

Dr. Huma Muddasar

CONTACT DETAILS

- **Address:** National Center of Excellence in Analytical Chemistry, University of Sindh, Jamshoro, Sindh Pakistan
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AWARDS:

- Faculty and Department top in M.Ed (Gold & Silver Medalist)
- Ph.D. in Analytical Chemistry in 2015
- Earned Fellowship under Research Fellowship Program for Foreign Citizens (2216) by TUBITAK in the year 2012.

Research Experience:

Citations 488

h-index 10

i10-index 10

Impact factor 111.141

PUBLICATIONS:

1. A highly selective nickel-aluminum layered double hydroxide nanostructures based electrochemical sensor for detection of pentachlorophenol, Mir Mehran Khan, Huma Shaikh, Abdullah Al Souwaileh, Muhammad Yar Khan, Madeeha Batool, Saima Q Memon, Amber R Solangi, Arabian Journal of Chemistry 17(3) 2024, 105604. <https://doi.org/10.1016/j.arabjc.2024.105604>, (I.F. 6.0).
2. Enhancement in photocatalytic selectivity of TiO₂-based nano-catalyst through molecular imprinting technology, Abdul Wahab, Muhammad Ali Minhas, Huma Shaikh, Hua-Ming Xiao, Muhammad Imran Malik, Environ Sci Pollut Res (2023). <https://doi.org/10.1007/s11356-023-30747-7>. (I.F 5.8).
3. Fabrication of 1-octane sulphonic acid modified nanoporous graphene with tuned hydrophilicity for decontamination of industrial wastewater from organic and inorganic contaminants, Shahbaz Ali Mallah, Huma Shaikh, Najma Memon, Sehrish Qazi, RSC Advances, 13(32), 2023, 21926-21944. (I.F 3.9).
4. Fabrication of ZnO-doped reduce graphene oxide-based electrochemical sensor for the determination of 2, 4, 6-trichlorophenol from aqueous environment, Muhammad Nawaz, Huma Shaikh, Jamil A Buledi, et al., Carbon Letters, (2023). <https://doi.org/10.1007/s42823-023-00562-8> (I.F 4.5).
5. Synthesis of NiO-Doped ZnO Nanoparticle-Decorated Reduced Graphene Oxide Nanohybrid for Highly Sensitive and Selective Electrochemical Sensing of Bisphenol A in Aqueous Samples, Jamil A. Buledi, Huma Shaikh, Amber R. Solangi, et al., Industrial & Engineering Chemistry Research, 62(11), 2023, 4754-4764 (I.F 4.326).

