

Luqman Jameel Rather

Postdoctoral Fellow

State Key Laboratory of Silkworm Genome Biology and College of Textile and Garments,
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Current Position:

- Senior Visiting Scholar

Scientific Interests:

- *Natural dyes and their applications*
- *Thermodynamic and kinetic adsorption studies of natural colorants on the textiles.*
- *Functional finishing of textile materials (Antimicrobial, Antifungal, UV Protective, Insect Repellant, Flame Retardant, Antioxidant, etc)*
- *Development of fluorescent textiles*
- *Nanoparticle-biopolymer composite finishing of textile substrate for the development of functional Textiles.*
- *Antimicrobial and UV-Protective textile materials*
- *Super hydrophobic textile materials*

Educational Qualifications:

September 2012-May 2017	Ph.D. Chemistry (Organic Chemistry)
December 2011	Council of Scientific and Industrial Research-National Eligibility Test (CSIR-NET)
2008-2010	Masters of Science (Chemistry) University of Kashmir, J&K
2006-2008	Bachelor of science University of Kashmir, J&K

Current Affiliations:

- *State Key Laboratory of Silkworm Genome Biology, Southwest University, Chongqing – 400715, China*
- *Chongqing Engineering Research Center for Biomaterial Fibers and Modern Textile, Chongqing - 400715, China*
- *College of Textile and Garment, Southwest University, Chongqing – 400715, China*

Previous Affiliations:

- *Jamia Millia Islamia, New Delhi – 110025, India (2012 - 2017)*
- *Department of Computer Science and Engineering, University of Kashmir, Baramullah – 193103, India (2017-2018)*

Scholarships and Ranks:

- Postdoctoral Fellowship from Southwest University (Govt. of China): September 2018 – October 2020.
- Prestigious University Grants Commission (Govt. of India) BSR (**JRF**) Research Fellowship in Science for Meritorious Students: January 2015 - May 2017.
- UGC Fellowship for Central University Ph.D. Students (Non-Net): September 2012 – December 2014.

Honors:

- **Active member** of the organizing committee for the **organization of International Conference on “Worldwide Research Initiatives for Agriculture, Science, and Technology (WRIAST-2018)”** during 24-26 October 2018 at University of Kashmir, Hazratbal, Srinagar, J & K, India.

Awards:

- **Young Scientist Award**; through *National Agriculture Development Co-operative Ltd.* Established under *Self Reliant Co-operative Act, 1999*; Under Government Control (Ministry of Cooperatives) (Registration No: RCS/J & K/2234-Agri) with Ref. No: **WRIAST/2018**; Dated: 29-09-2018
- Awarded **Second Best Poster Presentation** award in national seminar on Recent Advances in Chemistry, Organized by Department of Chemistry, Jamia Millia Islamia, New Delhi, India, on March 24, 2014
- Awarded **Second Best Oral Presentation** award in national seminar on Recent Advances in Chemistry, Organized by Department of Chemistry, Jamia Millia Islamia, New Delhi, India, on April 26, 2016

Reviewer of Scientific Journals:

- Coloration Technology
- Chiang Mai Journal of Science
- Water Environment Research
- Environmental Technology
- Fibers and Polymers
- Journal of Cleaner Production
- Array
- Textile Research Journal
- BMC Chemistry
- Journal of Chemistry
- Journal of Engineered Fibers and Fabrics
- Polish Journal of Environmental Studies
- Sustainable Chemistry and Pharmacy
- Chemical Engineering Communications
- Environmental Science and Pollution Research
- Journal of Photochemistry & Photobiology, B: Biology
- International Journal of Biological Macromolecules
- Cardiovascular & Hematological Agents in Medicinal Chemistry
- Journal of Herbal Medicine

Courses undertaken in PhD programme:

- Organic Chemistry
- Natural Dye and Fiber Chemistry

Projects undertaken in PhD programme:

- Development of shades on wool with *Acacia nilotica* (Babul), *Terminalia arjuna* (Arjun) and *Adhatoda vasica* (Vasaka/Malabar Nut) natural dyes and their characteristics evaluation

Projects undertaken in Postdoctoral programme:

