Accepted Manuscript

Emerging functional nanomaterials for the detection of food contaminants

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PII: S0924-2244(17)30419-3

DOI: 10.1016/j.tifs.2017.11.005

Reference: TIFS 2115

To appear in: *Trends in Food Science & Technology*

Received Date: 28 June 2017

Revised Date: 7 November 2017

Accepted Date: 11 November 2017

Please cite this article as: Liu, J.-M., Hu, Y., Yang, Y.-K., Liu, H., Fang, G.-Z., Lu, X., Wang, S., Emerging functional nanomaterials for the detection of food contaminants, *Trends in Food Science & Technology* (2017), doi: 10.1016/j.tifs.2017.11.005.

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Abstract

Along with the progress in nanoscience, a variety of advanced functional nanomaterials were constructed to develop effective and innovative analytical techniques for food safety surveillance. In this review, we summarized the advanced analytical methods that have been developed based upon advanced functional nanomaterials, including plasmonic nanomaterial-based colorimetric methods, fluorescent nanomaterial-based fluorescent methods, advanced functional material-based molecular imprinting technology, advanced functional material-based chromatographic methods, plasmonic nanomaterial-based surface enhanced Raman scattering technology, and advanced functional material-based electrochemical methods. This review provides a progressive roadmap for further development of portable, rapid, and *in situ* detection technology to promote food safety surveillance from bench to market and eventually reduce the gap between research in the laboratory and industrial applications.

Keywords: nanomaterials; food contamination; fluorescence sensing; colorimetric detection, electrochemical sensing

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