

MUHAMMAD SHAFIQ, PhD

Assistant Professor (TTS-19; HEC Approved Research Supervisor)

CAREER OBJECTIVE

“Creation and dissemination of new knowledge” related to “Agricultural Crop Botany; Sustainable Ecosystem Services in the *Built Environment* through Lignocellulosic Waste Recycling (crop residue, biomass of invasive weeds); Regenerative Agriculture; Conventional and Organic Vertical Farming; Pollutants-Soil-Nutrients Nexus”

HIGHEST DEGREE

PhD Dissertation: Rapid Composting Technology and its Fertilizer Perspective in Rice-Wheat System
Specialization: Sustainable Ecosystem Services in the *Built Environment* through Lignocellulosic Waste Recycling (Discipline Botany).

CURRENT STATUS

❖ Assistant Professor (*TTS-19*), Institute of Botany, University of the Punjab Lahore since May 15, 2019.

PREVIOUS POSITIONS HELD (Total Experience: over 5 Y 7 M)

- ❖ Assistant Professor (*BPS-19 On Contract*), College of Earth & Environmental Sciences (CEES), University of the Punjab, Lahore (Dec 28, 2013 till Jun 30, 2018)
- ❖ Lecturer (*BPS-18 On Adhoc*), College of Earth & Environmental Sciences (CEES), University of the Punjab, Lahore (March 01, 2013 till Dec 27, 2013)

UNIDO INNOVATION AWARDS; GLOBAL CLEANTECH INNOVATION PROGRAM (GCIP)

1. Award of First Runner up National in Global Cleantech Innovation Program (GCIP) Pakistan 6th Position at National Level for year 2016 for developing SAVOR Technology.
2. Finalist (Award for 6th Position) in the Global Cleantech Innovation Programme for SMEs 2015 organized by UNIDO Pakistan for developing Technology “Solar Biogasifier for Decentralized Management of Municipal Organics” at National Level in Global Cleantech Innovation Program (GCIP) Pakistan

TECHNOLOGY AWARDS FOR SUSTAINABLE SOLUTIONS

1. Technology Award for developing “Electricity-Free Wastewater Treatment through Constructed Wetlands” presented in 5th Invention to Innovation Summit held on Mar 02-03, 2016 at PU Lahore.
2. Technology Award for developing “Solar Bioreactor for Biogasification of Municipal Organics at Source Level” in the 4th Invention to Innovation Summit held on Nov 03-04, 2015 at University of Haripur, Haripur.

PROFESSIONAL CERTIFIED COMPOSTER

1. “Master Composter” certified by Cornell University Cooperative Extension Tompkins County, Ithaca, New York, USA.

COMPOSTING EXPERIENCE AT INDUSTRIAL/APPLIED SCALE

- Worked with Cornell Cooperative Extension Ithaca NY as Training Resource Person 2011-12
- Worked with WormPower® Avon NY, USA on Vermi-Composting
- Established large-scale composting site in Cornell University with Director, Cornell Waste Management Institute, Ithaca NY, USA
- Established large-scale composting site in Tompkins County, Ithaca NY USA in collaboration with Cornell Cooperative Extension, Ithaca NY USA
- Pioneered establishment of composting site at Punjab University Lahore
- Expert of ‘whole animal/carcass/offal composting’ at applied scale

YOUNG RICE SCIENTIST AWARD 2013 FROM INTERNATIONAL RICE RESEARCH INSTITUTE (IRRI) LOS BANOS PHILIPPINES

★ Cash prize of US\$1000.00 along with Airfare, boarding and lodging in IRRI, Los Banos, Philippines.

INDUSTRY-ACADEMIA LIASION PROJECTS (TOTAL COMPLETED = 02)

1. As PI of Research Project Titled “Addressing Technical Issues Anticipated during Collection, Storage and Burning of Terrestrial Crop Biomass as fuel for Boiler at Bulleh Shah Packaging (BSP)”. Total Amount PKR 1.1 Million.
2. As Co-PI of Research Project Titled “Biogasification of Lignocellulosic Wastes” with Sichuan South Gas Compressor Co, Ltd China and Government of Punjab Pakistan.