- Exploiting the potential of ecofriendly natural dyes and nano biocomposites for the development of functional textiles materials

S. No.	Designation	Name of the Organization	Grant number	Period of service		
				From	To	Period
1.	Principal Investigator	Southwest University, Chongqing China	XDJK-2020C025	08-01-2020	31-12-2020	1 year

Laboratory Skills and Technical Expertise:

- FT-IR spectrophotometer
- HPLC instrumentation
- Reflectance spectroscopy
- Solid Fibre Fluorimetry
- UV-Visible spectrophotometer
- TGA and DSC instrumentation
- Powder XRD crystallography
- UV-Reflectance measurements
- Scanning Electron Microscopy (SEM)
- Energy-dispersive X-ray spectroscopy (EDX)
- Transmission Electron Microscopy (TEM)

Teaching Experience:

S. No.	Designation	Name of the Organization	Nature of the appointment	Period of service		
				From	To	Period
1.	Assistant Professor	Govt. Degree College Khan Sahib, Budgam	Temporary	12-07-2018	31-08-2018	1 month 20 days
2.	Assistant Professor	University of Kashmir, North Campus, Delina, Baramullah	Temporary	22-09-2017	18-04-2018	6 months 26 days

Research Experience

S. No.	Designation	Name of the Organization	Nature of the appointment	Period of service		
				From	To	Period
1.	Senior Visiting Scholar	Southwest University, Chongqing China	Temporary	01-09-2018	Till date	-

List of Research Publications:

Total Citations: 646, h-index: 14, i10-index: 16

<https://scholar.google.co.in/citations?user=gAb56A0AAAAJ&hl=en>

1. **L. J. Rather**, Q. F. Dar, Q. Zhou, L. Haofan, Q. Li. Binary mix metal mordant dyeing of merino wool fibers using *Cinnamomum camphora* waste/fallen leaves extract: A brief statistical analysis of color parameters. *The Journal of the Textile Institute*, 2020, <https://doi.org/10.1080/00405000.2020.1779166>
2. K. Gong, **L. J. Rather**, Q. Zhou, W. Wang, Q. Li. Natural dyeing of merino wool fibers with *Cinnamomum Camphora* leaves extract with mordants of biological origin: A greener approach of textile coloration. *Journal of The Textile Institute*, 2019, <https://doi.org/10.1080/00405000.2019.1698228> (*Equal contributions)
3. **L. J. Rather**, M. Shabbir, F. Mohammad, Q. Li. *Terminalia arjuna* dyed woolen yarn - Effect of Binary and Ternary metal salt Combination: A greener route for production of ecofriendly textiles. *Journal of Natural Fibers*, <http://dx.doi.org/10.1080/15440478.2019.1588830>
4. **L. J. Rather**, M. Shabbir, F. Mohammad, Q. Li. Effect of Binary and Ternary Combination of Metal Salt on Colorimetric and Fastness Characteristics of *Acacia nilotica* Dyed Woolen Yarn. *Journal of Natural Fibers*, <https://doi.org/10.1080/15440478.2018.1558150>

