Separation of Schizandrin, Schizandrin A, and Schizandrin B in a Tablet Sample

1Xu Qun, 1Huang Xiongfeng, and 2Jeff Rohrer; 1Shanghai, People’s Republic of China, 2Sunnyvale, CA, USA

Introduction

Schisandra chinensis (Turcz.) Baill is an important traditional Chinese medicine believed to be an anticarcinogen and provide hepatoprotection, among other attributes. Its major active components are lignanoids, and the three major lignanoids are schizandrin, schizandrin A, and schizandrin B (structures shown in Figure 1). Hugan tablets, which contain Schisandra chinensis (Turcz.) Baill, are a traditional Chinese medicine for hepatoprotection. The Pharmacopoeia of the People’s Republic of China (PPRC) 2010 regulates its quality control with a UHPLC method for the determination of schizandrin, schizandrin A and schizandrin B.2

The work shown here describes an efficient UHPLC method to determine schizandrin, schizandrin A, and schizandrin B in Hugan tablets for product quality control. The separation was performed on a Thermo Scientific Acclaim Rapid Separation Liquid Chromatography (RSLC) 120 C18, 2.2 µm (2.1 × 100 mm) column based on the chromatographic conditions in the PPRC monograph. The chromatograms of schizandrin, schizandrin A, and schizandrin B in a Hugan tablet sample (Suzhong Pharmaceuticals Co., Ltd., Jiangsu, China) are shown in Figure 2. The UV spectra of the three analytes collected in the standard and tablet sample are highly consistent. The calculated peak purity match factors for schizandrin, schizandrin A, and schizandrin B separated from the tablet sample extract are all 1000 (the corresponding value for 100% purity). Good separations between the analytes and other compounds were achieved with resolution (Rs) ≥ 1.9. These results demonstrate that the Acclaim™ RSLC 120 C18 column provides good selectivity and suitability for determination of schizandrin, schizandrin A, and schizandrin B in the Hugan tablet sample.

Note: The figure (Figure 1) should be visualized as follows:

Figure 1. Structures of the three major active components of Schisandra chinensis (Turcz.) Baill.

Key Words
- Schisandra chinensis (Turcz.) Baill
- Hugan Tablets
- Traditional Chinese Medicine
- UHPLC
Figure 2. Chromatograms of a schizandrin, schizandrin A, and schizandrin B mixed standard and a Hugan tablet sample.

**Equipment**

Thermo Scientific Dionex UltiMate 3000 RSLC system, including an HPG-3400RS Binary Pump with Solvent Selector Valves, WPS 3000RS Autosampler, TCC-3000RS Thermostatted Column Compartment, and DAD-3000RS Diode Array Detector, plus Thermo Scientific Dionex Chromelone 6.80 SR9 Chromatography Data System software or higher.

**Sample Preparation**

Put 0.7 g of sample powder to 25 mL of water-saturated ethyl acetate, and weigh the mixture. Ultrasonically extract (500 W and 60 KHz) for 30 min. After the solution cools to room temperature, replace the lost weight with ethyl acetate. After filtering, dry 15 mL of filtrate using a rotary evaporator. Dissolve the residue in 5 mL methanol.

**References**


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