

CURRICULUM VITAE OF PROF. DR SHAHIDA HASNAIN

NAME: Dr. Shahida Hasnain
FATHER'S NAME: Sheikh Ghulam Hasnain
DESIGNATION: Professor & Chairperson
ADDRESS: Department of Microbiology & Molecular Genetics, Punjab University, Quaid-e-Azam Campus, Lahore-54590.
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EDUCATIONAL QUALIFICATION:

-B.Sc.	1969-71	Bot., Zool., Chem.	Punjab University
-M.Sc. (Botany)	1972-74	Research in Ecology (Session 1971-73)	Punjab University
-M.Sc.	1982-83	(Applied Genetics) Qualified towards Ph.D.	Birmingham University U.K.
-Ph.D.	1982-85	Microbial & Molecular Genetics	Birmingham University U.K.
Post-doctoral Research	1994-95	Molecular Microbiology	Birmingham University U.K.

DISTINCTIONS:

1. Awarded govt. merit Scholarship in Botany (1972-74)
2. 2nd position in the University in M.Sc. Botany
3. Awarded Govt. of Pakistan Central Overseas Scholarship in 1982-85 for higher studies (Ph.D) in UK.

AWARDS :

1. UNESCO/ROSTSCA Award for Young Scientist (from Central and South Asian region), 1988. Visited Jawarhar Lal Nehru University and Delhi Universities of India (22-31 August, 1989)
2. 2nd Award in Biology for 1994 in the Scheme Incentive for Publication organized by Pakistan Book Foundation.
3. Awarded National Education Award, 2005 by Pakistan Education Forum.
4. Awarded Fatima Jinnah Gold Medal, 2006, by Government of Punjab, Pakistan.
5. Awarded "Star Laureate 2007" in Science and Technology by South Asia Publications 2008.

POSTDOCTORAL FELLOWSHIP:

"Marrie Curie Fellowship: Awarded by Commission of European Communities for working on "Salt Tolerant Plasmid".
Jan. 1994 -Jan 1995. School of Biological Sciences, University of Birmingham, Birmingham, U.K.

TEACHING, RESEARCH AND PROFESSIONAL EXPERIENCE:

1. Director, School of Biological Sciences, Punjab University (May 18, 2011 - present)
2. Distinguish National Professor (HEC) 2010
3. Dean, Faculty of Life Sciences December 20th 2005 – December 19,2008; April 21, 2009 – May 17, 2011.
4. Professor Microbiology and Molecular Genetics on Tenure Track April 2007– May 17, 2011.
5. Member Syndicate University of the Punjab, Feb 6, 2007 – December 19, 2008.
6. Chairperson, Microbiology and Molecular Genetics Department, Punjab University (Nov. 08, 2002– May 17, 2011).
7. Chairperson, Botany Department, Punjab University (Oct. 26, 2002-Oct. 25, 2005).
8. Chairperson, Doctoral Programme Co Ordination Committee, November 2005 - present
9. Professor of Botany, Punjab University (Jan 8, 1998-2008).
10. Incharge Honeybee Research Farm PU, Nov 2003 – April 2005
11. Incharge Fish Research Farm PU, Nov 2003 – April 2005
12. Incharge Floriculture Research Farm PU, Nov 2004 – Nov 2006
13. Incharge Conventional and non-conventional Vegetable Farm, PU, May 2003 – Nov 2006
14. Research Fellow, School of Biological Sciences, Birmingham University, U.K. (Jan 31, 1994-Jan. 30, 1995).
15. Associate Professor of Botany, Punjab University (June 10, 1990-Jan. 7, 1998).
16. Assistant Professor of Botany, Punjab University (March 27, 1986-June 9, 1990).
17. Lecturer in Botany, Punjab University (September 25, 1975-March 26, 1986)

ESTABLISHMENT OF LABORATORY & NEW DEPARTMENT

1. Establishment of Microbial and Molecular Research Lab (1987-present), by UGC,NSRDB, PSF, PARC, S & T funds, some grant from University and form personal resources.
2. Establishment of Microbiology and Molecular Genetics Department in University of the Punjab, Pakistan, Lahore (in 2002). Currently four years B.Sc (Hons), M.Sc and Ph.D academic courses are running in the Department. (Building partially constructed)

RENOVATION OF BOTANICAL GARDEN AND BOTANY DEPARTMENT , PU

After taking over as Chairperson Botanical Garden , which was devastated, was renovated

ADMINISTRATIVE JOBS:

A. DEAN

1. Dean, Faculty of Life Sciences 20.12.2005 to 19.12.2008 and 21.04.2009— May 17, 2011.
2. Acting Dean, Faculty of Pharmacy April 2010 – May 17, 2011.
3. Acting Dean, Faculty of Science, 18.01.2011– May 17, 2011.

