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Core-shell engineered nanoparticle of dendrimer-fatty acid for delivery of doxorubicin

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The structure and properties of several poly(amidoamine) dendrimers have been studied extensively. Dendrimers are interesting candidates for designing colloidal drug delivery system through interaction with oppositely charged (anionic) surfactants. Dendrimer-based core-shell architectures for phase transfer processes have been obtained via covalent linking of hydrophobic alkyl chains to the polyfunctional core, followed by several purification steps. The present study was undertaken to prepare fatty acid/dendrimer complex by non covalent interaction containing doxorubicin. Formulations were prepared using alcoholic solution of palmitic acid (0.039 M moles) and 4.0G PAMAM dendrimer (0.0016 Mmoles). Solutions of dendrimer and palmitic acid were taken in 10 ml volumetric flask in 1:8, 1:16 and 1:32 equivalent molar ratio and volume was made up to 10 ml with water. The formulation was evaluated for transmittance, particle size etc. Formulations, differing in fatty acid (palmitic acid) composition were prepared by dilution method. Dendrimer containing compositions tend to form nanoparticles upon dilution. The core shell fatty acid and dendrimer complex formulations can be used for suitably controlled drug delivery of anticancer drugs.

Biography

Myself Dr. Pushpendra Kumar Tripathi completed my Master in Pharmaceutics and Ph.D. in Pharmaceutical Sciences from Dr Harisingh Gour University, Sagar, India. My research work is focused on development of dendrimer based nano formulation for delivery of bioactives. At present, I am working as Director in Pharmacy at Rameshwaram Institute of Technology & Management affiliated to Gautam Buddha Technical University (GBTU) Lucknow, India. To my credit 25 students have completed their research work for Masters, 1 for Ph.D. Presently 16 students are pursuing their research work for master and Ph. D. Degree. I was recipient of GATE fellowship, UGC- JRF fellowship and CSIR-SRF fellowship during my Masters and PhD work. I am life