

## The Comparison Study of Methanol and Water Extract of Chuanxiong Rhizoma: A Fingerprint Analysis

**Authors :** Li Chun Zhao, Zhi Chao Hu, Xi Qiang Liu, Man Lai Lee, Chak Shing Yeung, Man Fei Xu, Yuen Yee Kwan, Alan H. M. Ho, Nickie W. K. Chan, Bin Deng, Zhong Zhen Zhao, Min Xu

**Abstract :** Background: Chuangxiong Rhizoma (Chuangxion, CX) is one of the most frequently used herbs in Chinese medicine because of its wide therapeutic effects such as vasorelaxation and anti-inflammation. Aim: The purposes of this study are (1) to perform non-targeted / targeted analyses of CX methanol extract and water extract, and compare the present data with previously LC-MS or GC-MS fingerprints; (2) to examine the difference between CX methanol extract and water extract for preliminarily evaluating whether current compound markers of methanol extract from crude CX materials could be suitable for quality control of CX water extract. Method: CX methanol extract was prepared according to the Hong Kong Chinese Materia Medica Standards. DG water extract was prepared by boiling with pure water for three times (one hour each). UHPLC-Q-TOF-MS/MS fingerprint analysis was performed by C18 column (1.7  $\mu$ m, 2.1  $\times$  100 mm) with Agilent 1290 Infinity system. Experimental data were analyzed by Agilent MassHunter Software. A database was established based on 13 published LC-MS and GC-MS CX fingerprint analyses. Total 18 targeted compounds in database were selected as markers to compare present data with previous data, and these markers also used to compare CX methanol extract and water extract. Result: (1) Non-targeted analysis indicated that there were 133 compounds identified in CX methanol extract, while 325 compounds in CX water extract that was more than double of CX methanol extract. (2) Targeted analysis further indicated that 9 in 18 targeted compounds were identified in CX methanol extract, while 12 in 18 targeted compounds in CX water extract that showed a lower lose-rate of water extract when compared with methanol extract. (3) By comparing CX methanol extract and water extract, Senkyunolide A (+1578%), Ferulic acid (+529%) and Senkyunolide H (+169%) were significantly higher in water extract when compared with methanol extract. (4) Other bioactive compounds such as Tetramethylpyrazine were only found in CX water extract. Conclusion: Many new compounds in both CX methanol and water extracts were found by using UHPLC Q-TOF MS/MS analysis when compared with previous published reports. A new standard reference including non-targeted compound profiling and targeted markers functioned especially for quality control of CX water extract (herbal decoction) should be established in future. (This project was supported by Hong Kong Baptist University (FRG2/14-15/109) & Natural Science Foundation of Guangdong Province (2014A030313414)).

**Keywords :** Chuanxiong rhizoma, fingerprint analysis, targeted analysis, quality control

**Conference Title :** ICHHBR 2017 : International Conference on Herbalism, Herbs and Botanical Remedies

**Conference Location :** Paris, France

**Conference Dates :** May 18-19, 2017