SULTAN SHAIKH

Address: Al Rayyan Al Qadeem, Doha Qatar
Email: sultanshaikhmuet@gmail.com
ORCID: https://orcid.org/0000-0002-6573-2646
LinkedIn: www.linkedin.com/in/sultan-shaikhh
Mobile: +974-50250434

RESEARCH FIELD AND INTERESTS

- Water and Wastewater Treatment
- Environmental Biotechnology
- Resource Recovery
- Membrane Technology
- Life Cycle Assessment
- 3D Printing
- Microfluidics
- Image Analysis
- Python and Artificial Intelligence

AWARDS AND HONORS

1. Fully Funded Ph.D. Scholarship, Hamad Bin Khalifa University (HBKU), Qatar
- Awarded for outstanding academic performance and research potential.

2. Exchange Scholar, University of Utah, USA
- Selected as an exchange scholar during the master's program for one semester, demonstrating academic excellence and international collaboration.

3. Fully Funded M.S. Scholarship, U.S. Pakistan Center for Advanced Studies in Water (USPCAS-W), Mehran UET Jamshoro, Pakistan
- Awarded for exceptional academic achievements and research contributions.

4. Prime Minister's Laptop Award, Government of Pakistan
- Received for maintaining exemplary academic records during the bachelor's degree program.

5. Academic Excellence Award, Mehran UET Jamshoro, Pakistan
- Awarded 10,000 PKR annually for outstanding performance during bachelor's studies (2011-2015).

PROFESSIONAL EXPERIENCE

RESEARCH EXPERIENCE

Post-doc, Hamad Bin Khalifa University, Qatar (22nd Jun 2025 – Present)

Project: Advancing Food Security in Qatar: Sustainable Feed Development for Aquaculture through Wastewater-Derived Biomass

Objective: The primary goal of the project is to advance food security in Qatar by developing sustainable feed for aquaculture using microbial protein derived from wastewater. The focus is on utilizing purple non-sulfur bacteria (PNSB) to treat fuel synthesis process wastewater (FSPW) and convert it into high-protein biomass for use as aquaculture feed.

Responsibilities:
- Transition the biomass production process from batch culture to pilot-scale continuous operation systems to enhance scalability and integration into mainstream wastewater treatment infrastructures.
- Monitor and optimize pilot-scale reactors for large-scale production, ensuring consistency and efficiency in biomass generation under real-world conditions.
- Characterize biomass produced through detailed analysis, focusing on protein content, amino acid profile, and other relevant biochemical components for aquaculture feed suitability.
- Conducting LCA to evaluate the environmental sustainability and economic feasibility of using the biomass as an alternative feed for aquaculture in Qatar.
- Collaborate with multidisciplinary teams to refine and optimize the protein production process and integrate findings into the broader context of sustainable aquaculture feed production.

- Publish research findings in high-impact journals and present at international conferences to disseminate the results of optimizing PNSB-based protein production for aquaculture feed applications.

Post-doctoral Research Associate, Texas A and M University at Qatar (16th Jun 2024 – 15th June 2025)

Project: A block off the old chip: the advent of 3D microfluidics using macro-volumetric lightsheet fluorescence microscopy (MV-LSFM)

Objective: To develop advanced 3D microfluidic systems using MV-LSFM for studying fluid flow within porous media, aimed at enhancing understanding of environmental processes such as groundwater flow, contaminant transport, and resource recovery.

Responsibilities:
- Design and fabricate volumetric microfluidic devices to simulate real-world environmental systems.
- Conduct experiments on fluid transport phenomena relevant to environmental engineering.
- Develop standard operating procedures for volumetric microfluidic device fabrication and fluid-solid system calibration.
- Collaborate with multidisciplinary teams to integrate findings into broader environmental applications.
- Publish research findings in high-impact journals and present at international conferences.

Post-doctoral Researcher, Hamad Bin Khalifa University, Qatar (Sep 2023 – Feb 2024)

Key Projects:

- **Integration of Membrane Technology for Biomass and 5-Aminolevulinic Acid (5-ALA) Recovery:** Assisted graduate students in harnessing the potential of purple non-sulfur bacteria (PNSB) through membrane technology to optimize biomass separation. This process not only enhances the efficiency and sustainability of wastewater treatment but also facilitates the recovery of 5-ALA. The recovered 5-ALA is being explored for its potential to enhance crop productivity, signifying the innovative and sustainable approaches.

- **Single Cell Protein Production for Aquaculture:** Collaborated with the Qatar Environment and Energy Research Institute (QEERI) to explore the use of yeast cocultures on agricultural waste, aiming to produce single cell protein, a promising resource for aquaculture. This project focused on developing sustainable feed alternatives by utilizing agricultural by-products, contributing to more environmentally friendly practices in the aquaculture industry.