B. CHAIRPERSON OF DEPARTMENTS

1. Chairperson, Botany Department, Punjab University (Oct. 26, 2002- Oct 25,2005).
2. Chairperson, Microbiology and Molecular Genetics Department, Punjab University (Nov. 08, 2002 – May 17, 2011).
3. Chairperson Doctoral Program Coordination Committee , Nov 14, 2005 – present

C. STATUTORY BODIES OF THE UNIVERSITY

1. Elected member, Advanced Studies and Research Board, May 2003 – 2006. Nov 2005 – May 17, 2011 as Dean
2. Convener, Faculty Board Life Sciences, University of the Punjab, 2005- May 17, 2011..
3. Member Syndicate University of the Punjab, Feb 6, 2007 – December 19, 2008.
4. Member Board Of Faculty in Medicine and Dentistry, 2005 – 2008
5. Member, Board of Studies in Medicine and Dentistry 2007-present,
6. Member Board of Studies in Botany 1999-2002
7. Convener, Board of Studies in Botany 2002-2005
8. Member Board of Studies in MMG 2002— May 17, 2011.
9. Convener, Board of Studies in Microbiology and Molecular Genetics 2002-2011
10. Member Faculty Board in Faculty of Science 1998-2005
11. Member Senate January 1998— May 17, 2011.
12. Member Equivalence Committee, June 2004 - 2007..
13. Chairperson, Medical Advisory Committee PU, March 2011– May 17, 2011.

D. UNIVERSITY ADMINISTRATION

1. Member, Election Committee for compiling results of Punjab University Student Union, 1981.
2. Member, Election Committee (for ASA), 1981.
3. Member, Entertainment Committee for 23rd Urdu Science Conference, 1985. Organized by Punjab University.
4. Member, Decoration Committee for 23 Urdu Science Conference, 1985, organized by Punjab University.
5. Member, Seminar/Workshop Committee, Faculty of Science, PU, March 1999-2002.
6. Member, Security (internal & external) arrangement committee, (PU Convocation), 2000.
7. Member, Entertainment Committee (PU Convocation), 2000.
8. Member of Committee to consider and finalize all Research Projects and to Allocate Funds, Punjab University. (May 2003 - 2005)
9. Member Curriculum Advisory Board, Punjab University, June 2003
10. Member of Committee for Disbursement of HEC grant, Feb. 2004
11. Member, Committee to provide guidelines for developing uniform scheme of Studies for the teaching departments May 2004.
12. Chairperson, Committee for distributing Overseas Scholarships for Ph.D. to university teachers, 2004-2005.
13. Member , Admission Committee (PU) , since 2006
14. Chairperson subcommittee ASRB for finalizing issues relating Ph D registration 2006
15. Member, Committee for resolving issue of Girls Hostel 2006
16. Member Scholarship Committee for Faculty Development 2006
17. Chairperson Committee for resolving issue of Foreign Students in Hostel 2006 Chairperson, Committee for admission of Disables Students, January 2003 – 2007

18. Chairperson, Special Discipline Committee for the year 2003 to deal cases of indiscipline in girls Hostels 2006
19. Member Ethical Committee Punjab University, since 2006
20. Technical committee (Purchase) for the B.A/B.Sc Programme. 2007.
21. Chairperson, Purchase and Development Committee, Faculty of Life Science, P.U. Lahore., 2006 – May 17, 2011.
22. Member, Punjab University Budget Committee for the year 2006. – May 17, 2011.
23. Chairperson, Selection Committee for the appointment in the Research Project running in the Faculty of Life Sciences, 2006. – May 17, 2011.
24. Member, Selection Committee from BS-1 to 16, 2006-2008.
25. Member, Committee constituted by the Academic Council to finalize the degree format as per international standards besides preserving its historical and traditional value.2009.
26. Member, Committee for allocation of Merit/Needy Scholarship for the year 2007-2008.
27. Member, PU Admission /Implementation Committee, since 2005.
28. Member, Convocation Coordination Committee 2009, 2010.
29. Co-Opted Member, Admission in Ph.D Programme-Sessions 2009, 2010, School of Biological Science, University of the Punjab, Lahore.
30. Member, Committee for Implementation of CMS Rollout in PU, 2010 – May 17, 2011.
31. Member, Committee for the Development of Proposals for Post-Doctoral Fellowship Programme, 2010.
32. Member, Finance and Planning committee of the School of Biological Sciences, 2007 – May 17, 2011.
33. Member, Committee for distributing Overseas Scholarships for Ph.D. to university teachers, 2006-present
34. Member Committee for Implementation of Tenure Track System, 2007
35. Convener, Robes Committee (PU Convocation) 2007– May 17, 2011.
36. Member, A meeting of the Incentive Award Committee. since 2006
37. Chairperson project awarding committee, PU, March 2010 . – May 17, 2011.
38. Member, Admission Stalls Implementation Committee-2010, 2011.
39. Member, Committee to give its recommendation on the proposed changes in the numerical ranking for the appointment of Lecturer, Assistant Professor in the Selection Board.
40. Member, Committee to rationalize the demands for funds from Lump Sum Provision for Research in PU, since 2010 – May 17, 2011.
41. Chairperson committee to finalizing the stipend rates for countries not considered by HEC (for Ph D Scholarships)
42. Member, Technical Committee constituted by PU for evaluation of CEMB 2010
43. Member/Subject Expert, Qualification Equivalence Determination Committee (QEDC).
44. Member, Technical Committee for finalizing the specifications regarding procurement of Laboratory/Scientific Equipments & Chemicals during the financial year 2010-2011.
45. Member, Committee for resolving issues relating to the implementation of BS programme in six affiliated colleges, 2010
46. Chairperson, Committee to consider the issues / procedures related with Tenure Track System, 2011
47. Chairperson, Committee to recommend Advanced/ Annual increments to the faculty working under Tenure Track system, 2011.
48. Chairperson Management Committee for the Punjab University Jahlum Campus, since February 2011
49. Member, committee for filling the Performa for ranking of university, 2011

