



Food Biodefense

Kingsley Kwaku Amoako*

Canadian Food Inspection Agency, National Centres for Animal Disease, Lethbridge Laboratory, Canada

*Corresponding author: Kingsley Kwaku Amoako, Canadian Food Inspection Agency, National Centres for Animal Disease, Lethbridge Laboratory, Canada, Tel: +1-403-382-5597; Fax: +1-403-381-1202; E-mail: kingsley.amoako@inspection.gc.ca

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Editorial

Food is vulnerable to intentional contamination by lethal agents and prevention of contamination, whether accidental or the result of a deliberate introduction of chemical or biological agents poses a significant challenge. However, the risk of human exposure can be reduced by the ability to quickly detect contamination, which will help elicit a more rapid response. The complexity of the different food matrices poses a significant challenge and the ability to rapidly concentrate and detect agents is critical to mitigating any effect of a foodborne bioterrorist attack.

The development of science and technology platforms for extraction and concentration of bio threat agents such as anthrax spores from food matrices to enhance the sensitivity of downstream detection technologies and the rapid detection is important. Recent research and development work using immunomagnetic capture have shown the successful extraction and concentration of anthrax spores from five food matrices with high sensitivity [1]. In addition, novel methods involving the use of sequence based assays have been developed for the detection of *Bacillus anthracis* spores and *Yersinia pestis* from food matrices [2,3]. These tools will allow the rapid, specific, and sensitive detection and screening of these bio threat agents in food matrices. The ability to rapidly identify an agent during a bioterrorist attack allows a more rapid response to minimize the impact on public health.

Research and development projects leading to the generation of new knowledge on elements of applied research, including the development of a conceptual approach to food sample preparation and detection systems, optimization and validation of laboratory methods, for threat agents tailored to priority foods are worth undertaking. The dissemination of new knowledge generated from food biodefense research is vital and the Journal of Bioterrorism and Biodefense which addresses broader issues on bioterrorism and biodefense will make a meaningful contribution in this direction.

References

1. Shields MJ, Hahn KR, Janzen TW, Goji N, Thomas MC, et al. (2012). Immunomagnetic Capture of *Bacillus anthracis* Spores from Food. *J Food Prot* 75: 1243-1248.
2. Amoako KK, Shields MJ, Goji N, Paquet C, Thomas MC, et al. (2012) Rapid Detection and Identification of *Yersinia pestis* from Food using Immunomagnetic Separation and Pyrosequencing. *Journal of Pathogens*.
3. Amoako KK, Janzen WT, Shields MJ, Hahn KR, Thomas MC, et al. (2013) Rapid detection and identification of *Bacillus anthracis* in food using pyrosequencing technology. *International Journal of Food Microbiology* 165:319-325.