

## Microbiological Contamination in Industrialized Plant-Based Foods: Recalls Study

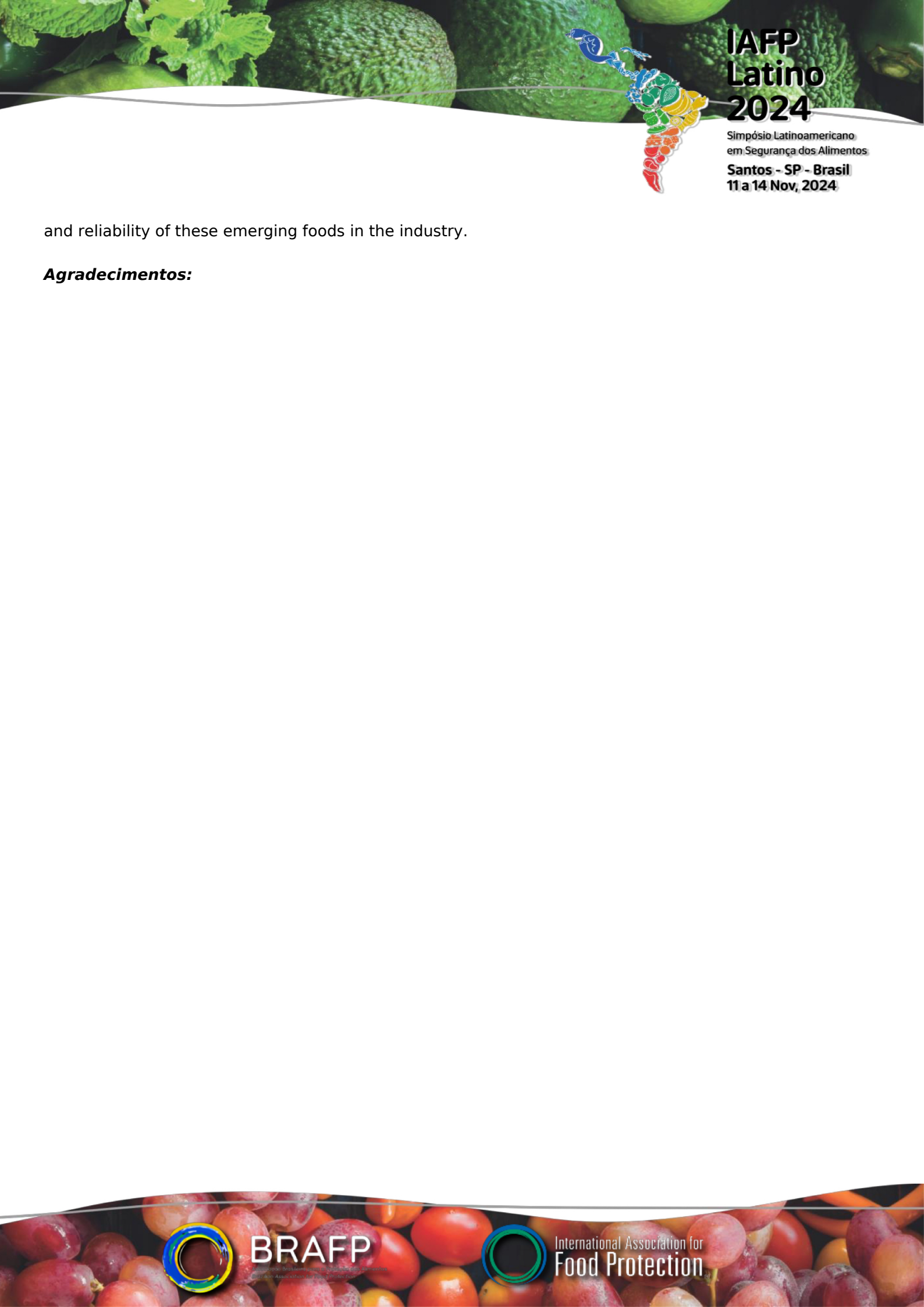
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In a global context marked by shifts in dietary habits driven by increasing environmental and health concerns, plant-based products are emerging as sustainable alternatives. This movement reflects not only a transformation in individual choices but also a response to the environmental and ethical implications of conventional food production. However, the transition to these foods is not without challenges, particularly concerning the microbiological safety of these products. This study aims to investigate and analyze the epidemiological

profile of microbiological contamination in plant-based products, encompassing cases of food recalls in different countries resulting from microbiological contamination. The motivation for this research arises from the need to comprehend patterns, prevalences, and microorganisms associated with contamination incidents in this context. Data collection covered different regions, such as the United States, European Union, United Kingdom, Australia, New Zealand and Canada. These regions were chosen due to the relevance of their populations in the consumption of plant-based products and the accessibility of recall records through official portals, ensuring the credibility of the information. In the United States, data were obtained from the Food and Drug Administration (FDA) website under the “recalls, market withdrawals and safety alerts” tab, and data can be found from 2007 onwards. In the European Union, recalls were accessed through the Rapid Alert System for Food and Feed (RASFF) window. It is worth noting that, due to access restrictions, it was only possible to obtain information from 2020 onwards. For Australia, the information was obtained from the Food Standards Australia New Zealand (FSANZ) website, covering events from June 2019 onwards. For New Zealand, recall information was obtained from the Ministry for Primary Industries (MPI) website, providing information on events that occurred up to 2015. Data for Canada were collected from the Canadian Food Inspection Agency (CFIA) website, covering recalls since 2011. For the United Kingdom, the data source was the Food Standards Agency (FSA) website. It is worth noting that the data became available from 2021 onwards, as this was the year of the country's exit from the European Union. A total of 298 recalls related to microbiological contamination of plant-based foods were identified, involving 39 distinct products. Of the 298 recalls analyzed, the United States accounting for a significant majority with 241 recalls. Canada had 32 recalls, followed by 20 in the European Union, four in Australia, while one recall was recorded in New Zealand, and the United Kingdom reported no recalls. Among the microorganisms found, *Bacillus cereus*, molds, *Clostridium botulinum*, *Cronobacter sakazakii*, *Escherichia coli*, *Listeria monocytogenes*, *Pseudomonas aeruginosa*, and *Salmonella* were highlighted, with the highest occurrence associated with *Salmonella* and *Listeria monocytogenes*. Understanding the epidemiological profile of these contaminations is crucial for implementing preventive and regulatory measures, ensuring food safety and public health. This study contributes to raising awareness of the microbiological risks associated with plant-based products, promoting the quality

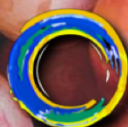


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and reliability of these emerging foods in the industry.

***Agradecimentos:***



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