Effect of mixed solvents consisting of water and organic solvent on preparation of medium-responsive grafted cellulose film by means of phtografting

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Abstrak

Cellulose having a medium-responsive function were synthesized by photografting of methacrylic acid (MAA) on regenerated cellulose film (thickness = 20 μm) at 60°C using mixed solvent consisting of water and organic solvents such as acetone and methanol. Xanthone was used as photoinitiator by coating on the film surfaces. A maximum percentage of grafting was observed at a certain concentration of organic solvent. MAA-grafted cellulose films produced showing homogeneous distribution of grafted chains, which was examined by scanning electron microscopy. The modified films also exhibit medium responsive character, it shrinks in acidic and swells in basic solution. Moreover, the grafted film exhibited the ability to absorb copper ion, which was not influenced by the solvent used in grafting processes.