RESEARCH PROJECTS (CURRENTLY ONGOING = 1)

1. As Principal Investigator (PI) of the Research Project Titled “RECYCLING BIODEGRADABLE FRACTION OF MUNICIPAL SOLID WASTE AT SOURCE LEVEL; DEVELOPING PROTOTYPE MODEL FOR HOUSING SCHEMES & EDUCATIONAL INSTITUTES OF PAKISTAN” funded by Higher Education Commission (HEC) Pakistan under HEC NRPU (National Research Program for Universities) Pakistan Program 2020-21 with Total Amount PKR 4,954,241/- (Four Million Nine Hundred Fifty Four Thousand Two Hundred Forty One).

RESEARCH PROJECTS (TOTAL COMPLETED = 7)

1. As Principal Investigator (PI) of PURC Project Titled “Fate of *Parthenium hysterophorus* L. seed bank during composting of its biomass” funded Total Amount PKR 0.150 Million by University of the Punjab Research Grant (Fiscal Year 2019-20).
2. As Principal Investigator (PI) of Research Project Titled “Impact and Technical Issues during Collection, Storage and Use of Crop Biomass by Bulleh Shah Packaging Pvt. Ltd.” funded Total Amount 1.1 Million Funded by Bulleh Shah Packaging Pvt. Ltd. (Fiscal Year 2015-16).
3. As Principal Investigator (PI) of Research Project “Decentralized Management of Domestic Lignocellulosic Wastes through Solar Biogasifier” funded Total Amount PKR 0.0125 Million by University of the Punjab Research Grant (Fiscal Year 2015-16).
4. As Principal Investigator (PI) of Research Project Titled “Hybrid Hyperthermophilic Composting System”, funded Total Amount PKR 0.15 Million by University of the Punjab Lumpsum Provision Research Grant (Fiscal Year 2014-15).
5. As Principal Investigator (PI) of PURC Project Titled “Individual and Synergistic Role of Compost and Biochar in Enhancing Efficiency of Commercial Fertilizers” funded Total Amount PKR 0.125 Million by University of the Punjab Research Grant (Fiscal Year 2013-14).
6. As Co-Principal Investigator (Co-PI) of PURC Project Titled “Treatment and Recycling of Sewerage Water System of Q.A. Campus, University of the Punjab by Constructed Wetlands and Membrane Technology” funded Total Amount PKR 0.50 Million by University of the Punjab Research Grant (Fiscal Year 2014-15).
7. As Co-Principal Investigator (Co PI) of PURC Project Titled “Sustainable and Dependable Management of *Parthenium hysterophorus* L.; Converting Stubborn Weed Biomass into Quality Biochar” funded Total Amount PKR 0.25 Million by University of the Punjab Research Grant (Fiscal Year 2013-14).

PRODUCTS DESIGNED/DEVELOPED

1. Cost-effective charcolators with 200 liter/day biochar production capacity
2. Wood chipper with material diameter capacity of 9 inches and compost site with capacity of handling over 50 cubic yards biomass feedstocks.
3. Compost and Compost Tea - 100 % organic with high NPK and micronutrient contents
4. Vertical Farming Racks for cultivation of safe and ample vegetables through self-sufficient means

INTERNATIONAL CONFERENCE ORGANIZED AS SECRETARY

1. As **Conference Secretary**, organized the First International Conference on “Emerging Trends in Earth and Environmental Sciences (ETEES2017) held on March 09-10, 2017 at College of Earth and Environmental Sciences (CEES) Lahore Pakistan.
2. As **Secretary**, organized the First International Conference on “Soil Health Reclamation Approaches” held on June 11, 2014 at College of Earth and Environmental Sciences (CEES) Lahore Pakistan.

NATIONAL WORKSHOPS ORGANIZED AS SECRETARY

1. As Secretary, organized Pre-Conference One-Day Training Workshop on “OCCUPATIONAL HEALTH AND SAFETY (OHS)” on March 08, 2017 at International Conference on “Emerging Trends in Earth and Environmental Sciences (ETEES2017) held on March 09-10, 2017 at College of Earth and Environmental Sciences (CEES) Lahore Pakistan.
2. As Secretary, organized Pre-Conference One-Day Training Workshop on “FUNDAMENTALS OF GEOGRAPHICAL INFORMATION SYSTEM & REMOTE SENSING” on March 08, 2017 at International Conference on “Emerging Trends in Earth and Environmental Sciences (ETEES2017) held on March 09-10, 2017 at College of Earth and Environmental Sciences (CEES) Lahore Pakistan.

