

Preparation and Characterization of Poly(N-isopropylacrylamide)/ Poly(ethylene glycol) Hydrogels Containing Drug

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Hydrogels have been used extensively in the development of the drug delivery systems. Indomethacin is a non-steroid anti-inflammatory drug used for its antipyretic and analgesic properties. In this study, the indomethacin loaded poly (N-isopropylacrylamide) (NIPAAm)/poly (ethylene glycol) (PEG) hydrogel was prepared by radical -induced polymerization using N,N'-methylene-bis-acrylamide as the crosslinker. The phase transition and the interior morphology of the NIPAAm/PEG hydrogels were observed by image analyzer and scanning electron microscope (SEM). The structural features and the drug's release behaviors of the NIPAAm/PEG hydrogels were also examined by X-ray diffraction and UV/vis spectroscopy. As a result, the phase transition of the hydrogels was occurred when the temperature increased. The freeze-dried hydrogels were consisted with interpenetrating polymer network (IPN) structure. From XRD results, the specific peak of NIPAAm was decreased with increasing the PEG content.