6. Microwave-assisted synthesis of cadmium/reduced graphene oxide composite: an operative platform for highly specific electrochemical determination of bisphenol-A, Muhammad Nawaz, Huma Shaikh, Jamil A Buledi, Amber R Solangi, Rizwan Raza, Bilawal Maher, Journal of Applied Electrochemistry, (2023). <https://doi.org/10.1007/s10800-022-01797-5>(**I.F 2.925**).
7. Fluorene intercalated graphene oxide based CoQ10 imprinted polymer composite as a selective platform for electrochemical sensing of CoQ10, Anam Naz Soomro, Huma Shaikh, Muhammad Imran Malik, Jamil A Buledi, Sehrish Qazi, Amber Solangi, RSC advances, 12(49), 2022, 31639-31649(**I.F 3.9**).
8. Fabrication of an imprinted polymerbased graphene oxide composite for label-free electrochemical sensing of Sus DNA, Huma Shaikh, Jamil Ahmed Baig, Shahabuddin Memon, Shahnila Shah, New Journal of Chemistry, 46(34), 2022, 16509-16522(**I.F 3.3**).
9. Graphene incorporated mesoporous perovskite with excellent conductivity and catalytic activity for low temperature solid oxide fuel cells, Saeed Ahmed Memon, Huma Shaikh, Rizwan Raza, Ayaz Ali Memon, Shahabuddin Memon, New Journal of Chemistry, 46(26), 2022, 12530-12539 (**I.F 3.3**).
10. Diallylcalix[4]arene incorporated polystyrene nanofibers for the removal of endosulfan from an aqueous environment, Saeed Ahmed Memon, Huma Shaikh, Shahabuddin Memon, Faraz Khan Mahar, Zeeshan Khatri, Reactive and Functional Polymers, 175 2022, 105280 (**I.F 5.1**).
11. Synthesis of Insulin Intercalated Graphene Oxide Nanogel Composite: Evaluation of its release profile and stability for oral delivery of Insulin, Shabana Gul Baloch, Huma Shaikh, Shahnila Shah, Shahabuddin Memon, Ayaz Ali Memon, Nanoscale Advances,4, 2022, 2303-2312 (**I.F 4.7**).
12. Molecular imprinting-based extraction of rosmarinic acid from Salvia hypoleuca extract. Sonia Zahara, Muhammad Ali Minhas, Huma Shaikh, Muhammad Shaiq Ali, Muhammad Iqbal Bhanger, Muhammad Imran Malik. Reactive and Functional Polymers, 166 2021, 104984 (**I.F 5.1**).
13. Trace Level Colorimetric Hg²⁺ Sensor Driven by Citrus japonica Leaf Extract Derived Silver Nanoparticles: Green Synthesis and Application. Shabana Bhagat, Huma Shaikh, Ayman Nafady, Syed Tufail Hussain Sherazi, Muhammad Iqbal Bhanger, Muhammad Raza Shah, Muhammad Ishaque Abro, Roomia Memon, Rehana Bhagat. Journal of Cluster Science, 2021, 1-11.(**I.F 2.8**).
14. An AAS Dependent Method for Quantitative Essential Elements Analysis of Pakistani Female Breast Cancer Blood and Serum Samples. Ghulam Q Chanihoon, Ahsanullah Unar, Ayaz A Memon, Tassadaq Hussain Jafar, Huma I Shaikh, Ayesha Sani, Raj Kumar, Sanam Erum Soomro, Muqaddas Qureshi. Advances in Breast Cancer Research 10(3) 2021, 44-59. (**I.F 0.81**).
15. Sonochemical synthesis of Co₃O₄ nanoparticles deposited on GO sheets and their potential application as a nanofiller in MMMs for O₂/N₂ separation. Shahnila Shah, Huma Shaikh, Sarah Farrukh, Muhammad Imran Malik, Shabana Bhagat. RSC Advances 11 (32) 2021, 19647-19655. (**I.F 3.9**).
16. Synthesis of metal organic framework (MOF-5) embedded cryogel composite and its application for the extraction and determination of cholesterol from milk samples.Fouzia Chang, Najma Memon, Huma Shaikh, Ayaz Ali Memon, Shahabuddin Memon, Paras Aazadi Memon, Abdul Sattar Chang. European Journal of Chemistry. 12(1), p 45-51, 2021.(**I.F 0.569**).
17. Synthesis and characterization of poly 2-N-acrylamido-2-methyl-1-propane sulfonic acid functionalized graphene oxide embedded electrolyte membrane using DOE for PEMFC. Mughal, ZN, Shaikh, H, Memon, S, Raza, R, Shah, R, Bhanger, MI. Int J Energy Res. 2020; 1– 24.(**I.F 4.672**).
18. Synthesis of 3-(Trimethoxysilyl) Propyl Methacrylate Functionalized Graphene Oxide Based Mixed Matrix Membrane and Its Application for O₂/N₂ Separation Shahnila Shah, Huma Shaikh,

