

Study of the separation of enantiomers of some antimycotic and β -blocker drugs using of polysaccharide stationary phases

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Enantioseparation of eight chiral antimycotic drugs and some β -blockers on polysaccharide-based chiral columns was studied using polar-organic and aqueous-organic mobile phases. The influence of the structure of chiral selector and mobile phase on enantioseparation was established. The influence of the structure of selector is essential-in particular, the nature of the substituents and their location on the phenyl moiety. The enantiomers of ornidazole resolve baseline on amylose-based columns, are not separated on cellulose tris(3,4-dichlorpenylcarbamate) and cellulose tris(3,4-dimethylpenylcarbamate)-based columns while undergo a partial separation on Lux Cellulose-2 and Lux Cellulose-4 columns. The separation of sulconazole on Lux Cellulose-2, Lux Cellulose-4 and cellulose tris(3,4-dichlorpenylcarbamate) is baseline, while it is not separated on cellulose tris(3,4-dimethylpenylcarbamate). Similar results were obtained for enantiomers of several other drugs.

Addition of ammonium acetate to mobile phase improves the separation. Addition of water affects both, separation of enantiomers and their retention. The enantiomers of ketoconazole undergoes baseline separation on Lux Cellulose-2, Lux Cellulose-4 and cellulose tris(3,4-dichlorpenylcarbamate) columns and is partially separated on cellulose tris(3,4-dimethylpenylcarbamate). For cellulose tris(3,4-dimethylpenylcarbamate), addition of 3% of water to mobile phase considerably worsened the separation; in the case of 5% of the water the enantiomers coelute. For other three columns, addition of water doesn't worsen the separation, but affects the retention.

Elution order changes under the influence of the nature of stationary phase. Separation of β -blockers using polysaccharide-based chiral selectors was also studied. Two moments were taken into consideration: the nature of chiral selector and influence of basic and acidic additives to mobile phase. Addition of basic additive improved the separation while the addition of acidic additive worsened the separation. The order of addition of basic and acidic additives seems also to be important.