E. SEMESTER AND EXAMINATIONS

1. Semester Examination and Results in the Department, 1975-1978.(Botan Department)
2. Convener, Disciplinary Committee (Unfair means-PU), since March 2000 – 2003, 2005 - 2008. Incharge
3. Chairperson Monitoring Team, B.A./ B.Sc. Examination PU 2001(Team No 3), 2003(Team No 2)
4. Member, Semester Implementation Committee PU, August 2005 – present
5. Chairperson, Committee to scrutinize and verify the degree of the Incumbent parliamentarians received by HEC, 2010-2011.
6. Member, Monitoring Committee for BS (four years program) of Affiliated Colleges, 2011.

F. DEPARTMENTAL

7. Incharge, Departmental(Botany) Time Table, 1975-1982, Jan 1996-2005.
8. Overall Incharge of M.Sc. admission in the Department, 1981 and 1982.
9. Annual Stock taking of Department Library, 1981-82, 1986-88, 1991, 1993 and 1995-1998.
10. Supervised Annual Stock taking of Departmental Library, 1999, 2000, 2001
11. Member, Departmental (Botany) Admission Committee, 1986-88, March 1991-2002 (Convener, 1998-2002).
12. Member Department Time Table Committee, 1986-88, March 1991-Dec. 1995.

13. Member, Department Sports Committee, March 1995-98.
14. Establishment of Microbial and Molecular Research Lab in Botany Department(1987-2006), by UGC,NSRDB, PSF, PARC funds, some grant from University and form personal resources.
15. Member, Purchase Committee in the Botany Department, March 1991-Jan. 1994.
16. Student Advisor in the Botany Department, March 1991-Jan. 1994, 2001- 2006.

G. RESEARCH PROJECTS

1. Principal Investigator, PSF Project (Bio 153), 1987-90
2. Principal Investigator, UGC Project, 1991-92.
3. Principal Investigator, NSRDB Project 1991-94.
4. Principal Investigator of 3 project from PARC, Dec. 1995-Nov. 1996.
5. Principal Investigator of 2 collaborative projects from PARC, Dec. 1995-Nov. 1996.
6. Principal Investigator, PSF project (Bio 228), 1997-2000.
7. Principal Investigator, PU Project 1997-98, 1998-99, 2000, 2007, 2008, 2009, 2010, 2011
8. Principal Investigator, S & T Biotechnology project, 2001-2004.
9. Principal Investigator, HEC project No 20-139/ R&D /Acad/ 03, 2004 -2007
10. Member Committee for supervising HEC (Bovine Hormones) project in SBS 2004 – 2007
11. Principal Investigator, HEC project No 20-1034/ R&D /Acad/ 07, 2008 -2011
12. Principal Investigator, Pak-US project, 3-130/PAK-US/HEC/2008, 2008-2011
13. Principal Investigator, Project from Ministry of Health, 2009 -2011

H. OTHER UNIVRSITIES AND BOARDS

1. Member of the Appointment Committee on the Board of Intermediate and Secondary Education, Gujranwala, May 2003 – 2005, 2005-2007.
2. Member Board of Studies in Botany, Hazara University 2006- 2010
3. Member Board of Studies in Genetics, Hazara University 2006- present
4. Member Board of Studies in Botany, BZ University Multan 2008- 2009

I. SCIENTIFIC SOCIETIES

1. Vice President, Genetical Society of Pakistan Jan 1995-Dec. 1995; Jan 1996-Dec. 1998.
2. President, Genetical Society of Pakistan, Jan. 1999-2002.
3. Convener Editing and Publishing Committee, 7th national conference of Plant Scientists (Nov 14-16, 2000) PU

