

# CURRICULUM-VITAE

**Dr. RAJESH KUMAR** (Assistant Professor)

Department of Chemistry

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## CAREER OBJECTIVE

To leverage my intellect, knowledge, skills and abilities and perform my duties with utmost sincerity and dedication for both organizational and personal growth.

## EDUCATIONAL ATTAINMENTS

Class/Exam	Year	Subject/Specialization	Div.	Board/University
S.S.C.	2006	Maths, Science, Commerce, English, Hindi, Soc. Sci.	I	Uttarakhand Board, Ramnagar
H.S.C.	2008	Chemistry, Physics, Biology, English, Hindi	I	Uttarakhand Board, Ramnagar
B.Sc.	2011	Chemistry, Botany, Zoology	I	Kumaun University, Nainital
M.Sc.	2013	Chemistry (Organic)	I	Kumaun University, Nainital
U-SET	2017	Chemical Science	-	Kumaun University, Nainital
CSIR-NET	2019	Chemical Science	-	CSIR-UGC, New Delhi
GATE	2020	Chemistry	-	Conducted by IIT-Delhi
Ph.D.	2021	Chemistry (Nanochemistry)	-	Kumaun University, Nainital

## PATENTS

- R. Kumar**, S.R. Ali, R. Karmakar and Savita, “Modified co-precipitation method to improve adsorption potential of iron-zirconium mixed oxide nanoparticles”, Application No. 202411039467. (Published)
- R. Kumar**, R. Karmakar “A method for improving growth and oil content of indigenous mixed algal biomass”, Application No. 202411041902. (Published)
- R. Karmakar, P.K. Sharma, V. Tripathi, R. Sharma, **R. Kumar**, S. Naithani and P. Naithani, “A process of transesterification of Kusum oil for preparing biodiesel”, Application No. 202411058310. (Published)

## AWARDS/ HONOUR/ FELLOWSHIP

- Excellence in Research Award-2026:** International Chemistry Scientist awards (21<sup>st</sup> Edition), Awarded by ChemistryScientists.org (Scifax Company Group), approved and register by the Ministry of Corporate Affairs. (Jan. 05, 2026)
- Dr. Sarvapalli Radhakrishnan Excellence Award-2025 (Researchers Excellence):** Global Conference on Education, Technology and Management, organized by IHMS, Kotdwar, Uttarakhand (India) (Dec. 26, 2025)
- Best Paper Presentation Award-2025:** International Seminar organized by APSR & Plantica Foundation, in collaboration with UKPCB, Dehradun, Uttarakhand (India) (Oct. 30-31, 2025)
- Best Oral Presentation Award -2024:** 1<sup>st</sup> International Conference on Current Environmental Technologies for Sustainable Development (ICCETSD2024), organized by Graphic Era (Deemed to be University) Dehradun (Dec., 09-10, 2024).
- Best Oral Presentation Award-2024:** Transdisciplinary International Conference on Advanced in Science, technology and Humanities: Intersecting for a Bright and Prosperous Society, organized by IISSS & Dhanwate National College, Nagpur (MS), India (Nov., 30, 2024)
- Best Paper Presentation Award -2024:** 1<sup>st</sup> International Conference on ICET-STEM-HASD-2024 organized by MIET Kumaon, Sikhsha Nagar, Lamachaur, Haldwani (March, 11-12, 2024)

- **Young Scientist Award-2022:** National Conference on CCIBHR-2022” organized by Dept. of Chemistry, SSMMUSS Govt. P.G. College Dwarahat, Almora, Uttarakhand (India) (June, 05-06, 2022).
- **Young Scientist Award-2019:** 2<sup>nd</sup> International Conference on ICEFN & SEM-2019” organized by NSNT Center, Department of Chemistry, D.S.B. Campus Nainital (May, 24-26, 2019).
- **Best Abstract Award-2017:** International Conference on ISSWM” organized by L.P.U., Phagwara, Punjab India (November 17-18, 2017)
- **Fellowship: JRF & SRF** (UGC New Delhi; Let. No.F1-17.1/2016-17/RGNF-2015-17-SC-UTT-15953).

**• Invited Lecture:**

1. Role of Digital technology in e-learning & Societal Development”, workshop held on May 7-9, 2016 at Champawat (Uttarakhand), organized by HIMWATS & sponsored by USERC, Govt. of Uttarakhand.
2. Nanosized TiO<sub>2</sub> as a photocatalyst for the degradation of organic dyes”, IYL-2015 organized by HIMWATS and supported at Champawat, Uttarakhand (May. 7-9, 2015).

### DETAILS OF RESEARCH PUBLICATIONS / OTHER ACTIVITIES

1. Total Publications: <b>38</b>	(Research Papers: <b>28</b> & Book Chapters: <b>10</b> )	(Annexure-I)
2. Paper presented in Conferences/Seminars/Symposium/Workshop/Webinars: <b>32</b>		(Annexure-II)
3. Participation in Conferences/Seminar/Workshop/Webinars: <b>36</b>		(Annexure-III)
4. Teaching Experience: <b>05 Years</b>		(Annexure-IV)
5. Instruments & Software Handling/(N.S.S.-“B” & “C” Certificate, Computer’s Diploma)		(Annexure-V)

### RESEARCH PROJECTS

Title of the Project	Role	Duration	Budget	Funding Agency
Liposome preparation of essential oils to enhance their antibacterial and antifungal efficacy	Co-PI	2 Year	12 Lakh	CM Higher Education Research Encouragement Scheme 2023-24

### THESIS/ DISSERTATION SUPERVISED

S. N.	Course	Thesis/Dissertation	No. of students enrolled	Year of Completion
1.	M.Sc. Chemistry	Dissertation	03	2024
2.	M.Sc. Chemistry	Dissertation	03	2023
3.	M.Sc. Chemistry	Dissertation	03	2022

### ORIENTATION / REFRESHER COURSE/FDP

S.N.	Name of the Course	Sponsoring Agency	Duration
1.	Faculty Development Program (FDP)	MMTTC-CS <sup>2</sup> -IISER Bhopal	Nov. 17-22, 2025
2.	Advanced Refresher Course (Chemistry)	IISc Challakere Campus at Khudapura (Banglore)	Aug 15-30, 2025
3.	Faculty Development Program (FDP)	Roorkee Institute of Technology (RIT), Roorkee	Jul. 26-30, 2021

### MEMBER OF PROFESSIONAL ORGANIZATION/ASSOCIATIONS

1. Life member of Indian Science Congress Association (ISCA): (Membership No: L37868).
2. Life member of Indian Science Congress Association (ISCA) Haridwar Chapter: (Membership No: 0544)
3. Life member of Teaching and Education Research Association (TERA): (Membership No: TERA-M19912).
4. Life member of Scientific and Technical Research Association (STRA): (Membership No: STRA-M19360).

