

# Dr. RASHAD MEHMOOD

S/o Muhammad Aslam

## Assistant Professor

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## Research Interests:

- ▶ Phytochemistry: isolation and determining bioactivity of extracts and isolated components to explore the plant biodiversity against fatal diseases
- ▶ Synthetic Organic Chemistry
- ▶ Synthesis of biological active **ligands and their metal complexes**
- ▶ Synthesis of **medicinally important natural products** using new synthetic strategies
- ▶ Development of new and efficient synthetic strategies for **improved drug targets**
- ▶ Isolation and structure elucidation of the **biologically active natural products**

## Research Project (completed):

- ▶ HEC funded a research project of entitle “Phytochemical Investigation on Medicinally Important *Teucrium stocksianum*” of worth **0.5 million**.

## Research Supervisor:

- ▶ **HEC approved PhD supervisor**
- ▶ Supervised an M. Phil student and his thesis title is “Phytochemical Investigation of *Teucrium stocksianum*, A Medicinally Important Plant”.
- ▶ Supervision of six BS-Chem students

## Teaching/Research Experience:

- ▶ Assistant Professor at University of Education, Vehari Campus, Pakistan since November 2016 to till now (continue).
- ▶ Assistant Professor at Government College University Faisalabad Sahiwal Campus, Pakistan since Jan 2016 to November 2016 (10 month).
- ▶ Assistant Professor at Hazara University from April 2012 to Jan 2016 (3 year & 9 month)
- ▶ Researcher at University of Karachi from July 2007 to July 2008 under NIP (1 year)
- ▶ Junior Research Fellow at HEJ, University of Karachi from April 2006 to Nov. 2011(5 year & 6 month)

## Competitive Examinations:

- ▶ **Graduate Record Examination (GRE) Subjective (Chemistry)**, 70 percentile from Education Testing Services (ETS), Princeton USA **2007**.

## Academic Qualifications:

- ▶ **PhD in Organic Chemistry**, H. E. J. Research Institute of Chemistry, ICCBS, University of Karachi, Karachi-75270, Pakistan
- ▶ **Title of thesis:** “Phytochemical Investigation of Medicinally Important *Croton sparsiflorus* and *Ziziphora tenuior* Plants”
- ▶ **Advanced NMR and Mass spectrometry, and X-RD Courses**, at H. E. J. Research Institute of Chemistry, ICCBS, University of Karachi, Karachi-75270, Pakistan
- ▶ **Master of Science (M. Sc. Chemistry)**, The Islamia University of Bahawalpur, Pakistan. **2003-2005**
- ▶ **M. Sc. Specialization:** Organic Chemistry
- ▶ **Title of M. Sc. Thesis:** Syntheses of Schiff base Compounds Derived from 2-acetyl- $\gamma$ -butyrolactone and Sulfonamides, and their Transition Metal Complexes
- ▶ **Bachelor of Science (B. Sc.):** Mathematics A + B Courses and Chemistry, The Islamia University of Bahawalpur, Pakistan. **2000-2002**
- ▶ **Higher Secondary School Certificate (HSSC):** Pre-engineering, Board of Intermediate and Secondary Education Bahawalpur, Pakistan. **1997-2000**
- ▶ **Secondary School Certificate (SSC):** Science, Board of Intermediate and Secondary Education Bahawalpur, Pakistan. **1995-1997**

#### **Skills in Organic Chemistry:**

- ▶ Skillful in elucidating and writing spectral data of organic compounds and papers writing
- ▶ Independent in developing **new synthetic projects** and strategies in **drug design**
- ▶ **Strong basic concepts** in Organic Synthesis
- ▶ Efficient in solving **synthetic problems**
- ▶ Efficient in **Catalyzed Reactions**
- ▶ Successful in synthesis of **Schiff base compounds** and their **Transition Metal complexes** independently

#### **Professional Skills in chromatography and NMR:**

- ▶ Hand on experience on **Column Chromatography** and related isolation techniques of four years
- ▶ Good performance in preparative, centrifugally and accelerated **Thin-layer Chromatography**
- ▶ Expertise in **Recycling Preparative HPLC**
- ▶ Skillful in **structural elucidation** of unknown and novel compounds through all **spectroscopy**
- ▶ Good understanding in **Modern NMR** techniques
- ▶ Skills of interpretations of **1D and 2D NMR techniques** ( $^1\text{H}$ ,  $^{13}\text{C}$ , DEPT, COSY, NOESY, HMBC, HSQC, HOHAHA) and modern **Mass Spectrometry techniques** (EI, FAB, ESI, HRMS, TOF, MALDI)