J. HEC CURRICULUM DEVELOPMENT

1. Member National Curriculum Revision Committee in Botany 2002
2. Member National Curriculum Revision Committee in Genetics 2002
3. Secretary National Curriculum Revision Committee in Botany 2005
4. Member National Curriculum Revision Committee in Bioinformatics 2007-2008.
5. Member National Curriculum Revision Committee in Biotechnology 2007 -2008

K. UNIVERSITY COMMERCIAL PROJECTS

1. Incharge, Conventional and Non-Conventional Vegetable Farming, Punjab University, May 2003 – Nov 2006:
2. Incharge Honeybee Farm PU, since Nov 2003 – April 2005
3. Incharge Fish Farm PU, since Nov 2003 – April 2005
4. Incharge Floriculture Research Farm PU, since Nov 2004 –Nov 2006

L. HEC/PUNJAB GOVERNMENT

1. Member Governor's Consultative Group, January 2007 - January 2008
2. Focal Person PU HEC Ph D students, since 2006
3. Member, Committee for suggesting Means and Modes for Improving Internal Administration in Public Sector Universities April 2007 – January 2008 (under Chancellor's directive)
4. Member, Standing Committee on Science & Technology since 2010
5. Member, Technical Committee constituted by Ministry of Science & Technology for evaluation of CAMB , 2010
6. Experts for Evaluation of Multidisciplinary Science Journals, HEC, 2011

M. OTHERS

1. Assistant Presiding Officer in Local Bodies Election 1979.
2. Proctor, Botanical Society, Punjab University, 1973 (Session 1971-1972)
3. Proctor, Botanical Society, Punjab University, 1974 (Session 1972-73).

SUBJECT TAUGHT TO POSTGRADUATE CLASSES:

- A: Botany Department:**
B.Sc Hons Biostats, Microbiology, Principles of Genetics, Microbial Genetics,
M.Sc.: Algae, Bryophytes, Comparative Pteridophytes and Gymnosperms, Embryology of Angiosperms, Morphogenesis, Radiation Biology, Biometry, Cytology, Cell Biology, General Genetics, Plant Breeding, Microbiology, Environmental Bacteriology.
M.Phil/ Ph.D: Essentials of Microbiology, Recombinant DNA Technology
- B: Zoology Department:** Genetics and Biometry (1991-1992).
- C: Institute of Biotechnology & Biochemistry Department:** Microbiology, 1998, 1999, 2000.
- D: Institute of Geology:** Microbiology to Diploma in Environmental Sciences.
Microbiology to M Sc in Environmental Sciences
- E: Department of Microbiology and Molecular Genetics**
B.Sc Hons Microbiology, Principles of Genetics, Microbial Genetics, Recombinant DNA Technology, Ethical issues in Genetics
M.Sc.: Microbiology, Principles of Genetics, Recombinant DNA Technology, Ethical issues in Genetics
Ph.D: Research Techniques, Problem solving - Genetics

COURSES FRAMED FOR POSTGRADUATE & UNDERGRADUATE CLASSES IN BOTANY:

- M.Sc.:** Algae, Bryophytes, Morphogenesis, Radiation Biology, Embryology of Angiosperms, Cell Biology, Biometry, General Genetics, Biometrical Genetics, Gene Manipulation, Molecular Biology of Genes, Environmental Bacteriology.
- M.Phil:** Essentials of Microbiology, Advances in Molecular Genetics, Recombinant DNA Technology, Biodegradation and Bioremediation.
- B.Sc (Hons):** Essentials of Microbiology, Environmental Bacteriology., Microbial & Molecular Genetics, Gene cloning, Genetics, Principles of Genetics, Biostat, Cytology, genetics and evolution, Recombinant DNA technology.

