A Development on Automatic Multi-Column Handling Instrument

■ はじめに

Solid phase extraction using chelating resins is an effective approach for the pre-concentration of target trace elements and the separation of them from the sample matrix. However, the offline operation leads to a poor sensitivity, difficult to control the contamination and challenging skills for inexperienced user.

The present authors have developed syringe driven chelating columns, which permitted both the offline sample pretreatment and the online elution/measurement of trace elements in solid phase extraction.

■ 活動内容

1. Devices（automatic multi-column handling instrument）

An automatic multi-column handling instrument was developed for solid phase extraction operations using syringe-driven columns. The operations for solid phase extraction, such as conditioning of the column, introduction of a sample, washing of the column, and eluting of trace elements for measurement, could be automatically carried out based on the controlling program. Sixty syringe-driven columns could be set on the column holder; and change of the samples could be carried out by cooperating with an optional auto-sampler. A photograph of the instrument is shown in Fig. 1. The mechanism and the application of the present instrument will be presented in the conference.

2. New column

A new column for solid phase extraction was also developed by our group.

■ 結論

1. An automatic multi-column handling instrument was developed for solid phase extraction operations using syringe-driven columns.

2. A new column was developed for solid phase extraction.
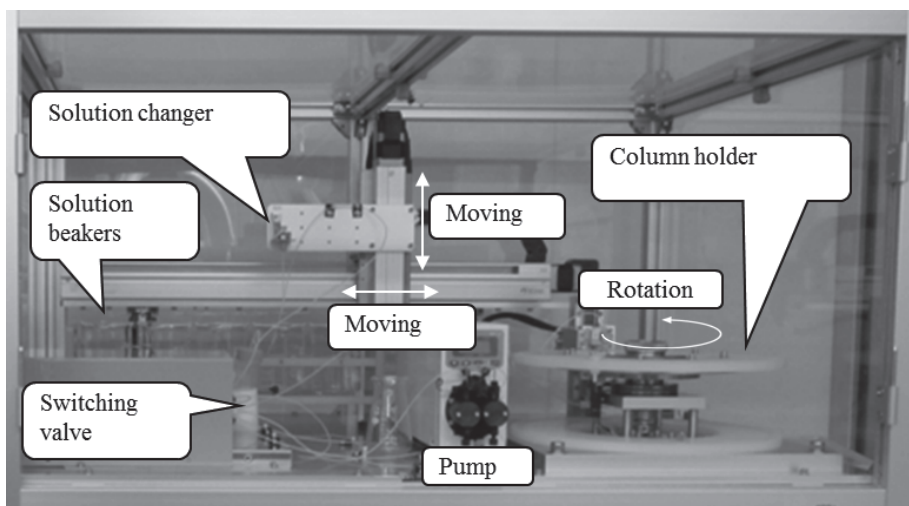
■ 関連情報等（特許関係、施設）

Fig. 1 Photograph of the automatic multi-column handling instrument

Fig. 2 New column for solid phase extraction

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(2) Column
(3) Automatic multi-column handling