

## **Dr. Maliha Uroos**

*Director,*

*Centre for Research in Ionic Liquids,*

*School of Chemistry, University of the Punjab, Lahore, Pakistan*

*E-mail: [director.cril@pu.edu.pk](mailto:director.cril@pu.edu.pk), [malihauroos.chem@pu.edu.pk](mailto:malihauroos.chem@pu.edu.pk)*

### **Qualifications**

**1. Post Doc (2012-2013) *EPSRC Fellowship***

**Supervisor:** Dr. James Dowden

School of Chemistry, University of Nottingham, UK

**Project Title:** “*Efficient Catalytic and Asymmetric and Cycloaddition Routes to Future Medicines*”

**2. PhD Organic Chemistry (2008-2012)**

**Supervisor:** Prof. Dr. Chris J Hayes

School of Chemistry, University of Nottingham, UK

**Project Title:** “*Total syntheses of aritasone, cymbodiacetal and progress towards dihydroestoxide*”

**3. M.Sc Organic Chemistry (2001-2003) 1<sup>st</sup> Div**

Institute of Chemistry, University of the Punjab, Pakistan

**4. Professional Teaching qualification**

Holds **Intensive Learning Teaching Programme (ILTP)** certificate. Awarded by the University of Nottingham and accredited by the Higher Education Academy UK

**5. DL-101 certificate, Awarded by WIPO**

### **Academic Positions**

- \* Director, Centre for Research in Ionic Liquids, School of Chemistry, University of the Punjab, (2021 – to date)
- \* Associate Professor, School of Chemistry, University of the Punjab, Lahore, Pakistan (2020 – to date)
- \* Assistant Professor, Institute of Chemistry, University of the Punjab, Lahore, Pakistan (2014 – 2020)
- \* Assistant Professor, Institute of Agriculture Sciences, University of the Punjab, Lahore, Pakistan (2013 – 2014)
- \* Lecturer, Institute of Agriculture Sciences, University of the Punjab, Lahore, Pakistan (2007 – 2013)

### **Cumulative JCR Impact Factor: 212.647**

#### **Patents:**

Filed patents: 04

#### **Book:**

Authored Book: 1

Book Chapter: 1

### **Research Grants:**

1. Awarded research project under National Research Program for Universities (NRPU) 2017-18 by Higher Education Commission (HEC) Pakistan amounting **PKR 7.28/-** Million.
2. Awarded research project under the 3<sup>rd</sup> call of Technology Development Fund (TDF) program amounting **PKR 14 Million** by Higher Education Commission (HEC) Pakistan with an additional fund of **Rs. 2.5 Million** by industrial partner.
3. Awarded HEC grant for filing US Patent worth **USD 6000/- = PKR 930000/-**

### **Scholarships and Awards**

- President Talent Forming Scholarship, Pakistan (2000)
- Roll of Honour in BSc, Lahore College for Women University, Pakistan (2001)
- Awarded PhD Scholarship from HEC, Pakistan (2008-2011)
- Awarded EPSRC Fellowship for Post Doc (2012-2013)
- Awarded Leslie Crombie prize for the best PhD Research Project Presentation at the “Postgraduate Research Symposium” The University of Nottingham, UK, 7<sup>th</sup> & 8<sup>th</sup> July (2011)
- Awarded RSC bursary to attend 3<sup>rd</sup> EuCheMS Chemistry Congress in Nürnberg, Germany, 29<sup>th</sup> August to 2<sup>nd</sup> September (2010)
- Awarded HEC travel grant and Graduate School Travel Prize by the University of Nottingham to present my research paper at the “241<sup>st</sup> ACS National Meeting & Exposition” in Anaheim, California state, USA, 27<sup>th</sup> to 31<sup>st</sup> March (2011)
- Awarded HEC travel grant to attend 4<sup>th</sup> EuCheMS Chemistry Congress in Prague, Czech Republic, 26<sup>th</sup>–30<sup>th</sup> August (2012)
- Awarded Performance Evaluation Award, by University of the Punjab (2014, 2015 & 2016)
- Awarded Incentive Award for research publications by University of the Punjab (2013 & 2015)
- Awarded technology award to our research display stall entitled **“Applications of Ionic Liquids in Biomass Processing”** at 6<sup>th</sup> Invention to Innovation Summit at University of the Punjab, 8<sup>th</sup> to 9<sup>th</sup> March (2017)
- Awarded the prize of best research poster entitled **“Synthesis and Applications of Ionic Liquids”** at 6<sup>th</sup> Invention to Innovation Summit, University of the Punjab, 8<sup>th</sup> to 9<sup>th</sup> March (2017)