COURSES FRAMED FOR POSTGRADUATE & UNDERGRADUATE CLASS IN DEPARTMENT OF MICROBIOLOGY AND MOLECULAR GENETICS

- B.Sc (Hons)**
Fundamentals of Microbiology, Biochemistry ,Biostatistics, Principles of genetics, Biodiversity of Plants, Biodiversity of Animal, Biochemistry II, Ecosystem, Cell Biology, Microbial Genetics, Microbial Diversity, Virology, Microbial Physiology
Microbial Ecology, Molecular Biology, Immunology, Bacterial Metabolism, Environmental Microbiology, Recombinant DNA Technology, Medical Microbiology, Human Genetics, Molecular Mechanism of Gene Expression, Agricultural Microbiology, Industrial Microbiology I, Human Genetics Diseases & their Diagnosis, Gene Therapy, Genetic Counseling, Food Microbiology, Biophysics/Bioinformatics, Industrial Microbiology II, Ethical Issues of Genetics, Plant Molecular Genetics, Plant Biotechnology, Animal Biotechnology, Monoclonal Antibodies, Microbiology & Environmental Hazards, Probiotics, Biodegradation & Bioremediation, Biochemistry of Nucleic Acid, Plasmids, Episome & Insertion Sequences, Plant Diseases (Bacterial , Viral), Animal Diseases (Bacterial, Viral) ,Antiviral Agents, Oncology, Infectious Diseases, Downstream Technology, Veterinary Microbiology, DNA Damage, Repair & Carcinogenesis, Molecular Genetics of Yeast, Advanced Topics in Molecular Biology
- M.Sc**
Biochemistry, Cell Biology, Fundamental of Microbiology, Principles of Genetics, Virology, Biostatistics, Computer, Microbial diversity, Microbial Genetics, Bacterial Metabolism, Microbial Ecology, Microbial Physiology, Molecular biology, Immunology
Soil, Agricultural & Environmental Microbiology, Food Microbiology, Medical Microbiology, Human Genetics & Gene Expression, Bioinformatics, Plant Molecular Genetics, Plant Biotechnology, Animal Biotechnology, Monoclonal Antibodies, Microbiology & Environmental Hazards, Probiotics, Biodegradation & Bioremediation, Biochemistry of Nucleic Acid, Plasmids, Episome & Insertion Sequences, Plant Diseases (Bacterial , Viral), Animal Diseases (Bacterial, Viral) , Antiviral Agents, Oncology, Infectious Diseases, Downstream Technology, Veterinary Microbiology, DNA Damage, Repair & Carcinogenesis, Recombinant DNA Technology, Industrial Microbiology, Chromosomal Abnormalities / Genetic Counseling, Gene Therapy, Ethical Issues of Genetics
- M.S./Ph.D.** Research Techniques, Waste Water Treatment, Bioresources And Gene Pool Conservation, Lateral Dna Transfer, Microarray Technology & Its Applications, Molecular Basis Of Genetic Diseases, Ecological Genetics, Genome Analysis And Genomics, Molecular Biology And Human Diversity, Cellular And Molecular

Immunology, Molecular Infection Biology, Process Biotechnology Fundamentals, Environmental Ethics, Communicable Diseases Common To Man And Animals, Environmental Toxicology And Microbial Control, Dna Replication And Repair, Behavioral Genetics, Cancer Genetics, Aquatic Genetics, Human Genetics, Plant Breeding, Animal Breeding , Agrobiotechnology, Pharmaceutical Biotechnology, Molecular Virology, Biotechnology For Sustainable Development, Epidemiology, Microbial Safety And Public Health, Nanotechnology And Biological Systems, Fingerprinting And Dna Fingerprinting, Biosafety, Population Genetics, Islam And Genetics, Transgenesis, Biophysics And Computational Biology, Proteomics And Genomics, Soil and Agricultural Microbiology ; Advances in Molecular Genetics ; The Biochemistry of the Nucleic acids; Biosynthetic pathways in higher plants; Recombinant DNA Technology; Biodegradation and Bioremediation; Plant Tissue Culture and its agricultural applications; Biotechnology for sustainable development.; Environmental Bacteriology; Plant Breeding and Horticulture,; Plasmids, episomes and insertion sequences; Chromosomal abnormalities, Genetic counseling and gene therapy; Proteomics and genomics; Biohazards, Biosafety, Bioethics; Computational Biology, Biophysics and Bioinformatics; Challenges of a changing earth; Microbes, Man and the Environment

HEC LEVEL: Botany (BS, MSc), Microbiology (BS, MSc), Genetics (BS, MSc), Bioinformatics (BS), Biotechnology (BS, MSc)

CONTRIBUTION IN TEXT BOOK:

- 1 Chapter II of Class XI which comprised of
 - a. Classification of living things
 - b. Viruses
- 2 Afrasyab, S., Faisal, M. and Hasnain, S. 2007. Induction of Salinity Tolerance in Plants through Indigenous Bacteria. In: *Application of Biotechnology*, Aavishkar publishers distributors, India, pp98-119.
- 3 Ashraf Muhammad and Shahida Hasnain, 2009 Exo-polysaccharides producing bacteria of salt lands- a tiny weapon to combat salinity. LAMBERT Academic Publishing, available on Amazon.co

EDITOR/MEMBER ADVISORY COMMITTEE OF SCIENTIFIC JOURNALS:

1. Editor, Molecular Genetics and Biotechnology Section, Pakistan Journal of Genetics. January 1996-present.
2. Member, Advisory Committee, Pakistan Journal of Zoology. 1993-97.
3. Member, Advisory Committee, Science International (Lahore), 1993-present.
4. Member, Editorial Board, Pakistan Journal of Botany, since 1999.
5. Editor of one section – Cell Biology, Genetics, Microbiology, Pakistan Journal of Botany, since 2002.
6. Member Editorial Board, Journal of Microbial World, since 2005
7. Member Journal of Biotechnology and parasitological – open access, OMIICS Publishing Group, USA .since 2010
8. Chief Editor, Journal of Science, PU, January – May, 2011.

