

Novel Steviosides Analogs Induced Apoptosis in Breast Cancers

Authors : Ahmed Malki

Abstract : Breast cancer has been identified as the most lethal form of cancer today. In our study, we designed and screened 16 steviosides derivatives for their cytotoxic activities in MCF-7 human breast cancer cells and normal MCF-12a cells. Our data indicated that steviosides derivatives 9 and 15 decreased cell proliferation and induced apoptosis in MCF-7 breast cancer cells more than normal breast cells epithelial cells. Flow cytometric analysis showed that both steviosides, derivatives 9 and 15 arrested the MCF-7 cells in G1 phase, which is further confirmed by the increased expression level of p21. Moreover, both steviosides derivatives increased caspase-9 activity, and the induction of apoptosis was significantly reduced after treating cells with caspase-9 inhibitor LEHD-CHO. Both steviosides derivatives increased Caspase 3 activities and induced Parp-1 cleavage in H1299 cells. Based on previous results, we have identified two novel steviosides derivatives which provoked apoptosis in breast cancer cells by arresting cells in G1 phase and increasing caspase-9 and caspase-3 activities which merits further development and investigations.

Keywords : steviosides, breast cancer, p53, cell cycle

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