## Taught and academic courses:

### ▶ Taught courses 2018-2019:

Fundamentals of Organic Chemistry, Fundamentals of Physical Chemistry, Industrial Chemistry, Stereochemistry and Reaction Mechanism, Quantum Chemistry and Gas Phase Equilibrium, Aromatic Substitution reactions, Oxidation, Reduction, pericyclic reactions, Natural Products, Reactive Intermediates (carbocations, carbenes, carbanions, nitrenes, arynes), Molecular rearrangement, Mathematics for Chemist

## Language, Communication and other Skills:

- ▶ Fluent in **English** and **Urdu Languages**
- ▶ Hand on experience **Papers Writing** and **Thesis Writing**
- ▶ Excellent presentation skills
- ▶ Two years teaching experience of college
- ▶ Experience of guidance in research to young researchers
- ▶ Experience of teaching in **Structural determination** of unknown compounds, **Papers** and **Thesis Writing** to young researchers
- ▶ One years experience under **Internship Program** at Karachi University

## Conferences/Symposiums/Workshops

- ▶ 11<sup>th</sup> International **Symposium** (29 October - 1 November, 2008) on Natural Product Chemistry organized by H. E. J. Research Institute of Chemistry, ICCBS, University of Karachi, Karachi-75270, Pakistan
- ▶ **Poster Presentation** in the 12<sup>th</sup> International **Symposium** (22-25 November, 2010) on natural product chemistry organized by H. E. J. Research Institute of Chemistry, ICCBS, University of Karachi, Karachi-75270, Pakistan
- ▶ **Oral Presentations** in the 9<sup>th</sup> International and 21<sup>st</sup> National Chemistry Conference (14-16 March 2011) organized by Department of Chemistry and H. E. J. Research Institute of Chemistry, ICCBS, University of Karachi, Karachi-75270, Pakistan
- ▶ **Workshops** on “How to Write Scientific Manuscripts for High Impact Factor Journals?” (23 July, 2011) and “How to Write A Winning Scientific Research Proposal?” (24 Sep., 2011) organized by H. E. J. Research Institute of Chemistry, ICCBS, University of Karachi, Karachi-75270, Pakistan
- ▶ “**PAK-US Workshop** on Application of Nanotechnology”, organized by ICCBS, HEJ Research Institute of Chemistry, University of Karachi, Pakistan & US National Science Foundation, 29-30 May 2012.
- ▶ Poster presentation on “New Chemical Constituents from *Croton sparsiflorus* Morong” in the “12<sup>th</sup> International and 24<sup>th</sup> National Chemistry Conference” organized by Institute of Chemical Sciences, Bahauddin Zakariya University, Multan, Pakistan, 28-30 October, 2013.
- ▶ Poster presentation on “New Chemical Constituents from *Croton sparsiflorus*” in the “3 Day Chemistry Conference” organized by the Department of Chemistry, Hazara University, Mansehra, Pakistan, 26-28 November, 2013.

- ▶ Poster presentation “New Secondary Metabolites from *Croton sparsiflorus* Morong” in the “14<sup>th</sup> Asian Symposium on Medicinal Plants, Spices and other Natural Products (ASOMPS XIV)” organized by International Center for Chemical and Biological Sciences, HEJ Research Institute of Chemistry, University of Karachi, Pakistan, 09-12 December, 2013.
- ▶ Training workshop on “Professional Development of Teachers Teaching through Medium of English” at Virtual University of Pakistan, Lahore organized by HEC, Pakistan 21-26 January 2017.
- ▶ **Oral Presentations** on ‘Pharmacological and phytochemical studies on *Teucrium stocksianum*’ in the 6<sup>th</sup> International Conference on Education ‘Science Beyond Classroom’ (15-17 March, 2018) organized by University of Education, Lahore, Pakistan

#### Scholarships and Awards:

- ▶ **HEC Indigenous Scholarship**
- ▶ **National Internship Program (NIP)**, Ministry of Youth Affairs Government of Pakistan for graduates and also to keep them engaged and interested in acquiring additional knowledge. July, **2007-8**
- ▶ **Fellowship**, H. E. J. Research Institute of Chemistry, ICCBS, University of Karachi, Karachi-75270, Pakistan