5. Q. Zhou*, **L. J. Rather***, A. Ali, W. Wang, Y. Zhang, Q.M.R. Haque, Q. Li. Environmental friendly bioactive finishing of wool textiles using the tannin-rich extracts of Chinese tallow (*Sapium sebiferum* L.) waste/ fallen leaves. *Dyes and Pigments*, 2020, 176, 108230 (*Equal contributions).
6. **L. J. Rather**, Q. Zhou, A. Ali, Q.M.R. Haque, Q. Li. Valorization of natural dyes extracted from mugwort leaves (*Folium artemisiae argyi*) for wool fabric dyeing: optimization of extraction and dyeing processes with simultaneous coloration and biofunctionalization. *ACS Sustainable Chemistry and Engineering*, 2020, 8(7), 2822-2834.
7. M. Shabbir, **L. J. Rather**, M. Azam, Q. M. R. Haque, M. A. Khan, F. Mohammad. Antibacterial functionalization and simultaneous coloration of wool fiber with the application of plant based dyes. *Journal of Natural Fibers*, 2020, 17(3), 437-449.
8. W. Wang, **L. J. Rather**, K. Gong, Q. Zhou, T. Zhang, Q. Li. Effects of Ultrasonic Treatment on Hydrophilicity and Thermal Stability of Silk. *Macromolecular Materials and Engineering*, 2019, 1900364, 1-7.
9. M. Shabbir, **L. J. Rather**, F. Mohammad. Exploring the potential of tannin based colorants towards functional value addition of wool textiles. *Fibers and Polymers*, 2019, 20, 1812-1819.
10. **L. J. Rather**, M. Shabbir, Q. Li, F. Mohammad. Coloration, UV protective, and antioxidant finishing of wool fabric via natural dye extracts: Cleaner production of bioactive textiles. *Environmental Progress and Sustainable Energy*, 2019, 38, 1-9.
11. M. Shabbir, **L. J. Rather**, M. N. Bukhari, S. Islam, M. A. Khan, F. Mohammad. First time application of biomordants in conjunction with *Alkanna tinctoria* root extract for eco-friendly wool dyeing. *Journal of Natural Fibers*, 2019, 16, 846-854.
12. M. N. Bukhari, **L. J. Rather**, M. Shabbir, S. Islam, U. Singh, M. A. Khan, F. Mohammad. Dyeing of Wool with Anthraquinone based Natural Colourants from *Cassia fistula* fruit. *Journal of Natural Fibers*, 2019, 16, 855-865.
13. K. Gong, Y. Pan, **L. J. Rather**, W. Wang, Q. Zhou, T. Zhang, Q. Li. Natural colourant extraction from *Cinnamomum Camphora* tree leaves of different maturities and its ultrasonic assisted extracting process. *Coloration Technology*, 2019, 135, 312-321.
14. M. Shahid, S. Islam, **L. J. Rather**, N. Manzoor, F. Mohammad. Simultaneous Shade Development, Antibacterial and Antifungal Functionalization of Wool using *Punica*

granatum L. Peel Extract as a Source of Textile Dye. *Journal of Natural Fibers*, 2019, 16, 555-566.

15. S. Islam, **L. J. Rather**, M. Shabbir, J. N. Sheikh, M. N. Bukhari, M. A. Khan, F. Mohammad. Exploiting the Potential of Biomordants in Environmentally Friendly Coloration of Wool with Natural Dye from *Butea monosperma* Flower Extract. *Journal of Natural Fibers*, 2019, 16, 512-523.
16. K. Gong, Y. Pan, **L. J. Rather**, W. Wang, Q. Zhou, T. Zhang, Q. Li. Natural pigment during flora leaf senescence and its application in dyeing and UV protection finish of silk and wool – a case study of *Cinnamomum Camphora*. *Dyes and Pigments*, 2019, 166, 114-121.
17. **L. J. Rather**, M. A. Khan, F. Mohammad. Biomordanting Potential of *Acacia nilotica* (Babul) in Conjunction with *Kerria lacca* and *Rheum emodi* Natural Dyes. *Journal of Natural Fibers*, 2019, 16, 275-286.
18. M. Shabbir, **L. J. Rather**, S. Islam, M. N. Bukhari, M. A. Khan, F. Mohammad. Light fastness and shade variability of tannin colorant dyed wool with the effect of mordanting methods. *Journal of Natural Fibers*, 2019, 16, 100-113.
19. M. Shabbir, **L. J. Rather**, F. Mohammad. Economically viable UV-protective and antioxidant finishing of wool fabric dyed with *Tagetes erecta* flower extract: Valorization of Marigold. *Industrial Crops and Products*, 2018, 119, 277-282.
20. **L. J. Rather**, S. Islam, M. Shabbir, M. N. Bukhari, M. A. Khan, F. Mohammad. *Adhatoda vasica* in conjunction with binary combinations of metal salts and biomordants as an effective textile dye to produce novel shades on wool. *Journal of Natural Fibers*, 2017, 15, 611-623.
21. S. Islam, **L. J. Rather**, M. Shabbir, M. N. Bukhari, M. A. Khan, F. Mohammad. First Application of Mix Metallic Salt Mordant Combinations to Develop Newer Shades on Wool with *Bixa orellana* Natural Dye using Reflectance Spectroscopy. *Journal of Natural Fibers*, 2017, 15, 363-372.
22. **L. J. Rather**, S. Islam, S. Akhter, Q. P. Hassan, F. Mohammad. Chemistry of Plant dyes: Applications and Environmental Implications of Dyeing Processes. *Current Environmental Engineering*, 2017, 4, 103-120.
23. M. N. Bukhari, S. Islam, M. Shabbir, **L. J. Rather**, M. Shahid, M. A. Khan, F. Mohammad. Effect of Binary and Ternary Combination of Metal Salt Mordants on Dyeing

