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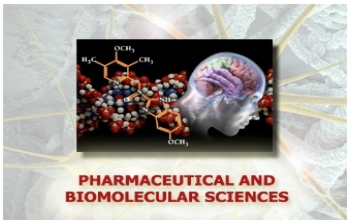
UNIVERSITÀ DEGLI STUDI DI TORINO



As part of the Visiting Professors @UniTO attraction program, the Department of Pharmaceutical Science and Technology - University of Turin with the Master's Degree Courses in Pharmacy and Pharmaceutical Chemistry and Technology - organizes a Scientific WEBINAR on Food Safety and Rapid Diagnostics hosting as speaker the Visiting Professor

Prof. Katrina Campbell
Institute for Global Food Security
School of Biological Sciences
Queen's University, Belfast

"Food Safety – Future Directions in Food Analysis"

Webex Platform - June the 27th 2022 - 15.00-16.30 CEST

Participation is free, a certificate of participation will be issued upon request, registration is mandatory at the link:
https://forms.gle/MjUB7SzzRuHKiKJJA

With the collaboration of the UniTO Doctoral School - Curriculum on Pharmaceutical and Biomolecular Sciences and the Interdivisional Group of Food Chemistry (GICA) of the Italian Chemical Society.
UniTO and Queen's University of Belfast are EIT-FOOD partners.

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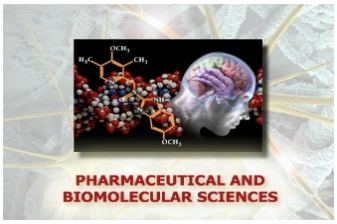

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"Food Safety – Future Directions in Food Analysis"

Abstract

Contaminant monitoring from microbiological, chemical and fraudulent sources in agri-food production is an important yet complex issue. A huge investment in time and effort is placed on these activities by regulatory and industrial laboratories. Although sophisticated techniques such as chromatography and spectrometry provide accurate and conclusive results, screening tests allow a much higher low cost throughput of samples with less operator training. Biosensors combine a biological recognition element with a transducer to produce a measurable signal proportional to the extent of interaction between the recognition element and contaminant. The different uses of biosensing instrumentation available are extremely varied, with agri-food analysis illustrating emerging applications. However, ELISA and lateral flow tests dominate this market as difficulties remain in combining sample preparation for feed/food contaminant analysis with biosensor technology for point of site testing. Nonetheless, the advantages offered by biosensors over traditional immunoassay screening methods with respect to food analysis, include automation, improved reproducibility, speed and real time analysis. The miniaturization of immunoassays and biosensors towards nanosensing offers enhanced sensitivity, portability and multiplexing capabilities. Increased demands from stakeholders and consumers to improve food integrity illustrates a need for new tools including smart nano-technologies for sample preparation and analysis. The aim of this work is to show the progress that has been made in the development and validation of nanoarrays as next generation lateral flow arrays to be fit for purpose for the detection of both single and multiple contaminants in environmental and food samples to offer an interchangeable and holistic approach to agri-food safety. ELISA spot and planar waveguide technologies have been developed for the rapid and multiplex analysis of marine biotoxins, allergens, antibiotic residues, pesticides and mycotoxins to be compatible with food control procedures. Combining advances in sample preparation tools, portable nanosensors and remote connectivity offer solutions for improved food security.

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