## MEMBER OF EDITORIAL BOARD / REVIEWER

1. American Journal of Applied Chemistry (ISSN: 2330-8753), Science Publishing Group.
2. International Journal of Current Science (ISSN: 2250-1770), IJCS Publication.
3. Online Journal of Chemistry (ISSN: 2770-1913), Science Publication.
4. International Journal of Engineering Research & Technology (ISSN: 2278-0181), IJERT Publication.
5. Advances in Science, Technology and Engineering Systems Journal (ASTESJ) (ISSN: 2415-6698), ASTES.
6. International Journal of Creative Research Thoughts (ISSN: 2320-2882), IJCRT.
7. Futuristic Trends in Chemical, Material Sciences & Nanotechnology, Vol.3, 2024, IIP Series
8. Frontiers in Nanoscience & Nanotechnology: Design, fabrication & Applications of Nanostructures, Vol.6, 2026, IIP Series

## CONFERENCE/SEMINAR ORGANIZED

S.N.	Status as organizer	Title of the Conference/Seminar/ Workshop	Year and Dates
1.	Member of organizing committee	National Workshop	29 Dec. 2022
2.	Member of organizing committee	National Seminar	13-14 Nov. 2022
3.	Member of organizing committee	International Conference (ICEFN & SEM-2019)	24-26 May 2019
4.	Member of organizing committee	International Conference (ICEFN -2016)	27-29 Mar. 2016
5.	Member of organizing committee	National Conference (ETCBI-2011)	03-05 Nov. 2011

## ACADEMIC/ADMINISTRATIVE POSITIONS HELD

S.N.	Convener/Member/Secretary	Committee	Year (From-To)
1.	Nodal Officer	Prime Minister's Internship Scheme (PM-IS)	2025 to till date
2.	Nodal Officer	Chief Information Security Officer (CISO)	2025 to till date
3.	Nodal Coordinator	IIT Bombay Virtual Labs (setting up)	2025 to till date
4.	Member	IQAC/NAAC	2025 to till date
5.	Member	MIS-Portal	2025 to till date
6.	Member	Admission Committee (Science Faculty)	2025 to till date
7.	Member	Time-Table (Science Streams)	2025 to till date
8.	Member	Discipline Committee (Shaasta Mandal)	2025 to till date

## RESEARCH INTERESTS:

- Mixed oxides based nanoparticle for adsorbent and photocatalyst
- Water remediation
- Biological activities of nanoparticles
- Biofuels
- Natural Products

## ANNEXURE-I

### RESEARCH PUBLICATIONS:

1. **R. Kumar**, S. R. Ali, D. Mitra, Sapna, R. Karmakar and R. Sharma, "Zirconium-ferrite nanoparticles for efficient adsorptive removal of methylene blue from aqueous medium" **Environ. Conserv. J.** (2025) 2278-5124.
2. A. Tamta, G. Lohiya, **R. Kumar**, A. Kandpal, B. Chandra, R. Joshi and N.D. Kandpal, "Evaluating the *In-Vitro* Antioxidant, Anti-inflammatory and Anticancer Potentials of NiO-Cellulose Nanocomposites". **Bio. Nano. Sci. (Springer)** 15, (2025) 1-17. **(I.F.= 3.2)**
3. R. Karmakar, N. Kumar, **R. Kumar**, S. K. Mohapatra, S. S. Ragit, K. Kundu, R. Sharma, P. Kumar Sharma and V. Tripathi, "Deriving the contribution of parameters & optimisation of Kusum oil transesterification." **Proc. Inst. Civ. Eng. (Emerald Publishing)** (2025): 1-9. **(I.F.= 1.00)**
4. **R. Kumar\***, S. R. Ali, R. Karmakar, R. Sharma and N. Haider, "Adsorption potential of iron-zirconium oxide nanoparticles for 3-chlorophenol and 3-nitrophenol: Thermodynamic, Kinetic and Mechanistic studies". **Russ. J. Gen. Chem. (Springer)**. 94 (2024) 1419-1435. **(I.F.= 0.90)**
5. N. Semwal, D. Mahar, M. Chatti, **R. Kumar** and M. C. Arya, "Ni-Zn/CeO<sub>2</sub> nanocomposites for enhanced adsorptive removal of 4-chlorophenol". **Environ. Sci. Pollut. Res. (Springer)** 31 (2024) 51934-51953. **(I.F. =5.00)**
6. Vaishali, S. Sharma, P. Sharma, D. Das, V.K. Vashistha, J. Dhiman, R. Sharma, **R. Kumar**, M. V. Singh, and Y. Kumar, "Magnetic nanoparticle-catalysed synthesis of quinoline derivatives: a green and sustainable method". **Heliyon (Elsevier)** 10 (2024) 1-54. **(I.F.= 3.4)**
7. **R. Kumar\***, G. S. Bhoj, M. C. Arya, R. Karmakar, P.K. Sharma and V.Tripathi, "Polymer precursor method for the synthesis of zinc oxide nanoparticles: A novel approach". **Environ. Conserv. J.** (2024) 1-7.
8. A. Tamta, **R. Kumar**, R. Joshi, B. Chandra and N.D. Kandpal, "Synthesis, characterization and biological activities of NiO-cellulose nanocomposite". **Curr. Chem. Lett.** 13 (2024) 593-602. **(I.F.= 0.12)**
9. A. Tamta, A. Mathur, B. Chandra, N.D. Kandpal, G. Lohiya, R. Kulbe, B.Singh, and **R. Kumar**, "Green Synthesis, Characterization, In-Vitro Cytotoxic Activity and In-Vivo Anticancer Activity of Nickel Oxide Nanoparticles", **Pharma. Chem. J. (Springer)** (Dec 2024-Accepted). **(I.F.= 1.0)**
10. R. Khulbe, **R. Kumar**, V. Kumar, A. Kandpal, R. Joshi, B. Chandra and N.D. Kandpal, "Synthesis and characterization of copper oxide nanoparticles using polyol and their antimicrobial potential". **Mat. Int.** 6 (2024) 1-9.
11. R. Karmakar, N. Kumar, V. Tripathi, P. K. Sharma, **R. Kumar**, D. Gahlot, S. Naithani, B. P. Choudhury, R. Sharma, N. Kumar, A. Kumar, S. Gorai, P. Gangwar, R. Singhal A. Chauhan and P. Naithani, "Circularity of biomass feedstock to produce ethanol and feasibility of ethanol-gasoline fuel blends in engine". **J. Solid Waste Technol. Manag.** 50 (2024) 630-639. **(I.F.= 0.17)**

