

Abstract ID:- 109

Abstract Topic:- Cancer

Abstract Title:- Therapeutic efficacy of curcumin nanoformulation in suppressing TGF- β -mediated in vitro breast cancer progression.

Presenting author name :- Nilam Parmar

Presenting author institute:- Gujarat University

Co-authors name:- Krupali Trivedi, Khairah Ansari, Priyesh Kumar, Vaibhavi Srivastava, Ann Maria, Alpesh Patel, Shiva Shankaran Chettiar, Devendrasinh Jhala

Co-authors institute:-Gujarat University, Genexplore Diagnostics & Research Centre.

Aims:-This study investigates the use of uniquely synthesized and characterized CN (Provisional patent: Ref: PTIN/0023874) as a novel nanoformulation designed to specifically inhibit the proliferation and migration of breast cancer cells, particularly under the influence of pro-metastatic factors such as TGF- β .

Methods:- To prove protective effects of CN against metastasis the cell proliferation inhibition was studied by MTT assay, and clonogenic assay. Along with it the inhibition of in vitro cell migration was evaluated by wound healing assay and immunoblotting. Moreover, the apoptotic potential of the CN was also examined by Annexin V/FITC staining using flow cytometry.

Results:- The results of these studies showed that there was drastically time dependent decrease in the IC50 value of the synthesized CN. This proliferation inhibition effect was also proved based on the poor ability of colony formation after the treatment of synthesized CN. It also inhibited in vitro cell migration significantly which was supported by the results of down-regulation of the mesenchymal marker N-cadherin. Furthermore, the CN exhibited apoptotic induction in breast cancer cells, particularly those influenced by pro-metastatic factors like TGF- β .

Conclusions:- This pro-apoptotic effect highlights the therapeutic potential of CN in promoting programmed cell death, a critical mechanism for inhibiting cancer progression. This promising outcome points towards the potential of CN in mitigating the invasive nature of breast cancer.

Keywords:- Apoptosis, Breast cancer, Curcumin nanoformulation, Migration, Proliferation