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### Study the effects of capsaicin on triple negative breast cancer cells

M Alasmari, Alshaeri, M Bohlke, J Demasi, T Maher and A Pino-Figueroa  
MCPHS University, USA

Triple negative breast cancer (TNBC) is one of the most aggressive types of breast cancer. It accounts for 12% of breast cancer cases. It lacks of estrogen receptor (ER), progesterone receptor (PR), and human epidermal receptor 2 (HER-2) which limits its treatment options and enhances its ability to metastasize and raises the risk of recurrence. Patients with TNBC are not responsive to conventional targeted breast cancer therapies. Capsaicin (CAP) is the most abundant and potent capsaicinoid produced in chili pepper fruits. Capsaicin has been used for its analgesic and anti-inflammatory effects. Moreover, several studies have shown that capsaicin has anti-carcinogenic properties in various types of human cancers. The aim of this study is to investigate the effects of capsaicin in human TNBC by using the BT-20 cell line. The results showed that capsaicin demonstrated concentration and time-dependent inhibitory activity on BT-20 cell viability as determined by MTS assay. Capsaicin produced cell viability inhibition at concentrations 150 and 250  $\mu\text{M}$  at 24 and 48 h while at 72h it caused inhibition on cell viability at concentrations of 100, 150 and 250  $\mu\text{M}$ . Capsaicin showed significant 5 fold increase in cytochrome C release at 250  $\mu\text{M}$  as well as significant 1.6 fold increase in caspase 3/7 activity at 250  $\mu\text{M}$ . Which are markers of apoptotic activation. In conclusion, capsaicin showed an inhibitory effect on cell growth and enhance apoptosis. These results will provide useful information regarding the development of a new therapy that can help in treating TNBC.

#### Biography

Moudi Alasmari is a PhD candidate in pharmacology at Massachusetts College of Pharmacy and Health Sciences University (MCPHS University, Boston, USA). She completed her MS in pharmacology in 2014 from MCPHS University. She is a Pharm D graduate from King Abdulaziz University (KAU, Jeddah, KSA) in 2009. She has experience in neuroscience research. She did 3 poster presentations and wrote 1 article under submission in this field. Also, she has been working in breast cancer research and she did one poster presentation about the anticancer activity of *annona muricata* extract on triple negative breast cancer cells and isolation/characterization of active compounds.

alasm1@stu.mcphs.edu

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