

	<u>Dr. MUHAMMAD RAFIQ</u> rafiqknu@gmail.com; mrafiq@cuvas.edu.pk; <u>Contact No:</u> +92-340-6299992  https://orcid.org/0000-0001-9686-6551  https://scholar.google.com/citations?hl=en&user=zpPxbbwAAAAJ <u>POSTAL ADDRESS:</u> ▪ Dr. Muhammad Rafiq (<i>Assistant Professor</i>) Department of Physiology & Biochemistry, Cholistan University of Veterinary & Animal Sciences, Bahawalpur, Punjab, Pakistan.
<u>CAREER OBJECTIVE</u>	▪ To work in the dynamic organization where i could utilize my skills & knowledge & thereby, commit to excellence in making the organization more progressive and reputable in respective fields.
<u>PERSONAL PROFILE</u>	▪ FATHER'S NAME: ALLAH DAD ▪ DATE OF BIRTH: 03-09-1983 ▪ PASSPORT NO. AN0904851 ▪ ALIEN REG. NO. 830903-5201296 (KOREA) ▪ C.N.I.C NO. 32203-2057485-1 ▪ NATIONALITY: PAKISTANI ▪ MARITAL STATUS : MARRIED ▪ DOMICILE: LAYYAH, PUNJAB, PAKISTAN.
<u>ACADEMIC INFORMATION</u>	▪ Doctor of Philosophy in Biochemistry 2011-2015 Kongju National University, Gongju, <i>Republic of Korea</i> ▪ Master of Science in Biochemistry (1st Division) 2005-2007 Bahauddin Zakariya University Multan, <i>Pakistan</i> ▪ Bachelor of Science (1st Division) 2003-2005 Govt. College Layyah affiliated with Bahauddin Zakariya University Multan, <i>Pakistan</i> ▪ Intermediate (2nd Division) 2002 Govt. College Layyah affiliated with Dera Ghazi Khan Board, <i>Pakistan</i> ▪ Matriculation (1st Division) 1998 Govt. Model High School Layyah affiliated with Dera Ghazi Khan Board, <i>Pakistan</i>

<u>EXPERIENCE</u>	▪ Assistant Professor of Biochemistry in the Department of Physiology & Biochemistry, Cholistan University of Veterinary and Animal Sciences, Bahawalpur (Since 13th Nov. 2018). ▪ Officer Incharge at Department of Physiology & Biochemistry, Cholistan University of Veterinary and Animal Sciences, Bahawalpur (3 years). ▪ Assistant Director Advance Studies and Research at Cholistan University of Veterinary and Animal Sciences, Bahawalpur (2.5 years). ▪ Assistant Professor in the Department of Chemistry GC University Faisalabad, Sub Campus Layyah, Punjab, Pakistan (1 year). ▪ Assistant Professor at Department of Biochemistry & Biotechnology at the Islamia University of Bahawalpur, Bahawalpur, Punjab, Pakistan (2 years). ▪ Laboratory instructor for undergraduate students during the spring & fall semesters 2014, in the department of Biochemistry Kongju National University, Gongju, Korea. ▪ Lecturer at Punjab College F-8/4, Islamabad, Pakistan (2 years). ▪ Lecturer at Bahria Foundation College F-11/1 Islamabad, Pakistan (1 year).	
<u>INSTRUMENTATION</u>	<u>Separation Techniques:</u> ▪ Fractional distillation ▪ Steam distillation ▪ Paper chromatography ▪ Thin layer chromatography ▪ Column chromatography ▪ Solvent extraction ▪ High performance liquid chromatography (HPLC). ▪ Conductometer ▪ Refractometer ▪ Potentiometer ▪ UV-visible spectrophotometer ▪ Fluorescence spectrometer. ▪ IR spectrophotometer ▪ Viscometer	
<u>PROJECT IN MSc</u>	▪ Synthesis of hippuric acid and its derivatives from amino acetic acid.	▪ Synthesis of diazonium salt from benzene.
<u>PROJECTS IN PhD</u>	▪ Isolation, purification & characterization of Korean medicinal plants. ▪ Isolation of Tyrosinase inhibitors, flavonoids and carotenoids from given plant material. ▪ Isolation of active compounds from livestock blood. ▪ Enzymatic assay and detail kinetic studies of both synthetics and isolated compounds.	▪ Design, synthesis and characterization of novel heterocyclic compounds and screening their enzyme inhibition potential as well as kinetic analysis. ▪ Enzyme immobilization on material surface (mesoporous silicon surface, mesoporous silica nanoparticles, material nano particle) in order to turn the enzyme catalysis reaction more robust and economically favorable.
<u>TITLE OF PhD THESIS</u>	▪ Isolation, Synthesis, Enzyme Inhibition Analysis and Kinetic Investigation of Bioactive Compounds	

