

# Dr. Amtul Qayoom



## (HEC Approved Supervisor)

Associate Professor, Department of Chemistry, NED University of Engineering and Technology, Karachi.

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### Research Interest

- Statistical method optimization
- Adsorption/biosorption
- Method development and validation
- Nano sensors for pharmaceutical and toxic metal monitoring.
- Re-refining of used lubricating oil

### Professional Experience

#### **Associate Professor (July 2017-to date)**

Department of Chemistry, NEDUET

Supervising undergraduate and postgraduate research projects. Teaching following chemistry courses to MS and BS Industrial Chemistry students

**MS Courses:** Quality Assurance and Automated Analytical Methods, Research Methodology

**BS Courses:** Nanotechnology, Inorganic Chemistry, Analytical Chemistry

#### **Assistant Professor (August 2011-June 2017)**

Department of Chemistry, NEDUET

Developed proposal and syllabus for BS and MS Industrial Chemistry Programmes. Teaching following chemistry courses to MS, BS and BE students.

**MS Courses:** Quality Assurance and Automated Methods, Research Methodology

**BS Courses:** Nanotechnology, Inorganic Chemistry, Analytical Chemistry, **BE Courses:** Applied Chemistry

#### **Lecturer (Feb 2006-July 2011)**

Department of Chemistry, NEDUET

Taught Industrial Chemistry Course to under graduate engineering students and conducted lab classes for Applied chemistry and Analytical Chemistry courses and worked as invigilator and internal examiner.

#### **Lecturer (Feb 2002-July 2005)**

Govt. College for Women Shahrah-e-Liaquat, KHI

Taught Analytical and Physical Chemistry courses to intermediate and undergraduate students, conducted lab classes and worked as invigilator and internal examiner.

#### **Quality Control Analyst (1997 - 1998)**

Novartis Pharma (Pakistan) Ltd

Worked as trainee quality control analyst in Raw Material Testing Lab. Conducted various experiments to ensure quality of raw materials used in different drug formulations. Given the task of daily and periodical water testing

### Analytical Skills & Tools

- Shimadzu 1600 & 1800 double beam UV-visible spectrophotometer
- Thermo Scientific Nicolet iS10 FT-IR Spectrometer
- Perkin Elmer Analyst 700 Atomic Absorption Spectrophotometer
- Mettler Toledo Karl Fischer Titrator
- Thermo Scientific Orion 950 Titrator
- Shimadzu SPD-20A Liquid Chromatographic System
- Minitab 17, Endnote, Mendely & Zotero
- Microsoft Windows XP and 10, Microsoft Office 2003, 2007 and 2010

### Academic Qualification

#### **Ph.D (Chemistry) 2011**

Department of Chemistry, University of Karachi.

Dissertation: "A Study of Turmeric as a Remedy to Remove Toxic Metals from Aqueous Solutions"

#### **M.Sc. (Chemistry) 1997**

#### **First stood First**

Department of Chemistry, University of Sindh Jamshoro

#### **B.Sc. (Pass) 1995**

Govt. Girls Shah Latif College, Hyderabad, Pakistan

Major: Chemistry

Minor: Functional Mathematics, Zoology

### Trainings, Workshops & Conferences

- Attended Webinar on "Accelerate your research using Elsevier's Scopus" organized by Elsevier in collaboration with NEDUET on January 13th, 2022
- Delivered lectures in "Hands on Workshop on HPLC at Chemistry Department, NED UET on Dec 23-24th, 2021." on the topic "Interpreting Chromatogram"
- Attended 1st International Seminar on Chemistry and Chemistry Education organized by University of Pattimura, Indonesia and presented the research entitled "Simultaneous Determination of Amlodipine Besylate, Perindopril tert-butylamine and Naproxen by Liquid Chromatography: Statistical Method Development & validation" on September 23rd, 2021.
- Intellectual Property Rights and Protection. 2018, NEDUET
- Awareness of Procurement rules & Process within University, 2018, NEDUET
- Resource Sharing for Optimum use and benefits, 2017, CCEE, NEDUET
- Training Programme "Financial Management", 2015, NEDUET

