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Author: J.M. Saz M.L. Marina



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RECENT ADVANCES ON THE USE OF CYCLODEXTRINS IN THE CHIRAL ANALYSIS OF DRUGS BY CAPILLARY ELECTROPHORESIS

J. M. Saz and M. L. Marina*

Departamento de Química Analítica, Química Física e Ingeniería Química, Facultad de Biología, Ciencias Ambientales y Química, Universidad de Alcalá, Ctra. Madrid-Barcelona, Km. 33.600, 28871 Alcalá de Henares (Madrid), Spain.

*Corresponding author

E-mail: mluisa.marina@uah.es

Fax: + 34-91-8854971

Highlights

- The potential of CDs in the CE resolution of drug enantiomers is described
 - Enantioseparation mechanisms for chiral drugs in CE with CDs are studied
 - Applications of the developed chiral analytical CE methods using CDs are presented
- ~~Applications of CE with CDs to the chiral analysis of drugs: quantitative analysis, enantiomeric purity, stability studies, biological samples, metabolism studies, eriminalistics and forensic investigations.~~

Abstract

The most recent advances on the use of cyclodextrins as chiral selectors in capillary electrophoresis for the enantioseparation of drugs are reviewed in this article. The types of cyclodextrins employed and the resolutions achieved are discussed. The use of dual chiral systems, modified capillaries, non-aqueous media or microfluidic devices is also included and the mechanisms for enantioseparation of drugs and the inversion of the enantiomer migration order are studied. The most relevant applications developed to carry out the quantitation of chiral drugs, to assess the enantiomeric purity of pharmaceutical formulations, to study their metabolism or to achieve criminalistic or forensic investigations are described. Articles published in the last six years (period from 2010 to 2015) are considered.

Key words: chiral, capillary electrophoresis, cyclodextrins, drugs, analysis, enantiomer.

1. Introduction

The determination of the enantiomers of chiral drugs is of crucial importance in pharmaceutical analysis since one of the enantiomers can be active from a pharmacological point of view, while the other (s) can be inactive, have a different biological activity or even be toxic. Moreover, the

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