- Sarah Hafeez and Muhammad Imran Malik, Pak. J. Anal. Environ. Chem. Vol. 21, No. 1 (2020) 44 – 53. **(I.F 0.6)**.
19. Preparation, characterization, and binding profile of imprinted semi-IPN cryogel composite for aluminum, Shahnila SHAH, Huma SHAIKH, Najma MEMON, Muhammad Iqbal BHANGER, Tahira QURESHI¹, Humaira KHAN, Adil DENİZLİ, Turk J Chem (2020) 44: 901 – 922 doi:10.3906/kim-2002-36.**(I.F 1.239)**.
 20. A composite of imprinted polypyrrole beads and reduced graphene oxide for specific electrochemical sensing of atrazine in complex matrices. Ahmed, S., Shaikh, H., Solangi, A. et al. Monatsh Chem 151, 1271–1282 (2020).**(I.F 1.8)**.
 21. Molecular Imprinted Graphene Oxide Nanocomposite for Optical Sensing of Nicotine in Human Blood Plasma. S Qazi, H Shaikh, AA Memon, S Memon J. Chem. Soc. Pak 42 (06), 856 (2020)**(I.F 0.7)**.
 22. Recent Applications of Molecularly Imprinted Polymers in Analytical Chemistry; Muhammad Imran Malik, Huma Shaikh, Ghulam Mustafa, Muhammad Iqbal Bhange; Separation & Purification Reviews, (2019) 1-41. **(I.F 5.4)**.
 23. Effective Heterogeneous Photocatalytic Degradation of Crystal Violet Dye Using Manganese Ferrite Nanoparticles, Humaira Khan; Aamna Balouch, Kaniz Fatima Soomro, Huma Shaikh; Pak. J. Anal. Environ. Chem., 20 (1) (2019) 32-38. **(I.F 0.6)**.
 24. Fractionation of Manganese in Soil Samples Collected From Lakhra coal field in Pakistan Using Flame and Electrothermal Atomic Absorption Spectrometry”; Mustaqeem Ur Rahman, T G. Kazi, Huma Shaikh, Jamshed Ali, Atomic spectroscopy. 36(6) (2018) 258-263.**(I.F 3.4)**.
 25. 2, 3-Pyridine dicarboxylic acid functionalized gold nanoparticles: Insight into experimental conditions for Cr³⁺ sensing. Ruqaya Shaikh, Najma Memon, Amber R Solangi, Huma Shaikh, Muhammad Hassan Agheem, Syed Abid Ali, Muhammad Raza Shah, Aftab Kandhro, Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, 173, (2017) 241-250. **(I.F 4.4)**.
 26. Synthesis and characterization of molecularly imprinted polymer embedded composite cryogel discs: Application for the selective extraction of cypermethrins from aqueous samples prior to GC-MS analysis. Huma Shaikh, Muge Andac, Najma Memon, Muhammad Iqbal Bhanger, Shafi Muhammad, Nizamani, Adil Denizli, RSC Adv. 5, (2015) 26604-26615.**(I.F 3.9)**.
 27. Molecularly imprinted surface plasmon resonance (SPR) based sensing of bisphenol A for its selective detection in aqueous systems. Huma Shaikh, Gülsu Şener, Najma Memon, Muhammed Iqbal Bhanger, Shafi Muhammad Nizamani, Recep Üzek, Adil Denizli, Anal. Methods, 7, (2015) 4661-4670.**(I.F 3.1)**.
 28. Megaporous poly(hydroxyethylmethacrylate) based poly(glycidylmethacrylate-N-methacryloyl-L-tryptophan) embedded composite cryogel. Deniz Türkmen, Nilay Bereli, Ali Derazshamshir, Işık Perçin, Huma Shaikh, Fatma Yılmaz, Colloids and Surfaces B: Biointerfaces, 130, (2015), 61–68.**(I.F 5.8)**.
 29. Core-shell molecularly imprinted polymer-based solid-phase microextraction fiber for ultra-trace analysis of endosulfan I and II in real aqueous matrix through gas chromatography-micro electron capture detector, Huma Shaikh, Najma Memon, M.I. Bhanger, S.M. Nizamani, Adil Denizli, Journal of Chromatography A, 1337 (2014) 179– 187. **(I.F 4.1)**.
 30. GC/MS based Non-target Screening of Organic Contaminants in River Indus and its tributaries in Sindh (Pakistan). Huma Shaikh, Najma Memon, M.I. Bhanger, S.M. Nizamani, Pak. J. Anal. Environ. Chem., 15 (1) (2014) 42-65. **(I.F 0.6)**.

31. Determination of Ibuprofen Drug in Aqueous Environmental Samples by Gas Chromatography – mass Spectrometry without Derivatization. Tahira Qureshi, Najma Memon, Saima Q. Memon, Huma Shaikh, American Journal of Modern Chromatography, 1(1) (2014) 45-54.
32. Study on an Hydrophilic Interaction Electrochromatography Method for Separation of Sulfonamide Antibiotics. CemilAydoğan, Fatma Yılmaz, DuyguÇimen, MügeAndaç, Huma Shaikh, AdilDenizli,Hacettepe J. Biol. & Chem.,42 (3) (2014) 443–450.
33. Synthesis and Characterization of Poly(N-isopropylacrylamide) Thermosensitive Based Cryogel,VeyisKarakoç, DenizTürkmen, Huma Shaikh, NilayBereli, Cenk A. Andac, AdilDenizli, Hacettepe J. Biol. & Chem., 41 (2) (2013) 159-166.
34. Molecular imprinted magnetic nanoparticles for controlled delivery of mitomycin C, DenizTürkmen, NilayBereli, M. EminÇorman, Huma Shaikh, Sinan Akgöl, AdilDenizli, Artificial Cells, Nanomedicine, and Biotechnology, (2013) 1-7.**(I.F 5.8).**
35. Enantioseparation of Ofloxacin by Ligand Exchange Capillary Electrophoresis Using L-Histidine Modified Nanoparticles as Chiral Ligand, CemilAydoğan, VeyisKarakoç, Fatma Yılmaz, Huma Shaikh, Adil Denizli1,Hacettepe J. Biol. & Chem., 41 (1) (2013) 29-36.
36. Preparation and characterization of molecularly imprinted polymer for di(2-ethylhexyl) phthalate: Application to sample clean-up prior to gas chromatographic determination, Huma Shaikh, Najma Memon, Hamayun Khan, M.I. Bhanger, S.M. Nizamani, Journal of Chromatography A, 1247 (2012) 125– 133.**(I.F 4.1).**
37. Selectivity of Brij-35 in Micellar Liquid Chromatographic Separation of Positional Isomers, NajmaMemon, Huma Shaikh, Amber R. Solangi, Chromatography Research International, Volume 2012, doi:10.1155/2012/458153.

