

PERSONAL INFORMATION

Father's Name : Javaid Iqbal
Nationality : Pakistani
Passport : FH1332403
Date of Birth : 28 APR 1984



RESEARCH PROFILE

Total Publications: 187 **h-index:** 31 **Scopus Author ID:** [42461765300](#)
Total Citations: 3675 **i10-index:** 64 **ORCID Author ID:** [0000-0001-6241-7547](#)

Link to the list of Publications:

https://scholar.google.com/citations?hl=en&user=eArN_ysAAAAJ&view_op=list_works&sortb_y=pubdate

EDUCATIONAL BACKGROUND

Postdoctoral Fellow
(Chemistry)
(April 2014-May 2015)

School of Chemical Sciences, Universiti Sains Malaysia, 11800 Penang, Malaysia

MS & Ph.D.
(Chemistry)
(2010-2014)

School of Chemical Sciences, Universiti Sains Malaysia, 11800-Penang, Malaysia.

M.Phil.
(Environ. Sci.)
(2008 -2010)

College of Earth & Environmental Sciences, University of the Punjab Lahore, Pakistan. Securing CGPA **3.73/4.00**.

M.Sc.
(Chemistry)
(2005-2007)

Institute of Chemistry, University of the Punjab Lahore, Pakistan
Securing CGPA **3.51/4.00**.

B.Sc.
(2003-2005)

Govt. College of Science Samanabad, Faisalabad, Pakistan. Securing **1st** Division. (Under Bi-annual System).

F.Sc.
(2000-2002)

Govt. College of Science Samanabad, Faisalabad, Pakistan
Securing **1st** Division. (Under Annual System).

CURRENT POSITION

- ✓ **University of Agriculture, Faisalabad-38040, Pakistan (9 Years and Continue):** Currently serving as **Associate Professor** at Department of Chemistry, University of Agriculture, Faisalabad-38040, Pakistan. Teaching and Conducting Research to the BS/M.Sc, MS/M.Phil., and Ph.D. Students (September 2015 to November 2022 as Assist. Prof. and onwards to the date as Associate Prof.).

TEACHING EXPERIENCE

- ✓ **Universiti Sains Malaysia, Penang, Malaysia (3 Years):**
Delivered **Tutorial Lectures** to the undergraduate students of chemistry (July 2010 to July 2013).
- ✓ **Minhaj University Lahore, Pakistan (2½ Years):**
Career started as a **Demonstrator** in the department of chemistry (November 2007). In February 2008, designation was upgraded to the **Lecturer** of Inorganic & Environmental Chemistry. In the meantime, an additional designation of “**Coordinator**” of M.Sc. Chemistry evening program was assigned. I left the University for Higher Studies by the end of Jun 2010.

RESEARCH EXPERIENCE

- ✓ **Postdoctoral Fellow, Universiti Sains Malaysia, Penang, Malaysia (1 Year):**
Guided 2 Ph.Ds, 3 Masters and 4 final year project students in their research projects on synthesis of organic and organometallic compounds for biological applications.
- ✓ **Research Attachment, University of Western Australia, Perth, Australia (3 Months):**
Visited University of Western Australia (UWA), Perth, Australia in Prof. Dr. Murray Baker’s research laboratory for a period of three months (Mid-August 2011 to Mid-November 2011) funded by Universiti Sains Malaysia (USM), Penang, Malaysia.

RESEARCH STUDENTS PRODUCED

- ✓ A total of 51 M.Sc. students have been produced as research students of mine.
- ✓ A total of 57 M.Phil./MS students have been produced as main supervisor.
- ✓ Five Ph.D. students as main supervisor completed Ph.D. and five Ph.D. students are in progress. Three Ph.D. students have completed their Ph.Ds. under my co-supervision and three are in progress in co-supervision.

TEACHING & RESEARCH INTERESTS

- ✓ **Inorganic & Organic Syntheses:** Synthesis of organic salts and metal complexes of *N*-

Heterocyclic Carbenes (Organometallics) as targets against the cancer cells.

- ✓ **Phytomedicine and Chemistry**: Structural modifications of the newer compounds isolated from plants in order to enhance their biological efficacy.
- ✓ **Analytical and Environmental Chemistry**: Environmental Toxicology, Air, Water and Soil Pollution.

