

Dr. Syeda Aaliya Shehzadi

Assistant Professor of Chemistry

Centre for Interdisciplinary Research in Basic Sciences (CIRBS)

International Islamic University, Islamabad.

Specialization: Organic Synthetic Chemistry and Medicinal Chemistry

Education:

MSc. (Chemistry), Islamia University Bahawalpur, Pakistan (2007)

MPhil. (Org. Chemistry), Quaid-i-Azam University Islamabad, Pakistan (2009)

Joint Doctorate (Synthetic Chemistry), University of Antwerp Belgium and Quaid-i-Azam University Islamabad, Pakistan (2017)

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Background:

Dr. SyedaAaliyaShehzadi joined SA-Centre for Interdisciplinary Research in Basic Sciences (SA-CIRBS), International Islamic University Islamabad in February 2018. She completed her PhD in Organic Chemistry from Quaid-I-Azam University, Islamabad and University of Antwerp Belgium under Erasmus Mundus Exchange Programme for doctorate studies.

During her academic career she won various Scholarships such as Indigenous 5000 PhD fellowship by HEC Pakistan; IRSIP fellowship at Georgia Institute of Technology Atlanta, Georgia, USA by HEC Pakistan; Erasmus Mundus Joint doctorate fellowship by European Commission and DoctoraatBursaal from University of Antwerp Belgium.

Research Interests and Focus:

The main focus of her PhD research work was to develop new synthetic methodologies applying C-H activation for the synthesis of various Nitrogen containing compounds. Her current research interests include but not limited to developing novel synthetic methodologies for aza-heterocyclic and non-cyclic compounds using cheap and easily available starting materials.

She has authored/co-authored research papers in high impact peer reviewed international journals. She also presented her research work in various national and international conferences/symposia.

Research Grants/Awards/Honors:

- SRGP research grant (Rs. 0.5 million) from Higher Education Commission (2018) *“Design, synthesis and spectroscopic characterization of propargylamines attached to various aza-heterocyclic compounds for the applications as neuroactive drugs.”* (PI: Dr. SyedaAaliyaShehzadi)

Current Research Students:

MS Research Student

Student name	Status
Arooj Naveed	Research
Sana Ashraf	Research
Maryam Shehzadi	Research
Hajrah Mumtaz	Research
Zeeshan Ahmad	Research

Research Publications (2018-2020):

1. **Syeda Aaliya Shehzadi**, Christophe M. L. Vande Velde, Aamer Saeed, Kourosch Abbaspour Tehrani. Synthesis of highly functionalized 1,6-dihydropyridines via Zn(OTf)₂-catalyzed three-