- **Reactor Fabrication for Wastewater Treatment:** Fabricated various reactors tailored for specific research needs, including flow cell reactors as membrane aerated biofilm reactors and granular activated carbon columns. These reactors were designed to improve the treatment efficiency and effectiveness of wastewater management processes, supporting advanced research in environmental engineering.

Responsibilities:
- Designed, developed, and implemented research projects, experiments, and methodologies.
- Analyzed data, interpreted results, and drew conclusions from experiments.
- Collaborated with other researchers and contributed to multidisciplinary research projects.
- Oversaw and managed laboratory activities, ensuring safety protocols were followed.
- Trained and mentored graduate students.
- Maintained and calibrated laboratory equipment.

Ph.D. Research Scholar, Hamad Bin Khalifa University (HBKU), Doha, Qatar (Aug 2019 – Jun 2023)

Project: Production of Polyhydroxyalkanoates (bioplastics) and other value-added bioproducts from fuel synthesis wastewater in a biofilm photobioreactor

Responsibilities:
- Investigated various biofilm photobioreactors for the formation of biofilms by purple non-sulfur bacteria (PNSB).

- Studied the effects of different parameters (nutrients, wastewater concentration, different carbon sources, light intensity, temperature, trace element concentration, and vitamin concentration) on PNSB biofilm formation.
- Extracted value-added bioproducts including polyhydroxyalkanoates, single-cell protein, carotenoids, bacteriochlorophylls, lipids, carbohydrates, and coenzyme Q10 from both suspended and biofilm biomass.
- Analyzed various parameters and quantified value-added bioproducts using instruments such as UV-Spectrophotometer, TOC Analyzer, Zeta Analyzer, Calorimeter, Elemental Analyzer, Microplate Reader, IC, ICP-MS, GC-MS, TGA, and SEM.
- Conducted statistical and graphical data analysis using software tools including Excel, JASP, Statistix 10, Python, and Origin Pro.
- Authored and presented research papers at various international conferences.
- Published research papers in peer-reviewed journals.

Research Assistant, U.S Pakistan Center for Advanced Studies in Water (USPCAS-W), Mehran University of Engineering & Technology (MUET), Jamshoro, Pakistan.

Project 1: Study on Wetlands of Sindh (June 2019 – July 2019).
Responsibilities:

- Arranged and conducted Interviews from 20 Sindh Government officials to gather information about the current state of wetlands in Sindh.
- Designed and conducted a questionnaire survey from 40 residents of different Sindh wetlands to gather information about local residents' perceptions and usage of wetlands.
- Collected and analyzed ten wetlands water samples for ten water parameters to assess the water quality of wetlands in Sindh.
- Assisted in data analysis and helped in the preparation of research findings for the presentation and publication.

Project 2: Situational Analysis of Waste Management at Processing Facilities at United Energy Pakistan (UEP) (Aug 2018 – Sep 2018)
Responsibilities:

- Designed and conducted a questionnaire survey related to solid waste management at processing facilities at United Energy Pakistan (UEP) to gather information about the current waste management practices and to identify areas for improvement.
- Quantified the amount of waste generated at the processing facilities and collected data on different types of waste and their disposal methods.
- Compiled a report of about 5000 words summarizing the findings of the survey and the quantification of waste and made recommendations for improving the waste management practices at UEP.

Project 3: Baseline Survey of Knowledge, Attitude, and Practices of WASH in Ward no 3, Thatta, Pakistan (March 2018 - May 2018)
Responsibilities:

- Collected and analyzed 20 water samples for ten water parameters to assess the water quality in Ward no 3, Thatta.
- Designed and conducted a questionnaire survey from 50 households to gather information about the knowledge, attitude, and practices of WASH in the area.
- Compiled a report of about 5000 words summarizing the findings of the survey and water sample analysis and made recommendations for improving the WASH practices in Ward no 3, Thatta.

Graduate Student, U.S. Pakistan Center for Advanced Studies in Water (USPCAS-W), Mehran UET Jamshoro, Pakistan (Aug 2015 – Oct 2017)

Project: Exploring Groundwater Quality in the Areas Surrounding Manchar Lake for Drinking Purposes (Master's Thesis)
Responsibilities:

- Identified locations for potable water using vertical electrical sounding (VES).
- Analyzed VES results using the IX1D model.
- Conducted analysis of water and soil samples obtained from hand pumps to verify IX1D model results.
- Performed statistical and graphical data analysis using Excel.

Undergraduate Researcher, Mehran UET Jamshoro, Pakistan (Jan 2014 – Dec 2014)
Project: Determination of Coefficient of Friction Using Pendulum Skid Resistance Tester (Bachelor's Thesis)
Responsibilities:

- Conducted an in-depth study to determine the coefficient of friction using a Pendulum Skid Resistance Tester.
- Analyzed the collected data to understand the frictional properties of different surfaces.
- Interpreted results to draw conclusions on the suitability of materials for use in safety-critical applications.