EDITORIAL SERVICES FOR PEER REVIEW RESEARCH PUBLISHING

1. As Member, Editorial Board compiled and published “Proceedings of the First International Conference on ‘Emerging Trends in Earth and Environmental Sciences (ETEES2017)’ held on March 09-10, 2017 at College of Earth and Environmental Sciences (CEES) Lahore Pakistan”.

2. As Member, Editorial Board of “Pakistan Journal of Earth and Environmental Sciences (ISSN 2519-9897)” published by College of Earth and Environmental Sciences (CEES) Lahore Pakistan”.

KEYNOTE / INVITED SPEAKER IN INTERNATIONAL CONFERENCES

1. **Muhammad Shafiq.** Defining the role of vegetation in constructed wetland systems – an applied phytoremediation assemblage. **Keynote Talk** in the 2nd International Conference on Plant Sciences held on 05-07th Dec 2018 in GCU Lahore.
2. **Muhammad Shafiq.** The Realm of Composting as Irresistible Impulse to Decentralized Municipal Solid Waste Management in Lahore. **Invited Talk** in the 2nd UMT International Conference on “Pure and Applied Sciences” on October 5th-7th, 2017 at UMT Lahore.
3. **Muhammad Shafiq.** “The Research Innovation Engine of Pakistan vs. Environmental Degradation Rate”. **Invited Talk** in The First National Graduate Conference held on 15-16 March 2017 at Allama Iqbal Open University Islamabad.
4. **Muhammad Shafiq.** Analyzing National Innovation System of Pakistan and Alarming Rate of Environmental Degradation. **Invited Talk** in All Pakistan DICE Energy and Water 2016 held on 19-20 Dec 2016 in University of Engineering and Technology (UET) Lahore.
5. **Muhammad Shafiq.** **Technical Speaker** in Panel Discussion on Safe Drinking Water for Communities, All Pakistan DICE Energy and Water 2016 Exhibition held on 19-20 Dec 2016 in University of Engineering and Technology (UET) Lahore, Pakistan.
6. **Muhammad Shafiq.** Composting and Decentralized Municipal Solid Waste Management; a Potential Environmental Capital for Pakistan. **Invited Talk** in the International Conference on Energy Systems & Sustainable Development held in COMSATS Lahore on May 20-22, 2015.

RESEARCH ARTICLE PUBLICATIONS IN PEER REVIEW JOURNALS

- Total publications in Peer Review Journals (W Category) / International Conference Proceedings: **21**

RESEARCH SUPERVISION EXPERIENCE

Research Supervision Experience of PhD Botany / PhD Environmental Sciences

- Total PhD Thesis Completed: **02**
 - Currently Ongoing: **11**

Research Supervision Experience of MS/MPhil Botany / MS/M.Phil Environmental Sciences / M.Phil Geomatics

- Total MS/Phil Research Thesis Supervised: **53**

Research Supervision Experience of BS / BSc.(Hons) / M.Sc. Environmental Sciences / M.Sc. Development Studies / M.Sc. Gender Studies

- Total BS / BSc (Hons) / M.Sc Research Thesis supervised: **31**

MEMORANDUM OF UNDERSTANDING (MoU) SIGNED (AS FOCAL PERSON)

1. MoU signed (2015-16) with Bulleh Shah Packaging to address Environmental Impacts of Crop Residue Feedstock Supply Chain as Fuel for Boilers for 2 years.
2. MoU signed (2015) with WWF Pakistan to collaborate in major fields of Environmental Sciences for 3 years.
3. MoU signed (2013) with Sichuan South Gas Compressor Co, Ltd China and Chief Minister Youth Mobilization Committee (CMYMC) to collaboration in the field of Sustainable Bioenergy from Organic Wastes for 2 years.

