# SEPARATION OF ENANTIOMERS OF CHLORPHENIRAMINE AND VERAPAMIL WITH NEUTRAL CYCLODEXTRINS IN CAPILLARY ELECTROPHORESIS

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Almost half of the drugs currently used in therapy have a chiral center in their molecule. Part of the chiral drugs are used in the form of racemates, which consist of an equimolar mixture of enantiomers. Enantiomers act differently on biological organisms because they differ from each other in pharmacokinetics, toxicological and pharmacological action, as well as their action on proteins and receptors. These differences in interactions lead to differences in the biological activites. The living body with its numerous homochiral compounds being amazingly chiral selector, will interact each racemic drug differently and metabolize each enantiomer by a separate pathway to generate different pharmacological activity. This is why it is important to separate enantiomers and study their action.

Capillary electrophoresis (CE) represents very useful method not only for separation of enantiomers of chiral drugs but also for better understanding of fine mechanisms of selector-selectand interactions. In the present study CE was used for separation of enantiomers of cationic chiral drugs, such as chlorpheniramine and verapamil with β-CD and its derivative, heptakis-(2,3,6-tri-O-methyl)-β-CD (TM-β-CD). Separation of enantiomers was performed in fused-silica capillary of 50 μm ID and 24 and 32.5 cm, effective and total lengths, respectively. The background electrolyte was 100 mM triethanolamine phosphate with pH=3.0. Various concentrations of cyclodextrins (CD) were used having in mind using CE for determination of selector-selectand association constants. The most interesting result of this study was that the enantiomers of all 4 analytes exhibited opposite affinity pattern towards studied β-CD and TM-β-CD.

On the next step we shall determine selector-selectand association constants and compare CE results with the results obtained by using isothermal titration calorimetry (ITC).