LEADERSHIP AND MANAGEMENT EXPERIENCE

Chief Executive Officer (CEO), Tekgen Technical Institute, Hyderabad Sindh Pakistan (Mar 2024 – Present)
Responsibilities:

- Provide strategic leadership and direction for Tekgen Technical Institute, specializing in health, safety, and environmental (HSE) training.
- Manage the institute remotely, coordinating with staff, trainers, and stakeholders to ensure the seamless delivery of high-quality training programs.
- Oversee the development and implementation of HSE training courses, ensuring they meet industry standards and regulatory requirements.
- Monitor and evaluate the effectiveness of training programs, making data-driven decisions to enhance curriculum and delivery methods.
- Develop and maintain partnerships with industry experts, organizations, and accrediting bodies to strengthen the institute's reputation and expand its network.
- Lead marketing and outreach efforts to promote the institute's training programs and attract new students, both locally and internationally.
- Ensure financial stability through effective budgeting, resource allocation, and financial oversight.
- Support the professional development of trainers and staff, fostering a culture of continuous improvement and excellence.
- Ensure compliance with all relevant regulations and maintain accreditation standards to uphold the institute's credibility and integrity.

TRAINER EXPERIENCE

IEMA Trainer (Part-time), Eduskills Technical and Occupational Skills Training, Dubai (Mar 2023 – Present)
Responsibilities:

- Deliver comprehensive training programs in environmental management in alignment with the Institute of Environmental Management & Assessment (IEMA) standards.
- Conduct training sessions, workshops, and seminars for professionals seeking IEMA certification using provided materials.
- Evaluate participants' performance through assessments, providing constructive feedback to support their professional growth.
- Maintain up-to-date knowledge of environmental legislation, sustainability practices, and emerging trends in environmental management.
- Collaborate with other trainers and industry experts to enhance the training delivery methods.
- Provide support and guidance to trainees, assisting them in understanding complex environmental management concepts and applications.
- Monitor and report on training outcomes, ensuring continuous improvement in program quality and effectiveness.

Shell NXplorers Pro programTrainer (Part-time), ibtechar Digital Solutions, Doha, Qatar (Sep 2022 - May 2023)
Responsibilities:

- Delivered Shell NXplorers Pro program training sessions to undergraduate students at the University of Doha for Science and Technology (UDST) on-site.
- Facilitated the implementation of pre-designed training materials provided by Shell, ensuring effective delivery and engagement.
- Taught students various tools and methodologies of the Shell NXplorers Pro program, including systems thinking, scenario planning, and the NXplorers toolkit.

- Prepared students for the final competition by providing mentorship, guidance, and constructive feedback on their projects and problem-solving skills.
- Supported participating teams throughout the program, helping them develop and refine their projects to meet competition standards.
- Leveraged expertise in STEM education, with a focus on the water, energy, and food nexus, to effectively communicate complex technical concepts to diverse audiences.
- Fostered an inclusive and supportive learning environment, accommodating participants of varying age groups, cultural backgrounds, and levels of experience.

INTERNSHIP EXPERIENCE

Environmental/Sustainability Intern, Parsons International Limited, Doha, Qatar (July 2022 - Aug 2022)
Responsibilities:

- Composed environmental reports by gathering and analyzing data and presenting findings in a clear and concise manner.
- Reviewed and updated environmental maps to ensure accuracy and completeness.
- Maintained project records related to environmental and sustainability, including monitoring project compliance with regulations and industry standards.
- Assisted in the development of sustainability plans and strategies for various projects.
- Provided support to the Environmental and Sustainability team by participating in meetings, conducting research, and performing other tasks as needed.
- Gathered and analyzed data and presented findings in a clear and concise manner.

TEACHING ASSISTANT EXPERIENCE

Teaching Assistant, Hamad Bin Khalifa University, Qatar (Aug 2021- May 2022)
Responsibilities:

- Assisted professor with course preparation of graduate level classes.
- Led discussion sections, provided one-on-one support to students, and graded assignments and exams.
- Developed and delivered lectures.
- Collaborated with professor to design and implement assessments and activities to enhance student learning.

Subjects Taught:

- Statistics for Science and Engineering (Spring 2022 and 2021).
- Water and Wastewater Treatment (Fall 2021).

Laboratory Assistant, Hamad Bin Khalifa University, Qatar (Jan 2020 - Aug 2020)
Responsibilities:

- Overseeing laboratory organization and management.
- Developing weekly scopes of work for various laboratory chemicals, equipment, and accessories, averaging 10 per week.
- Providing support to graduate students with their experimental setups.

