Investigation of enantioseparation of ofloxacin enantiomers by ligand exchange chromatography

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A sensitive and simple method for rapid enantioseparation of ofloxacin enantiomers on conventional C18 column was developed by high performance liquid chromatography with ligand exchange mode. Relatively lower concentration of L- phenylalanine was used as a ligand agent and Cu2+ as a ligand ion. The effects of different separation conditions such as kinds and concentration of ligands, organic modifier, and the pH of the mobile phase on enantioseparation were investigated. Baseline separation of the two enantiomers with a resolution of 1.93 in less than 30 min was obtained and the thermodynamic data (△△H and △△S) obtained by Van't Hoff plots revealed the enantioseparation is an enthalpy-controlled process. This expedient greatly simplified the overall procedure, resulting in a rapid and efficient sample analysis while maintaining precision and accuracy.