

Research and Reviews in Clinical Microbiology: Bacterial Virulence, Pathogenicity and Antimicrobial Susceptibility Testing-A book Review

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Abstract Clinical microbiology is a vast subject that covers a wide range of sub categories that include clinical bacteriology, clinical virology, clinical mycology, and clinical parasitology. The present book is a compilation of both research and review pieces related to the field of bacterial virulence, pathogenicity and antimicrobial susceptibility testing.

Keywords: clinical microbiology, bacterial virulence, pathogenicity, antimicrobial susceptibility testing

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1. Book Review

This book contains a systematic compilation of both research and review articles, related to the bacterial virulence. It reviews the virulence attributes of bacteria in relation to pathogenicity and different methods of antimicrobial susceptibility testing. All the chapters in this book were extensively peer-reviewed.

The chapters one and two review the role of bacterial capsule, and biofilm production respectively. Chapter one delineates the methods of demonstration of capsule, which also includes pictorial representations of the bacteria which produce a capsule, and their grams stain picture. Chapter two hypothesizes the correlation of multi-drug resistance with the ability of bacteria to form bio-films and vice-versa with evidence of available literature.

In view of increase in multi-drug resistant bacteria, and also an increase in carbapenem resistance, the chapter three reviews the significance of a low-cost method for the detection of carbapenem resistance among bacterial isolates using modified Hodge test (MHT). It also elaborates the test methodology and uses impressive images to demonstrate the interpretation of results.

Chapter four reviews the aetiology and antimicrobial susceptibility profiles of bacterial species causing lower respiratory tract infections. It also presents the status of antimicrobial susceptibility profiles of the isolated bacterial species. The tabular representations of the provisional diagnosis, clinical specimens collected, source of the specimens and the microbial causes along with

antimicrobial susceptibility profiles of the isolated bacteria appear to be beneficial to the readers.

Chapter five presents the methodology of detection of extended spectrum beta lactamase (ESBL) production among clinical isolates of *Escherichia coli* (*E. coli*) and *Klebsiella pneumoniae*. It also reviews the prevalence of ESBL's from various clinical specimens and the source of their isolation including different wards of a hospital using tabular representations.

Chapter six reviews the virulence determinants present among the *E. coli* isolated from extraintestinal infections. Methodology for the detection of haemolysin production, cell surface hydrophobicity (CSH), serum resistance, and gelatinase production is clearly mentioned. The results are demonstrated using pictorial and tabular representations.

Chapters seven and eight delineate the usefulness of a medicinal plant, *Aerva lanata*. Chapter seven presents the phyto-chemical properties and probable role in the development of newer antimicrobial agents which may be used to combat emerging multi-drug resistance. Chapter eight in specific has tabular representation of various extracts of *Aerva lanata*, including the antimicrobial susceptibility activities interpreted as diameter of zones of inhibitions. Activities of extracts of *Aerva lanata* against both bacterial and fungal strains is clearly represented in a tabular form.

Chapter nine presents the first of its kind, the first report of demonstration of "donut" colony morphology among the clinical isolate of non-diphtheritic *Corynebacterium* species isolated from blood. The pictorial representation of "donut" colony morphology on blood agar appears to be a highlight in this chapter.

Chapter ten reviews the role of small colony variants, and their significance in the virulence, pathogenicity, and antimicrobial resistance. It presents the pictorial representation of small colony variants and the recent advances.

Chapter eleven elaborates various methods used to detect the slime production among the clinical bacterial isolates. Congo red agar/broth method, modified Christensen's method, dye elution method, and latex agglutination techniques are clearly demonstrated using elaborate tabular representations.

Chapter twelve reviews the role of haemolytic and hemagglutination activities of clinical isolates of various bacterial species against different blood groups. The

methodological procedures both for the demonstration of haemolytic and hemagglutination properties are clearly delineated.

Over all this book could be of a great interest to the budding clinical microbiologists with its wide collection of both research and review pieces.

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