

C.V. OF PROF. DR. MUHAMMAD FAISAL



NAME: MUHAMMAD FAISAL
FATHER'S NAME: MUHAMMAD RAMZAN
DESIGNATION: PROFESSOR
ADDRESS TEMPORARY: DEPARTMENT OF MICROBIOLOGY & MOLECULAR GENETICS, UNIVERSITY OF THE PUNJAB, QUAID-E-AZAM CAMPUS, LAHORE-54590, PAKISTAN.
PERMANENT: TEHSIL GUJAR KHAN DISTRICT RAWALPINDI
DATE OF BIRTH: 16-11-1972
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ACADEMIC QUALIFICATION

| CERTIFICATE/ DEGREE | UNIVERSITY/BOARD | YEAR | SUBJECTS |
|---------------------|--|------|------------------------------------|
| Post-Doc | University of Canberra (Australia) | 2008 | Environmental Microbiology |
| Ph.D | University of the Punjab, Lahore, Pakistan | 2005 | Environmental Microbiology/ Botany |
| M.Sc | University of the Punjab | 1997 | Botany |

FIELD / SPECIALIZATION

Environmental Microbiology / Biotechnology/ Plant Sciences

TEACHING EXPERIENCE

| DESIGNATION | FROM | TO | WORK PLACE |
|---------------------------|-------------|-------------|--|
| Professor | 28-05-2016 | To-date | Department of Microbiology & Molecular Genetics, Punjab University |
| Assistant Professor (TTS) | 16-6-2008 | 27-05-2016 | Department of Microbiology & Molecular Genetics, Punjab University |
| Assistant Professor (BPS) | 23-01-2008 | 15-06-2008 | Department of Microbiology & Molecular Genetics, Punjab University |
| Lecturer (Full Time) | 03-01- 2006 | 22-01- 2008 | Department of Microbiology & Molecular Genetics, Punjab University |
| Lecturer (Full time) | 17-01- 2003 | 02-01- 2006 | Department of Botany, Punjab University |
| Lecturer (visiting) | Sept 2002 | 02-01-2006 | Department of Microbiology & Molecular Genetics, Punjab University |

THEORY / PRACTICAL COURSES TAUGHT

Principles of Genetics, Microbial Genetics, Quantative Genetics, Microbiology, Environmental Bacteriology, Biodegradation & Bioremediation, Environmental Microbiology, Problems in Plant

Anatomy, Plant Anatomy, Advanced Plant Anatomy, Microbial Wastewater treatment, Research Paper Writing skills, Problem based learning in Basic Genetics, Problem based learning in Molecular Genetics, General Genetics, Population Genetics, Atomic absorption spectrophotometry

RESEARCH INTEREST

1. **M.Sc:** Effect of growth regulators i.e. Indole-3-Acetic Acid & GA₃ on the external and internal morphology of root and hypocotyls of *Phaseolus vulgaris*. L. (Punjab University, Lahore)
2. **Ph.D:** Screening of Chromium Resistant Bacteria for detoxification potential and plant growth stimulation under chromium stresses. (Punjab University, Lahore)
3. **Post Doctorate:** Mechanisms of heavy metal detoxification by bacteria and plants using atomic absorption, ICP-MS. (University of Canberra, Australia)
4. **1996 – to date:** Research work related to Wastewaters treatment, Environmental Microbiology/ Biotechnology, Plant-Microbe-Interaction., Microbial Ecology and phylogenetics of Extremophiles, Bio-fortification,

RESEARCH PROJECTS AWARDED

Completed

| Sr. No | Title | Funding agency | Year | Duration | Amount Rs (million) |
|--------|---|---------------------------------|---------|----------|---------------------------|
| 1 | Toxic Cr (VI) Reduction in industrial wastes by Bacterial strains. (PI) | University of the Punjab | 2004 | 01 year | 0.17 |
| 2 | Removal of chromium from tannery effluents by bacteria. (PI) | University of the Punjab | 2006 | 01 year | 0.10 |
| 3 | Reduction of Cr (VI) by Bacterial cytosol. (PI) | DPCC, University of the Punjab, | 2007 | 01 year | 0.09 |
| 4 | Plant-Assisted Bioremediation of Arsenic in the Industrial Effluent. (PI) | University of the Punjab | 2008 | 01 year | 0.10 |
| 5 | Microbiological industrial wastewater treatment and plant growth promotion under heavy metal stress. (PI) | HEC, Pakistan | 2008 | 01 year | 0.531 |
| 6 | Elimination of Carcinogenic Cr (VI) By Microorganisms in Association with Hydrophytes. (PI) | HEC, Pakistan | 2007-10 | 03 year | 1.995 |
| 7 | Modern strategies to combat chromium pollution in industrial effluent. (PI) | HEC, Pakistan | 2010 | 01 year | 0.245 |
| 8 | Study of Diversity of selected bacterial communities present in | University of the Punjab | 2010 | 01 year | 0.125 |

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|----|---|--------------------------|---------|----------|-------|
| | Hot springs of Himalayan range. (PI) | | | | |
| 9 | Study of Desiccation Tolerant Bacteria From Cholistan Desert Pakistan. (PI) | University of the Punjab | 2011 | 01 year | 0.150 |
| 10 | Bioremediation of Chromium and Arsenic from industrial wastewater. (Co-Director). | HEC-USAID | 2008-11 | 03 years | 31.28 |
| 11 | Bacterial transformation of toxic Selenite (IV) to elemental Selenium (0) in wastewater/contaminated soil (PI) | HEC, Pakistan | 2010-12 | 02 years | 4.32 |
| 12 | Functional and Molecular Diversity of <i>Pinus roxburghii</i> Rhizospheric Bacterial Communities (PI) | University of the Punjab | 2012 | 01 year | 0.15 |
| 13 | Isolation and Characterization of Biosurfactant Producing Bacteria from Oil Contaminated Sites (PI) | University of the Punjab | 2013 | 1 year | 0.15 |
| 14 | Detoxification of heavy metal contaminated water by <i>Lemna minor</i> (Duckweed) in association with bacteria (PI) | University of the Punjab | 2014 | 1 year | 0.15 |
| 15 | Isolation and Characterization of selenium nano-particles from selenium resistant bacteria (PI) | University of the Punjab | 2015 | I year | 0.15 |
| 16 | Microbial degradation of petrol by <i>Bacillus</i> and <i>Enterobacter</i> species | University of the Punjab | 2016 | I year | 0.15 |
| 17 | Oil degradation potential of bacterial strains from indigenous environment | University of the Punjab | 2018 | I year | 0.15 |

InProgress

| Sr.No | Title | Funding agency | Year | Duration | Amount Rs (million) |
|-------|---|----------------|------|----------|---------------------|
| 01 | Bioremediation and removal of Arsenic as Arsenic sulfide by indigenous bacteria | HEC, Pakistan | 2019 | 02 Years | 4.7 |

HEC RECOMMENDED Ph.D RESEARCH SUPERVISOR

Higher Education Commission recommended Ph. D research supervisor in the field of Biological Sciences.

RESEARCH THESIS SUPERVISED

| Status | B.S/M.Sc | M.S/M.Phil | Ph.D | Total |
|--------------------|-----------|------------|-----------|-----------|
| Completed | 42 | 31 | 05 | 78 |
| In-progress | 00 | 00 | 05 | 05 |

B.S/M.Sc Completed

| Sr. No. | Name of student | Title | Year |
|---------|---------------------|---|------|
| 1 | Rizwan Ahmad | Effect of domestic wastewater on the chromium reduction ability of <i>Ochrobactrum intermedium</i> , <i>Brevibacterium</i> sp and <i>Bacillus cereus</i> . | 2007 |
| 2 | Imran Afzal | Effect of physiological inhibitors on the chromium reduction ability of <i>Ochrobactrum intermedium</i> , <i>Brevibacterium</i> sp and <i>Bacillus cereus</i> . | 2007 |
| 3 | Madiha Ikram | Biotransformation of selenite (VI) to elemental selenium (Se ⁰) by bacterial strains isolated from agricultural fields | 2008 |
| 4 | Sidra Tayyab Akhtar | Accumulation and reduction of Arsenic by bacteria isolated from industrial effluents | 2008 |
| 5 | Aslam Khan Ghalib | Microbial diversity in the various hot springs of Hunza valley Gilgit, Pakistan | 2009 |
| 6 | Sadia Bano | Ability of thermophilic bacteria to reduce Selenite (IV) and Chromate Cr(VI) into less toxic form | 2009 |
| 7 | Samman Ikram | Estimation of Cr(VI) reduction potential of bacteria isolated from tannery effluent | 2009 |
| 8 | Rida Tariq | Se Biofortification: A modern strategy to combat Se concentration in soil | 2010 |
| 9 | Shaiq Sultan | Isolation and characterization of coal residing Bacteria | 2010 |
| 10 | Anam | <i>Helianthus annuus</i> growth promotion by Se resistant bacterial strains | 2010 |
| 11 | Sobia Aslam | Biodiversity of bacterial flora residing in the rhizosphere of <i>Arachis hypogea</i> from upper Punjab | 2010 |
| 12 | Mehvish Ajaz | Diversity of bacterial population of surface, subsurface and deep soil of Salt Range | 2010 |
| 13 | Komal Amer | Variation in Population Occupancy of Bacterial strains at different Pollution Level | 2011 |
| 14 | Mahvish Akhtar | Effect of UV treatment on the toxin production and metal resistance abilities of <i>Bacillus</i> spp | 2011 |

