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Metal ion-improved complexation countercurrent chromatography for enantioseparation of dihydroflavone enantiomers

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Highlights

- Metal ion-improved complexation CCC was established for enantioseparation
- (\pm)-Hesperetin, (\pm)-naringenin and (\pm)-farrerol were enantioseparated by HSCCC
- Cu(II) forms ternary complex with the chiral selector-hesperetin binary complex

Abstract

Cu(II) ion was selected as an additive to improve the enantioseparation efficiency of three dihydroflavone enantiomers in high-speed counter-current chromatography (HSCCC), using hydroxypropyl- β -cyclodextrin (HP- β -CyD) as the chiral selector.

The influences of important parameters, including the metal ion, the concentrations of HP- β -CyD and the Cu(II) ion, and the sample size were investigated. Under optimal conditions, three dihydroflavone enantiomers, including (\pm)-hesperetin, (\pm)-naringenin, and (\pm)-farrerol, were successfully enantioseparated. The chiral recognition mechanism was investigated. The enantioseparation was attributed to the different thermodynamic stabilities of the binary complexes of HP- β -CyD and (\pm)-

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