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Paclitaxel loaded cationic solid lipid nanoparticle formulation, preparation and evaluation

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Now a days one of the most important health problem is cancer which is characterized by uncontrolled cellular proliferation. Paclitaxel is a mitotic inhibitor used in cancer chemotherapy; it represent the taxane family of drugs. Paclitaxel's mechanism of action involves its stabilization of cellular microtubules; as a result, it interferes with the normal breakdown of microtubules during cell division. It is effect on the proliferation of tumor cells suppression with by prevent the vascularisation (angiogenesis), cell migration and collagen formation. Therefore, Paclitaxel is used commonly for treatment of lung, ovarian, breast, and head and neck cancers in therapy. Solid lipid nanoparticles (SLNs) were introduced at the beginning of the 1990's as an alternative to traditional delivery systems such as emulsions, liposomes and polymeric systems. SLNs are nano-sized particles prepared using lipids which are solid at room and body temperatures and which can be stabilized with surfactants. The lipids used are biocompatible compounds with GRAS feature. The objective of this study was to formulate biodegradable and biocompatible cationic lipid delivery systems which is loaded Paclitaxel. After evaluation of the particle size, surface charge and the degree of crystallinity of formulation, cell culture studies were performed for the determination of cytotoxic effects. Colorimetric MTT method was used for the quantitative determination of cell cytotoxicity and MDA and MCF-7 cells were used.

Biography

Ahmet Alper Ozturk got Bachelor's degree in 2013/June from Anadolu University, Faculty of Pharmacy. He started his PhD programme in 2013/September. Since 2014 he has been working as a Research Assistant at the Department of Pharmaceutical Technology at Anadolu University. He has participated practical studies of 'Vitamin C loaded liposome formulation and characterization' by ERASMUS Internship Program at University of Cagliari (Italy) in 2011.

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