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| 15 | Saima Javed | Biotransformation of Selenite to Elemental Red Selenium by indigenous bacteria | 2011 |
| 16 | Fahima Abdirehman | Isolation and characterization of antibiotic resistance bacteria from polluted soil of Kasur tanneries | 2011 |
| 17 | Sahra Isse Mohammad | Evaluation of Soil Physical and Chemical Properties on the Bacterial Multiple Metal and Antibiotic Resistances | 2011 |
| 18 | Farwa Zubair | Screening of Biosurfactant producing bacteria and their possible role in oil biodegradation | 2012 |
| 19 | Warda Anwar | Isolation and characterization of Biosurfactant bacteria from Oil drilling sites | 2012 |
| 20 | Ayesha Siddiqa | Transformation of selenite to elemental selenium by <i>Bacillus</i> spp | 2013 |
| 21 | Fatima Rehman | Reduction of Cr(VI) by bacterial isolated from metal contaminated soil | 2013 |
| 22 | Kokab Farooq | Characterization of Biosurfactant bacteria and their oil degrading potential | 2014 |
| 23 | Zumar Javed | Isolation and Characterization of Salt Tolerant bacteria from Khewara Salt Mine | 2014 |
| 24 | Hira Hanif | Isolation and characterization of antibiotic resistance bacteria from polluted environment | 2014 |
| 25 | Zona Mukhtar | Comparative assessment of hexavalent chromium reduction by Bacterial strains | 2014 |
| 26 | Sadjang | Characterization of Phosphate solubilizing bacteria from agricultural field | 2014 |
| 27 | Zainab Mir | Degradation of petrol by <i>Bacillus</i> and <i>Enterobacter</i> species | 2015 |
| 28 | Zainab Idrees | Microbial efficacy of phosphate solubilization and their application as biofertilizers | 2015 |
| 29 | Iffrah Atif Malik | Isolation and characterization of auxin producing bacteria and their effect on plant growth | 2016 |
| 30 | Rabisa Zia | Effect of mutagenesis on oil biodegradation ability of bacteria | 2016 |
| 31 | Iqra Alauddin | Phosphate solubilization potential of bacteria and their combined effect on plant growth | 2016 |
| 32 | Rotaba | Isolation, characterization and oil degrading ability of biosurfactant bacteria | 2017 |
| 33 | Amna Tahir | Reduction of selenite (IV) to elemental selenium Se(0) by bacteria isolated from polluted environment | 2017 |
| 34 | Ammara Ghous | Isolation and characterization of selenium resistant/reducing bacterial strains | 2018 |
| 35 | Rubab Naeem | Bacterial detoxification of carcinogenic chromate into less toxic trivalent chromium | 2018 |
| 36 | Saher Naseer | Isolation and characterization of biosurfactant bacterial strains | 2018 |
| 37 | Tayyaba Bhatti | Isolation and characterization of biosurfactant | 2019 |

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| | | producing bacteria and their role in oil biodegradation | |
| 38 | Sana Riasat | Characterization of metal detoxification potential of bacterial isolates from polluted sites | 2019 |
| 39 | Bisma Azam | Isolation of hydrocarbonoclastic bacteria from hydrocarbon contaminated sites of Riyadh and Balochistan | 2019 |
| 40 | Gul E Hina | Characterization and mobil oil degradation potential of biosurfactant producing bacteria | 2020 |
| 41 | Fizza Irfan | Petrol degradation study of bacterial isolates under different environmental conditions | 2020 |
| 42 | Isma Afzal | Isolation and characterization of auxin producing bacteria from plant rhizosphere and their role in seed germination | 2020 |

**M.S / M.Phil
Completed**

| Sr. No. | Name of student | Title | Year |
|---------|----------------------|--|------|
| 1 | Shaiza Iftikhar | Enzymatic reduction of carcinogenic chromate by bacterial strains isolated from chromium contaminated environment | 2005 |
| 2 | Sadia Ejaz | Role of Bacterial Strains in Conjunction with Hydrophytes for the removal of carcinogenic chromium | 2008 |
| 3 | Asma Hina | Comparative study of selenium accumulation in bacteria and yeast under different environmental conditions | 2008 |
| 4 | Yousra Saeed Malik | Detoxification of chromium contaminated water by <i>Lemna minor</i> (Duckweed) in association with thermophilic bacteria | 2009 |
| 5 | Fariha Zakaria Rizvi | Role of Heavy metal resistant bacteria for bioremediation of polluted environment | 2009 |
| 6 | Faiz Ahmed Raza | Study of desiccation tolerant bacteria from Cholistan desert, Pakistan | 2010 |
| 7 | Muhammad Yasin | Assessing the phytotoxicity of metal contaminated soil on <i>Helianthus annuus</i> and <i>Zea mays</i> growth | 2010 |
| 8 | Neelam Zia | Detoxification of Selenite to elemental selenium by exopolysacchride producing desert isolates | 2010 |
| 9 | Tayyaba Younas | Comparison of Rhizospheric Bacterial Communities of <i>Pinus roxburghii</i> | 2011 |
| 10 | Huma Nawaz | Screening of Biosurfactant producing Bacteria and their role in Oil Biodegradation | 2011 |
| 11 | Iqra Munir | Phylogenetic analysis of halotolerant L-Glutaminase producing bacteria from Kalar Kahar and their impact on plant growth promotion | 2012 |
| 12 | Munazafa Batool | Diversity of L-Asparaginase producing bacteria from Kallar Kahar Lake and their effect on <i>Vigna radiata</i> growth | 2012 |
| 13 | Samina Yasin | Comparative assessment of chromate reduction in whole cell | 2013 |

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| | | and cell free extract of <i>Cellulosimicrobium</i> and <i>Exiguobacterium</i> | |
| 14 | Siddra Maqbool | Reduction of selenite to less bioavailable elemental selenium by bacteria | 2014 |
| 15 | Fatima Rehman | Investigating impact of Lactic Acid Bacteria on Growth of <i>Triticum aestivum</i> L. | 2015 |
| 16 | Kokab Farooq | Effect of biologically and chemically synthesized selenium nanoparticles on growth of <i>Triticum aestivum</i> | 2016 |
| 17 | Aisha Siddiq | Investigation of Selenium biofortification in Lentil by <i>Bacillus</i> species | 2016 |
| 18 | Sidra Masood | Comparative assessment of chromate (VI) and selenite (IV) reduction by <i>Bacillus</i> spp | 2017 |
| 19 | Asma Zafar | Comparative assessment of bacterial isolates (biofertilizers) and chemicals fertilizers on the growth of <i>Triticum aestivum</i> under metal stress | 2018 |
| 20 | Naziah Maqbool | Selenite reduction potential of bacterial strains isolated from polluted soil | 2018 |
| 21 | Rubab Afzal | Reduction of sodium selenite to elemental selenium through microbial consortium (Co-supervisor: CEES, PU) | 2018 |
| 22 | Sameen Arzoo | Comparative assessment of metal resistant / reducing bacteria residing in industrial wastewater (Co-supervisor: CEES, PU) | 2018 |
| 23 | Ali Rehman | Optimization of biosurfactant producing bacterial strains for mobil oil biodegradation | 2019 |
| 24 | Amna Tahir | Synthesis, Characterization and Antimicrobial Activity of Silver Nanoparticles Synthesized from Plant Extracts | 2019 |
| 25 | Haseeba Yousaf | Characterization of Plant Growth Promoting Ability of Phosphate Solubilizing Bacteria | 2019 |
| 26 | Ifra Sohail | Isolation And Characterization of Selenium Degrading Bacteria and Evaluation of Their Biofortification Potential (Co-Supervisor) | 2019 |
| 27 | Amna Bashir | Bacterial selenium nanoparticle: Isolation, characterization and their applications | 2020 |
| 28 | Ifra Rehman | Characterization and application of biosurfactant producing bacteria in food industry | 2020 |
| 29 | Ayesha Sidiqa | Screening, characterization and enzymatic study of starch degrading thermophilic <i>Bacillus</i> spp | 2020 |
| 30 | Ifrah Sakhawat | Isolation and characterization of oil degrading bacteria and their metal resistance profile (Co-supervisor) | 2020 |
| 31 | Ayesha Nawaz | Determination of physical parameters of indigenous isolates and their chromium reduction potential (Co-supervisor) | 2020 |

Ph.D Completed

| Sr. No. | Name of student | Title | Year |
|---------|-----------------|--|------|
| 1 | Saba Riaz | Extended spectrum Beta-lactamases phenotypic and genotypic study | 2012 |
| 2 | Muhammad | Bacterial Enhanced Se-biofortification: Raising Selenium | 2015 |

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| | Yasin | Contents of Crops in Se-deficient Soils | |
| 3 | Fariha Zakaria Rizvi | Indigenous chromium resistant bacteria: Some molecular investigation of their chromate detoxification mechanism | 2016 |
| 4 | Huma Nawaz | Functional and genomic diversity of agriculturally important <i>Bacillus</i> from rhizosphere of wheat and maize | 2019 |
| 5 | Iqra Munir | Phosphate Solubilizing Bacteria: Their isolation, characterization and impact on plant growth. | 2019 |

PH.D THESIS IN PROGRESS

- **Zain-Ul-Abdeen. 2014.** Bacterial Selenium Biofortification: A strategy to improve Selenium content of crops (**thesis write up in progress**)
- **Saima Javed. 2015.** Isolation and characterization of biosurfactant producing bacteria and their potential role in oil biodegradation. (**thesis write up in progress**)
- **Ayesha Siddiq. 2016.** Agronomic biofortification of Selenium in crops using *Bacillus* strains (**research work in progress**)
- **ZiaUllah. 2016.** A multi-gene phylogenetic study of Mushrooms of Upper Swat valley, Khyber Pakhtunkhwa Pakistan. (**research work in progress**)
- **Tahir Mursaleen 2018.** (**synopsis write-up**)

M.PHIL/M.SC/B.S THESIS IN PROGRESS

RESEARCH CO-SUPERVISED

1. Toheed Ahmad (MSc) 2012: (University of Lahore, Lahore).
2. Riffat Yousuf: (B.S) 2012: (Uni of Veterinary and Animal Sciences, Lahore).
3. Rubab Afzal (B.S) 2012-16: (CEES, University of the Punjab)
4. Sameen Arzoo (B.S) 2012-16: (CEES, University of the Punjab)
5. Masooma Ali (B.S) 2017-18: (CEES, University of the Punjab)
6. Tabassum Shoukat (MSc) 2017-18: (CEES, University of the Punjab)
7. Monazza Nasir (MSc) 2017-18: (CEES, University of the Punjab)
8. Maeen Ijaz (MSc) 2017-18: (CEES, University of the Punjab)
9. Rubab Afzal (M.S) 2016-18: (CEES, University of the Punjab)
10. Sameen Arzoo (M.S) 2016-18: (CEES, University of the Punjab)
11. M Haseeb Arif (M.S) 2018-20: (MMG, University of the Punjab)
12. Rafia Mazhar (M.S) 2018-20: (MMG, University of the Punjab)

