

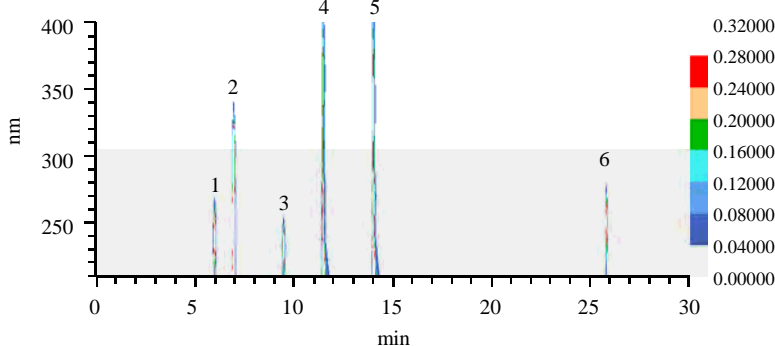
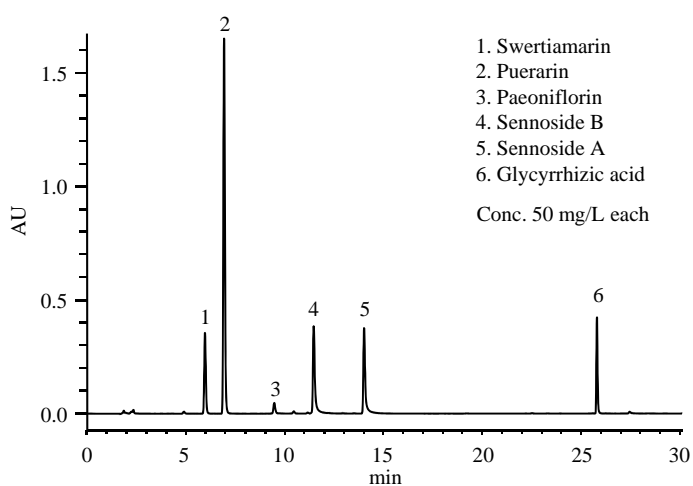


■ Analysis of Glycosides in Medicines

Glycoside is a collective term used for the compound formed by glycosidic bonding between a sugar and a compound other than sugar (non-sugar component: aglycone). Glycosides are mainly O-glycosides, sugar derivatives with various physiological activities that are widely distributed in plants.

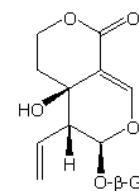
Glycosides are also widely known as components of crude drugs. Presented here is the analysis of the glycosides swertiamarin, puerarin, paeoniflorin, sennoside, and glycyrrhizic acid using HPLC with diode array detector (DAD). Multiple peaks of various components are detected in the analysis of a crude drug. By using DAD, the UV absorption spectra of the target component and the Standard Sample can be compared and confirmed and therefore, more accurate quantitative analysis is possible.

■ Analysis result of standard samples

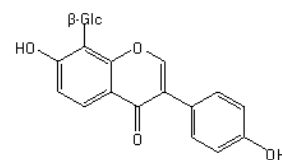


■ Structure of Glycosides

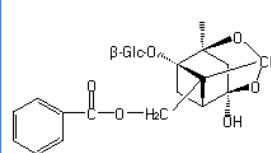
1. Swertiamarin
 $C_{16}H_{22}O_{10} = 374.342$



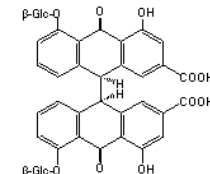
2. Puerarin
 $C_{21}H_{20}O_9 = 416.382$



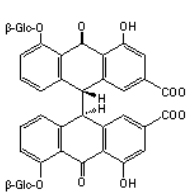
3. Paeoniflorin
 $C_{23}H_{28}O_{11} = 480.466$



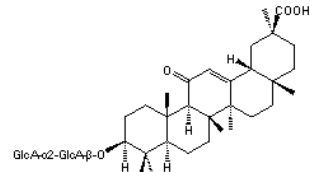
4. Sennoside B
 $C_{42}H_{38}O_{20} = 862.746$



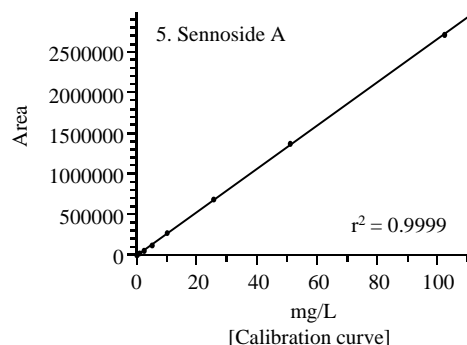
5. Sennoside A
 $C_{42}H_{38}O_{20} = 862.746$



6. Glycyrrhizic acid
 $C_{42}H_{62}O_{16} = 822.942$



■ Linearity



Fairly linear calibration curves have been obtained with the following concentration ranges : 2. Puerarin 0.1 – 50 mg/L, Others 0.1 – 100 mg/L

[Analytical conditions]

Column : HITACHI LaChrom C18 (3 μ m)
4.6 mm I.D. \times 150 mm

Eluent : (A) 10 mmol/L KH_2PO_4 (pH 3.0)
(B) CH_3CN

*Gradient : (0 min) B 10% \rightarrow (20 min) B 30% \rightarrow
(25 - 35 min) B 70% \rightarrow (35.1 - 50 min) B 10%

