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Abstract

Use of Surface-Sensors (SCH) forListeria monocytogenes direct monitorization in food industries

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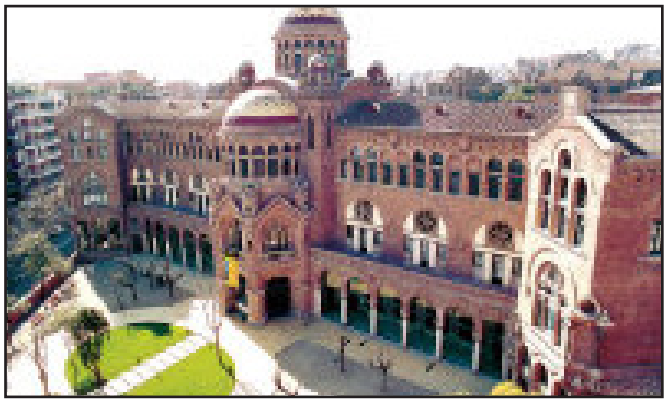
Abstract:

Cleaning and disinfection procedures are critical and must be performedto established guidelines otherwise they potentially allow cross-contaminationto occur, which not only reduces a product's shelf-lifebut also increases the risk of foodborne diseases related to the presenceof pathogens (Moore & Griffith, 2002; Reij& Den Aantrekker, 2004). Asurveillance programme to control foodborne infections and intoxicationsin Europe reported that the main contributing factor to outbreakswas cross-contamination (Tirado & Schmidt, 2001), indicating thatenormous efforts must be made to control this otherwise it could becomean increasing tendency over time(Giaouris et al., 2014). Listeria monocytogenes is a foodborne pathogen that is considerablysignificant for the food industry (Jemmi& Stephan, 2006; Larsen et al.,2014; Ripolles-Avila et al.,2018; Todd &Notermans, 2011). For instance, listeriosis is the onlyfoodborne disease that has shown a notable increasing tendency in theEU/EEA over the last 5 years (2012–2016), with a 9.3% increment inconfirmed cases between 2015 and 2016 (EFSA-ECDC, 2017). The main aim of the present study was toimplement and assess this novel technology to evaluate the microbiologicalcontamination of surfaces. For that, different industrial surfaces in ameat processing plant were evaluated through implementing the sensor-based sampling system, with a focus on detecting L. monocytogenes. The results obtained showed that the areas considered as major contributors to microbial contamination were three of the sampledfloors and the storage cabinet for tools, demonstrating to be important sources of possible cross-contamination. Atotal of four L. monocytogenes presences were obtained during sampling. A direct relation was observedbetween aerobic counts and detecting L. monocytogenes, and three possible hypotheses were formulated toexplain the connection. Last, a safety zone marking the limits beyond which the surface can be considered as asafety risk was established. The use of SCH sensors as a surface sampling system for the food industry havebeen shown to work effectively and with relative ease.

Biography:

Prof. José Juan Rodríguez-Jerez is Graduated in Veterinary



Medicine by the University of Zaragoza (Spain) (1987), PhD by the Autonomous University of Barcelona (Spain) (1992), postgraduate studies in food hygiene and food microbiology by the Institut Pasteur (Lille - France) (1992) and postgraduated in human nutrition by the University of Navarra (Spain) (1995). Nowadays.

Recent Publications:

1. Jose Juan Rodriguez-Jerez, et al; From hazard analysis to risk control using rapid methods in microbiology: A practical approach for the food industry; 2020
2. Jose Juan Rodriguez-Jerez; et al Novel Intervention Techniques in the Food Industry; 2020
3. Jose Juan Rodriguez-Jerez, et al; Effect of an enzymatic treatment on the removal of mature Listeria monocytogenes biofilms: A quantitative and qualitative study; 2020
4. Jose Juan Rodriguez-Jerez, et al; Microscopic analysis and microstructural characterization of the organic and inorganic components of dairy fouling during the cleaning process; 2020
5. Jose Juan Rodriguez-Jerez, et al;Bactericidal efficacy of UV activated TiO2 nanoparticles against Gram-positive and Gram-negative bacteria on suspension; 2019

New Frontier's in Applied and Environmental Microbiology; April 24, 2020; London, UK

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