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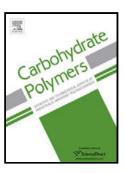
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## ACCEPTED MANUSCRIPT

- 1 Chemical modification of chitin by grafting with polystyrene using ammonium
- 2 persulfate initiator
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#### Abstract

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- 14 Chitin was successfully grafted with polystyrene by free radical mechanism using
- ammonium persulfate (APS) initiator. The reaction was carried out in aqueous
- medium. The effect of pH, chitin:monomer weight ratio, APS, reaction time and
- 17 reaction temperature were investigated. The results showed that the optimum
- conditions for grafting of polystyrene were found as follows: pH 7, chitin:monomer
- weight ratio of 1:3, 0.4g of APS, reaction temperature of 60 °C and reaction time 2 h.
- 20 The graft copolymer was characterized by Fourier transform infrared spectroscopy,
- 21 thermogravimetric analysis (TGA) and differential scanning electron microscopy
- 22 (DSC). Gel permeation chromatography (GPC) analysis carried out on the
- hydrolyzed graft copolymer showed that the  $M_n$  and  $M_w$  were 6.3395 × 10<sup>4</sup> g/mol and
- $1.69283 \times 10^5$  g/mol, respectively, with polydispersity index of 2.7.

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