SHIMADZU APPLICATION NEWS

LAAN-A-LC-E106

● HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

No.L361

Applications of High-Speed, High-Resolution Analysis (Part 11)
Analysis of Herbal Medicines

Analysis of herbal medicines by HPLC generally requires separation of the impurities and active constituents, so the time to required to complete an analysis becomes relatively long.
This Application News introduces examples of high-speed analysis of herbal medicines using the "Prominence UFLC" ultra-fast LC system with the "Shim-pack XR-ODS" high-speed, high-resolution column.

■ Analysis of Sennosides in Senna

Sennosides, present in senna, display purgative action after decomposing in the intestine. For this reason, senna is used as a laxative.
Fig.1 shows an analysis example of sennosides A and B in senna. The sample preparation procedure[1)] is shown in Fig.2, and the analytical conditions are shown in Table 1.

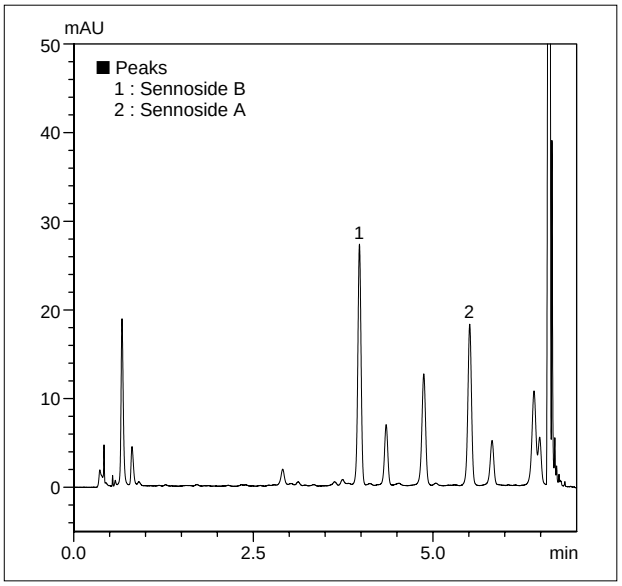

Fig.1 Chromatogram of Senna

Table 1 Analytical Conditions

Column	: Shim-pack XR-ODS (75 mm L. × 3.0 mm I.D., 2.2 μm)
Mobile Phase	: A : 100 mmol/L (Sodium) acetate buffer (pH=4.7) B : Acetonitrile B 7 % (0 min)→13 % (6 min)→100 % (6.1-7.5 min) →7 % (7.6-10 min)
Flow Rate	: 1.0 mL/min
Injection Vol.	: 2 μL
Column Temp.	: 40 ˚C
Detection	: SPD-20A at 340 nm
Flow Cell	: Semi-micro Cell

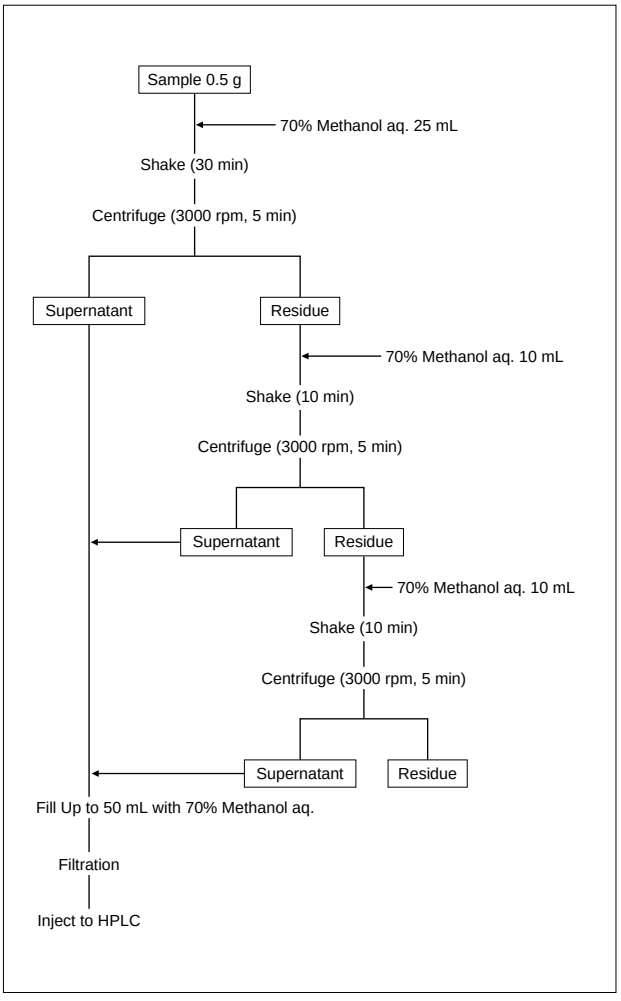

Fig.2 Sample Preparation

■ Analysis of Curcumin in Turmeric

Curcumin, which is present in turmeric, is used not only as an artificial yellow coloring agent, but it is also effective for enhancing liver function and promoting bile secretion.