ACT AS EDITOR FOR SCIENTIFIC JOURNAL/S

Working as member editorial board of the journal/s

- *BioMed Research International*

ACT AS REVIEWER FOR SCIENTIFIC JOURNALS

Worked as reviewer for the following National / International Scientific Journals

- *Applied Microbiology and Biotechnology*-----Springer
- *Journal of Microbiology & Biotechnology*-----Korean Soc Microbiol. Biotechnol.
- *Hydrobiologia*-----Elsevier

- *Current Microbiology*-----Springer
- *Journal of Contaminant Hydrology*-----Elsevier
- *International Research Journal of Biotechnology*-----Interjournals Org
- *International Research Journal of Microbiology*-----Hindawi Publishing Co.
- *Journal of Chemistry Materials Sciences*-----Global Research Journals
- *Int. Res. J. Plant Sci*----- Interjournals Org
- *Pakistan Journal of Botany*-----Pak Botanical Soc
- *Journal of the Chemical Society of Pakistan*-----Chem Soc Pakistan
- *International Research Journal of Plant Sciences*---- Interjournals Org
- *Journal of Medicine and Medical Sciences*----- Interjournals Org
- *Journal of Public Health and Epidemiology*----- Academic Journals
- *Journal of Environmental Chemical Engineering*----Elsevier
- *Polish Journal of Environmental Studies*-----Poland
- *Bioremediation Journal*-----Taylor & Francis
- *Plos One*-----PLOS, USA
- *Environmental Geochemistry & Health*-----Springer
- *Plant Physiology and Biochemistry*-----Elsevier
- *Plant Physiology & Biochemistry*-----Elsevier
- *Journal of Infection and Public Health*-----Elsevier
- *Environmental Pollution*

PUBLICATIONS

A) Research Papers

| Sr. No | Year | Authors | Title of Paper | Journal Name | Country | IF/ CITES |
|--------|------|---------------------------|---|--|----------|-----------------------|
| 1 | 1999 | Faisal, M and Hasnain, S. | Gram-negative rod shaped bacteria exhibiting high level Resistance to Chromium | Proc. Pak. Cong. Zoo, 19: 121-132 | Pakistan | IF=0 Cite (03) |
| 2 | 2001 | Faisal, M and Hasnain, S. | Reduction of Toxic Hexavalent Chromium by Bacterial strains isolated from the effluents of tanneries. | Pakistan Journal of Botany, 33 (SI) 659-672 | Pakistan | 0.800 (04) |
| 3 | 2002 | Faisal, M and Hasnain, S. | Bacterial mediated aerobic reduction of toxic Cr (VI) in industrial effluents. | Pakistan Journal of Microbiology, 2: 27-32. | Pakistan | -- |
| 4 | 2003 | Faisal, M and Hasnain, S. | Synergistic Removal of Cr (VI) by <i>Eichornia crassipes</i> in conjunction with Bacterial Strains. | Pakistan Journal Biological Sciences, 6 (3): 264-268 | Pakistan | -- (21) |
| 5 | 2003 | Faisal, M and Hasnain, S. | Accumulation and Reduction of Cr (VI) in industrial effluent by <i>Bacillus</i> Sp- strain CrM-1. | Pakistan Journal of Botany, 35(5): 797-804 | Pakistan | 0.800 -- |
| 6 | 2004 | Faisal, M and Hasnain, S. | Bacterial Role in the Reduction of Toxic Cr (VI) in to Cr (III). | Chinese Journal of Biotechnology, 20 (5): 774-778 | China | -- |

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|----|------|--------------------------------------|---|--|----------|------------|
| 7 | 2004 | Faisal, M and Hasnain, S. | Microbial Conversion of Cr(VI) in to Cr(III) in Industrial Effluent. | African Journal of Biotechnology, 3 (11): 610-617. | Africa | 0.00 (124) |
| 8 | 2004 | Faisal, M and Hasnain, S. | Comparative Study of Cr(VI) Reduction in Industrial Effluent by <i>Ochrobactrum intermedium</i> vs. <i>Brevibacterium</i> sp. | Biotechnology Letters, 26 (21): 1623-1628 | U.K | 1.977 (65) |
| 9 | 2004 | Faisal, M and Hasnain, S. | Isolation and Characterization of Chromium Resistant Bacteria from Polluted Environment. | An International Journal of Earth and Life Sciences, 2 (4): 38-45 | Pakistan | -- -- |
| 10 | 2005 | Faisal, M and Hasnain, S. | Chromate Resistant <i>Bacillus cereus</i> improves Sunflower Growth by Reducing the Toxicity of Cr (VI). | Journal of Plant Biology, 48(2): 187-194 | Korea | 1.529 (28) |
| 11 | 2005 | Faisal, M and Hasnain, S. | Bacterial Cr (VI) reduction concurrently improves <i>Helianthus annuus</i> growth. | Biotechnology Letters, 27(13): 943-947 | U.K | 1.977 (64) |
| 12 | 2005 | Faisal, M; Hameed, A and Hasnain, S. | Chromium resistant bacteria and cyanobacteria: Impact on Cr(VI) reduction potential and plant growth. | Journal of Industrial Microbiology & Biotechnology, 32(12): 615-621 | USA | 2.824 (42) |
| 13 | 2005 | Faisal, M and Hasnain, S. | Beneficial role of hydrophytes in removing Cr(VI) from wastewater in association with chromate-reducing bacterial strains <i>Ochrobactrum intermedium</i> and <i>Brevibacterium</i> . | International Journal of Phytoremediation , 7(4): 271-277 | USA | 2.528 (09) |
| 14 | 2005 | Faisal, M and Hasnain, S. | Colonization of <i>Vigna radiate</i> roots by chromium resistant bacterial strains <i>Ochrobactrum intermedium</i> , <i>Bacillus cereus</i> and <i>Brevibacterium</i> sp. | Chinese Journal of Applied and Environmental Biology, 11(5): 528-530 | China | -- (01) |
| 15 | 2005 | Faisal, M and Hasnain, S. | Growth improvements of Sunflower seedlings by Cr(VI)-resistant bacteria. | Iranian Journal of Biotechnology, 3(4): 114-120 | Iran | 0.973 (07) |
| 16 | 2005 | Faisal, M and Hasnain, S. | Reduction of mobile Cr(VI) under different environmental conditions. | Science International, 27(3): 271-277 | Pakistan | -- -- |
| 17 | 2006 | Faisal, M and Hasnain, S. | Growth stimulatory effects of <i>Bacillus cereus</i> and <i>Ochrobactrum intermedium</i> on <i>Vigna radiata</i> plants | Letters in Applied Microbiology, 43: 461-466 | U.K | 2.117 (53) |
| 18 | 2006 | Faisal, M and | Colonization of <i>Triticum aestivum</i> | Journal of Plant | USA | -- |

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|----|------|---|--|---|----------|------------|
| | | Hasnain, S. | and <i>Helianthus annuus</i> roots by chromium resistant bacterial strains <i>Ochrobactrum intermedium</i> , <i>Bacillus cereus</i> and <i>Brevibacterium</i> sp. | Sciences, 1(1): 36-41 | | (01) |
| 19 | 2006 | Faisal, M and Hasnain, S. | Detoxification of Cr (VI) by <i>Bacillus cereus</i> S-6. | Research Journal of Microbiology, 1 (1): 45-50. | USA | -- (18) |
| 20 | 2006 | Faisal, M and Hasnain, S. | Plant growth promotion by <i>Brevibacterium</i> under chromium stress. | Research Journal of Botany, 1(1): 24-29. | USA | -- (09) |
| 21 | 2006 | Faisal, M and Hasnain, S. | Hazardous impact of chromium on environment and its appropriate remediation | Journal of Toxicology and Pharmacology, 1(3): 248-258 | USA | -- (12) |
| 22 | 2007 | Iftikhar, S., Faisal, M and Hasnain, S. | Cytosolic reduction of Toxic Cr(VI) by indigenous Microorganism. | Research Journal of Environmental Sciences, 1(2): 77-81 | USA | -- (12) |
| 23 | 2007 | Iqbal, U., Mehmood, S., Faisal, M and Hasnain, S. | Chromosomal analysis of girls with short stature and puberty failure. | Trends in Medical Research, 2(4): 204-207 | USA | -- (02) |
| 24 | 2007 | Anwar, S., Sabri, A.N., Rehman, H., Faisal, M and Hasnain, S. | Impact of Temperatures and pH on Soluble Protein Content and Protein Profile of PY79 (Wild Type) and Sporulation Defective Mutant Strains of <i>Bacillus</i> . | Research Journal of Microbiology, 2(11): 866-870 | USA | -- (01) |
| 25 | 2007 | Zaidi, S., Yasmin, A., Faisal, M and Hasnain, S. | Inoculation effect of bacteria isolated from <i>Trianthema partulacastrum</i> , <i>Rumex dentatus</i> , and <i>Coronopus Didymus</i> plants on <i>Vigna radiata</i> seedlings. | World Journal of Agricultural Sciences, 3 (6): 796-800 | Pakistan | -- (01) |
| 26 | 2008 | Muhammad, K., Yasmin, A., Rehman, H., Faisal, M and Hasnain, S. | Growth responses of <i>Vigna radiata</i> to arid land bacteria exhibiting antimicrobial activity. | Research Journal of Environmental Sciences, 2(2): 139-144 | USA | -- -- |
| 27 | 2010 | Afrasyab, S., Faisal, M and Hasnain, S. | Comparative study of Wild and transformed salt tolerant bacterial strains on <i>Triticum aestivum</i> growth under salt stress. | Brazilian Journal of Microbiology, 41 (4): 946-955. | Brazil | 2.428 (22) |
| 28 | 2010 | Ikram, M and Faisal, M. | Comparative assessment of selenite (SeIV) detoxification to elemental selenium (Se0) by <i>Bacillus</i> sp. | Biotechnology Letters 32: 1255-1259 | U.K | 1.977 (31) |