TRAVEL GRANTS FOR INTERNATIONAL CONFERENCES/TRAININGS

1. Travel Grant by University of the Punjab Lahore for Oral Presentation in “the 7th Elsevier’s International Conference on Algal Biomass, Biofuels and Bioproducts held on June 18-21, 2017; Hyatt Regency Miami FL USA.
2. Travel Grant along with fringe entitlements for meals and accommodation from International Rice Research Institute (IRRI), Los Banos, Philippines for oral presentation in Young Rice Scientists (YRS) competition in cooperation with 3rd Annual Global Rice Science Partnership (GRiSP) Asia Review Forum and Association of Fellows, Scholars, Trainees and Residents of IRRI (AFSTRI) held on October 14-18, 2013.
3. Travel Grant by Higher Education Commission (HEC) for Oral Presentation in “The First International Conference on Materials, Energy and Environment (ICMEE)”, May 09-11, 2012 at Park Inn Hotel, 101 North Summit Street Toledo, OH 43604, USA.
4. Travel Grant by ChemTech (Pvt) Ltd, Lahore for GBC Scientific Equipment Training Course on “Advanced Operation and Instrumental Management of GBC Savant AA Flame Atomic Absorption Spectrometers”, November 25-26, 2010 at Head Quarters GBC Scientific Equipment SDN BHD, Malaysia.

5. Travel Grant sanctioned by Higher Education Commission, Islamabad for Oral Presentation of my research paper in the “25th International Conference on Solid Waste Management & Technology” in USA, on March 14-17, 2010.
6. Airfare expenses granted by Green Force Pvt. Ltd. 7-Shami Road Lahore for Oral Presentation in International Conference in USA on February 17, 2010.

PROFESSIOAL TRAININGS / WORKSHOPS COMPLETED

INTERNATIONAL

1. Online Live Training Webinar on “Biocontrol of Parthenium Webinar” organized by Feed the Future, the US Government’s Global Hunger & Food Security Initiative held on March 30, 2021.
2. Online Live Training Webinar organized via Centre for Agriculture and Bioscience International (CABI) UK on ‘Agriculture Research through Knowledge Discovery’ held by EBSCO Information Services, India on Feb 23, 2021.
3. Online Live Training Webinar on “Dissecting the scholarly publishing process - An overview and guidance on publishing” organized by Wiley Publishing on Jan 27, 2021.
4. Completed hands-on Online Training Course on “Environmental and Climate Change Analysis using Google Earth Engine” organized by the Geo-Training Wing of Geo-Spatial Works 25th December to 27th December, 2020.
5. Online Live Training Webinar on “Strengthening Research Planning using Elsevier Tools – Scopus, ScienceDirect & Mendeley” held online by Elsevier on Oct 22nd, 2020.
6. Technical Workshop on “Remote sensing of *Parthenium* in Pakistan” organized by Centre for Agriculture and Bioscience International (CABI) UK Pakistan Islamabad Office at Ramada Islamabad on Oct 09-10, 2019.
7. One Day Training Presentation on “QS University Ranking” by Mr. Ashwin Jerome Fernandes, Director QS Ranking Services held on August 28th, 2019 at Al-Raazi Hall, Centre for Undergraduate Studies, Q.A. Campus Lahore, Pakistan.
8. One Day International Course for Working Environmental Professionals on “Environmental Site Assessment” from Registered Professional Geologist of Alberta Canada held on Feb 17, 2016.
9. Western New York State Compost Facility Tour and Compost Production Workshop, August 02-03, 2012 at Genesee County Fairgrounds, 5056 E. Main St. Batavia, NY USA.
10. Training on “Carcass Composting and Managing Animal Mortality”, June 01-02, 2012 at Cornell Composting Facility, Cornell Waste Management Institute, Ithaca New York, USA
11. Field Tour and Training on “Deriving Heat Energy from Compost for Heating Purposes”, May 31, 2012 arranged by Managing Organic Residuals Program Work Team (PWT) at Farm Credit East conference room, 394 Rt 29, Greenwich, New York, USA
12. Cornell Cooperative Extension Compost Education Program: EFNEP Container Garden Workshop at 4H Acres Lower Creek Road Route 13, Ithaca New York, USA
13. Cornell Cooperative Extension Tompkins County Compost Demo Site Preparation Training, May 22-23, 2012 at Farmers Market Ithaca, New York, USA
14. Advanced Operational Training on Thermo Scientific GC Gas Chromatograph, May 29-30, 2012 at Department of Natural Resources – Fahey/Yavitt Lab Group, Cornell University – 202 Bradford Hall 306 Tower Rd - Ithaca, NY 14853 USA.
15. Tour and Training on “Commercial Vermicomposting” at Worm Power New York State Vermicomposting Facility, 1691 Jenks Road, Avon New York 14414, USA
16. Composting 2012 Workshop: From Wood Waste to Health and Safety, April 13, 2012 at 21 South Grove Street East Aurora, New York, USA
17. Training and Tour to Commercial production unit of “Cayuga Compost”, April 12, 2012 at P&S Excavating, LLC 3225 Agard Road Trumansburg, New York 14886 USA
18. Training and Tour to “Recycling and Solid Waste Tompkins County” at Tompkins County Solid Waste 122 Commercial Ave Ithaca New York 14850 USA
19. Cornell Soil Health Workshop: Soil Health Assessment and Management using the Cornell Soil Health Test, March 19-20, 2012 at College of Agriculture and Life Sciences – Department of Crop and Soil Sciences, Ithaca New York, 14853 USA.
20. Professional Development Training Course on “Bioreactor Technology for Energy Recovery from Waste: Recent Advances”, March 11, 2012 offered by Widener University, School of Engineering, Department of Civil Engineering in Collaboration with University of Calgary Canada at Radisson Plaza-Warwick Hotel Philadelphia - 220 South 17th St, Philadelphia PA 19103-6179, USA .
21. Teaching Excellence Workshop, January 16-20, 2012 arranged by Cornell Center for Teaching Excellence at ILR Building, Cornell University Ithaca, New York 14853 USA.

