Dr. Anam Munawar
Assistant Professor
Department of Forensic Medicine/Medical Jurisprudence,
University of Health Sciences, Lahore

Contact Details: Cell # +092-3338332208
EMAIL: anammunwar22@gmail.com
ADDRESS: Saman Zar Colony House # P-350, Gojra, District Toba Tek Singh, Pakistan

Area of Interest

Biosensors and biomimetic sensors technology; system miniaturization and applications (bio)chemical molecular recognition layers for separation and sensing applications, artificial receptor materials via molecular imprinting technique, development of sensitive and selective coatings for mass-sensitive, microelectrode, and electrochemical devices; Substantiating developed materials and surfaces by using various characterizing techniques. Establishing mechanistic studies for their potential applications in real environment.

Qualification

- PhD in Biotechnology, January 11, 2020
  Pakistan Institute of Engineering and Applied Sciences, Pakistan
- M.Phil. in Forensic Sciences, August 28, 2013
  University of Veterinary and Animal Sciences, Lahore, Pakistan
- B.Sc. (Hons.) in Applied Microbiology, July 11, 2011
  University of Veterinary and Animal Sciences, Lahore, Pakistan

Experience

- Assistant Professor in the Department of Forensic Medicine, University of Health Sciences, Lahore, Pakistan (November 25, 2021 to Present)
- Assistant Professor in the Department of Biotechnology, Qarshi University, Lahore, Pakistan (November 2, 2020 to November 24, 2021)

Publications

Journal Papers

1. Salah Ud Din, Shad, N.A., Khadim, H., Tahir, M.A., Khan, M.F., Nazir, S., Rakha, A. and **Munawar, A**., 2025. Electrochemical Differentiation of Inks Using Au@ Pt Nanocomposite Based Sensing Platform. Materials Chemistry and Physics, p.130654.
2. Buzdar, Z.A., Ali, H., Munir, M., Shad, N.A., Rakha, A. and **Munawar, A**., 2025. Advancing Forensic Investigations based on TiO2/Bi2O3 Electrochemical Sensor for Precise Potassium Estimation in Vitreous Humor. Heliyon.
3. Khan, M.F.; Rakha, A.; **Munawar, A**.; Nazir, S.; Khan, A.; Khan, M.A.; Ahmad, M.; Wang, C.-C.; Adnan, A. Genetic Diversity and Forensic Utility of X-STR Loci in Punjabi and Kashmiri Populations: Insights into Population Structure and Ancestry. Genes 2024, 15, 1384. https://doi.org/10.3390/genes15111384
4. Kausar, F., **Munawar, A.,** Kausar, S., Samuel, A., Sharif, M., 2024, Impact of Educational Intervention on Adolescent's Knowledge Level Regarding Child Sexual Abuse Prevention in Public Schools of Lahore, Pakistan. Kurdish Studies, 12(5), 1016–1020. https://doi.org/10.53555/ks.v12i5.3391.
5. Noor, S., Akhtar, S., Khan, M.F., Rehman, R.A., Salman, M., Nazir, S., Rakha, A., Ullah, I. and **Munawar, A.,** 2024. Preliminary Study on Mitochondrial DNA Analysis from Different Sports Items. Forensic Science International, p.112077.
6. Zargham, M., Khan, M.F., Rehman, R.A., Rakha, A., Nazir, R., Salman, M., Akhtar, S., Nazir, S., Zareef, I. and **Munawar, A**., 2024. Role of doped ZnO variants for the development of latent fingerprint. Inorganic Chemistry Communications, p.112269.
7. Shad, N.A., Rakha, A., Qayyum, M.A., Siddiqi, M.H., Mahmood, Z., Nazir, S., Khan, M.F., Sajid, M.M., Rehman, R.A., Riaz, A. and Din, S.U., **Munawar, A**, 2024. Zn3 (VO4) 2/Bi2WO6 composite