<u>RESEARCH AREA</u>	▪ Cosmetic material development. ▪ Cosmetics preservatives isolations. ▪ Skin whitening agents using tyrosinase inhibitors. ▪ Anti-wrinkle agents.	▪ Anti-diabetic study. ▪ Anti-Alzheimer's drug screening employing AChE inhibition bioassay. ▪ Anti-ulcer agents using Urease inhibitors.
<u>ENZYME KINETICS</u>	▪ Inhibitor screening and validation. ▪ IC₅₀ and <i>K_i</i> determination of drug compounds. ▪ Kinetic evaluation of bioactive compounds.	▪ Inhibition mechanism. ▪ Investigation on reversibility of enzyme inhibition. ▪ Substrate profiling selectivity of enzymes.
<u>LIST OF ENZYMATIC ACTIVITIES</u>	▪ Tyrosinase inhibition ▪ Acetylcholinesterase ▪ Butyrylcholinesterase ▪ α-glucosidase ▪ α-amylase ▪ Urease ▪ Carbonic anhydrase ▪ Hyaluronidase ▪ alkaline phosphatase ▪ Thymidine phosphorylase ▪ Phosphodiesterase	▪ β-glucuronidase ▪ Elastase ▪ DPPH assay ▪ FRAP assay ▪ NO assay ▪ SOD assay ▪ ABTS radical cation decolorization assay ▪ TPC assay ▪ TFC assay
<u>AREAS OF INTEREST</u>	▪ Enzymatic assay ▪ Enzymology ▪ Isolation of Inhibitors ▪ Biochemistry ▪ Organic chemistry	▪ Inorganic chemistry ▪ Electroanalytical techniques ▪ Spectral techniques ▪ Biological studies ▪ Environmental chemistry
<u>TECHNIQUES</u>	▪ Nuclear magnetic resonance (NMR) ▪ Chromatography ▪ High performance liquid chromatography (HPLC) ▪ Atomic absorption	▪ Voltammetry ▪ Polarography ▪ Infrared spectroscopy ▪ Mass spectrometry
<u>SUPERVISION</u>	Supervised and successfully graduated 35 MS students in Biochemistry.	

