Curriculum Vitae

Dr. Sadia Batool

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Statement of Purpose

I completed my Ph.D. from the Department of Environmental Sciences, Fatima Jinnah Women University (FJWU), Rawalpindi, and University of Science and Technology China (USTC), China. I have had the chance to work within multinational research groups during the research assistantship for HEC Funded NRPU-Project#2274, Young Scientist Study Tour to Scotland (YS-2019), and Doctoral Program. All these, including teaching as a visiting lecturer in private and public universities and IPFP fellowship, have prepared me well for the next phase of my career. My long-term goals are to make myself beneficial for society and to contribute to the world of science, through research and academia.

Education

Ph.D. **Environmental Sciences (Chemistry)** Fatima Jinnah Women University-Rawalpindi **(2020)**

Research Thesis: *Fabrication of multilayers via Layer-by-Layer for mimicking the mechanical performance of nacre*

M.Phil. **Environmental Sciences (Chemistry)** Fatima Jinnah Women University-Rawalpindi

3.28/4 CGPA 80% **(2014)**

Research Thesis: *Multilayer Composite assemblies using epoxy components with clay*

BS **Environmental Sciences** Fatima Jinnah Women University-Rawalpindi

3.34/4 CGPA 83% **(2012)**

Research Thesis: *Detection and estimation of metals in branded and non-branded condiments available in local markets of Rawalpindi*

HSSC **Pre-Medical** Garrison Academy, Kharian Cantt (FBISE)

73% **(2008)**

SSC **Science group** F.G.Girls High School, Kharian Cant (FBISE)

82.5% **(2005)**

Work Experience

Department of Chemistry, Rawalpindi Women University, 6th Road, Satellite Town, Rawalpindi

(IPFP Fellow, November 2021- to date)

Job Responsibilities:

- Designing of new course outlines in consideration of recent trends
- Development of course outlines as per HEC guidelines
- Lab work performance
- Organizing seminars on academic and social interest and presentation on different topics

Department of Environmental Sciences, International Islamic University, Islamabad

(Visiting Faculty, September 2019 - January 2021)

Foundation University Rawalpindi Campus- Rawalpindi

(Lecturer-Visiting Faculty, February-June, 2019)

Job Responsibilities:

- Designing of new course outlines in consideration of recent trends
- Development of course outlines as per HEC guidelines
- Delivery of lectures and field work as required

Department of Environmental Sciences, Fatima Jinnah Women University-Rawalpindi

(Research Assistant, July 2013-June 2016)

Job Responsibilities:

- Project execution and laboratory maintenance
- Maintained inventory, equipment and materials and kept organized records, oversaw various undergraduate students supporting research into environmental sciences
- Procurement of major laboratory equipment, glassware and chemicals required in experiment
- The deposition of multilayers *via* Layer-by-Layer (LbL) method, their detailed characterization during and after the fabrication steps using Ellipsometer and several other techniques (AFM, SEM, XPS, etc.)
- Assistance in preparation and submission of project annual progress reports to Higher Education Commission (HEC) Pakistan

National Cleaner Production Centre-Foundation (NCPC-F)-Rawalpindi

(Internee, July-August 2012)

- Collaborated with project leaders to create awareness in general public for Environment conservation
- Organization and participation in celebrations of 'No Littering Day
- Learnt about renewable energy sources e.g. solar and biogas, solar cooking and kitchen Gardening

Courses Taught:

i) Introduction to Environmental Sciences
ii) Introduction to Earth Sciences
iii) Fundamentals of Geography
iv) Environmental Monitoring
v) Environmental Chemistry
vi) Biochemistry-I

Publications:

1. H. Nabipour., S. Rohani., **S. Batool**., A. Yusuff. **(2022).** An overview of the use of water-stable metal-organic frameworks in the removal of cadmium ion. *Journal of Environmental Chemical Engineering*, 109131.

(IF: 7.095)

2. **S. Batool,** H. Nabipour, S. Ramakrishna, M. Mozafari. **(2022).** Nanotechnology and quantum science enabled advances in neurological medical applications: diagnostics and treatments. Medical & Biological Engineering & Computing, 1-16.