- Awarded 2<sup>nd</sup> prize (cash prize Rs. 10,000/-) on poster presentation entitled **“Ecofriendly Synthesis of Coumarin Derivatives as Potential Fungicides Using Ionic Liquids”** at the International Conference on “Emerging Trends on Earth & Environmental Sciences” at CEES, University of the Punjab, 9<sup>th</sup> to 10<sup>th</sup> March (2017)
- Awarded technology award to our research display stall entitled **“Synthesis and Applications of Task Specific Ionic Liquids (TSILs)”** at 7<sup>th</sup> Invention to Innovation Summit at University of the Punjab, 7<sup>th</sup> to 8<sup>th</sup> March (2018)
- Awarded technology award at 8<sup>th</sup> Invention to Innovation Summit at University of the Punjab, 2<sup>nd</sup> to 3<sup>rd</sup> April (2019)
- Awarded HEC research grant for filing US patent

#### **Achievements:**

- First female scientist of University of the Punjab to publish US patent Application at USPTO, July 2020.
- Appointed as founding Director of the newly established research centre “Centre for Research Ionic Liquid” in School of Chemistry, University of the Punjab

#### **Research Interests**

- Synthetic Organic Chemistry
- Synthesis and applications of ionic liquids
- Sustainable energy production using ionic liquids
- Medicinal chemistry
- Green chemistry

#### **Professional Memberships**

- Royal Society of Chemistry (RSC), UK
- American Chemical Society (ACS), USA

#### **Research Students Supervised**

M.Sc/BS students	38
M.Phil students	22
PhD	05

#### **Authored Reference Book**

Maliha Uroos, Abdul Hameed, Sadia Naz, Muhammad Raza Shah, Elsevier (2022), ***“Indole Alkaloid: Spirooxindole, Visual Guide to Natural Product Synthesis Series”*** ISBN: 9780323916745.

#### **Book Chapter**

Sadia Naz and Maliha Uroos, *“Ionic Liquids Based Processing of Renewable and*

**Cumulative JCR Impact Factor: 212.647**

**Publications**

**Year 2022**

1. Mubeshar Riaz, ‡ Maida Akhlaq, ‡ Sadia Naz and Maliha Uroos, “*An Overview of Biomedical Applications of Choline Geranate (CAGE): A Major Breakthrough in Drug Delivery*” **RSC Advances**, Accepted manuscript. [IF = 4.036]
2. Maliha Uroos, Arshad Javaid, Amina Bashir, Javaria Tariq, Iqra Haider Khan, Sadia Naz, Sameeta Fatima and Misbah Sultan, “*Green synthesis of coumarin derivatives using Brønsted acidic pyridinium based ionic liquid [MBSPy][HSO<sub>4</sub>] to control an opportunistic human and a devastating plant pathogenic fungus *Macrophomina phaseolina**” **RSC Advances**, (2022) 12, 23963 [IF = 4.036]
3. Maida Akhlaq, Hassan Maqsood, Maliha Uroos, Ayesha Iqbal, “*A Comparative Study of Different Methods for Cellulose Extraction from Lignocellulosic Wastes and Conversion into Carboxymethyl Cellulose*” **ChemistrySelect** 7 (29), e202201533 [IF = 2.307]
4. Nida Saleem, Sadia Naz, Maliha Uroos, Rabia Muazzam, Muhammad Salman, “*Ionic Liquid Functionalized Egg Residues as Efficient Biosorbents for Anionic Orange G Dye*” **International Journal of Environmental Analytical Chemistry**, (2022) Accepted Manuscript. [IF = 2.731]
5. Sadia Naz, Maliha Uroos and Nawshad Muhammad, “*One-Pot Production of 5-Hydroxymethylfurfural and Simultaneous Lignin Recovery from Non-food Lignocellulosic Wastes using Cost-effective Ionic Liquids*” **Biomass Conversion and Biorefinery** (2022), 1-12 [IF = 4.050]
6. Sadia Naz & Maliha Uroos, “*Ionic Liquids: Designer Solvents for Cleaner Technologies*” **Letters in Organic Chemistry** (2022), 17 (10), 811-813 [IF = 0.797]
7. Sadia Naz & Maliha Uroos, “*Ionic Liquids Mediated One-Pot Synthesis of Second Generation 5-Ethoxymethylfurfural (5-EMF); A Potent Biofuel Candidate*” **ChemistrySelect** 7 (18), e202201161 [IF = 2.307]
8. Siti Aminah Mohd Johari, Muhammad Ayoub, Abrar Inayat, Sami Ullah, Maliha Uroos, Salman Raza Naqvi, Sarah Farukkh, “*Utilization of Dairy Scum Waste as a*

