

Assessment of Anticancer Effect of Cardamom on Oral Squamous Cell Carcinoma Cell Line (A Non-Randomized in Vitro Study)

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Abstract

Aim: To investigate the anticancer effect of Cardamom extract on Hep-2 cell line which may aid in development of a novel treatment modality to Head and Neck Squamous Cell Carcinoma.

Materials and Methods: Hep-2 cell line was divided into five groups: one control group, two groups treated with Cardamom extract, and another two treated with Doxorubicin, each of the two treatments was applied for 24 and 48 hours, respectively. Then, cellular viability was measured using microculture tetrazolium assay, cell cycle analysis was done using Flow Cytometry and eventually, apoptotic activity was evaluated using enzyme-linked immunosorbent assay to measure the concentration of BAX protein and real time polymerase chain reaction to measure the fold change for caspase-3 enzyme.

Results: Cardamom extract succeeded to decrease the percentage of viable and proliferating cells with increasing dose. On the other hand, it increased the percentage of apoptotic cells and levels of caspase-3 and BAX protein.

Conclusions: Cardamom extract has a potential cytotoxic effect on Head and Neck Squamous Cell Carcinoma cell line in a dose and time dependent manner, and exerts this action through induction of apoptosis, and its action is comparable to Doxorubicin action.