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Preparation and characterization of C-phycoerythrin peptide grafted N-succinyl chitosan by enzyme method

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Abstract: C-phycoerythrin peptide (CPC) grafted N-succinyl chitosan (NSC) was prepared via the catalysis of Microbial transglutaminase (MTGase). The single factor experiment displayed that the degree of substitution (DS) of N-succinyl chitosan-C-phycoerythrin peptide (NSC-CPC) depended on the reaction time, the reaction temperature and the reaction pH value. The CS, synthesized NSC and NSC-CPC were characterized by Fourier transform infrared spectroscopy (FT-IR). NSC-CPC showed excellent moisture absorption and retention ability. In vitro antioxidant activity assays demonstrated that, with the DS and concentration increasing of NSC-CPC, the scavenging activity of 1,1-Diphenyl-2-picrylhydrazyl (DPPH) radical and hydroxyl radical increased. The methylthiazol tetrazolium (MTT) assay demonstrated that NSC-CPC inhibited HeLa cells while promoted the proliferation of L929 mouse fibroblasts. In conclusion, these results suggested the potential application of NSC-CPC in pharmaceutical and biomedical fields.

Keywords: N-succinyl chitosan, C-phycoerythrin peptide, microbial transglutaminase,

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