# Contents

1 **Mould Infections: A Global Threat to Immunocompromised Patients** ................................................................. 1
   Ricardo Araujo, Cidália Pina-Vaz, and Acácio Gonçalves Rodrigues

2 **Virulence and Pathogenicity of Fungal Pathogens with Special Reference to *Candida albicans*** ........................................... 21
   Mohd Sajjad Ahmad Khan, Iqbal Ahmad, Farrukh Aqil, Mohd Owais, Mohd Shahid, and Javed Musarrat

3 **Animal as Reservoir of Fungal Diseases (Zoonoses?)** ................ 47
   Jose L. Blanco and Marta E. Garcia

4 **Fungi Associated with Eye Infections with Special Reference to Corneal Keratitis and Their Possible Reservoir** ........................... 71
   Shamim Ahmad, Mohd Sajjad Ahmad Khan, Fohad Mabood Hussain, and Iqbal Ahmad

5 **Antifungal Drugs Mode of Action and Recent Development** .......... 99
   Yoshikazu Sakagami

6 **Antifungal-Induced Nephrotoxicity in Pediatrics: A State of the Art** .............................. 109
   Vassilios Fanos, Marco Zaffanello, Laura Cuzzolin, and Luigi Cataldi

7 **Antifungal Resistance: Cellular and Molecular Mechanisms** ........ 125
   Ricardo Araujo and Ana Espinel-Ingroff

8 **Multidrug Resistance in Fungi: The Role of Pleiotropic Drug Resistance Genes** ................................. 147
   Sushma Sharma and K. Ganesan
9 Laboratory Diagnosis of Fungal Infections: An Overview  .......... 173
Mohammad Shahid, Iqbal Ahmad, Abida Malik, Noor Jahan, and Trivendra Tripathi

10 Combinational Antifungal Therapy and Recent Trends in Drug Discovery ......................................................... 213
Iqbal Ahmad, Mohd Sajjad Ahmad Khan, Maryam Zahin, Mohd Owais, Mohd Shahid, Zafar Mehmood, and Aditya Bhushan Pant

11 Role of De-Escalation and Combination Therapy Strategies in the Management of Invasive Fungal Infection: A Multidisciplinary Point of View ............................................. 241
Rafael Zaragoza, Javier Pema´ n, Miguel Salavert, Amparo Solé, Isidro Jarque, Emilio Monte, Eva Romá, and Emilia Canto´ n

12 Challenges to the Management of Pulmonary Mycoses in Allogeneic Hematopoietic Stem Cell Transplantation .......... 273
Michael Koldehoff

13 Aspartic Peptidase Inhibitors as Potential Bioactive Pharmacological Compounds Against Human Fungal Pathogens ............................................................... 289
André Luis Souza dos Santos

14 Metabolic Pathways as Drug Targets: Targeting the Sulphur Assimilatory Pathways of Yeast and Fungi for Novel Drug Discovery ............................................................. 327
Anand Kumar Bachhawat and Amit Kumar Yadav

15 Innate Immunity in Pathogenesis and Treatment of Dermatomycosis ............................................................ 347
Mohammad Owais, Mairaj Ahmed Ansari, Iqbal Ahmad, Qamar Zia, Gerald Pierard, and Arun Chauhan

16 Cytokine Therapy: Possible Tools in Management of Fungal Infection .......................................................... 373
Mohammad Shahid, Trivendra Tripathi, Nancy Khardori, Anwar Huq, and Iqbal Ahmad

17 Immunomodulators: Potential in Treatment of Systemic Fungal Infections ............................................................ 397
Qamar Zia, Nishat Fatima, Maroof Alam, Deepa Bisht, Prashant Yadav, Iqbal Ahmad, Farrukh Aqil, and Mohammad Owais
18 Fungal Vaccines: Recent Trends ................................................. 423
Mohammad Shahid, Abida Malik, Noor Jahan,
Hamdan Ibrahim AL-Mohammed, Ali Ibrahim Al-Sultan,
and Elsayed Aboulmagd

19 Antifungal Activity of Medicinal Plant Extracts
and Phytocompounds: A Review ................................................. 449
Farrukh Aqil, Maryam Zahin, Iqbal Ahmad, Mohd Owais,
Mohd Sajjad Ahmad Khan, Shyam S. Bansal, and S. Farooq

20 Novel Drug Delivery Systems for Antifungal Compounds .......... 485
Qamar Zia, Mohammad Farzuddin, Mairaj Ahmad Ansari,
Marool Alam, Azmat Ali, Iqbal Ahmad, and Mohammad Owais

Index ........................................................................................................ 529
Combating Fungal Infections
Problems and Remedy
Ahmad, I.; Owais, M.; Shahid, M.; Aqil, F. (Eds.)
2010, XX, 539 p., Hardcover
ISBN: 978-3-642-12172-2