Latin American Journal of Pharmacy
(formerly *Acta Farmacéutica Bonaerense)*
Lat. Am. J. Pharm. **33** (1): 71-7 (2014)

Regular article
Received: July 18, 2013
Revised version: November 4, 2013
Accepted: November 5, 20133

Determination of the Four Main Active Compounds and the Chromatographic Fingerprint of *Fructus Polygoni Orientalis* by HPLC

Miaomiao TONG [1], Tianmin WANG [1], Yuedan WANG [2], Ming CHU [2], Xixiang YING [1], Na LI & Yanjun ZHAI [1]*

[1] *School of Pharmacy, Liaoning University of Traditional Chinese Medicine, Dalian 116600, China*
[2] *Department of Immunology, Peking University Health Science Center, Beijing 100191, China*

***SUMMARY*. A simple and sensitive reversed-phase, high-performance liquid chromatography method using a diode-array detector (DAD) was developed to evaluate the quality of the fruits of *Polygonum orientale* L., Polygonaceae (*Fructus Polygoni Orientalis,* FPO) through its chromatographic fingerprint analysis and a simultaneous analysis of its four compounds, namely taxifolin, 5,7,4'-trihydroxy-dihydroflavonol, *p*-hydroxyphenyl ethanol *p*-coumarate, and *p*-hydroxyphenyl ethanol ferulate. The analysis was accomplished on an Agilent Zorbax SB-C_{18} column (150 × 4.6 mm, 5 μm) using gradient elution with acetonitrile and water. The analyses were performed at 25 °C with a flow rate of 1.0 mL/min and using ultraviolet (UV) detection at 290 nm. All of the calibration curves showed a strong regression relationship ($r^2 \geq 0.9996$) that fell within linear ranges, and their recoveries were in the range of 97.67-103.48%. Twenty common peaks were selected as the characteristic peaks in the chromatographic fingerprint analysis to assess the similarities of 49 FPO samples that were obtained from different geographical areas in China. The results indicated that this developed method was accurate, and that it was successfully applied to the analyses of the four compounds and chromatography fingerprints of FPO.**

RESUMEN. Un método simple y sensible, la cromatografía líquida de alta resolución en fase inversa utilizando un detector de red de diodos (DAD) fue desarrollado para evaluar la calidad de los frutos de *Polygonum orientale* L., Polygonaceae (*Fructus Polygoni Orientalis,* FPO), a través del análisis cromatográfico de su huella dactilar y de un análisis simultáneo de sus cuatro compuestos, a saber, taxifolina, 5,7,4'-trihidroxi- dihidroflavonol, *p*-hidroxifeniletanol *p*-cumarato y *p*-hidroxifeniletanol ferulato. El análisis se llevó a cabo en una columna de Agilent Zorbax SB-C_{18} (150 x 4,6 mm, 5 μm) utilizando elución en gradiente con acetonitrilo y agua. Los análisis se realizaron a 25 °C con una velocidad de flujo de 1,0 mL/min y usando detección UV a 290 nm. Todas las curvas de calibración mostraron una relación de regresión fuerte ($r^2 \geq 0,9996$) que cayó dentro de los rangos lineales, y sus recuperaciones estaban en el rango de 97,67 a 103,48%. Veinte picos comunes fueron seleccionados como los picos característicos en el análisis cromatográfico para evaluar las similitudes de 49 muestras de FPO obtenidas de diferentes áreas geográficas en China. Los resultados indicaron que el método desarrollado es exacto, ya que se aplicó con éxito a los análisis de los cuatro compuestos y las huellas dactilares de cromatografía de FPO.

KEY WORDS: Chromatographic fingerprint, Determination, *Fructus Polygoni orientalis,* HPLC.

* Author to whom correspondence should be addressed. E-mail: lnzyzyj@sohu.com