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Effect of curcumin on head and neck cancer cells growth

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Head and neck cancer (HNC) generally stated as a span of malignant neoplasms that originate from soft tissue. HNC is considered the 7th most frequent type of cancers in the world and the 3rd most common cancers in Saudi Arabia. The treatment of HNC often includes multimodality therapy that can be quite morbid. Curcumin, known as diferuloylmethane, is the major biologically active compound of the Turmeric herb. Curcumin extract was shown to have anti-cancer properties including its ability to induce apoptosis, cell cycle arrest and DNA damage. In this study, we aimed to investigate the anti-cancer activities of curcumin in HNC in HNO97 cells. A significant reduction in cellular proliferation of HNO97 cells were induced by incubating different curcumin concentrations. Similarly, a significant inhibition in cell viability of HNO97 cells was found when a fixed concentration of 35 μ M curcumin was incubated at different time points. Flow cytometry data showed that curcumin-induced G2/M phase arrest and induced apoptosis in a time-dependent manner. Data from comet assay showed that upon treatment of cells with curcumin, comet tails were formed in nuclei indicating the induction of DNA damage. Finally, treating HNO97 cells with curcumin for different time points significantly reduced colony formation. Taken together, these results suggest that curcumin can be used as a promising natural agent that can treat and prevent cancer.

Biography

Zohoor Kalaf Allah Al-Malki is pursuing her Master's degree in the Biochemistry Department at King Abdulaziz University in Saudi Arabia. Her thesis focuses on understanding the therapeutic characteristics of curcumin to treat cancer. She is investigating the effect of curcumin on head and neck cancer cells by performing her research at King Fahad Medical Research Center under the supervision of Mazin Zamzami, the Head of Biochemistry Department at King Abdulaziz University. In addition, she is investigating the pharmacological activities of curcumin by doing analytical studies in the Analytical Method Development Laboratory at Jamjoom Pharma.

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