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论文

阳离子聚合物Eudragit RL对电解质的敏感性及其对不同药物释放的影响

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摘要:

研究聚合物Eudragit RL在电解质溶液中的膨胀行为,以及介质组成及聚合物膨胀度对硝苯地平、氯苯那敏(扑尔敏)和吲哚美辛从聚合物骨架中释放的影响。用转篮法及浆板法测定微球和药膜的释放度。结果表明Eudragit RL的膨胀度随电解质浓度增加而下降,且受电解质种类的影响显著。硝苯地平和氯苯那敏从聚合物骨架中的释放速率与聚合物膨胀行为间呈良好正相关,但吲哚美辛从聚合物中的释放速率受聚合物膨胀和离子对药物的置换两种因素同时控制。提示Eudragit RL骨架中药物的释放方式受介质组成和药物种类的影响。

关键词: 阳离子型丙烯酸树脂 药物释放 硝苯地平 氯苯那敏 吲哚美辛

SENSITIVITY OF CATIONIC POLYMER EUDRAGIT RL TO ELECTROLYTES AND ITS EFFECT ON DRUG RELEASE FROM EUDRAGIT RL MATRIX

Fu Chongdong; Zhao Lei and Jiang Xuetao

Abstract:

The swelling behavior of acrylic polymer Eudragit RL in different concentration and species of electrolyte aqueous media, and the effect of media and polymer swelling on drug release from Eudragit RL matrix system were investigated with nifedipine, chlorpheniramine maleate and indomethacin as model drugs. It was found that Eudragit RL was sensitive to the electrolytes in aqueous media. The swelling of Eudragit RL decreased with increasing electrolyte concentration and was significantly affected by the electrolyte species. The swelling behavior was reversible. The release of 3 drugs from Eudragit RL matrix was remarkably affected by the electrolytes in the media. The rates of release of nifedipine and chlorpheniramine maleate from the polymer matrices were controlled by the polymer swelling behavior,and the rate of release correlated well with the swelling behavior. However, the rates of release of indomethacin from the Eudragit RL matrix were controlled not only by the polymer swelling but also by the drug displacement by the medium anion, which was attributed to the presence of an interaction between indomethacin and Eudragit RL.

Keywords: Drug release Nifedipine Chlorpheniramine Indomethacin Eudragit RL

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