12. Sapna and **R. Kumar\***, “Chemical characterization and antifungal activity of essential oil from *Roscoea purpurea* leaves”, **Chem. Nat. Compd. (Springer)** 59 (2023) 1196-1198. **(I.F.= 0.9)**

13. Karmakar, N. Kumar, A. Rajor, K. Kundu, **R. Kumar**, D. Gahlot, B. P. Choudhury, S.S. Ragit, A. Kumar, S. Gorai, P. Gangwar, R. Singhal, S. Bhattacharya, R. Sharma, Savita, N. Singh and N. Kumar, “Evaluation of Performance of a CI Engine fueled with biodiesel produced from unused algae”. **J. Solid Waste Technol. Manag.** 49 (2023) 359-364. **(I.F.= 0.17)**

14. S. R. Ali, A. Kalam, A. G. Al-Sehemi, Z. Khan, S. Ansari, N. Haider and **R. Kumar\***, “Comparative adsorption of  $Pb^{2+}$  on nanostructured iron-zirconium oxide with Fe to Zr molar ratio of 1:1 and 1:2: Thermodynamic and Kinetic Studies”, **Arabian J. Sci. Eng. (Springer)** 46 (2021) 287-300. **(I.F.= 2.9)**

15. M. C. Arya, P. S. Bafila, D. Mishra, K. Negi, **R. Kumar** and A. Bughani “Adsorptive removal of Remazol Brilliant Blue R dye from its aqueous solution by activated charcoal of *Thuja orientalis* leaves: an eco-friendly approach”, **SN Appl. Sci. (Springer Nature)** 2 (2020) 1–10. **(I.F.= 2.60)**

16. S. R. Ali, A. Kalam, A. G. Al-Sehemi, Z. Khan, S. Ansari, N. Haider and **R. Kumar\***, “Zirconium-ferrite nanoparticles as improved adsorbent for  $Co^{2+}$ ,  $Cu^{2+}$  and  $Zn^{2+}$ : Thermodynamic and kinetic studies”, **Russ. J. Phys. Chem. A. (Springer)** 94 (2020) 2797- 2809. **(I.F.= 0.70)**

17. S. R. Ali, M. C. Arya, A. Kalam, A. G. Al-Sehemi, Z. Khan, S. Ansari and **R. Kumar\***, “Adsorption potential of zirconium-ferrite nanoparticles for phenol, 2-chlorophenol and 2-nitrophenol: thermodynamic and kinetic studies”, **Desaline. Wat. Treat. (Elsevier)** 179 (2020) 183-196. **(I.F.= 1.6)**

18. S. R. Ali, **R. Kumar**, A. Kalam, A. G. Al-Sehemi and M. C. Arya, “Effect of strontium doping on the band gap of  $CeO_2$  nanoparticles synthesized using facile co-precipitation”, **Arabian J. Sci. Eng. (Springer)** 44 (2019) 6295-6302. **(I.F. = 2.9)**

19. S. R. Ali, **R. Kumar**, S. K. Kadabinakatti and M. C. Arya, “Enhanced UV and visible light-driven photocatalytic degradation of tartrazine by nickel-doped cerium oxide nanoparticles”, **Mater. Res. Express.** 6 (2019) 22513-22526. **(I.F. = 2.3)**

20. S. R. Ali, **R. Kumar** and M. C. Arya, “Enhanced photocatalytic activity of manganese-doped cerium oxide nanoparticles under visible and UV irradiations” **Asian J. Chem.** 30 (2018) 2544-2550. **(I.F.= 0.54)**

21. G. Bhoj, T. K. Mandal, **R. Kumar** and M. C. Arya, “Current Status on the preparation method and applications of iron oxide nanomaterials: A review” **IJAAC**. 4 (2018) 1-12. **(I.F. = 1.7)**

22. P. Chandra, **R. Kumar**, M. C. Arya, V. K. Bhardwaj, P. Joshi, and S. R. Ali, “Nanocubic cadmium hexacyanoferrate catalyzed selective oxidation of benzyl alcohol: an eco-friendly protocol”, **J. Chem. Eng. Chem. Res.** 3 (2016) 985-988.

23. M. C. Arya, R. C. Joshi, **R. Kumar** and S. R. Ali, “ Removal of methylene blue from its aqueous solution using bark of *Pinus roxburghii* as an adsorbent”, **J. Chem. Eng. Chem. Res.** 3 (2016) 975-979.