*Feedstock for Biodiesel Production via Different Heating Sources for Catalytic Transesterification*” **ChemBioEng Reviews** (2022), [IF = 6.207]

#### Year 2021

9. Azmat Mehmood Asim, Maliha Uroos, Nawshad Muhammad, and Jason P. Hallett, “*Production of Food-Grade Glucose from Rice and Wheat Residues Using a Biocompatible Ionic Liquid*” **ACS Sustainable Chemistry and Engineering** (2021), 9(24), 8080–8089. [IF = 9.224]
10. Sadia Naz, Maliha Uroos, Muhammad Ayoub, “*Cost-Effective Processing of Carbon-Rich Materials in Ionic Liquids: An Expeditious Approach to Biofuels*” **ACS Omega** (2021), 6(43), 29233–29242. [IF = 4.131]
11. Amna Bibi, Sadia Naz, Maliha Uroos, “*Evaluating the Effect of Ionic Liquid on Biosorption Potential of Peanut Waste: Experimental and Theoretical Studies*” **ACS Omega** (2021), 6(34), 22259–22271. [IF = 4.131]
12. Rabia Muazzam, Azmat Mehmood Asim, Maliha Uroos, Nawshad Muhammad, Jason P. Hallett, “*Evaluating the potential of a novel hardwood biomass using a superbase ionic liquid*” **RSC Advances** (2021), 11, 19095. [IF = 4.036]
13. Sadia Naz, Maliha Uroos, Nawshad Muhammad, “*Effect of Molecular Structure of Cation and Anions of Ionic Liquids and Co-Solvents on Selectivity of 5-Hydroxymethylfurfural from Sugars, Cellulose and Real Biomass*” **Journal of Molecular Liquids** (2021), 334, 116523. [IF = 6.633]
14. Azmat Mehmood Asim, Maliha Uroos, Sadia Naz, Nawshad Muhammad, “*Pyridinium Protic Ionic Liquids: Effective Solvents for Delignification of Wheat Straw*” **Journal of Molecular Liquids** (2021), 325, 115013. [IF = 6.633]
15. Muhammad Ayoub, Suzana Yusuf, Abrar Inayat, Sami Ullah, Maliha Uroos, Mushtaq Ahmad & Muhammad Zafar, “*Synthesis and Characterization of Waste Eggshell-Based Montmorillonite Clay Catalyst for Biodiesel Production from Waste Cooking Oil*” **E3S Web of Conferences**, 2021, (287), 2006.
16. Rabia Muazzam, Ainy Hafeez, Maliha Uroos, Muhammad Saeed, Fahad Rehman, Nawshad Muhammad, “*Plasma-Based Ozonolysis of Lignin Waste Materials for the Production of Value-Added Chemicals*” **Biomass Conversion and Biorefinery** (2021), 1– 17. [IF = 4.050]

17. Amna Murtaza, Maliha Uroos, Misbah Sultan, Rabia Muazzam, Sadia Naz, “*Enhancing Catalytic Potential of Gold Nanoparticles by Linear and Cross-linked Polyurethane Blending*” **RSC Advances** (2021), 11(43), 26635. [IF = 4.036]
18. Hafiza Amna Younus, Mariya Al-Rashida, Abdul Hameed, Maiha Uroos, Uzma Salar, Sobia Rana, Khalid Mohammad Khan, “*Multicomponent Reactions (MCR) in Medicinal Chemistry: A Patent Review (2010-2020)*” **Expert Opinion on Therapeutic Patents** (2021), 267–289. [IF = 6.714]
19. Muhammad Tariq Shehzad, Aqeel Imran, Abdul Hameed, Mariya Al-Rashida, Marium Bibi, Maliha Uroos, Asnuzilawati Asari, Shafia Iftikhar, Habsah Mohammad, Muhammad Nawaz Tahir, Zahid Shafiq, Jamshed Iqbal, “*Exploring Synthetic and Therapeutic Prospects of New Thiazoline Derivatives as Aldose Reductase (ALR2) Inhibitors*” **RSC Advances** (2021), 11(28), 17259–17282. [IF = 4.036]
20. Misbah Sultan, Zunaira Jamal, Farhat Jubeen, Ariba Farooq, Ismat Bibi, Maliha Uroos, Hina Chaudhry, SA Alissa, Munawar Iqbal, “*Green Synthesis of Biodegradable Polyurethane and Castor Oil-Based Composite for Benign Transformation of Methylene Blue*” **Arabian Journal of Chemistry** (2021), 14(12), 103417. [IF = 6.212]
21. Mahnoor Ijaz, Maryam Fatima, Rukhsana Anwar, Malih Uroos, “*Green Synthesis of Gold Nanoparticles from Manilkara Zapota L. Extract and the Evaluation of its Intrinsic in vivo Antiarthritic Potential*” **RSC Advances** (2021), 11(44), 27092–27106. [IF = 4.036]