<u>PUBLICATIONS</u> Total Articles = 64 Total I.F = 205.39 <u>2026</u> <u>2025</u> <u>2024</u> <u>2023</u>	1. Rehman, N.U., Shah, S.Q.A., Naeem, M., Naz, H. and Rafiq, M., 2026. Proximate body composition, elemental concentration and enzymatic activity analysis of Catla catla exposed to the nanoparticle (CuO-NPs) and Vitamin C. <i>PLOS One</i>, 21(2), p.e0339412. 2. Mubeen Naz; Muhammad Rafiq; Muhammad Yar*; Khurshid Ayub; Sohail Khan; Jesus Vicente de Julián-Ortiz; Nadeem S. Sheikh; Haydar Mohammad-Salim. Boronate Ester-Based Covalent Organic Framework as a Porous Biosensor for Anticancer and Anti-Inflammatory Agents: A DFT Study on Curcumin and Crizotinib. <i>Computational and Theoretical Chemistry</i>. 1252 (2025) 115394. 3. Sidra Latif, Muhammad Rafiq, Muhammad Yar*, Nadeem S. Sheikh, Khurshid Ayub, Sohail Khan and Mohamed A. Nassan. CTF-1 triazine framework as a drug delivery surface for the anticancer drugs carmustine and temozolomide: a DFT study. <i>New Journal of Chemistry</i>, 2025, 49, 14388 - 14399 4. Tayyaba Tariq, Muhammad Rafiq, Tehreem Tahir, Muhammad Yar*, Khurshid Ayub, Sohail Khan. Therapeutic potential of Carbon Nitride as a Drug Delivery System for Naproxen and Aspirin: a DFT and MD simulations. <i>Journal of Molecular Liquids</i>. 437, 2025, 128341. 5. Sidra Latif, Muhammad Rafiq, Tehreem Tahir, Muhammad Yar*, Khurshid Ayub. C2N Nanosheets as a Drug Delivery Surface for Anticancer Agents: A DFT Study on Cytarabine and Fludarabine. <i>Inorganic Chemistry Communications</i>. Volume 182, Part 3, December 2025, 115653 6. Memon Nazeer, Muhammad Yar*, Muhammad Rafiq, Tehreem Tahir, Khurshid Ayub. Electrochemical sensing Applications of C4N framework for Anticancer drugs. <i>Materials Chemistry and Physics</i>. Volume 349, 2026, 131794. 7. Sidra Latif, Muhammad Rafiq, Tehreem Tahir, Muhammad Yar*, Khurshid Ayub, Sohail Khan, Jesus Vicente de Julián-Ortiz. Mechanistic Investigation of pH Responsive Delivery of Isoniazid and Pyrazinamide Using C6N6 Based on Density Functional Theory and Molecular Dynamics. <i>Journal of Physics and Chemistry of Solids</i>, 2025, 113386 8. Sharif, A., Ali, A., Amjad, M., Ismatullah, H., Latief, N., Javaid, B., Tariq, M., Yasin, R. and Rafiq, M., 2024. Therapeutic Potential of Cydonia oblonga extracts for Anti-urease and Antibacterial Activities to cure Urinary Tract Infections. <i>Journal of Agriculture and Food Research</i>, p.101590. (IF. 4.8) 9. Saleem, M., Hanif, M., Bonne, S., Zeeshan, M., Khan, S., Rafiq, M., Tahir, T., Lu, C. and Cai, R., 2024. Turn-On Fluorescence Probe for Cancer-Related γ-Glutamyltranspeptidase Detection. <i>Molecules</i>, 29(19), p.4776. (IF. 4.2) 10. Saleem, M., Hussain, A., Hanif, M., Ahmad, H., Khan, S.U., Haider, S., Rafiq, M., Paracha, R.N. and Park, S.H., 2024. Synthesis, Invitro Cytotoxic Activity and Optical Analysis of Substituted Schiff Base Derivatives. <i>Journal of fluorescence</i>, pp.1-9. (IF. 2.52) 11. Saleem, M., Hussain, A., Rauf, M., Khan, S.U., Haider, S., Hanif, M., Rafiq, M. and Park, S.H., 2024. Ratiometric Fluorescence and Chromogenic Probe for Trace Detection of Selected Transition Metals. <i>Journal of Fluorescence</i>, pp.1-13. (IF. 2.52) 12. Saleem, M., Hussain, A., Rauf, M., Khan, S.U., Haider, S., Hanif, M., Rafiq, M. and Park, S.H., 2024. Ratiometric Fluorescence and Chromogenic Probe for Trace Detection of Selected Transition Metals. <i>Journal of Fluorescence</i>, pp.1-13. (IF. 2.52)
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<u>2022</u>	13. Saleem, M., Hanif, M., Rafiq, M., Hassan, M. and Tahir, T., 2023. Synthesis, Characterization, Optical Properties, Molecular Modeling and Urease Inhibition Analysis of Organic Ligands and Their Metal Complexes. <i>Journal of Fluorescence</i>, 33(1), pp.113-124, (IF. 2.52)
<u>2021</u>	14. Yasir Nazir, Hummera Rafique, Sadia Roshan, Shazia Shamas, Zaman Ashraf , Muhammad Rafiq, Tehreem Tahir, Zia-Ur-Rahman Qureshi, Alvina Aslam, and Muhammad Hassham Hassan Bin Asad, Molecular Docking, Synthesis, and Tyrosinase Inhibition Activity of Acetophenone Amide: Potential Inhibitor of Melanogenesis, <i>BioMed Research International</i>, Vol. 2022, ID 1040693. (IF. 3.41) 15. Saleem, M., Hanif, M., Rafiq, M., Raza, H., Ja, K.S. and Lu, C., 2023. γ-Glutamyltranspeptidase (GGT) Sensitive Fluorescence Probes for Cancer Diagnosis; Brief Review. <i>Journal of Fluorescence</i>, pp.1-30. (IF. 2.52) 16. Sharif, A., Ali, A., Rafiq, M. and Tarar, Z.H., 2023. Determination of Phytochemical Profile, Antioxidant and Antibacterial Potency of Curcuma Longa Extracts. <i>Pakistan Journal of Phytopathology</i>, 35(1), pp.121-126. 17. Saleem, M., Hanif, M., Rafiq, M., Hassan, M. and Tahir, T., 2023. Synthesis, Characterization, Optical Properties, Molecular Modeling and Urease Inhibition Analysis of Organic Ligands and Their Metal Complexes. <i>Journal of Fluorescence</i>, 33(1), pp.113-124. (IF. 2.52) 18. Sharif, A., Ali, A., Rafiq, M. and Tarar, Z.H., 2023. Determination of Phytochemical Profile, Antioxidant and Antibacterial Potency of Curcuma Longa Extracts. <i>Pakistan Journal of Phytopathology</i>, 35(1), pp.121-126.
<u>2020</u>	19. Maria Khan, Zahid Manzoor, Muhammad Rafiq, Shaukat Hussain Munawar, Muhammad Yasir Waqas, Hamid Majeed, Syed Zahid Ali Shah, Riaz Hussain, Hafiz Iftikhar Hussain, Tehreem Tahir, Katarzyna Kotwica-Mojzych and Mariusz Mojzych, Phytochemical Screening, Anti-Inflammatory, and Antidiabetic Activities of Different Extracts from <i>Caralluma edulis</i> Plant, <i>Molecules</i> 2022, 27, 5346, (IF. 4.92) 20. Muhammad Saleem, Muhammad Hanif, Muhammad Rafiq, Mubashir Hassan5, Tehreem Tahir, Synthesis, Characterization, Optical Properties, Molecular Modeling and Urease Inhibition Analysis of Organic Ligands and Their Metal Complexes, <i>Journal of Fluorescence</i>, https://doi.org/10.1007/s10895-022-03032-y (IF. 2.52)
<u>2019</u>	21. Yahya S. Alqahtani, Mater H. Mahnashi , Bandar A. Alyami, Ali O. Alqarni, Mohammed A. Huneif, Mohammed H. Nahari , Anser Ali, Qamar Javed, Hina Ilyas, and Muhammad Rafiq, Preparation of Spice Extracts: Evaluation of Their Phytochemical, Antioxidant, Antityrosinase, and Anti-α-Glucosidase Properties Exploring Their Mechanism of Enzyme Inhibition with Antibrowning and Antidiabetic Studies In Vivo, <i>BioMed Research International</i>, Volume 2022, Article ID 9983124, (IF. 3.41) 22. Yasir Nazir, Hummera Rafique, Sadia Roshan, Shazia Shamas, Zaman Ashraf , Muhammad Rafiq, Tehreem Tahir, Zia-Ur-Rahman Qureshi, Alvina Aslam, and Muhammad Hassham Hassan Bin Asad, Molecular Docking, Synthesis, and Tyrosinase Inhibition Activity of Acetophenone Amide: Potential Inhibitor of Melanogenesis, <i>BioMed Research International</i>, Vol. 2022, ID 1040693. (IF. 3.41) 23. Nisar, M.F., Khadim, M., Rafiq, M., Chen, J., Yang, Y. and Wan, C.C., 2021. Pharmacological Properties and Health Benefits of Eugenol: A Comprehensive Review. <i>Oxidative Medicine and Cellular Longevity</i>, 2021. (I.F 6.54)
<u>2018</u>	24. Tahir, T., Shahzad, M.I., Tabassum, R., Rafiq, M., Ashfaq, M., Hassan, M., Kotwica-Mojzych, K. and Mojzych, M., 2021. Diaryl azo derivatives as anti-diabetic and antimicrobial agents: synthesis, in vitro, kinetic and docking studies. <i>J Enzyme Inhib Med Chem</i>, 36(1), pp.1509-1520. (I.F 5.05) 25. Tahir, T., Ashfaq, M., Saleem, M., Rafiq, M., Shahzad, M.I., Kotwica-