RESEARCH GRANTS

- ✓ HEC-Pakistan SRGP grant of Rs. 0.48 Million for “Green Synthesis of Selenium-*N*-Heterocyclic Carbene Adducts and their anticancer applications against Human Colorectal Cancer Cells” (**Completed**).
- ✓ NRPU-HEC Pak Grant of Rs. 3.96 Million for “synthesis of macromolecules of benzimidazolium salts and respective coinage metal-*N*-heterocyclic carbene complexes and their pharmacological potential” (**Completed**).
- ✓ NRPU-HEC Pak Grant of Rs. 3.63 Million for “Development Selenium Based Antimicrobial Agents for Medical Textile Applications” (**Completed**).
- ✓ Pakistan Academy of Science (PAS-Pak/241) Grant Rs. 1.977 Million for “Synthesis of azolium salts, their acetate-Ag-NHC complexes, biological potential and DFT studies” (**Completed**).
- ✓ Pakistan Science Foundation (PSF-Pak; PSF/CRP/Constrm-676) Grant Rs. 2.945 Million for “Development of Silver(I)-*N*-Heterocyclic Carbene based Cubosome Hydrogels for Topical Treatment of Burns” (**In Progress**).

SCHOLARSHIPS AND AWARDS

Academic:

- ✓ Merit Scholarship August 2007 from Faisalabad Education Board, Pakistan.
- ✓ Awarded as a MENTOR at Lahore Science Olympiad (2007 - 2008).
- ✓ Awarded USM Fellowship from Universiti Sains Malaysia (USM); July 2010 - July 2014).
- ✓ Awarded as Best Teacher at UAF-CC due to good teaching services at PARS campus.

Research:

- ✓ Wiley (AOC) **Best Publication Award** 2014.
(Link: <http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291099-0739>).
Award goes to the publication: Applied Organometallic Chemistry 27 (**2013**) 214-223.
- ✓ Taylor & Francis (JCC) Best Collection: Fantastically Pharmaceutical-anticancer and antivirals.

(Link: <http://explore.tandfonline.com/page/est/biological-chemistry>).

Nomination goes to the publication: Journal of Coordination Chemistry 66(18) (2013) 3211-3228.

- ✓ **Silver Medal Award** as a team member for the product development; “Karcino Cure®: Antiangiogenic and Anticancer Formulation Derived from Santol” presented at Symposium held at Dewan Seri Semarak, UiTM Perlis Branch, Perlis, Malaysia on 26-27th July 2017 to work compiled by S. F. Jafari, Amin Malik Shah, Muhammad Asif, **Muhammad Adnan Iqbal**, M. B. Khadeer Ahamed.

MANAGEMENT EXPERIENCE

1. Coordinator of Postgraduate Classes in Chemistry at, Postgraduate Agricultural Research Station (PARS), University of Agriculture Faisalabad, Pakistan Since 8th September 2019 and Continue.
2. Deputy Director Students Affairs (D/DSA) at Postgraduate Agricultural Research Station (PARS), University of Agriculture Faisalabad, Pakistan Since 5th July 2019 and Continue.
3. Hostel Superintendent for one year (2021-2022) at Postgraduate Agricultural Research Station (PARS), University of Agriculture Faisalabad, Pakistan

SPORTS ACTIVITIES

- ✓ **Cricket** (Played for Universiti Sains Malaysia, 11800 Penang, Malaysia).
- ✓ **Badminton** (Served as Head of postgraduate badminton group at Universiti Sains Malaysia, 11800 Penang, Malaysia).

MEMBERSHIP OF EDITORIAL BOARDS AND SOCIETIES

1. Life Member of the Chemical Society of Pakistan. Membership No. P0809.
2. Member of Editorial Board of “Journal of Angiotherapy” Print ISSN: 2207-8843; online ISSN :2207-872X. Eman Research Ltd, 10-14 Wormald Street, Symonston, Canberra, ACT 2609 Australia.
3. Member of Editorial Board of “Science International (Lahore)” ISSN 1013-5316 ISI INDEXED (Web of Science; Clarivate Analytics). 11 D, Sabzazar, Wahdat Road. 54600, Lahore, Pakistan.

