Apoptosis and Anti-tumor studies of *Premna coriacea* in breast cancer cell lines and *in vivo* animal models

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Abstract

Premna is a genus of about 200 species including some Large climbers ; Scandent shrubs, 4 - 5 m high. Stems with pale ashy brown bark, belongs to the family Verbenacea. Antiproliferative, apoptosis induction studies, anti-inflammatory studies and in vivo anticancer studies has been studied by various methods and models with PCEE. The Premna coriacea ethyl acetate extracts (PCEE) showed potential cyctoxicity against MCF-7 cell lines.The results showed that MCF-7 cell proliferation was significantly inhibited by PCEE with the IC50 value 560 µg/ml. The standard drug doxorubicin with the IC50 value of 2.38 µg/ml and PCEE with mild cytotoxic with the cell death of 56.3% against MCF-7 cell lines. The effect PCEE on cell cycle was studied using flow cytometry in MCF-7 cell lines. The percentage of cell in various phases like G0/G1,S and G2/M phase of the cell were calculated. The results shows that the PCEE inhibited cells in the G0/G1 phase in the MCF-7 cells. Doxorubicin arrested the G2/M phase of the cell in MCF-7 cells. Apoptotic changes in cells may be studied using AO/EB fluorescent staining. The apoptotic effect of PCEE was studied in MCF-7cell lines and the percentage of apoptotic cells were calculated. The levels of p-53, phospho-p53, Bad, phospho-Bad ,cleaved caspase 3 and cleaved PARP in MCF-7cell lines were studied by ELISA method. There was a slight decrease in p53 in doxorubicin. Lifespan of ascites tumour bearing animals induced by EAC cells was found to be increased by PCEE in 200mg/kg and 400mg/kg treatment. PCEE 400mg/kg b.wt group the lifespan was increased by 42.86% and PCEE 200mg/kg group the increase was 13.34%. The survival rate of solid tumour bearing animals was also significantly increased by PCEE treatment. Similar findings was reported in DLA solid tumor model. Similar findings was reported in DLA solid tumor model. Therefore, the effect of PCEE on the inhibition of IL-1β and TNF-α was investigated. The IL-1β and TNF-α levels in supernatants of cells treated with PCEE were significantly decreased compared with the LPS group, in a dose-dependent manner. Our research indicates that these this plants possess anticancer and anti-inflammatory activities which may be due to the presence of active phytoconstituents flavonoids and phenolic compounds. It can be concluded that the plant extracts may be a source of new compounds for anticancer and anti-inflammatory.

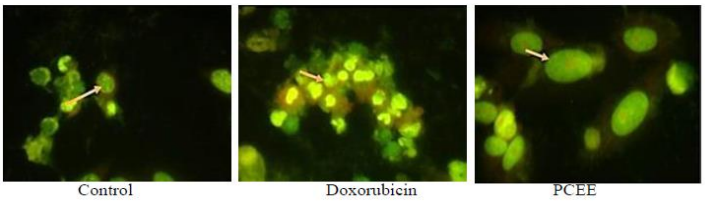


Figure 1 Effect of PCEE in Acridine organe /ethidium bromide dual staining

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5. Karthikeyan M, Balasubramanian T, Pawan Kumar Effect of Premna coriacea on oral glucose tolerance test in rats. International Journal of Pharmaceutical Science and Research. 2018;3(1):15-17..



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