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Profiling and identification of multi-component interaction related to anti-inflammatory effect of traditional herb decoction

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The X decoction, a kind of traditional herb medicines, has been prescribed frequency in the top five for treating asthma, bronchitis, chill and allergic rhinitis for more than hundreds of year in Korea. Nevertheless, no such study has been published yet related to the interaction of X decoction and we need to study for this issue as much as we prescribed. Furthermore, we evaluated activity of natural active compounds by different manufacturer method in X decoction and understood the multi-component interactions, such as herb-herb interaction. The profiling of individual herb and decoction of X decoction was carried out using ultra-high performance liquid chromatography coupled with a quadrupole time of flight mass spectrometry (UPLC-QTOF-MS). Active compounds from X decoction were identified by multivariate analysis and compared activities between two groups. Also, we evaluated anti-inflammatory effect of X decoction investigating the protein expression of iNOS and COX-2 on LPS-induced macrophage RAW 264.7 cells. Chromatogram of individual herbs and decoction of X decoction were detected in positive, negative polarity mode and UV-PDA mode. After multivariate statistical analysis, we found good clustering and many active compounds were identified by comparing fragmentation patterns and plant databases. In this study, activity of active compound related to anti-inflammatory effect was significantly higher in decoction of X decoction than individual herb of X decoction. The result was in accordance with western blot by inhibiting the protein expression of iNOS on LPS-induced macrophage RAW 264.7 cells, *in vitro*. These results suggest that decoction of X decoction may have anti-inflammatory effect than individual herbs of X decoction.

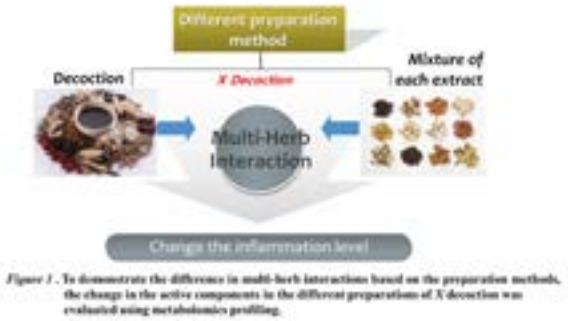

Figure 1. To demonstrate the difference in multi-herb interactions based on the preparation methods, the change in the active components in the different preparations of X decoction was evaluated using metabolomics profiling.

Biography

Hyun-A Oh completed her BS degree in Biology at Konkuk University in 2013 and currently, she has been working as an integrative course student under the supervision of Dr. Byung Hwa Jung at Korea Institute of Science and Technology (KIST) from March 2013. Her research focuses on "Metabolomics and analytical chemistry using various analytical instruments, such as UPLC-Orbitrap-MS, UPLC-MS/MS, UPLC-TOF-MS, GC-MS and HPLC-UV etc."

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