Book Chapters,

1. H. Shaikh, M. Koondhar, N. Memon, Chapter 7 - Nanomachines and their biomedical applications, in: A. Denizli (Ed.), Biophysics At the Nanoscale, Academic Press 2024, pp. 131-150.
2. Karim, S.S., Shaikh, H., Farrukh, S., Memon, S.A., Qureshi, T., Memon, S. (2023). Facilitated Transport Membranes (FTMs) for CO ₂ Separation from Flue Gas (CO ₂ /N ₂). In: Farrukh, S., Fan, X., Matsuura, T., Karim, S.S. (eds) Facilitated Transport Membranes (FTMs) for CO ₂ Capture: Overview and Future Trends. Green Energy and Technology. Springer, Cham. https://doi.org/10.1007/978-3-031-21444-8_7
3. Shaikh, H. et al. (2023). Carbon Dioxide (CO ₂) Gas Storage and Utilization. In: Farrukh, S., Fan, X., Matsuura, T., Karim, S.S. (eds) Facilitated Transport Membranes (FTMs) for CO ₂ Capture: Overview and Future Trends. Green Energy and Technology. Springer, Cham. https://doi.org/10.1007/978-3-031-21444-8_8
4. Thermal biosensors for virus detection, in Biosensors for Virus detection, Series: IOP Series in Sensors and Sensor Systems, Huma shaikh, Shahnaila Shah, Institute of Physics Publishing Ltd-2021. Pages 6-11. Hardback ISBN: 9780750338653, Ebook ISBN: 9780750338677, DOI:10.1088/978-0-7503-3867-7ch6
5. Surface-Enhanced Raman Scattering Sensors for Chemical/Biological Sensing, in: Plasmonic Sensors and their Applications, Huma Shaikh, Zaib un Nisa Mughal, Saeed Memon, Shahabuddin Memon, WILEY-VCH GmbH-2021. Pages 189-207. Print ISBN:9783527348473, Online ISBN:9783527830343, DOI:10.1002/9783527830343
6. SPR Sensors for Environmental Analysis, in: Advances in Environmental Science, Huma Shaikh, Tahira Qureshi, Adil Denizli. Hacettepe University Press, Ankara-2019. Pages 39-49. ISBN: 9789754914849.

INTERNATIONAL CONFERENCES ATTENDED:

