

SEPARATION OF ENANTIOMERS OF SOME CHIRAL DRUGS WITH NEUTRAL AND CHARGED 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 activities. The living body with its numerous homochiral compounds being an amazing 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.

In the present study CE was used for separation of enantiomers of cationic chiral drugs with β -CD and its derivatives. Separation of enantiomers was performed in fused-silica capillary of 50 μ m ID and 40 cm and 48.5 cm, effective and total lengths, respectively. The background electrolyte was 100 mM triethanolamine phosphate with pH=3.0.

Project's methodology considers combination of CE, NMR spectroscopy MM to reach the above-mentioned goal. This means in particular following: In MM there are various force fields available for minimizing energy and deriving possible structure of intermolecular complexes. These calculation methods can be applied for computing the structures and computed structures compared with experimentally derived ones based on NOE-based experiments in NMR spectroscopy.