Investigating Anticancer Properties Of Some Derivatives Of Monoterpenes On Colon Carcinoma Cells In Vitro

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Abstract

Despite improved imaging and molecular diagnostic techniques, cancer is the second major cause of death in the world and colorectal cancer is the second most common cause of cancer death. Chemotherapy is one of typical ways to control or slow down the growth of cancer cells and researches continue for improving this therapeutic approach. In this research, fenchyl ferulate, admantyl vanillate and fenchyl 3,4-dimetoxybenzote were evaluated for their possible anticancer effects on colon carcinoma cell line "CT26" in vitro .These compounds are derivatives of monoterpenes that synthesized through esterification reaction of their related alcohols and acids. To determine IC50 values of these compounds, CT26 cells were treated with different concentrations of them for 24, 48 and 72 hours. Cell viability was then evaluated by MTT assay and IC50 values were determined. MTT result showed that the compounds had cytotoxic effects on CT26 cells with IC50 values of 32.20, 27.76 and 22.99 µg/mL after 24, 48 and 72 hours of treatments for fenchyl ferulate, Respectively IC50 values for admantyl vanillate were 39.44, 36.97 and 19.70 and for fenchyl 3,4-dimetoxybenzote were 37.00, 34.90 and 31.38. This results are comparable to the anticancer effects of cisplatin on CT26 cells which were 23.16, 7.023 and 5.461 µg/mL after 24, 48 and 72 hours of its administration. As results indicated, these compounds can be introduced as probable anticancer agents. However further studies are still needed to determine their likely effects on respective normal cells and the exact mechanism(s) involved in cytotoxic effects of these monoterpenes on cancer cells. Also, since the CT26 cells are murine cells, the anticancer effects of these compounds can be considered in vivo too.

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