1. Delivered oral presentation under topic "Preparation of magnetic molecularly imprinted polymer for rapid determination of endosulfan in environmental water samples" at 3rd PAK-TURK Conference held in Bursa, Turkey between 13-15 Sept, 2012.
2. Delivered oral presentation under the title "Poly(hydroxyethyl methacrylate) based cryogel with embedded trichlorfon imprinted particles: Application to sample clean-up prior to chromatographic determination" at the Chromatography Congress which was held between 19th-22nd June, 2013. Uludag University, Bursa, Turkey.
3. Delivered oral presentation under the title "Synthesis and Characterization of Methacroloyl Phenylalanine and Vinyl Imidazole based CEC Monolithic Column for the Separation of Poly Aromatic Hydrocarbons" at the 7th Affinity Technology Congress which was held between 13-17th September, 2013 Ege University, Izmir, Turkey
4. Delivered oral presentation under the title "Synthesis and characterization of dual imprinted composite cryogel discs: Application for the selective extraction of α -cypermethrin and β -cypermethrin from aqueous samples prior to GC-MS analysis" at the 25th National and 13th International Chemistry Conference held in Punjab University, Lahore, Pakistan, between 20th – 22nd October, 2014.
5. Delivered oral presentation under the title "Synthesis of surface imprinted PHEMA cryogel for Aluminium" at the 2015 International KÖYCEĞİZ meetings, Turkey, 6-12 September.
6. Delivered oral presentation under the title "Synthesis and characterization of trichlorfon imprinted particles embedded composite cryogel column: Application for the selective extraction of trichlorfon from aqueous samples prior to liquid chromatographic analysis" in Conference on emerging materials and process organized by NUST, Islamabad from 22-23 December 2015.
7. Attended 5-Day HEC Workshop on Applying Quantitative Techniques Using SPSS from 17th to 21st April, 2017.
8. Delivered oral presentation under the title "Synthesis of imprinted graphene nano-composites; their application as electrochemical sensor" at Conference "Chemical and Pharmaceutical Sciences: Recent Approaches in Research & Applications" held on 17-19th January, 2018 at the Forman Christian College (A Chartered University), Lahore, Pakistan.
9. Delivered oral presentation under the title "Analytical Chemistry: A Gateway to the Sustainable Industry" at 1st International Industrial Chemistry Conference 2021; held at Department of Chemistry, NED University of Engineering and Technology, on 26th to 28th February 2021.

10. Delivered Invited Lecture under the title “Emerging materials as stationary phase for Chromatography” at Kromatografi XX Conference (Hybrid) organized by Hacettepe University Ankara & BIOREG Turkey, from 24th to 26th February 2022.

RESEARCH GRANTS EARNED

1. Research project on “Synthesis of graphene based polymeric nanocomposites and their applications as sensing materials” accepted Under NRPU, Higher Education Commission. The total cost of the project is Rs. 2.538millions. PI Dr. Huma Muddasar, Co-PI Prof. Dr. Sirajuddin (2019-2022).Project No. 20-9576/Sindh/NRPU/R&D/HEC/2017-18 (completed)
2. Research project on “Synthesis and applications of calixarene based nanofibers” accepted Under NRPU, Higher Education Commission. The total cost of the project is Rs. 4.396millions. PI Prof. Dr. ShahabuddinMemon, Co-PI Dr. Huma Muddasar (2019-2022). (completed)

RESEARCH FELLOWS SUPERVISED

- M.Phil Students under Supervision: 05
- M.Phil Scholars Produced:11
- Ph.D. Students under Supervision: 04
- Ph.D. Student produced:01

CERTIFICATES:

- IELTS: Band Score 7.0
- Training on Gas Chromatography Mass Spectroscopy (GCMS)
- Training on Liquid Chromatography Mass Spectroscopy (LCMS)

JOB EXPERIENCE

➤ **NATIONAL CENTRE OF EXCELLENCE IN ANALYTICAL CHEMISTRY.**

Title of the Job	:	Lecturer
Department	:	NCEAC (National Centre of Excellence in Analytical Chemistry)
Reports to	:	Director NCEAC.
Location	:	Sindh University, Jamshoro.
Working Period	:	From 7 th April 2008 till 21 st February 2017.
Title of the Job :	:	Assistant Professor
Department	:	NCEAC (National Centre of Excellence in Analytical Chemistry)
Reports to	:	Director NCEAC.
Location	:	Sindh University, Jamshoro.
Working Period	:	From 22 nd February, 2017 till date.

Key Job Functions

- Supervising M.Phil and Ph.D Scholars.
- Acquiring and disseminating in depth knowledge of capabilities of Analytical Instruments.

- Providing assistance to juniors and Research scholars.
- Training Research Scholars for different Analytical Instruments.
- Teaching Supramolecular Chemistry, Polymer Chemistry and Chemical safety to improve analytical approach of scholars.

RESEARCH INTERESTS:

1. Synthesis of smart biocompatible gels/ polymers and their applications in drug delivery systems.
2. Synthesis of ion-exchange membranes and their application in fuel cells.
3. Synthesis of graphene based nano-composites and their application in sensor technology.
4. Synthesis of polymers especially molecularly imprinted polymers and their applications.
5. Synthesis of heterogeneous catalyst and electrode materials and their application in fuel cell.
6. Synthesis of opto-electrically active materials and their applications.
7. Analytical method development in separation sciences especially using solid phase extraction and solid phase micro-extraction.