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Cytotoxic potency of plant extracts varies with breast cancer cell lines

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Cell lines derived from tissues and immortalized, played a crucial role in understanding disease mechanisms and identifying potential drug targets, and for evaluating potency/toxicity of various xenobiotic and bioactive molecules.

In view of the pre-clinical utility of the cell lines, we wanted to determine whether the response of various established breast cancer cell lines to cytotoxic agents would be similar or not? For this study, we chose to test cytotoxic effect of two plant extracts (FE and PE) against three widely used breast cancer cell lines (MCF- 7; MDA-MB-435 and ZR-75) derived from three different Caucasian females afflicted with breast cancer. The breast cancer cell lines utilized for the investigations were reported to be either positive or negative for Estrogen and/or Progesterone receptors which play role in breast cancer and in determining mode of anti-cancer strategy. MCF-7 and ZR-75 are positive for the presence of while MDA-MB-435 is negative for the presence of Estrogen and Progesterone receptors.

We report, that the breast cancer cell lines were differentially susceptible to both the extracts (FE and PE). Cell lines, MCF-7 and ZR-75 were more prone to death mediated by these cytotoxic agents when compared to MDA-MB-435. Our study also demonstrated the presence of apoptotic cells in the cultures exposed to these cytotoxic agents, indicating a role for apoptosis in the cell death. We are also examining the impact of these pro-apoptotic extracts on the cell cycle events of the breast cancer cell lines.

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