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|----|------|--|--|---|---------|-------------|
| 39 | 2010 | Riaz, S, Faisal, M and Hasnain, S | <i>Cicer arietinum</i> growth promotion by <i>Ochrobactrum intermedium</i> and <i>Bacillus cereus</i> in the presence of CrCl ₃ and K ₂ CrO ₄ . | Annals of Microbiology, 60: 729-733. | Italy | 1.528 (10) |
| 30 | 2011 | Rehman, Y., Rizwan, M., Faisal, M and Hasnain, S. | Seasonal Effects of Domestic Wastewaters on the Cr (VI) Reduction Potential of <i>Bacillus cereus</i> S-6 and <i>Ochrobactrum intermedium</i> CrT-1. | Biology and Environment, 111 (1): 33-40. | Ireland | 0.654 (05) |
| 31 | 2011 | Riaz, S., Faisal, M., Hasnain, S. | Antibiotic susceptibility pattern and multiple antibiotic resistances (MAR) calculation of extended spectrum β -lactamase (ESBL) producing <i>Escherichia coli</i> and <i>Klebsiella</i> species in Pakistan | Afr. J Biotechnol, 10(33):6325-6331 | Africa | 0.573 (34) |
| 32 | 2011 | Riaz, S., Faisal, M., Hasnain, S and Khan, N.A. | Antibacterial and Cytotoxic Activities of <i>Acacia nilotica</i> Lam (Mimosaceae) Methanol Extracts Against Extended Spectrum Beta-Lactamase Producing <i>Escherichia coli</i> and <i>Klebsiella</i> Species | Tropical Journal of Pharmaceutical Research, 10(6):785-791 | Nigeria | 0.504 (11) |
| 33 | 2012 | Riaz, S., Faisal, M., Hasnain, S. | Prevalence and comparison of Beta-lactamase producing <i>E. coli</i> and <i>Klebsiella</i> spp from clinical and environmental sources in Lahore, Pakistan. | Afr J Microbiol Res, 6(2): 465-470. | Africa | 0.539 (23) |
| 34 | 2012 | Sheik, CK., Mitchell, T.W., Rizvi, F.Z., Faisal, M., Hasnain, S., McInerney, M.J, and Krumholz, L.R. | Exposure of soil microbial communities to Chromium and Arsenic alters their diversity and structure. | Plos One 7(6): 1-13. e40059. doi:10.1371/journal.pone.0040059 | USA | 2.740 (125) |
| 35 | 2012 | Kiran, M., Afrasayab, S., Abbas, Z., Faisal, M. and Hasnain, S. | Plant growth promoting capability of <i>Azotobacter</i> as mono and mix culture on <i>Vigna radiata</i> | Afr J Microbiol Res, 6: 1291-1296. | Africa | 0.539 (03) |
| 36 | 2012 | Yasin, M and Faisal, M. | Comparative analysis of tannery-effluent contaminated soil and mixed culture bacterial inoculation on <i>Helianthus annuus</i> L. growth | Journal of Chemical Society of Pakistan 34(6): 1573-1577 | Pak | 0.300 |
| 37 | 2012 | Sultan, S., Mubashar, K | Uptake of toxic Cr (VI) by biomass of exo-polysaccharides | Afr J Microbiol Res, 6: 3329- | Africa | 0.539 (14) |

| | | | | | | |
|----|------|--|--|---|-----------|------------|
| | | and Faisal, M. | producing bacterial strains | 3336. | | |
| 38 | 2013 | Yasin, M and Faisal, M. | Assessing the phytotoxicity of tanneries waste contaminated soil on <i>Zea mays</i> (Lin) growth. | Polish Journal of Environmental Studies 22(6):1871-1876. | Poland | 1.383 (04) |
| 39 | 2013 | Ejaz, S., F.Z.Rizvi, S, Anwar. Faisal, M. | Biotransformation potential of hexavalent chromium by <i>Bacillus pumilus</i> -S4, <i>Pseudomonas doudoroffii</i> -S5 and <i>Exiguobacterium</i> -S8 in association with hydrophytes | International Journal of Environmental Science and Technology, 10: 709-718. | Iran | 2.540 (05) |
| 40 | 2013 | Yasir, R., Rizvi, F.Z., Faisal, M and Hasnain, S | Arsenic and Chromium Reduction in Co-Cultures of Bacteria Isolated from Industrial Sites in Pakistan | Microbiology, 82(4): 428-433. | Russia | 0.945 (11) |
| 41 | 2013 | Yasin, M., Faisal, M and Sultan, S. | Growth responses of <i>Triticum aestivum</i> after inoculating with <i>Pseudomonas</i> and <i>Stenotrophomonas</i> | Afr J Microbiol Res, 7: 1952-1956. | Africa | 0.0 (02) |
| 42 | 2013 | Reza, F.A and Faisal, M | Growth promotion of maize by desiccation tolerant <i>Micrococcus luteus</i> -chp37 isolated from Cholistan desert, Pakistan | Australian Journal of Crop Sciences, 7(11):1693-1698. | Australia | 0.00 (16) |
| 43 | 2013 | Faisal, M | Inoculation of Plant Growth Promoting Bacteria <i>Ochrobactrum intermedium</i> , <i>Brevibacterium</i> sp. and <i>Bacillus cereus</i> Induce Plant Growth Parameters | Journal of Applied Biotechnology, 1:45-53 | USA | 0.00 (07) |
| 44 | 2013 | Anam, Qureshi, A.H and Faisal, M | Beneficial impact of selenium resistant bacteria on selenium contaminated soil and plant growth | Punjab University Journal of Zoology, 28(2): 55-60 | Pak | 0.00 |
| 45 | 2014 | Ghalib, AK, Yasin, M., Faisal, M | Characterization and Metal Detoxification Potential of Moderately Thermophilic <i>Bacillus cereus</i> from Geothermal Springs of Himalaya | Brazilian Archive of Biology and Technology, 57: 554-560. | Brazil | 0.579 (04) |
| 46 | 2014 | Yasin, M., Faisal, M | Comparative effect of Selenium and Selenium tolerant microbes on <i>Brachiaria reptans</i> L. growth | Pakistan Journal of Botany, 46(6): 2293-2296. | Pak | 0.800 -- |
| 47 | 2014 | Faisal, M | Detoxification of carcinogenic Cr (VI) by combined action of <i>Bacillus pumilus</i> -S4 and <i>Pseudomonas doudoroffii</i> -S5 in associated with hydrophytes | Journal of Pure & Applied Microbiology, 8(6): 4289-95. | India | 0.073 -- |
| 48 | 2014 | Siddiq, A., | Selenite detoxification by <i>Bacillus</i> | Journal of | China | |

| | | | | | | |
|----|------|--|---|---|------------|------------|
| | | Sultan, S and Faisal, M | spp isolated from indigenous polluted sites | Environment & Earth Sciences, 4: 196-201. | | |
| 49 | 2015 | Yasin, M., El-Mehdawi, AF., Jahn, CE., Anwer, A., Turner, MFS., Faisal, M and Pilon-Smith, EAH | Seleniferous soils as a source for production of selenium-enriched foods and potential of bacteria to enhance plant selenium uptake | Plant and Soil, 386(1): 385-394. | Netherland | 3.299 (31) |
| 50 | 2015 | Naseem, S. Yasin, M., Ahmed, A and Faisal, M | Chromium accumulation and toxicity in Corn (<i>Zea mays</i> L.) seedling | Polish Journal of Environmental Studies 24(2): 899-904. | Poland | 1.383 (02) |
| 51 | 2015 | Yasin, M., El-Mehdawi, A., Anwar, A., Elizabeth Pilon-Smiths and Faisal, M | Microbial-enhanced selenium and iron biofortification of wheat (<i>Triticum aestivum</i> L.)- applications in phytoremediation and biofortification | International Journal of Phytoremediation , 17(4):339-341. | USA | 2.528 (40) |
| 52 | 2015 | Yasin, M., El-Mehdawi, AF., Pilon-Smith, EAH and Faisal, M | Selenium-fortified wheat: Potential of microbes for biofortification of selenium and other essential nutrients | International Journal of Phytoremediation , 17(8): 777-786. | USA | 2.528 (13) |
| 53 | 2015 | Rehman, F and Faisal, M | Estimation of toxic hexavalent chromium reduction potential of <i>Bacillus pumilis</i> , <i>Cellulosimicrobium cellulans</i> and <i>Exiguobacterium</i> | Chinese Journal of Oceanology and Limnology, 33: 585-589. | China | 1.068 (06) |
| 54 | 2015 | Younis, T and Faisal, M. | Functional and genomic diversity of <i>Pinus roxburghii</i> rhizospheric bacteria and their potential role in plant growth promotion. | Research Journal of Biotechnology, 10(3): 54-61. | India | 0.242 -- |
| 55 | 2015 | Reza, F.A., Amin, A and Faisal, M | Characterization of desiccation tolerant rhizobacteria from Cholistan desert, Pakistan: Their impact on growth of <i>Zea mays</i> L | Polish Journal of Environmental Studies, 24(4): 223-231. | Poland | 1.383 --- |
| 56 | 2015 | Ahmad, T., Faisal, M., Iqbal, S., Khalil, M and Qazi, M.H | Factors affecting detoxification of hexavalent chromium into trivalent in industrial effluents by indigenous bacteria | Journal of Environment and Earth Science, 5(15): 111-118. | China | -- |
| 57 | 2015 | Javed, S., Sarwar, A., | Conversion of selenite to elemental selenium by indigenous | Chemical Speciation & | U.K | 2.077 (04) |

