No.A-046E

Recycling Preparative HPLC
LaboACE LC-5060

Related product : Recycling Preparative HPLC Series

Recycling by GFC Column
Purification of Ecdysteroids

Keyword:
Steroid Hormone, GPC Column, Size Exclusion Chromatography

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.

Moreover, combined use of SEC column, which separates compounds by their size, has gained great popularity among synthetic organic chemists since it can considerably save labor and time for method development as far as the sample is dissolved in some solvent.

Here is an example of recycling preparative HPLC using organic GPC column.

Experiment & Results

Sample: Mixture of ecdysteroid homologues, a kind of insect molting hormones. Fig. 1 shows the structure of Ecdysone, most representative of the group.

We tried to separate two homologues of ecdysteroid by Recycling Preparative HPLC.

Instrument	: LC-9110NEXT (Detector : UV (310 nm))
Column	: JAIGEL-W252 + JAIGEL-W253 in series
Mobile phase	: Methanol / Acetonitrile (60 / 40)
Flow rate	: 3.5 mL/min
Injection qty.	: 40 mg/3 mL

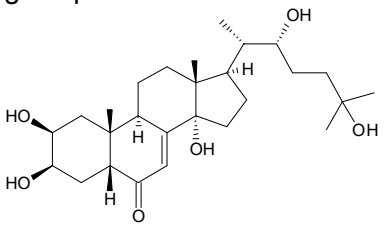

Fig. 1 Ecdysone

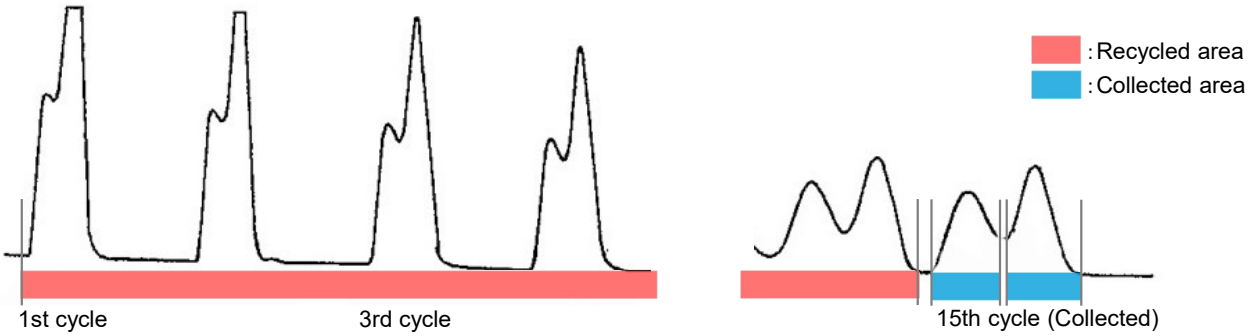

Fig. 2

Conclusion

The two homologues were separated at 15th cycle.

Japan Analytical Industry Co., Ltd.
Head Office 208 Musashi, Mizuho, Nishitama, Tokyo 190-1213 JAPAN
TEL +81-42-557-2331
URL https://www.jai.co.jp/english

May 2020