No.A-040E

Recycling Preparative HPLC
LaboACE LC-5060

Related product：Recycling Preparative HPLC Series

Recycling by Normal Phase Column Separation of Enantiomers

Keyword:
Separation of Enantiomers, SIL Column, Separation by Polarity

Introduction

In preparative HPLC, the column length is one of the key factors to get better separation. However, there is a limit in length due to restriction on the pressure the column can endure.

Recycling preparative HPLC is the solution to the problem. By cycling the sample solution back to the same column repeatedly, it causes the same effect as a longer column is used. Further, no solvent is consumed during the cycles. So it is the ideal way to efficiently increase separation (resolution) ability.

This recycling system, which is free of time-consuming method development work, can be basically applied to any kinds of columns including those for adsorption and partition chromatographies.

Here is a good example of recycling preparative HPLC using a normal phase column.

Experiment & Results

Sample: Racemic mixture of the compounds shown in Fig. 1.
The separation was fairly good when 10 mg was injected, but it became poor when 30mg was injected. So we tried Recycling Preparative HPLC .

Instrument	: LC-9110NEXT (Detector：UV (280 nm))
Column	: JAIGEL-SIL, SH-043-10
Mobile phase	: Dichloromethane / Ethyl acetate = 100/1
Flow rate	: 9.0 mL/min

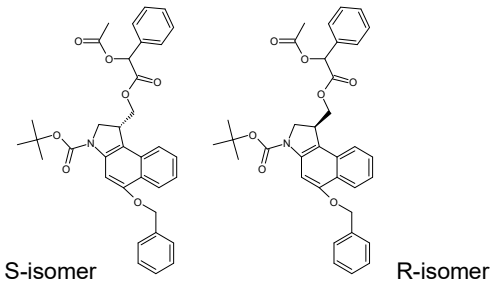

Fig. 1

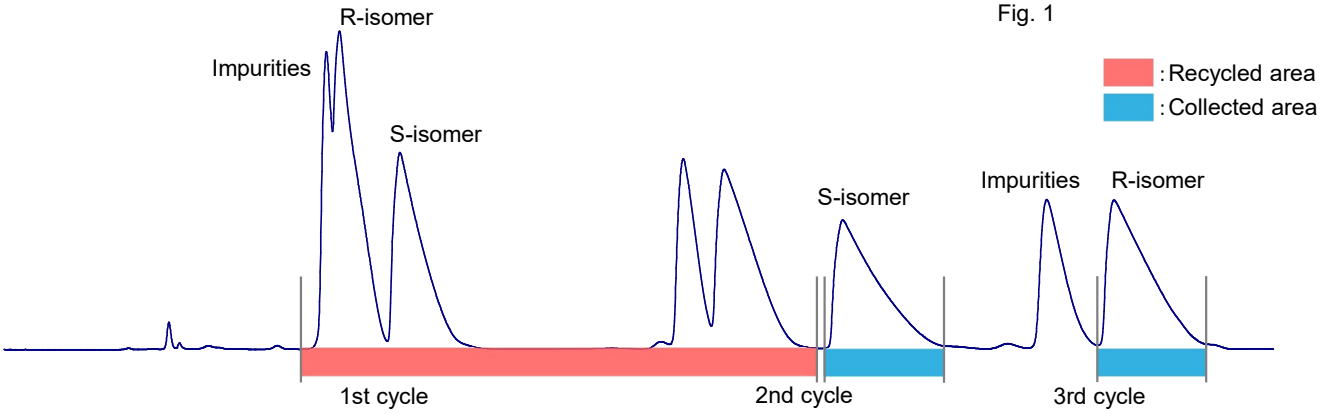

Fig. 2

Conclusion

S-isomer was isolated at the 2nd cycle and R-isomer was isolated from impurities at the 3rd cycle.

*Sample provided by courtesy of Prof. Sugiyama, Department of Chemistry, Graduate School of Science, Kyoto University

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