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TITLE OF THE PRESENTATION

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ABSTRACT

Cancer, a complex series of fatal diseases, is posing a huge health crisis on both the developed and developing countries. Combination chemotherapy-nanotechnology approach could play a pivotal role in the augmentation of therapeutic response in cancer. Therefore, in the present study, combined effects of Drug A, a widely used chemotherapeutic agent and Drug B, a nutraceutical were investigated when loaded in an impeccable delivery system, NDDS. The drugs are dispersed in the oily core comprising of the medium chain triglyceride which provides long circulating character to the developed nanocapsules. Optimization using statistical design was carried out for the development of NDDS. The spherical shape, the small particle size in the sub-micron range and the presence of two drugs in the developed nanoformulation were checked using several physicochemical characterization techniques such as dynamic light scattering, transmission and scanning electron microscopy, FTIR, differential scanning calorimetry and X-Ray diffraction analysis (XRD). The mean particle size and polydispersity index of Dash nm, while the PDI of Dash was found to be within the ideal injectable size range of nanoformulations for intravenous administration in cancer treatment. The non-significant change in particle size of the NDDS at 2 day incubation with Bovine Serum Albumin indicated obvious protein resistance which clearly demonstrates the long-circulating nature of the NDDS crucial for passively tumor targeted nanoparticles. The in vitro release studies showed a sustained release pattern for both the drugs from the NDDS. The in vitro cell viability assay against cancer cells indicated remarkable cell killing ability of the LNCs. The cytotoxicity studies and the tumor inhibition studies in the Balb/c mice all together proved considerable anti-tumor efficacy with the combination chemotherapy approach.

Keywords: Please include up to 5 keywords