Cell cycle analysis and cytotoxic potential of Ruta graveolens against human tumor cell lines.


Source

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Abstract

There are reports on the presence of various compounds exerting different biological activities in Ruta graveolens, a plant of Rutaceae family. The aim of the present study was to evaluate in vitro cytotoxicity of the total extract of R. graveolens against tumor cell lines of different origin. Aerial parts of the plant was extracted with 70% ethanol by sonication method and cytotoxic activity was examined on RAJI, RAMOS, RPMI8866, U937, Jurkat, MDA-MB-453, MCF-7, LNCap-FGC-10, 5637, HeLa, SK-OV-3, A549, Mehr-80 and also peripheral blood mononuclear cells (PBMC) by the use of WST-1 assay. Results were expressed as IC(50) values. R. graveolens extract showed high cytotoxic activity against RAJI and RAMOS, two Burkitt's lymphoma cell lines, with an IC(50) equal to 24.3 microg/ml and 35.2 microg/ml respectively and LNCap-FGC-10, a prostate adenocarcinoma cell line with an IC(50) equal to 27.6 microg/ml as well as Mehr-80, a newly established Large Cell Lung Carcinoma (IC(50)=46.2 microg/ml). No significant anti-proliferative activity was observed on other cell lines including MCF-7, MDA-MB-453, SK-OV-3, HeLa, 5637, JURKAT and RPMI8866. Adverse cytotoxic effect of R. graveolens was investigated against PBMCs and a significantly lower effect of this extract (IC(50)=104 microg/ml) was seen on normal cells compared with RAJI and RAMOS, two haematopoietic cell lines.

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