#### Year 2020

22. Azmat Mehmood Asim, Maliha Uroos & Nawshad Muhammad, “*Extraction of Lignin and Quantitative Sugar Release from Biomass using Efficient and Cost-effective Pyridinium Protic Ionic Liquids*” **RSC Advances**, 2020, 10(72), 44003-44014 (IF = 4.036)
23. Maliha Uroos, Azmat Mehmood Asim & Nawshad Muhammad, “*Extraction of Lignin from Lignocellulosic Waste Material Using Pyridinium Ionic Liquid*” **US Patent** US2020/0239508A1, July 2020.
24. Hassan Maqsood, Maliha Uroos, Rabia Muazzam, Sadia Naz & Nawshad Muhammad, “*Extraction of Basil Seed Mucilage using Ionic Liquid and Preparation of AuNps/Mucilage Nanocomposite for Catalytic Degradation of*

*Dye*” **International Journal of Biological Macromolecules**, 2020, 164, 1847-1857 (IF = 8.025)

25. Sadia Naz and Maliha Uroos, “*Ionic Liquids Based Processing of Renewable and Sustainable Biopolymers*”, **Biofibers and Biopolymers for Biocomposites**, 2020, 181-207.
26. Sadia Naz, Maliha Uroos, Azmat Mehmood Asim, Nawshad Muhammad & Faiz Ullah Shah, “*One-Pot Deconstruction and Conversion of Lignocellulose into Reducing Sugars by Pyridinium Based Ionic Liquid-Metal Salt System*” **Frontiers in Chemistry**, 2020, 8, 236 (IF = 5.545)

### Year 2019

27. Muhammad Tariq Shehzad, Abdul Hameed, Mariya al-Rashida, Aqeel Imran, Maliha Uroos, Asnuzilawati Asari, Habsah Mohamad, Muhammad Islam, Shafia Iftikhar, Zahid Shafiq, Jamshed Iqbal “*Exploring Antidiabetic Potential of Adamantyl-Thiosemicarbazones via Aldose Reductase (ALR2) Inhibition*” **Bioorganic Chemistry**, 2019, 92, 103244. (IF = 5.307)
28. Azmat Mehmood Asim, Maliha Uroos, Sadia Naz, Misbah Sultan, Gregory Griffin, Nawshad Muhammad & Amir Sada Khan, “*Acidic ionic liquids: Promising and cost-effective solvents for processing of lignocellulosic biomass*” **Journal of Molecular Liquids**, 2019, 287, 110943, (IF = 6.633)
29. Misbah Sultan, Rahid Masood, Ismat Bibi, Imran Sajid, Atif Islam, Sadia Atta, Maliha Uroos, Yusra Safa, & Haq Nawaz Bhatti, “*Impact of soft segment size on physicochemical and antimicrobial properties of waterborne polyurethane dispersions for textile applications*” **Progress in Organic Coatings**, 2019, 133, 174-179 (IF = 6.206)
30. Abdul Hameed, Mariya al-Rashida, Maliha Uroos, Syeda Uroos Qazi, Sadia Naz, Mariam Ishtiaq & Khalid Mohammed Khan “*A patent update on therapeutic applications of urease inhibitors (2012-2018)*” **Expert Opinion on Therapeutic Patents**, 2019, 29(3), 181-189 (IF = 6.714)
31. Muhammad Tariq Shehzad, Aqeel Imran, Guy Sidar Singor Njateng, Abdul Hameed, Muhammad Islam, Mariya al-Rashida, Maliha Uroos, Asnuzilawati Asari, Zahid Shafiq, Jamshed Iqbal, “*Benzoxazinone-thiosemicarbazones as antidiabetic leads via aldose reductase inhibition: Synthesis, biological screening*

*and molecular docking study*” **Bioorganic Chemistry**, 2019, 87, 857-866, (IF = 5.307)

32. Bushra Iqbal, Nawshad Muhammad, Abdur Rahim, Farasit Iqbal, Faiza Sharif, Sher Zaman Safi, Amir Sada Khan, Girma Gonfa, Maliha Uroos, Ihtesham Ur Rehman “*Development of collagen/PVA composites patches for Osteochondral defects using a green processing of ionic liquids*” manuscript under review in **The International Journal of Polymeric Materials and Polymeric Biomaterials**, 2019, 68(10), 590-596, (IF = 3.221)