RESEARCH:

1. Ph.D. (1982-85). Construction and analysis of a novel gene bank of *Bacillus subtilis* in *E. coli*; cloning of *shd* and *gerE loci*.
2. Post-doctoral Research (1994-1995). Molecular genetic studies on plasmids associated with salt tolerant bacteria, University of Birmingham, UK.
Gene Bank Accession number of sequence of pSH1451:U5367.

3. Research Projects Completed:

- (i) Studies on the stability of hybrid plasmids carrying segments of *Bacillus subtilis* genome in *E.coli* financed by Pakistan Science Foundation for three years (1987-1990.)
- (ii) Molecular genetic analysis of *div* gene of *Bacillus subtilis* financed by National Science and Research Development Board for three years (1991-1994).
- (iii) Host range, host specificity and transformation efficiency of *Agrobacterium tumefaciens* from plants of Pakistan financed by University Grants Commission (1991-1992).
- (iv) Indigenous mercury resistant bacteria from polluted environment and some studies on plasmid mediated mercury resistance financed by PARC (Pakistan Agricultural Research Council), 1995-1996.
- (v) Evaluation of the role of chromate-resistant bacteria in improving plant growth under Cr-stress: financed by PARC, 1995-1996.
- (vi) Optimization of conditions for T-DNA in callus cultures of *Brassica oleracea* financed by PARC, 1995-1996.
- (vii) Some studies on genetic determinant conferring resistance to chromium in bacteria from industrial effluents PU, 1997-1998.
- (viii) Evaluation for the chromium removal/detoxification potentials of chromium resistant bacteria from industrial wastes PU, 1998-1999.

- (ix) Evaluation of the role of salt-tolerant bacteria in developing resistance of plants to salt stress conditions. Pakistan Science Foundation. July 1997-June 2000.
- (x) Germination response of *Bacillus subtilis* div mutants in ALA and AGFK systems PU, 1999-2000
- (xi) Evaluation of the role of salt-tolerant bacteria in developing resistance of plants to salt stress conditions, 2002, NDP
- (xii) Screening of Cr-resistant bacteria and cyanobacteria for detoxification potential and plant growth stimulation under chromium stresses 2002 – 2003, Biotechnology projects. Science and Technology for Economic Development program
- (xiii) Molecular characterization of hypertension related loci of local population PU, 2004-05.
- (xiv) Identification, Characterization of Drug resistant *E. coli* and its treatment: A perspective of Novel Antibacterial Agents under National Research Programme for Universities by HEC at a total cost of Rs.18,71,000/- for a period of three years.2003-2007
- (xv) Structure elucidation of novel antibiotics from local bacteria. Grant for collaborative work in Germany by HEC 2007-2008.
- (xvi) Enzymatic and molecular characterization of protease producing bacterial strain, Punjab University 2008.
- (xvii) Impact of osmolites on the growth of salt tolerant bacteria, Punjab University 2009. Genetic basis of noise induced hypertension, PU, 2010.
- (xviii) Antioxidant potential of some medicinal plants, PU 2011

4. Collaborative Research Projects:

Collaborator, Dr. A.R. Shakoori, Zoology Department, P.U.

- (i) “Indigenous salt tolerant bacteria from saline areas and some studies on the genetics of salt tolerance” financed by PARC, 1995-1996.
- (ii) “Screening of bacteria for plant growth stimulation under salt stress”, financed by PARC, 1995-1996.

1 Research Projects Approved:

- (i) “Molecular genetic analysis of salt tolerant plasmids” approved by USAID.1990 -- Collaborator Dr. Merna Vellarjo, Professor of Biochemistry, University of California, Davis, USA.
-- Because of political reason funding for Pakistan was not available.

6. Research Projects in hand:

- i) Bioremediation of chromium and arsenic from industrial waste waters, Pak-US S&T project, funded by HEC USAID (2008-2011)
- ii) Plant growth hormones from bacterial and cyanobacterial origin and its impact in tissue culture funded by HEC (2008-2011)
- iii) Structure elucidation of novel antibiotics from indigenous bacteria funded by Ministry of Health, 2009-2011.

7. Noval Plasmid Vector and Gene Bank

- i) PTC571
- ii) Gene Bank of *Bacillus subtilis*

8. DNA sequence of salt tolerant plasmid in Database

Gene Bank Accession number of sequence of pSH1451:U5367.