and Fastness Properties of Natural Protein Fibre with *Juglans regia* L. Dye. *Journal of Natural Fibers*, 2017, 4, 519-529.

24. S. Islam, **L. J. Rather**, M. Shabbir, M. N. Bukhari, M. Shahid, M. A. Khan, F. Mohammad. Bi and Tri Metal Salt Combinations plus Colourants Extracted from Timber Industry Waste as Effective Dyeing Materials to Produce Novel Shades on Wool. *Journal of Natural Fibers*, 2017, 4, 586-596.
25. M. N. Bukhari, S. Islam, M. Shabbir, **L. J. Rather**, M. Shahid, U. Singh, M. A. Khan, F. Mohammad. Dyeing Studies and Fastness Properties of Brown Naphtoquinone Colorant Extracted from *Juglans regia* L on Natural Protein Fibre using Different Metal Salt Mordants. *Textile Clothing and Sustainability*, 2017, 3, 1-9.
26. **L. J. Rather**, S. Akhter, R. A. Padder, Q.P. Hassan, M. Hussain, M.A. Khan, F. Mohammad. Colorful and semi durable antioxidant finish of woolen yarn with tannin rich extract of *Acacia nilotica* natural dye. *Dyes and Pigments*, 2017, 139, 812-818.
27. **L. J. Rather**, S. Islam, M. Shabbir, M. N. Bukhari, M. Shahid, M. A. Khan, F. Mohammad. Ecological dyeing of Woolen yarn with *Adhatoda vasica* natural dye in the presence of biomordants as an alternative copartner to metal mordants. *Journal of Environmental and Chemical Engineering*, 2016, 4, 3041-3049.
28. **L. J. Rather**, S. Islam, M. Azam, M. Shabbir, M. N. Bukhari, M. Shahid, M. A. Khan, Q. M. R. Haque, F. Mohammad. Antimicrobial and fluorescence finishing of woolen yarn with *Terminalia arjuna* natural dye as an ecofriendly substitute to synthetic Antibacterial agents. *RSC Advances*, 2016, 6, 39080-39094.
29. S. Islam, **L. J. Rather**, F. Mohammad. Phytochemistry, Biological Activities and Potential of Annatto in Natural Colorant Production for Industrial Applications - A Review. *Journal of Advanced Research*, 2016, 7, 499-514.
30. M. Shabbir, **L. J. Rather**, S. Islam, M.N. Bukhari, M. Shahid, M.A. Khan, F. Mohammad. An eco-friendly dyeing of woolen yarn by *Terminalia chebula* extract with evaluations of kinetic and adsorption characteristics. *Journal of Advanced Research*, 2016, 7, 473-482.
31. **L. J. Rather**, S. Islam, M. A. Khan, F. Mohammad. Adsorption and Kinetic studies of *Adhatoda vasica* natural dye onto woolen yarn with evaluations of Colorimetric and Fluorescence Characteristics. *Journal of Environmental and Chemical Engineering*, 2016, 4, 1780-1796.