RESEARCH PUBLICATIONS, 2025-2021

TITLE, * On the Name Indicates Corresponding Author

1. Preparation, characterization, DFT calculations, biological evaluations and molecular docking studies of benzimidazolium-based N-heterocyclic carbenes and selenium-adducts. Jamil, F., Yaqoob, M., **Iqbal, M. A.***, Sadique, S., Manahil, S., ... & Haider, M. T. (2025). *Inorganica Chimica Acta*, 574, 122348.
2. Development of benzimidazolium Salt-Based cubosome hydrogel for topical treatment of burns. Farooq, U., Nawaz, M., **Iqbal, M. A.***, Khalid, S. H., Nee, T. W., ... & Fatima, T. (2025). *Journal of Molecular Liquids*, 127048.
3. Role of metal-organic frameworks (MOFs) in electrochemical energy storage devices including batteries and supercapacitors. Omeema, U., Raza, A. H., Manzoor, A., Abbas, M. S., Mustafa, G., **Iqbal, M. A.***,&Akram, M. (2025). *Reviews in Inorganic Chemistry*, (0).
4. Degradation of synthetic reactive Pyrazole-133 dye by using an advanced oxidation process assisted by gamma radiations. Abbas, G., Bokhari, T. H., **Iqbal, M. A.***, Majeed, A., Muneer, M., Hussain, G., ... & Amara, U. E. (2025). *Radiation Physics and Chemistry*, 229, 112418.
5. Comparative study on efficiency of surface enhanced coal fly ash and raw coal fly ash for the removal of hazardous dyes in wastewater: optimization through response surface methodology, H Nadeem, F Jamil, **MA Iqbal***,.....*RSC advances* 14.31 (2024): 22312-22325.
6. Synthesis of Group IIB and IVB Metal Complexes of 3-Nitroaniline for Photocatalytic Degradation of Organic Dyes, Mawat, T. H., Atiyah, E. M., Adnan **Iqbal, M.***, Majeed, A., Iram, G., ... & Khalid, S. (2024). *ChemistrySelect*, 9(14), e202304566.
7. Recent trends in medicinal applications of mercury based organometallic and coordination compounds, Al-Rawi, S. S., Ibrahim, A. H., Jamil, F., Zafar, A., **Iqbal, M. A.*** ... & Atif, M. (2024). *Reviews in Inorganic Chemistry*, (0).
8. Advances in synthesis and anticancer applications of organo-tellurium compounds. F. M., Al-Rawi, S. S., Ibrahim, A. H., Salman, A. W., & **Iqbal, M. A.*** (2024). *Reviews in Inorganic Chemistry*, (0).
9. Robust Visible Light-Induced Degradation of Eriochrome Black-T Using a Green Organophotoxidative Method. Hussain, S. A., Majeed, A., **Iqbal, M. A.***, Kashif, M., Yousif, M., Abidin, Z. U., ... & Arbaz, M. (2024). *Chemistry Africa*, 7(8), 4455-4468.
10. Environmentally-friendly synthesis of platinum nanoparticles: Phytochemical, antioxidant, and antimicrobial properties of Cichorium intybus in different solvents. Azad, A., Hussain, S., Akram, H., Fida, H., **Iqbal, M. A.**, & Butt, T. E. (2024). *Discover Plants*, 1(1), 24.