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- Mojzych, K. and Mojzych, M., 2021. Pyridine Scaffolds, Phenols and Derivatives of Azo Moiety: Current Therapeutic Perspectives. *Molecules*, 26(16), p.4872. (I.F 4.41)
26. Phull, A.R., Ali, A., **Rafiq, M.**, Tahir, T., Majid, A., Seo, S.Y. and Park, H.J., 2021. Antioxidant Potential, Urease and Acetylcholine Esterase Inhibitory Activity and Phytochemical Analysis of Selected Medicinal Plants from the Republic of Korea. *Exploratory Research and Hypothesis in Medicine*, (000), pp.0-0.
 27. Hina Ilyas, Umar Hanif, Anser Ali, Zahid Hassan Tarar, Hamza Javed, Tehreem Tahir, **Muhammad Rafiq**, Anti-tyrosinase and anti-oxidant potential of methanolic extracts of selected citrus bergamia and ficus carica parts, *Pak. J. Weed Sci. Res.*, 27(4): 443-450, 2021.
 28. Farrukh Avais, Anser Ali, Hamza Javed, Muhammad Saleem, Tehreem Tahir, **Muhammad Rafiq**,*Isolation Of Allium Sativum And Mentha Piperita Extracts; Evaluation Of Their Antioxidant And Anti-Tyrosinase Activities Invitro, *Pak. J. Weed Sci. Res.*, 27(1): 13-21, 2021.
 29. Deng, Z., Hassan, S., Rafiq, M., Li, H., He, Y., Cai, Y., Kang, X., Liu, Z. and Yan, T., 2020. Pharmacological Activity of Eriodictyol: The Major Natural Polyphenolic Flavanone. *Evidence-Based Complementary and Alternative Medicine*, 2020. (I.F 2.63)
 30. Muhammad Hanif, **Muhammad Rafiq**, Muhammad Yousuf, Katarzyna Kotwica-Mojzych, Muhammad Saleem, Mariusz Mojzych, Organic small molecular receptors as fluorimetric/bioimaging probe for extracellular/intracellular zinc sensation, *Bioorganic Chemistry* 94 (2020) 103398. (I.F 5.27)
 31. Naghmana Rashid, Almas Kiran, Iqbal Ahmad, Zaman Ashraf, Bohari Mohd. Yamin & **Muhammad Rafiq** (2020) Synthesis, DFT, electrochemical, biological and DNA-interaction studies of a novel copper(II) complex of salicylic acid and N-tosyl substituted benzimidazole, *Journal of Coordination Chemistry*, 73:1, 52-66, (I.F 1.75)
 32. Muhammad Hanif, **Muhammad Rafiq**, Muhammad Saleem, Muhammad Mustaqeem, Saba Jamil, Muhammad Ramzan Saeed Ashraf Janjua, Chromogenic and fluorogenic detection of copper ions in the solution and intracellular media, *J Chin Chem Soc.* 2019;66:500–505. (I.F 1.96)
 33. Muhammad Hanif, Fariha Kanwal, **Muhammad Rafiq**, Mubashir Hassan, Muhammad Mustaqeem, Sung-Yum Seo, Yunlong Zhang, Changrui Lu, Ting Chen, Muhammad Saleem, Symmetrical Heterocyclic Cage Skeleton: Synthesis, Urease Inhibition Activity, Kinetic Mechanistic Insight, and Molecular Docking Analyses, *Molecules* 2019, 24, 312. (I.F 4.41)
 34. **Muhammad Rafiq**, Yasir Nazir, Zaman Ashraf, Hummera Rafique, Samina Afzal, Amara Mumtaz, Mubashir Hassan, Anser Ali, Khurram Afzal, Muhammad Rizwan Yousuf, Muhammad Saleem, Katarzyna Kotwica-Mojzych & Mariusz Mojzych (2019) Synthesis, computational studies, tyrosinase inhibitory kinetics and antimelanogenic activity of hydroxy substituted 2-[(4-acetylphenyl)amino]-2-oxoethyl derivatives, *Journal of Enzyme Inhibition and Medicinal Chemistry*, 34:1, 1562-1572. (I.F 5.05)
 35. Hanif, M., **Rafiq, M.**, Mustaqeem, M., Shaheen, M.A., Qadri, K.F., Qadri, I. and Saleem, M., 2019. Intracellular and Extracellular Zinc Detection by Organic Fluorescent Receptor. *Current Organic Chemistry*, 23(24), pp.2664-2678. (I.F 2.18)
 36. Khurshid, H., Rafiq, M., Nazir, F., Ali, I., Ahmed, M., Akbar, B., Ahmed, M. and Ali, A., 2019. 14. Antimicrobial properties of hydrogen peroxide and potash alum alone and in combination against clinical bacterial isolates. *Pure and Applied Biology (PAB)*, 8(4), pp.2238-2247.
 37. Muhammad Saleem, **Muhammad Rafiq**, Yeon Ki Jeong, Dae Won Chod,

