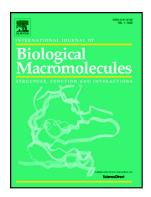
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Doxorubicin-loaded casein nanoparticles for drug delivery: Preparation, characterization and in vitro evaluation

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Abstract

Casein, a milk protein that self-assembles to form micelles in aqueous solution, can bind to a wide range of drugs (hydrophilic and hydrophobic). Herein, a low cost and facile method was reported to prepare casein nanoparticles loaded with an anticancer drug, doxorubicin (DOX). The particles were fabricated by adding an excess of Ca²⁺ ions which brings the soluble casein present in the solution into the micellar framework to form dense nanoparticles. The binding between the drug and the macromolecule was confirmed using fluorescence studies. Circular Dichroism (CD) shows that upon addition of excess Ca²⁺ the protein chains rearrange. The nanoparticles were characterized by transmission electron microscopy (TEM), field emission scanning electron microscopy (FESEM), and dynamic light scattering (DLS). The release at pH 1 was higher than the physiological pH making this formulation potent for delivering the drug to the stomach via the oral route. The DOX Download English Version:

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