LECTURER EXPERIENCE

Lecturer (Visiting-Morning), Government College of Technology (GCT), Hyderabad, Pakistan (Sep 2018 - Aug 2019)
Responsibilities:

- Implemented effective teaching methods and delivered lectures on AutoCAD, Environmental management, and Foundation engineering to a class of 40 students.
- Developed and administered assignments, exams, and laboratory activities that aligned with course objectives and student learning outcomes.
- Led interactive lab sessions, evaluated student performance, and provided constructive feedback.
- Supervised and mentored two thesis groups, guiding them through the research process and providing support throughout the writing and publication process.
- Conducted viva-voce during the examination and provided guidance to students to improve their understanding and performance.

Achievement: Successfully guided and mentored two thesis groups who presented their research work at the 2nd International Conference on Sustainable Development in Civil Engineering, Mehran UET Jamshoro, Sindh, Pakistan.

Lecturer (Evening), Hyderabad College of Science & Technology (HCST), Hyderabad, Pakistan (Sep 2018 - Aug 2019)
Responsibilities:

- Implemented effective teaching strategies and delivered lectures on Materials & methods of construction, Water supply & wastewater management, Environmental management, and Occupational health & safety to two groups of 40 students each.
- Developed and distributed assignments, exams, laboratory manuals and tentative teaching plans that aligned with course objectives and student learning outcomes.
- Assessed student performance by grading assignments and exams and provided constructive feedback to improve their understanding and performance.
- Monitored and maintained a safe and productive learning environment by invigilating a class of 20 students and conducting viva-voce during the examination.

Lecturer (Visiting), Preston Institute of Management Science & Technology, Karachi, Pakistan (Oct 2018 - July 2019)
Responsibilities:

- Delivered informative and engaging lectures on Environmental Engineering to a class of 30 students on a weekly basis.
- Created and administered assessments, including assignments and exams, to evaluate student understanding of course material.
- Supervised and monitored students during exams, by invigilating a class of 30 students, to ensure a fair and secure testing environment.
- Led laboratory sessions and provided hands-on learning experiences for students.
- Assessed student performance through grading assignments and conducting viva-voce.

EDUCATIONAL QUALIFICATIONS

Doctor of Philosophy in Sustainable Environment, Hamad Bin Khalifa University (HBKU), Qatar (Aug 2019-June 2023)

- CGPA: 3.78/4.00.
- Awarded with a fully funded Ph.D. Scholarship from Qatar Foundation, Qatar.
- Research Project: Production of Polyhydroxyalkanoates (bioplastics) and other value-added bioproducts. from fuel synthesis wastewater using purple non-sulfur bacteria (PNSB) in biofilm photobioreactors.

Key Outcomes

- Developed a PNSB-based method for treating Fuel Synthesis Wastewater (FSW) in biofilm. photobioreactors, enhancing sustainability and resource recovery.
- Investigated factors affecting biofilm formation, wastewater treatment, and bioproduct production.
- Achieved up to 75% Chemical Oxygen Demand (COD) removal efficiency.
- Identified potential for recovering bioproducts like PHAs, SCP, lipids, and carbohydrates.
- Demonstrated the benefits of nitrogen deficiency in PNSB-based treatment for sustainable carbon recovery and biofilm formation.

Master of Science in Environmental Engineering, U.S Pakistan Center for Advanced Studies in Water (USPCAS-W), Mehran University of Engineering & Technology (MUET), Jamshoro, Pakistan (Aug 2015-Oct 2017)

- CGPA: 3.89/4.00.
- Research Project: Exploring groundwater quality in the areas surrounding Manchar Lake for drinking purpose.

Key Outcomes:

- Successfully conducted Vertical Electrical Sounding (VES) and IX1D groundwater modeling at multiple sites surrounding Manchar Lake to assess groundwater quality.
- Verified VES findings by analyzing various water parameters from samples collected from hand pumps.

- Determined that the groundwater quality in the areas surrounding Manchar Lake is deteriorating and unsuitable for drinking purposes without prior treatment.

Bachelor of Engineering in Civil Engineering, Mehran UET Jamshoro, Pakistan (Jan 2011-Dec 2014)

- CGPA: 3.85/4.00.
- Research Project: Determination of coefficient of friction using Pendulum skid resistance tester.

Key Outcomes:

- Successfully measured and analyzed skid resistance on various surfaces to assess safety and performance characteristics.
- Provided data-driven insights on surface friction properties, contributing to improved safety standards and material selection in relevant applications.