11. Organo-Mediated Ring-Opening Polymerization: A Cutting-Edge Technique for Green Synthesis. Majeed, A., **Iqbal, M. A***, Ali, S., Kanwal, R., Zafar, A., Mushtaq, Z., ... & Ahmad, F. (2024). *Polymer*, 127730.
12. Advancement in schiff base complexes for treatment of colon cancer. Kadhum, A. M., Mallah, S. H., Waheeb, A. S., Salman, A. W., Zafar, A., Ahmad, N. S., ... & **Iqbal, M. A.*** (2024). *Reviews in Inorganic Chemistry*, (0).
13. Synthesis of nickel and copper metal complexes for blending in PVC to enhance UV absorption and stability. Kahlid, S., Asim, W., Majeed, A., **Iqbal, M. A***, Zaidi, S. K. F., Yousif, M., ... & Haider, M. T. (2024). *Journal of Coordination Chemistry*, 77(20-21), 2390-2413.
14. Gold complexes: a new frontier in the battle against lung cancer. Al-Rawi, S. S., Ibrahim, A. H., Salman, A. W., Zafar, A., **Iqbal, M. A.***, ... & Abbas, G. (2024). *Reviews in Inorganic Chemistry*, (0).
15. Synthesis of N-alkyl azoles carrying metal complexes for catalytic and medicinal applications. Kanwal, R., **Iqbal, M. A.***, Zafar, A., Bajwa, M. U. Y., Majeed, A., Ahmad, F., ... & Ali, H. T. (2024). *Inorganic Chemistry Communications*, 170, 113144.
16. Cubosomes hydrogel containing silver based organometallic compounds for enhanced wound healing of burns: In vitro and in vivo studies. Farooq, U., Hayat, S., Nawaz, M., Nee, T. W., Khaw, K. Y., **Iqbal, M. A.***, ... & Yaqoob, M. (2024). *Inorganic Chemistry Communications*, 170, 113504.
17. Antimicrobial activity of C. intybus leaves extract in different solvent systems: a green approach for sustainable biomedicine. Hussain, S., Akram, H., Fida, H., **Iqbal, M. A.**, & Butt, T. E. (2024). *Essential Chem*, 1(1), 1-13.
18. Tetra-azolium Salts Induce Significant Cytotoxicity in Human Colon Cancer Cells *In vitro*. M Ashraf, A Kamal, E Ahmed, HN Bhatti, M Arshad, **MA Iqbal***. *Current Organic Synthesis* 21 (8), 1075-1080, 2024.
19. *In vitro* and *in silico* anticancer potential of binuclear silver (I) N-heterocyclic carbene (NHCs) complexes: Investigation of interaction with surfactants, R Ashraf, S Akram, M El-Naggar, A Kanwal, TT Tok, **MA Iqbal***, HN Bhatti, *Inorganica Chimica Acta* 571, 122181 2024.
20. *In Vitro* Cytotoxicity of Zinc(II) Complexes: Synthesis, Characterization, and Biological Potential. SN Malik, A Altaf, TH Mawat, **MA Iqbal***, A Majeed, A Riaz, A Zafar, G Iram, ... *Chemistry Africa*, 1-14, 2024.
21. Ruthenium complexes for breast cancer therapy, S Sadique, AA Baqer, AW Salman, **MA Iqbal***, MM Kadim, F Jamil, ... *Reviews in Inorganic Chemistry* 44 (2), 191-208, 2, 2024.

22. Green and cost-effective photocatalytic degradation of murexide dye with acid catalyst ZU Abidin, A Majeed, **MA Iqbal***, M Kashif, T Fatima, M Yousif, M Arbaz, ...Clean Technologies and Environmental Policy, 1-15, **2024**.
23. Synthesis, Characterization and DNA Binding Study of Silver N-Heterocyclic Carbene Complex [Bis (1, 3-Dipentyl-1, 3-Dihydro-2-Imidazole-2-Ylidene) Silver (I ... F Zafar, S Ishtiaq, MI Majeed, N Alwadie, MR Javed, H Nawaz, **MA Iqbal**, ... *Analytical Letters*, 1-17, **2024**.
24. Synthesis, characterization and molecular docking of benz-imidazolium Se-adducts: Antimicrobial and anticancer studies A Hassan, R Ashraf, **MA Iqbal***, M El-Naggar, SA Tahira, K Hayat, *Journal of Molecular Structure* 1299, 137160, 1, **2024**.
25. Synthesis and investigation of linear and nonlinear optical properties of an octahedral metalloporphyrin M Yaseen, Z Farooq, M Ahmad, MA Sultan, MA Raza, JY Winum,**MA Iqbal**... *Optical Materials* 149, 115092, 1, **2024**.
26. Green Organo-Photooxidative Method for the Degradation of Methylene Blue Dye, A Majeed, AH Ibrahim, SS Al-Rawi, **MA Iqbal***, M Kashif, M Yousif, ... *ACS omega* 9 (10), 12069-12083, 6, **2024**.
27. Photochemical synthesis in inorganic chemistry, R Kanwal, RR Al-Araji, AH Ibrahim, **MA Iqbal***, S Bibi, A Zafar, M Yaseen, ...*Reviews in Inorganic Chemistry*, 1, **2024**.
28. Surface-Enhanced Raman Scattering (SERS) in Combination with PCA and PLS-DA for the Evaluation of Antibacterial Activity of 1-Isopentyl-3-pentyl-1H-imidazole-3-ium ...F Tahir, A Kamran, MI Majeed, AA Alghamdi, MR Javed, H Nawaz, ...**MA Iqbal**...*ACS omega* 9 (6), 6861-6872, **2024**.
29. Towards Industrially Important Applications of Enhanced Organic Reactions by Microfluidic Systems, A Zafar, C Takeda, A Manzoor, D Tanaka, M Kobayashi, Y Wadayama, ...**MA Iqbal***,... *Molecules* 29 (2), 398, 2, **2024**.
30. Advances in gold catalyzed synthesis of quinoid heteroaryls, A Majeed, A Zafar, Z Mushtaq, **MA Iqbal***, *RSC advances* 14 (29), 21047-21064, **2024**.
31. Advances in organocatalyzed synthesis of organic compounds, A Zafar, **MA Iqbal***, G Iram, US Shoukat, F Jamil, M Saleem, M Yousif, ...*RSC advances* 14 (28), 20365-20389, **2024**.
32. Surface-enhanced Raman spectroscopy for the study of interaction of an antibacterial agent ([bis (1, 3-dipentyl-1 H-imidazol-2 (3 H)-ylidene) silver (i)] bromide) with Bacillus ... S Nadeem, S Aziz, H Nawaz, MI Majeed, AA Alghamdi, M Shahid, ..**MA Iqbal**... *RSC advances* 14 (25), 17389-17396, **2024**.
33. Visible light assisted photooxidative facile degradation of azo dyes in water using a green method, M Yousif, AH Ibrahim, SS Al-Rawi, A Majeed, **MA Iqbal***, M Kashif, ... *RSC advances* 14 (23), 16138-16149, **2024**.

