Metabolomics Approach for Classification of Medicinal Plants

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Selection of specific medicinal sources as well as bioactive compounds is important for the preparation of medicine and related products with good quality. It is necessary to pay close attention for choosing correct medicinal sources, particularly in case of medicinal plants, because of their diversity, which can affect the quality and efficacy of medicine. Discrimination of plants based on morphological or genetic characteristics has been used as a conventional classification method of pharmaceutical sources so far; however, more need demands more general methods for accurate quality assessment of medicinal plants.

In this study, ultra performance liquid chromatography/quadrupole time-of-flight mass spectrometry (UPLC/Q-TOF MS) technique applied to this metabolic profiling is a powerful tool due to its higher sensitivity, resolution, and speed compared to conventional HPLC technique. The metabolite profiling of several medicinal plants including *Panax ginseng* was carried out using UPLC/Q-TOF MS and total metabolites were then subsequently applied to various statistical tools to compare the patterns. The developed metabolomics tool with UPLC/Q-TOF MS successfully identified and classified the samples tested according to their origins.