24. S. R. Ali, P. Chandra, M. C. Arya, S. Khanum, P. Joshi and **R. Kumar**, "Nanostructured manganese hexacyanidocobaltate(III) as heterogenous catalyst for solvent-free oxidation of benzyl alcohol", **Adv. Catal. Sci. Techno.** 3 (2016) 20-26.

25. S. R. Ali, P. Chandra, M. C. Arya, P. Joshi, **R. Kumar** and S. Khanum, "Equilibrium Constant of Mixed Ligands Complexes of Cu(II), Ni(II), Zn(II) and Co(II) with Benzalidine-Glycine Schiff base and Pyridine- 2,6-dicarboxylic acid", **Ally J. Pharma. Sci.** 2 (2015) 580-588.

26. S. K. Kadabinakatti, **R. Kumar** and P. Joshi and M. C. Arya, "Adsorption Capacity of Charcoals of Hardwood and Softwood: A Comparative Study", **J. Inn. Res. Studies** 14 (2015) 80-90.

27. S. K. Kadabinakatti, S. Patil, G.V., Kulkarni, R. Kumar and M.C. Arya, "Potential of *Trachyspermum ammi* (Linn.) seed extract against larva and pupa of Aedes species: A study", **Nature and Science** 13 (2015) 127- 130.

28. M. C. Arya, S.K. Kadabinakatti and **R. Kumar**, "Study of Efficacy of *Clerodendron inerme* Gaertn. Leaf extract against *Pieris brassicae* (Linnaeus)", **Nature and Science**, 12 (2014) 22-24.

#### **BOOK CHAPTERS:**

29. R. Karmakar, S. Kumar, V. Tripathi, P. K. Sharma, **R. Kumar**, and R. Sharma, "Endophytic fungi and age-related diseases: Potential for geriatric therapeutics". In *Navigating Endophytic Research for Next-Generation Therapeutics*, **(Elsevier)** (ISBN No. 978-0-443-31484-1), 2025, 295-313. Academic Press.

30. R. Pathak, S. Bhatt and **R. Kumar**, "Silicene-A Novel 2D Material with Potential for Nanoelectronics and Photonics". 2D Materials: Chemistry and Applications (Part 2), **Bentham Science Publishers** (ISBN No. 978-981-5305-26-5), 2024, 187-210.

31. R. Pathak, M. Punetha, **R. Kumar** and A. Tamta, "Stanene, mxene and transition metal chalcogenides". 2D Materials: Chemistry and Applications (Part 2)," **Bentham Science Publishers** (ISBN No. 978-981-5305-26- 5), 2024, 211-243.

32. D. Mahar, N. Semwal, L. Mohan, **R. Kumar**, S.D. Maindoli, K. Kumar, M. Chatti and M.C. Arya, "Nanomaterials Across the Periodic Table as the Promising Agents for the Remediation of Dye-Contaminated Water: A Review". In: Singh, P. (eds) Dye Pollution from Textile Industry. SDGs and Textiles, **Springer Nature**, Singapore. (ISBN No. 978-981-97-5340-6) 2024, 101-131.

33. N. Semwal, A. Dandapat, D. Mahar, R.C. Bhatt, M. Chatti, **R. Kumar** and M. C. Arya, "Application of nanoparticles as nanomedicine and targeted drug delivery for cancer therapy and the treatment of other disease", Sustainable Utilization and conservation of biological wealth, Indu Book Services Pvt. Ltd., (Publishers & Distributors) New Delhi (ISBN No. 978-93-91377-88-5) 2024, 189-209.

34. R. Karmakar, A. Rajor, K. Kundu, N. Singh, **R. Kumar**, P. Gangwar, S.V. Vimal, B.P. Chaudhary, S. Gorai, P. Kumar, P. Naithani, S. Naithani, R. Sharma, N. Kumar, S. Bhattacharya and A.V.V. Singh, "Effects of Algal Biodiesel-Petro-diesel Blends in Emission from IC Engine". Climate Crisis and Sustainable Solutions: Strategies

for Adaptation, Mitigation and Sustainable Development, **Springer Nature** Singapore. (ISBN No. 978-981-97-7109-7) 2024, 55-64.

35. R. Karmakar, V. Tripathi, P. Kumar, N. Singh and **R. Kumar**, “The Interplay of Fossil Fuels and Natural disasters”. Climate Crisis and Sustainable Solutions: Strategies for Adaptation, Mitigation and Sustainable Development, **Springer Nature** Singapore. (ISBN No. 978-981-97-7109-7) 2024, 91-106.
36. **R. Kumar\***, S. R. Ali, P. Chandra and N. Haider, “Eco-friendly approach for adsorption of 4-chlorophenol using iron-zirconium mixed oxide nanoparticles”, CCIBHR-2022, Kunal Books, New Delhi-110002 (ISBN No. 978-93-95651-65-3) 2023, 27-39.
37. A. Tamta, **R. Kumar**, B. Chandra, J. Prasad, R. Joshi and N.D. Kandpal, “Green Chemistry Approach: Synthesis of NiO nanoparticles using cow milk in aqueous glycol medium”, CCIBHR-2022, Kunal Books, New Delhi-110002 (ISBN No. 978-93-95651-65-3) 2023, 71-82.
38. S. R. Ali, **R. Kumar**, M. C. Arya and P. Joshi, “Synthesis and characterization of zirconium doped iron oxide nanoparticles”, Ecological ignorance in development raising disastrous possibilities, Anamika Publishers & Distributors (P) Ltd., (ISBN No. 978-81-7975-849-6) 2017, 151-158.