### Year 2018

33. Saliha Saher, Haris Saleem, Azmat Mehmood Asim, Maliha Uroos, Nawshad Muhammad, “*Pyridinium based ionic liquids: A pretreatment solvent & reaction medium for catalytic conversion of cellulose to Total Reducing Sugars (TRS)*” **Journal of Molecular Liquids**, 2018, 272, 330-336 (IF = 6.633)
34. Abdul Hameed, Mariya al-Rashida, Maliha Uroos, Syed Abid Ali, Arshia, Marium Ishtiaq & Khalid Mohammed Khan “*Quinazoline and Quinazolinone as Important Medicinal Scaffoldes: A Comparative Patent Review (2011-2016)*” **Expert Opinion on Therapeutic Patents**, 2018, 28 (4), 281-297, (IF = 6.714)
35. Misbah Sultan, Asma Javeed, Maliha Uroos, Muhammad Imran, Farhat Jubeen, Shazia Nouren, Nazish Saleem, Ismat Bibi, Rashid Masood, Waqas Ahmed “*Linear and crosslinked Polyurethanes based catalysts for reduction of Methylene Blue*” **Journal of Hazardous Materials**, 2018, 344, 210-219 (IF = 14.224)

### Year 2017

36. Maliha Uroos, Phillip Pitt, Laurence M. Harwood, William Lewis, Alexander J. Blake and Christopher J. Hayes “*Total synthesis of (-)-aritasone via the ultra-high pressure hetero-Diels–Alder dimerisation of (-)-pinocarvone*” **Organic & Biomolecular Chemistry**, 2017, 15, 8523-8528 (IF = 3.890)
37. Huma Aslam Bhatti, Yildiz Tehseen, Kiran Maryam, Maliha Uroos, Bina S. Siddiqui, Abdul Hameed and Jamshed Iqbal “*Identification of new potent inhibitor of aldose reductase from *Ocimum basilicum**” **Bioorganic Chemistry**, 2017, 75, 62-70 (IF = 5.307)



38. Abdul Hameed, Mariya al-Rashida, Rima D. Alharthy, Maliha Uroos, Ehsan Ullah Moughal, Syed Abid Ali, and Khalid Mohammed Khan “*Small Molecules as Activators in Medicinal Chemistry: A Patent Review (2010-2016)*” **Expert Opinion on Therapeutic Patents**, 2017, 27 (10), 1089-1110 (IF = 6.714)
39. Maliha Uroos, Zaigham Abbas, Shumaila Sattar, Nigarish Umer, Arham Shabbir, Shafiq-ur-Rehman and Ahsan Sharif “*Nyctanthes arbor-tristis Ameliorated FCA-Induced Experimental Arthritis: A Comparative Study among Different Extract*” **Evidence-Based Complementary and Alternative Medicine**, 2017, doi.org/10.1155/2017/4634853 (IF = 2.650)
40. Abdul Hameed, Mariya al-Rashida, Maliha Uroos, Syed Abid Ali, and Khalid Mohammed Khan “*Schiff Bases and their Metal Complexes in Medicinal Chemistry: A Patent Review (2010-2015)*” **Expert Opinion on Therapeutic Patents**, 2017, 27 (1), 63-79 (IF = 6.714)

#### Year 2015

41. Uroos, M.; Bhatti, H.; Uddin, N.; Ayub, K.; Saima, B.; Iqbal, J.; Anjum, S.; Light, M.; Hameed, A.; 1 and Khan, K.; “*Synthesis, characterization of flavone, isoflavone, and 2,3-dihydrobenzofuran-3-carboxylate and density functional theory studies*” **European Journal of Chemistry**, 2015, 6 (3), 305-313.
42. Magnus D.; Heine, H.; A.; Wriglesworth, A.; Uroos, M.; Calladine, J.; Murphy, T.; Hamilton, M.; Clark, I.; Greetham, G.; Towrie M.; Dowden, J.; Besley, N and George, M. “*Calculating Singlet Excited States: Comparison with Fast Time-resolved Infrared Spectroscopy of coumarins*” **Journal of Chemical Physics**, 2015, 142, 154119 (IF = 4.304)

#### Year 2014

43. Anwar, A. Hameed, A.; Perveen, S.; Uroos, M.; Choudhary, M. I.; Basha, F. Z. “*1,1-Diphenyl-2-picryl hydrazyl radical scavenging activity of novel dihydropyridine derivatives*” **European Journal of Chemistry**, 2014, 5 (1), 990-992.

