

Preparation and properties of genipin cross-linked of chitosan/poly(vinyl alcohol) hydrogels.

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ABSTRACT

Semi-interpenetrating polymeric networks of chitosan and poly(vinyl alcohol) [PVA] were prepared by varying the ratio of the constituents. The hydrogels were crosslinked using genipin, a naturally occurring nontoxic cross-linking agent. The swelling behaviour of these hydrogels was studied by immersing the films in deionized water at various temperatures and in buffer solutions of different pH and. States of water in the hydrogels swollen at 25°C and pH 7 were determined using Differential Scanning Calorimetry (DSC). The swelling behaviour of the gels was found to be dependent on temperature and pH of the medium. The intermediate and free water peaks were well resolved for these systems and intermediate water content in the hydrogels was found to increase with increasing PVA content.

Keywords: hydrogels, crosslinking, hydrophilic polymers, thermal properties, genipin.