World Academy of Science, Engineering and Technology
International Journal of Biotechnology and Bioengineering
Vol:9, No:12, 2015

Induction of Apoptosis by Diosmin through Interleukins/STAT and Mitochondria Mediated Pathway in Hep-2 and KB Cells

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Abstract : Diosmin is a flavonoid, most abundantly found in many citrus fruits. As a flavonoid, it possesses a multitude of biological activities including anti-hyperglycemic, anti-lipid peroxidative, anti-inflammatory, antioxidant, and anti-mutagenic properties. At this point, we established the anti-proliferative and apoptosis-inducing activities of diosmin in Hep-2 and KB cells. Diosmin has cytotoxic effects through inhibiting cellular proliferation of Hep-2 and KB cells, which leads to the induction of apoptosis, as apparent by an increase in the fraction of cells in the sub-G1phase of the cell cycle. Results exposed that inhibition of cell proliferation is associated with regulation of the Interleukins/STAT pathway. In addition, Diosmin treatment with Hep-2 and KB cells actively stimulated reactive oxygen species (ROS) and mitochondrial membrane depolarization. And also an imbalance in the Bax/Bcl-2 ratio triggered the caspase cascade and shifting the balance in favor of apoptosis. These observations conclude that Diosmin induce apoptosis via Interleukins /STAT-mediated pathway.

Keywords : diosmin, apoptosis, antioxidant, STAT pathway
Conference Title : ICABB 2015 : International Conference on Applied Bioscience and Biotechnology
Conference Location : London, United Kingdom
Conference Dates : December 10-11, 2015