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Chong-Hyeak Kim, Sung-Yum Seo, Chang-Shik Choi, Seong-Karp Hong and Ki Hwan Lee, Facile Synthesis, Crystal Structure, DFT Calculation and Biological Activities of 4-(2-fluorophenyl)-3-(3-methoxybenzyl)-1H-1,2,4-triazol-5(4H)-one (5), *Med. Chem.*, (2018), 14: 1–9. (I.F 2.93)

38. Muhammad Saleem, **Muhammad Rafiq**, Muhammad Hanif, Muhammad Ashraf Shaheen, Sung-Yum Seo, Brief Review on Fluorescent Copper Sensor Based on Conjugated Organic Dyes, *J Fluoresc*, 28(1), 97-16, 2018. (I.F 2.21)

39. Rashid, N., Kiran, A., Ashraf, Z., Bhatti, M.H., Mirza, B., Ismail, H., Rafiq, M. and Jasinski, J.P., 2018. Synthesis, Characterization, Antitumor, Antibacterial and Urease Inhibitory Activity of a Small Series of N-tosyl benzimidazoles. *Journal of the Chemical Society of Pakistan*, 40(2).

40. Zaman Ashraf, **Muhammad Rafiq**, Humaira Nadeem, Mubashir Hassan, Samina Afzal, Muhammad Waseem, Khurram Afzal, Jalifah Latip. Carvacrol derivatives as mushroom tyrosinase inhibitors; synthesis, kinetics mechanism and molecular docking studies, *Plos One*, 2017; 12(5), (I.F 3.54)

41. Pervaiz Ali Channar, Aamer Saeed, Fayaz Ali Larik, **Muhammad Rafiq**, Zaman Ashraf, Farukh Jabeen, Tanzeela Abdul Fattah, Synthesis, computational studies and enzyme inhibitory kinetics of substituted methyl[2-(4-dimethylamino-benzylidene)-hydrazono]-4-oxo-thiazolidin-5-ylidene]acetates as mushroom tyrosinase inhibitors, *Bioorg. Med. Chem.*, 2017; 25(21), 5929-5938, (I.F 3.64)

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42. Subaika Mahmood, Toseef Fatima, Hina Zulfaqar, Romana Saher, **Muhammad Rafiq**, Abdul Rehman, Rongji Dai, Muhammad Ashfaq, Murtaza Hasan, Meta-analysis of dragon's blood resin extract as radio-protective agent, *Journal of Coastal Life Medicine* 2017; 5(9): 409-416, (I.F 1.5).

43. Anser Ali, Zaman Ashraf, Naresh Kumar, **Muhammad Rafiq**, Ji hoon Park, Farukh Jabeen, Ki Hong Choi, Seung Hyun Lee, Sung-Yum Seo, Eun Ha Choi, Pankaj Attri. Influence of the plasma activated compounds on the melanogenesis and tyrosinase activity. *Scientific Reports*. DOI: 10.1038/srep21779. (I.F= 5.13)

44. **Muhammad Rafiq**, Muhammad Saleem, Muhammad Hanif, Farukh Jabeen, Sung-Yum Seo, Sung Kwon Kang, Ki Hwan Lee. Facile synthesis, biological evaluation and molecular docking studies of novel substituted azole derivatives, *Journal of Molecular Structure* 1138 (2017) 177-191. (I.F=3.19)

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45. Mariusz Mojzych, Paweł Tarasiuk, Katarzyna Kotwica-Mojzych, **Muhammad Rafiq**, Sung-Yum Seo, Michał Nicewicz, Emilia Fornal. Synthesis of chiral pyrazolo[4,3-e][1,2,4]triazine sulfonamides with tyrosinase and urease inhibitory activity. *J Enzyme Inhib Med Chem*, 2016; 32(1), 99-105 (I.F 5.05)