RESEARCH GRANTS

1. **Grant Title:** A block off the old chip: the advent of 3D microfluidics using macro-volumetric lightsheet fluorescence microscopy (MV-LSFM).
   Funder Reference: ARG01-0430-230041
   Funder: Qatar National Research Fund
   Role: Postdoctoral Research Associate

2. **Grant Title:** Sustainable bioplastics production from industrial wastewaters using photosynthetic microbial production of polyhydroxyalkanoates (PHAs)
   Funder Reference: NPRP11S-0110-180245
   Funder: Qatar National Research Fund
   Role: PhD Scholar

3. **Grant Title:** Biological conversion of fuel synthesis process water to single cell protein for aquaculture feed using purple phototrophic bacteria
   Funder Reference: MME01-0910-190029
   Funder: Qatar National Research Fund
   Role: PhD Scholar

ACADEMIC SERVICE AND OUTREACH

Open Access Ambassador, International Water Association (IWA) Publishing, United Kingdom **(**Dec 2022 – Present)

Responsibilities:

- Promoted open access publishing and its benefits within the academic community by sharing informative content.
- Provided support to researchers, faculty, and students on open access publishing processes, policies, and best practices.
- Planned and hosted workshops, webinars, or seminars to educate the academic community on open access publishing.
- Established relationships with publishers, libraries, and other stakeholders to advocate for and advance open access initiatives.

Academic & Alumni Officer, Student Council at College of Science and Engineering, Hamad Bin Khalifa University, Qatar (Oct 2020 – May 2021)

Responsibilities:

- Collect students feedback on academic matters, including education programs, academic support, courses, registration, etc.
- Establish and reach out to college alumni for collaborative initiatives.
- Collaborate and communicate with HBKU Alumni Association for alumni opportunities, programs, and initiatives.

Education and Career Development Guide, Accelerate to achieve - YouTube Channel (July 2020 – Present)

Responsibilities:

- Created and managed a YouTube channel to guide students seeking international scholarships, offering advice on CV writing, email writing, and compiling required scholarship documents.

- Provided strategies and tips for successful job interviews, empowering students with the knowledge and skills needed to achieve their academic and career goals.
- Developed informative content to educate and support students in the scholarship application process, sharing it with the academic community.
- Demonstrated a commitment to education and career development by providing guidance and support to students, contributing to their academic and professional success.

Vice President, Residential Student Government (RSG) at Male Housing Qatar Foundation, Qatar (Oct 2020 – May 2021)
Responsibilities:

- Attended weekly executive board and general council meetings.
- Represent the Male Housing community in voting affairs, discussions, campus, community outreach, and overall improvements for residents in student housing.
- Assessing community needs for programming resources, including the acquisition of new materials.

RemTech Ambassador Qatar, RemTech Europe (Oct 2020 – Present)
Responsibilities:

- Disseminating RemTech Europe scientific content in social media.
- Helping to select hot environmental topics and shaping the next activities.
- Contributing to finding experts/companies interested in joining RemTech Europe.

PROFESSIONAL AFFILIATIONS

- Association of Environmental Engineering and Science Professors (AEESP), United States: Student/Post-Doctoral Research Member.
- Chartered Institution of Water and Environmental Management (CIWEM), UK: Environmental Partner.
- Institute of Environmental Management and Assessment (IEMA), UK: Practitioner Member.
- Institution of Occupational Safety and Health (IOSH), UK: Affiliate Member.
- Pakistan Engineering Council (PEC): Registered Engineer.

PROFESSIONAL CERTIFICATIONS

- ProQual Level 3 Award in Assessing Competence in the Work Environment.
- GSAS-CGP, Qatar.
- Envision Sustainability Professional, United States.
- LEED Green Associate, United States.
- NEBOSH Environmental Management Certificate, United Kingdom.
- IOSH Managing Safely, United Kingdom.
- IRCA ISO 14001 Lead Auditor, United Kingdom.
- Shell NXplorers Pro Facilitator Training, United Kingdom.
- AOSH Certified Master Trainer, United Kingdom.
- IASP Certified Egress/Fire Safety Professional, United States.
- OSHA 48-Hour Occupational Safety & Health Manager, United States.
- OSHA 30-Hour Construction Safety Compliance Course, United States.
- OSHA 6-hour Introduction to Safety Management, United States.
- OSHA 6-hour Effective Accident Investigation, United States.
- OSHA 6-hour Effective Safety Committee Operations, United States.
- OSHA 6-hour Ergonomics Project Management, United States.
- OSHA 6-hour Safety Supervision and Leadership, United States.
- OSHA 6-hour Fire Prevention Plans, United States.
- OSHA 5-hour Fleet Safety Management, United States.
- OSHA 4-hour Emergency Action Plans, United States.
- OSHA 3-hour Safety Management System Evaluation, United States.

TECHNICAL SKILLS

- **Microbial Culture Expertise:** Demonstrated experience in culturing and studying purple non-sulfur

bacteria, showcasing a strong foundation in microbial biology.

