



Call for Papers

Food Research International

***Salmonella* in Foods: Evolution, Strategies and Challenges**

Salmonella spp is a heterogeneous bacterial genus within the *Enterobacteriaceae* family. Although it may have been involved with human and animal infections since ancient times, *Salmonella* was only known and recognized as a pathogen after the description of its association with the disease (called “salmonellosis”) by Theobald Smith and Daniel Elmer Salmon in the end of the 18th century. Since then, research on *Salmonella* has evolved and so has the pathogen. Currently, more than 2000 serotypes of *Salmonella* have been described, some of which are very relevant either for human and animal health. Nowadays, serotypes that have acquired multiple antimicrobial resistances, acid stress adaptation and the ability to survive in foods with low water activity concern. *Salmonella* is responsible for high rates of morbidity and mortality in the human population. The evolution of *Salmonella* strains may also include their linking with foods still not associated with the pathogen or new routes of food contamination such as internalization in vegetables. Although the gastrointestinal tract is the natural reservoir of *Salmonella*, the ability of this pathogen to adapt to adverse environmental conditions makes not only foods of animal origin susceptible to its contamination, but also plant foods. All these facts together have caused *Salmonella* to rank high on the surveillance list of foodborne disease outbreaks in several countries worldwide. Due to the relevance and widespread nature of *Salmonella*, food scientists developed several strategies to try to understand its behavior in foods, interaction with humans/food animals and the approaches to eliminate, reduce or control this pathogen from farm to fork. Despite the advances in *Salmonella*-related research, this pathogen has posed new challenges to microbiologists and food scientists. Due to the high importance of *Salmonella* for public health, food and animal industry, this special issue of *Food Research International* aims to reveal current knowledge about the pathogen and its interface with these sectors. It is also our goal to stimulate new approaches to the problem of *Salmonella* contamination in foods, in order to bring new and relevant findings that may contribute with the advancement of food protection and human health. Manuscripts on “*Salmonella*” research will be published in a *Food Research International* special issue in order to make the information easily accessible in one single journal. All the manuscripts will be peer-reviewed and only high quality and impact manuscripts will be published.

***Food Research International* is now seeking unpublished original manuscripts, short communications and review papers on *Salmonella*-related research including:**

- 1) Incidence and counts in raw material, foods and beverages. Incidence, counts and tracking of contamination in food chain. Incidence in food animals and tracking of contamination between animal and foods. Emergence of species or serotypes sharing particular characteristics (antimicrobial resistance, for example);
- 2) *Salmonella* in the environment: incidence, persistence, survival or growth in soil, water, surface in direct or indirect contact with foods. The role of environment in food contamination and studies describing its pathway. Strategies to avoid *Salmonella* transference from environment to foods or food contacting surfaces. Methods to detect environmental samples for *Salmonella*. Cross-contamination, recontamination and their role for food contamination by *Salmonella*;
- 3) Intervention strategies to control *Salmonella* on farms: application of codes of practices to minimize herds' exposure to *Salmonella*. Strategies to avoid *Salmonella* colonization in herds through water and feed, use of vaccines, probiotics, antimicrobials, and immunotherapy. Internalization pathways in fruits and vegetables and intervention methods to avoid *Salmonella* internalization. Use of good agricultural practices and their role to avoid vegetables contamination by *Salmonella*. Application of phytosanitary treatments and their role in *Salmonella* internalization and spreading. Modeling of *Salmonella* attachment to vegetables and its role in its spread through the food chain;
- 4) Intervention strategies to control *Salmonella* during food processing: Use of emergent technologies, hurdle technologies, and their application to control *Salmonella* growth in novel foods. Biocontrol (bacteriophages). Case studies on design, re-design and validation of steps aiming at inactivating *Salmonella* during food processing. Stress responses in *Salmonella* spp, morphological and molecular changes caused by exposure to stressful conditions. Use of chemical approaches to understand modifications at cellular levels;
- 5) Antimicrobial resistance in *Salmonella* spp: spreading and acquiring of antimicrobial resistance in/between *Salmonella* strains, its relationship with clinical cases. Transference of resistance genes and molecular approaches to understand antimicrobial resistance. Association of virulence and antimicrobial resistance genes. Linking

antimicrobial resistance with increased resistance of *Salmonella* to food preservation methods. Methods to study antimicrobial resistance;

