

Comparison of Redox Initiators Reactivities in the Grafting of Methyl Methacrylate onto Chitin

Yazdani-Pedram, M.

Lagos, A.

Campos, N.

Retuert, J.

Relative reactivities of potassium persulfate (KPS) and ferrous ammonium sulfate-potassium persulfate (FAS-KPS) systems, in aqueous medium, as initiators for grafting of methyl methacrylate (MMA) onto chitin, were studied. Evidence of grafting was obtained from IR spectroscopic measurements of the grafted and ungrafted chitin. To compare the efficiency of both redox initiators, a systematic study was carried out to optimize the grafting yield by varying reaction conditions such as initiator, monomer and chitin concentrations as well as reaction time and temperature. Under optimum polymerization conditions 94.5% grafting was obtained by using KPS while up to 352% grafting was reached when FAS-KPS redox system was used. The apparent activation energy, in the case of the FAS-KPS initiated grafting, was estimated to be 23 Kcal/mol. The grafted chitin is insoluble in most solvents, as chitin, but show enhanced affinity for some organic solvents. © 1992, Taylor & Francis Group, LLC. All right