

## **Influence of curcuma amada and prosopis cineraria leaf extracts in human breast cancer cell line**

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Cancer is the major public health burden in all developed countries. It is a class of diseases in which a group of cells display uncontrolled growth, invasion and metastasis. During cancer development, various imbalances can arise in the apoptotic machinery. Defects in apoptosis pathways allow tumor cells to survive for prolonged period of time, accumulate genetic errors, and live in a suspended state that permits metastatic spread. The medicinal value of plants have assumed an important dimension in the past few decades owing largely due to the discovery as a rich source of antioxidants that combat oxidative stress through their redox active secondary metabolites and the rising concerns about the side effects of synthetic drugs. The methanolic extract of leaves of two medicinal plants namely Curcuma amada and Prosopis cineraria were taken which showed significant radical scavenging activity in our earlier studies. The present study was carried out to assess the anticancer activity of the methanolic extracts of the two plants using ER/ PR positive breast cancer cell line (MCF-7) and triple negative cell line MDAMB 231. The cells were treated with different concentrations of the extracts for various time periods and the dose and time period for treatment were optimized using MTT assay. Various other cytotoxicity assays (MTT, SRB, Neutral red, WST-1 and Alamar blue) and staining techniques were done in MCF-7 and MDA-MB-231 cells treated with and without leaf extracts and in the presence and absence of tamoxifen, which is an estrogen antagonist commonly used in the treatment of ER positive breast cancer. The results showed that the extracts inhibited cell proliferation by inducing cell death in MCF-7 cells and MDA-MB 231 cells and the extent of cell proliferation was further decreased in tamoxifen and leaf extracts treated groups. In order to assess the safety of extracts the cytotoxicity of the extracts were tested in non-tumorigenic breast cell line HBL-100. The results showed that extracts showed less toxicity in HBL-100. This suggests that the extracts are less toxic to normal cells. Immunocytochemical analysis was carried out to localize the apoptotic antibodies. The extent of DNA damage was also assessed.

### **Biography**

Dr.S.Sumathi, the presenting author is an Assistant Professor in Biochemistry in the Department of Biochemistry, Biotechnology and Bioinformatics, Avinashilingam Deemed university for Women, Coimbatore – 641 043 Tamil Nadu, India. She has received her Ph.D degree in Biochemistry. She has a rich teaching and research experience in the field of medicinal plants. Research work is focused on validating various in vitro models for anticancer research and currently involved in identifying novel sources of anticancer compounds with targeted approach of developing anticancer drugs from medicinal plants using cancer cell lines especially in breast cancer. About 18 papers have been published in National and International journals. Principal investigator in project in breast cancer. Guiding M.Phil and Ph.D students in Biochemistry and Biotechnology.

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