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Anti-oxidative and anti-cancer activities of *Machaerium cuspidatum* extractSoojung Jin, You Na Oh, Hyun Ju Kwon, and Byung Woo Kim
Dong-Eui University, South Korea

Machaerium cuspidatum, a canopy liana, is a species of genus legume in the Fabaceae family and contributes to the total species richness in tropical rain forests. In the present study, we investigated the anti-oxidative and anti-cancer effects of *M. cuspidatum* and the molecular mechanisms of its anti-cancer activity in human lung adenocarcinoma A549 cells and human hepatocellular carcinoma HepG2 cells. Methanol extract of *M. cuspidatum* (MEMC) showed significant anti-oxidative activity and the cytotoxic effect in a dose-dependent manner in several cancer cell lines. Annexin V-positive apoptotic cells and apoptotic bodies increased by MEMC treatment. Further investigation showed that MEMC-induced apoptosis was associated with the increase of p53 and Bax expression, and the decrease of Bcl-2 expression. In addition, MEMC treatment led to proteolytic activation of caspase-3, -8, -9 and degradation of poly ADP ribose polymerase (PARP). Taken together, these results suggest that MEMC may exert a beneficial anti-cancer effect by apoptosis induction via both extrinsic and intrinsic pathways in A549 and HepG2 cells.

Recent Publications:

1. Andreas G (2003) Introduction to apoptosis. Apo Review. 2-26.
2. Fulda S (2015) Targeting apoptosis for anticancer therapy. Semin. Cancer Biol. 31:84-88.
3. Fulda S and Debatin K M (2006) Extrinsic versus intrinsic apoptosis pathways in anticancer chemotherapy. Oncogene. 25:4798-4811.
4. Halliwell B H and Gutteridge JMC (1990) Role of free radicals and catalytic metal ions in human disease: an overview. Methods Enzymol. 186:1-85.
5. Newman D J and Cragg G M (2007) Natural products as sources of new drugs over the last 25 years. J. Nat. Prod. 70: 461-477.

Biography

Soojung Jin has completed her PhD in Immunology from Osaka University, Osaka, Japan. She is presently working as an Assistant Professor at Blue-Bio Industry Regional Innovation Center, Dong-Eui University, Busan, Republic of Korea. Her research is focused on bioactive natural products and oncology.

microjini@deu.ac.kr

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