Using of macrocyclic glycopeptide sorbents in a chiral analysis of beta-blockers by method HPLC

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Abstract

The aim of this work was to introduce with possibilities of macrocyclic glycopeptides stationary phases (vancomycin and teicoplanin) to separation from chosen β-blockers (atenolol, pindolol and propranolol) by HPLC method with diode array detection. The next aim was to arrange optimal conditions (column, composition of mibole phase, temperature and flow of mobile phase) for enantioseparation. Vancomycin and teicoplanin sorbent were tested by using the polar-ionic mode and reverse mode.

The influence of concentration of acid and base in an organic solvent, the temperature and composition of the organic solvent was tested in the polar-ionic mode. The influence of pH aqueous part, the rate of organic and aqueous components of the mobile phase was tested in the reverse mode.

There was no separation of enantiomers from β-blockers at all, when was used reverse mode in CHIROBIOTIC V and CHIROBIOTIC T. There was no enantiseparation of atenolol in the polar-ionic mode in CHIROBIOTIC T with a resolution above 1,5. There was enantioseparation of pindolol with a resolution above 1,5 when two mobile phase was used and enantioseparation of propranolol with resolution above 1,5 was when all mobile phase in this mode was used. There was resolution above 1,5 when the polar-ionic mode in CHIROBIOTIC T for chosen drugs was used, and so the conditions were adjusted to obtain optimal separation. The optimal conditions were chosen for chiral separation of chosen β-blockers: CHIROBIOTIC T column; mobile phase: methanol/acetic acid/triethylamin 100/0,05/0,05; flow 2,0 ml/min; temperature 40°C.