#### Year 2013

44. Maliha Uroos, Jonathan Day, James Dowden “*Alkaloid inspired spirocyclic oxindoles from 1,3-dipolar cycloaddition of pyridinium ylides*” **Organic & Biomolecular Chemistry**, 2013, 11, 6502 (IF = 3.890)

#### Year 2011

45. **Maliha Uroos** and Christopher J. Hayes “*Total synthesis of (+)-cymbodiacetal*”  
**Abs. Pap. Am. Chem. Soc.** 2011, 241, 257-ORGN

**Year 2010**

46. **Maliha Uroos**, William Lewis, Alexander J. Blake & Christopher J. Hayes “*Total Synthesis of (+)-Cymbodiacetal: A Re-evaluation of the Biomimetic Route*”  
**Journal of Organic Chemistry**, 2010, 75, 8465-8470 (IF = 4.198)
47. **Maliha Uroos** and Christopher J. Hayes “*Synthesis of the Spirochroman Core of Dihypoestoxide and Stereochemical Proposal for the Natural Product*” **Organic Letters**, 2010, Vol. 12, No. 22, 5294-5297 (IF = 6.072)

**Conference Papers**

- 1 **Maliha Uroos** and Christopher J. Hayes “Total synthesis of (+)-cymbodiacetal” *Abs. Pap. Am. Chem. Soc.* **2011**, 241, 257-ORGN
- 2 **Maliha Uroos** and Christopher J. Hayes “Synthetic studies towards dihydroestoxie” *Chem. Listy 106*, O-051, s703, **2012**.
- 3 **Maliha Uroos** and Christopher J. Hayes “Biomimetic total synthesis of Aritasone” European Chemistry Congress – 5<sup>th</sup> EuCheMS, **2014**, P-D4-103, 1170.

**Invited Talk**

1. Delivered a talk as keynote speaker at **Innovation Summit Sialkot 2021**, entitled “*Utilisation of Agricultural Waste for Efficient Production of Industrially Important Chemicals for Import Substitution*” held on **24-25 March, 2021**, jointly organized by Center of Innovation and Competitiveness Studies (CISC-USKT), Sialkot and University of the Punjab.
2. Delivered an invited talk as local inventor at “**Training Workshop on Patent Database Searches and Development of Technology and Innovation Support Centers (TISCs) in Pakistan**” organized by the World Intellectual Property Organization (WIPO), the Intellectual Property Organization of Pakistan (IPO Pakistan) And HEC Pakistan, held on **20-21 February, 2019** at Lahore University of Management Sciences (**LUMS**), Lahore.
3. Delivered an invited talk as Pakistani Women inventor at the Virtual meeting organized by World Intellectual Property Organisation (WIPO) on the “*Consultations on the Report on the Situation of Women Inventors in Pakistan on their Access to and Use of the Intellectual Property System*” held on 30<sup>th</sup> September and 1<sup>st</sup> October, 2020.

4. Invited Oral Talk in 19<sup>th</sup> International and 31<sup>st</sup> National Chemistry Conference on Emerging Trends in Chemistry, Organized by Chemical Society of Pakistan at UMT, December 16-18, 2021.
5. Guest Speaker at symposium organized by University of Engineering and Technology, KSK campus.
6. Guest Speaker at Innovation Summit 2021, Sialkot in the session “Innovation Development in Sialkot; A Driver of Import Intensity to Import Substitution” March 25, 2021.

### **Workshop Organised:**

Invited as Resource person in Awareness Workshop on National Research Program for Universities (NRPU), Dec 19, 2019 by ORIC, University of the Punjab.

### **Chemistry Outreach activities**

#### **i) TEDx Talk**

Delivered a talk at “TEDx Punjab University” event organized by Department of English, Punjab University, the talk title was “*The Importance and Implications of Green Chemistry*”, December 1<sup>st</sup>, 2018.

#### **ii) Book Club event**

Delivered a talk at “Book Club”, an event organized by Punjab University Main Library, on the Prof. K.C. Nicolau’s book entitled “Molecules That Changed The World”, November 28<sup>th</sup>, 2018.

### **Presentations and Conferences attended**

1. Poster presentation at the “Postgraduate Research Symposium” The University of Nottingham, , 1<sup>st</sup> & 2<sup>nd</sup> July, 2010, UK
2. Poster presentation at the 3<sup>rd</sup> EuCheMS Chemistry Congress, 29<sup>th</sup> August – 2<sup>nd</sup> September 2010, Nürnberg, Germany
3. Poster presentation at the symposium titled “New horizons in natural product chemistry” at the School of Chemistry, University of Nottingham, November, 2010, UK
4. Oral presentation, presented my research paper at the “241<sup>st</sup> ACS National Meeting & Exposition”, 27<sup>th</sup> to 31<sup>st</sup> March 2011, Anaheim, California state, USA

