

# **VETERINARY BACTERIOLOGY**

**Mayank Rawat**

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**Front Cover Page Photo:**

Artistic Representation of Bacteria

**Back Cover Page Photo:**

*Bacillus anthracis* stained bacteria and colonies on Blood agar  
*Yersinia enterocolitica* colonies

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# PREFACE

Majority of economically important diseases of cattle, sheep, goat, swine, horses, dogs, cats, and poultry are caused by bacteria or viruses. It is therefore, obvious, that microbiology occupies a central part of veterinary curricula throughout the world. Microbiology is a rapidly growing field of medical and veterinary sciences. With the application of molecular techniques, applied to bacterial pathogens, our understanding of pathogenesis and reliability of diagnostic test procedures of many infectious diseases have been improved. But, due to the rapid advances in knowledge during the past years, microbiology has developed into a subject of vast complexities.

This book on the principles of veterinary bacteriology and bacterial diseases of domestic animals and birds is a compilation of information presented in outline format. It seeks to serve multiple roles, including that of a textbook, a review and a laboratory manual. Therefore, recent scientific information having direct relevance for students of veterinary medicine, field veterinarians, and scientists engaged in research and production of veterinary immunobiologicals has been incorporated in the text. The arrangement and development of subjects included in this book are fundamentally based on my long experience of graduate and post-graduate teaching, disease investigation, research into development of novel bacterial vaccines and antibacterial agents, and manufacture and quality assurance of veterinary immunobiologicals. The defined goal of writing this book is to develop a learning resource for veterinary students and professionals.

Firstly, the book is intended for use by graduate and post-graduate students experiencing their initial exposure to veterinary pathogenic bacteriology. A student should not only acquire the basic information on bacterial pathogens and their diagnostic procedures, but also develop an understanding of complexity of bacterial pathogenesis. For that, emphasis is placed on correlating fundamentals of bacteriology, immunology and pathology with the clinical aspects of diseases caused by the bacterial pathogens. Secondly, the text serves a reference base for Clinical Bacteriologists, Teachers and, Scientists and Vaccinologists engaged in research, production and quality assurance of bacterial vaccines and immunodiagnostic agents. To that end, the text is intended to supplement and complement the work of a large number of veterinary scientists, numerous books, and research publications on various aspects of bacteriology, immunology, medicine and, information on therapy and vaccines that are currently available to the profession.

The book has been divided into 3 sections. The Section 1, General Bacteriology, contains 4 chapters encompassing classification, structure and function, immune response and, pathogenesis of bacteria. Section 2 is concerned primarily with those species of bacteria, rickettsia, chlamydia and mycoplasma that are pathogenic to animals. The general morphological physiological and pathogenic characteristics, and the diseases caused by these microorganisms are emphasized. Section 3 contains 3 chapters that incorporate relevant information on biosafety aspects of clinical microbiology, diagnosis of bacterial infections, antibiotics and therapy of diseases, and on bacterial vaccines and vaccination.

I hope, the book will be a useful text in veterinary microbiology and will serve to fill an important niche in veterinary education in India.

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