

Application Notes

High Performance Liquid Chromatography - UFLC

Fast Determination of Phenolic Compounds in Different Traditional Chinese Medicines by a UFLC Method

Introduction

Phenolic compounds are found and intensively studied in various plants including traditional Chinese medicines (TCM). In this study, a UFLC system (Fig. 1) was used for developing a new method for fast analysis and profiling of phenolic compounds in different samples of traditional Chinese medicine (TCM).

UFLC system for rapid method development:

Two four-channel solvent selection units built inside the LC pumps allow selecting up to eight different mobile phases and solvents (Fig.1). This configuration is to facilitate optimization of mobile phase composition and gradient run conditions.

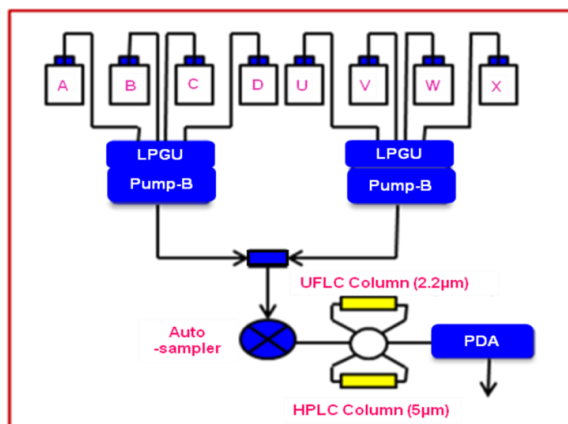


Fig. 1 Configuration of a UFLC system for rapid method development

Conventional HPLC method for phenolic compounds analysis in TCM samples

Sample extraction: A portion of 20 mg of TCM powder sample was extracted with 1 ml of 80% methanol at room temperature for 12 hrs. The extract was filtered through 0.22µm syringe nylon-filter before injection.

Peak No	Names of compounds	Confirmed by LCMS (<i>m/z</i>)		
		[M-H] ⁻	[M+H] ⁺	[M+Na] ⁺
1	resveratrol-4'-O-glucoside (resveratrolside)	389	391	413
2	resveratrol-3-O-glucoside (piceid)	389	391	413
3	resveratrol-galloyl-glucoside	541	543	565
4	Resveratrol	227	229	-
5	emodin-1-O-glucoside	431	433	455
6	emodin-8-O-(6'-O-malonyl)-glucoside	517	519	541
7	Emodin	269	271	-

Table 1 Phenolic compounds in *polygonum cuspidatum*

Figure 2 shows the chromatogram of *polygonum cuspidatum* extract. Phenolic compounds identified were confirmed by LCMS and listed in Table 1.

