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CURCUMIN LOADED CHITIN-GLUCAN QUERCETIN CONJUGATE: SYNTHESIS, CHARACTERIZATION, ANTIOXIDANT, *IN VITRO* RELEASE STUDY, AND ANTICANCER ACTIVITY

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ABSTRACT

In this study, we have synthesized chitin-glucan quercetin conjugate (ChGCQ) by an easy and facile free radical grafting reaction. The structure of ChGCQ was confirmed by proton nuclear magnetic resonance (¹H-NMR) and Fourier transforms infrared spectroscopy (FT-IR). Curcumin was loaded into ChGCQ to study its anti-cancer efficiency. The biocompatibility of ChGCQ and curcumin loaded ChGCQ (Cu-ChGCQ) were analysed by different assays in Peripheral blood mononuclear cells (PBMCs) and cytotoxicity test was performed in a macrophage cancer cell line (J774). The result shows tremendous biocompatibility of ChGCQ and Cu-ChGCQ in peripheral blood mononuclear cells and excellent cytotoxicity in macrophage cancer cell line (J774). Chitin-glucan complex (ChGC), ChGCQ and Cu-ChGCQ showed 51%, 66% and 74% of

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