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# Antiproliferative and apoptotic potential on mcf - 7 cell line by Curcuma amada and Prosopis cineraria leaf extract

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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 and antioxidant activity among the various parts and extracts of increasing polarity in organic solvents tested in our earlier studies. Various concentrations (0.1mg-0.3mg/ 5µl DMSO) of methanolic extract of the leaves were prepared and ED 50 was calculated to optimize the dose. We are investigating their possible anti tumor properties primarily upon ($ER_+$) MCF- 7 cells. Cytotoxicity and apoptotic studies were done in the presence of Trastuzumab drug as a positive control. Trastuzumab is a widely used anticancer agent that induces apoptotic death in cancer cells. Due to its side effects, nonspecific in its action and problems of drug resistance being noted we attempted to develop a molecular targeted drug from the plant source. Different treatment groups were set up to study the effect of the presence of the leaf extracts on Trastuzumab-induced death in cancer cell line. Cytotoxic assays, metabolic assays, morphological and nuclear changes during apoptosis and detection of early apoptotic events were carried out. The results revealed that the plant extracts were safe to use and did possess anticancer activity.

## 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 in 2007. She has a rich teaching and research experience of 15 years 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. About 15 papers have been published in National and International journals. Guiding M.Phil and Ph.D students in Biochemistry and Biotechnology.