- Organization Interdepartmental Communication", 2015, NEDUET
- Oral Presentation in 1st International Conference on Advanced Materials and Process Engineering-2015, NEDUET
- Workshop on "New Trends in Electrochemistry", ICCBS, 2015
- Workshop on Chemical Laboratory Safety and Security, ICCBS, 2012
- International Training Workshop on Air Pollution Modeling Fate of Air Pollutants in the Atmosphere, 2012, University of Karachi, Pakistan
- National Workshop on Chemical Laboratory Safety and Security in Universities of Pakistan, ICCBS, 2011.
- 2<sup>nd</sup> International Seminar on Analytical Sciences, , 2007, National Center of Excellence in Analytical Chemistry, University of Sindh
- Conference on Biotechnology, Bioengineering-Biophysical Chemistry, 2007, University of Sindh, Pakistan
- Oral Presentation at 8th International and 20th National Chemistry Conference (INCC 2010) Islamabad, 2010, QAU Islamabad, Pakistan.
- Workshop on Environmental Chemistry (NCEAC), 2009, Hyderabad
- Workshop on Systemic Approach to Teaching and Learning Chemistry (SATLC), 2008, ICCBS, (First prize in poster competition).
- 11th Int. Symposium on Natural Product Chemistry, ICCBS, 2008
- Oral Presentation at Pure and Applied Chemistry Conference 2008 (PACCON 2008), 2008, Bangkok, Thailand
- Oral Presentation in 4th International Symposium on Biotechnology and 1st Pakistan-China-Iran International Conference held in University of Sindh, Jamshoro.

#### **Academic/ Administrative Responsibilities**

- Postgraduate Coordinator: Responsible for administrative tasks related to academic activities related to MS and PhD Programmes.
- Arranged two days "Hands on Workshop on High Performance Liquid Chromatography.
- In charge Chemistry Lab for undergraduate and postgraduate students.
- Development and revision of BS and MS industrial Chemistry curriculum
- Preparation of lab manuals for undergraduate BS Industrial Chemistry Programme
- Conference Coordinator for **1st International Chemistry Conference 2021 (IICC 2021)**: had multiple meetings and email correspondence with potential industrial sponsors such as visited various companies such as indigo, BASF, Archroma etc for collaboration
- Class Advisor for First Year BS Industrial Chemistry Programme for 5 years.
- Turnitin Focal Person for Department of chemistry and physics
- Member Industrial Advisory Board
- Member Board of Studies & Board of Faculties
- Member Departmental SAR committee
- Member MS admission Committee

- Member BoF & BOS
- LMS Fall & spring Semester 2020  
Member review committee BSIC Fall semester
- Counselor of undergraduate SSIC
- Departmental website in charge: Developed website of the department, maintain all updates on the departmental website. Developed e-Library for the facilitation of the student.
- Website In charge IICC 2021 and Printing Material In charge: developed website for the conference solely,
- Made Work load Spring 2020 and Panel of Examiner for Spring and Fall 2020
- Developed nine postgraduate diploma courses on Pharmaceutical Industrial Chemistry and one course on ISO 17025
- Conducted BS (Industrial Chemistry) Alumni Data to maintain data

#### **Industrial Visits Organized for Undergraduate Students**

- SSIC (Batch 2016-17) Nextarpharma (A Subsidiary of The Searle Company Ltd-Pakistan)
- FSIC (Batch 2017-18) SGS Pakistan (Private) Limited
- FSIC (Batch 2014-15) International Center for Chemical and Biological Sciences (ICCBS)

#### **Industrial Talks Organized for Undergraduate Students**

- 2019: Gets Pharma, Ltd. Quality Control Department in Pharmaceuticals by Mr. Abdul Samad, Mr. Muhammad Fahad and Mr. Muhammad Azhar
- 2019: MartinDow Marker Specialties Pvt Ltd. Alumni Lecture by Mr. Mubbashir and Mr. Anus
- 2019: ICI Pharmaceuticals Quality Assurance by Mr. Hammad Khan and Mr. Muhammad Faizan
- 2019: Archroma Pakistan Quality Management by Ms. Iffat Zahara
- 2019: BASF, Pakistan Pvt. Ltd. Resume Writings, Customization of CV & Cover Letter by Mr. Taha Saeed (Senior Manager, Business Management & Sales)
- 2018: MartinDow Marker Specialties Pvt Ltd. Chromatography and Cosmetics by Mr Sheraz Akhter
- 2015: Merck, Private Limited Role and Application of Industrial Chemist in Industry by Mr Sheraz Akhter