- component cascade reaction of aldimines and two alkynes (IA²-coupling). *Organic & Biomolecular Chemistry*, **2018**, *16*, 3241-3247. I.F: 3.5 Article
2. Aliya Ibrar, **SyedaAaliyaShehzadi**, Faiq Saeed, Imtiaz Khan. Developing hybrid molecule therapeutics for diverse enzyme inhibitory action: Active role of coumarin-based structural leads in drug discovery, *Bioorganic & Medicinal Chemistry*, **2018**, *26*, 3731-3762.*. I.F: 2.8. Review *(The abstract of this review has been published as cover page of the July issue of the Journal.)
 3. **SyedaAaliyaShehzadi**, Khushbu Kushwaha, Hans Sterckx, Kourousch Abbaspour Tehrani. Zn(OTf)₂-Catalyzed Synthesis of 2-Alkynylazetidines and their Ring Expansion to Functionalized 1,4,5,6-Tetrahydropyridines. *Adv. Synth. Catal.* **2018**, *360*, 4393-4401. I.F: 5.6. Article
 4. Faisal, Muhammad; Saeed, Aamer; Shahzad, Danish; Abbas, Nadir; Ali Larik, Fayaz; Ali Channar, Pervaiz; **AaliyaShehzadi, Syeda**. Comparison of the corrosion inhibition efficiencies of the triazole derivatives for mild steel, *Corrosion Reviews*, **2018**, *36*, 507-545. I.F: 1.7. Review
 5. Imtiaz Khan, Aliya Ibrar, **SyedaAaliyaShehzadi**, Building molecular complexity through transition-metal-catalyzed oxidative annulations/cyclizations: Harnessing the utility of phenols, naphthols and 1,3-dicarbonyl compounds. *Coordination Chemistry Reviews*, **2019**, *380*, 440-470. I.F: 14.5. Review
 6. **SyedaAaliyaShehzadi**, Imtiaz Khan, Aamer Saeed, Fayaz Ali Larik, Pervaiz Ali Channar, Mubashir Hassan, Hussain Raza, Qamar Abbas, Sung-Yum Seo. One-pot four-component synthesis of thiazolidin-2-imines using Cu^I/Zn^{II} dual catalysis: a new class of acetylcholinesterase inhibitors, *Bioorganic Chemistry*, **2019**, *84*, 518-528. I.F: 3.9. Article
 7. P. A. Channar, N. Arshad, S. I. Farooqi, A. Saeed, **SyedaAaliyaShehzadi**, Nasir Abbas, Ulrich Flörke. Synthesis, Crystal Structure, Hirshfeld Surface Analysis, DFT, and DNA-Binding Studies of (E)-2-(3-Hydroxy-4-Methoxybenzylidene) Hydrazinecarbothioamide. *Applied Biochemistry and Biotechnology*, **2019**, *189*, 175-192. I.F: 1.4. Article
 8. Tanzeela A. Fattah, Aamer Saeed, **SyedaAaliyaShehzadi**. Synthetic Approaches towards Anti-hypercholesterolemic Drug Simvastatin. *Current Organic Synthesis*, **2019**, *16*, 687-705. 10.2174/1570179416666190725095951. I.F: 1.8. Review
 9. Aamer Saeed, **SyedaAaliyaShehzadi**, Michael Bolte, Carlos A. Franca, Mauricio F. Erben, Interplay between conformation and crystal packing in aryl propargyl ethers: structural and spectroscopic properties of 2-(prop-2-yn-1-yloxy)acene derivatives. *ChemistrySelect* **2019**, *4*, 9927-9933. I.F: 1.7. Article
 10. Ifzan Arshad, Aamer Saeed, Pervaiz Ali Channar, **SyedaAaliyaShehzadi**, Rana Muhammad Irfan. Synthesis of Contra-positionally substituted Cyclohexa- meta-phenylene: a ready to use precursor. *Synlett*. **2019**, *30*, 1886-1890. I.F: 2.4. Article
 17. Mumtaz Hussain, Tahir Qadri, Zahid Hussain, Aamer Saeed, Pervaiz Ali Channar, **SyedaAaliyaShehzadi***, Mubashir Hassan, Fayaz Ali Larik, Tarique Mahmood, Arif Malik. Synthesis, antibacterial activity and molecular docking study of vanillin derived 1,4-disubstituted 1,2,3-triazoles as inhibitors of bacterial DNA synthesis. *Heliyon* **2019**, *5* (11), I.F: 2.4. Article
 18. Ifzan Arshad, Aamer Saeed, Pervaiz Ali Channar, **Syeda Aaliya Shehzadi**, Muhammad Siddiq. Bis-Schiff bases of 2,2'-Dibromobenzidine as an efficient corrosion inhibitor for mild steel in acidic medium. *RSC Adv.*, **2020**, *10*, 4499-4511. I.F: 3.0. Article
 19. Pervaiz A. Channar, Aamer Saeed, Saira Afzal, Dilawar Hussain, Markus Kalesse, **SyedaAaliyaShehzadi**, Jamshed Iqbal. Hydrazine clubbed 1,3-thiazoles as potent urease inhibitors: design, synthesis and molecular docking studies. *Mol Divers.*, 2020.
 20. **SyedaAaliyaShehzadi**, Aamer Saeed, Fouzia Perveen, Pervaiz Ali Channar, Qamar Abbas, Saima Kalsoom, Ifzan Arshad, Fayaz Ali Larik, Jim Simpson. Identification of two novel thiazolidin-2-imines as tyrosinase inhibitors: Synthesis, crystal structure, molecular docking and DFT studies. Submitted in *ChemMedChem*. Under review

