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TITLE

Anticancer Principles From Fruit Peel via Induction of Apoptosis in Different Cancer Cell Lines and Their Metabolomic Study by HPLC-ESI-MS/MS

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Food bioactives offer a great potential in the fight against human cancer by inhibiting the carcinogenesis process through cell defensive and apoptotic machineries. Fruit Peel is a major by-product of processing food and are not currently used commercially, but it can be a potential chemo-preventive agent. In this study, we have evaluated peel of citrus and pitaya against various cancer cell lines and figure out the possible mechanism of action in specific cancer cell line via apoptosis approach. The results suggest that inhibition of cell proliferation or the induction of cell death in various cancer cells by fruit peel metabolites might be mediated by the induction of sub-G1 phase arrest and the subsequent apoptotic process that is accompanied by caspase-3 activation, as it caused the degradation of several important substrates, including PARP. Further, a compositional/metabolomics analysis of the fruit peel was performed using HPLC-ESI-MS/MS to identify which phytochemicals are responsible for the anticancer activity. The phytochemical-induced apoptosis may result from the combined or synergistic actions of a mixture of metabolites found in the fruit peel. Thus the purpose of this presentation is to discuss the process of apoptosis and the potential effect of metabolites of fruit peel against cancer prevention.

Biography

Dr. Ashik Mosaddik is the head of Pharmacy Department, BRAC University, Dhaka, Bangladesh. Previously he was Professor of Pharmacy Department, Rajshahi University, Bangladesh. He did his postdoctoral training on Plant metabolomics and anticancer via apoptosis approach at Jeju National University of South Korea from 2009-2010. He has received Ph.D (2006) degrees on Phytochemistry and Phytopharmacology from Centre for Phytochemistry of University of Southern Cross, NSW, Australia. He received Commonwealth Government fellowship (2001-2004) from Government of Australia. He received Vice chancellor Award (1994) for brilliant result in B. Pharm. and M. Pharm degree. He also received Best Poster Award from RACI Natural Product Group of NSW, Australia in 2002 and Best poster awards in International Conference on Nutrition and physical activity in Aging, Obesity and Cancer in 2009. Recently He wins the prestigious TWAS Young Scientist Award in 2011. He served as a reviewer of various peer-reviewed journal including Natural Product Research, Pharmaceutical Biology, Journal of Bioorganic Chemistry etc. He has published about 80 research articles in several top journals including Food Chemistry, Journal of Food Science, Phytomedicine, Phototherapy Research etc. He has written a book chapter in Global Perspectives on Childhood Obesity Current Status, Consequences and Prevention published by Elsevier Science. He is also serving as an Editorial board member of reputed journals of Cancer Research and Experimental Oncology. He was honored by giving a position as an organizing committee member for several National and international conferences and professional bodies of Pharmacy and has been invited to give lectures at National and international conferences. He has already guided 3 Ph.D. students and more than 2 Ph.D. students are working under his supervision.