643

INCREASED CYTOTOXICITY OF ARSENIC IN MT-2 LEUKEMIA CELLS BY COMBINATION WITH UMBELLIPRENIN

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Plants belong to the genus *Ferula* (*Apiaceae*), which are endemic in central Asia, are widely used in Iranian traditional medicine.Umbelliprenin is a natural coumarin *extracted from dried roots of Ferula szwitsiana* with wide range anticancer effects. Adult T-cell leukemia/lymphoma (ATLL) is a T-cell neoplasm caused by human T-lymphotrophic virus type 1 (HTLV-1). Although several clinical options are available for ATL patients, the survival rate of this disease is still very low. To investigate whether umbelliprenin could enhance the efficacy of chemical drugs prescribed for ATL, such as arsenic, we used MT-2 cells in present attempt and defined cytotoxicity of combinatorial treatments *in vitro*. In this regard, after the IC_{50} value of arsenic was determined in MT-2 cells during 24, 48 and 72 h, cells were treated with combination of umbelliprenin (12.5 and 25 µg/ml) and arsenic (16 and 32 µg/ml) for three consecutive days. Then, viability of cells was assessed by WST-1 kit. Since umbelliprenin crystals were dissolved in dimethyl sulfoxide (DMSO), relevant DMSO treatments were considered as control. Obtained results indicated that 25 µg/ml umbelliprenin increased the toxicity of 32 µg/ml arsenic up 36% According to current findings, it is worth to study synergic effects of umbelliprenin on other anticancer drugs, as well as more ATL cell lines.