

研究论文

多糖衍生物手性固定相上采用酸性或碱性添加剂的流动相拆分 β 受体阻滞剂对映体

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摘要 考察了多糖类手性固定相在含有酸性或碱性添加剂的流动相下高效液相色谱法拆分 β 受体阻滞剂对映体的效果。色谱条件: 流动相为10%~30% (体积分数, 下同) 乙醇-正己烷 (含0.1%三氟乙酸) 和10%~30%乙醇-正己烷 (含0.1%三乙胺), 流速1.0 mL/min, 紫外检测波长254 nm。结果表明, 在直链淀粉-三(3,5-二甲基苯基氨基甲酸酯) 衍生物手性固定相 (Chiralpak AD和Chiralpak IA) 上拆分 β 受体阻滞剂对映体, 酸性添加剂的流动相体系与碱性添加剂的流动相体系相比, 碱性添加剂的流动相的拆分效果比酸性添加剂的流动相要好。而在纤维素-三(3,5-二甲基苯基氨基甲酸酯) 衍生物的手性固定相 (Chiralcel OD和Chiralpak IB) 上分离 β 受体阻滞剂, 比较酸性添加剂的流动相与碱性添加剂的流动相的拆分效果, 发现酸性添加剂的流动相条件下对映体的保留减弱, 但对映体的选择性增大, 特别是在Chiralcel OD上, 酸性添加剂的流动相体系对对映体的选择性非常理想, 而且随着流动相中酸性添加剂含量的增加, β 受体阻滞剂对映体的分离效果更佳。

关键词 [高效液相色谱](#) [手性固定相](#) [对映体拆分](#) [\$\beta\$ 受体阻滞剂](#)

Comparative enantiomer separation of β -blockers on polysaccharide derived chiral stationary phases using high performance liquid chromatography with acid or base additive in the mobile phases

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Abstract

The liquid chromatographic enantiomer separation of β -blockers on several polysaccharide derived chiral stationary phases (CSPs) (Chiralpak AD, Chiralcel OD, Chiralpak IA and Chiralpak IB) was performed and compared in the normal phase mode using hexane-ethanol in the presence of acid or base additives. The chromatographic conditions were 10%~30% (v/v) ethanol-hexane containing 0.1% trifluoroacetic acid or triethylamine as the mobile phase at the flow rate of 1.0 mL/min with the detection at 254 nm. The lower enantioselectivities and the shorter retention times on amylose derived CSPs (Chiralpak AD and Chiralpak IA) using the mobile phase with acid additive than those with base additive were shown, except for slightly longer retention times of metoprolol and propranolol on Chiralpak AD. The greater enantioselectivities and the shorter retention times on cellulose derived CSPs (Chiralcel OD and Chiralpak IB) using the mobile phase with acid additive than those with base additive were shown, especially, Chiralcel OD showed dramatically enhanced enantioselectivities using the mobile phase with acidic additive. Also, it was shown that the greater enantiomer separation of β -blockers on Chiralcel OD was achieved using the mobile phases with the higher concentration acid additive.

Key words [high performance liquid chromatography \(HPLC\)](#) [chiral stationary phases](#) [enantiomer resolution](#) [\$\beta\$ -blockers](#)

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