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## Abstract

A series of hydrogels were prepared from an aqueous mixture of Poly vinyl alcohol (PVA) and Kappa-carrageenan (KC) and irradiated the mixture at 25 kGy radiation dose with  $\gamma$ -radiation from  $^{60}\text{Co}$   $\gamma$  source at room temperature (25°C). The effects of KC on the properties, such as gel fraction, swelling ratio (e.g., in distilled water, in NaCl solution with different concentration, buffer solution with different pH), water absorption, water desorption, moisture absorption and uptake of metal ion from aqueous solution of the prepared hydrogels were investigated. Incorporation of KC into the PVA obviously influences the properties of hydrogels. It is found that the gel fraction of the prepared hydrogel decreased but swelling ratio increased with increase in concentration of Kappa-carrageenan. Swelling properties in NaCl decreased with increased concentration of NaCl in aqueous solution. Swelling of the blend gel in buffer increased with the increase in pH. Water absorption properties showed that maximum absorption occurred within 24 hrs and then increasing trend of water absorption was insignificant. Water desorption is very fast upto 48 hrs and then attained a plateau value. The maximum moisture absorption occurred within 48 hrs and then the absorption was insignificant. Kappa-carragenan influences to uptake of metal ( $\text{Cu}^{+2}$ ) by PVA / KC blend hydrogel with time.

