

عنوان مقاله:

Reactive oxygen species (ROS) are a crucial factor in the anticancer activity of *Oliveria decumbens* extract against the A431 human skin cell line

محل انتشار:

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تعداد صفحات اصل مقاله: 6

نویسندگان:

.marzieh Dinarvand - Department of biology, North Tehran Branch, Islamic Azad University, Tehran, Iran

.Fariba Sharifnia - Department of biology, North Tehran Branch, Islamic Azad University, Tehran, Iran

Zohreh Jangravi - Department of Biochemistry, Faculty of Medicine, Baqiyatallah University of Medical Sciences, Tehran, Iran. Tarbiat Modares University

خلاصه مقاله:

Globally, skin cancer is a main public health challenge which its incidence is continuously rising. Regarding to limitation of conventional therapies, new research and novel therapies can be promising for reduction of skin cancer morbidity and mortality. Phytochemicals are attractive resources for new therapy design in cancer research due to cost-effectiveness and lower side effects. In the present study, the anti-cancer activity of *Oliveria decumbens* (*O. decumbens*) extract on the human skin cancer A431 cell line has been investigated. The aqueous extract of the *O. decumbens* plant was prepared using the traditional method. After that,  $IC_{50}$  was determined using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl-2H-tetrazolium bromide (MTT) assay under different concentration of *O. decumbens*. Cell Apoptosis was investigated by Annexin V-FITC/Propidium Iodide (PI) and flowcytometry. Cell cycle studied by PI staining and flowcytometry. Reactive oxygen species (ROS) production analyzed with DCFH-DA (2', 2'-dichlorofluorescein-diacetate) staining and flowcytometry.  $IC_{50}$  for cell viability was determined 475 g/ml. Cell cycle analyses showed G1 arrest in treated cells compare to control cell. Results also confirmed significant increase of apoptotic cells (8.2%,  $P < 0.05$ ) under  $IC_{50}$  concentration of the extract in compare to control group (2.5-0.99%). Significant increase in ROS level was observed in *O. decumbens* treated cells compare to control cells (738 170 vs 316 55 in control group,  $P < 0.05$ ). Overall, the present results indicate that *O. decumbens* extract can inhibit skin cancer cell proliferation via inhibition of cell cycle and apoptosis. It seems that ROS production plays a critical role in anti-cancer effect of *O. decumbens* extract. Therefore, its potential option for future treatment of skin cancer should be considered.

کلمات کلیدی:

*Oliveria decumbens*, aqueous extract, Ros, Skin cancer, A431 cell line

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