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|-----------|------|--|---|--|-------------|-----------------------------|
| | | Tassawar, C. and Faisal, M | bacteria isolated from polluted areas | Bioavailability, 27(4): 162-168. | | |
| 58 | 2016 | Akhtar, M., Siddiqa, A and Faisal, M | Impact of UV treatment on Exotoxin production by <i>Bacillus</i> species | Research Journal of Biotechnology, 11(9): 8-15. | India | 0.242 -- |
| 59 | 2016 | Rizvi, F.Z., Kanwal, W., Faisal, M | Chromate reducing profile of bacterial strains isolated from industrial effluents of Punjab, Pakistan | Polish Journal of Environmental Studies, 25(5):1-8 | Poland | 1.383 (04) |
| 60 | 2016 | Sultan, S and Faisal, M | Isolation and Characterization of Iron and Sulfur Oxidizing Bacteria from Coal Mines | Journal of Environment and Earth Sciences, 6(3): 153-157 | China | -- |
| 61 | 2016 | Nasim, S., Yasin, M., Faisal, M and Ahmed, A | Comparative Study of Plant Growth Promoting Bacteria in Minimizing Toxic Effects of Chromium on Growth and Metabolic Activities in Wheat (<i>Triticum aestivum</i>) | Journal of Chemical Society of Pakistan, 38(3): 509-516 | Pak | 0.300 (01) |
| 62 | 2017 | Nawaz, H and Faisal, M | Diversity of <i>Bacillus</i> sp. isolated from rhizosphere of Corn and Wheat for their use as potential plant growth promoting bacteria | Research Journal of Biotechnology, 12(3): 53-59. | India | 0.242 |
| 63 | 2018 | Khan, WA., Yasin, NA., Ahmad, SR., Ali, A., Ahmad, A., Faisal, M | Role of <i>Burkholderia cepacia</i> CS8 in Cd-stress alleviation and phytoremediation by <i>Catharanthus roseus</i> | International Journal of Phytoremediatio, 20(6):581-592 | USA | 2.528 (03) |
| 64 | 2018 | Mehmood U and Faisal, M | Bacterial flora of Arachis hypogea plants from Punjab Pakistan | Int J Sci Basic Appl Res, 40(2): 78-86. | - | - |
| 65 | 2019 | Bano, A., Munir, I and Faisal, M | Impact of Phosphate Solubilizing Bacteria on Wheat (<i>Triticum aestivum</i>) In The Presence of Pesticides | Brazilian Journal of Biology, 79 (1): 29-37. | Brazil | 1.266 |
| 66 | 2019 | Ullah, Z., Jabeen, S., Faisal, M., Ahmad, H and Khalid, AN | <i>Leucoagaricus brunneus</i> sp. nov. from Khyber Pakhtunkhwa, Pakistan | Mycotaxon, 134: 601-611. | USA | 0.538 |
| 67 | 2020 | Shahid, S., Aslam, M.A., Ali, S., Zameer, M., Faisal, M | Self-Healing of cracks in Concrete using <i>Bacillus</i> strains encapsulated in Sodium alginate beads | ChemistrySelect, 5: 312-323 | Europe | 1.811 |
| 68 | 2020 | Ullah,Z; Khurshed, R; | <i>Melanoleuca kashmirensis</i> sp. nov. in subg. Urticocystis from Pakistan | Phytotaxa, 434 (1): 89-100 | New Zealand | 1.007 |

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|---|------|--|--|--|--------|-------|
| | | Khan, MB; Ahmad, I; Jabeen, S; Faisal, M; Ahmad, H; Fiaz, M; Khalid, AN. | | | | |
| 69 | 2020 | Zaheer, A., Munir, I and Faisal, M | Diversity of Phosphate Solubilizing Bacteria and their plant growth promoting attributes for the maintenance of sustainable agriculture system | Polish Journal of Environmental Studies (Accepted) | Poland | 1.383 |
| 70 | 2020 | Ayesha, S., Munir, R and Faisal, M | Antitumor effect of sodium selenite on acute lymphocytic leukemia | Journal of Cancer Research and Therapeutics, 15: xx-xx | India | 1.326 |
| Total Cites: 1000+ IF=56.328+2.989 = 59.317 | | | | | | |

B) Research Paper/s in Proceedings

1. Neelam Zia and Muhammad Faisal. 2014. Detoxification of Selenite to Elemental Selenium by Exo-polysaccharides producing desert isolates. pp. 690-697. *EurAsia Waste Management Symposium, 28-30 April 2014, YTU 2010 Congress Center, İstanbul/Türkiye.*

C) Book/s

1. Huma Nawaz and Muhammad Faisal. 2012. Biosurfactant producing Bacteria: Screening and role in oil biodegradation. ISBN 978-3-659-16195-7. LAP Lambert Academic Publishing

D) Book Chapters in International Books (Springer, Elsevier, Taylor & Francis)

| <u>S. No</u> | <u>Year</u> | <u>Title of Chapter</u> | <u>Publisher</u> |
|--------------|-------------|--|------------------|
| 1 | 2007 | Afrasyab, S; Faisal, M and Hasnain, S. 2007. Induction of Salinity Tolerance in Plants through Indigenous Bacteria. Applications of Biotechnology Published by Avishankar Publisher India | Avishankar |
| 2 | 2014 | Muhammad Yasin, Muhammad Faisal and E.A.H. Pilon-Smits. 2013. Microbial-enhanced selenium biofortification of Wheat (<i>Triticum aestivum</i> L.). In: Selenium in the environment and human health (Gary S. Banuelos, Zhi-Qing Lin, Xuebin Yin), CRC Press, Taylor & Francis Group, USA. ISBN 978-1-138-00017-9. | Taylor & Francis |
| 3 | 2016 | Yasin M, El-Mehdawi AF, Faisal M. & Pilon-Smits EAH. 2015. Microbe-assisted selenium phytoremediation and phyto-management of natural seleniferous areas. Eds: Gary S. Banuelos et al. Selenium in the environment and human health. CRC Press 2015. pp 199-200, ISBN-978-1-138-02731-2. DOI:10.1201/b19204-101 | Taylor & Francis |
| 4 | 2016 | Muhammad Yasin, Iqra Munir and Muhammad Faisal. 2016. Can | Springer |

- Bacillus* spp enhance K⁺ uptake in crops species pp163-170. In: Potassium Solubilizing Microorganisms for Sustainable Agriculture, V.S. Meena *et al.* (eds). Springer 2016. DOI 10.1007/978-81-322-2776-2_12
- 5 **2016** Iqra Munir and Muhammad Faisal. 2016. Plant Growth Promoting Bacteria: A good source for phytoremediation of metal contaminated soil. In: Phytoremediation. Management of Environmental Contaminants, Volume 4. By AA Ansari, SS Gill, R Gill, GR Lanza, L Newman. Springer ISBN 978-319-41810-0 **Springer**
 - 6 **2017** Zain ul Abadin, Muhammad Yasin and Muhammad Faisal. 2017. Bacterial mediated Selenium Biofortification of *Triticum aestivum*: A strategy for improvement in Selenium phytoremediation and Biofortification. pp 299-315. In: Agriculturally Important Microbes for Sustainable Agriculture, Vol-I Plant Soil Microbe Nexus. ISBN 978-981-10-5588-1. Springer Nature Singapore Pve Ltd, 2017. **Springer**
 - 7 **2018** Hera Naheed Khan and Muhammad Faisal. 2018. Phytoremediation of industrial wastewater by hydrophytes. In: Phytoremediation: Management of Environmental Contaminants Vol-6 by Ansari et al. pp. 179-200. Springer. DOI: 10.1007/978-3-319-99651-6 **Springer**
 - 8 **2018** Ayesha Siddiqa and Muhammad Faisal. 2018. Phytoremediation of chromium polluted soil using plants in conjunction with microbes. In: Phytoremediation: Management of Environmental Contaminants Vol-6 by Ansari et al. Springer. DOI: 10.1007/978-3-319-99651-6 **Springer**
 - 9 **2020** Ayesha Siddiqa and Muhammad Faisal, 2020. Heavy Metals: Source, toxicity mechanisms, health effects, nanotoxicology and their bioremediation. pp. 117-142. In: Contaminants in Agriculture: Sources, Impacts and Management Naeem et al. Eds Springer. <https://doi.org/10.1007/978-3-030-41552-5>. ISBN 978-3-030-41551-8 **Springer**
 - 10 **2020** Hera Naheed Khan and Muhammad Faisal, 2020. Planning and engineering strategies of agricultural wastes and their remediation strategies. pp. 219-232. In: Contaminants in Agriculture: Sources, Impacts and Management Naeem *et al.* Eds Springer. <https://doi.org/10.1007/978-3-030-41552-5>. ISBN 978-3-030-41551-8 **Springer**
 - 11 **2020** Ayesha Siddiqa and Muhammad Faisal.2020. Microbial degradation of organic pollutants using indigenous bacterial strains. Pp. xx-xx. In: Handbook of Bioremediation, Elsevier

BACTERIAL CULTURE COLLECTION

Chromium and Arsenic Resistant Strains

Acinetobacter sp. AsK07 Accession No. GQ503319; *Bacillus megaterium* strain AsK08 Accession No. GQ503320; *Pontibacter korensis* strain AsK09 Accession No. GQ503321; *Bacillus* sp. AsK15 Accession No. GQ503322; *Bacillus subtilis* strain AsK18 Accession No. GQ503323; *Bacillus*

licheniformis strain AsK03 Accession No. GQ503324; *Exiguobacterium* sp. AsK04 Accession No. GQ503325; *Bacillus pumilus* strain CrK08 Accession No. GQ503326; *Staphylococcus pasteurii* strain CrK14 Accession No. GQ503327; *Cellulosimicrobium cellulans* strain CrK16 Accession No. GQ503328; *Bacillus cereus* strain CrK20 Accession No. GQ503329; *Exiguobacterium* sp. CrK19 Accession No. GQ503330; *Bacillus licheniformis* strain CrK21 Accession No. GQ503331

Biosurfactant producing / Oil degrading Strains

Enterobacter sp. S1-8 Accession No. JN565979; *Acinetobacter* sp. S5-1 Accession No. JN544140;

Pseudomonas stutzeri S7-13 Accession No. JN565980

Staphylococcus sp- Z1, *Enterobacter aerogenes*- Z3, *Enterobacter asburiae*- Z4, *Bacillus cereus*- Z5, *Bacillus anthracis*- Z6; *Pseudomonas aeruginosa*-S1, *Pseudomonas aeruginosa*-SC, *Enterobacter cloacae*-SF, *Pseudomonas aeruginosa*-M13

