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Cytotoxic activity of the standardized extract of Betula utilis on human cancer cell lines

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Betula utilis (Betulaceae family) is a moderate-sized tree occurs at high altitudes of Himalayas and well known for having its anticancer activity. The present research work deals with the cytotoxic activity of isolated triterpenes along with primary screening of six solvent extracts of *Betula utilis* bark. Moreover compound mediated massive ROS generation and mitochondrial membrane potential disruption tumor cell migration study also has been done. Bark of *Betula utilis* were extracted in six different solvents. All the six extracts have been evaluated for *in vitro* anticancer activity. The most potent fractions in terms of cytotoxic activity against various cancer cell lines were subjected to column chromatography for isolation of pure compounds. Six triterpenes such as betulin, betulinic acid, lupeol, ursolic acid, oleanolic acid and β-amyrin have been isolated from *Betula utilis* bark. The structures of these compounds have been established by spectroscopic methods. All the isolated triterpenes have been tested for *in vitro* cytotoxic activity. Ursolic acid has been identified as the most robust tumor cell selective cytotoxic activity against breast cancer. Ursolic acid mediated massive ROS generation and mitochondrial membrane potential disruption are the major factors for contributing anticancer potential of the particular fraction. Ursolic acid also significantly inhibited the tumor cell migration. *Betula utilis* is novel source of ursolic acid having potent tumor cell selective anticancer properties.

Biography

Tripti Mishra has completed her MSc from Lucknow University and is pursuing PhD from Kumaun University, Nainital Uttarakhand India. She is the Research Scholar at Phytochemistry Division of CSIR-National Botanical Research Institute, Lucknow India. She has published three papers in reputed journals along with two book chapters and five popular articles.

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