Conferences and Workshops:

Oral/Poster Presentations (All International)

1. Paper presentation at 11th Eurasia conference on chemical sciences, The Dead-Sea Jordan, "Regioselective synthesis of 1,4-disubstituted 1,2,3-triazoles as novel α -glucosidase inhibitors and probing ligand-protein interactions through molecular dynamic simulations" F. Jabeen, S. A. Shehzadi, Q. Fatmi, F. A. Ansari. October 6-10th **2010**.
2. Poster Presentation at 15th Belgian Organic Synthesis Symposium (BOSS XV) Antwerpen, Belgium July 10-15th **2016**. Titled: Zn^{II}-catalysed synthesis of propargylamines by coupling of alkynes with aldimines and ketimines, SyedaAaliyaShehzadi, KourouschAbbaspour Tehrani.
3. Two Poster Presentations at 'Chemical Research in Flanders, 1st Symposium (CRF 1), October 24-26th **2016**, Floreal Club, Blankenberg, Belgium' **1st poster**: Zn^{II}-catalysed synthesis of propargylamines by coupling of alkynes with aldimines and ketimines, SyedaAaliyaShehzadi, KourouschAbbaspour Tehrani. **2nd poster**: Metal-free synthesis of chlorinated β -amino ketones via an unexpected reaction of imines with arylacetylenes in 1,1,1,3,3,3-hexafluoro-2-propanol, SyedaAaliyaShehzadi, Khushbu Kushwaha, Balazs Pinter, Chandi C. Malakar, Christophe M. L. Vande Velde, Frank de Proft and KourouschAbbaspour Tehrani.
4. Poster Presentation at 'The 20th Sigma Aldrich Organic Synthesis Symposium, Dec. 8-9th **2016**, Duinse Polders, Blankenberg, Belgium.' Titled: Zn(OTf)₂-catalysed synthesis of tri- and tetra-substituted propargylamines by imine-alkyne coupling, SyedaAaliyaShehzadi, KourouschAbbaspour Tehrani.
5. Oral Presentation at '7th International Conference on Multicomponent Reactions and Related Chemistry, August 26th-31st **2018**, Heinrich-Heine-Universität Düsseldorf Germany'. Synthesis of highly functionalized 1,6-dihydropyridines via Zn(OTf)₂-catalyzed three-component cascade reaction of aldimines and two alkynes (IA²-coupling). Syeda Aaliya Shehzadi, Christophe Vande Velde, Aamer Saeed, Kourousch Abbaspour Tehrani.
6. Oral Presentation at '15th Eurasia Conference on Chemical Sciences, University of Sapienza Rome, Italy, Sep. 5-8th **2018**'. Synthesis of highly functionalized 1,6-dihydropyridines via Zn(OTf)₂-catalyzed three-component cascade reaction of aldimines and two alkynes (IA²-coupling). Syeda Aaliya Shehzadi, Christophe Vande Velde, Aamer Saeed, Kourousch Abbaspour Tehrani.

Conferences, Symposia and Workshops Attended (National & International)

International

1. Southeast Regional Energy Symposium (SERES), July 14-15th **2013** at Georgia Tech. Atlanta, GA. USA.
2. BOSS|XIV 14th Belgian Organic Synthesis Symposium. UCL, July 13-18th **2014**, Belgium.
3. 5th NARC-IOCD Symposium for the Dissemination of Chemical knowledge on the occasion of German Year, 17th Dec. **2014**, Université De Namur, Namur, Belgium.
4. The 18th Sigma Aldrich Organic Synthesis Symposium, Dec. 4-5th **2014**, Duinse Polders, Blankenberg, Belgium.
5. One-day Symposium 'Chemistry as an Enabler for a Sustainable Society' 11th May **2015**, University of Antwerp, Belgium.

