

Abstract

This master thesis deals with the preparation of the cyclodextrin (CD) derivatives that are suitable for complexation of the electron-rich aromatic compounds such as helicenes.

The basic skeleton of native CD was perbenzoylated in all positions 2, 3 and 6 in the first place. Then the nucleophilic attack of carboxylates of benzoic acids with electron-withdrawing groups (NO₂) or electron-donating group (NH₂) to per(6-deoxy-6-iodo)-CD derivatives were used to prepare the perbenzoylated CD derivatives in the position 6. Binding constant was determined for the prepared benzoylated derivatives of CD and the racemate of the hexahelicene using the NMR titration. Perbenzoylated derivatives of β -CD in all position 2,3 and 6 with one azido group in position 6 were prepared as well. These derivatives could be covalently bonded as chiral selectors in the stationary phase for the HPLC separation of aromatic enantiomers.

Keywords: cyclodextrins, persubstitution, benzoyl, 4-nitrobenzoyl, 3,5-dinitrobenzoyl, helicenes, NMR titration, binding constants