based versatile platform for cotinine sensing and latent fingerprints development by using multiple modalities. Materials Science and Engineering: B, 301, p.117203.
8. Ikram, M., **Munawar, A**., Kalyar, A.A., Shad, N.A. and Imran, M., 2024. Ruthenium decorated V@ WO3 nanocomposites heterostructures for selective detection of sulfonamide in honey samples. Journal of Food Composition and Analysis, 126, p.105842.
9. Riaz, A., Rakha, A., Shad, N.**A., Munawar**, A. and Siddiqi, M.H., 2023. Harnessing MoS2 nanomaterials for TNP sensing and anticancer efficacy. Materials Chemistry and Physics, p.128619.
10. Sajid, M.M., Zhai, H., Iqbal, M.A., Shad, N.A. and **Munawar, A**., 2023. Tunable Fe+ 3 and W+ 6 Co-doped BiVO4 nanohybrids with efficient photocatalytic and electrochemical chemical sensing characteristics. Ceramics International.
11. Ahmad, Gulzar, Naveed Akhtar Shad, **Anam Munawar**, Aamir Razzaq, Asim Jilani, Dilshad Hussain, Muhammad Munir Sajid et al. "Non-enzymatic rapid sensing platform based on iron doped lead sulfide nano-interfaces for chloramphenicol." Inorganic Chemistry Communications 150 (2023): 110487.
12. Riaz, Ahsan, Iqra Zareef, **Anam Munawar**, Allah Rakha, Muhammad Farhan Khan, Sareen Akhtar, Amna Anwar, Shahid Nazir, Salah ud Din, and Ahtisham Shuja Abbasi. "Microfluidic paper-based analytical device integrated with Fe@ ZnS: MIP for colorimetric detection of antibiotics." Applied Nanoscience (2023): 1-9.
13. Shad, N.A., **Munawar, A**., Javed, Y., Rakha, A., Riaz, A., Din, S.U., Zareef, I., Sajid, M.M., Khan, M.F., Akhtar, S. and Salman, M., 2023. In-field deployable and facile nanosensor for the detection of pesticides residues. Analytica Chimica Acta, 1259, p.341204.
14. Khalid, Naila Batool, M. Sarwar, Allah Rakha, Ahmad M. Khalid, **Anam Munawar**, Ahsan Riaz, Rahat Abdul Rehman, and Sareen Akhtar. "Medicinal honeycomb ceria nanoparticles' fabrication by using green synthesis method." Applied Nanoscience (2022): 1-11.
15. Tayyaba Tarabi, Yasir Javed, Muhammad Munir Sajid, Allah Rakha, **Anam Munawar**, Naveed Akhtar Shad, Huma Munir, Ahsan Riaz, Asim Jilani. Ultrasensitive and rapid detection of artemisinin based on bismuth tungstate dressed rGO nanocomposite. https://doi.org/10.1016/j.matchemphys.2022.126547
16. **Anam Munawar**, Ahmad Mukhtar Khalid, Nadia Batool Zahra, Naveed Akhtar Shad, Ammad Shafeeq, Aamir Razaq, Yasir Javed, Muhammad Munir Sajid, "Tetracycline biomimetic imprinted beads cast as a label-free sensing constituent in different transduction systems", Applied Nanoscience, 03/02/2022.
17. Naveed Akhtar Shad, Anum Jameel, Muhammad Munir Sajid, Amir Muhammad Afzal, Yasir Javed, Asmat Ullah, Ali Asghar, Zeeshan Mehmood, Ifrah Kiran, **Anam Munawar**, Muhammad Abdul Qayyum & Muhammad Sarwar "Fabrication of Spike-Like Spherical Iron Manganite Nanoparticles for the Augmented Photocatalytic Degradation of Methylene Blue Dye", Journal of Electronic Materials, 02/01/2022.
18. Kanwal Akhtar, Naveed Akhtar Shad, Muhammad Munir Sajid, Yasir Javed, Faqir Muhammad, Bushra Akhtar, M. Irfan Hussain, Ali Sharif, Wasim Abbas and **Anam Munawar** "In vivo toxicity and biodegradation studies in mimicked biological media of bare and functionalised haematite nanoparticles", Advances in Applied Ceramics, 11/07/2021.
19. Muhammad Ikram, Yasir Javed, Naveed Akhtar Shad, Muhammad Munir Sajid, Muhammad Irfan, **Anam Munawar**, Tousif Hussain, Muhammad Imran, Dilshad Hussain, "Facile Hydrothermal Synthesis of Nickel Tungstate (NiWO4) Nanostructures with Pronounced Supercapacitor and Electrochemical Sensing Activities", Journal of Alloys and Compounds, 15/10/2021.
20. Naveed Akhtar Shad, Muhammad Munir Sajid, Amir Muhammad Afzal, Nasir Amin, Yasir Javed, Safia Hassan, Zahid Imran, Aamir Razaq, Muhammad Imran Yousaf, **Anam Munawar**, Surender Kumar Sharma. Facile synthesis of Bi2WO6/rGO nanocomposites for photocatalytic and solar cell applications, Ceramics International, 22, 01/06/2021.
21. **Anam Munawar**, Y. Ong, R. Schirhagl, M.A. Tahir, W.S. Khan, S.Z. Bajwa, Nanosensors for diagnosis with optical, electric and mechanical transducers, RSC Advances, 9, 31/01/2019, 6793-6803.
22. **Anam Munawar**, R. Schirhagl, A. Rehman, A. Shaheen, A. Taj, K. Bano, N.J. Bassous, T.J. Webster, W.S. Khan, S.Z. Bajwa, Facile insitu generation of bismuth tungstate nanosheet-multiwalled

