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Faculty Profile

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Professor

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Job Profile:

Administrative Responsibilities:

1. Member, Board of Management, University of Kota, Kota
2. Dean, Post Graduate Studies, University of Kota, Kota
3. Convener, University-NIRF Assessment Committee
4. Member, NAAC Coordination Committee
5. Member, IQAC, University of Kota, Kota
6. Convener, Library Coordination Committee
7. Convener, University- Industry Interaction Cell
8. Convener, UGC -Cell
9. Convener, Women Cell
10. Member, Board of Inspection
11. Member, Academic Council
12. Convener, COC (Course in Industrial Chemistry)
13. Convener, Board of Studies
14. Coordinator FIST (Rs. 95Lakhs) at Deptt. of Pure &App. Chemistry as Chairperson Project Implementation Group (PIG)

Responsibilities at Other Universities:

1. Member Research Board , Dr. A.P.J. Abdul Kalam Technical University, Uttar Pradesh, Lucknow
2. Member, Faculty Selection Board ,Central University, Rajasthan, Jaipur
3. Member Research Committees in many universities in Rajasthan, Madhya Pradesh and Uttar Pradesh.
4. Member (External), IQAC of different Govt. Institutions in Rajasthan

Previous post held:

1. Dean, Faculty of Science
2. Head, Department of Pure & Applied Chemistry
3. Link Officer- Comptroller & Finance
4. Convener, Grievances Committee
5. Convener, Unfair Means Committee
6. Dean, Student Welfare

Educational Qualifications:

1. Ph.D. (1991) on “Studies on acid rain chemistry, dynamics of atmospheric sulfur dioxide transformation” from University of Rajasthan, Jaipur (Raj.)
2. P.G. Diploma in Env. Studies (1988) from University of Rajasthan, Jaipur (Raj.)
3. M.Sc. (1987) in Chemistry. Meerut University, Meerut (U.P.), India.

Professional Background:

1. Sept. 2008 to March 2015: Head department of Pure & Applied Chemistry, University of Kota, Kota
2. 2008-1996: Worked as Lecturer to Associate Professor grade in Department of Chemistry, Government College, Kota (selected by RPSC).
3. 1996-1991: Postdoctoral work as Research Associate, (Council of Scientific and Industrial Research, New Delhi)
4. 1991-1990: Senior Research Fellow (Council of Scientific and Industrial Research, New Delhi)
5. 1990-1987: Research Associate in Indo-U.S. Sub-commission Research Project at University of Rajasthan, Jaipur.

Awards and Recognitions:

1. 60th Commemoration Anjanayulu Award by Indian Chemical Society 2016
2. Scientist-In-Charge, Physical Chemistry section 2017, Indian Chemical Society.
3. State level award by Rajiv Gandhi Sadbhawana and Gramothan Sansthan Jaipur (Raj.), 2015
4. Convention award, Indian Chemical Society, 1990.
5. Affiliate membership of IUPAC.
6. Life member Indian Chemical Society.
7. Life member Indian Council of Chemists,
8. Worked as Guest research Scientist at Centre for Climate Science and Policy Research, Lincköping University, Sweden.
9. Worked as *Guest Research Scientist at National Institute of Standards and Technology, Gaithersburg, USA* during June-July, 1990.
10. CEC and Humbolt proposal accepted by Prof. Rudi Van Eldik, Germany.
11. Post-doctoral acceptance from Peter Warneek, Max-Planck Institute, Mainz, Germany and Henning Rodhe, Stockholm University, Sweden.
12. Selected in team of Indian Environmentalist to visit Kazan State University, Russia, to participate in workshop.
13. Represented the University of Kota in Scientist and Administrative Interface Program (2009) at Lal Bahadur Shastri National Academy of Administration (LBSNAA), Musoorie.
14. Nominated member of American Chemical Society

Research projects completed/ongoing/ submitted:

S. No.	Title of project	Funding agency	Duration	Budget (Lakhs)	
1.	Studies on physico-chemical characteristics of the water sources Evaluation of toxic metals in Potable water in rural and urban areas of Kota	UGC (Completed)	2000-2002	INR 0.5	Principal Investigator
2.	Studies on heavy metal contamination of soil and possibility of their leaching into sub-surface water	UGC (Completed)	2004-2006	INR 1.0	Principal Investigator

3.	Synthesis, Characterization, Structure of Some Novel Nano-crystalline Mesoporous Catalytic Material and Their Catalytic Performances	UGC (Completed)	2007-2009	INR 5.98	Principal Investigator
4.	Coordinating FIST project	DST (Completed)	2006-2012	INR 57	Cordinator
5.	Synthesis, characterization and application of several catalytic materials based on coal generated fly ash.	DST (Completed)	2009-2012	INR 63	Principal Investigator
6.	Some mathematical models for pollutant uptakes plants.	Min.of Env. & Forests (Completed)	2009-2012	INR 7.5	Co-Investigator
7.	Designing climate-smart water adaptation strategies for sustainable urban development: A study in Cochabamba, Bolivia and Kota, India.	SIDA Govt. of Sweden (Ongoing)	2010-2013	SEK 27	Co-Investigator
8.	Centre for Applied Research and Development	DST (Submitted)	2011 Submitted	INR 140	Co-ordinator
9.	Development of application specific low cost adsorptive materials from fly ash from removal of toxic chemicals form industrial effluents and for waste water treatment	DST (Ongoing)	2013-2016	INR 39	Principal Investigator
10	Coordinator FIST at Deptt. of Pure &App. Chemistry	DST-FIST	2015	INR 95	Chairperson Project Implementation Group (PIG)

