

Accepted Manuscript

Functionalization techniques for improving SERS substrates and their applications in food safety evaluation: A review of recent research trends

Tehseen Yaseen, Hongbin Pu, Da-Wen Sun

PII: S0924-2244(17)30693-3

DOI: [10.1016/j.tifs.2017.12.012](https://doi.org/10.1016/j.tifs.2017.12.012)

Reference: TIFS 2139

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

Received Date: 24 October 2017

Revised Date: 23 December 2017

Accepted Date: 28 December 2017

Please cite this article as: Yaseen, T., Pu, H., Sun, D.-W., Functionalization techniques for improving SERS substrates and their applications in food safety evaluation: A review of recent research trends, *Trends in Food Science & Technology* (2018), doi: 10.1016/j.tifs.2017.12.012.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Abstract

Background: Food safety and quality have gained much attention in recent years and the capability to evaluate food quality and safety in a sensitive, rapid, and reliable manner is of great importance in the food industry. Therefore, surface-enhanced Raman scattering (SERS) with the advantages of excellent sensitivity, fingerprinting ability and significant enhancement to identify the target has demonstrated a great potential for quick detection of chemical contaminants, chemical constituents, and pathogens in food samples.

Scope and approach: The enhancement of Raman signals for SERS is not only related to the interactions between substrates and samples but also the functionalization of substrates to gain SERS active substrates. In the present review, different types of substrates are briefly discussed, functionalization techniques for SERS active substrates are discussed, and applications of functionalized SERS substrate in food samples are presented.

Conclusions and key findings: It is evident that functionalization techniques for improving SERS substrates have given encouraging outcomes, which provides possibility for identifying multiple target analytes within a multifaceted matrix, and thus could be used for decreasing the occurrence of food safety problems as well as for enhancing food quality surveillance.

Download English Version:

<https://daneshyari.com/en/article/8428512>

Download Persian Version:

<https://daneshyari.com/article/8428512>

[Daneshyari.com](https://daneshyari.com)