2012

46. Qamar Abbas, Muhammad Saleem, Abdul Rehman Phull, **Muhammad Rafiq**, Mubashir Hassan, Ki-Hwan Lee and Sung-Yum Seo, Green Synthesis of Silver Nanoparticles using *Bidens Frondosa* Extract and their Tyrosinase Activity. *Iran J Pharm Res* (2017), 16 (2):760-767. (I.F = 1.50)

47. Muhammad Saleem, **Muhammad Rafiq**, Muhammad Hanif. Organic Material Based Fluorescent Sensor for Hg²⁺: a Brief Review on Recent Development. *J. Fluoresc.* 2016; 27(1), 31-58, (I.F= 2.21)

48. Muhammad Saleem, **Muhammad Rafiq**, Sung-Yum Seo, Ki Hwan Lee, Acetylcholinesterase immobilization, characterization and comparison of porous silicon immobilized enzyme activity with the free counterpart. *Bioscience Reports* Feb 02, 2016; DOI: 10.1042/BSR20150154. (I.F 3.84)

49. Aamer Saeed, Shamsul Mahmood, **Muhammad Rafiq**, Zaman Ashraf, Farukh Jabeen, Sung-Yum Seo. Iminothiazoline-sulfonamide hybrids as Jack Bean Urease inhibitors; Synthesis, kinetic mechanism and computational molecular modeling. *Chem Biol Drug Des.* (2016), 87, 434–443. (I.F 2.81)

50. **Muhammad Rafiq**, Muhammad Saleem, Muhammad Hanif, Kang Sung Kwon, Sung-Yum Seo, Ki Hwan Lee, Synthesis, structural elucidation,

	bioevaluation, optical, thermal and kinetic studies of Schiff base derivatives, <i>Arch Pharm Res.</i> (2016), 39, 161-171. (I.F 4.94) 51. Zaman Ashraf, Muhammad Rafiq, Sung-Yum Seo, Kang Sung Kwon, Mustafeez Mujtaba Babar, Najam-us-Sahar Sadaf Zaidi, Kinetic and in silico studies of novel hydroxy-based thymol analogues as inhibitors of mushroom tyrosinase, <i>Eur. J. Med. Chem.</i> (2015), 98, 203-211. (I.F 6.51) 52. Zaman Ashraf, Muhammad Rafiq, Sung-Yum Seo, Mustafeez Mujtab Babar, Najam-us-Sahar Sadaf Zaidi, Synthesis, kinetic mechanism and docking studies of vanillin derivatives as inhibitors of mushroom tyrosinase, <i>Bioorg. Med. Chem.</i> (2015), 23: 5870–5880. (I.F 3.64) 53. Muhammad Rafiq, Muhammad Saleem, Muhammad Hanif, Qamar Abbas, Ki-Hwan Lee, Sung-Yum Seo, Acetylcholinesterase Inhibition Activity of Some Quinolinyl Substituted Triazolothiadiazole Derivatives, <i>Russian Journal of Bioorganic Chemistry.</i> (2015), 41(2): 195-202. (I.F 0.79) 54. Zaman Ashraf, Muhammad Rafiq, Sung-Yum Seo, Mustafeez Mujtaba Babar, Najam-us-Sahar Sadaf Zaidi, Design, synthesis and bioevaluation of novel umbelliferone analogues as potential mushroom tyrosinase inhibitors, <i>J Enzyme Inhib Med Chem</i>, 2014; 30(6), 874-883. (I.F 5.05) 55. Muhammad Saleem, Muhammad Rafiq, Sung-Yum Seo, Ki Hwan Lee, Influence of acetylcholinesterase immobilization on the photoluminescence properties of mesoporous silicon surface, <i>Applied Surface Science</i>, (2014), 308, 148–154. (I.F 6.70) 56. Muhammad Saleem, Seon-Mi Yu, Muhammad Rafiq, Song-Ja Kim, Sung-Yum Seo and Ki Hwan Lee, Synthesis, Crystal Structure, Anti-inflammatory and Anti-hyperglycemic Activities of Novel 3,4-Disubstituted 1,2,4-Triazol-5(4H)-one Derivatives, <i>Med. Chem.</i> (2014), 10(8): 810-823. (I.F 3.02) 57. Muhammad Rafiq, Shruti S. Sancheti, Sandesh A. Sancheti, Hae-Ran Kim, Young-Han You and Sung-Yum Seo, Antihyperglycemic and antioxidant activities of <i>Rhododendron schlippenbachii</i> maxim. Bark and its various fractions, <i>J. Med. Plants Res.</i> (2013), 7(12): 713-719. (0.588) 58. Muhammad Rafiq, Muhammad Saleem, Muhammad Hanif, Muhammad Rizwan Maqsood, Nasim Hasan Rama, Ki-Hwan Lee, and Sung-Yum Seo, Synthesis and Biological Activities of Some New 3,6-Disubstituted 1,2,4-Triazolo[3,4-b]1,3,4-thiadiazole Derivatives, <i>Bull. Korean Chem. Soc.</i> (2012), 33(12): 3943-3949. (I.F 0.96) 59. Muhammad Saleem, Muhammad Rafiq, Muhammad Hanif, Nasim Hasan Rama, Sung-Yum Seo, and Ki-Hwan Lee, Synthesis, Urease and Acetylcholine Esterase Inhibition Activities of Some 1,4-Disubstituted Thiosemicarbazides and their 2,5-Disubstituted Thiadiazoles, <i>Bull. Korean Chem. Soc.</i> (2012), 33(8): 2741-2747. (I.F 0.96) 60. Muhammad Rizwan Maqsood, Muhammad Hanif, Muhammad Rafiq, Muhammad Saleem, Sumera Zaib, Aftab Ahmed Khan, Mazhar Iqbal, Jamshed Iqbal, Nasim Hasan Rama, Sung-Yum Seo, and Ki-Hwan Lee, Some Pyridyl- and Thiophenyl- Substituted 1,2,4-Triazolo[3,4-b]1,3,4-thiadiazole Derivatives as Potent Antibacterial, <i>Bull. Korean Chem. Soc.</i> (2012), 33(12): 4180-4184. (I.F 0.96)
CRYSTAL REPORTS	1. Muhammad Hanif, Muhammad Rafiq, Muhammad Saleem, Ghulam Qadeer and Wai-Yeung Wong; Crystal structure of 1-(2,6-Dichlorophenyl)indolin-2-one: <i>Acta Cryst.</i>, (UK), E65, o583, 2009. 2. Muhammad Rafiq, Muhammad Saleem, Ghulam Qadeer and Wai-Yeung Wong; Crystal structure of 4-Benzyloxy-3-methoxybenzonitrile: Muhammad Hanif, <i>Acta Cryst.</i>, (UK), E65, o572, 2009. 3. Muhammad Rafiq, Muhammad Hanif, Ghulam Qadeer, Sauli Vuoti and Juho Autio; Crystal structure of (E)-1-(4-Aminophenyl) ethanone Oxime: <i>Acta Cryst.</i>, (UK), E64, o2173, 2008.