Flow rate : 1.0 mL/min

Column temp. : 40°C

Detection : DAD 245 nm

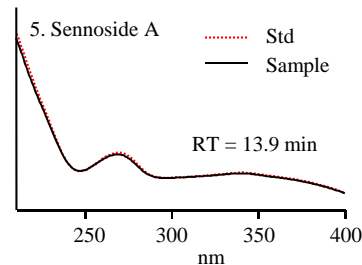
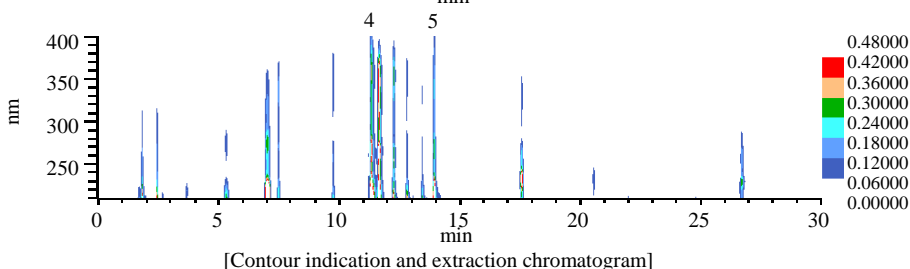
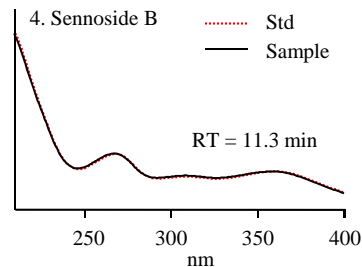
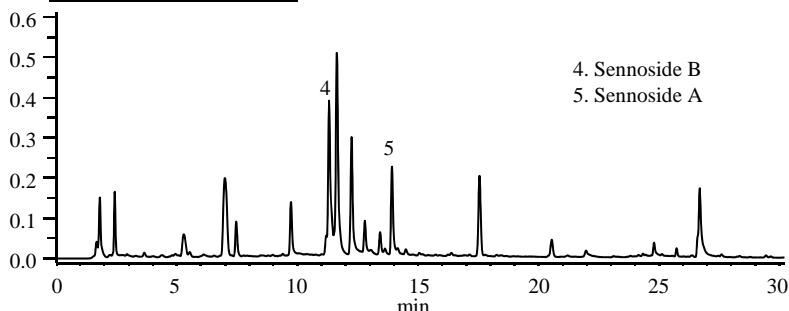
Injection vol. : 50 μ L



■ Analysis of Glycosides in Medicines

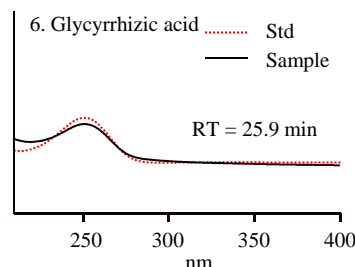
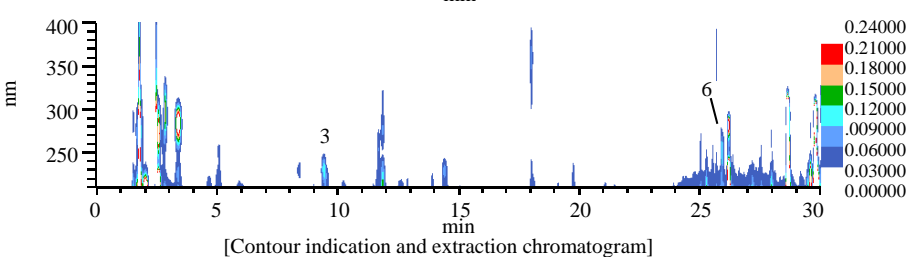
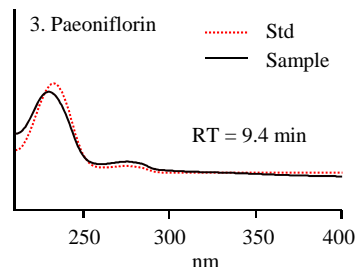
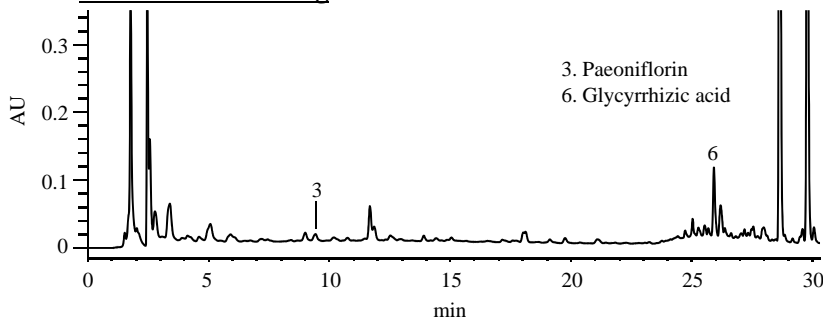
■ Analysis example of samples

Powdered Senna Leaf



[Contour indication and extraction chromatogram]

Gastrointestinal Drug



[Contour indication and extraction chromatogram]

[Preparation of samples]

Sample 0.1 g each
 | ← 50 % Methanol 10 mL
 Extract by sonication 10 min
 |
 Centrifuge 10000 rpm, 10 min
 |
 Dilute the supernatant to two times with eluent (A) for
 senna leaf (do not dilute supernatant for gastrointestinal drug)
 |
 Filtration pore size 0.45 μm
 |
 Sample for injection

1. Glycosides substances were analyzed. The linear coefficient of determination (r^2) of each component within the calibration curve was more than 0.999.
2. The glycosides contained in the drug samples were confirmed by using DAD and comparing the absorption spectrum of the sample with that of the standard.

System configuration : Primaide 1110 Pump, 1210 Auto Sampler, 1310 Column Oven, 1430 DAD

NOTE : These data are an example of measurement; the individual values cannot be guaranteed.
 The system is for research use only, and is not intended for any animal or human therapeutic or diagnostic use.