32. M. Shabbir, S. Islam, M. N. Bukhari, **L. J. Rather**, M. A. Khan, F. Mohammad. Application of *Terminalia chebula* Natural dye on Wool Fibre: Evaluation of Color and Fastness Properties. *Textile Clothing and Sustainability*, 2016, 2, 1-9.
33. **L. J. Rather**, S. Islam, F. Mohammad. *Acacia nilotica* (L.): A Review of its Traditional uses, Phytochemistry and Pharmacology. *Sustainable Chemistry and Pharmacy*, 2015, 2, 12-30.
34. **L. J. Rather**, S. Islam, F. Mohammad. Study of the application of *Acacia nilotica* natural dye on wool using Fluorescence and FTIR-Spectroscopy. *Fibers and Polymers*, 2015, 16, 1497-1505.
35. S. A. Khan, S. Islam, M. Shahid, M. I. Khan. M. Yusuf, **L. J. Rather**, M. A. Khan, F. Mohammad. Mixed metal mordant dyeing of wool using root extract of *Rheum emodi* (Indian Rhubarb/Dolu). *Journal of Natural Fibers*, 2015, 12, 243-255.
36. S. Islam, **L. J. Rather**, M. Shahid, M. A. Khan, F. Mohammad. Study the effect of ammonia post-treatment on color characteristics of annatto-dyed textile substrate using reflectance spectroscopy. *Industrial Crops and Products*, 2014, 59, 337-342.

Book Chapters:

1. **L. J. Rather**, Z. Qi, S. A. Ganie, Q. Li. (2020). Environmental profile of nano-finished textile materials: Implications on public health, risk assessment, and public perception. *In: M. Shahid (ed.) Advances in functional finishing of textiles*, Springer Nature.
2. **L. J. Rather**, M. F. Ansari, Q. Li. (2020). Recent advances in the insect natural product chemistry: Structural diversity and their applications. *In: D. Kumar, M. Shahid, (eds.) Natural Materials and Products from Insects: Chemistry and Applications*, Springer Cham, pp. 67-94.
3. S. Akhter, **L. J. Rather**, S. A. Ganie, O. A. Dar, Q. P. Hassan. (2019). Recent advances in the processing of modern methods and techniques for textile effluent remediation-A review. *In: Textiles and Clothing: Environmental Concerns and Solutions*, Scrivener Publishing LLC, pp. 255-290.
4. **L. J. Rather**, S. Jameel, O. A. Dar, S. A. Ganie, K. A. Bhat, F. Mohammad. (2018). Advances in the sustainable technologies for water conservation in textile industries. *In: Water in Textiles and Apparel*, Elsevier, pp. 175-194.

5. **L. J. Rather**, S. Akhter, Q. P. Hassan, F. Mohammad. (2018). Biofunctionalisation of various textile materials using enzyme biotechnology as a green chemistry alternative. *In: Enzymes in Food Technology: Improvement and Innovations*, Springer, pp. 263-276.
6. **L. J. Rather**, S. Jameel, S. A. Ganie, K. A. Bhat. (2018). Lichen derived natural colorants: History, extraction, and applications. *In: Handbook of Renewable Materials for Coloration and Finishing*, Scrivener Publishing, pp. 103-114.
7. **L. J. Rather**, S. Akhter, Q. P. Hassan. (2018). Bioremediation: Green and Sustainable Technology for Textile Effluent Treatment. *In: Sustainable Innovation in Textile Chemistry and Dyes*, Springer, pp. 75-91.
8. **L. J. Rather**, M. Shabbir, F. Mohammad. (2017). Physico-chemical aspects of wool dyeing: Adsorption, Kinetics, and Thermodynamics. *In: Handbook of Textile Coloration and Finishing*, Studium Press, LLC, USA, pp. 143-161.
9. M. Shabbir, **L. J. Rather**, F. Mohammad. (2017). Chitosan: Sustainable and Environment Friendly Resource for Textile Industry. *In: Chitosan: Derivatives, Composites, and Applications*, Wiley, pp. 233-252.

