

Campylobacter spp. and Related Organisms
in Poultry

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Heriberto Fernandez · Daise Aparecida Rossi
Editors

Campylobacter spp. and Related Organisms in Poultry

Pathogen-Host Interactions, Diagnosis
and Epidemiology

Editors

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We dedicate this book

*to our families and friends... because they are
the raison for being of our existence and
ongoing inspiration of life*

*to our students who have been ... they made
us grow in the way of education*

*to our students will be ... they will allow us to
move forward with them to meet the future*

Foreword

This book fills a gap in the literature about *Campylobacter* spp. and related organisms in poultry, taking a modern approach to the relationship between *Campylobacter* and poultry, the poultry industry, and public health. Because this book on *Campylobacter* in poultry originated in Latin America, the data herein are specific to this geographic region.

The study and understanding of *Campylobacter*'s relationship to poultry are important because chickens are large reservoirs of these microorganisms. In addition, poultry are responsible for several enteric disorders in humans caused by *Campylobacter*.

This book is divided didactically into 11 chapters. The information is presented in a logical sequence to aid in the understanding of *Campylobacter* spp. in poultry. This is a modern presentation of a didactic work, aiming to provide technical knowledge to students and researchers.

The main themes of *Campylobacter* in poultry are covered in this book, including the presentation of the microorganism, isolation and identification, colonization of *Campylobacter* in poultry, and its effect on immune response. The traditional approach to *Campylobacter* being a commensal or a pathogen is also discussed, as well as the epidemiology of *Campylobacter* in farms, its control in commercial poultry production, and its ability to survive and multiply in poultry industry. Other important aspects of *Campylobacter* are also covered, such as antimicrobial resistance and incidence of other species of *Campylobacter* (non-jejuni/coli *Campylobacter*) and other related genera, such as *Arcobacter* and *Helicobacter*, in poultry.

All 23 experts who collaborated on this book have experience in their subjects of expertise, allowing the inclusion of their personal knowledge that has not been formally published elsewhere and thus further enhancing the work. Another great feature of this book is that it brings together experts from three continents, including the countries of Brazil, Chile, Costa Rica, the United States, South Africa, the United Kingdom and Germany.

The authors and editors—Prof. Belchiolina Beatriz Fonseca, Daise Aparecida Rossi, and Heriberto Fernandez—made use of their experience. With more than two dozen researchers working around the same theme, they gave us a great work. I am sure that this book will contribute significantly to the literature and be useful to all who need an update on *Campylobacter* in poultry.

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Dr. Belchiolina Beatriz Fonseca is Professor of Avian Disease and Poultry Production in Faculty of Veterinary Medicine at Universidade Federal de Uberlândia, Minas Gerais, Brasil. Before her academic work she has worked in the field as a Veterinary Medical with chickens and broiler breeders. She has started research about *Campylobacter* in poultry since 2005 when studied in Chile with Dr. Heriberto Fernández.

Thenceforward, she did her research about *Campylobacter* with Dr. Daise Rossi in poultry. The main focus of the author is epidemiology and the relationship of commensal or disease between and campylobacter in poultry. She is member of the Latin American Network of Researchers in *Campylobacteraceae* (Relacampy).



Dr. Heriberto Fernández is Full Professor of Clinical Microbiology and former-director of the Institute of Clinical Microbiology, Faculty of Medicine, Universidad Austral de Chile.

During the initial years of his career he involved in microbiological diagnosis of zoonotic bacterial agents. Since 1980 their research lines turned towards *Campylobacter* and related microorganisms and their epidemiological relationships among humans, animals, the environment and food production. For the past 35 years he conducted many research projects in this field. As a professor he spent much of his time to teach about *Campylobacter*, not only to undergraduate and graduate students and professionals of his country, but also to others in many countries of Latin America. He was also invited as a speaker at many conferences and scientific meetings in almost all South American countries and some in Central America. He was trainer in

different courses in Argentina and Mexico of the WHO SalmSurvNet (now renamed GFN).

Dr. Fernández was invited to be member of the WHO Experts Committee on *Campylobacter*, the Chilean Agency for Food Safety and the WHO Advisory Group on Integrated Surveillance of Antimicrobial Resistance (AGISAR), belonging to the latter until June 2014.

In 2014, he obtained a grant from the Ecuadorian Secretariat for Higher Education, Science, Technology and Innovation to develop a Prometeo Project at the Technical University of Loja to build academic capacities on *Campylobacter* and develop research projects in this field. At this time he created the Latin American Network of Researchers in *Campylobacteraceae* (www.relacampy.cl).



Dr. Daise Aparecida Rossi is Professor of Microbiology, zoonotic disease and hygiene and vigilance in food at Faculty of Veterinary Medicine in the Universidade Federal de Uberlândia, Minas Gerais, Brasil. She has experience in veterinary microbiology, mainly with food microbiology and epidemiology, with expertise in foodborne zoonoses and food safety. She has done several important works on *Campylobacter* and *Salmonella* general food as chicken, milk, cheese, and other meat. Her research team also developed projects in Brazil about the prevalence of *Campylobacter* in animal products, their virulence, resistance to antimicrobials, and capacity of biofilm formation. She is member of the Latin American Network of Researchers in *Campylobacteraceae* (Relacampy) and SSAN-UNASUL (Program of the development of strategies of Socio-educational or Social Technology character on Sovereignty, Food and Nutritional Security).