SEPARATION OF AMINOGLUTETHIMIDE ENANTIOMERS USING SINGLE AND DUAL CYCLODEXTRIN SYSTEMS IN CAPILLARY ELECTROPHORESIS

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The use of single and mixed cyclodextrins (CDs) for the enantioseparation of chiral drugs by capillary electrophoresis (CE) has attracted much interest in the field of pharmaceutical analysis for the recent years.
Aminoglutethimide (AGT) is one of the examples of chiral drugs that can be enantioseparated in capillary electrophoresis by the use of any of the three native cyclodextrins: α-, β-, or γ-CD.
A complete resolution of the enantiomers of this compound in cationic form could be achieved with each of the three native CDs, using a pH 3 phosphoric acid-triethanolamine buffer. Affinity constants for AGT enantiomers with the three native CDs were determined, indicating that the highest selectivity was given by γ-CD while the strongest complexation was obtained with β-CD. Moreover, the migration order of the enantiomers in the presence of β-CD was opposite to that observed with the two other native CDs.
In accordance with a model based on the assumption of independent 1:1 complexation for selectors used in combination, selectivity was found to be lower for the enantiomers in dual CD systems (α-CD/γ-CD and β-CD/γ-CD), compared to that obtained in single systems using the more selective CD at its optimal concentration.
These results confirm that dual systems are generally of limited interest when the two selectors have a similar effect on the analyte mobility.