9 Bacterial Strains identified through DNA sequence analysis

Bacillus pumilus, *Ochrobactrum intermedium* (C32411), *Bacillus cereus* (C32412), *Ochrobactrum Intermedium* (C32413), *Brevibacterium epidermidis* (C32414), *Staphylococcus xylosus* (C32415), *Halomonas pacifica* (C32417), *Bacillus fusiformis* (C32418), *Bacillus subtilis* (C32419), *Bacillus subtilis* (C32420), *Bacillus cereus* (C32421), *Cytophaga hutchinsonii* (C32423), *Cytophaga hutchinsonii* (C32424), *Serratia plymuthica* (C32426), *Halomonas aquamarina* (C38694), *Ochrobactrum intermedium* (C38695), *Bacillus subtilis* (C38696), *Bacillus* sp. ChR-1 EU276629, *B. licheniformis* FiR-1 EU276630, *Bacillus* sp. NpR-1 EU276631, *B. megaterium* MiR-4 EU368168, *B. pumilus* DaR-2 EU190455, *B. circulans* CaR-3 EU190451, *B. pumilus* AaH-1 EU368170, *Bacillus* sp. EhH-5 EU368172, *Bacillus* sp. MtH-1 EU368173, *Bacillus* sp. CdH-3 EU190454, *B. subtilis* CaH-6 EU368171, *B. licheniformis* BP-1 EU368179, *B. cereus* EpP-2 EU368180, *B. subtilis* TpP-1 EU368182, *B. cereus* TpP-2 EU368183, *B. cereus* MpP-1 EU368181, *Pseudomonas alcaliphila* AvR-2 EU190452, *Pseudomonas* sp. AvH-4 EU190453, *P. aeruginosa* As-1 EU368174, *P. aeruginosa* As-7 EU368176, *P. aeruginosa* As-17 EU368175, *Micrococcus* sp. AvR-5 EU368178, *Escherichia hermannii* SnR-1 EU368169, *Staphylococcus saprophyticus* CdR-1 EU276627, *S. saprophyticus* CdR-2 EU276628,

10 Novel technologies

Plant growth stimulation with Bacteria

- i) Under salt stress – mono and mixed cultures identified
- ii) Under heavy metal stress- specially under chromium stress

Chromium reduction and removal process by

- i) Bacteria
- ii) Cyanobacteria

Use of Bacterial hormones in Tissue culture

M.Sc. THESES GUIDED: 93 in field of Microbiology and Molecular Genetics

M.Phil THESIS GUIDED: 14 (M.Sc. Hons/ MS / MPhil) **Working 3**

Sr. No.	Student's Name	Thesis Title	Year
1	Saima Mehdi Zaidi	Characterization of bacteria exhibiting antibacterial activity.	1999-2001
2	Kamran Shaukat	Impact of <i>Pseudomonas</i> , <i>Azotobacter</i> and <i>Azospirillum</i> strains on growth and yield of wheat and sunflower.	2000-02
3	Muhammad Hanif	Effect of varying temperature and pH on the growth, protein contents, protein profile and chromium reduction potential of chromium resistant bacterial strains.	2002-04
4	Basharat Ali	Screening of salt tolerant bacteria for Auxin production and its impact on plant growth.	2002-04
5	Sadia Salariya	Effect of curing agents on auxin, acid phosphatase and protein contents of salt tolerant bacterial strains.	2002-04
6	Attia Subhani	<i>In Vitro</i> organogenesis in hybrid cucumber	2005-06
7	Iram Nisar	Study of indigenous bacteria exhibiting antimicrobial activity & their role in plant growth.	2006-07
8	Sumaira Mazhar	Impact of Cr(VI) reducing cyanobacterial strains on the growth and biochemical parameters of <i>Phaseolus vulgaris</i> , <i>Oryza sativa</i> and <i>Triticum aestivum</i>	2006-07
9	Saima Riaz	Growth improvements of <i>Cicer arietinum</i> and <i>Lens esculenta</i> by <i>Ochrobactrum intermedium</i> , <i>Bacillus cereus</i> and <i>Brevibacterium</i> SP. Under chromium stress.	2006-07
10	Aisha naeem	Antimicrobial potential, cultural and physiological characteristics of <i>Streptomyces</i> isolated from rare source	2006-08
11	Hazir Rahman	Genetic analysis of male infertility in Pakistani population	2006-08
12	Noor Fatima	Screening of CFTR mutations in the local infertile population	2007-09
13	Shabana	Effect of FTO gene variants on familial obesity in local population	2008-10
14	Neelum Aftab	Genetic analysis of common CFTR mutations by SSCP and restriction digestion in local infertile population	2008-10

Ph.D. GUIDANCE:

A: Ph.D. Completed:

1. Molecular genetic analysis of *div* gene of *Bacillus subtilis*. (Anjum Nasim Sabri, 1997)
2. Host range, host specificity and transformation efficiency of *Agrobacterium tumefaciens* from plants of Pakistan. (Shams ul Hussnain Amir Qazi, 1997)
3. Characterization of plasmid conferring resistance to salt tolerant bacteria. (Azra Yasmin, 1998)
4. Heritability estimates genetics correlations and predicted gains from S₁ families in two random mated sunflower populations. (Wasim Hassan Shah, 2002)
5. Genetic studies in some Brassica species and their hybrids. (Habib Ahmad, 2003)
6. Evaluation of the role of salt tolerant bacteria on developing resistance of plants to salt stress (Shazia Afrasyab, 2004)
7. Genetical studies for determining the components of variation, their interrelationship for impotent economic trials in the intraspecific populations of upland cotton (Mohammad Aslam, 2005)
8. Screening of chromium resistant bacteria for detoxification potential and plant growth stimulation under chromium stresses. (Muhammad Faisal, 2005)

