

高分子材料

药物缓释载体烷基化壳聚糖的性能研究

刘丽萍, 鲁越青

绍兴文理学院 化学系; 浙江 绍兴 312000

收稿日期 2004-10-16 修回日期 2005-1-16 网络版发布日期 2005-3-30 接受日期 2004-12-16

摘要

目的 对壳聚糖进行烷基化改性, 制备药物缓释载体材料。方法 在碱性介质中, 卤代烷与壳聚糖分子中的氨基反应得到烷基化壳聚糖, 并测定其对模型药物5-Fu的渗透性能。结果 在反应温度40~60 °C、反应2~4 h, 随着卤代烷链长的增长其取代度也提高, 乙基壳聚糖、庚烷基壳聚糖和十六烷基壳聚糖的取代度分别为7.3%、17.0% 和68.1%。IR谱数据表明, 取代反应主要发生在壳聚糖分子的氨基上。在pH≤7.4的缓冲溶液中, 烷基化壳聚糖膜对5-Fu的渗透系数的影响随着烷基链长的增长而减小。结论 烷基化壳聚糖对5-Fu的缓释作用优于壳聚糖。

关键词 [药剂学](#) [药物载体](#) [烷基化壳聚糖](#) [取代度](#) [渗透系数](#)

分类号 [R943](#)

Study on properties of alkyl-modified chitosan as drug carrier

LIU Li-ping, LU Yue-qing

Department of Chemistry; Shaoxing Arts and Sciences College; Shaoxing 312000; China

Abstract

Objective To modify chitosan with alkyl halides to be used as sustained-release drug carrier. Method N-alkyl chitosan was prepared by introducing alkyl groups into the amine groups of chitosan via Schiff 's base intermediates under alkaline condition. Result Under same conditions of preparation, namely reaction temperature 40~60 °C and time 2~4 h, the more carbon chain length of alkyl-groups were, the more substitution degrees of N-alkyl chitosan were. They were 7.3%, 17.0% and 68.1% for N-ethyl, N-heptyl and N-cetyl chitosan respectively. The permeability coefficient of N-alkyl chitosan films for model drug 5-Fu decreased with increasing the carbon chain length of the alkyl substituent in PBS solution of pH≤7.4, and that of same N-alkyl chitosan film decreased with increaseing pH of PBS solution. Conclusion The decrease of permeability coefficient could be ascribed to the increased hydrophobic properties of alkyl-chitosan.

Key words [pharmaceutics](#) [drug carrier](#) [alkyl-modified chitosan](#) [substitution degree](#) [permeability coefficient](#)

DOI:

通讯作者 刘丽萍 keke_liu@hotmail.com

作者个人主页 刘丽萍; 鲁越青

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF \(265KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献\[PDF\]](#)

▶ [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“药剂学”的 相关文章](#)

▶ 本文作者相关文章

· [刘丽萍](#)

· [鲁越青](#)