	4. Muhammad hanif, Ghulam Qadeer, Nasim Hasan rama, Muhammad Rafiq and Ales Ruzicka; Crystal Structure of 3-Hydroxybenzohydrazide; Acta Cryst., (U.K).E63, o4829, 2007.
<u>PATENT</u>	▪ Title of Invention: Novel 1,2,4-Triazole Compound and Pharmaceutical Composition for Inhibiting Urease Comprising the Same; Patent Number: 10-1984129 Patentee: ▪ KONGJU NATIONAL UNIVERSITY INDUSTRY-UNIVERSITY COOPERATION FOUNDATION
<u>SEMINOR (INVITED SPEAKER)</u>	• Muhammad Rafiq, (Oct 5~6. 2015) Enzyme based assay and kinetic investigation of bioactive compounds. <i>Recent trend in chemistry</i> AIOU, Islamabad, Pakistan. • Muhammad Rafiq, (Feb 15~16. 2024) 2nd International conference on recent innovations in plant sciences and natural products. <i>Department of Botany, University of Okara, Punjab, Pakistan</i>
<u>Conference Organizer</u>	• Muhammad Rafiq, (Feb 06~07. 2023) An international multidisciplinary conference on innovation in Biochemistry, Veterinary Medicine & Pharmacology. <i>Department of Physiology & Biochemistry, CUVAS, Bahawalpur</i>
<u>BOOK CHAPTER</u>	• Muhammad Farrukh Nisar, Muhammad Dilawar, Amir Javed, Muhammad Rafiq, Muhammad Arfan, Shafeeq ur Rahman, Mariusz Mojzych, Kamal Niaz “Current trends in the development and biochemistry of drugs” <i>Recent Advances in Industrial Biochemistry</i> 2024. • Muhammad Saleem, Muhammad Rafiq, Muhammad Hanif. Chapter Published in “Reviews in Fluorescence” Issue 2016. <i>Springer</i> • Non-Coding RNAs: Recent Advancements in The Development and Biochemistry as Novel Anti-Tumor Drug Molecules, <i>Current Studies in Health and Life Sciences</i> 2023. • Current trends in the development and biochemistry of drugs, <i>Recent Advances in Industrial Biochemistry</i> Springer 2023.
<u>LANGUAGES</u>	▪ English (Read/ Write /Speak) ▪ Urdu (Read/ Write /Speak) ▪ Korean (Read/ Write)
<u>TRAININGS</u>	▪ “In-Service Competency Enhancement Training for Young University Faculty” is 28-30 January, 2019 at the Cholistan University of Veterinary and Animal Sciences, Bahawalpur. ▪ 9th Training course on Biochemical & Molecular Techniques in Plant Breeding (Nov. 4-8, 2019) Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad, PAKISTAN ▪ 4th International workshop on X-Ray Crystallography in Structural Biology, February 25-27, 2020, at The Islamia University of Bahawalpur, Pakistan. ▪ 1ST International workshop on Biodiversity, techniques and tools organized by Department of Zoology, (April 04-05-2019) Cholistan University of Veterinary and Animal Sciences, Bahawalpur. ▪ One-week training workshop on “Data Analysis with R” on 17-21 July, 2023 at CUVAS, Bahawalpur

