Tea is the second most widely consumed beverage in the world and grown in about 30 countries worldwide. Many health benefits including prevention of cancer and heart disease result from the consumption of tea. It is known that tea constituents are significantly affected by geographical factors, tea variety, fermentation, and formic acid (HPLC grade) were purchased from Sigma-Aldrich (St. Louis, MO, USA). LC-MS grade methanol was from Dime Technology (Richmond, VA, USA). Purified water was provided from Merck Millipore system.

Equipment and conditions

UHPLC-MS/MS equipment was developed to discriminate teas of different kinds and forms by Agilent 1290 UHPLC system combined with 6540 Q-TOF MS for tea extract analysis. High performance liquid chromatography (UHPLC) system is a powerful tool in resolving complex samples. In this study, Agilent 1290 UHPLC system employed with 6540 Q-TOF MS was applied for the tea extract analysis to identify endogenous components with the use of Agilent tea database and related structure elucidation software test. A chemical profile and metabolic data were developed to discriminate teas of different forms and origins. This work is valuable to researchers who are interested in food safety control area.

Tea Samples

Tea samples of different geographic origins and manufacture processes were analyzed. Both tea extract and residue extract of tea were investigated on the basis of public website source. A specific database including 333 compounds with compound name, molecular structure, accurate mass, CAS No, and partial high resolution MS/MS spectra was used for the tea extract analysis to identify endogenous components. The use of Agilent tea database and related structure elucidation software test. A specific database including 333 compounds with compound name, molecular structure, accurate mass, CAS No, and partial high resolution MS/MS spectra was used for the tea extract analysis to identify endogenous components.

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