#### **Professional Recognitions/ Academic Distinctions**

- Received NEDAASC Best Researcher 2018 award.
- Received monetary Research Award for five publications in last 3 years.
- Journal Reviewer: Reviewed manuscripts for internationally indexed journals such as Chemical Engineering Communication (IF 1.809), Sensors & Actuators: B. Chemical (IF 5.6), IEEE Access (IF 4.098), Journal of Chemical Engineering and Materials Science, Moroccan Journal of chemistry (ISI Master list indexed), Journal of Chemical Society of Pakistan (IF 0.27),
- Reviewer: Reviewed seven NPRU 2019 projects: Job was assigned by HEC Pakistan
- Member: The Chemical Society of Pakistan.

## Research activities

### Proposal Submitted for Research Grant

Year	Research grant	Title	Project Cost (Rs)	Status
2022	NEDAASC FYP Funding 2021	Synthesis, Characterization and Applications of Nanocurcumin Stabilized Nanoparticles	165000/-	Under review
2022	NEDAASC FYP Funding 2021	Robustness Testing for Simultaneous Determination of Amlodipine besalyte, Perindopril and Atorvastatin calcium drugs	149000/-	Under review
2021	NRPU	Microwave Assisted Synthesis, Characterization and Performance Evaluation of Flavonoid Capped Bimetallic Nanoparticles as Colorimetric Nano Sensors for Pharmaceutical Applications	9,918,105/-	Approved
2018	IPFP (As Co-supervisor)	Characterization and evaluation of bioactivity of essential oils extracted from leaves of Psidium guajava and flower bud of Syzygium aromaticum	453500/-	completed

### MS-Independent Study Projects

Year	Batch	Title	Status
		<b>As Supervisor</b>	
2022	Syed Faizan Ahmed 2020-2021	Comparison Of Full Factorial, Box–Behnken and Central Composite Design for Robustness Study of the Simultaneous Liquid Chromatographic Determination Of Citalopram with Antihistamines	On going
2021	Mr. Zia Saeed 2019-2020	Study of forced degradation behavior of vonoprazan fumerate in pharmaceutical formulation using liquid chromatography	completed
2019	Ms. Alizay Qureshi 2017-18	Curcumin-Alginate Composites for Application in Medical Textile	Completed
2018	Abdul Rub Viqar 2014-15	Re-Refining of Used Lubricating Oil Using Indigenous Forsterite Ore as Adsorbent	Completed
2018	MUHAMMAD TALHA 2014-15	Indigenous Kaolinite Ore as An Adsorbent For Refining Of Used Lubrication Oil	Completed
2017	Muhammad Bilal 2015-16	Statistical Optimization of experimental parameters for green synthesis of transition nanoparticles using Cadaba Fruticosa extract: Muhammad Bilal	Completed
2017	Muhammad Talha Siddiqui 2015-16	Optimization of the Green Synthesis of Transition Nano Particles by Design of Experiment (DOE) Methodology:	Completed
2016	Ms. Farhat Ikram 2015-16	Synthesis of silver nanoparticles for the detection of antimicrobial agents in water’.	Completed
2015	Syed Wajid Hussain 2013-14	Improving Different Parameters of Transformer Oil from Pakistan National Refinery Limited	Completed
		<b>As Co Supervisor</b>	
2022	Sultan Mehmood 2020-2021	Liquid Chromatographic method Validation and Optimization for Quantitative determination of Favipiravir in Pharmaceutical formulations	On going
2022	Muhammad Aamir 2020-2021	Quantitative analysis of Treatment of anaemia patients with chronic kidney disease with Roxadustat by Ultra-performance liquid chromatography	On going
2022	Aiman Rasheed 2020-2021	Synthesis, spectroscopic, theoretical studies on molecular charge-transfer complex of anti-covid drug with $\sigma$ and $\pi$ acceptors	On going
2020	Mr. Raees Anis 2019-2020	Optimization of liquid chromatographic separation of anti-hypertensive drugs with statin within green analytical chemistry framework: Application in pharmaceutical formulation	completed

