Abstract

The aim of this diploma thesis was to prepare two new chiral stationary phases by dynamic coating of sulphobutylether-β-cyclodextrin (SBE-β-CD) with varying degrees of substitution onto strong anion-exchange stationary phases. The enantioselective potential and stability of the newly prepared chiral stationary phases were tested using a set of chiral analytes.

The set contained structurally diverse analytes, i.e. benzodiazepines (oxazepam, lorazepam), phenothiazines (thioridazine, promethazine), β-blockers (labetalol, pindolol, propranolol, alprenolol), profens (carprofen, fenoprofen, flurbiprofen, indoprofen), flavanones (6-hydroxyflavanone, 7-hydroxyflavanone), DL-tryptophan and its derivatives (5-OH-DL-tryptophan, 5-F-DL-tryptophan, DL-tryptophan butylester and blocked aminoacid (*t*-Boc-DL-tryptophan)), dipeptides (glycyl-DL-phenylalanine, glycyl-DL-tryptophan) and Troger's base. Measurements were carried out in reversed-phase high-performance liquid chromatography. Mobile phases consisted of methanol/formic acid (pH 2.10) and methanol/10mmol l^{-1} ammonium acetate buffer (pH 4.00) in various volume ratios.

The chiral stationary phase containing hexasubstituted SBE-β-CD was suitable for enantioseparation of eleven analytes. Four of them were baseline enantioresolved and seven partially. The chiral stationary phase containing decasubstituted SBE-β-CD was suitable for enantioseparation of eight analytes, five of them were baseline enantioresolved. This phase showed higher enantioselectivity for profens and thioridazine enantiomers than the hexasubstituted SBE-β-CD phase.

Key words

sulfobutylether-β-cyclodextrin, chiral separation, chiral stationary phase