

Comparison of three mobile phase with liquid chromatography/time-of-flight mass spectrometry (LC/TOF-MS) for urine metabonomics analysis

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The metabonomic strategy has been used based on liquid chromatography/time-of-flight mass spectrometry (LC/TOF-MS). As mobile phase, Acetonitrile or methanol usually has been used alone. Here, three types of organic phases including acetonitrile, methanol and the acetonitrile/methanol cocktail under a gradient elution system have been particularly compared for metabonomic analysis. The results showed that the number of peaks in the cocktail was significantly greater than acetonitrile and methanol in positive mode, and no significant difference was found in negative mode. The detected ion were much more under the cocktail as organic phases in both positive and negative modes. The total number of ion eluted were 1585 in positive ion mode and 955 in negative ion mode, of which 91% and 99% by the cocktail. Mixture of organic phases increased response and resolution of ions than the others. Moreover, cocktail further was observed for detection of complementary marker ions. Some typical compounds that are common in urine such as Thornasterol B, Hydrocortisone, Glycocholic acid were unique existence in cocktail. Cocktail organic phases has advantage in detecting more abundant metabolite. Finally rat urine from control group and dosage group of Nonylphenol (NP) was reanalyzed using both the acetonitrile, methanol and cocktail as organic mobile phase in HPLC-QTOF-MS systems in positive ion mode.

Biography

Pan Zou is a PhD student at the School of Chemical Engineering & Technology, Harbin Institute of Technology, China. She joined the group of Pr. Wang Jing at Chinese Academy of Agricultural Sciences, and then worked at Academy of Military Medical Sciences as visit student. She has participated in several projects supported by National Nature Science Fund, and published 3 papers in the last two years. Her research focuses on the hazards of pesticides and pesticide additives.

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