

论文

壳聚糖与 *N*-异丙基丙烯酰胺接枝共聚凝胶的辐射合成及性能研究

蔡红, 张政朴, 孙平川, 张砚耕, 何炳林

南开大学高分子化学研究所吸附分离功能高分子材料国家重点实验室; 天津市技术物理研究所; 南开大学高分子化学研究所吸附分离功能高分子材料国家重点实验室 天津

收稿日期 2004-5-21 修回日期 2004-6-8 网络版发布日期 接受日期

摘要 采用 γ -辐射技术引发壳聚糖与 *N*-异丙基丙烯酰胺进行接枝共聚, 制备了温度及pH敏感水凝胶. 研究了单体浓度、辐射剂量等对接枝率和接枝效率的影响, 并用 ^{13}C CP/MAS NMR和TG表征了接枝物的结构. 研究表明, 用 γ -射线引发壳聚糖接枝异丙基丙烯酰胺具有较高的接枝率和接枝效率, 接枝的聚合物具有明显的温度及pH敏感的特点.

关键词 [壳聚糖](#) [N-异丙基丙烯酰胺](#) [接枝](#) [温度及pH敏感水凝胶](#)

分类号

PREPARATION OF HYDROGELS BASED ON POLY-*N*-ISOPROPYLACRYLAMIDE GRAFTED CHITOSAN VIA γ -RADIATION AND THEIR PROPERTIES

CAI Hong¹, ZHANG Zhengpu¹, SUN Pingchuan¹, ZHANG Yangeng², HE Binglin¹

1 *State Key Laboratory of Adsorption and Separation Functional Polymeric Materials; Institute of Polymer Chemistry; Nankai University; Tianjin 300071*; 2 *The Tianjin Institute of Technological Physics; Tianjin 300192*

Abstract Thermo- and pH-sensitive hydrogels were prepared by graft copolymerization of *N*-isopropylacrylamide onto chitosan via γ -radiation. The effects of monomer concentration and total irradiation dose on grafting percentage and grafting efficiency were studied. The graft copolymers were characterized by ^{13}C CP/MAS NMR and the thermo-gravimetric analysis. The pH- and thermo-sensitivity and swelling properties of the hydrogels were investigated. The results showed that the grafting percentage and grafting efficiency increased with the increase of monomer concentration and total irradiation dose. The highest grafting percentage is 620%, the lower critical solution temperature of this hydrogel is about 28°C.

Key words [Chitosan](#) [N-isopropylacrylamide](#) [Graft](#) [Thermo- and pH-sensitive](#)

DOI:

通讯作者 张政朴

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(203KB\)](#)

▶ [HTML全文\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中包含“壳聚糖”的相关文章](#)

▶ [本文作者相关文章](#)

- [蔡红](#)
- [张政朴](#)
- [孙平川](#)
- [张砚耕](#)
- [何炳林](#)