**CONFERENCES AND
MEETINGS**

1. **Muhammad Rafiq**, Muhammad Saleem, Lee KH, Seo S-Y (Dec 14~18. 2013) Synthesis, characterization, acetylcholinesterase inhibition, antioxidant and antibacterial studies of 4-amino-5-aryl-3H-1,2,4-triazole-3-thione analogues and their 3,6-disubstituted 1,2,4-triazolo-[3,4-b]-1,3,4-thiadiazole derivatives, ASCB (*American Society for Cell Biology*), (**New Orleans, USA**).
2. Seong G, **Muhammad R**, Muhammad S, Lee KH, Seo SY (Dec 14~18. 2013) Synthesis, Acetylcholinesterase Inhibition and Anti-Hyperglycemic Activities of Some Substituted Sulfonamide Derivatives, ASCB (*American Society for Cell Biology*), (**New Orleans, USA**).
3. Kim SN, **Muhammad R**, Seo SY (Dec 14~18. 2013) Separation and analysis of bioactive peptide from serum of *Sus scrofa domestica*, ASCB (*American Society for Cell Biology*), (**New Orleans, USA**).
4. **Muhammad rafiq**, Ki Hwan Lee, Muhammad saleem, Seo Sung-Yum (Oct 17~19. 2012) Synthesis and biological activities of some new 3,6-Disubstituted 1,2,4-Triazolo[3,4-b]1,3,4-thiadiazole Derivatives, Korean chemical society (**Bexco, Busan, korea**).
5. Muhammad saleem, Ki Hwan Lee, **Muhammad rafiq**, Seo Sung-Yum (Oct 17~19. 2012) Synthesis, urease and acetylcholinesterase inhibition activities of some 1,4-Disubstituted thiosemicarbazides and their 2,5-Disubstituted thiadiazoles, Korean chemical society (**Bexco, Busan, korea**).
6. **Muhammad rafiq**, Seo Sung-Yum (Oct 15~17. 2014) Microwave assisted synthesis and biological activities of novel Schiff base derivatives, Korean chemical society (Kimdaejung Convention Center, **Gwangju, korea**).
7. **Muhammad rafiq**, Seo Sung-Yum (Oct 15~17. 2014) Synthesis of quinoliny substituted triazolothiadiazole derivatives and their bioassay, Korean chemical society (Kimdaejung Convention Center, **Gwangju, korea**).
8. **Muhammad rafiq**, Seo Sung-Yum (Oct 15~17. 2014) α -Glucosidase and acetylcholinesterase inhibition activities of novel sulfonamide derivatives, Korean chemical society (Kimdaejung Convention Center, **Gwangju, korea**).
9. **Rafiq Muhammad**, Seo Sung-Yum (Oct 23~24. 2014) Facile synthesis, crystal structure and biological activities of 4-(2-fluorophenyl)-3-(3-methoxybenzyl)-1H-1,2,4-triazole-5(4H)-one, Proceedings of the fall international convention of the pharmaceutical society of korea (Hotel Hyundai, **Gyeongju, Gyeongsangbuk-do, Korea**).
10. **Rafiq Muhammad**, Jo Su-eon, Lim Jin-Hye, Seo Sung-Yum (Oct 23~24. 2014) Biological assay of synthetic triazolothiadiazole derivatives, Proceedings of the fall international convention of the pharmaceutical society of korea (Hotel Hyundai, **Gyeongju, Gyeongsangbuk-do, Korea**).
11. **Muhammad Rafiq**, Microwave assisted synthesis, in vivo anti-inflammatory and in vitro anti-oxidant activities of novel substituted Schiff base derivatives. 2nd International Conference on Recent Trend in Chemistry at AIOU, Islamabad Pakistan.
12. 1st international conference on innovation in chemistry, Biochemistry and Biotechnology and Bioinformatics (IBBB-2022) on 15-17 December, 2022 at The Islamia University of Bahawalpur.
13. Anti-tyrosinase Anti-browning and Antioxidant potential of Oxystelma Esculentum plant Extract, 1st International multidisciplinary conference on Innovations in Biochemistry, Veterinary Medicine & Pharmacology on 6-7 February 2023, at CUVAS, Bahawalpur
14. 1st International Conference on recent trends in plant sciences and natural product & 3rd natural product exhibition on 16-17 February, 2023 organized by Department of Botany, University of Okara, Okara.
15. Global science Technology and management conference on 9-11 February 2023, at The Islamia University of Bahawalpur.

<u>TRAVEL HISTORY</u>	<u>Country</u>	<u>Year of travel</u>
	South Korea	August 2011
	Pakistan (visit)	06 Aug. 2013
	South Korea (back)	07 Sep. 2013
	USA (visit)	13 Dec. 2013
	South Korea (back)	18 Dec. 2013
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