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Synthesis and Swelling Characterization of Carboxymethyl Cellulose -g- Poly(Acrylic acid- co –Acrylamide) Hydrogel and their Application in agricultural field

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Abstract : Carboxymethyl cellulose (CMC) modification by grafting polymerization of Acrylic acid (AAc) and Acrylamide (AAm) were prepared by means of free radical polymerization to prepare a super absorbent hydrogel. The effect of CMC: AAc: AAm ratios, crosslinking agent N,N-methylene bis acylamide (MBAm) dose and initiator potassium persulphate (KPS) concentration on preparation of a hydrogel were investigated. Changing the crosslinking density has been utilized to achieve the desired higher swellability and best cohesive property of the hydrogel. The swelling characteristics and its kinetics of the so prepared hydrogel were additionally considered. The formation of super absorbent hydrogel (CMC -g- AAc /AAm) was affirmed by Fourier transform infrared spectroscopy (FTIR). Green peas plants were grown in pots containing mixture of sand and SAH (0.7 %) and were subjected to drought (75% of water requirements) comparing to control treatment whereby grown green peas in pots filled with sand soil and subjected to full irrigation or 75% of water requirements.

Key words : *arboxymethyl cellulose, superabsorbent hydrogel, Cultivation.*

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