

Recognition and release properties of functional allopurinol-imprinted chitosan based biomaterials

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In this study, functional allopurinol-imprinted biomaterials were prepared by using chitosan (CHS), polyvinyl alcohol (PVA), poloxamer 407 (PX) as a thermosensitive agent, and glycerol (GL) as a plasticizer. The functional biomaterial was synthesized by using casting and UV curing method. The prepared biomaterials with PX contents were characterized by SEM and FT-IR. In addition, physical properties, water resistance, recognition properties, and ALP release behavior of functional biomaterials were investigated. To evaluate the binding properties of biomaterials with/without ALP, the adsorption properties were investigated by equilibrium binding experiment. The results indicate that the prepared functional biomaterial have one site of ALP. ALP release with the pH and temperature, the release in high pH and temperature was better than in low pH and temperature. In addition, the results of ALP release using artificial skin indicated that ALP was released sustainably for 20 hours.