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The Role of Moringa oleifera Extract Leaves in Inducing Apoptosis in Breast Cancer Cell Line

Authors : V. Yurina, H. Sujuti, E. Rahmani, A. R. Nopitasari

Abstract : Breast cancer has the highest prevalence cancer in women. Moringa leaves (M. oleifera) contain quercetin, kaempferol, and benzyl isothiocyanate which can enhance induction of apoptosis. This research aimed to study the role of the leaf extract of Moringa to increase apoptosis in breast cancer cell line, MCF-7 cells. This research used in vitro experimental, post-test only, control group design on breast cancer cells MCF-7 in vitro. Moringa leaves were extracted by maceration method with ethanol 70%. Cells were treated with drumstick leaves extract on 1100, 2200, and 4400 µg/ml for Hsp27 and caspase-9 expression (immunocytochemistry) and apoptosis (TUNEL assay) test. The results of this study found that the IC50 2200 µg/ml. Moringa leaves extract can significantly increase the expression of caspase-9 ($p<0.05$) and decreased Hsp 27 expression ($p<0.05$). Moreover it can increase apoptosis ($p<0.05$) significantly in MCF-7 cells. The conclusion of this study is Moringa leaves extract is able to increase the expression of caspase-9, decrease Hsp27 expression and increase apoptosis in breast cancer cell-line MCF-7.

Keywords : apoptosis, breast cancer, caspase-9, Hsp27, Moringa oleifera
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