conferenceseries.com

5th International Conference on CURRENT TRENDS IN MASS SPECTROMETRY AND CHROMATOGRAPHY

September 25-26, 2017 Atlanta, USA

The method efficiency evaluation study on non-target detection of over 1000 pesticides and chemical contaminants in fruits and vegetables by GC-Q-TOF/MS and LC-Q-TOF/MS

Guo-Fang Pang

Chinese Academy of Inspection and Quarantine, China

non-target and high-throughput detection method has been developed for simultaneous screening 1010 pesticides using the Acombined two techniques, 485 by GC-Q-TOFMS and 525 for LC-Q-TOFMS, based on a single sample preparation. Naturally, such a detection bases itself on the prior development of accurate mass database for 485 pesticides and chemical contaminants by GC-Q-TOFMS and spectra library for 525 pesticides by LC-Q-TOFMS, and a unique digital identity card (digital identification standard) has been established for each of the pesticides; hence the realization of digital standard taking place of the conventional qualitative method of using pesticide substantial standards as reference. On such a basis, two detection software has been developed for screening 1010 pesticide residues in fruits and vegetables, and the software is placed in the corresponding instrument, while the prepared sample solutions are ready for automatic analysis, so the entire analytical process has been datamatized, digitalized and automated. Since 2012, this technique has been applied over 600 sample points from 280 counties and regions across 31 provincial capitals/cities directly under the Central Government, and 30000 fruits and vegetables on the market by random sampling. A primitive inventory has been made to the pesticide residue conditions and their regularity features for the fruits and vegetables on the market including variety features for different pesticides in different agricultural products and different origins from multi-dimensions such as pesticide residue detection varieties, toxicity, and residual levels. Demonstrative results indicate: such techniques are applicable to 150 different fruits and vegetables of 18 categories, which is of strong detection capability, and the sensitivity of the method is high enough to satisfy the requirement of above 70% pesticides accurate detection uniform standard 10ug/kg. Therefore, the application scope and the method efficiency are incomparable to the conventional method.

Biography

Guo-Fang Pang is an academician of Chinese Academy of Engineering, Standards, Fellow of AOAC, recipient of the 2014 Harvey W. Wiley Award. Over the past 30 years, he has been always working at the forefront of the inspection and quarantine work, devoting himself to the research on the theory and practice of food scientific analysis and conducting the pioneering research work in the field of trace element analytical techniques of pesticide and veterinary drug residues. He has made many innovations in the study of new techniques of rapid detection of multiresidues with high sensitivity, high selectivity and high resolutions as well as in the study of new techniques and new methods such as sample preparation like extraction, separation, enrichment, etc. He has focused his study on the high through-put techniques of the trace elements of over 1000 pesticides and veterinary drug residues and established 139 China National Standards and 3 AOAC Official Method.

ciqpang@163.com

Notes: