

Formulation of a Sustained Release Docetaxel Loaded Cockle Shell-Derived Calcium Carbonate Nanoparticles against Breast Cancer

Nahidah Ibrahim Hammadi, Yusuf Abba, Mohd Noor Mohd Hezmee, Intan Shameha Abdul Razak, Alhaji Zubair Jaji, Tijani Isa, Saffanah Khuder Mahmood & Md Zuki Abu Bakar Zakaria

Abstract

Here, we explored the formulation of a calcium carbonate nanoparticle delivery system aimed at enhancing docetaxel (DTX) release in breast cancer. The designed nano- anticancer formulation was characterized thorough X-ray diffraction (XRD), Fourier transformed infrared (FTIR), transmission electron microscopy (TEM) and field emission scanning electron microscopy (FESEM) and Brunauer-Emmett-Teller (BET) methods. The nano- anticancer formulation (DTX- CaCO₃NP) was evaluated for drug delivery properties thorough in vitro release study in human body simulated solution at pH 7.4 and intracellular lysosomal pH 4.8.

Keyword

breast cancer . cancer therapy . cockle shell-derived calcium carbonate nanoparticles . drug delivery . nano- anticancer ABBREVIATIONS