

SEPARATION OF CHIRAL MOLECULES USING CAPILLARY ELECTROPHORESIS

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Chirality is an important feature in many biological processes. When one enantiomer is responsible for the activity of interest, its paired enantiomer can be inactive, be an antagonist of the active enantiomer or separate activity that could be desirable or undesirable. The separation of chiral molecules is a challenging analytical task as there is no difference in the structure of the enantiomers. Gas chromatography and high performance liquid chromatography, in conjunction with chiral columns had been used. This approach, however, is not straightforward and furthermore involves the use of expensive chiral columns (~RM9000.00) per column. A few different columns need to be stocked up by a lab for any effective chiral separation activities. Capillary electrophoresis (CE) has emerged as an interesting tool to perform chiral separation. The separation is effectively done by adding chiral selectors (very cheap) and many commercial forms are available. To date we have successfully separated chiral drugs such as ofloxacin (antibiotic), aminogluthimide (anti-cancer), primaquine, chloroquine (anti-malarial drugs). Such an approach can be extended to other chiral molecules of medical interests.