药学学报 2003, 38(4) 302-306 DOI: ISSN: CN:



论文

# 溶剂扩散法制备丙酸倍氯米松固体脂质纳米粒溶剂扩散法制备丙酸倍氯米松固体脂质纳米粒

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摘要:

目的 建立一种高效的固体脂质纳米粒制备与分离方法。方法 用水性溶剂扩散法,制备得到甘油单硬脂酸酯固体脂质纳米粒。通过调节纳米粒表面Zeta电位,提高纳米粒的回收率。结果 用水性溶剂扩散法可以简便、快速制备得到含药固体脂质纳米粒,低转速离心(4 000 r·min$^{-1}$)即可达到纳米粒与分散体系之间的分离,回收率明显高于未调节纳米粒表面Zeta电位条件下的高速离心分离方法。用本法制备得到的纳米粒在最初3 h有药物的突释现象,随后4 d药物的释放明显缓慢,每天释放约药物总量的6%。结论 水性溶剂扩散法适用于固体脂质纳米粒的制备,得到的固体脂质纳米粒可实现药物的控制释放。

关键词: 水性溶剂扩散法 固体脂质纳米粒 丙酸倍氯米松 甘油单硬脂酸酯

## Preparation of solid lipid nanoparticles by solvent diffusion method

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Abstract:

Aim To establish an efficient method for preparation of solid lipid nanoparticles with high recovery. Methods Monostearin solid lipid nanoparticles was prepared by solvent diffusion method in aqueous system. The recovery of the method was greatly improved by adjusting the Zeta potential. Results The drug-loaded solid lipid nanoparticles suspension was quickly produced and easily separated with centrifugation at 4 000 r·min$^{-1}$ under acidic condition. Compared with the nanoparticles made without adjusting the Zeta potential, the recovery of nanoparticles prepared in this way was significantly increased. The release behavior *in vitro* showed an initial burst effect in the first 3 hours followed by a slower rate stage of 4 days with nearly 6% drug released in each day. Conclusion The solvent diffusion method in aqueous system might be used as a new method to prepare solid lipid nanoparticles in the future. The loaded drug can be released in a controlled manner.

Keywords: solid lipid nanoparticles clobetasol propionate monostearin solvent diffusion method

收稿日期 2002-04-28 修回日期 网络版发布日期

DOI:

基金项目:

通讯作者: 张惠宏

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参考文献:

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