

6th World Congress on **Biotechnology**

October 05-07, 2015 New Delhi, India

Quercetin enhances the effect of Adriamycin in human hepatocellular carcinoma (HepG2) cell lines

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Hepatocellular carcinoma (HCC) is one of the most common cancers worldwide; it is the fifth most common cancer in men and eighth most common in women. HCC results in 250000 to one million deaths globally per annum. Adriamycin is a widely used chemotherapeutic drug used to treat many different forms of cancer but causes side effects by damaging normal cells leading to cardiotoxicity and nephrotoxicity through the production of free radicals. Quercetin (3, 3', 4', 5, 7-Pentahydroxyflavone) is one of the most abundant bio-flavonoids present in edible fruits and vegetables and because of its antioxidant property can reduce the side effects caused by Adriamycin. The present study, aims to investigate the *in vitro* anti-tumorigenic property of quercetin along with Adriamycin in HepG2 cell lines. We examined the cell viability by MTT assay, lipid peroxidation and antioxidant enzymes like catalase, superoxide dismutase, glutathione peroxidase and glutathione reductase; marker enzymes like ALP, LDH and the gene and protein expression studies of apoptotic genes like Bcl-xl, Bcl 2, Bak, Apaf, Bax, p53, p21, caspase 3, caspase 9 and PARP in HepG2 cell line. Our study has proved that quercetin is a very effective growth inhibitor when used alone as well when used in combination with Adriamycin in HepG2 cell line. In recent years, research about quercetin has increased both *in vitro* and *in vivo* considering it as a promising anti-cancer agent.

Biography

R Venkateswari has completed her PhD in Cancer Biochemistry from the University of Madras. She is currently working as an Assistant Professor in the Department of Medical Biochemistry, University of Madras since 2014. She has 19 years of teaching experience and 8 years of research experience in Vels University and University of Madras. Her area of research is on antioxidants in cancer chemotherapy, apoptosis, angiogenesis and drug discovery from medicinal plants. She has published papers in reputed journals and has been serving as an Editorial Board Member of reputed journals.

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