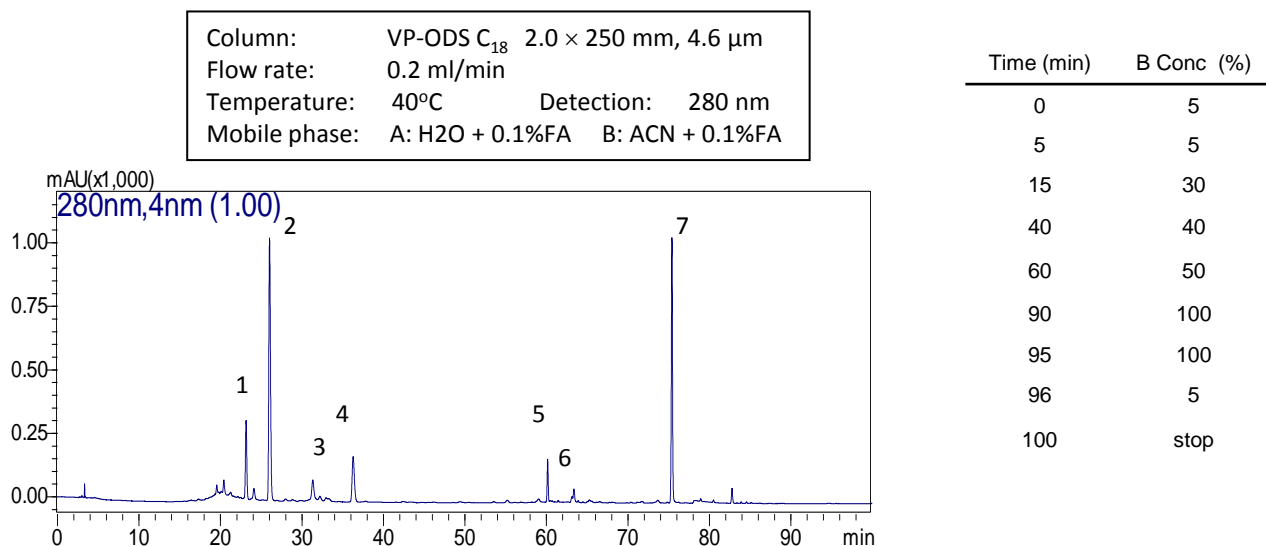


Fig. 2 Chromatogram of *polygonum cuspidatum* extract

UFLC method developed for phenolic compounds analysis in TCM samples

The optimal UFLC conditions (mobile phase and gradient program) for the studied extract TCM samples were obtained through above system and fast evaluation procedure. Fig. 3 shows the chromatogram of *polygonum cuspidatum* extract using the UFLC method developed.

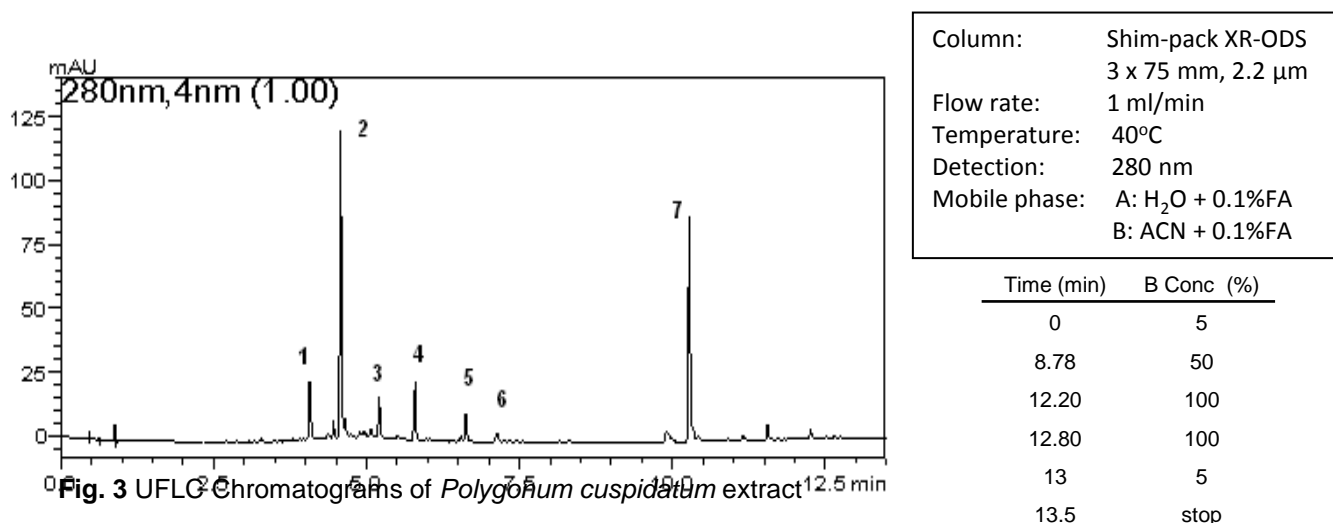


Fig. 3 UFLC Chromatograms of *Polygonum cuspidatum* extract

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