6) Virulence and pathogenesis of *Salmonella*: Expression of virulence genes in food, host and environments. Factors affecting the expression of virulence genes. Markers for virulence in *Salmonella*. Role of quorum sensing for virulence and pathogenesis of *Salmonella*. Molecular insights in *Salmonella* pathogenesis. Role of gut microbiota in *Salmonella* infection. Identification and role of pathogenic islands in *Salmonella* and their relevance for public health;

7) Behavior of *Salmonella* in foods: studies on survival, growth and inactivation of *Salmonella* in foods, beverages and environment. Use of predictive modeling to quantify the behavior of *Salmonella* from farm to fork;

8) Modeling and risk analysis: Building of general risk assessment models on *Salmonella*. Case studies on risk communication and risk management. Modeling dose-response and risk of salmonellosis. Stochastic and deterministic models for the transmission of *Salmonella*. Reducing uncertainty in *Salmonella* risk assessment models. Studying variability and its influence on risk outputs. Setting management priorities for *Salmonella* control based on risk assessments. Case studies on the use of risk assessment to assess intervention strategies to control *Salmonella*. Building and using risk assessment models to recreate and track foodborne disease outbreaks. Use of systems biology in predictive modeling. Application of “omics” and modeling. Use of advanced statistical approaches to model, characterize and understand *Salmonella* behavior in foods;

9) Outbreaks and surveillance: studies on the investigation of *Salmonella* outbreaks and new findings on clinical implications of food-related *Salmonella*. Lessons learned from outbreaks and measures implemented to avoid reoccurrence of outbreaks. Cost analysis of salmonellosis outbreaks. Use of statistical approaches in surveillance. Global and regional trends of salmonellosis. The role of international trade in *Salmonella* spreading. International approaches to track *Salmonella* dissemination;

10) Legislation and guidelines on *Salmonella* control: case studies on implementation of guidelines to control *Salmonella* in feeds, foods or beverages. New guidelines on *Salmonella* control. Case studies on GMP and HACCP on *Salmonella* control. Case studies on impacts of legislation for *Salmonella* in public health and food contamination ;

11) Consumer knowledge on salmonellosis, behavior and practices on food safety;

12) Sampling plans: development, implementation and evaluation of sampling plans to track *Salmonella*. Statistical basis and improvements in sampling plans to reduce uncertainty of *Salmonella* detection and enumeration in foods and beverages;

13) Analytical methods: development, validation and use of new methods for *Salmonella* analysis. Strategies to increase sensitivity/specificity of analytical methods for *Salmonella* analysis. Strategies to increase recovery of injured cells. Development and assessment of automated and alternative (immunochemical, chemical, molecular and microbiological) methods to study *Salmonella* in feed, foods and beverages;

14) Challenges: Challenges from farm to fork on *Salmonella*-related research. Challenges in global initiatives to control *Salmonella*. Challenges in modeling and risk estimation. The role of international agencies, governments and industries in *Salmonella* control.

Submission guidelines:

Authors are invited to submit original manuscripts, short communications or review papers for consideration for publication in a *Food Research International* special issue dedicated to *Salmonella*-related research. Please refer to the journal's Guide for Authors for specific advice on how to prepare a paper (<http://www.elsevier.com/locate/foodres>). Papers must be submitted electronically via the Elsevier Editorial System (EES) site for the Journal - <http://ees.elsevier.com/foodres> - beginning in March 2010 (select Special Issue: *Salmonella*). Closing date for submissions is December 1st, 2010. Inquiries regarding the content of papers may be submitted to Anderson Sant'Ana (assantana@usp.br).

Timeline:

March 2010: Beginning of paper submission

1 December 2010: Deadline for paper submission

March 2010-February 2011: Peer-review process

March 2011: All revised manuscripts due

May 2011: Publication