2020	Hafiz Abdul Samad 2019-2020	Quantitative analysis of anti-Covid drugs remdesivir by high performance liquid chromatography	On going
2020	Ms. Sana Saleem MSIC 2018-19	Statistical Experimental Design for Simultaneous Determination of Antihypertensive Drugs with NSAIDs by Liquid Chromatography”	completed
2020	Mr. Bilal Abbasi MSIC 2018-19	Statistical Experimental Design for Simultaneous Determination of Antidiabetic Drugs with NSAIDs by Liquid Chromatography	completed
2019	Ms. Zehra Ghulam MSIC 2018-19	Investigation and Improvement of Cold Flow Properties of Biodiesel Fuel	Completed
2018	Ms. Aneeqa Khalid MSIC 2016-17	Health concerns of pesticides driven from food produces	Completed
2016	Ms. Nida Naz MSIC -2014-15	LC-UV method for determination of citalopram with simultaneously prescribed medicines in raw material and commercial preparation.	Completed
2016	Ms. Shumaila MSIC -2014-15	Liquid chromatographic method for simultaneous determination of alprazolam with co-prescribed drugs in bulk and dosage formulations.	Completed
2016	Ms. Saman Naeem MSIC -2014-15	Spectrophotometric determination of antihistamine through charge transfer complexes.	Completed

### **Representative Publications**

1. Aneeqa Khalid, Saeeda Nadir Ali, Amtul Qayoom, Sajid Iqbal, Sadia Ansari, Zahoor Ul Hussain Awan, Farah Kishwar, Philippe Daniel. (2022) High Performance Liquid Chromatography–Ultraviolet Method for the Determination of Fludioxonil Fungicide Residues: Application on Rice Grains Cultivated in Pakistan. *Arabian Journal of Chemistry*, 15(4) 103692
2. Nida Naz, Saeeda Nadir Ali, Amtul Qayoom, Sajid Iqbal, and Shumaila Akram. “Rapid and Sensitive Method for Simultaneous Determination of Citalopram with Antihistamines by Liquid Chromatography.” *Pakistan Journal of Pharmaceutical Sciences* 34, no. 3 (2021): 835–841.
3. Amtul Qayoom, Ming Huang Wang, Saeeda Nadir Ali, and Yuh Shan Ho. “Bibliometric Analysis of Adsorption Literatures: Contribution from Pakistan (1991-2017).” *Journal of the Chemical Society of Pakistan* 42, no. 3 (2020): 474–487.
4. Saeeda Nadir Ali, Shumaila Akram, Amtul Qayoom, Nida Naz, and Anjum Ayub. “Liquid Chromatographic Method for Simultaneous Determination of Alprazolam with NSAIDs in Bulk Drug, Pharmaceutical Formulation and Human Serum.” *Pakistan Journal of Pharmaceutical Sciences* 33, no. 1 (2020): 121–127.
5. Farhat Ikram, Amtul Qayoom, Zara Aslam, and Muhammad Raza Shah. “Epicatechin Coated Silver Nanoparticles as Highly Selective Nanosensor for the Detection of Pb<sup>2+</sup> in Environmental Samples.” *Journal of Molecular Liquids* 277 (2019): 649–655.
6. Farhat Ikram, Amtul Qayoom, and Muhammad Raza Shah. “Synthesis of Epicatechin Coated Silver Nanoparticles for Selective Recognition of Gentamicin.” *Sensors and Actuators, B: Chemical* 257 (2018): 897–905.
7. Saman Naeem, Saeeda Nadir Ali, Amtul Qayoom, Haji Muhammad, Urooj Haroon, and Shazia Nisar. “Charge Transfer Complexes of Antihistamines with Curcumin: Spectrophotometric Determination in Pharmaceutical Formulations.” *Journal of the Chemical Society of Pakistan* 40, no. 5 (2018): 904–912.
8. Farhat Ikram, Amtul Qayoom, Naheed Ikram and M Raza shah. “Synergistic Effect of Epicatechin Coated Silver Nanoparticles on Antimicrobial Activity of Gentamicin against *Aspergillus Niger*.” *Journal of New Technology and Materials* 7, no. 2 (2017): 100–105.
9. Amtul Qayoom, M Talha, A Kamal, M N Siddiqui, and A R Viqar. “Indigenous Kaolinite Ore as Cost Effective Adsorbent for Re-Refining of Used Lubricating Oil.” *Revue Des Energies Renouvelables* 21, no. 3 (2018): 473–485.
10. Viqar, Abdul, Muhammad Kamal, Amtul Qayoom, Muhammad Talha, Sadia Amber, Mahwish Khan, Naushin Yasin, Kashif Riaz, Sana Awan, and Mumtaz Danish. “Re-Refining of Used Lubricating Oil Using Indigenous Forsterite Ore as Adsorbent.” *International Journal of Scientific and Engineering Research* 9, no. 7 July (2018): 1211.
11. Amtul Qayoom, S.A. Kazmi, and S.N. Ali. “Kinetic Modelling of Aqueous Copper (II) Ions Adsorption onto Turmeric Powder: Effect of Temperature.” *Journal of the Chemical Society of Pakistan* 39, no. 3 (2017):384-390.
12. Amtul Qayoom, Syed Arif Kazmi, and Saeeda Nadir Ali. “Equilibrium Modelling for Adsorption of Aqueous Cd(II) onto Turmeric: Linear versus Nonlinear Regression Analysis.” *Moroccan Journal of Chemistry* 5, no. 2 (2017): 362–370.