34. Surface-enhanced Raman spectroscopy for studying the interaction of organometallic compound bis (1, 3-dihexylimidazole-2-yl) silver (i) hexafluorophosphate (v) with the biofilm ...T Tabussam, H Shehnaz, MI Majeed, H Nawaz, AA Alghamdi, **MA Iqbal**, ...*RSC advances* 14 (10), 7112-7123, **2024**.
35. Biological potential of vinyl/allyl substituted imidazole-based N-heterocyclic carbene adducts: synthesis, spectral and X-ray crystallographic structural characteristics, A Kamal, AH Ibrahim, SS Al-Rawi, **MA Iqbal***, HN Bhatti, *Chemical Papers* 78 (2), 851-860, 1, **2024**.
36. Detection of different chemical moieties in aqueous media by luminescent Europium as sensor K Bashir, F Jamil, **MA Iqbal***, S Nazir, US Shoukat, A Bashir, K Nasrullah, ...*Reviews in Inorganic Chemistry* 43 (4), 547-560,1, **2023**.
37. N-heterocyclic carbene based Bi-nuclear organoselenium compounds impart a mild biocidal potential compared to their ligands: Synthesis, characterization, computational studies. A Hassan, **MA Iqbal***, HN Bhatti, M Shahid. *Computational Biology and Chemistry* 107, 10796, 31, **2023**.
38. Inhibition of cell proliferation by azolium salts and silver (I)-N-heterocyclic carbene complexes: Synthesis, spectral and X-ray crystallographic characterizations. K Hayat, M Shkeel, **MA Iqbal**, M Khalid, CK Quah, QA Wong, AU Rehman. *Inorganica Chimica Acta* 557, 121694, 2, **2023**.
39. Synthesis, Characterization, and Evaluation of Antifungal Activity of 1-Butyl-3-hexyl-1H-imidazol-2(3H)-selenone by Surface-Enhanced Raman Spectroscopy. N Huda, M Wasim, H Nawaz, MI Majeed, MR Javed, N Rashid, **MA Iqbal**. *ACS omega* 8 (39), 36460-36470 **2023**.
40. Surface-enhanced Raman spectroscopy for monitoring antibacterial activity of imidazole derivative (1-benzyl-3-(sec-butyl)-1H-imidazole-3-ium bromide) against *Bacillus subtilis*. A ul Haq, MI Majeed, H Nawaz, N Rashid, MR Javed, **MA Iqbal**, A Raza, ...*Photodiagnosis and Photodynamic Therapy* 42, 103533 2 **2023**.
41. Theoretical and experimental investigation of N-alkyl substituted bis-imidazolium salts and their binuclear N-heterocyclic carbene silver acetate complexes. M Yaqoob, **MA Iqbal***, HN Bhatti, M Shahid *Journal of Coordination Chemistry* 76 (9-10), 1244-1260 **2023**.
42. DFT study of oxidation mechanism of secnidazole as an emerging contaminant: Application as STI control S Bibi, A Saleem, S ur Rehman, IA Bhatti, **MA Iqbal**, S Bashir, BF Quan, ...*Journal of Physical Organic Chemistry* 36 (4), e4480 **2023**.
43. In-vitro anticancer profile of recent ruthenium complexes against liver cancer K Shahzad, M Asad, AM Asiri, M Irfan, **MA Iqbal*** *Reviews in Inorganic Chemistry* 43 (1), 33-47 2 **2023**.
44. Surface-enhanced Raman spectroscopy for studying the interaction of N-propyl substituted imidazole compound with salmon sperm DNA. A Sabir, MI Majeed, H Nawaz, N Rashid, MR Javed, **MA Iqbal**, Z Shahid, *Photodiagnosis and Photodynamic Therapy* 41, 1032625 **2023**.