## ANNEXURE-II

### **PAPER PRESENTED IN INTERNATIONAL CONFERENCES /SEMINARS/WEBINARS:**

1. **R. Kumar** and S. R. Ali, “Zirconium mixed iron oxide nanoadsorbent for efficient removal of Eosin yellow dye: A Water-Smart Nanotechnology Approach”, International Conference on Climate-smart & Regenerative Farming Approaches: Pathways to Environmental Conservation, organized by APSR & Plantica Foundation, in collaboration with UKPCB, Dehradun, Uttarakhand (India) (Oct. 30-31, 2025).  
**(Best Paper Presentation Award)**
2. **R. Kumar** and S. R. Ali, “Environmentally sustainable zirconium-ferrite nanoparticles for removal of methylene blue dye”, 1<sup>st</sup> International Conference on Current Environmental Technologies for Sustainable Development (ICCETSD2024), organized by Graphic Era (Deemed to be University) Dehradun (Dec., 09-10, 2024)  
**(Best Oral Presentation Award)**
3. **R. Kumar** and S. R. Ali, “Zirconium-ferrite nanoadsorbent for removal of Rhodamine-B: Connecting Environmental Science and Social Well-Being”, Transdisciplinary International Conference on Advanced in Science, technology and Humanities: Intersecting for a Bright and Prosperous Society, organized by IISSS & Dhanwate National College, Nagpur (MS), India (Nov., 30, 2024)  
**(Best Oral Presentation Award)**
4. **R. Kumar**, S. R. Ali and Sapna, “Environment-friendly approach for the adsorption of Remazol Brilliant Blue R dye from its aqueous solution using zirconium-ferrite nanoparticles”, International e-Conference on “SPECTRUM OF PHYSICS: Particles to Universe”, organized by Department of Physics, Lajpat Rai College Ghaziabad, India in association with Indian Youth Nuclear Society (IYNS) (May, 20-22, 2024).

5. **R. Kumar**, S. R. Ali and T. Kumar, “Enhanced adsorptive- removal of  $Mn^{2+}$  using zirconium doped iron- oxide nanocomposite: *A Green Chemistry Approach*”, 1<sup>st</sup> International Conference on Emerging Trends in STEM & Health-Agri Science for Sustainable Development, organized by MIET Kumaon, Sikhsha Nagar, Lamachaur, Haldwani (March, 11-12, 2024) **(Best Paper Presentation Award)**

6. **R. Kumar** and S. R. Ali, “Nanochemistry Revealing the mysteries of folk medicines: A Molecular Approach” International Seminar on Himalayan Folk Culture, jointly organized by Dept. of History, Culture & Archaeology SSJ University Campus, Almora and Archaeological Survey of India Dehradun Circle (Feb. 17- 18, 2024)

7. **R. Kumar**, S. R. Ali, Z. Khan, S. Ansari and N. Haider, “Comparative Adsorption of  $Co^{2+}$  using zirconium-ferrite nanoparticles (with different Fe:Zr molar ratio): A Novel Approach” GAAFES-2019, organized by Kumaun University, Nainital (Dec. 01-02, 2019)

8. **R. Kumar**, S. R. Ali, Z. Khan, S. Ansari and N. Haider, “Adsorptive-removal of  $Zn^{2+}$  using iron-zirconium mixed oxides nanoparticles: A green approach” I.I.S.F.-2019, organized by B.B.C.C. Kolkata, India (Nov. 05-08, 2019).

9. **R. Kumar**, S. R. Ali, M. C. Arya, Z. Khan and S. Ansari, “Iron-zirconium mixed oxide nanoparticles for the adsorptive-removal of m-chlorophenol from aqueous solution” 2<sup>nd</sup> International Conference, ICEFN & SEM-2019 organized by NSNT Center, Dept. of Chemistry, DSB Campus Nainital (May 24-26, 2019) **(Young Scientist Award)**

10. **R. Kumar**, S. R. Ali and M. C. Arya, “Zirconium doped iron-oxide nanoparticles for the adsorption of bisphenol A (BPA) from aqueous solution” IISF-2018, organized by IGP., Lucknow, India (Oct. 05-08, 2018)

11. **R. Kumar**, S. R. Ali and M. C. Arya, “Adsorption potential of zirconium ferrite nanocomposite for the removal of Ni(II) from industrial waste water” International Conference on Innovative strategies for sustainable water management” organized by L.P.U., Phagwara, Punjab India (Nov. 17-18, 2017). **(Best Abstract Award)**

12. **R. Kumar**, S. R. Ali and M. C. Arya, “Zirconium-ferrite nanomaterial: A green adsorbent for the removal of 2-nitrophenol from aqueous solution”. 19<sup>th</sup> International conference CONIAPS-XIX organized by Department of mathematics and Department of computer science in D.S.B. Campus, K.U., Nainital (Oct. 17-19, 2016).

13. **R. Kumar**, S. R. Ali, M. C. Arya, P. Chandra and P. Joshi, “Synthesis and characterization of zirconium doped iron-oxide nanomaterial for the adsorptive-removal of 2-chlorophenol: A green avenue” ICEFN: organized by Department of Chemistry in D.S.B. Campus, Kumaun University, Nainital (March 27-29, 2016).

#### **PAPER PRESENTED IN NATIONAL CONFERENCES / SEMINARS/ WORKSHOPS/WEBINARS:**

14. **R. Kumar** and S. R. Ali, “Polymer precursor-derived zinc oxide nanoparticles: A novel approach to environmental dye degradation”, National Conference on Disaster Management and Disaster Risk Reduction in Himalayan Region: A Shift From Awareness to Consciousness, organized by Govt. Degree College Kanda and sponsored by Red Cross, State Branch, Uttarakhand (Oct. 21, 2024).

15. **R. Kumar** and S. R. Ali, "Green Chemistry approach for removal of 2,4-dichlorophenol using zirconium- ferrite nanoadsorbent", National conference on Himalayan Ecosystem: Threats, Resilience and Sustainable Management, jointly organized by Govt. PG College Nagnath-Pokhari Chamoli, Uttarakhand & USERC, Dehradun (Feb. 26-27, 2024).

16. **R. Kumar** and S. R. Ali, "Zirconium-ferrite nanoparticles for adsorptive-removal of  $Mg^{2+}$  from aqueous solution: A green technology", National conference & workshop on Food Technology & Nutrition: Enhancing Flavours, Health & Well Being Through Culinary Practices, organized by Community College, Kumaun University Campus, Bhimtal (Nainital) in association with UCOST, Govt. of Uttarakhand (Feb. 25, 2024).

