

ABSTRACT

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Title of the diploma thesis: Testing of potential capability of chiral ionic liquids with long alkyl chain in capillary electrophoresis chiral separations II

Chiral ionic liquid (-)-N-dodecyl-N-methylephedrinium bromide (DMEB) was tested as a selector for chiral separations of selected drugs such as chiral quinolones, ketoprofen, and flurbiprofen by capillary electrophoresis (CE). The effect of several parameters on enantioseparation was examined: (i) type and pH of the separation buffer, (ii) type and amount of organic modifier, and (iii) the concentration of DMEB. When using this chiral selector, only the separation of ofloxacin enantiomers was observed, while the enantio-recognition of other chiral model analytes was not successful under the conditions tested.

As a next step, a CE method for the assay of levofloxacin was developed to demonstrate the potential of DMEB as a chiral selector in quality control of single-isomer drugs. The best separation was achieved with 20 mM tris buffer of pH 8.5 containing 100 mM DMEB and 20 % (v/v) of acetonitrile as the background electrolyte. The separation took place in 50 μ m id fused silica capillary (80.5 cm / 72 cm) at -30 kV with UV detection at 291 nm. The resolution between the peaks of ofloxacin enantiomers was 4.22 ± 0.02 (n = 3). Linearity of the method was proved for the range 10 to 100 μ g/ml of levofloxacin ($y = 0.0305x - 0.0107$, $R^2 = 0.9975$); gatifloxacin (40 μ g/ml) was employed as internal standard. The method was applied to the analysis of tablets containing 500 mg of levofloxacin. The content determined was 100.1 ± 4.6 % (n = 3) of the declared amount of levofloxacin. Later, the linearity was proved again for the same range and with the same internal standard ($y = 0.0332x - 0.087$, $R^2 = 0.9993$) and the method was applied to the analysis of eye drops containing 5 mg/ml of levofloxacin. The content determined was 91.56 % (n = 2) of the declared amount of levofloxacin.