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Green analytical techniques in food analysis



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The development of greener analytical techniques is a topic of great interest. There is an increasing need for new analytical methods that can be used for assuring safety and quality in food samples including adulterants, pesticide residues and unknown functional components. Ultra-performance convergence chromatography (UPC²) is considered a valuable tool helping to separate and determine compounds differing by subtle structural differences. UPC² presents several advantages over high performance liquid chromatography (HPLC) and it takes less column equilibration time and consumes fewer organic reagents. UPC² has recently been successfully used to separate and determine a lot of analytes including many pharmaceutical compounds. In this work, recent applications of UPC² for the analysis of different compounds in food and biological samples were reviewed, in the hope of helping chromatography users to have a new look on the possibilities offered by this technique. Furthermore, a simple, highly sensitive and fast analytical method based on UPC² with photodiode array detection (PDA) has been developed to quantify sulfonamides, monosaccharides and structural analogues of isoflavone isomers in food. Additionally, authentication technology based on fragment markers and high resolution mass spectrometry was developed for the quality assurance and pesticide residue compounds analysis in food.

Biography

Zhang Feng is the Director of the Institute of Food Safety in Chinese Academy of Inspection and Quarantine and Professor in Xi'an Jiaotong University. He is the Winner of funding of Max-Planck Society. He returned to China in 2006 and focused his attention on the application of chromatography and mass spectrometry in food and drug analysis, measurement and standard material development and other fields. He has published more than 100 papers in peer reviewed journals and six books, authorized nine patents and established six national standards. In the recent years, as the Project Leader, he has undertaken more than 30 research projects and has obtained many research awards from government and national research associations.

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