#### Membership:

- ▶ Life membership of **The Chemical Society of Pakistan**

#### Publications:

##### Published Papers

1. Muhammad Safder, Muhammad Imran, **Rashad Mehmood**, Abdul Malik, Nighat Afza, Lubna Iqbal and Mehreen Latif, Asphorodin, a Potent Lipxygenase Inhibitory Triterpene Diglycoside from *Asphodelus tenuifolius*, *J. Asian Nat. Prod. Res.*, **11**(11, Nov.), 945-950 (**2009**).
2. **Rashad Mehmood**, Muhammad Imran, Muhammad Safder, Shazia Anjum and Abdul Malik, Structural Determination of Crotamides A and B, the New Amides from *Croton sparsiflorus*, *J. Asian Nat. Prod. Res.*, **12**(8, Aug.), 662-665 (**2010**).
3. **Rashad Mehmood**, Muhammad Imran, Abdul Malik and Rasool Bakhsh Tareen, Ziziphorins A and B. New Flavonoids from *Ziziphora tenuior*, *Z. Naturforsch.*, **65b**(11, Nov.), 1397-1400 (**2010**).
4. **Rashad Mehmood** and Abdul Malik, Isolation and Characterization of Crotosparsamide, a New Cyclic Nonapeptides from *Croton sparsiflorus*, *Nat. Prod. Commun.*, **5**(12, Dec.), 1885-1888 (**2010**).
5. Sumayya Saeed, Shazia Shah, **Rashad Mehmood** and Abdul Malik, Paniculacin, a New Coumarin Derivative from *Murraya paniculata*, *J. Asian Nat. Prod. Res.*, **13**(8, Aug.), 724-727 (**2011**).
6. **Rashad Mehmood** and Abdul Malik, New Secondary Metabolites from *Croton sparsiflorus*, *Z. Naturforsch.*, **66b**(8, Aug.), 857-860 (**2011**).
7. Sadia Khan, **Rashad Mehmood**, Mehdi Hussain Kazmi and Abdul Malik, Alliumonoate, a New Cyclopentane Derivative from *Allium victorialis*, *J. Asian Nat. Prod. Res.*, **13**(8, Aug.), 1165-1169 (**2011**).

8. Uzma Rasheed Mughal, **Rashad Mehmood**, Abdul Malik, Bakhat Ali and Rasool Bakhsh Tareen, Flavonoidal Constituents from *Spiraea brahuica*, *Helv. Chim. Acta*, **95**(1, Jan.), 100-105 (2012).
9. Muhammad Safder, **Rashad Mehmood**, Bakhat Ali, Uzma Rasheed Mughal, Abdul Malik and Abdul Jabbar, New Secondary Metabolites from *Asphodelus tenuifolius*, *Helv. Chim. Acta*, **95**(1, Jan.), 144-151 (2012).
10. Muhammad Imran, **Rashad Mehmood**, Uzma Rasheed Mughal, Bakhat Ali and Abdul Malik, Vicarin, a New Isoflavone from *Eremostachys vicaryi*, *J. Asian Nat. Prod. Res.*, **14**(3, March), 293-296 (2012).
11. Bakhat Ali, **Rashad Mehmood**, Uzma Rasheed Mughal, Riaz Hussain, Abdul Malik, Muhammad Safder, Muhammad Imran and Rasool Bakhsh Tareen, Eremosides A-C, New Iridoid Glucosides from *Eremostachys losifolia*, *Helv. Chim. Acta*, **95**(4, April), 586-593 (2012).
