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## Optimization of Ceric Ammonium Nitrate Initiated Graft Copolymerization of Acrylonitrile onto Chitosan

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### ABSTRACT

In the present work, graft copolymerization of polyacrylonitrile onto chitosan has been carried out in the presence of ceric ammonium nitrate redox initiator. Optimization of grafting of polyacrylonitrile onto chitosan was performed by varying the process parameters such as ceric ammonium nitrate (CAN) concentration, polyacrylonitrile concentration and reaction time to study their influence on percent grafting and grafting efficiency. The optimum reaction conditions obtained for grafting of acrylonitrile onto chitosan were reaction time 55 mins, CAN concentration 1% in Con. HNO<sub>3</sub>, and polyacrylonitrile concentration 0.75 mol/L. The characterization of the grafted products by means of FTIR, thermal analysis, X-ray diffraction and scanning electron microscopy furnished the evidence of grafting of polyacrylonitrile onto chitosan.

### KEYWORDS

Chitosan-g-polyacrylonitrile, Ceric ammonium nitrate, Grafting efficiency, Grafting yield

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