- **Photobioreactor Design and Operation:** Proficient in engineering and managing photobioreactors, with a focus on system design and operational dynamics.

- **Biochemical Analysis:** Proficient in the extraction and analysis of key biochemical compounds such as polyhydroxyalkanotes, single cell protein, pigments, lipids and carbohydrates from purple non-sulfur bacteria, along with expertise in evaluating culture media.

- **Molecular Biological Techniques:** Proficient in molecular biological methods such as qPCR, RT-qPCR, and metagenomics.

- **Experimental Procedure Proficiency**: Skilled in designing, documenting, and conducting moderately complex experimental procedures, particularly in the context of microbial research.

- **3D Printing:** Experienced in the use of 3D printing technologies for the fabrication of experimental devices and components.

- **SolidWorks:** Proficient in SolidWorks for Computer-Aided Design (CAD) to create detailed 3D models and engineering drawings.

- **Microfluidics:** Proficient in designing and utilizing microfluidic systems for environmental and biological applications, including the study of fluid dynamics and interactions within microscale environments.

- **Data Analysis:** Skilled in MATLAB, Python, JASP, and R for data analysis and mathematical modeling.

SOFT SKILLS

- **Analytical Thinking:** Proficient at identifying complex issues and formulating effective solutions. Strong track record in data interpretation and analysis.

- **Research and Analysis:** Proven expertise in conducting research studies, analyzing experimental data, and interpreting results with a keen eye for detail and accuracy.

- **Communication and Collaboration:** Strong written and oral communication skills, with experience writing peer-reviewed journal articles and presenting research outcomes. Demonstrated ability to work effectively in a team setting and maintain positive working relationships.

- **Organization and Planning:** Demonstrated ability in coordinating and managing research projects, ensuring tasks are completed timely and within scope.

- **Independence and Initiative:** Proven ability to work independently, display initiative, and drive projects to completion.

- **Mentoring:** Experienced in guiding and mentoring students, fostering their academic and research growth.

PEER REVIEW EXPERIENCE

- **IWA World Water Congress & Exhibition 2024, Toronto, Canada (2023)**

Reviewed a series of abstracts, focusing on diverse aspects of water management and technology.

- **Singapore International Water Week 2024 (2023)**

Reviewed a series of abstracts for the conference, emphasizing environmental engineering topics.

- **Environmental Science & Pollution Research (2023, 2022, 2021)**

Conducted detailed reviews for multiple papers across various topics in environmental science and technology.

- **Journal of the Taiwan Institute of Chemical Engineers (2023)**

Provided expert review for a paper involving advanced engineering techniques.

- **Earth Sciences Research Journal (2023)**

Reviewed a manuscript focused on earth sciences and environmental research methods.

- **Biomass Conversion and Biorefinery (2023)**

Evaluated a paper in the field of biomass conversion and sustainable resource management.

- **PeerJ (2023)**

Assessed a manuscript pertaining to environmental biology and agricultural sciences.

- **Water Research (2022)**

Reviewed two papers, contributing to the field of water resource management and environmental biotechnology.

LIST OF PUBLICATIONS

Journal Publications (Total citations: 151, h-index: 6, i10-index: 5**)**

1. Shaikh, S., Gasmi, S., Luyt, A., McKay, G., & Mackey, H. R. (2024). Effects of temperature on biofilm formation and resource recovery during anoxyphototrophic treatment of fuel-synthesis wastewater. Journal of Chemical Technology & Biotechnology. https://doi.org/10.1002/jctb.7919 *(Impact factor: 2.4)*

2. Shaikh, S., McKay, G., & Mackey, H. R. (2024). Light intensity effects on bioproduct recovery from fuel synthesis wastewater using purple phototrophic bacteria in a hybrid biofilm-suspended growth system. Biotechnology Reports. https://doi.org/10.1016/j.btre.2024.e00863 *(Cite score: 14.1)*

3. **Shaikh, S.**, Mirna, N.A Abdelnabi., Annette S. Vincent., McKay, G., & Mackey, H. R. (2024). Evaluating bioproducts production in a purple phototrophic biofilm photobioreactor: Fuel-synthesis wastewater vs. simple substrates. Bioresource Technology Reports. https://doi.org/10.1016/j.biteb.2024.101945 (Cite score: 7.2)

4. **Shaikh, S**., Rashid, N., McKay, G., & Mackey, H. R. (2024). Resource recovery through bioremediation of Fuel-synthesis wastewater in a Biofilm photobioreactor using Purple non-sulfur bacteria: a circular bioeconomy approach. Chemical Engineering Journal Advances. https://doi.org/10.1016/j.ceja.2024.100614 *(Impact factor: 5.5)*

