

## Isomer separation of some chiral flavonoids and $\beta$ -blockers using microbial cyclosophoraoses and their sulfated derivatives as novel chiral additives in capillary electrophoresisX

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### Abstract

Neutral cyclosophoraoses and highly sulfated cyclosophoraoses (HS-Cys) were used as chiral selectors for separation of some chiral flavonoids and  $\beta$ -blockers in capillary electrophoresis. HS-Cys were synthesized by the chemical modification of a family of neutral cyclosophoraoses isolated from soil microorganism, *Rhizobium meliloti* 2011. The HS-Cys were analytically characterized using fourier transform infrared spectroscopy and elemental analysis. The five basic chiral compounds of  $\beta$ -blockers were successfully separated with the resolution values ranging from 0.25 to 2.3 by HS-Cys in low-pH aqueous background electrolytes. For separation of chiral flavonoids, neutral cyclosophoraoses and HS-Cys were applied with sodium dodecyl sulfate (SDS) in micellar electrokinetic chromatography (MEKC). Chiral catechin was separated with the resolution (RS) of 0.754 by neutral cyclosophoraoses and SDS. In the case of isosakuranetin and neohesperidin, resolution (RS) values of 1.483 and 1.306 were obtained with HS-Cys and SDS, respectively.

### References

1. Cruz BH, Diaz-Cruz, JM, Arino, C, Esteban, M. (2000), *Electroanalysis* 12: 1130-1137.
2. Djedaini F, Lin SZ, Perly B, Wouessidjewe. (1990), *J. Pharm. Sci.* 79:643-646.
3. Elangovan V, Sekar N, Govindasamy S. (1994), *Cancer Lett.* 87:107-113.
4. Ficarra R, Tommasini S, Raneri D, Calabro' ML, Di Bella MR, Rustichelli C, 5. Gamberini MC, Ficarra P. (2002), *J. Pharm. Biomed. Anal.* 29:1005-1014.