22. GBC Scientific Equipment Training Course on “Advanced Operation and Instrumental Management of GBC Savant AA Flame Atomic Absorption Spectrometers”, November 25-26, 2010 at Head Quarters GBC Scientific Equipment SDN BHD, Malaysia.

NATIONAL

1. Online Live Webinar on “Essentials of New Product Development” organized by ORIC Institute of Business Management on March 02, 2021.
2. Four-Week Online Faculty Development Program under Quality Enhancement Cell, University of the Punjab Lahore held online on Feb 03-26, 2021.
3. Online Live Training Webinar on “Innovation and Entrepreneurship” organized by Islamabad Chamber of Commerce on Feb 03, 2021.
4. One Day Training Workshop on “How to Procure” held on August 07, 2019 at Department of Economics, University of the Punjab, Lahore.
5. One Day Seminar on “International Water Day” held on March 22nd, 2017 at College of Earth and Environmental Sciences (CEES), University of the Punjab Lahore.
6. One Week “GIS – Short Training Course” organized by College of Earth and Environmental Sciences (CEES), University of the Punjab Lahore on Sep 01-09, 2016.
7. One Day Workshop on “Automatic Citation Management Techniques using EndNote Software” from Listed Trainer-Thomson Reuters EndNote, Manager Research and Trainings-Institute of Research Promotion Pakistan, held on March 27, 2016.
8. HEC Workshop on “Supervising and Mentoring Research Students” May 21-22, 2015 at Dept. of Chemical Engineering, COMSATS Institute of Information Technology (CIIT) Lahore Pakistan.
9. One Day Workshop and Drill on “Emergency Response” held on Jan 22nd, 2015 at College of Earth and Environmental Sciences (CEES), University of the Punjab Lahore.
10. The 4-Day Faculty Orientation Program 2014 organized by Institute of Administrative Sciences (IAS) on August 19 – 22, 2014.
11. The 2-Day Business Edge Training Course Titled “Communicating Effectively” organized by *Business Edge* – International Finance Corporation (IFC) World Bank Group on August 20-21, 2014.
12. The 3-Day Training Workshop on “Composting Technology” organized by Centre for Waste Management (CWM), National University of Science and Technology (NUST) Islamabad on March 06-08th, 2013 at Institute of Environmental Sciences and Engineering (IESE), School of Civil and Environmental Engineering (SCEE), NUST Islamabad Pakistan.
13. Training Course on “Advances in Applications of Molecular Biology” on December 19-23, 2011 at Centre of Excellence in Molecular Biology (CEMB) University of the Punjab Lahore.
14. One Day Workshop on Fluorescent Microscopy on September 24, 2011 at Department of Microbiology and Molecular Genetics, University of the Punjab Lahore.
15. “Ninth National Training Course on Modern Techniques in Biotechnology” on March 07-11, 2011 at National Institute for Biotechnology and Genetic Engineering (NIBGE), Jhang Road Faisalabad.
16. Workshop on “Mushroom Cultivation” on February 18, 2011 by Pakistan Society of Horticultural Sciences at Institute of Horticulture, University of Agriculture Faisalabad.
17. One Day Workshop on Role of Medicinal Plants in Poverty Alleviation May 27, 2008 under University-Industry-Interaction Project of HEC. Organized by Institute of Horticultural Sciences, University of Agriculture Faisalabad, Pakistan.

