

Role of Solid Lipid Nanoparticles in Augmentation of Carcinoma Therapy: An in-vitro Study

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ABSTRACT

Tamoxifen (TMX) is universally used drug for treatment of breast cancer. However, it has shown risk for development of colorectal malignancies. Hence, the present study focused on study of the effect of TMX and Solid lipid nanoparticles (SLN) loaded with TMX on Human colorectal cancer cell line (HT 29).

SLN were prepared using cholesterol and span 80 as drug delivery system for TMX using solvent injection method. They were characterized for their particle size, entrapment efficiency, shape, drug release studies and stability followed by in vitro cytotoxicity studies using HT 29 cancer cell lines. The SLN-TMX were round in shape and highly stable at 4°C. Herein, the SLN showed sustained release of TMX under physiological and endosomal milieu. A significant inhibition in growth of HT 29 was noticed when treated with TMX and SLN-TMX with IC₅₀ of 87.587.5µg and 52.5µg respectively under in vitro conditions. SLN-TMX is observed as highly stable and promising delivery system for sustained release of TMX to cancer cells HT 29 and may be suitable for use in clinical settings.