- 9 Chromium resistant Cyanobacteria from industrial waste: characterization, chromium accumulation and reduction potential. (**Abdul Hameed, 2007**)
- 10 Germination potentials of spore forming bacteria from various polluted and saline environments around Lahore (**Uqba Mahmood, 2007**)
- 11 Cr-resistant bacteria from industrial wastes: Genetic analysis, chromium accumulation and reduction potentials (**Sikander Sultan, 2007**)
- 12 Role of exopolysaccharide producing bacteria in improving fertility and crop productivity of salt affected soil (**Muhammad Ashraf Malik, 2007**)
- 13 Investigating of mating types and strains of *Phytophthora infestans* : the cause of late blight of potato. (**Javed Iqbal Mirza, 2008**)
- 14 The use of *Agrobacterium tumefaciens* as a possible biocontrol agent against some insects of economic value (Co Supervisor)(**Fauzia Qamar, 2008**).
- 15 Antimicrobial efficacy of some medicinal plants against selected poultry pathogen with emphasis on avian pathogenic *Escherichia coli* (**Najma Shaheen, 2008**).
- 16 Assessment of genetic variation and inheritance of yield and yield related traits in Lentil (*Lens culinaris* Medik) (**Muhammad Ashraf , 2009**)
- 17 Molecular characterization of Hypertension related genetic *Loci* of local population (**Farrukh Mehmood Alvi, 2009**).
- 18 Bacteria exhibiting antimicrobial activities: Screening for antibiotics and associated genetic studies (**Muaaz Al- Ajlani , 2010**)
- 19 Screening for antibiotics from indigenous streptomycetes their genetic and mutational analysis (**Imran Sajid, 2009**)
- 20 Molecular Genetic analysis of Cr-resistant Cyanobacteria from industrial wastes.(**Saiqa Razi submitted 2009**)
- 21 Auxin production by plant associated bacteria: their genetical studies and impact on plant growth.(Co Supervisor)(**Basharat Ali, 2009**).
- 22 Genetically Engineered Basmati Rice for resistance against Bacterial Blight. (**Ch. Zahid Mukhtar, 2010**).
- 23 Cyanobacterial Secondary Metabolites: Their Impact on Plant Growth and Fertility Status of Soil (**Mehboob Ahmed, 2011**)
- 24 Phytohormones Cytokinin and IAA from Microbial Origin and Their Impact on Plant Growth (**Anwar Hussain, April 2011**).
- 25 Characterization of pesticides degrading bacteria (**Farkhanda Jabeen, submitted November 2010,)**
- 26 Sociological impact of agroforestry in Punjab. (**Syed Muhammad Akmal Rahim, submitted November 2010,)**
- 27 Effects of noise on single nucleotide polymorphisms in genes related to hypertension.(**Kashif Nawaz submitted january2011)**

B. Work Under Progress:

Regular Ph.D program

- 1 Arsenic Oxidation Reduction Potential and Associated Genetic Analysis of Indigenous Bacteria from Polluted Environments (**Yasir**)
- 2 Indigenous Phytohormones producing cyanobacterial strains and their impact on plant growth and soil fertility(**Sumaira Mazhar**)
- 3 Auxin and cytokinin producing Rhizobacteria and their plant growth promoting potential.(**Atia Iqbal**)
- 4 Association analysis of genetic polymorphism with coronary heart disease(**Iqra Urooj**)
- 5 Antioxidant and antigenotoxicity effects of Cyanobacteria in human lymphocytes cultures. (**Saadia Ajaz,**)
- 6 Polymorphisms and mutational analysis of genes associated with Alzheimer's disease (**Mamoonah**)
- 7 Mutational analysis of genes associated with Obesity in local population (**Ms. Shabana**)
- 8 Exploration of microbiological aspects of blood bags especially platelets transfusion bags (**Hammad Tufail**)

Thesis Writing

- 1 Haemophilia: Molecular Insights into Carrier Detection and Pre-Natal Diagnosis (**Dr Rubina**)
- 2 Molecular Genetic analysis of Chromate Reductase enzymes of Indigenous Chromium Resistant Bacteria.(**Rida Batool old system**)
- 3 Enzymatic and Molecular Characterization of Protease Producing Bacterial Strains.(**Afia Ghafoor**)
- 4 Induction of salt tolerance and quality improvement in rice (*Oriza sativa*) through conventional breeding.(**Shabir Hussain – old system**)
- 5 Plant growth hormone cytokinin from bacterial and cyanobacterial origin and its impact in tissue culture.(**Ambreen Ahmad – old system**)