17. **R. Kumar** and S. R. Ali, "Zirconium-ferrite as potential nano-adsorbent for adsorptive-removal of tartrazine dye from aqueous solution", National seminar on Climate Change and Sustainability of natural resources in Himalayan region", organized by Dept. of Botany, SSJ, University, Almora (Uttarakhand). (Feb. 18-19, 2024).

18. **R. Kumar**, presented paper in Two days hands-on Training workshop on "Upcycling of solid waste into Carbon nanomaterials and their characterization for various applications", organized by PRS-NSNT Centre, Chemistry Department, D.S.B. Campus, Kumaun University, Nainital (Oct. 06-07, 2023).

19. **R. Kumar**, S. R. Ali, N. Haider and S. Ansari, "Zirconium-ferrite nanoparticles as eco-friendly adsorbent for Fe (III)", National symposium on Recent Advances in Environmental Science, organized by Roorkee Degree College, Roorkee (India) (Feb. 28, 2023)

20. **R. Kumar**, S. R. Ali and N. Haider, "Eco-friendly approach for adsorption of 4-chlorophenol using iron-zirconium mixed oxide nanoparticles", CCIBHR-2022, organized by Dept. of Chemistry, SSMMUSS Govt. P.G. College Dwarahat, Almora, Uttarakhand (India) (June, 05-06, 2022). (Young Scientist Award)

21. **R. Kumar**, S. R. Ali, N. Haider, R. Karmakar and A. Khanna, "Adsorption of 2-chlorophenol using zirconium-ferrite nanoparticles with Fe to Zr molar ratio 1:2" organized by RDC, Sharda University, Greater Noida, UP, India (Oct. 21-22, 2021).

22. S. R. Ali, A. Kalam, A. G. Al-Sehemi, Z. Khan, S. Ansari, N. Haider and **R. Kumar**, "Nanostructured iron-zirconium oxide for the adsorption of phenol and chlorophenols: thermodynamic, kinetic and isotherm studies", NCMTSEFT-19, organized by Department of Chemistry, RIT, Roorkee (Sept. 06-07, 2019).

23. **R. Kumar**, S. R. Ali and M. C. Arya, "Synthesis and use of zirconium ferrite nanoparticles as adsorbent for m-nitrophenol", 3<sup>rd</sup> National conference on Recent advances in science and technology organized by Department of SIT, Pithoragarh (Nov. 11-12, 2017).

24. **R. Kumar**, S. R. Ali and M. C. Arya, "Mixed metal oxide nanoparticles as green adsorbent for the removal of Cu(II) form aqueous solution", National conference on Science & technology for national development organized by ISCA: Haridwar chapter and Department of mathematics and Department of computer science in D.S.B. Campus, Kumaun University, Nainital (Oct. 14-15, 2017).

25. **R. Kumar**, S. R. Ali and M. C. Arya, “Adsorptive-removal of 4-nitrophenol using zirconium ferrite nanoadsorbent: A green approach”, organized by Dept. of Botany Govt. P.G. C. Dwarahat, Almora (May.6-7, 2017).

26. **R. Kumar**, S. R. Ali and M. C. Arya, “Zirconium doped iron oxide nanocomposite for the adsorption of Cd(II): An eco-friendly protocol”, organized by Department of Botany D.S.B. Campus Nainital (March. 27- 28, 2017).

27. **R. Kumar**, S. R. Ali and M. C. Arya, “Nanostructured zirconium ferrite for the removal of Pb(II) ions from aqueous solution”, National conference on Science & technology for national development organized by ISCA: Haridwar chapter and Department of Chemistry, G.K.V. Haridwar (Nov. 20-22, 2016).

28. **R. Kumar**, “Aspects of e-learning at secondary and senior secondary level” organized by HIMWATS and sponsored by USERC, at Champawat, Uttarakhand (May. 7-9, 2016). **(Invited Lecture)**

29. **R. Kumar**, “Nanosized TiO<sub>2</sub> as a photocatalyst for the degradation of organic dyes”, IYL-2015 organized by HIMWATS and supported at Champawat, Uttarakhand (May. 7-9, 2015). **(Invited Lecture)**

#### **PAPER PRESENTED IN STATE LEVEL CONFERENCES:**

30. **R. Kumar**, S. R. Ali and M. C. Arya, “Adsorption of Cr(VI) and As(III) on zirconium ferrite nanoparticles from aqueous solution”, 12<sup>th</sup> USSTC-Dehradoon (March 7-9, 2018).

31. **R. Kumar**, S. R. Ali and M. C. Arya, “Nanostructured zirconium ferrite as efficient adsorbent for mercury”, 11<sup>th</sup> USSTC-Dehradoon (March 2-4, 2017).

32. **R. Kumar**, S. R. Ali, M. C. Arya, P. Chandra and P. Joshi, “Nanostructured iron-zirconium mixed oxide as novel adsorbent for the adsorption of phenol in wastewater”, 10<sup>th</sup> USSTC-Dehradoon (Feb. 10-12, 2016).

#### **ANNEXURE-III**

#### **PARTICIPATION IN CONFERENCES/ SEMINARS/ WORKSHOPS/WEBINARS:**

1. Participate in National e-workshop on “Academic, Scientific, Research and Technical Writing” organized by School of engineering and technology, Samayapuram, Tiruchirappalli, Tamil Nadu, India (Nov. 15, 2025).
2. Participate in one day National webinar on “Agricultural waste management and by-product utilization” organized by College of agriculture campus (ANDU & T, Kumarganj, Ayodhya), Kotwa, Azamgarh, U.P., India (Sept. 27, 2025).
3. Participate in a Pre-conference (webinar) on “Materials Engineering for Chemical sensing and Organic Pollutant Degradation” organized by Centre for Research Impact and outcome, Chitkara University, Punjab, India (March 28-29, 2025).
4. Participate in a lecture on “Ethnobotany vis-s-vis Nature based solutions, a sustainable approach for environmental conservation: a paradigm shift” organized by KU-IIC, Kumaun University Nainital (Nov. 23, 2024).

