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To evaluate the effect of ellagic acid treatment on the cell viability of human prostate cancer cells

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Objective: To evaluate the effect of ellagic acid treatment on the cell viability of human prostate cancer cells.

Methods: Ellagic acid (10-100 mol/L) treatment (48h) of human prostate carcinoma PC3 cells was found to result in a dose-dependent inhibition of cell growth and apoptosis of PC3 cells as assessed by MTT assay, western blotting, flow cytometry and confocal microscopy.

Results: We observed that ellagic acid treatment of PC3 cells resulted in a dose dependent inhibition of cell growth/cell viability. This ellagic acid caused cell growth inhibition was found to be accompanied by induction of apoptosis, as assessed by the cleavage of poly (ADP-ribose) polymerase (PARP) and morphological changes. Further, induction of apoptosis accompanied a decrease in the levels of antiapoptotic protein Bcl-2 and increase in proapoptotic protein Bax, thus shifting the Bax: Bcl-2 ratio in favor of apoptosis. Ellagic acid treatment of PC3 cells was also found to result in significant activation of caspases, as shown by the dose dependent decrease in the

protein expression of procaspase-3, -6, -8 and -9. This ellagic acid-mediated induction of apoptosis was significantly (80%-90%) inhibited by the caspase inhibitor N-benzyloxycarbonyl-Val-Ala-Asp (OMe)-fluoromethylketone (Z-VAD-FMK). Thus, these data suggested an essential role of caspases in ellagic acid-mediated apoptosis of PC3 cells.

Conclusions: It is tempting to suggest that consumption of tropical pigmented fruits and vegetables could be an effective strategy to combat prostate cancer.

Speaker Biography

Arshi Malik is currently an assistant professor at the College of Medicine, Department of Clinical Biochemistry, King Khalid University, Kingdom of Saudi Arabia. His work mainly focusses on chemoprevention and chemotherapy by various natural agents. He has an extensive experience with human tissue culture, orthotopic/ecotopic implantations of tumors in rodents, tail vein injections, surgery of small animals. Before coming to King Khalid University in Saudi Arabia, he also taught/mentored undergraduate students at Harvard Medical School, Boston as well as at the University of Wisconsin, Madison, United States. Arshi earned his PhD degree in Biochemistry in the year 2002 from Aligarh University in India.

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