

CHAPTER 40  
MICROBIOLOGY

Doctoral Theses

01. BINDAL (Shruti)  
**Biochemical Characterization and Protein Engineering of  $\gamma$ -Glutamyl Transpeptidase from *Bacillus Licheniformis* ER15: Application in L-theanine Synthesis.**  
Supervisors: Dr. Rani Gupta  
Th 23590

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1. Introduction 2. Review of literature 3. Materials and methods 4. Results and discussion 5. Summary and conclusion 6. Bibliography.

02. KHERA (Lohit)  
**Role of Cellular Metastasis suppressor Nm-H1 in Hepatitis C Virus (HCV) Envelop (E1) Protein Mediated Tumorigenesis.**  
Supervisors: Prof. Rajeev Kau  
Th 23787

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1. Introduction 2. Review of literature 3. Material and methods 4. Results 5. Discussion and conclusion 6. Summary and future prospects. Bibliography. Appendices.

03. L. SHIVLATA  
**Production and Characteristics of Saccharogenic  $\alpha$ -Amylase of the Actinobacterium *Streptomyces Badius* DB-1.**  
Supervisors: Prof. Rani Gupta and T. Satyanarayana  
Th 23786

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1. Introduction 2. Materials and methods 3. Results. Discussions. Summary and Conclusions. Bibliography. Publications and presentations.

04. SHARMA (Cheshta)  
**Molecular Mechanisms of Triazole Antifungal Resistance in *Aspergillus Fumigatus* and *Aspergillus Flavus* Originating from Clinical and Environmental Sources.**  
Supervisors: Prof. Anuradha Choudhary and Prof. H. S. Randhawa  
Th 23587

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1. Azole resistant aspergillosis: A review of its epidemiology and molecular mechanisms  
2. Occurrence of triazole resistant aspergillus fumigatus and A. flavus in suspected broncho-pulmonary aspergillosis patients admitted in Delhi hospitals  
3. Environmental occurrence of triazole resistant aspergillus fumigates and A. flavus  
4. In vitro antifungal susceptibility profile of aspergillus fumigatus and A. flavus isolates  
5. Elucidation of mechanism of triazole resistance in aspergillus fumigatus and A. flavus. Overall summary and conclusions. Appendices. List of publications.

05. SHARMA (Vineeta)  
**Role of Host Genetic Factors in Gynecologic Infections – with Special Reference to Chlamydia Trachomatis.**  
Supervisors: Prof. V. G. Ramachandran and Dr. Mausumi Bharadwaj  
Th 23593

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1. Introduction. 2. Amis and objectives 3. Review of literature 4. Material and methods 5. Results 6. Duscussion 7. Summary and conclusion 8. Bibliography. Appendix. List of publication.

06. SINGH(Taru)  
**Detection of Multidrug Resistant Genes and Transcriptional Landscapes in Diarrheagenic and Commensal Strains of E. Coli from Faecal Isolates.**  
Supervisors: Prof. Shukla Das, Dr. V. G. Ramachandran and Dr. Arvind Rai  
Th 23594

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1. Introduction. 2. Review of Literature 3. Amis and objectives 4. Materials and methods 5. Objective1 6. Objective2 7. Objective3 8. Objective4 9. Objective5 10. Objective6 11. Summary and results. References. Annexures. List of publication.

07. SUMAN KUMAR  
**Investigating the Role of Cytokines and TLRs during Secondary Heterotypic Dengue Viral Infection.**  
Supervisors: Dr. Anita Chakravarti Dr. Preena Bhalla and Dr. Veena Mittal  
Th 23589

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1. Introduction 2. Aim and objectives 3. Review of literature 4. Material and methods 5. Results 6. Discussion 7. Summary and conclusion. References. List of publications.

08. PATI (Dybya Ranjan)  
**Nano-Therapeutic Application of small Interfering RNA and Micro RNA against Human Influenza Virus.**  
Supervisors: Prof. Madhu Khanna and Dr. A. C. Banerjea  
Th 23588

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1. Introduction. 2. Review of literature 3. Methodology 4. Results 5. Discussion and conclusion. Reference. Appendix. Publication and Awards.

09. PORWAL (Sharaddha)

**Phenotypic and Genotypic Indicators of Pre MDR Tuberculosis: Prediction of the Development of MDR Tuberculosis.**

Supervisor: Prof. Mandira Varma Basil and Prof. Rajendra Prasad  
Th 23591

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1. Introduction. 2. Review of literature 3. To study the prevalence of pre MDR and MDR strains of Mycobacterium tuberculosis in and around Delhi 4. To determine the frequency of specific mutations in the katG, inhA, rpoB, embB306, embB407, embB497, rpsL, rrs, eis and tlyA loci that lead to drug resistance in M. tuberculosis isolates 5. To study the minimum inhibitory concentration of antituberculous drugs on a panel of pre MDR strains of M. tuberculosis in an ex-vivo system and To study drug resistance mutations on the panel of pre MDR and MDR strains of M. tuberculosis in the tissue culture system when grown in the presence of antituberculous drugs. Summary and conclusions 8. References. Appendices. List of publications.

10. TYAGI (Gaurav)

**To Understand Biotin Metabolism in the Biology of Mycobacterium Tuberculosis.**

Supervisor: Prof. Mandira Varma-Basil, Prof. Mridula Bose and Prof. Ashok Kumar Prasad  
Th 23592

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1. Introduction. 2. Review of literature 3. To study the expression levels of the genes selected in silico of M. tuberculosis H37Rv in biotin free medium with glycerol or cholesterol as a carbon source 4. Overexpression of in silico selected genes in M. tuberculosis H37Rv and examining its effect on the growth of M. tuberculosis in the presence of glycerol or cholesterol 5. To quantify the biotin in overexpressed M. tuberculosis H37Rv grown in presence of glycerol and cholesterol in log phase and stationary phase. 6. To study the lipidomics of the overexpressed M. tuberculosis H37Rv in different growth phases of the bacterium. Summary and conclusions. References. Appendix. List of publications.