45. Cytotoxic, Thrombolytic and Antibacterial Evaluation of Synthesized Substituted and Un-Substituted Selenium-N-Heterocyclic Carbene Adducts. A Kamal, **MA Iqbal***, HN Bhatti, A Ghaffar. *Journal of the Chemical Society of Pakistan* 45 (1)
46. O-Halogen-substituted arene linked selenium-N-heterocyclic carbene compounds induce significant cytotoxicity: Crystal structures and molecular docking studies. K Hayat, M Shkeel, **MA Iqbal***, CK Quah, QA Wong, M Nazari, *Journal of Organometallic Chemistry* 985, 122593 9 **2023**.
47. Surface-enhanced Raman spectral characterization of antifungal activity of selenium and zinc based organometallic compounds. A Raza, S Parveen, MI Majeed, H Nawaz, MR Javed, **MA Iqbal**, N Rashid. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 285, 121903 8 **2023**.
48. Characterization of three different benzimidazolium ligands and their organo-selenium complexes by using density functional theory and Raman spectroscopy. S Younas, A Riaz, H Nawaz, MI Majeed, **MA Iqbal**, N Rashid, A Altaf, ... *RSC advances* 13 (50), 35292-35304 **2023**.
49. Synthesis, molecular docking and anticancer potential of azolium based salts and their silver complexes: DNA/BSA interaction studies and cell cycle analysis. R Ashraf, A Sarfraz, T Taskin-Tok, MJ Iqbal, **MA Iqbal***, J Iqbal, HN Bhatti, ...*Journal of Molecular Liquids* 369, 120921 4 **2023**.
50. Synthesis of needle like Mn-Zn bimetallic nanoparticles and its applications towards photocatalysis and as fuel additives. S Fatima, HN Bhatti, **MA Iqbal***, M Shahid. *International Journal of Environmental Analytical Chemistry* 102 (19), 7617-7632 6 **2022**.
51. Selenium-N-heterocyclic carbene (Se-NHC) complexes with higher aromaticity inhibit microbes: synthesis, structure, and biological potential. A Kamal, **MA Iqbal***, HN Bhatti, A Ghaffar. *Journal of Coordination Chemistry* 75 (11-14), 1915-1928 13 **2022**.
52. Synthesis, characterization and biological evaluation of Bis-benzimidazolium salts and their silver (I)-N-heterocyclic carbene complexes. RY Nadeem, M Yaqoob, WS Yam, RA Haque, **MA Iqbal** *Medicinal Chemistry Research* 31 (10), 1783-1791 7 **2022**
53. Dative behavior of N-heterocyclic carbenes (NHCs) with selenium in Se-NHC compounds. M Yaqoob, M Abbasi, H Anwar, J Iqbal, M Asad, AM Asiri, **MA Iqbal*** .*Reviews in Inorganic Chemistry* 42 (3), 229-238 5 **2022**
54. Surface-Enhanced Raman Spectroscopy for the Characterization of the Antibacterial Properties of Imidazole Derivatives against *Bacillus subtilis* with Principal ... M Saleem, MI Majeed, H Nawaz, **MA Iqbal**, A Hassan, N Rashid, M Tahir, ... *Analytical Letters* 55 (13), 2132-2146 18 **2022**.
55. Surface-enhanced Raman spectral investigation of antibacterial activity of zinc 3-chlorobenzoic acid complexes against Gram-positive and Gram-negative bacteria. A Ditta, MI Majeed, H

Nawaz, **MA Iqbal**, N Rashid, M Abubakar, F Akhtar, ... *Photodiagnosis and Photodynamic Therapy* 39, 102941 5

