Analysis of metoprolol enantiomers via reverse phase (RP-HPLC) with M - Cyclodextrin as mobile additive

ABSTRACT

Enantiomeric separation of the racemic metoprolol was investigated using a reverse phase HPLC (RP-HPLC) with Methyl-beta-cyclodextrin (M-B-CD) as chiral mobile phase additive. A comparison of the enantioseparation of the racemic metoprolol, the system suitability, linearity, accuracy, limit of detection and quantification was undertaken to show the performance between two C18 columns, a Zorbax Eclipse XDB C-18 column (15 cm x 10 mm, 10 µm) and a Syncronis C18 HPLC column (250 mm x 4.6 mm, 5.0 µm) using high performance liquid chromatography with the same condition of mobile phase composition, pH value of the mobile phase and concentration of chiral additives. The resolution was achieved using a mobile phase consisting of a mixture of aqueous solution (3.5 g M-ß-CD in 300 ml H20), methanol with a volumetric ratio of 86:14 (v/v) and a flow rate of 1.0 ml/min and 0.5 ml/min for the columns respectively. Conversion of S-metoprolol found in this study are 60%, 51%, 15%.