National

1. Poster presentation in 8th national & 20th international chemistry conference, Feb. 15-17th **2010**, QAU, Islamabad, Pakistan. Triazoles at a Click-Synthesis, bioevaluation and computational studies of some novel 1,2,3-triazoles through click chemistry. S. A. Shehzadi, F. Jabeen, Q. Fatmi, F. A. Ansari.
2. One-day Symposium on BioPhotonics March 19th, **2013** at PIEAS, Nilore, Pakistan.
3. Three-day workshop on Density Functional Theory (DFT) March 26-28th **2013** PINSTECH Nilore, Pakistan.
4. First National Workshop/Conference on Computational Tools April 8-12th **2013**, National Centre for Physics (NCP), Islamabad 44000 Pakistan.
5. International Symposium on Design of Dye-Sensitized Solar cells for cost effective energy harvesting at Ghulam Ishaq Khan Institute of Engineering Sciences and Technology-South Dakota State University (GIKIEST), Topi, NWFP, Pakistan December 13-15th **2013**.
6. Poster presentation at 9th Chemistry Conference on Chemical Engineering and Life Sciences (CELS 2017), September 19-21st **2017**, Pinstech, Islamabad.

7. Paper presentation titled "Cu^I/Zn^{II}-catalyzed four-component one-pot synthesis of thiazolidin-2-imines by direct coupling of aldehydes, amines, alkynes and isothiocyanates" at 3rd International Conference on Recent Trends in Chemistry, 23-24th November **2017**, Allama Iqbal Open University, Islamabad.
8. Oral presentation at 4th International Conference on Recent Trends in Chemistry, 7-8th November **2018**, Allama Iqbal Open University, Islamabad, Pakistan.
9. Oral presentation at 5th International Conference on Drug-development- Natural & Synthetic, 28-29th June **2018**, at Center for advanced Drug Research (CADR), COMSATS university, Abbottabad Campus, Pakistan.
10. 1st International Conference on ADVANCEMENTS IN BIOTECHNOLOGY & BIOCOMPUTING (ab²) 07-09th February **2019**, Department of Biological Sciences, International Islamic University Islamabad, Pakistan.
11. Oral presentation at Pak-Belarus international conferences on recent trends in chemical sciences 24-26th April 2019, Department of Chemistry, Quaid-i-Azam University Islamabad, Pakistan, "Synthesis of 2-alkynyl azetidines and their ring expansion".
12. Oral Presentation at 1st National Symposium on General Chemistry: A Platform from Academia to Industry, 17th July **2019** in COMSATS University Islamabad, Pakistan. "Zn(OTf)₂-Catalyzed Synthesis Of 2-Alkynylazetidines and Their Ring Expansion To Functionalized 1,4,5,6-Tetrahydropyridines"
13. Poster presentation at 7th International Symposium on Biomedical Materials: Science & Technology Innovation and the Knowledge Economy 11-12th December **2019** held at Interdisciplinary Research Centre in Biomedical Materials (IRCBM), COMSATS University Islamabad, Lahore. "One-pot four-component synthesis of thiazolidin-2-imines using Cu^I/Zn^{II} dual catalysis: a new class of acetylcholinesterase inhibitors".
14. Oral Presentation at 3rd International Conference on Chemical & Pharmaceutical Sciences: New trends in Medicinal & Pharmaceutical chemistry 29-31st January **2019** held at Chemistry Department, Forman Christian College (A Chartered University), Lahore. "Synthesis, antibacterial activity and molecular docking study of vanillin derived 1,4-disubstituted 1,2,3-triazoles."