5. Oral presentation at the “Postgraduate Research Symposium” The University of Nottingham, 7<sup>th</sup> & 8<sup>th</sup> July **2011, UK**
6. Poster presentation at the symposium titled “New horizons in natural product chemistry” at the School of Chemistry, University of Nottingham, **UK, November, 2011**
7. Oral presentation at the 4<sup>th</sup> EuCheMS Chemistry Congress, **Prague, Czech Republic, 26<sup>th</sup>-30<sup>th</sup> August 2012**
8. Poster presentation at the 6<sup>th</sup> International Conference on Green & Sustainable Chemistry, 4<sup>th</sup>-6<sup>th</sup> August, **2013, UK**
9. Oral presentation at the Asian Symposium on Medicinal Plants, Spices and other Natural Products, , **HEJ Karachi, PK, 9<sup>th</sup>-12<sup>th</sup> December, 2013**
10. Poster presentation at the 5<sup>th</sup> EuCheMS Chemistry Congress, **Istanbul, Turkey, 31<sup>st</sup> August to 4<sup>th</sup> September, 2014**
11. Poster presentation at the 25<sup>th</sup> National and 13<sup>th</sup> International Chemistry Conference, Institute of Chemistry, PU, 20<sup>th</sup> to 22<sup>nd</sup> October, **2014**
12. Poster entitled “Biosynthesis of gold nanoparticles using *Aegle marmelos* extract” presented in the 2nd Conference on “Frontiers of Nanoscience and Nanotechnology” PINSTECH, Islamabad, PK, **September 8-10, 2015.**
13. Poster entitled “The Fungicidal Potential of Coumarin Derivatives” presented in the 5<sup>th</sup> International conference on “Crop Protection for Sustainable Agriculture” IAGS, PU, Lahore, **November 23-25, 2015**
14. Poster presentation at the 5<sup>th</sup> International Symposium on Biomedical Materials, organised by COMSATS, Lahore, **December 14-16, 2016**
15. Attended a three day international conference on “Current Research in Chemical & Pharmaceutical Sciences” Forman Christian College (A Chartered University), Lahore, **January 18-20, 2017**
16. Participated with a research display stall and poster presentation at “6<sup>th</sup> Invention to Innovation Summit” at University of the Punjab, Lahore, PK, **March 8<sup>th</sup> to 9<sup>th</sup>, 2017**
17. Poster presentation in the International Conference on “Emerging Trends on Earth & Environmental Sciences” at CEES, University of the Punjab, Lahore, PK, **March 9<sup>th</sup> to 10<sup>th</sup>, 2017**

18. Poster presentation at Royal Society of Chemistry organised “23<sup>rd</sup> Lakeland Symposium on Heterocyclic Chemistry” at Grasmere, United Kingdom, **May 4<sup>th</sup> to 8<sup>th</sup>, 2017**
19. Participated with a research display stall and poster presentation at “6<sup>th</sup> Invention to Innovation Summit” at University of the Punjab, Lahore, PK, **March 7<sup>th</sup> to 8<sup>th</sup>, 2018**
20. Presented research work at “5<sup>th</sup> International Conference on Drug Development-Natural & Synthetic” at COMSATS University, Abbottabad Campus, Abbottabad, **June 28<sup>th</sup>-29<sup>th</sup>, 2018.**
21. Presented research work at “1<sup>st</sup> International Conference on Medicinal Chemistry & Drug Discovery” at COMSTECH, Islamabad, **October 18<sup>th</sup>-19<sup>th</sup>, 2018.**
22. Presented research work at “1<sup>st</sup> International Conference on Modern Trends in Chemistry & Energy Technologies” at COMSATS University Islamabad, Lahore Campus, **October 22<sup>nd</sup>-23<sup>rd</sup>, 2018.**
23. Participated in National conference on energy crisis and its solutions, organised by CEES, University of the Punjab, Lahore, **December 10<sup>th</sup>-11<sup>th</sup>, 2018**
24. Participated in “GRIPS International Conference on Pharmaceuticals & Biochemical Sciences” at Expo Centre, Lahore, **January 15<sup>th</sup>-17<sup>th</sup>, 2019.**
25. Participated in a three day “Expo cum Conference on Science & Technology” at PCSIR Laboratories, Ferozpur Road, Lahore, **February 11<sup>th</sup>-13<sup>th</sup>, 2019.**
26. Presented research work International conference on “Recent Innovations in Molecular Science”, at University of the Punjab, Lahore, **November 6-8, 2019**
27. Poster presentation in the 2<sup>nd</sup> International Conference on “Emerging Trends on Earth & Environmental Sciences” at CEES, University of the Punjab, Lahore, PK, **March 4<sup>th</sup> to 6<sup>th</sup>, 2020.**
28. Oral presentation in Environmental Conservation for Sustainable Planet, 3<sup>rd</sup> International Conference on Trends in Earth and Environmental Sciences (ETEES, 2021) Lahore, Pakistan, November, 16-18, 2021
29. Oral Presentation at 19<sup>th</sup> International and 31<sup>st</sup> National Chemistry Conference on Emerging Trends in Chemistry, Organized by Chemical Society of Pakistan at UMT, December 16-18, 2021

