

# 9<sup>th</sup> Indo Global Summit on **Cancer Therapy**

November 02-04, 2015 Hyderabad, India

## ***Murraya koenigii* leaves: a potent anti-cancer agent against breast cancer**

**Ayesha Ismail and Bindu Noolu**  
National Institute of Nutrition, India

**B**reast cancer is the leading cause for death among women worldwide. Cancer cells are known to possess high proteasome activity which is essential for their growth and survival. Inhibition of the proteolytic activity of the 26S proteasome leads to apoptosis and targeting the proteasome is thought to be an attractive approach for anticancer therapy. *Murraya koenigii* is a medicinally important herb of Asian origin and a rich source of bioactive compounds such as flavonoids and alkaloids. The objective of this study was to investigate the inhibition of cancer cell growth and proteasome activity by *M. koenigii* leaf extract (MLE) using both *in vitro* and *in vivo* models. Cell culture studies using two human breast cancer cell lines revealed that the MLE could inhibit the activity of the 26S proteasome and led to cell death/apoptosis. Interestingly, MLE had minimal effect on the proteasomal activity in a normal cell line. Further, *in vivo* studies were carried out and xenografts were implanted in nude mice using the MDA-MB-231 human breast cancer cell line. Tumor bearing mice were administered either vehicle or two different doses of MLE. Proteasomal and caspase-3 activities were determined by using specific fluorogenic substrates. Treatment with MLE led to significant reduction in tumor growth. There was a dose-dependent decrease in proteasomal enzyme activities (Ch-L & T-L). Increased caspase-3 activity in the treated tumors compared to untreated tumors indicated enhanced apoptosis. Increased expression of the cell cycle inhibitors (p21 & p27) with MLE suggested growth arrest which was reflected in the reduced tumor size. Decreased expression of both angiogenic and anti-apoptotic gene markers indicates inhibition of angiogenesis and promotion of apoptosis in the MLE treated tumors. In conclusion, the results indicate *M. koenigii* leaves as a potential anti-cancer agent and highlight its benefit in breast cancer prevention and treatment.

### **Biography**

Ayesha Ismail has completed her PhD from National Institute of Nutrition, Osmania University, Hyderabad and post-doctoral studies from MD Anderson Cancer Centre and University of Miami, USA. She is currently working as Scientist 'D' at NIN, Hyderabad. She has more than 25 publications in reputed, peer-reviewed international journals. Her research work is funded by extramural agencies such as DBT, DST and ICMR.

[ayeshanin@gmail.com](mailto:ayeshanin@gmail.com)

### **Notes:**