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Cytotoxic effect of a resorcinolic lipid isolated from *Mangifera zeylanica* in a human cancer cell panel

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Cancer remains a leading cause of death worldwide. Surgery, chemotherapy, radiotherapy, hormonal therapy and immunotherapy are considered as treatment options for cancer. Plants have played a vital role as a source of effective anti-cancer agents, and 60% of anti-cancer agents derived from natural sources. *Mangifera zeylanica* is a plant endemic to Sri Lanka and its bark has been use in traditional medicine to treat some cancers. Cytotoxic compounds such as quercetin, chatecin, mangiferin and bromomangiferic acids have been reported in the bark extracts previously. Cytotoxic effect of a resorcinolic lipid (RL) in estrogen receptor-positive breast cancer (MCF-7), triple-negative breast cancer (MDA-MB-231) and epithelial ovarian cancer (SKOV-3) cells has evaluated in a previous study conducted in our laboratory. This study was performed to evaluate cytotoxic effects of RL [5-((8Z, 11Z, 14Z)-hexatriaconta-8, 11, 14-trienyl) benzene-1, 3-diol], a compound isolated from hexane extract of the bark of *M. zeylanica*, in small cancer cell panel containing human hepatocellular carcinoma (HepG2), colorectal adenocarcinoma (Caco-2), malignant mucoepidermoid pluripotent carcinoma (NTERA-2), renal cell adenocarcinoma (ACHN), mucoepidermoid pulmonary carcinoma (NCI-H292), epidermoid carcinoma (A-431), endometrium adenocarcinoma (AN3CA) and triple-negative breast cancer cells (Hs578t) and normal embryonic kidney cells (HEK-293). Sulforhodamine B (SRB) assay was carried out to evaluate the cytotoxic effects of the RL on the cancer cell panel. Prior to the SRB assays, cancer cells were treated with RL at concentrations ranging from 1.5625 to 25µg/mL and incubated for 48 h. Results of the SRB assay demonstrated that RL excreted a potent *in vitro* cytotoxicity on all cancer cell lines tested (IC_{50} in µg/mL; HepG2: 2.31, Caco-2: 1.59, AN3CA: 1.28, Hs578t: <1.00, NTERA-2: <1.00, ACHN: 1.42, NCI-H292: 2.84 and A-431: 1.63) with less cytotoxicity to normal embryonic kidney cells (HEK-293: 4.44). Ethidium bromide/ Acridine orange staining revealed morphological evidence of apoptosis (including chromatin condensation, nuclear fragmentation and changes in the size and shape) in cancer cells. Overall results of the current study provide preliminary evidence to prove that RL can be develop as a potential drug to treats several types of human cancers.

Keywords: *Mangifera zeylanica,* Resorcinolic lipid, Cancer, Cytotoxicity

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