

Method for Authentication and Distinguishing of American Ginseng from Various Sources and Different Cultivation Using Chromatography-Mass Spectrometry

Technology Overview

Due to considerable price difference between different grades of American ginseng and the lure of high profits, the phenomenon of substituting high-grade wild ginseng with cheaper alternatives and the presence of adulterants have appeared in the market for a long time. Geographical labelling of ginseng sources can be misleading. There is also currently no effective method to regulate and grade American ginseng.

Existing high-performance liquid chromatography (HPLC) method is limited by the lack of information on the identity of chromatographic peaks, which results in a long sample analytical time. Published liquid chromatography-mass spectrometry (LC-MS) methods cannot differentiate American ginseng by different growth regions and conditions. Our platform can provide the identification of peaks and shorter analytical time, and effectively authenticates and distinguishes American ginseng from various sources and different types of cultivation.

This method can determine whether the American ginseng is cultivated or wild, high or low grade within 40 minutes.

Features & Specifications

The technology comprises of:

- High-Performance Liquid Chromatography Quadrupole Time-of-Flight Mass Spectrometry (HPLC-QTOF-MS)
- Principal component analysis (PCA)

Performances:

The HPLC portion permits separation of analytes within American ginseng samples. As the analytes progress through the system, they enter the MS region of the LC-MS system, where they are ionized and a mass detector detects these ionized species. The information procured from this procedure is generally reported as intensity for a corresponding m/z value.

PCA is a robust method of multi-variant analysis of the data among different samples.



Customer Benefits

- Consumer safety
- Safeguard the reputation of companies and dealers

Potential Applications

Analytical platform coupled with data processing method for quality control of American ginseng.

Industries in which this method can be employed are:

- Traditional Chinese Medicine industry
- healthcare industry
- data analytics industry