56. Kinetics and mechanism of rhenium-ethylenediaminetetraacetic acid (Re (IV)-EDTA) complex degradation; For ⁹⁹Tc-EDTA degradation in the natural environment. M Khan, W Um, S Han, J Kang, A Jabbar, **MA Iqbal**. *Environmental Technology & Innovation* 27, 102492 2 **2022**.
57. Evaluation of Chemical Composition of Ethanolic Extract of *Rhazya stricta* and Its Total Phenolic and Flavonoid Contents. A Madni, **MA Iqbal***, R Batool, A Mahmood, H Riaz, M Hasnain, MA Akram, ... *Chemistry Africa* 5 (3), 533-542 4 **2022**.
58. Raman spectroscopic characterization of selenium N-heterocyclic carbene compounds. MN Ashraf, MI Majeed, H Nawaz, **MA Iqbal**, J Iqbal, N Iqbal, A Hasan, ... *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 270, 120823 8 **2022**.
59. Techniques in the synthesis of organometallic compounds of Hafnium. M Shahid, M Abbasi, M Yaqoob, RA Haque, **MA Iqbal***. *Reviews in Inorganic Chemistry* 42 (1), 89-120 2 **2022**.
60. *In-situ* synthesis of mercury (II)-N-heterocyclic carbene complexes by using “oxide route”, structural characterization and their photo-catalytic degradation activity for dyes. S Chaudhary, MF Altaf, S Latif, M Imran, M Hasnain, **MA Iqbal***. *Journal of Organometallic Chemistry* 960, 122222 2 **2022**.

BOOKS/ BOOK CHAPTERS AUTHORED

1. **Muhammad Adnan Iqbal**, Thermal Methods of Analysis, Principles of Analytical Chemistry, *The Caravan Book House*, Kachehri Road, Lahore-Pakistan (**Book Chapter**).
2. **Muhammad Adnan Iqbal** and Muhammad Nadeem Zafar, Voltammetry and Polarography, Principles of Analytical Chemistry, *The Caravan Book House*, Kachehri Road, Lahore-Pakistan (**Book Chapter**).
3. **Muhammad Adnan Iqbal** and Haq Nawaz Bhatti, Organometallic Chemistry, Basic Concept in Organo-Transition Metal Chemistry, *Caravan Book House*, Kachahri Road, Lahore-Pakistan (**Book**).
4. Hina Hayat and **Muhammad Adnan Iqbal***, Modern Techniques in Synthesis of Organometallic Compounds of Germanium, Basic Concepts Viewed from Frontier in Inorganic Coordination Chemistry, IntechOpen Limited, The Shard, 25th floor, 32 London Bridge Street, London, SE1 9SG, UNITED KINGDOM, ISBN 978-1-78984-865-6, 2018, DOI: 10.5772/intechopen.76741 (**Book Chapter**).
5. Asif Manzoor, Faisal Jamil, Abbas Washeel Salman, Farrukh Aslam Khalid, Umar Sohail Shaukat, and **Muhammad Adnan Iqbal***, Fabrication and Structural Design of MXene-Based

- Hydrogels; Handbook of Functionalized Nanostructured MXenes, Springer Nature Singapore Pte Ltd, ISBN 978-981-99-2037-2, https://doi.org/10.1007/978-981-99-2038-9_5 (**Book Chapter**).
6. Fozia Maqsood, Faisal Jamil, Umar Sohail Shaukat, and Muhammad Adnan Iqbal*, Recent Advancements in MXene-Based Lithium-Ion Batteries; Handbook of Functionalized Nanostructured MXenes, Springer Nature Singapore Pte Ltd, ISBN 978-981-99-2037-2, https://doi.org/10.1007/978-981-99-2038-9_7 (**Book Chapter**).

REFERENCES

1. Prof. Dr. Haq Nawaz Bhatti, Department of Chemistry, University of Agriculture Faisalabad, 38000, Faisalabad, Pakistan. E-mail: haq_nawaz@uaf.edu.pk
2. Dr. Muhammad Irfan Majeed, Associate professor, Department of Chemistry, University of Agriculture Faisalabad, 38000, Faisalabad, Pakistan. E-mail: Irfan.majeed@uaf.edu.pk
3. Dr. Mohd. Rizal Bin Razali, Associate Professor, School of Chemistry, Universiti Sains Malaysia, 11800-USM, Malaysia. E-mail: mohd.rizal@usm.my
4. Dr. Haq Nawaz, Associate professor, Department of Chemistry, University of Agriculture Faisalabad, 38000, Faisalabad, Pakistan. E-mail: haq.nawaz.@uaf.edu.pk