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# FOOD PROCESSING & TECHNOLOGY

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## Osama O Ibrahim

*Bio Innovation, USA*

### **Understanding the nature, physiology, taxonomy, diagnostic and the federal compliance guidelines for food-borne pathogen *Listeria monocytogenes***

*Listeria monocytogenes* is an important foodborne pathogen. It is a causative agent of a severe infection that primarily affects immunocompromised people, pregnant women and occasionally healthy people. Intrauterine infection of fetus resulted in a dearth or an actually ill infant with a septic disseminated from listeriosis. The association of listeriosis outbreaks with contaminated foods led to recognize that *L. monocytogenes* is a foodborne pathogen and that the intestine is the primary route of entry into the body. The incidence of listeriosis appears to be on increase worldwide, with the number of cases rising, especially in Europe. The annual endemic disease rate varies from 2 to 16 cases per million populations. *L. monocytogenes* strains appear to be normal residents in the intestinal tract of the human. This may partially explain why antibodies to *Listeria* spp. are common in healthy people. *L. monocytogenes* detection in food samples traditionally involved culture methods based on selective enrichment and plating followed by the characterization of *Listeria* spp. based on colony morphology, sugar fermentation, and haemolytic properties. These detection methods are lengthy and are not suitable for foods with short shelf lives. As a result, more rapid detection methods of *L. monocytogenes* were developed based on antibodies (ELISA) or molecular techniques (PCR or DNA hybridization). These rapid detection methods are allowed detection results within 48 h. The nature of this foodborne pathogen, including detection methods, mechanism of infection, disease symptoms, disease treatments, food protection and food safety protocols will be highlighted in this presentation.

#### **Biography**

Osama O Ibrahim is a highly-experienced Principal Research Scientist with particular expertise in the field of Microbiology, Molecular Biology, Food Safety, and Bio-Processing for both Pharmaceutical and Food Ingredients. He is knowledgeable in microbial screening/culture improvement; molecular biology and fermentation research for antibiotics, enzymes, therapeutic proteins, organic acids and food flavors; biochemistry for metabolic pathways and enzymes kinetics, enzymes immobilization, bioconversion, and analytical biochemistry. He was an External Research liaison for Kraft Foods with universities for research projects related to molecular biology and microbial screening and holds three bio-processing patents. In January 2005, he accepted an early retirement offer from Kraft Foods and in the same year he formed his own biotechnology company providing technical and marketing consultation for new startup biotechnology and food companies.

[Bioinnovation04@yahoo.com](mailto:Bioinnovation04@yahoo.com)