Oral Presentations:

1. **L. J. Rather**, Q. Zhou, and Q. Li. Coloring Potential and Antimicrobial Finishing of Woollen yarn with *Terminalia arjuna* Natural Dye with the Evaluations of Kinetic and Thermodynamic Parameters, In: The 12th Textile Bioengineering and Informatics Symposium (TBIS-2019) on “Advanced Materials and Smart Wearables”, Suzhou, China, September 8th – 11th, 2019.
2. **L. J. Rather**. *Terminalia arjuna* dyed woolen yarn – Effect of binary and ternary metal salt combinations, In: National Conference “Recent Advances in Material Sciences & Engineering (RAMSE-2019)”, School of Basic & Applied Sciences, Lingaya’s Vidyapeeth, Faridabad, March 28th – 29th, 2019.
3. **L. J. Rather**. Development of hygienic textiles: UV protective and antioxidant finishing of wool fabric dyed with natural dye extracts, In: Ist International Conference on “Recent Developments in Science, Humanities & Management – 2018”, Amar Singh College, Cluster University, Srinagar, April 17th – 18th, 2018.
4. **L. J. Rather** and F. Mohammad. Eco-friendly biomordants as an alternative co-partner to metal mordants: A unified approach to develop green textiles, In: Seminar on “Recent Advances in Chemistry (RAC-16)”, Department of Chemistry, Jamia Millia Islamia, New Delhi, April 26, 2016 (2nd Prize).

Poster Presentations/Workshops:

1. **L. J. Rather**, S. Akhter, P. Sultan and F. Mohammad. Dyeing potential and semi-durable antioxidant finish of woolen yarn with tannin rich extract of *Acacia nilotica* natural dye, in National Seminar on “*Eco-Socio Trends in Science and Technology (ETST-2016)*”, YMD College, Nuh, Haryana, October 5, 2016.
2. **L. J. Rather** and F. Mohammad. Potential of *Acacia nilotica* (Babul) as bio-mordant in the development of green functional textiles, in Seminar on Recent Advances in Chemistry (RAC-15), Department of Chemistry, Jamia Millia Islamia, New Delhi, March 26, 2015.
3. **L. J. Rather** and F. Mohammad. Investigation on interaction of polyphenols and flavonoids of *Acacia nilotica* natural dye with natural protein fibre using fluorescence and FT-IR spectroscopy, in Seminar on Recent Advances in Chemistry (RAC-14), Department of Chemistry, Jamia Millia Islamia, New Delhi, March 24, 2014 (2nd Prize).
4. **L. J. Rather** and F. Mohammad. Dyeing of natural protein fibre wool with lac (*Kerria lacca*) as natural red dye using babul (*Acacia nilotica*) as bio-mordant, in National Symposium on Chemistry Department of Chemistry, AMU, Aligarh, March 22, 2014.
5. **L. J. Rather** and F. Mohammad. Studies on dyeing of natural protein fibre with *Acacia nilotica* natural dye using combination of eco-friendly mordants, in International Conference on Chemistry: Frontiers and Challenges, Department of Chemistry, AMU, Aligarh, March 2-3, 2013.

Conferences/Workshops attended:

1. Attended ‘*International Conference on Worldwide Research Initiatives for Agriculture, Science, & Technology*’ held at University of Kashmir, Hazratbal, Srinagar from 24th – 26th October, 2018.
2. Attended ‘*Workshop on Copyright Law and Plagiarism: Issues and Perspectives*’, under the aegis of the Faculty of Law, Jamia Millia Islamia, New Delhi, April 28, 2015.
3. Attended ‘*Orientation/Interactive Programme on Turnitin (an originality check and anti-plagiarism web tool)*’, organized by Dr. Zakir Hussain Library, Jamia Millia Islamia, New Delhi, April 7, 2015.

4. Attended ‘*Science Academies Lecture Workshop on Nanoscience and Nantotechnology*’, organized by Department of Chemistry, Jamia Millia Islamia, New Delhi, March 1-2, 2013.
5. Attended ‘*International Conference on Interface between Chemistry and Environment (ICICE)*’ organized by Department of Chemistry, Ramjas College, University of Delhi, New Delhi, December 13-14, 2012.

Hobbies:

Playing Lawn Tennis	Chess
Swimming	Cricket

Personal Details:

Home Address:	Wadwan Budgam, Jammu and Kashmir-191111
Date of Birth:	16 th of November 1985
Nationality:	Indian
Gender:	Male
Marital Status:	Unmarried
Languages Known:	English, Urdu, Kashmiri

References:

1. Dr. Faqeer Mohammad (Ex. Associate Professor)
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