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Emerging green analytical tools for food quality and safety

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Public attention in food quality and safety has increased significantly in recent decades, due in part to changes in consumer behavior and the gradually increasing food consumption. Demand for high quality of food obviously requires high standards of quality assurance and process control; satisfying this demand in turn requires appropriate analytical tools for monitoring food quality and safety. Green analytical tool, as an alternative to conventional analysis methods for food quality and safety, has the desirable features in terms of operating speed, ease-of-use, minimal or no sample preparation, and avoidance of sample destruction. This paper reviews recent developed green analytical tools, such as near infrared (NIR) spectroscopy, electronic tongue (E-tongue), electronic nose (E-nose), hyperspectral imaging, biosensors, integration of multiple sensors, and latest research efforts to assess food quality and safety. Particularly, we have reviewed some related data processing algorithms involved in each green analytical tool. Finally, we provided the technical challenges and outlook for the application of these green analytical technologies in analysis of food quality and safety.

Biography

Quansheng Chen has earned his PhD from Jiangsu University China and is currently a full Professor of Jiangsu University, China. His current research interest is emerging green analytical methods for food quality and safety. He has received the 2nd Prize of National Award of Technological Invention of China and the ProSPER.Net-Scopus Award for Asia-Pacific Young Scientist in 2011, etc. He has authored more than 200 peer-reviewed scientific papers in reputed journal and 3 books and holds more than 30 patents. Currently, he has been serving as the Editorial Member of 3 reputed journals.

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