

— Applications of HPLC to Pharmacognosy —

Active ingredients in crude drugs vary in contents depending on the sampling time and place of origin, and the quality evaluation of the crude drugs is determined by the contents of the ingredients. The active ingredients are not always alone, and most ingredients cooperate to offer effects. As the chemical compositions of ingredients are being disclosed, plural ingredients are subjected to analysis not only in the Chinese medicine blending plural crude drugs, but also in a single crude drug. The high performance liquid chromatography is capable of analyzing active ingredients at a high repeatability, only by a simple pretreatment of the sample.

These are examples of analysis of baicalin and wogonin-glucuronide in scutellaria root as stomachic, benzoic acid and paeoniflorin in paeony root as antipyretic-antispasmodic, scopolamin and hyoscyamine in scopolia rhizome of the same type, and benzoic acid, paeonol and paeoniflorin in moutan bark as antipyretic-antispasmodic-anti-inflammatory.

■ Analysis of Paeoniflorin and Benzoic Acid in Paeony Root and Moutan Bark

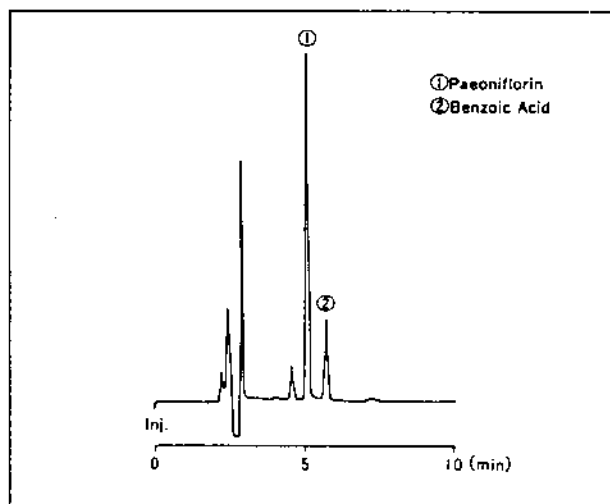


Fig. 1 Chromatogram of Paeony Root

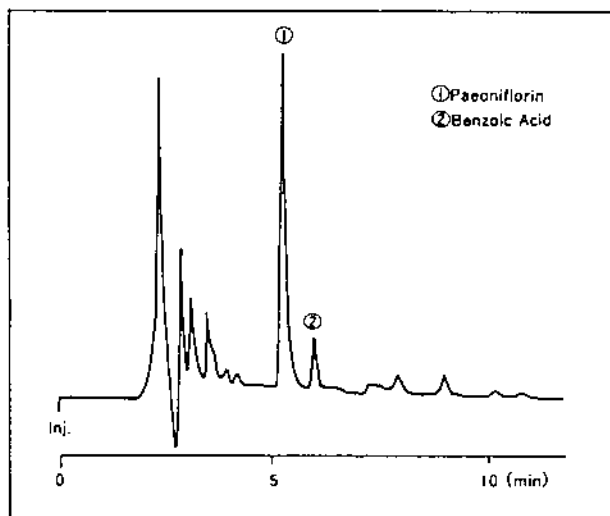
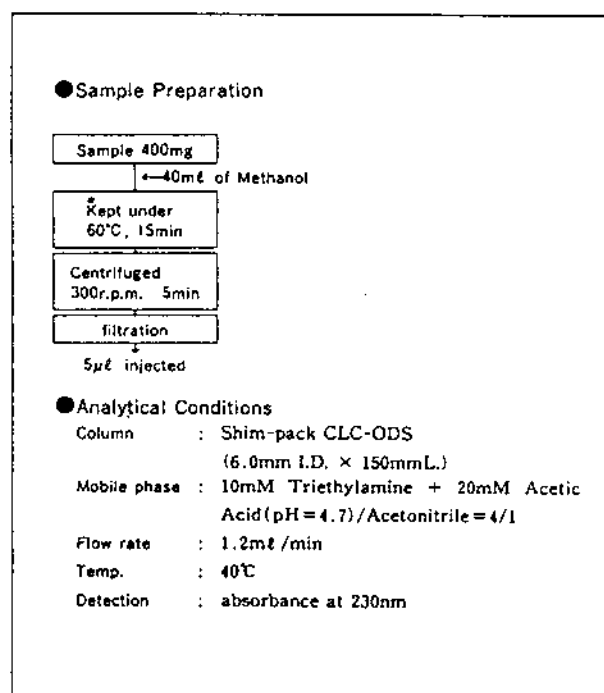