(IF: 3.095)

3. **S. Batool**., W. Guo., R. Gill., W. Xin., & Hu, Y. **(2022).** Chitin based multi-layered coatings with flame retardancy an approach to mimic nacre: Synthesis, characterization and mechanical properties. *Carbohydrate Polymers*, 291, 119488.

(IF: 10.72)

4. H. Nabipour., **S.Batool**., & Y. Hu, Y**. (2022).** Pectin-coated baclofen-layered zinc hydroxide nanohybrid as a bio-based nanocomposite carrier for the oral delivery. *IEEE Transactions on NanoBioscience*.

(IF: 2.935)

5. H. Nabipour, H. Niu., X. Wang., S. Batool., & Y. Hu. **(2021).** Fully bio-based epoxy resin derived from vanillin with flame retardancy and degradability. *Reactive and Functional Polymers*, 168, 105034.

(IF: 4.96)

6. H. Nabipour., S.Batool., & Y. Hu. **(2021).** Chemical surface modification of hydroxyapatite for biomedical application: a review. *Emergent Materials*, 1-14.

(IF: 1.096)

7. H. Nabipour., X. Wang., **S. Batool**., L. Song., Y. Hu. **(2021)**. A phosphaphenanthrene-containing vanillin derivative as co-curing agent for flame-retardant and antibacterial epoxy thermoset. *Polymer*.

(IF: 4.43)

8. Rashid., R. Haider., R. Gill., **S. Batool.**, Y. Hu. **(2020).** Nacre inspired tailoring of mechanically strong hydrophobic coatings through Layer-by-Layer assembly. *Surface and Coatings Technology*, 404, 126458. **(IF: 4.865)**

9. **S.Batool,** R. Gill, C. Mao, G.C.S.Reddy, W. Guo, Y.Hu. **(2020**). Epoxy Based multilayers for flame resistant flexible polyurethane foam (FPUF). *Journal of Applied Polymer Science.* 137(29), 48890. **(IF: 3.05)**

10. **S.Batool,** R.Gill, M.Arshad, H.M.Siddiqi, S.S.Qureshi. **(2018).**Layer by-layer fabrication of nacre inspired epoxy/ MMT multilayered composites. *Journal of Applied Polymer Science*, 135(14), 46079.

(IF: 3.05)

11. **S.Batool**, A.Mahmood, *R.Gill, S.S.Qure*shi, M. Mazhar and M. Bououdina. **(2017).**Fabrication of covalently bonded nanostructured thin films of epoxy resin and polydimethylsiloxane for oil adsorption. *Polymer Bulletin*, 74(12): 4827-4840.

(IF: 2.84)

12. S Shabbir, **S Batool**, R Gill, and A Mahmood**. (2016).** Development Of Epoxy Based Multilayer NanoThin Films Using Layer-By-Layer Technique, *Abstracts of papers of the American chemical society* 252 (Conference Proceeding).

13. R. Gill, **S.Batool** and S.S.Qureshi. **(2015).**Nanofabrication of Block Copolymers of PDMS/Polyamide having Trichlorogermyl Pendant Using LbL Technique, *Journal of Chemical Society of Pakistan*, 37(3): 468-473. **(IF: 0.536)**

14. **S.Batool** and N.Khan**.(2014).** Estimation of Heavy M etal Contamination and Antioxidant Potential of Pakistani condiments and spices, *Journal of Biodiversity and Environmental Sciences*, 5(3), 340-346. **(IF: 1.356)**

Book Chapters:

1. R. Gill, S. Batool, F. Anwar, I. Mushtaq. **(2022) Advances in Alginate-Based Flame-Retardant Polymeric Material**s in the book *Bio-Based Flame Retardants for Polymeric Materials, **2022**, Elsevier.*

Distinction/Awards:

1. HEC Approved Ph.D. Supervisor
2. Recipient of Certificate of Recognition in participation in ***'Capacity Strengthening for Young Scientists' study visit to Scotland'***, March 2018 organized by Higher Education Commission (HEC) and British Council.
3. Awarded with **IRSIP scholarship** for a duration of six months (May-October, 2018) to do part of doctoral research in **State Key Laboratory of Fire Sciences (SKLFS)**, *China University of Science and Technology (USTC)*, Hefei, Anhui, P.R. China
4. Recipient of Gold Medal (First Position) in M.Phil. Environmental Sciences Session 2012-2014.
5. Recipient of ***HEC Indigenous Scholarship*** Batch III, Phase II 315-2921-2PS3-018.
6. Recipient of ***Merit certificate (First Position)*** in matric FG Girls High School Kharian Cantt for ***session 2005.***

Conference and Symposium:

1. Oral presentation on topic 'Synthesis, characterization, and mechanical properties of chitin-based multi-layered coatings with super flame retardancy in mimicking nacre structure' in the 1st International Conference with the theme ***'Revamped Scientific Outlook of 21st Century' (RSO-21st),*** October 12, 2022, Rawalpindi Women University, Pakistan.

