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BARDOT: Application for multi-pathogen detection

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Microbial food safety is a global concern and reducing the foodborne disease burden is a major challenge for regulatory agencies and food industries. *Salmonella enterica*, *Listeria monocytogenes*, and Shiga-toxin producing *Escherichia coli* (STEC) are the three major foodborne pathogens and are implicated in several outbreaks, which are commonly associated with ready-to-eat food, poultry, meats, fruits and vegetables, seafood, milk, and dairy products. Rapid and sensitive detection and identification of foodborne pathogens are critical for quality assurance

and pathogen tracking within the food production and supply chain. Biosensor platforms are increasingly being tested as the new generation detection tools and are viewed as an important critical development in food safety applications for routine surveillance in food processing facilities and for use in food defense emergencies. BARDOT (BACTERIAL Rapid Detection using Optical scatter Technology) is a label-free nondestructive optical based method in which a 635nm laser beam passes through the center of a colony and generates a unique scatter signature (fingerprint) that can be used for detection and identification employing a scatter signature classification library. Recent application of BARDOT for Multi-pathogen detection in a single assay format using SEL agar. Results demonstrated that the BARDOT

biosensor in combination with SEL agar successfully detected and differentiate targeted pathogens from either single and mixture. The presented work reveal the novel label-free on-plate colony screening technology, BARDOT could be used for real-time detection and identification of different foodborne pathogens, with significant importance for the food industry, biotechnology companies, and public health laboratories.

Biography

Maha Abdelhaseib received her bachelor of veterinary medicine degree (BVSc) from Egypt, completed her master degree in Food Hygiene at 2009 Egypt and Ph.D. as Visiting Scholar in the Food Science department at Purdue University USA in 2014, she has started postdoctoral training from Purdue University (USA) 2016. Lecturer at Food Hygiene department Assiut University, Egypt. She is a motivated researcher working in the core and interdisciplinary area of molecular microbiology, pathogen detection, biosensors, food microbiology, and safety.

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