

Simulation for Chiral Separation of Bupivacaine by SMB

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It is well known that chirality plays an important role in areas such as pharmaceuticals due to the different activity and toxicological profiles of each enantiomer in human body. The chromatographic methods using CSP have been the most widely applied in the last few years, so the resulting chiral HPLC is being a standard technique. To overcome HPLC problem, SMB technology has been utilized to pharmaceuticals chemicals, particularly to enantiomer separation. In this work, S-bupivacanine with the pharmacological activity of epidural anaesthesia was simulated and separated from R-bupivacanine by SMB. Competitive Langmuir isotherm was suggested from the single column experiment and the mass transfer coefficient was obtained from an empirical equation. The parameters of isotherm empirically determined by PIM. The SMB simulation was performed by a commercially available simulator, Aspen Chromatography. The calculated conditions was experimentally confirmed that based on these experimental conditions, the separation of bupivacaine enantiomers was successfully performed with the purity of more than 98% by SMB.