Journal of Drug Delivery Science and Technology, vol. 43: 267-273

Synthesis, characterization and in vitro cytotoxicity evaluation of polyamidoamine conjugate containing pamidronate and platinum drug

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ABSTRACT:

Bisphosphonates have been found to be effective when combined with anticancer drugs for chemotherapy. In this paper, pamidronate and platinum complexes were conjugated to linear poly(amidoamine)s (PAMAM) to improve the drug efficacy. The conjugates were synthesized by aqueous phase Michael-addition polymerization reaction and characterized using SEM, TEM, XRD, FTIR, NMR and EDS to confirm successful conjugation of the drug to the polymeric carrier. In vitro cytotoxicity assays were performed against HeLa cell lines. FTIR, NMR and EDS confirmed the conjugation of the drugs to the polymer, and viability assay confirmed that the conjugates were not as toxic as the free drugs to the cells. The results obtained suggest that PAMAM are potential drug delivery devices for anticancer drugs with enhanced therapeutic effects. However, further characterization and in vitro tests will need to be conducted before further steps are taken.