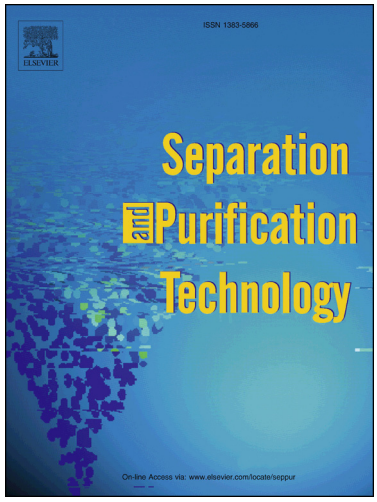

Continuous chiral separation of 2-phenylbutyric acid by liquid-liquid extraction in centrifugal contactor separators

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Continuous chiral separation of 2-phenylbutyric acid by liquid-liquid extraction in centrifugal contactor separators

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ABSTRACT: The continuous enantioselective liquid-liquid extraction of 2-phenylbutyric acid (2-PBA) enantiomers by hydroxyethyl-β-cyclodextrin (HE-β-CD) in aqueous phase using centrifugal contactor separators (CCSs) was studied. Purity (enantiomeric excess, ee) and yield (Y) were used to evaluate the process performance. A multistage equilibrium model was established on the basis of single-stage model for chiral extraction of 2-PBA enantiomers and the law of mass conservation. To verify the model, factors that influencing purity and yield were studied, such as rotational speed of CCSs, volume ratio of extract phase to wash phase (W/O), volume ratio of extract phase to feed phase (W/F), extractant concentration, pH value and number of stages. Results indicated that model predictions were in good accordance with experimental results. The model was applied to predict and optimize

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