carbon nanotube composite as unconventional affinity material for quartz crystal microbalance detection of antibiotics, Journal of hazardous materials, (2019).

23. Muhammad Ali Tahir, Sadaf Hameed, **Anam Munawar**, Imran Amin, Shahid Mansoor, Waheed S.Khan, Sadia Zafar Bajwa. "Investigation the potential of multiwalled carbon nanotubesbased zinc nanocomposite as a recognition interface towards plant pathogen detection." Journal of virology methods. 07/09/2017.
24. Farooq aziz, Madiha Saeed, **Anam Munawar**, Ayesha Shaheen, Khizra Bano, Waheed S.Khan, Sadia Zafar Bajwa."Lecithin-coated gold nanoflowers (GNFs) for CT scan imaging applications and biochemical parameters; in vitro & in vivo studies." Artificial Cell, Nanomedicine and Biotechnology. 31/12/2017.
25. **Anam Munawar**, Muhammad Ali Tahir, Ayesha Shaheen, Peter A. Lieberzeitc, Waheed S. Khan, Sadia Z. Bajwa. "Investigating Nanohybrid Material based on 3D CNTs@Cu Nanoparticle Composite and Imprinted Polymer for Highly Selective Detection of Chloramphenicol." Journal of Hazardous Materials. 07/08/2017.
26. Sadaf Hameed, **Anam Munawar**, Waheed S. Khan, Adnan Mujahid, Ayesha Ihsan, Asma Rehman, Ishaq Ahmed, Sadia Z. Bajwa. "Assessing Manganese Nanostructures based Carbon nanotubes composite for the Highly Sensitive Determination of Vitamin C in Pharmaceutical Formulation." Biosensors and bioelectronics. 04/10/2016.
27. Arifa Jabeen, Qurat-ul-ain Hanif, Misbah Hussain, **Anam Munawar,** Nisma Farooq and Shehar Bano: "Screening, isolation and identification of pectinase producing bacterial strains from rotting**"** *Science Letters*, 3:2 (2015): 42-45.
28. Syed Waqas Hameed, Muhammad Ali Tahir, Sonia Kiran, Saira Ajmal and **Anam Munawar**: "Sensing and Degradation of Chlorpyrifos by using Environmental Friendly Nano Materials" *Journal of Biosensors and Bioelectronics,* (2016), 7:198,
29. **Anam Munawar,** Syed Waqas Hameed, Mohammad Sarwar, Muhammad Wasim, Abu Saeed Hashmi, and Muhamad Imran: "Identification of pesticide residues in different vegetables Collected from market of Lahore, Pakistan." *Journal of Agro Alimentary Processes and Technologies*, 19 (2013): 392-398.
30. **Anam Munawar** and Syed Waqas Hameed. "Quantification of pesticide residues in vegetables by different chromatographic techniques." *Journal of Chromatography & Separation Techniques*, 4(8) (2013).