Plant Growth Promoting Strains

Pseudomonas aeruginosa PRM1 Accession No. JN544141; *Bacillus cereus* strain PRM2 Accession No. JN544142; *Exiguobacterium acetylicum* strain PRM3 Accession No. JN544143; *Comamonas* sp.-PRM4 Accession No. JN544144; *Exiguobacterium acetylicum*- PRM5 Accession No. JN544145; *Pseudomonas mendocina* -PRM6 Accession No. JN544146; *Bacillus licheniformis*- PRM7 Accession No. JN544147; *Acinetobacter* sp.- PRM8 Accession No. JN544148; *Lysinibacillus* sp.- PRM9 Accession No. JN544149; *Enterobacter* sp.- PRL1 Accession No. JN544150; *Bacillus subtilis* -PRL2 Accession No. JN544151; *Bacillus simplex* - PRL3 Accession No. JN544152; *Bacillus* sp.- PRL4 Accession No. JN544153; *Exiguobacterium* sp.- PRL5 Accession No. JN544154; *Bacillus* sp.- PRL6 Accession No. JN544155; *Pseudomonas* sp.- PRL7 Accession No. JN544156; *Pantoea* sp.- PRL8 Accession No. JN544157; *Pseudomonas aeruginosa* - PRL9 Accession No. JN544158; *Chryseobacterium gleum*-PRR1 Accession No. JN544159; *Bacillus pumilus* - PRR2 Accession No. JN544160; *Acinetobacter lwoffii*- PRR3 Accession No. JN544161; *Bacillus pumilus*- PRR4 Accession No. JN544162; *Acinetobacter* sp. - PRR5 Accession No. JN544163; *Brevibacillus laterosporus*- PRR6 Accession No. JN544164; *Pseudomonas aeruginosa* - PRR7 Accession No. JN544165

Bacillus subtilis- CSH27, *Bacillus cereus*- Cu47, *Bacillus axarquiensis*- CF18, *Bacillus* sp.- CSH23, *Bacillus safensis*- CN17, *Bacillus cereus*- CMS17, *Bacillus endophyticus*- CU33, *Bacillus subtilis*- CN2, *Bacillus pumilus*- CSH7, *Bacillus cereus*- CMS7, *Bacillus pumilus*- CSH4, *Bacillus subtilis*- WRY23, *Bacillus* sp- WM3, *Bacillus cereus*- WSK9, *Bacillus anthracis*- WUS2, *Bacillus thuringiensis*- WG5, *Bacillus anthracis*- WFS6, *Bacillus amyloliquefaciens*- WSH8, *Bacillus* sp.- WG1, *Bacillus anthracis*- WRY1, *Bacillus subtilis*- WRY11, *Bacillus cereus*- WFS20, *Bacillus subtilis*- WL22, *Bacillus anthracis*- WSH13, *Bacillus subtilis*- WSK11, *Bacillus pseudomycolides*- WSK6

Selenium Resistant Plant Growth Promoting Strains

Bacillus foraminis-YAK-1 Accession No. JX203248; *Bacillus thuringiensis* serovar finitimus-YAK2 Accession No. JX203249; *Bacillus licheniformis*-YAK4 Accession No. JX203250; *Proteus penneri*-YAK6 Accession No. JX203251; *Bacillus endophyticus*-YAK7 Accession No. JX203252; *Bacillus licheniformis*-YAP1 Accession No. JX203253; *Bacillus cereus*-YAP6 Accession No. JX203254; *Bacillus licheniformis*-YAP7 Accession No. JX203255; *Bacillus endophyticus*-YAM1 Accession No. JX203256; *Bacillus pichinotyi*-YAM2 Accession No. JX203257; *Bacillus jeotgali*-YAM3 Accession No. JX203258; *Bacillus licheniformis*-YAM4 Accession No. JX203259

Salt Tolerant Plant Growth Promoting Strains (Soil)

Exiguobacterium profundum-B9 Accession No. JX112643; *Bacillus pumilus*-B10 Accession No. JX112644; *Pseudomonas* sp.-B12 Accession No. JX112645; *Pseudomonas stutzeri*-B15 Accession No. JX112646; *Bacillus licheniformis*-B16 Accession No. JX112647; *Bacillus subtilis*-B18 Accession No. JX112651; *Bacillus flexus*-B32 Accession No. JX112648; *Bacillus* sp.-B33 Accession No. JX112649; *Pseudomonas fluorescens*-IM12 Accession No. JX112652; *Bravibacterium fugoritolerans*-IM20 Accession No. JX112650

Salt Tolerant Plant Growth Promoting Strains (Water)

Pseudomonas mandocina-SM05 Accession No. JX102498; *Pseudomonas pseudoalcaligenes*-M10 Accession No. JX105525; *Microbacterium* sp.-M18 Accession No. JX105526; *Pseudomonas stutzeri*-M19 Accession No. JX105527; *Sphingobacterium* sp.-M30 Accession No. JX102496; *Pseudomonas* sp.-M39 Accession No. JX105528; *Bacillus pumilis*-M45 Accession No. JX102495; *Bacillus subtilis*-M50 Accession No. JX102497; *Bacillus licheniformis*-B37 Accession No. JX105529

Lactic acid bacteria

Lactobacillus fermentum- F1, *Lactobacillus brevis*- F3

Phosphate solubilizing bacteria (Soil)

Pseudomonas putida- Rad-2, *Acinetobacter baumannii*- JA-10, *Pseudomonas oryzihabitans*- Sud-F, *Pseudomonas fulva*- Ros-1, *Pseudomonas aeruginosa*- R-15, *Acinetobacter* sp- L-6, *Pseudomonas frederiksbergensis*- L-22, *Acinetobacter* sp- S6-2, *Pseudomonas* sp- Ros-2, *Pseudomonas koreensis*- L-20, *Ochrobactrum haematophilum*- M-6, *Pseudomonas putida*- SL8, *Enterobacter aerogenes*- W-96, *Pseudomonas* sp- UPG

Biosurfactant producing bacteria

Staphylococcus hominis-F1 Accession No. MT107124; *Staphylococcus* sp.F9 Accession No. MT107125; *Staphylococcus hominis*-F19 Accession No. MT107126; *Paenibacillus* sp.S6 Accession No. MT107127; *Paenibacillus lactis*-SJ1 Accession No. MT107128; *Bacillus safensis*- SJ4 Accession No. MT107129; *Bacillus paranthracis*- SJ10 Accession No. MT103046; *Vagococcus fluvialis*- SJ12 Accession No. MT103047; *Bacillus flexus*- SJ15 Accession No. MT103048; *Bacillus altitudinis*- SJ17 Accession No. MT103049; *Bacillus* sp. SJ19 Accession No. MT103050; *Bacillus flexus*- SJ20 Accession No. MT103051; *Bacillus oceanisediminus*- SJ32 Accession No. MT103052; *Sporosarcina saromensis*- SJ36 Accession No. MT103053; *Bacillus cereus*- SJ37 Accession No. MT103054; *Staphylococcus haemolyticus*- SJ39 Accession No. MT103055; *Bacillus pumilus*- SJ40 Accession No. MT103056; *Bacillus flexus*-SJ41 Accession No. MT103057; *Pseudomonas aeruginosa*-SU2 Accession No. MT093463; *Sporosarcina saromensis*-U8 Accession No. MT103058

AWARDS/ HONORS

1. Awarded Government Merit Scholarship, Rawalpindi Division (on basis of result of Intermediate Exam. 1992).
2. Awarded Flemish Inter University Scholarship to participate in the summer course Sustainable water management and Technology in Urbanized areas, 2006, in the University of Antwerp, Belgium/Europe.
3. Awarded Presidential Young Innovator Award (PYI) (year 2007) by the Higher Education commission, Islamabad, Pakistan.
4. Awarded Endeavor Post-Doctorate Research Fellowship by the Australian Government Department of Education, Science and Training (DEST) for the year 2008.
5. Awarded performance based incentive and honorarium in the years 2012, 2013, 2014, 2015, 2016 by the University of the Punjab, Lahore.

COURSES/TRAINING

- Certificate course in Spreadsheet Management (Computer), 1998, Department of Mathematics, University of The Punjab, Lahore (03 months)
- Sustainable Water Management and Technology, Belgium (02 week)
- Chemical Safety and Security Officer Training, Bangkok (01 week)
- One week “Indigenous on-campus Faculty Training Program” for faculty (01 week)

MEMBERSHIPS

1. Member, Botanical Society of Pakistan (1998-2002, 2011).
2. Member, Biological Society of Pakistan (2002).
3. Member, Zoological Society of Pakistan (1998-2001).
4. Member, Pakistan Society for Biochemistry and Molecular Biology (2003).
5. Member, Environment Protection Society (1997)
6. Member, Pakistan Society for Microbiology (2000)
7. Member, Society for General Microbiology, U.K (2009).
8. Member, Asia-Pacific Chemical, Biological & Environmental Engineering Society

PROFESSIONAL ACTIVITIES

1. Worked as Hostel Assistant Superintendent (2004-2006).
2. Member, Admission Committee Botany Department, PU, (2004-2006).
3. Member, Admission Committee MMG Department, PU, (2006-todate).
4. Incharge M.S/M.Phil/Ph.D program MMG Department, PU, (2008-todate)
5. Member, Department Doctoral Program Committee, MMG Department, PU, (2008-todate)
6. Member Board of Faculty of Life Sciences, Punjab University (2010-2013) (2018 todate)
7. Member, Board of Studies of Genetics, Hazara University Mansehra, K.P (2011-2014, 2014-2017)
8. Member, Board of Studies of Center for Human Genetics, Hazara University Mansehra, K.P (2015-todate)
9. Member, Board of Study in Microbiology & Molecular Genetics, The Women University Multan
10. Member, Purchase Committee, Department of MMG, P.U (2009- todate).
11. Member, Board of Studies in Microbiology & Molecular Genetics, MMG (2011-2014) (2018-todate)
12. Secretary/Member, Doctoral Program Coordination Committee, University of the Punjab, Lahore. (2017-2019)
13. Member Senate, University of the Punjab, Lahore (2018-todate)
14. Member, Academic Council, University of the Punjab, Lahore (2018-todate)

CONFERENCE / SEMINAR / WORKSHOPS ATTENDED/PARTICIPATED /INVITED

1. Participated in the 18th congress of Zoology, held at Department of Zoology, University of Punjab, Lahore on 20-22 April, 1998.
2. Participated in the 6th National Conference of Plant Scientists, held at Department of Botany, University of Peshawar, Peshawar, on 20-22 October, 1998.
3. Participated in the 19th Congress of Zoology, held at National Agricultural Research Council, Islamabad on 19-21 April, 1999.
4. Participated in the 2nd National Symposium on Practical Applications of Plant tissue Culture and Genetic Engineering, NARC, Islamabad, 1-3 June, 1999.
5. Participated in the Third International Biennial Conference of Pakistan Society for Microbiology, held on March 28-30 2000 at PC hotel, Lahore.
6. Participated in the 2nd International Science Conference, 26-28 October 2000, at University of the Punjab, Lahore.
7. Participated in the 7th National Conference of Plant Scientists 12-14 Nov, 2000, Botany Department, Punjab University, Lahore.
8. Participated in the 1st National Conference of Biology 28-30 March, Botany Department, Government College University, Lahore, 2002.
9. Participated in the 8th National Conferences of Plant Scientists 24-28 February, Botany Department, Karachi University, Karachi, 2003.