12. Uzma Rasheed Mughal, **Rashad Mehmood**, Abdul Malik, Bakhat Ali and Rasool Bakhsh Tareen, Spiraeamide, New Sphingolipid from *Spiraea brahuica*, *J. Asian Nat. Prod. Res.*, **14**(6, June), 601-606 (2012).
13. Bakhat Ali, **Rashad Mehmood**, Abdul Malik, Muhammad Imran, Haq Nawaz, Riaz Hussain and Ajaz Hussain, New Sphingolipids from *Abutilon pakistanicum*, *Z. Naturforsch.*, **67b**(5, May), 433-437 (2012).
14. Zia Ullah, **Rashad Mehmood**, Muhammad Imran, Abdul Malik and Rehana A. Afzal, Flavonoid Constituents of *Pistacia integerrima*, *Nat. Prod. Commun.*, **7**(8, August), 1011-1014 (2012).
15. **Rashad Mehmood**, Amna Bibi and Abdul Malik, New Secondary Metabolites from *Croton sparsiflorus*, *Turk. J. Chem.*, **37**(January), 111-118 (2013).
16. Zia Ullah, **Rashad Mehmood**, Muhammad Imran, Abdul Malik and Rehana A. Afzal, New acylated oligosaccharides from *Pistacia integerrima*, *Nat. Prod. Res.*, **27**(August), 2027-2032 (2013).
17. Muhammad Aslam, Itrat Anis, Nighat Afza, Muhammad Tahir Hussain, **Rashad Mehmood**, Ajaz Hussain, Sammer Yousuf, Lubna Iqbal, Samina Iqbal and Inamullah Khan, Synthesis, X-Ray Crystallography, Molecular Docking and Biological Screening of 2-Aminophenol Based Schiff Bases, *J. Chil. Chem. Soc.*, **58**, 1867-1871 (2013).
18. Muhammad Aslam, Itrat Anis, Nighat Afza, **Rashad Mehmood**, Ajaz Hussain, Tanveer Hussain Bokhari, Muhammad Tahir Hussain, Haq Nawaz and Muhammad Khalid, Synthesis, Characterization and Antibacterial Investigation of Divalent Metal Complexes of NO Donor Ligand: {5-Chloro-2-[(4-chlorobenzylidene)-amino]phenyl}(phenyl)metha-none, *J. Saudi Chem. Soc.*, **19**(April), 322-326 (2015).
19. Shagufta Perveen, Areej Mohammad Al-Taweel, Nawal Al-Musayeib, Ghada Ahmed Fawzy, Afsar Khan, **Rashad Mehmood**, Abdul Malik, New flavonol glycosides from the leaves of *Caragana brachyantha*, *Natural Product Research*, **29**, 615-620 (2015).
20. Areej Mohammad Al-Taweel, Shagufta Perveen, Ghada Ahmed Fawzy, Afsar Khan, **Rashad Mehmood**, Abdul Malik, Abelaside, a new phenolic glucoside from *Abelia triflora*, *Natural Product Research*, **29**(September), 1978-1984 (2015).
21. Areej Mohammad Al-Taweel, Shagufta Perveen, Ghada Ahmed Fawzy, Ibrahim TA, Afsar Khan, **Rashad Mehmood**, Cytotoxicity assessment of six different extract of *Abelia triflora* leaves on A-549 human lung adenocarcinoma cells, *Asian Pacific Journal of Cancer Prevention*, 2641-2645, **16** (2015).
22. Syed Majid Bukhari, Iftikhar Ali, Asma Zaidi, Naseem Iqbal, Tayyaba Noor, **Rashad Mehmood**, Muhammad Salman Chishti, Basit Niaz, Umer Rashid, Muhammad Atif, Pharmacology and