5. **Shaikh, S**., Rashid, N., McKay, G., & Mackey, H. R. (2023). Photobioreactor design for polyhydroxyalkanoates production using anoxygenic photoheterotrophs: a review. Fermentation, https://doi.org/10.3390/fermentation9080778 *(Impact factor: 3.3)*

6. **Shaikh, S**., Rashid, N., Onwusogh, U., McKay, G., & Mackey, H. R. (2022). Effect of nutrients deficiency on biofilm formation and single cell protein production with a purple non-sulphur bacteria enriched culture. Biofilm, 100098*, doi: https://doi.org/10.1016/j.bioflm.2022.100098 (Impact factor: 5.9)*

7. **Shaikh, S**., Rashid, N., McKay, G., Liberski, A. R., & Mackey, H. R. (2023). Nitrogen influence on suspended vs biofilm growth and resource recovery potential of purple non-sulfur bacteria treating fuel synthesis wastewater. Biochemical Engineering Journal, 190, 108754*, doi: https://doi.org/10.1016/j.bej.2022.108754 (Impact factor: 3.7)*

8. Talpur, B. D., **Shaikh, S**., Memon, R. M., Gul, Z., & Ahmed, S. (2022). Ecological Impact Analysis of Buildings Using Life Cycle Assessment Approach: A Case Study of An Institutional Building in Pakistan. Webology, 19(3), 850-867, https://www.webology.org/data-cms/articles/20220519110854amwebology%2019%20(3)%20-%2063%20pdf.pdf *(Impact factor: NA)*

9. **Shaikh, S**., Imran, U., & Soomro, Z. A. (2021). Exploring potable groundwater sources surrounding Manchar lake. Mehran University Research Journal of Engineering & Technology, 40(4), 824-834, doi: http://dx.doi.org/10.22581/muet1982.2104.11 *(Impact factor: 0.6)*

10. Bheel, N., Abro, A. W., Shar, I. A., Dayo, A. A., **Shaikh, S**., & Shaikh, Z. H. (2019). Use of rice husk ash as cementitious material in concrete. Engineering, Technology & Applied Science Research, 9(3), 4209-4212, doi: https://doi.org/10.48084/etasr.2746 *(Impact factor: NA)*

11. Shaikh, K., Imran, U., & **Shaikh, S.,** (2018). Health risk assessment for emissions from Jamshoro thermal power station using AERMOD dispersion model. Journal of Industrial Pollution Control, 34(2), 2142-2151, https://www.researchgate.net/publication/341448038_HEALTH_RISK_ASSESSMENT_FOR_EMISSIONS_FROM_JAMSHORO_THERMAL_POWER_STATION_USING_AERMOD_DISPERSION_MODEL – 2018 *(Impact factor: 1.30)*

Conference Papers & Abstracts

1. **Shaikh, S**., Rashid, N., McKay, G., & Mackey, H. R. (2022). Fuel-synthesis wastewater treatment and purple non-sulfur bacteria biomass and pigments production: Effect of vitamin concentration. In Proceedings of the International Conference on Sustainable Processes and Clean Energy Transition 2022 (ICSuPCET), Sarawak, Malaysia, 1-2 December 2022 (344-349). Materials Research Forum LLC. https://www.mrforum.com/product/9781644902516-38/

2. Rashid, N., **Shaikh, S**., McKay, G., & Mackey, H. R. (2022). An integrated approach for treatment and biomass resource recovery from juice industry wastewater using purple non-sulfur bacteria. In Proceedings of the International Conference on Sustainable Processes and Clean Energy Transition 2022 (ICSuPCET), Sarawak, Malaysia, 1-2 December 2022 (350-354). Materials Research Forum LLC. shttps://www.mrforum.com/product/9781644902516-39/

3. **Shaikh, S**., Rashid, N., & Mackey, H. R. (2022). Influence of nitrogen on simultaneous treatment of fuel synthesis wastewater and PNSB biofilm formation for resource recovery. *9th International Conference on Sustainable Solid Waste Management Corfu, Greece, 15 - 18 JUNE 2022.* http://generalchemistry.chemeng.ntua.gr/uest/corfu2022/proceedings/XXIII/1815.pdf.

4. Rashid, N., **Shaikh, S**., & Mackey, H. R. (2022). Simultaneous treatment of fruit juice industry wastewater and single-cell protein synthesis using purple non-sulfur bacteria. 9th International Conference on Sustainable Solid Waste Management Corfu, Greece, 15 - 18 JUNE 2022. http://generalchemistry.chemeng.ntua.gr/uest/corfu2022/posters/CostEstimationPayment/627e3e5ce9e24Tc1pn/851_Abstract_CORFU_2022_Rashid-Final.pdf.

