

**Study of enantiomer elution order of the chiral dihydropyridine derivatives
in HPLC using polar organic eluents**
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Summary

In the present work separation of enantiomers of 5 chiral dihydropyridine derivatives was studied on 5 different polysaccharide-based chiral columns in HPLC with polar organic eluents. Interesting phenomenon of the reversal of enantiomer elution order of amlodipine depending on the concentration of formic acid was recently observed in acetonitrile. Similar effect was not observed for any of other dihydropyridine under this study.

Lux series of chiral columns (Lux Cellulose-1, Lux Cellulose-2, Lux Cellulose-3, Lux Cellulose-4, Lux Amylose-2) with the dimension 4.6x250 mm made with 3 or 5 micrometer packing material were used. Racemic dihydropyridine derivatives used in this study, such as amlodipine, nicardipine, nimodipine, nisoldipine and nitrendipine.

Polar organic mobile phases offer certain advantages for separation of enantiomers such as short analysis time, high plate numbers and favourable signal to noise ratio. Since Lux series of chiral columns offer good stability in pure polar organic solvents, separation of enantiomers of dihydropyridines under this study was first evaluated in polar organic solvents such as ethanol and acetonitrile.

Study of enantiomer elution order of the chiral dihydropyridine derivatives on polysaccharide-based chiral columns with polar organic eluents has shown that chiral stationary phases nature, as well as mobile phases nature and additives (diethylamine, formic acid) concentration affects enantiomer elution order.

References

1. George Jibuti, Antonina Mskhiladze, Nino Takaishvili, Marina Karchkhadze, Lali Chankvetadze, Tivadar Farkas and Bezhan Chankvetadze. HPLC separation of dihydropyridine derivatives enantiomers with emphasis on elution order using polysaccharide-based chiral columns. *Journal of Separation Science*. 2012, 35, 2529-2537.