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Haematotoxicological evaluation of dendrimeric nanoformulation of doxorubicin

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Abstract

The present study was indeed to optimize the PAMAM dendrimer and fatty acid nanoparticles for controlled delivery of doxorubicin. Core shell nanoparticle based formulation were prepared and evaluated for haematotoxiclogy and *in- vivo* study.

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. Formulations were prepared using alcoholic solution of palmitic acid (0.039 M moles) and 4.0G PAMAM dendrimer (0.0014 Mmoles). Dendrimer based nanoparticle of doxorubicin differing in fatty acid (palmitic acid) composition were prepared by dilution method. Dendrimeric formulation was subjected to *in vitro* and *in vivo* characterization. Transmission at ƛmax 650 nm decreases from 100% to 84.5% by increasing the concentration of palmitic acid from 1:16 to 1:32. The average particle size o was 253.5 nm determined by Malvern particle size analyser and the zeta potential was + 7.69. The particle size of selected formulation was also determined by TEM to be 200 nm. These differences in particle size by two methods may be due to the differences in samples preparation during measurement. One month Haematoxicological evaluation was performed as per OECD guideline. Results were satisfactory.

The core shell fatty acid and dendrimer complex formulations can be used for suitably controlled drug delivery of anticancer drugs.

Biography

Pushpendra Kumar Tripathi completed his Master in Pharmaceutics and Ph.D. in Pharmaceutical Sciences from Dr Harisingh Gour University, Sagar, India. His research work focused on development of dendrimer based nano formulation for delivery of bioactives. At present, He is working as Director in Pharmacy at Rameshawaram Institute of Technology & Management affiliated to Gautam Buddha Technical University (UPTU) Lucknow, India. In his credit 25 students have completed their research work for Masters, 1 for Ph.D. 16 students pursuing their research work for master and Ph. D. Degree. He was recipient of GATE fellowship, UGC- JRF fellowship and CSIR-SRF fellowship during his Masters and PhD work. He is life member of Indian Pharmaceutical Association, All India Pharmaceutical Teacher's Association, Indian Pharmaceutical Graduate Association and Laboratory Animal Science Association of India.