

Preparation and characterization of functional crosslinked chitosan/PVA films imprinted with propranolol

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Chitosan have tremendous applications in the biomedical field due to their good biodegradability and bio-compatibility. The purpose of this study is to prepare the crosslinked chitosan/PVA films added propranolol (PPN) as the template, SSA as a crosslinker, and GL, CA, and AsA as plasticizers and to evaluate the abilities of prepared functional crosslinked chitosan/PVA films imprinted with PPN. Crosslinked chitosan/PVA films were synthesized by using UV curing. The morphology and characterization of the prepared crosslinked functional chitosan/PVA films with/without PPN was analyzed by the SEM and FT-IR. The physical properties such as TS, %E, swelling behavior (SB), and solubility (S) for prepared films were investigated. In addition, the binding characteristics of functional crosslinked chitosan/PVA films with/without PPN was investigated by equilibrium binding experiment. The results of the evaluation indicate that the prepared films have one site of PPN as the target molecule. As the results of release of PPN with the pH and temperature, it could be verified that the release of PPN in high pH and temperature was better than in low pH and temperature.