 Î¼g mL-1 followed by Blechnum orientale, 32.07 Â± 7.85 Î¼g mL-1 and Tacca integrifolia, 95.03 Â± 17.49 Î¼g mL-1. From this study, the extracts of these plants may prove to be useful in cancer treatment and prevention.

Keyword: Medical plants, Apoptosis, Breast Cancer, Tectaria singaporeana, Blechnum orientale, Tacca integrifolia