13. Saeeda N. Ali, Najma Sultana, Amtul Qayoom, M. Saeed Arayne. "Synthesis and Spectrophotometric Study of Omeprazole Charge Transfer Complexes with Bromothymol Blue, Methyl Orange and Picric Acid." Moroccan Journal of Chemistry 5, no. 1 (2017): 212–226.
14. Qayoom A., S.A. Kazmi, and S.N. Ali. "Turmeric Powder as a Natural Heavy Metal Chelating Agent: Surface Characterisation." Pakistan Journal of Scientific and Industrial Research Series A: Physical Sciences 60, no. 1 (2017): 1-8.
15. Shumaila Akram, Saeeda Nadir Ali, Amtul Qayoom, Sajid Iqbal, Nida Naz, Innayatullah Memon "High Performance Liquid Chromatographic Method for Simultaneous Determination of Alprazolam with Antihistamines in Bulk Drug, Pharmaceutical Formulation and Human Serum." Sindh University Research Journal 49, no. 1 (2017): 07–12.
16. Saeeda Nadir Ali, Najma Sultana, Amtul Qayoom, Muhammad Saeed Arayne, and "Liquid Chromatographic Determination of Alprazolam with ACE Inhibitors in Bulk, Respective Pharmaceutical Products and Human Serum." Sci. Int. (Lahore) 28, no. 4 (2016): 3815–3819.
17. Amtul Qayoom, Syed A Kazmi, and Saeeda Nadir Ali. "Adsorption of Aqueous Cd (II) Ions onto Turmeric Powder: Kinetic Modelling." Sci. Int. (Lahore) 28, no. 4 (2016): 3777–3782.
18. Shumaila Meraj, Amtul Qayoom, and Saeeda N Ali. "Effective Process Optimization Of Indigo Rope Dyeing: A Case Study." Journal of New Technology and Materials (JNTM) 6, no. 2 (2016): 33–37.
19. Syed Wajid Hussain, Amtul Qayoom, Syed Tariq Ali, and Ghazanfar Hussain. "Improving Different Parameters of Transformer Oil from Pakistan National Refinery Limited." Sci. Int. (Lahore) 28, no. 3 (2016): 2533–2536.
20. Saeeda Nadir Ali., N. Naz, Amtul Qayoom, and S. Akram. "Liquid Chromatographic Method for Simultaneous Determination of Citalopram with NSAIDs in Bulk Drug, Pharmaceutical Formulation and Human Serum." Journal of the Chemical Society of Pakistan 39, no. 6 (2017): 970–978.
21. Amtul Qayoom and Syed Arif Kazmi. "Effect of Temperature on Equilibrium and Thermodynamic Parameters of Cd (II) Adsorption onto Turmeric Powder." Journal of the Chemical Society of Pakistan 34, no. 5 (2012): 1084–90.
22. Amtul Qayoom, and S.A. Kazmi. "Effect of Temperature on Sequestration of Cu (II) from Aqueous Solution onto Turmeric Powder." Journal of the Chemical Society of Pakistan 32, no. 5 (2010): 582-588.
23. Amtul Qayoom, S. Arif Kazmi, and Naushaba Rafiq. "Removal of Cu (II) Ions from Aqueous Solutions by Turmeric Powder." Journal of Chemical Society of Pakistan 31, no. 6 (2009): 876–881.