10. Participated in the 7th International Conference “Trends in Biochemistry and Molecular Biology” Organized by Pakistan Society for Biochemistry and Molecular Biology 2-5 April, 2003, held in the Institute of Biochemistry and Biotechnology, University of the Punjab, Lahore.
11. Attended International Conference on Environmental Challenges held 11-13 March 2004, at Department of Environmental Sciences, University of Peshawar.
12. Participated in three days workshop on “Identification, Maintenance and Preservation of Microorganisms” held 10-12 May 2004 organized by Microbiology Laboratory, Quaid-e-Azam University Islamabad.
13. Participated in the Workshop on “College Teacher Training in Genetically Techniques” held July 2004 organized by Microbial & Molecular Genetics Laboratory, University of the Punjab, Lahore.
14. Participated in the International Symposium on “Salinity and Drought Tolerance” conducted by the National Commission on Biotechnology at Pakistan Academy of Sciences at Islamabad on March 27-31, 2005.
15. Participated in the “World Environment Day” conducted by the Pakistan Engineering Congress at Averi Hotel Lahore, Pakistan on June 5, 2005.
16. Participated in the 4th International Symposium on “Genomics, Bioinformatics, Biotechnology and Economic Development” conducted by the Centre for Molecular Genetics , University of Karachi, Karachi on December 4-8, 2005.
17. “International Conference on Environmental Horizons” conducted by International centre for Chemical Sciences (ICCS), University of Karachi, Karachi, December 19-21, 2005.
18. Attended meeting of Senior Staff Members of Faculty of Life Sciences, University of the Punjab with Life Sciences Core Group at HEC regional office Lahore on 15 December, 2005.
19. Participated in “26th Zoological Congress of Pakistan (International)” Organized by Member, Zoological Society of Pakistan, 3-6 April, 2006, held in the Institute of Department of Zoology, University of the Punjab, Lahore.
20. Participate in the summer course Sustainable Water Management and Technology in Urbanized areas, August, 2006, in the University of Antwerp, Belgium/Europe funded by the Flemish Inter University Council.
21. Invited as oral speaker in the Brownfield Asia 2006 Conference on International Conference on Remediation and Management of Contaminated Land, The Institution of Engineers, Kuala Lumpur, Malaysia 5-7 September 2006.
22. Paper accepted in the 22nd Annual International Conference on Soil, Sediments and Water held at University of Massachusetts, Amherst, USA, from October 16-19, 2006.
23. Participated in the two days National Conference on Life Sciences conducted by the Bahaudin Zakria University Multan on November 13-14, 2006.
24. Attended the one day workshop on self-assessment manual to be held in the Quality Enhancement Cell, University of the Punjab, Lahore on 18-12-2006.
25. Attended a workshop on “Innovations in Assessment” organized by the Quality Enhancement cell, University of the Punjab, Lahore on 15 January, 2007.
26. Attended a seminar on “Education, Training and Qualifications in the Financial Services Sector” organized jointly by the City of London and Institute of Chartered Accountants of Pakistan on 11 February 2007 at Institute of Chartered Accountants of Pakistan, Lahore.
27. Attended a workshop on “Development Partnerships in Higher Education Links Programme” organized by the British Council Lahore on 12 February 2007 at Pearl Continental Hotel Lahore.
28. Participated in a training workshop on “Quality Assurance in Higher Education” organized by the Pakistan Institute of Quality Control on March 09, 2007 at Hotel Ambassador Lahore, Pakistan.
29. Attended a workshop entitled “National Training Seminar on Biosafety and Biosecurity Initiative” organized by the US Department of State Biosecurity Engagement Programme, Pakistan Agricultural Research Council and Planning Commission of Pakistan on 18-19 June, 2007 at Marriott Hotel Islamabad, Pakistan.

30. Attended a seminar entitled “The Role of Nano-Biotechnology in Diagnosis and Treatment of Diseases” organized by the Pakistan Association for the Advancement of Science at NIBGE Faisalabad on 10 September, 2007.
31. Worked as Secretary organizing committee of the symposium entitled “Genomics, Proteomics, Metabolomics: Recent Trends in Biotechnology” organized by the Department of Microbiology & Molecular Genetics, University of The Punjab, Quaid-E-Azam Campus, Lahore-54590, on 22-23 October, 2007.
32. Participated in the one day forum on the implementation of “Biosafety and Biosecurity initiatives” in research organizations and universities of Pakistan, organized by Dr. Anwar Nasim, Advisor COMSTECH, in HEC, Islamabad, Pakistan on 26 October, 2007.
33. Participated in the two days Workshop on Research Ethics in Biosciences on 26-27 November, 2007, organized by National Health Research Complex (PMRC) at Sheikh Zayyed Post Graduate Medical Institute, Lahore, Pakistan.
34. Participated in the two days National Conference of Life Scientist conducted by the Bahaudin Zakria University, Multan, on January 30-31, 2008.
35. Participated in the five day “National Bioforum” organized by CEMB, University of the Punjab, Lahore on 24-28 March, 2008.
36. Attended and Member, organizing committee of the one day seminar “Microbial Resistant Paints” organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore on 17th April, 2008.
37. Attended one day seminar “Clues to weathering and climate change from rare earth elements” on 23 September 2008 at Institute of Applied Ecology, University of Canberra, Australia.
38. Risk Analysis: Current application in conservation and future possibilities” attended a seminar held on 30 September, 2008, organized by Dept of Environmental Sciences, University of Canberra, and Center of Excellence for Risk Analysis, University of Melbourne, Australia.
39. Attended two day AusAID-APFRN Conference entitled “*South Asia: Environment and Human Security*” organized by Government of Australia on 2nd & 3rd October, 2008 at The Visions Theatre, National Museum of Australia, Canberra, Australia.
40. Attended a seminar entitled “Too far beyond BACI? Bioassessment in a multiple stresses context using the reference condition approach” on 7th October 2008, organized by Institute of Applied Ecology, University of Canberra, Australia.
41. Attended one day seminar/workshop entitled “Scientific and Medical Research on Meditation” conducted by University of New South Wales” on 30 October, 2008 in Belconnen, ACT, Australia.
42. Attended two days conference “Mining, Gender and sustainable Livelihoods” jointly organized by ANU and the World Bank on 6-7 November, 2008 at Australian National University, Canberra, Australia.
43. Attended two days conference “Health, culture and religion in South Asia *Interdisciplinary and cross-national social science perspectives*” A workshop supported by the Australian Research Council, held in ANU, Canberra, Australia, 12-13 November, 2008.
44. Attended national seminar on “National Biodiesel Programme: Identification of Barriers on 10th July 2009 at Marriott Hotel, Islamabad, organized by Alternative Energy Development Board (AEDB).
45. Participated in the two day conference on “Development and commercialization of Biotechnology Products” organized by NIBGE and National Commission on Biotechnology, at NIBGE on 19-20 June, 2009.
46. Member organizing committee of the symposium on Modern Biotechnology: A Resource for Sustainable Development, organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore on 04th July, 2009.
47. Attended one day training workshop on “International Health Links Funding Scheme” organized by the British Council Lahore on 29th October 2009 at Crown Plaza Hotel, Lahore.