Fig. 2 Chromatogram of Moutan Bark



■ Analysis of Paeonol in Moutan Bark

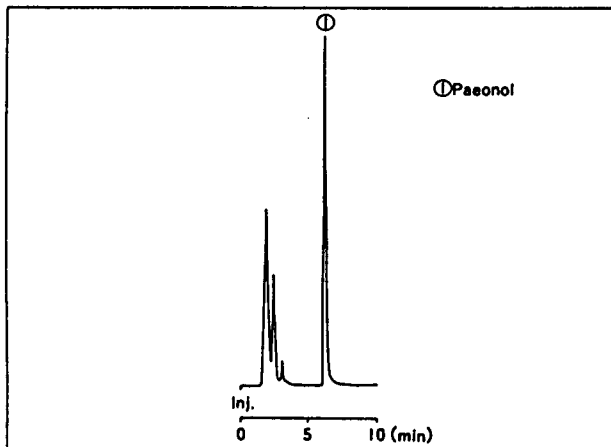


Fig. 3 Chromatogram of Paeonol in Moutan Bark

● Sample Preparation

Same with that for Paeony Root

● Analytical Conditions

Column : Shim-pack CLC-ODS(6.0mm I.D. × 150 mmL.)
 Mobile phase : 10mM Triethylamine + 20mM Acetic Acid(pH=4.7)/Acetonitrile=1/1
 Flow rate : 1.2ml/min
 Temp. : 40°C
 Detection : absorbance at 230nm

■ Analysis of Baicalin and Wogonin-Glu in Scutellaria Root

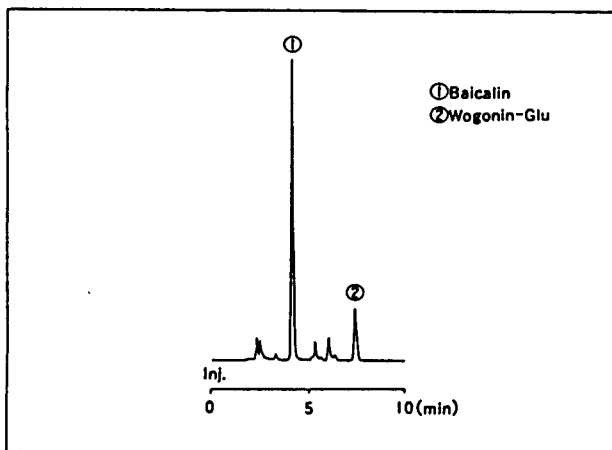


Fig. 4 Chromatogram of Baicalin and Wogonin-gluconide in Scutellaria Root

● Sample Preparation

Sample 100mg
 ← 100ml of Methanol
 Kept under 50°C 15min
 Centrifuged 3 000r.p.m. 5min
 filtration
 ↓
 5μl injected

● Analytical Conditions

Column : Shim-pack CLC-ODS(6.0mm I.D. × 150 mmL.)
 Mobile phase : 10mM (Sodium) phosphate (pH=2.6)/Acetonitrile=7/3
 Flow rate : 1.5ml/min
 Temp. : 40°C
 Detection : absorbance at 275nm

■ Analysis of Scopolamine and Hyoscyamine in Scopolia Rhzome

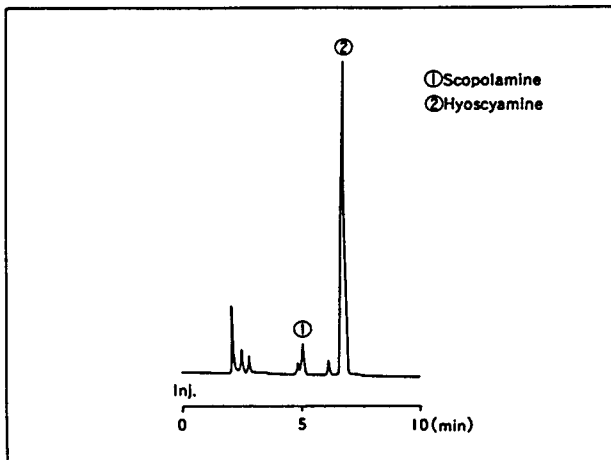


Fig. 5 Chromatogram of Scopolamine and Hyoscyamine in Scopolia Extract

● Sample Preparation

Sample 100mg
 ← 10ml of 100mM HClO₄
 Kept under 50°C 10min
 Centrifuged 3 000r.p.m 5min
 ← 5ml of Chloroform and 400μl of 1M NaOH Containing 5M NaCl
 Shake, Centrifuged 3 000r.p.m 5min
 1ml of organic layer
 ← 1ml of 100mM HClO₄ and 1ml of Hexane
 Shake, Centrifuged 3 000r.p.m 5min
 ↓
 10μl injected (aqueous layer)

● Analytical Conditions

Column : Shim-pack CLC-ODS(6.0mm I.D. × 150 mmL.)
 Mobile phase : 100mM NaClO₄ in 10mM (Sodium) phosphate(pH=2.6)/Acetonitrile=3/1
 Flow rate : 1.2ml/min
 Temp. : 40°C
 Detection : absorbance at 210nm



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