5. Participate in workshop on “Beyond Boundaries: An International workshop on Global Policy for Pollutants in environment including forever Chemicals” organized by University of Central Lancashire, Preston, UK. (Jul. 3, 2024).
6. Participate in two-day virtual commemoration on “Global Issues for Universal Health”, on the occasion of “World Health Day” organized by Applied Sciences and Humanities Department of IMS Engineering College, Ghaziabad, Uttar Pradesh, India (April 07-08, 2024).
7. Participate in “National e-Symposium on Women Scientists in Science and technology with Special Reference to nanotechnology”, organized by School of Life Sciences, Nano & Biomaterials Association (NBA), B.S. Abdur Rehman Crescent Institute of Science & Technology, Chennai, Tamil Nadu, India in association with the Biotech Research Society, India (BRSI) (March 08, 2024).
8. Participate in International webinar on “Production of Biomaterials using Supercritical Carbon dioxide for Tissue Engineering and Regenerative Medicine”, organized by School of Life Sciences (SLS), B.S. Abdur Rehman Crescent Institute of Science & Technology, Chennai, India (March 02, 2024).
9. Participate in “National Seminar on Sustainable Future”, on the occasion of National Science Day 2024 (NSD-2024) organized by Roorkee Degree College Roorkee (Feb. 28, 2024).
10. Participate in “National Symposium on Avian Biology”, in conjugation with “5<sup>th</sup> Meeting of Association of Avian Biologists in India”, organized by Department of Environmental Science, Graphic Era (Deemed to be University), Dehradun (Feb. 23-25, 2024).
11. Participate in Regional training workshop on "Advanced Multivariate Statistical Analysis in Water Quality Assessment & Management of Kumaun Region of Uttarakhand", organized by UoU Haldwani and financially supported by UCOST Dehradun (Jan. 23-24, 2024).
12. Participate in four days online workshop on "Intellectual Property Right (IPR Laws)", organized by Govt. P.G. College Berinag (Pithoragarh) and Sponsored by UCOST Dehradun (Dec. 26-29, 2023).
13. Participate in national webinar on “Himalayan Environment: Issues and Challenges”, organized by Dr. Y.P.S. Pangety Research Foundation (Aug. 28, 2023)
14. Participate in one day national seminar on “Climate Change, Prevention, Adaptation and Sustainable Development in the Himalayan Region”, jointly organized by Dept. of Botany and Chemistry, S.S.J. University, Almora (Uttarakhand). (April 11, 2023).
15. Participate in national workshop on “Role of Medicinal Plants Used in Vedic Practice (Agnihotra) and its impact on Microorganisms”, organized by Dept. of Botany and Govt. P.G. College of UHE. This programme has supported by S.S.J. University, Campus Almora. (Dec. 29, 2022)
16. Participate in one day workshop on “Artificial Intelligence for real world”, organized by Dept. of Computer Science and Department of Information Technology, S.S.J. University, Campus Almora. (April 28, 2022)

17. Participate in workshop on “Entrepreneurship Development Activities”, organized by Faculty of Science, S.S.J. University Campus Almora and sponsored by UCOST, Dehradun. (March 30, 2022).

18. Participate in workshop on “Scientific Paper Writing”, organized by Faculty of Science, S.S.J. University, Campus Almora and sponsored by UCOST, Dehradun. (March 25, 2022)

19. Participate in workshop on “Hands-on Training for Online Classes”, organized by Department of Computer Science, S.S.J. University, Campus Almora. (Feb. 25-26, 2022)

20. Participate in regional workshop on “Career opportunities in Government sector: Challenges & Solutions”, organized by Roorkee Degree College, Roorkee and ISCA: Haridwar Chapter (Oct. 17, 2021)

21. Participate in five day faculty development program on “Effective Business & Research Decision”, organized by Applied Science & Humanities, Roorkee Institute of Technology (RIT), Roorkee. (Jul. 26-30, 2021) **(FDP)**

22. Attended a webinar on “Sustainable treatment options for liquid waste management”, organized by Dept. of Civil Eng. PCCoE, Nigdi, Pune (Aug. 29, 2020)

23. Participate in national virtual conference on “Recent advances in analytical techniques-2020”, organized by Dept. of Chemistry & ADDP Shri Varshney College Aligarh, Dr. B. R. Ambedkar University Agra etc. (Aug. 16-17, 2020)

24. Participate in International webinar on “Nanobio-Technology Enabled Biomedical sensor devices for point- of-care disease diagnosis & the effectiveness of protected areas in biodiversity conservation in Tunisia”, organized by RCP-West Bengal (Jul. 31, 2020).

25. Participate in national webinar on “Education during Covid-19: Go onto (re) shape the attitude of students towards Academics & Career Pursuit”, organized by Dept. of Education S.N. Sen B.V P.G College, Kanpur, U.P. (Jul. 25, 2020).

26. Participate in national chemistry webinar on “Role of Nuclear Magnetic Resonance Spectroscopy in Structure Determination and Beyond”, organized by IPGGPG-College of commerce Haldwani (Jul. 24, 2020).

27. Participate in International Virtual conference on “Modern Instrumental and characterization techniques in applied sciences-2020 (MICTAS-2020)”, organized by MIET Kumaon Haldwani & Dept. of Chemistry, HNB, Govt. P.G. College Khatima (Jul. 5-6, 2020).

28. Participate in Online skill development course on ‘Primary processing of economically important medicinal and aromatic plants”, organized by Dept. of Chemistry under SAMPARK a social outreach initiative by K.U. Nainital (June 24-25, 2020)

29. Participation in International webinar on “COVID-19 and the Environment”, organized by the Department of Zoology, CMP Degree College, Prayagraj (June 5, 2020).

