Enantiomeric Separation of Isoprenaline with HP-β-Cyclodextrins as Chiral Selector

Capillary Electrophoresis is a powerful analytical technique for chiral analysis.

département de pharmacochimie moléculaire

Application developped by the Molecular Pharmacochemistry Department, Grenoble-Alpes University
corinne.ravelet@univ-grenoble-alpes.fr

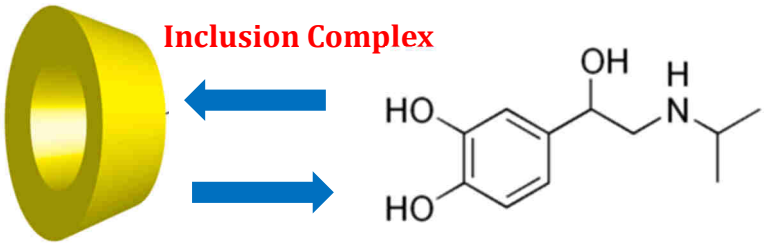
INTRODUCTION

Racemic Isoprenaline is a catecholamine used for the treatment of bradycardia and heart block. Chiral separation is mandatory for the quantitation of each enantiomer. In this application note, we use the Wyn-CE Capillary Electrophoresis system, for the isoprenaline chiral separation. Effects of pH buffer, temperature and cyclodextrin concentrations on the separation are described.

STANDARD AND REAL ANALYSIS

Buffer : Phosphate buffer + HP-β-CD, variable pH
Capillary : bubble bare-fused silica, L = 64,5 cm, l = 56 cm, ID = 50 µm
Injection : hydrodynamic, 50 mbar, 4 s
Voltage : +30 kV
Detection : UV, 200 nm
Temperature : 35 °C
Sample concentration : 250 mg/L

Principle

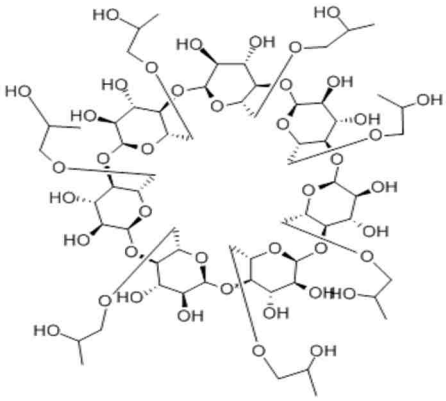


Cyclodextrin **Isoprenaline**

Needs for Chiral Separation :

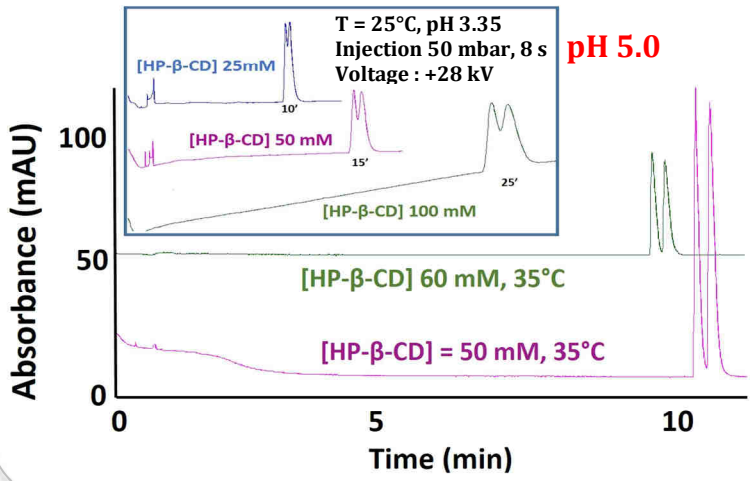
1) Different complex stabilities for each enantiomer
2) Different mobilities between free and complexed species

The used CD

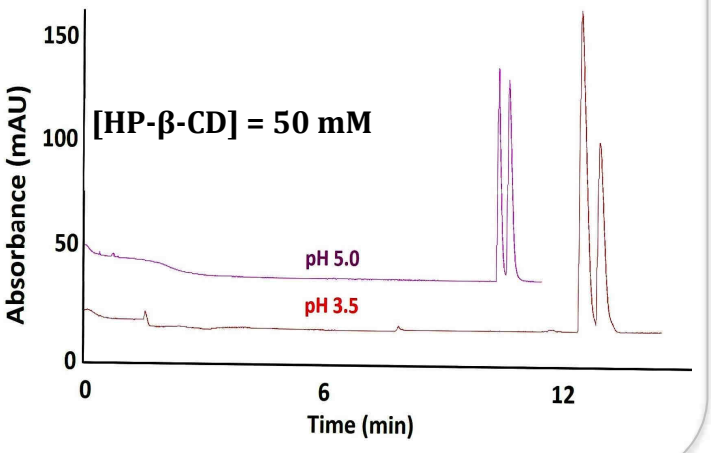


Hydroxypropyl-β-cyclodextrin (HP- β-CD)

Effect of HP-β-CD concentration



Effect of pH



Prologue 1 ; 815 La Pyrénéenne – 31670 Labège - France
Tel. +33 (0)5 34 31 05 89– www.wynsep.com - Contact labo : csarazin@wynsep.com