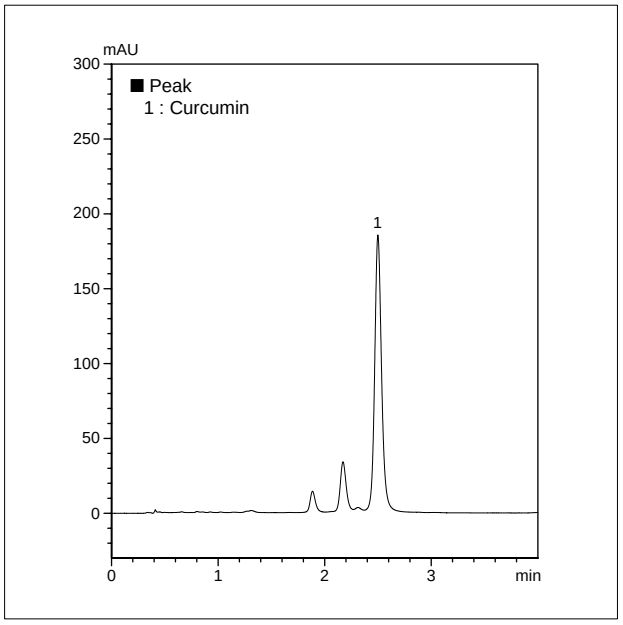

Fig.3 3 Chromatogram of Turmeric

Fig.3 shows an analysis example of curcumin in turmeric. The sample preparation procedure[2] is shown in Fig.4, and the analytical conditions are shown in Table 2.

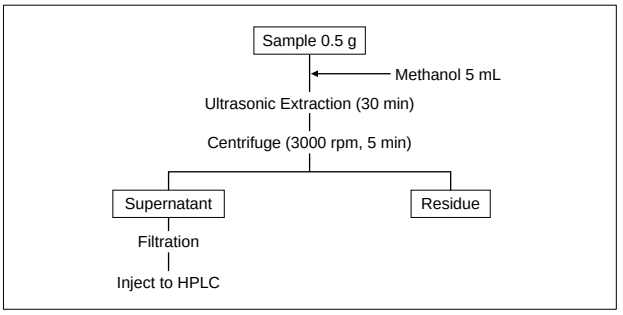

Fig.4 Sample Preparation

Table 2 Analytical Conditions

Column	: Shim-pack XR-ODS (75 mm L. × 3.0 mm I.D., 2.2 µm)
Mobile Phase	: A : 2 % Acetic acid aq. B : Acetonitrile A/B=55/45 (v/v)
Flow Rate	: 1.0 mL/min
Injection Vol.	: 4 µL
Column Temp.	: 40 ˚C
Detection	: SPD-20AV at 425 nm
Flow Cell	: Semi-micro Cell

■ Analysis of Baicalin in Scutellaria Root

Baicalin, which is present in scutellaria root, is effective as a substance with anti-allergic action.
Fig.5 shows an analysis example of baicalin in scutellaria root. The sample preparation procedure is shown in Fig.6, and the analytical conditions are shown in Table 3.

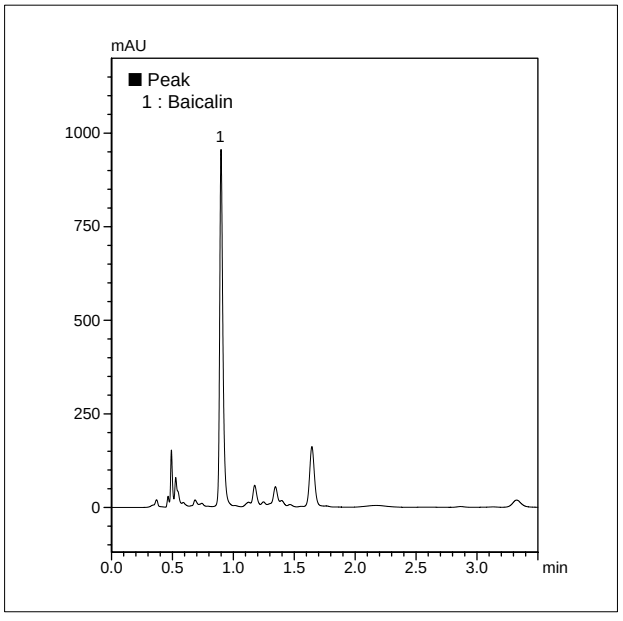

Fig.5 Chromatogram of Scutellaria Root

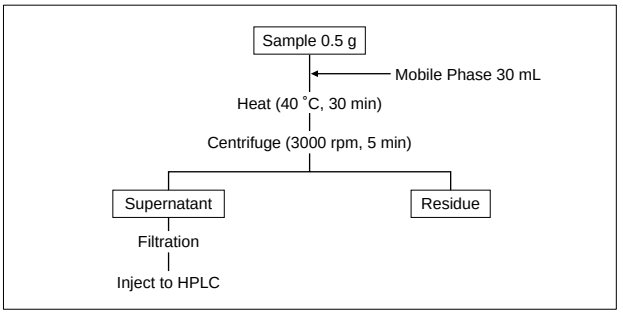

Fig.6 Sample Preparation

Table 3 Analytical Conditions

Column	: Shim-pack XR-ODS (75 mm L. × 3.0 mm I.D., 2.2 µm)
Mobile Phase	: A : 10 mmol/L (Sodium) phosphate buffer (pH=2.6) B : Acetonitrile A/B=70/30 (v/v)
Flow Rate	: 1.0 mL/min
Injection Vol.	: 2 µL
Column Temp.	: 40 ˚C
Detection	: SPD-20A at 280 nm
Flow Cell	: Semi-micro Cell

[References]
1) Japan Pharmacopeia, 15th Revision Japan (edited by Society of Japanese Pharmacopoeia)
2) Fukushima, Yazaki, Kase: Health Research Report of Chiba Prefectural Institute of Public Health, No. 20, 37-40 (1996)

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