5. **Shaikh, S**., Qazi, M.A., Rajput, M.W., (2019). 'Water Quality Analysis of Private Filter Plants of Latifabad Hyderabad.' In: Azeem Panhwar. ed., Proceedings of the 2nd International Conference on Sustainable Development in Civil Engineering, December 05-07, 2019, Mehran University of Engineering and Technology, Jamshoro, Sindh, Pakistan: Paper ID: ICSDC_2019_paper_177. Available from: icsdc.muet.edu.pk/proceedings.

6. **Shaikh, S**., Panhwar, S., (2019) 'An assessment of health & safety measures at construction sites: A case study of Hyderabad'. In: Azeem Panhwar. ed., Proceedings of the 2nd International Conference on Sustainable Development in Civil Engineering, December 05-07, 2019, Mehran University of Engineering and Technology, Jamshoro, Sindh, Pakistan: Paper ID: ICSDC_2019_paper_178. Available from: icsdc.muet.edu.pk/proceedings.

7. Imran, U., Mahar, R.B., Ansari, K., **Shaikh, S**., Gul, Naila., Zaman, R.U., (2017) Analysis of Water Quality of Muet Water Treatment & Distribution System by Taking into Account Seasonal Variations. *1st Young Researchers National Conference on Water and Environment (NCWE17), U.S.-Pakistan Center for Advanced in Water, Mehran University of Engineering and Technology Jamshoro, Sindh, Pakistan, May 22-23, 2017*. https://www.researchgate.net/publication/338541223_Center_for_Advanced_Studient_in_Water#fullTextFileContent.

8. Sifat, I., Mahar, R.B., Ahmed, S., **Shaikh, S**., (2017) Treatment of Domestic Wastewater by Sustainable Microbial Fuel Cells having an inexpensive, Reliable and Recyclable Anodes. *1st Young Researchers National Conference on Water and Environment (NCWE17), U.S.-Pakistan Center for Advanced in Water, Mehran University of Engineering and Technology Jamshoro, Sindh, Pakistan, May 22-23, 2017* https://www.researchgate.net/publication/338541223_Center_for_Advanced_Studient_in_Water#fullTextFileContent.

9. Ahmed, S., Ansari, A.K., Shah, S.F.A., Sifat, I., Shaikh, K., **Shaikh, S**., (2017) Melanoidins Removal from Bio-digested Spent Wash using fly ash. 1st Young Researchers National Conference on Water and Environment (NCWE17), U.S.-Pakistan Center for Advanced in Water, Mehran University of Engineering and Technology Jamshoro, Sindh, Pakistan, May 22-23, 2017, https://www.researchgate.net/publication/338541223_Center_for_Advanced_Studient_in_Water#fullTextFileContent.

Conference Oral Presentations

1. **Shaikh, S**., Rashid, N., & Mackey, H. R. (2022). Simultaneous treatment of fuel synthesis wastewater and resource recovery using PNSB-based biofilm technology. Presented at the 26th International Congress of Chemical and Process Engineering CHISA, PRAGUE, Czech Republic.

2. Rashid, N., **Shaikh, S**., & Mackey, H. R. (2022). An integrated approach for resource recovery from juice industry wastewater and biomass production using purple non-sulfur bacteria. Presented at the 26th International Congress of Chemical and Process Engineering CHISA, PRAGUE, Czech Republic.

3. Rashid, N., **Shaikh, S**., & Mackey, H. R. (2022). Treatment of fuel synthesis wastewater in micro-aerobic condition using purple non-sulfur bacteria. Presented at the 9th International Conference on Engineering for Waste and Biomass Valorisation. WasteEng2022 | Copenhagen (Denmark).

4. **Shaikh, S**., Rashid, N., & Mackey, H. R. (2022). Effect of nutrient deficiency on purple non-sulfur bacteria biofilm formation and single-cell protein production. Presented at the 5th SEE Conference on Sustainable Development of Energy, Water, and Environment Systems, Vlore, Albania.

Conference Poster Presentations

1. Rashid, N., **Shaikh, S**., & Mackey, H. R. (2022). Simultaneous treatment of fruit juice industry wastewater and single-cell protein synthesis using purple non-sulfur bacteria. Presented at the 9th International Conference on Sustainable Solid Waste Management Corfu, Greece.

Manuscripts in Preparation

1. Effect of vitamin concentration on simultaneous treatment of fuel-synthesis wastewater treatment and resource recovery.
2. Investigating the influence of varying trace elements concentrations on PNSB-based wastewater treatment and resource recovery through suspended and biofilm microbial growth.
3. Life cycle assessment of PHAs production from wastewater using purple non sulfur bacteria: A review.
4. Modeling the Sustainable Production of Bioplastics from Wastewater Using Photosynthetic Bacteria: A Pathway to Environmental and Economic Viability.