48. Attended three day training workshop on “Writing Project Proposals for Competitive System (CGS)” organized by Punjab Agriculture Research Board, Lahore on 9th to 11th November 2009 in Lahore.
49. Participated in III International Conference on Environmental, Industrial and Applied Microbiology (BioMicroWorld2009) in Lisbon, Portugal on 2-4 December, 2009 in the University of Lisbon, Portugal.
50. Attended Lectures series on Hepatitis A, B, C, E by Dr. Mudassar Subtain Sheikh, organized by Department of Microbiology & Molecular Genetics, University of the Punjab, Lahore on February-March, 2010.
51. Attended one day seminar on “Lahore Biotechnology Cluster” organized by Forman Christian College University, Lahore on March 15, 2010.
52. Participated in the “Chemical Safety and Security Officer Training” organized by Sandia National Laboratories, U.S Department of Energy in Bangkok, Thailand on 29th March to 2nd April, 2010.
53. Attended a seminar on “Farm Dynamics Pakistan: Working with Soil Moisture Sense” organized by Microbiology & Molecular Genetics, University of the Punjab, Lahore on April 29, 2010.
54. Member organizing committee of the symposium on “Current Agro-biotechnology and Transgenic Plants” organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore on 21 June, 2010.
55. Attended a three-day International symposium on “Basic Techniques in Research, Dissertation and Paper Writing” on 27th -29th of July, 2010 organized by Institute of Research Promotion (IRP) and Hazara University at Hazara University, Mansehra, KP, Pakistan.
56. Participated in a three-day Conference on “6th International conference on Plant Tissue Culture and Biotechnology” on 3-5 December, 2010 in University of Dhaka, Dhaka, Bangladesh.
57. Participated in a three-day Conference “2nd International Conference of Plant Scientists and 11th National Meeting of Plant Scientists” held on 22-24th February, 2011 at G.C University Lahore, Pakistan.
58. Attended a two days’ workshop on “National workshop on Environment and Health” on 8th-9th of March, 2011 organized and held at Department of Toxicology and Pharmacology, University of Veterinary and animal Sciences, Lahore, Pakistan.
59. Participated in the “Exhibition: Universities Building Economics” organized by HEC, Islamabad on 25-26th of May, 2011 in Serena Hotel Islamabad.
60. Attended first “National Conference on Setting Standards for 21st Century Pakistan” on 26th May, 2011 in Serena Hotel Islamabad organized by HEC and sponsored by British Council and SASSI.
61. Participated in Two Days workshop “Case Based Teaching” organized by Higher Education Commission, Pakistan at HEC Regional Center Lahore, on 13-14 July, 2011.
62. Attended seminar on “dengue fever” organized by Department of Microbiology & Molecular Genetics, University of the Punjab, Lahore on September 21, 2011.
63. Attended a Lecture on “Granulomatous Diseases of Nose” organized by Department of Microbiology & Molecular Genetics, University of the Punjab, Lahore on September 26, 2011.
64. Attended one day seminar on World Quality Day at Undergraduate Block, University of the Punjab, Lahore, on 21 December, 2011.
65. Attended and participated in one day workshop entitled “Invention to Innovation Summit-2012” in the University of the Punjab, Lahore, organized by IRP, ORIC and PSF, on 18 June, 2012.
66. Attended One day seminar on Recent Trends in Diagnosis of Tuberculosis, on 04 September, 2012, Organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore.
67. Attended One day seminar on Dengue Virus on 2 September, 2012, Organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore.
68. Attended Workshop on “Biosafety” with collaboration with Sure Bio-Diagnostics in Department of Microbiology and Molecular Genetics on March 4, 2013.

69. Attended and participated in two days conference on “Bio-Phsicochemical Basis for Technopreneurship” organized by Department of Microbiology and Molecular Genetics and IBA, University of the Punjab, Lahore on 2-3 April, 2013.
70. Attended two days summit “Invention to Innovation” in the University of the Punjab, Organized by ORIC, PSF and IRP on 9-10 April, 2013.
71. Attended one day workshop on “FTIR” in COMSATS, Lahore, on 5th of September, 2013.
72. Attended and participated in National Consultative Conference, Islamabad on 22 November, 2013 at Jinnah Convention Center Islamabad.
73. Attended one day workshop on “Biosafety and Risk Assessment” held in the Undergraduate block University of the Punjab, Lahore on 19th April, 2014.
74. Participated in the three day symposium “Eurasia Waste Management Symposium 2014” in Yildiz Teknik University, Istanbul, Turkey on 28-30 April, 2014.
75. Attended two day conference on “Innovative Biological and Public Health Research (IBPHR 2014)” in Government College University, Lahore on 6-8 May, 2014.
76. Participated in 1st International seminar on “Soil Health Reclamation Approaches” organized by the College of Earth and Environmental Sciences, University of the Punjab, Lahore on 11 June, 2014.
77. Participated in Fourth International Conference on Biotechnology and Environment Management on 15th to 16th of September 2014 in Paris France.
78. Attended three days International Conference of Plant Sciences” organized by the Department of Botany, GC University, Lahore, 22nd-24thSeptember, 2014.
79. Participated in one day symposium “Emerging Issues of Multidrug Resistance: A Threat to the Globe” organized by the Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore, on 2nd October, 2014.
80. Attended and participated in one week “Indigenous on-campus Training Program” for faculty organized by University of the Punjab in collaboration with Higher Education Commission Pakistan on 1-5 December, 2014.
81. Attended two days pre-conference workshop “Parasitology and its immunological Aspects” on 13-14 February, 2015 in the Department of Microbiology & Molecular Genetics, University of the Punjab, Lahore, Pakistan.
82. Member organizing committee of the 10th Biannual International Conference of Pakistan Society for Microbiology, organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore on 25th to 28th March, 2015.
83. Participated and presented paper in the 10th Biannual International Conference of Pakistan Society for Microbiology, organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore on 25th to 28th March, 2015
84. Co-Chair a Technical Session “Environmental Microbiology” in the 10th Biannual International Conference of Pakistan Society for Microbiology, organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore on 25th to 28th March, 2015
85. Attended one day Post Conference seminar on “Beyond the Fringe: when Science moves from innovative to nonsense” by Prof. Dr. Simon Silver, University of Illinois, USA organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore, March 30, 2015.
86. Attended one day Post Conference seminar on “Out of Africa: Human genome diversity and Migration over the last 70,000 years” by Prof. Dr. Simon Silver, University of Illinois, USA organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore, March 31, 2015.
87. Attended one day Post Conference seminar on “Writing and Publishing a Scientific Manuscript: Radical Changes are now happening” by Prof. Dr. Simon Silver, University

- of Illinois, USA organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore, April 01, 2015.
88. Attended one day Post Conference seminar on “Mega Viruses” by Prof. Dr. Simon Silver, University of Illinois, USA organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore, April 02, 2015.
 89. Attended a one day seminar on “Quality Assurance in Education” organized by Quality Enhancement Cell University of the Punjab, Lahore on 3rd April, 2015
 90. Attended one day symposium “Diversity in Microbiology: A Crosstalk” organized by ASM and Department of Microbiology and Molecular Genetics, University of the Punjab, on 17 December, 2015.
 91. Attended one day seminar on “World Quality Day” organized by University of the Punjab in collaboration with Virtual University Lahore on 5th April, 2016 at Al-Razi Hall University of the Punjab, Lahore.
 92. Attended three day conference on medical sciences in BSMU, Mirpur, AJK on 6-8 May, 2016.
 93. Delivered lecture on “Meeting Journal Requirements” in the workshop Craft of Scientific Writing: A two days intensive workshop on scientific writing and publishing on 6-7th December, 2016 in the Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore.
 94. Participated in three days conference “Recent Trends in Microbiology” at Department of Microbiology AUST, Abbottabad on 19-21 December, 2016.
 95. Attended a preconference workshop on “Bacteriophage Isolation and Propagation” in the three days conference “Recent Trends in Microbiology” held in AUST, Abbottabad on 19-21 December, 2016.
 96. Attended a preconference workshop on “Recent trends in Bioinformatics” in the three days conference “Recent Trends in Microbiology” held in AUST, Abbottabad on 19-21 December, 2016.
 97. Attended a preconference workshop on “Scientific Writing: Standards for publications in peer reviewed journals” in the three days conference “Recent Trends in Microbiology” held in AUST, Abbottabad on 19-21 December, 2016.
 98. Attended a preconference workshop on “Teaching strategies and challenges in graduate and post graduate studies in microbiology and allied sciences” in the three days conference “Recent Trends in Microbiology” held in AUST, Abbottabad on 19-21 December, 2016.
 99. Attended a preconference workshop on “How to raise bioethics, biosafety and biosecurity standards in microbiology laboratories across Pakistan” in the three days conference “Recent Trends in Microbiology” held in AUST, Abbottabad on 19-21 December, 2016.
 100. Attended and participated in 6th two days summit entitled “Invention to Innovation Summit-2017” as a judge in the University of the Punjab, Lahore, organized by IRP, ORIC, UMT and PSF, on 8-9 March, 2017.
 101. Attended one day seminar on National IP Strategy on “intellectual property rights” organized by Commerce Division Govt. of Pakistan in collaboration with USAID in the PC Hotel Lahore on 20th March, 2017.
 102. Member organizing committee in the one day symposium “Awareness on HIV/AIDS” held in the Undergraduate block University of the Punjab, Lahore on 30 March, 2017.
 103. Organizer, MMG2018, held on 7-9 February, 2018 in the Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore.
 104. Participated in 7th Innovation Summit 2018 in the undergraduate block, university of the Punjab, Lahore on March 7 and 8, 2018.
 105. Attended a lecture on “Discovery and Utilization of Pharmaceutical Microorganisms and Drugs from Special Environments” by Prof. Dr. Chenghang Sun from Peking Union Medical College,

China and was organized by Department of Microbiology & Molecular Genetics, University of the Punjab, Lahore, October 23, 2018.

106. Organized Scientific competition on Current Environment issues on world environment day in the Department of Microbiology and Molecular Genetics, University of the Punjab Lahore, on June, 2018.
107. Participated in Training workshop organized by the office of the research innovation and Commercialization (ORIC) University of the Punjab Lahore on March 14 2019.
108. Participated in the one day workshop on How to make University budget in the department of Economics university of the Punjab, Lahore on 20 March 2019.
109. Participated in training workshop on national program for universities awardees in the undergraduate block, university of the Punjab, Lahore on 14-03-2019.
110. Participated in the interactive session on QS ranking in the University of the Punjab on 28-08-2019.

FOREIGN TRAINING / WORKSHOPS / CONFERENCES / SEMINARS

| Sr. No | Title | Year | Venue / Country |
|-----------|--|------|-----------------------------|
| 1 | Sustainable Water Management and Technology | 2006 | Belgium / Netherland |
| 2 | Clues to weathering and climate change from rare earth elements | 2008 | Australia |
| 3 | Risk Analysis: Current application in conservation and future possibilities | 2008 | Australia |
| 4 | South Asia: Environment and Human Security | 2008 | Australia |
| 5 | Bio-assessment in a multiple stresses context using the reference condition approach | 2008 | Australia |
| 6 | Mining, Gender and sustainable Livelihoods | 2008 | Australia |
| 7 | Health, culture and religion in South Asia | 2008 | Australia |
| 8 | Environmental, Industrial and Applied Microbiology | 2009 | Portugal |
| 9 | Chemical Safety and Security Officer Training | 2010 | Thailand |
| 10 | Plant Tissue Culture and Biotechnology | 2010 | Bangladesh |
| 11 | Eurasia Waste Management Symposium 2014 | 2014 | Turkey |
| 12 | Fourth International Conference on Biotechnology and Environment Management | 2014 | France |