

Controlled Release Behavior and Stability of Ascorbic Acid in Complexation Hydrogels

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Polyelectrolyte complexes are generally formed between macromolecular acids and bases or their salts in aqueous media and have generated a wide interest in the field of drug delivery systems due to their ability to respond to the external pH change. In this work, to overcome unstability of ascorbic acid in aqueous media, pH-sensitive complexation hydrogel of poly(methacrylic acid) grafted with poly(ethylene glycol) was used. The poly(methacrylic acid-g-ethylene glycol) hydrogels showed sharp transitions at a pH of around 5. Thus, in the acidic environment, the hydrogel is in the collapsed states resulting in protecting ascorbic acid in the hydrogel, while when the pH of the medium increase above 5 the hydrogel swells rapidly leading to release of ascorbic acid from the hydrogel. we investigated the pH-responsive release behavior of ascorbic acid from the hydrogels and the effect of the hydrogel on the stabilization of ascorbic acid in the aqueous medium.