2. Oral Presentation on topic 'Multicomponent Layer-by-layer (lbl) Assembly for Fabrication of Nacre Inspired Structure' in the **16th Pacific Polymer Conference,** December 8-12, 2019, Singapore.
3. Oral Presentation on topic Investigating thermal characteristics of nacre-like multilayers prepared by LbL for protection of Flexible Polyurethane Foam (FPUF) in the **1st International Conference on Nanoscience and Nanotechnology ICONN-2018, (NUST),** November 1-2, 2018, Islamabad, Pakistan.
4. Oral Presentation on topic 'Fabrication of Biomimetic ultra-strong thin films using Epoxy and Montmorillonite' in the Thin Films 2018 - **9th International Conference On Technological Advances Of Thin Films and Surface Coatings** organized by the Thin Film Society Singapore, July 17 - 19, 2018**.** Shenzhen**,** China.

5. Oral Presentation on topic 'Investigation via layer-by-layer (LbL) nanofabrication of multilayer composite thin films using epoxy and clay' in the **15th International Symposium on Advanced Materials (ISAM 2017),** National Centre for Physics (NCP), October 16-20, 2017, Islamabad, Pakistan.

6. Poster presentation on topic of 'Development of epoxy based multilayer nano-thin films using Layerby-Layer technique' in the **252nd American Chemical Society National Meeting & Exposition**– Chemistry of the people, by the people, for the people, organized by the American Chemical Society, August 21-25, 2016, Philadelphia, PA, USA.

7. Oral Presentation on topic Nanofabrication of Super Hydrophobic Multilayers *via* Layer by Layer Method, in the **2nd International Conference on Energy and Environment (ICEE-2016)**, April 1214, 2016, Islamabad, Pakistan.

8. Oral Presentation on topic 'Nanofabrication of robust hydrophobic multilayer thin films and their potential application for oil removal' in Symposium: Advances in Environmental Monitoring in **3rd International Laboratory Technology Conference and Exhibition (LabTech2014), Bahrain**, 28-30 October, 2014, Kingdom of Bahrain.

9. Oral presentation on topic of 'Use of catalyst in multilayer assemblies of elastomer based nano thin films via Layer by Layer Technique' in Symposium: Applied Chemistry in **13th International & 25th National Chemistry conference,** October 20-22, 2014, Lahore, Pakistan.

10. Oral presentation on topic of Antioxidant assay and heavy metal investigation of some branded and local spices of Pakistan in symposium Applied/Environmental/Materials Chemistry in **12th International & 24th National Chemistry conference**, October 28-30, 2013, Multan, Pakistan.

Professional Trainings:

- **National Faculty Development Program (NFDP)** (July-Aug, 2021)
  Training organizer: National Academy of Higher Education (NAHE)
  Higher Education Commission (HEC), Pakistan
- **Proficiency Testing Programs for Laboratories** (16 March, 2021)
  Workshop Organizer: ACS Chapter Saudi Arabia
- **Water Resource Management-Issues and Way Forward** (2- 6 December 2019)
  Course Organizer: AHK National Centre for Rural Development (NCRD), Islamabad
- **Seminar and Workshop for Ph.D. Studies** (27-28 March 2018)
  Workshop Organizer: University of Dundee, Scotland, United Kingdom
- **National Consultative Workshop on INDC 2016** (2016)
  Workshop Organizer: Ministry of Climate Change, Government of Pakistan
- **Surface Science and Characterization (**May 2014)
  Training Organizer: National Institute of Vacuum Science and Technology (NINVAST), Islamabad.

Languages:

- **English** (Fluent speaking and writing)
- **Urdu** (Native language of Pakistan)

References:

Available on Request