RESEARCH PAPERS PRESENTED IN INTERNATIONAL & NATIONAL CONFERENCE/WORKSHOP

1. **Muhammad Shafiq.** (2021). Displayed Poster and Product on “Organic PGRs (Plant Growth Regulators / Plant Growth Promoting Substances)” in the National Exhibition on NATURAL & ORGANIC PRODUCT held on March 30-31, 2021 by Department of Botany, University of Okara, Okara.
2. **Muhammad Shafiq.** (2020). Role of composting in ‘Smart Plantation’ *In: International Conference on Smart Plantation “An Ultimate Solution to Climate Change” (ICSP 2020)* held on 2-4 March, 2020 at Lahore College for Women University (LCWU), Lahore, Pakistan.
3. **Muhammad Shafiq.** (2019). Sustainable Ecosystem Services of Managing Biomass of Invasive Plants through Biochar. *In: International Conference Punjab University (ICPU 2019) on RECENT INNOVATIONS IN MOLECULAR SCIENCES* on November 06-08, 2019 at Punjab University Lahore, Pakistan.
4. **Muhammad Shafiq,** Aisha Nazir, Rafia Mubeen, Fatima Zubair, Safia Batool, Sajid K. Lodhi, Farrukh Khan (2019). Managing on and off field Biomass of *Parthenium hysterophorus*: brain waving future configuration of UAV with UGV. *In: Technical Workshop on Remote Sensing of Parthenium in Pakistan* organized by Centre for Agriculture and Bioscience International (CABI) UK, Islamabad Pakistan Office at Ramada Islamabad on Oct 09-10th, 2019.