Book Chapters

1. Algae Biotechnology: A Green Light for Engineered Algae. 2017/ Elsevier. ISBN # 9780128123607.
2. Carbon Nanomaterials for Agri-Food and Environmental Applications: Carbon-based nanosensors: An efficient tool for use in the food industry and agricultural and environmental sectors. 2020, Elsevier (Micro and Nano Technologies). Pages 217-236.
3. Drug-detection performance of carbon nanotubes decorated with metal oxide nanoparticles. 2022, Elsevier (Metal Oxide-Carbon Hybrid Materials). Pages 475-493.
4. Intelligent Nanoparticles for Antibiotics Sensing, Diversity and Applications of New Age Nanoparticles, 25-47.
5. Shafique, Rubia, Malika Rani, Anam Munawar, and Maryam Arshad. "Impacts of Nanotechnology." In Modeling and Simulation of Functional Nanomaterials for Forensic Investigation, pp. 10-27. IGI Global, 2023.
6. Riaz, Ahsan, Iqra Zareef, Anam Munawar, Allah Rakha, and Naveed A. Shad. "Nano Forensic Testing of Illicit Drugs." In Modeling and Simulation of Functional Nanomaterials for Forensic Investigation, pp. 204-222. IGI Global, 2023.
7. Akhtar, Naseem, Malika Rani, Sumara Ashraf, Sara Musaddiq, Anam Munawar, and Waseem Abbas. "Overview of Functional Nanomaterials." In Modeling and Simulation of Functional Nanomaterials for Forensic Investigation, pp. 1-9. IGI Global, 2023.
8. Bano, Khizra, and Anam Munawar. "Analytical Techniques for Characterization of Nanomaterials." In Modeling and Simulation of Functional Nanomaterials for Forensic Investigation, pp. 28-51. IGI Global, 2023.

9. Zargham, M., Khan, M.F. and Munawar, A., 2024. Hybrid Nanomaterial Employment in Clinical and Therapeutic Applications. In Technological Applications of Nano-Hybrid Composites (pp. 247-269). IGI Global.
10. Riaz, A., Zafeer, I., & Munawar, A. (2024). Graphene-Based Nanomaterials for Forensic Application. In The 2-Dimensional World of Graphene (pp. 20-42). Bentham Science Publishers.
11. Riaz, A., Din, S.U., Rakha, A., Shad, N.A. and Munawar, A., 2024. Nanotechnology-based sensors' design and fabrication. In Nanotechnology-Based Sensors for Detection of Environmental Pollution (pp. 175-198). Elsevier.

Books Published

- In Modeling and Simulation of Functional Nanomaterials for Forensic Investigation, DOI: 10.4018/978-1-6684-8325-1. ISBN13: 9781668483251.
- The two dimensional world of graphene, ISBN: 978-981-5238-94-5, eISBN: 978-981-5238-93-8 (Online)

Membership

- International Conference Member on Engineering of Optical Systems and Precision Instruments (ICEOP, (EISSN: 2731-667X))

Workshops and Training (Selected)

- Organizer-National consortium for drug free community-2022
- Invited Speaker-1st International Symposium on Circular Economy for Sustainability in Energy and Textile Sector Government College University Lahore-2022
- Invited speak at 6th International Conference of ARAB Society for Forensic Sciences and Forensic Medicine, 5th-7th December (2023)
- Invited Speaker at 8th International Conference (Healthcare & Health Education in the AI Era), 24-27 April, (2024)
- Oral Presentation-10th Invention to Innovation Summit 2025

Honors

- Lead Poisoning Mitigation Competition-BNU Organizer-1st Prize (2025)
- Cradio Guardian System-Zindigi Prize Winner, 0.1 Million Pkr-(2024)
- Crime Kit-Pakistan Higher Education Comission,0.1 Million Pkr-(2024)
- Cradio Guardian System-National Idea Bank Winner, Health Sector, Silicon Valley Sponsored Visit-(2024)
- Nanosensors for diagnosis-1 Million Pkr funding from Pakistan Engineering Council-(2023)
- Got a project based on the "Texonomy Challenge" organized by British Council. (2021-2022) Project no: (RLCC 714700770). 7000 pounds
- Got 3rd position in Hackathon 3.0 based on the topic of agriculture, organized by National Incubation Center Islamabad, Pakistan. (2021)
- Got 2nd position in Hepatitis C Hackathon, organized by National Incubation Center Islamabad, Pakistan. (2021)

References

Prof. Dr. Romana Schirhagl (Professor)
Department of Biomedical Sciences, University of Groningen, Netherlands.
Email: romana.schirhagl@gmail.com

Prof. Dr. Allah Rakha
Department of Forensic Medicine, University
of Health Sciences, Lahore
Email: a.rakha@uhs.edu.pk, dnaexpert@me.com

Dr. Yasir Javed (Associate Professor)
University of Agriculture, Faisalabad
Email: myasi60@hotmail.com