30. Participate in “Two-day workshop on non-traditional optimization techniques”, organized by USERC in association with Kumaun University Nainital (Oct. 15-16, 2018).

31. Participate in workshop on “Virtual Labs: An MHRD Govt. of India Initiative”, organized by Birla Institute of Applied Sciences, Bhimtal (Apr.16, 2018).

32. Participate in “Interaction programme for Ph.D. Scholars”, organized by UGC-Human resource development center Kumaun University Nainital (Jul. 13-15, 2017).

33. International training workshop on “Climate Data Analysis and Projection”, organized by Department of Geography, Kumaun University Nainital in collaboration with Newcastle University, Newcastle, United kingdom (Aug. 26-27 2016).

34. Participate in; Awareness workshop on “The facilities of UGC-DAE Consortium for Scientific Research”, organized by Department of Physics (UGC-Centre of advanced study) D.S.B. Campus, K. U. Nainital (Apr. 05-07, 2016).

35. Workshop Attended on “National e-Governance Plan”, (Department of information technology, Ministry of communications and Information Technol. Govt. India (Apr. 16, 2013).

36. Participate in “National conference on Emerging trends in Chemistry-Biology interface”, organized by Department of Chemistry, D.S.B. Campus, Kumaun University Nainital (Nov. 03-05, 2011).

#### **ANNEXURE-IV**

1. Assistant Professor (Chemistry) in Govt. Degree College, Chaubattakhal-246162, Pauri Garhwal, Uttarakhand, India (16- 05-2025 to till date).
2. Assistant Professor (Chemistry) in Directorate of Higher Education, Haldwani (Nainital), Uttarakhand (29-04-2025 to 15-05-2025).
3. Assistant Professor (Chemistry) in H.N.B. Govt. P.G. College, Khatima-262308, U.S. Nagar, Uttarakhand, India (21-02-2025 to 29-04-2025)
4. Assistant Professor (Chemistry) in Directorate of Higher Education, Haldwani (Nainital), Uttarakhand (13-02-2025 to 20-02-2025).
5. Assistant Professor (Guest faculty-Chemistry) in SSJ University, Campus Almora (03-01-2022 to 10-02-2025).
6. Assistant Professor in Chemistry, R.I.T, Roorkee (01-10-2021 to 01-01-2022).
7. Guest faculty (Chemistry), Amrapali Institutes of Technology & Sciences Haldwani (10-05-2021 to 30-09-2021).
8. Laboratory Classes of U.G.-Students (Chemistry), in Kumaun University, Nainital (During academic year: 2018-2019 and 2019-2020)
9. Senior Research Fellow (SRF), Department of Chemistry, D.S.B. Campus, Kumaun University, Nainital (01-04-2018 to 31-03-2021)
10. Junior Research Fellow (JRF), Department of Chemistry, D.S.B. Campus, Kumaun University, Nainital (01-04-2016 to 31-03-2018)

## ANNEXURE-V

### 1. Instrument Handling with specification:

Double beam UV-Visible spectrophotometer (Systronics 2202), Photocatalytic reactor (Lelesil, mercury vapour lamp, 200-600 nm), Atomic absorption spectrometer (Varian AA240FS fast sequential-AAS), FTIR Spectrophotometer (Perkin Elmer-1600 series), Thermo-gravimetric Analyzer (TGA 4000, Perkin Elmer), Vacuum pump (TODAY'S, Rocker 300), Tube-Furnace, pH meter (CP-90 P, Toshniwal Instruments, India), Centrifuge (Sigma, 2K15) etc.

### 2. Software Handling with specification:

Work on Windows 2007 & 2010s Microsoft Office (07 & 10), Origin (6.1 & 8.5), Chem Draw, Word, Excel, Power- Point etc.

### 3. Summary of M.Sc. Dissertation & Ph.D. Thesis:

- I have done my M.Sc. Dissertation on “Field Work, Literature Survey & Investigation of the Essential Oil from *Mentha arvensis* species”, (2013) from Department of Chemistry D.S.B. Campus, Kumaun University, Nainital.
- I have done my Ph.D. Thesis on “Synthesis and characterization of nanostructured iron-zirconium mixed oxides and their adsorption potential for heavy metal ions and phenols”, (2021) from Department of Chemistry D.S.B. Campus, Kumaun University, Nainital.

### 4. Courses Taught:

- **B.Sc. (Sri Dev Suman University, 2025 onwards)**
  - 1. DSC 1 : Fundamentals of Chemistry-I  
: Chemical Analysis-I
  - 2. Paper-I : General Chemistry-II  
: Analytical Procedures-I
- **M.Sc. (SSJ University, Campus Almora)**
  - 1. Paper-II : CHPG-202: Elimination and Name Reaction
  - 2. Paper-IV: CHPG-304: Nanochemistry
- **B.Sc. (SSJ University, Campus Almora)**
  - 1. Paper: Fundamentals of Chemistry-II
  - 2. Paper: General Chemistry-II
- **B. Tech. (Roorkee Institute of Technology)**
  - 1. Paper: BAST-101: Chemistry
- **Diploma (Amrapali Institutes of Technology & Sciences Haldwani)**
  - 1. Paper Code 992004: Applied Chemistry-II
- **B.Sc. (Kumaun University, DSB Campus Nainital)**
  - 1. Paper: Chemistry Practical

### 5. Other activities:

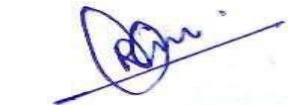
- National Service Scheme (N.S.S.): Qualified “B” & “C”-certificate exams.
- One year diploma course in Computer Fundamentals (2012 with A-grade): Windows, MS-Office, Internet and its uses etc.

## DECLARATION

I hereby declare that the particulars furnished by me are correct to the best of my knowledge.

Date: 06-01-2026

Place: Chaubattakhal (Pauri Garhwal)



**(RAJESH KUMAR)**