5. **Muhammad Shafiq**, Kinza Mahmood and Maria Rashid. (2017). Direct Biogasification Potential of Macroalgal Biomass as First Generation Biofuels. *In: the 7th International Conference on Algal Biomass, Biofuels and Bioproducts on June 18-21, 2017 Miami FL USA.*
6. Aisha Nazir, Asma Imtiaz, **Muhammad Shafiq** and Firdaus-e-Bareen. (2017). Biofungicidal Application of Crude Algal (*Microspora* sp.) Extracts Against Fusarium wilt in tomato. *In: the 7th International Conference on Algal Biomass, Biofuels and Bioproducts on June 18-21, 2017 Miami FL USA.*
7. Asma Imtiaz, Firdaus-e-Bareen and **Muhammad Shafiq**. (2017). Biofungicide Potential of Algal Extracts of Genus *Microspora* Sp. Against *Fusarium* Wilt of Tomato. *In: International Conference on Soil Health Reclamation Approaches, 11 June 2014, At University Of The Punjab Lahore.*
8. Anam Khalid, Firdaus-e-Bareen and **Muhammad Shafiq**. (2017). Sustainability Aspects of Rice Straw Filters in Industrial Effluent Irrigated Soil. *In: International Conference on Soil Health Reclamation Approaches, 11 June 2014, At University Of The Punjab Lahore.*
9. **Muhammad Shafiq** and Firdaus-e-Bareen. (2014). Long Term Effects Of Rice Straw Compost On Soil Quality Management And Yield Enhancement In Rice-Wheat System. *In: International Conference on Plant Sciences, 22-24 Sep, 2014, At Government College University Lahore.*
10. **Muhammad Shafiq**, Fareeha Jabeen, Maryam Ayyub and Firdaus-e-Bareen. (2014). Assisted Phytoremediation Of Kasur Tannery Polluted Soils With Moringa; Enhancing Economic Viability. *In: International Conference on Plant Sciences, 22-24 Sep, 2014, At Government College University Lahore.*
11. Asma Imtiaz., Firdaus-e-Bareen. and **Muhammad Shafiq**. (2014). Biofungicidal Role of Bioactive Compounds from the Algal Extracts of *Microspora floccose*. *In: International Conference on Plant Sciences, 22-24 Sep, 2014, At Government College University Lahore.*
12. Aisha Nazir, Firdaus-e-Bareen, Janice E. Thies and **Muhammad Shafiq**. (2014). Selected Fungal Biostimulants And Their Role In Heavy Metal Phytoextraction From Tannery Solid Waste Contaminated Soils. *In: International Conference on Plant Sciences, 22-24 Sep, 2014, At Government College University Lahore.*
13. **Muhammad Shafiq** and Firdaus-e-Bareen. (2014). Role Of Home Composting In Sustainable Community Development, PAMCO'S Kitchen Gardening Program And Solid Waste Management By LWMC. *In: International Conference on Environment and Sustainable Development 16-17, Dec 2014 At Government College University, Lahore.*
14. **Muhammad Shafiq**, Aisha Nazir and Firdaus-e-Bareen. (2014). Suitability Of Tannery Waste Polluted Soils For Harnessing Bioenergy Crops Along With Heavy Metal Phytoextraction. *In: International Conference on Environment and Sustainable Development 16-17, Dec 2014 At Government College University, Lahore.*
15. Maria Akbar Khan, Sana Tariq, Firdaus-e-Bareen and **Muhammad Shafiq**. (2014). Potential of Selected Construction Wastes as Bed Material in Simulatory Constructed Wetlands. *In: International Conference on Environment and Sustainable Development 16-17, Dec 2014 At Government College University, Lahore.*
16. **Muhammad Shafiq**. (2013). "Creating treated wastewater irrigation opportunity for farmers on their own by using rice straw filters" at Young Rice Scientists (YRS) competition in cooperation with 3rd Annual Global Rice Science Partnership (GRiSP) Asia Review Forum and Association of Fellows, Scholars, Trainees and Residents of IRRI (AFSTRI) held on October 14-18, 2013 at International Rice Research Institute (IRRI) Head Quarters, Los Banos, Philippines.
17. **Muhammad Shafiq**. (2011). "Comparative Efficacy of Rice-Straw-Compost vs. Commercial Fertilizer on Rice Crops". *In: the 2nd International Conference of Plant Scientists & 11th National Meeting of Plant Scientists, February 22-24, 2011 at Biology Block, GC University Lahore.*
18. **Muhammad Shafiq**. (2010). "Chemically Assisted Phytoextraction of Toxic Metals from Tannery Effluent Contaminated Soil Using Some Cultivated Plants". *In: the 2nd International Seminar on Medicinal Plants", Sponsored by HEC-BC Link, Jan 14-16, 2010 held at Lahore College for Women University Lahore, Pakistan.*
19. **Muhammad Shafiq**. (2009). "Role of EDTA in Phytoextraction of Heavy Metals from Tannery Polluted Soils". *In: Seminar on Food Safety and Security through Application of chemistry and Chemical Technologies, May 02, 2009 held at Ambassador Hotel, Lahore.*
20. **Muhammad Shafiq**. (2008). "Selection of EDTA as Phytoextraction Enhancer of Toxic Heavy Metals from Tannery Effluent Contaminated Soil Using Some Cultivated Plants". *In: the 1st International Seminar on Isolation and Applications, 21-23 May, 2008. Organized by HEC-British Council Link Project at Lahore College for Women University, Lahore.*
21. **Muhammad Shafiq**. (2008). "The Influence of Environment and Log Diameter on Forcing and Establishment of Softwood Shoots from Large Stem Segments of *Araucaria heterophylla*" (ICPS-066). *In: the International Conference of Plant Scientists (10th National Meeting of Plant Scientists), April 21-24, 2008. Organized by Pakistan Botanical Society, Pakistan.*

TEACHING EXPERIENCE (PHD, POST-GRADUATE AND GRADUATE CLASSES)