synthesis of daurichromenic acid as a potent anti-HIV agent, *Acta Poloniae Pharmaceutica – Drug Research*, 1059-1071, **72** (2015).

23. Fazal Rahim, Hayat Ullah, Muhammad Tariq Javid, Abdul Wadood, Muhammad Ashraf, Ayesha Shaikat, Bakhtiar Muhammad, Muhammad Junaid, Wajid Rehman, **Rashad Mehmood**, Momin Khan, Khalid Mohammed Khan, Synthesis, *in vitro* evaluation and molecular docking studies of thiazole derivatives as new inhibitors of  $\alpha$ -glucosidase, *Bioorganic Chemistry*, 15-21, **64** (2015).
24. Muhammad Aslam, Itrat Anis, Nighat Afza, Lubna Iqbal, Samina Iqbal, Ajaz Hussain, **Rashad Mehmood**, Muhammad Tahir Hussain, Muhammad Khalid and Haq Nawaz, Biological Evaluation of Potent Antioxidant, Lipoxygenase Inhibitor and Antibacterial: A Comparative Study, *J. Saudi Chem. Soc.*, 45-48, **20** (2016).
25. Muhammad Aslam, Itrat Anis, **Rashad Mehmood**, Lubna Iqbal, Samina Iqbal, Inamullah Khan, Muhammad Salman Chishti, Shagufta Perveen, Synthesis and Biological Activities of 2-Aminophenol Based Schiff bases, and their Structure-Activity Relationship, *Medicinal Chemistry Research*, 109-115, **25** (2016).
26. Sohail Khan, Aftab Hussain, Ansar Mehmood, **Rashad Mehmood**, Shagufta Perveen, *Ailanthus Altissima* (Miller) Swingle fruit - new  $\beta$ -sitosterol acylglucoside and *in vitro* pharmacological evaluation, *Natural Product Research*, 2629-2636, **30** (2016).
27. Saima Meher, Shagufta Rasool, **Rashad Mehmood**, Shagufta Perveen, Rasool Baksh Tareen, Eburneolins A and B, New Withanolide glucosides from *Tricholepis eburnea*, *Natural Product Research*, 2413-2420, **30** (2016).
28. Shagufta Rasool, Noureen Khan, **Rashad Mehmood**, Farzana Shaheen, Isolation and Characterization of New Constituents from *Tricholepis eburnea*, *Records of Natural Products*, 37-42, **11** (January 2017).
29. Areej Al-Taweel, Shagufta Perveen, Ghada Fawzy, Afsar Khan, **Rashad Mehmood**, Shabana Iqrar Khan, A New Ellagic Acid Derivative and other Constituents from the Fruits of Heart-tolerant Plant *Conocarpus lancifolius* and their Anti-inflammatory, Cytotoxic, PPAR Agonistic Activities, *Pakistan Journal of Pharmaceutical Sciences*, 1833-1837, **29** (September 2016).
30. Mehreen Lateef, Abid Azhar, Bina S. Siddiqui, Shamshad Zarina, Nizam Uddin, Muhammad F. Anwar, Kauser Siddiqui, Kaniz F. Azhar, Lubna Iqbal, Shagufta Perveen, **Rashad Mehmood**, New anthraronin acyl derivatives as butyrylcholinesterase inhibitors: synthesis, *in vitro* and *in silico* studies, *Heliyon*, e00350, **3**, (2017).
31. Ansar Mahmood, Afzal Shah, **Rashad Mehmood**, Aamir Hassan Shah, Gold-Ruthenium alloy nanoparticles modified glassy carbon electrode as a sensing platform for the trace level detection of indol-3-carbaldehyde, *Journal of the Electrochemical Society*, B542-B547, **164**, 2017.
32. Areej Mohammad Al-Taweel, Shagufta Perveen, Ghada Ahmed Fawzy, Attiq Ur Rehman, Afsar Khan, **Rashad Mehmood**, and Laila Mohamed Fadda, Evaluation of antiulcer and cytotoxic potential of the leaf, flower, and fruit extracts of *Calotropis procera* and isolation of a new lignan glycoside, *Evidence-Based Complementary and Alternative Medicine*, 1-10, **2017**, 2017.
33. Saima Maher, Shagufta Rasool, **Rashad Mehmood**, Shagufta Perveen & Rasool Bakhsh Tareen, Trichosides A and B, new withanolide glucosides from *Tricholepis eburnea*, *Natural Product Research*, 1-6, **32** (January) **2018**.
34. Naseem Akhter, **Rashad Mahmood**, Shehla Parveen, Tasneem Khatoon, Farzana Rafiq and Shagufta Sattar, Phytopharmacological Review of Iridoids Isolated from *Plumeria* genus, *Journal of the Chemical Society of Pakistan*, 550-555, **40** (June), **2018**.
35. Raha Orfali, Nasir Ali Siddiqui, Perwez Alam, Tawfeq Abdullah Alhowiriny, Areej Mohammad Al-Taweel, Sami Al-Yahya, Najwa Mohammed Majrashi, **Rashad Mehmood**, Shabana Iqrar Khan, and Shagufta Perveen, Biological Evaluation of Different

Extracts of Aerial Parts of *Nepeta deflersiana* and Standardization of Active Extracts Using 8-Epi-7-Deoxyloganic Acid and Ursolic Acid by Validated HPTLC Method, *Evidence-Based Complementary and Alternative Medicine*, , 1-11, **2018, 2018**.

36. Sadia Ataa, Muhammad Zafar Ullah, Muhammad Imran Din, **Rashad Mehmood**, Wasif Farooq, Syed Ahmed Trimzi, Ismat Bibi, Novel synthesis and enhanced catalytic performance of stable nano-scale Fe<sub>0</sub>, Ag<sub>0</sub> and ZnO nanoparticles: photo-degradation under mercury lamp, *Desalination and Water Treatment*, 212–219, **131, 2018**.
37. Muhammad Aslam, Zahra Noreen, Amina Asghar, Abrar Hussain, **Rashad Mehmood**, Muhammad Usman Khan, Kaynat Saleem, Muhammad Tahir Hussain, Asma Chaudhary, One-pot unusual synthesis and DFT studies of 3-acetyl-6-chloro-2-methyl-4-phenylquinoline and its unusual urease enhancement activity, *Biologia*, 187-195, **64 (II), 2018**.
38. Farooq Saleem, Rashad Mehmood, Saima Mehar, Muhammad Tahir Javed Khan, Zaheer-ud-Din Khan, Muhammad Ashraf, Muhammad Sajjad Ali, Iskandar Abdullah, Matheus Froeyen, Muhammad Usman Mirza, Sarfraz Ahmad, Bioassay Directed Isolation, Biological Evaluation and *In Silico* Studies of New Isolates from *Pteris cretica* L. *Antioxidants*, 231, 8(7), **2019**.