#### **Conferences Organized:**

1. 6<sup>th</sup> International Conference on Green & Sustainable Chemistry, 4<sup>th</sup>-6<sup>th</sup> August, **2013, UK**

2. “International Conference of Pakistan on Water & Energy Research (IC-POWER), 3rd Pak Water & Energy Expo-2018, Expo centre, Lahore, **October 24<sup>th</sup>-25<sup>th</sup>, 2018.**
3. Delivered an invited talk as resource person at the Virtual meeting organized by World Intellectual Property Organisation (WIPO) on the “*Consultations on the Report on the Situation of Women Inventors in Pakistan on their Access to and Use of the Intellectual Property System*” held on 30<sup>th</sup> September and 1<sup>st</sup> October, 2020.
4. Organized a session jointly with Center of Innovation and Competitiveness Studies (CISC-USKT), Sialkot at **Innovation Summit Sialkot 2021**, entitled held on **24-25 March, 2021.**
5. *International Conference on Ionic Liquids for Sustainable Future*, ILSF-2022, Faisal auditorium, University of the Punjab, Lahore, **March 10, 2022.**

#### **Workshops attended**

1. Attended a three day workshop “Computational Chemistry Workshop: A New Approach to Understanding & Solving Chemical Problems”, FCC, A Chartered University, Lahore, **Jan 20-22, 2016**
2. Attended a short course on “Latest Trends in Green Chemistry”, PIEAS, Islamabad, **August 9-11, 2016**
3. “**Training Workshop on Patent Database Searches and Development of Technology and Innovation Support Centers (TISCs) in Pakistan**” organized by the World Intellectual Property Organization (WIPO), the Intellectual Property Organization of Pakistan (IPO Pakistan) And HEC Pakistan, held on **20-21 February, 2019** at Lahore University of Management Sciences (**LUMS**), Lahore.

#### **Skills Profile:**

##### **1. Chemistry skills**

- \* Strong knowledge of Synthetic Organic Chemistry and Natural Products Chemistry
- \* Demonstrated ability in designing and executing multi-step synthesis, optimizing chemical processes and scale-up of synthetic methods
- \* Outstanding expertise in analyzing and identifying organic compounds by modern analytical techniques (NMR, FT-IR, UV-VIS, GC/MS, LC/MS, MALDI-TOF)
- \* Highly skilled in organic chemicals separation and purification by traditional and modern methods (Flash Chromatography, Chiral and Reverse phase HPLC) and using Microwave for organic synthesis
- \* Experienced in synthesis and deposition of Gold nanoparticles
- \* Adept in SciFinder Scholar and Belstein

##### **2. Teaching skills**

- \* Taught postgraduate and undergraduate courses (B.Sc., M.Sc. and M.Phil courses) at the Institute of Chemistry, University of the Punjab, Lahore.
- \* Supervised postgraduate research project students and trained PhD students at the University of Nottingham, UK
- \* Have taken tutorials for BS 1<sup>st</sup> year undergraduate Organic Chemistry group at the University of Nottingham
- \* Demonstrated lab practicals in BS 1<sup>st</sup> and 3<sup>rd</sup> year undergraduate research labs at the University of Nottingham, UK
- \* Completed a three months assignment to design new experiments for BS 3<sup>rd</sup> year undergraduate research labs at the University of Nottingham

### **3. Professional activities**

- \* Organised RSC Younger Members Symposium, University of Nottingham, June 2012, UK
- \* Organised 6<sup>th</sup> International Conference on Green & Sustainable Chemistry, 4<sup>th</sup>-6<sup>th</sup> August, 2013, UK
- \* Organised 25<sup>th</sup> National and 13<sup>th</sup> International Chemistry Conference, 20<sup>th</sup> to 22<sup>nd</sup> October, **2014**, Institute of Chemistry, PU

### **4. IT skills**

- \* Experience in use and maintenance of a wide range of softwares (Mac OS, MS Office, MestReC, XWIN, ACD labs, ChemDraw)
- \* Familiar with use and troubleshooting of different operating systems (Windows 98, 2000, XP and Mac OS X).

### **5. Communication skills**

- \* Proficient in English, Urdu and Punjabi.
- \* Liaising with major laboratory suppliers to trial novel equipment, techniques and securing beneficial agreements for consumables and equipment.

### **Interests:**

- \* Other interests include music, Science outreach activities for community, reading Chemistry and Science Blogs