- ❖ *PhD Botany / PhD Environmental Sciences / PhD Applied Hydrology / PhD Geomatics*
 - Research Methods and Data Analysis / Research Methods in Environmental Sciences / Research Methods in Applied Hydrology
- ❖ *MS/MPhil Botany / MS/MPhil Environmental Sciences / MPhil Applied Hydrology / MPhil Geomatics*
 - Research Methods & Data Analysis / Research Methods in Environmental Sciences / Research Methods in Applied Hydrology / Research Methods in Geomatics; Bioremediation of Persistent Organic Pollutants (POPs);
- ❖ *BS Botany / MSc Botany / BS Environmental Sciences / MSc Environmental Sciences / MSc Development Studies / MSc Gender Studies*
 - Cell & Molecular Biology (Theory & Lab) / Environmental Engineering (Theory and Practical); Compost and Organics / Issue and Policies in Environment and Development / Ecotourism / Soil Sciences / Soil Pollution / Waste Reduction and Recycling / Biodiversity and Systematics / Population and Environment / Gender and Environment.
- ❖ *Curricula Developed for PhD Botany / MS/MPhil Botany / PhD Environmental Sciences / MS/MPhil Environmental Sciences / MSc Environmental Sciences / MSc Development Studies / MSc Gender Studies*
 - Research Methods and Data Analysis (PhD / MS/MPhil Botany); Research Methods in Environmental Sciences (PhD / MS/MPhil Environmental Sciences); Soil Pollution (Ph.D / MS/MPhil Environmental Sciences); Natural and Constructed Wetlands (PhD Environmental Sciences); Compost and Organics (PhD / MS/MPhil Environmental Sciences); Soil Sciences (MS/MPhil Environmental Sciences)

ADMINISTRATIVE EXPERIENCE

- Member Transportation Committee, International Conference Punjab University (ICPU 2019) on Recent Innovations in Molecular Sciences on November 06-08, 2019 at Punjab University Lahore, Pakistan.
- Secretary, Institutional Purchase Committee constituted by the Vice Chancellor, University of the Punjab, Lahore
- Incharge, Institutional Classroom Committee, Institute of Botany, University of the Punjab Lahore
- Coordinator, MSc Environmental Sciences (Self-Support/Evening) for 1 Year
- Sub-Coordinator, MSc Environmental Sciences (Self-Support/Evening) for 1 Year
- Member, Department Doctoral Committee CEES (8 Months)
- Incharge, Advanced Instrument Room CEES (5 Years)
- Incharge, Sports Committee CEES (2.5 Years)
- Incharge, Event Organizing Committee CEES (1 Year)
- Coordinator, Dengue Control and Eradication Committee CEES (1.5 Years)
- Incharge, CEES Lawn Committee (2.5 Years)

RESEARCH FOCI

- Environment-Society-Ecosystem Services nexus
- Vertical Farming – Conventional and Organic with all supplies of nutrients and cultivation media
- Carbon farming and Regenerative Agriculture
- Efficient solid waste management through Waste to energy (WTE) and Decentralized Management of Municipal Organics through Composting and Biogasification at Source Level
- Rapid composting of Biodegradable Materials with Indigenous Microbes (IMOs) to devise partial alternate for synthetic fertilizers
- Carbon and nutrient recycling in degraded soils through sustainable agriculture
- Pyrolysis and biochar production through hybrid cooking stoves capable of multi-facet bioenergy capture
- Simple, chemical- and bio-reinforced phytoremediation of water (constructed wetlands) and soils (superterranean bioremediation) polluted with inorganics (heavy metals) and organics (POPs, PCBs, PAHs)
- Degradation of recalcitrant organics such as, POPs, PCBs and PAHs through Solar Ozonation; Open Burning of Municipal Solid Waste and Fate of Dioxins and Furans
- Discovering Natural Crude PGRs potentially equivalent to commercial PGRs

MEMBERSHIP

1. International Biochar Initiative (IBI) USA
2. United States Composting Council (USCC)
3. Environmental Society of Pakistan (ESP)
4. Pakistan Botanical Society (PBS)

5. Pakistan Society of Horticultural Sciences
6. Pakistan Red Cross Society

COUNTRIES VISITED

- ❖ United States of America (USA)
- ❖ The Kingdom of Thailand
- ❖ Malaysia
- ❖ Republic of Philippines

STATISTICAL DATA HANDLING AND GEOSPATIAL SKILLS

- ❖ Data Analysis Power Pack of Microsoft Excel 2010-16 for Developing Simulation Modeling Equations and Data Analyses
- ❖ Statistical software STATISTIX; SPSS; MYSTAT
- ❖ Arc GIS software for Geospatial and Temporal Analyses of Field Data
- ❖ Google Earth Engine for combines a multi-petabyte catalog of satellite imagery and geospatial datasets with planetary-scale analysis

PERSONAL INFORMATION

Name: Muhammad Shafiq
Father's Name: Sabir Ali Shad
Sex: Male
Marital status: Married (Two kids)
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