Research Guided:

1. Total Research Experience : 25 years

2. M.Phil.

- Awarded : 16

3. Ph. D.

- Awarded : 22
- Working : 08

UGC-SRF : 02

JRF under state DST project : 01

SRF under DST project, New Delhi : 01

CSIR-SRF : 02

SRF under DST project, New Delhi : 01

List of publications:**Impact factor of some important journals in which research papers published**

(as on 2015)

S. No.	Name of Journal	I. M.	Total
1.	Environ. Sci. Tech, USA	5.257x 1	5.257
2.	Fuel, USA	4.0 x 4	16.0
3.	Atmos. Environ, UK	3.787 x 2	7.574
4.	J. Mol. Cat. USA	3.319 x 1	3.319
5.	Fuel Processing Technology, USA	3.49 x 5	17.475
6.	Journal Of Environmental Chemical Engineering	3.21x1	3.21
7.	Environmental Science and Pollution Research	2.76x1	2.76
8.	Aerosol and Air Quality Research	2.51x1	2.51
9.	Int. J. Chem. Kinet, USA	1.28 x 1	1.28
10.	Bull Chem. Soc. Jpn, Japan	1.387 x 1	1.387
11.	J. Environmental Sci. Health USA	1.32x 1	1.32
12.	Indian Journal of Chemistry, India	0.92 x 6	5.52
13.	Trans. Met. Chem, USA	1.184 x 1	1.184
14.	Ract. Kinet. Catal. Lett, Netherlands	1.104 x 2	2.208
15.	Ind. J. Chem. Technol, India	0.60 x 1	0.60
16.	J. Ind. Chem. Soc, India	0.28 x 11	3.08
17.	Ind. J. Appl. Res.	2.165 x 4	8.66
18.	Int. J. Innovative Res. Sci. Eng. Techno.	1.67 x 4	6.68
19.	Int. J. Sci. Res.	1.86 x 1	1.86
20.	IOSR J. Appl. Chem.	1.327 x 1	1.327
21.	Iranica J. Energy & Environ.	1.0597 x 1	1.0597
22.	Oxidation Comm.	0.16 x 1	0.16
23.	Int. J. Chem. Sci.	0.12 x 1	0.12
24.	Ind. J. Chem.	0.78 x1	0.78
25.	Int. J. Biomath.	0.75 x 1	0.75
26.	Global NEST Journal	0.468x1	0.468
27.	Chemical Science Review and Letters	4.014x1	4.014
Total Impact Factor			100.562

Journals in which papers are published (Prof. Ashu Rani)

S. No.	Name of Journal
1.	Ind. J. Appl. Res. India
2.	Int. J. Innovative Res. Sci. Eng. Techno., India
3.	Int. J. Sci. Res., India
4.	IOSR J. Appl. Chem.
5.	Iranica J. Energy & Environ. Dubai, UAE
6.	American Chemical Science Journal, USA
7.	Oxidation Comm., Bulgaria
8.	Int. J. Biomath. Singapore
9.	Journal of Catalysts, USA
10.	Int. J. Chem. Studies, Delhi

11.	J. Scientific Res. Reports, USA
12.	Environmental Science : An Indian Journal, India
13.	Int. J. Pure and Appl. Chem., USA
14.	Fuel, USA
15.	Int. J. Chem. Sci, USA
16.	J. Ind. Pollu. Control, India
17.	Fuel Processing Technology, USA
18.	Indian Journal of Chemistry, India
19.	J. Ind. Soil Sc. Soc, India
20.	J. Ind. Chem. Soc, India
21.	Physical Chemistry: An Indian Journal, India
22.	ESAIJ environment science and Indian journal
23.	Ind. J. Env. Protec, India
24.	Poll. Res, India
25.	Atmos. Environ, UK
26.	Environment Population Studies
27.	J. Environmental Sci. Health USA
28.	Int. J. Chem. Kinet, USA
29.	Ind. J. Technol, India
30.	Trans. Met. Chem, USA
31.	Environ. Sci. Tech, USA
32.	Bull Chem. Soc. Jpn, Jpn
33.	J.Mol.Cat USA
34.	ISRAPS Bulletin, India
35.	Bull.Soc.Kinet.India
36.	Ract.Kinet.Catal.Lett, Netherland
37.	Global NEST Journal
38.	Chemical Science Review and Letters
39.	Environmental Science and Pollution Research
40.	Aerosol and Air Quality Research
41.	International Soil and Water Conservation Research (Elsevier)
42.	Global NEST

Patents:

1. Green catalytic process for aspirin synthesis using fly ash as heterogeneous solid acid catalyst, Chitrlekha Khatri and **Ashu Rani**, Application No.- 1980/DEL/2007, Patent No. 258334, Indian **Patent granted**.
2. Greener catalytic route for the synthesis of α - α' dibenzylidene cyclohexanone by condensation of benzaldehyde and cyclohexanone, Deepti Jain, Chitrlekha Khatri and **Ashu Rani**, Application No. 452/DEL/2008, **Patent granted**
3. Fly ash as heterogeneous solid acid catalyst for organic synthesis. Chitrlekha Khatri and **Ashu Rani**, Indian Patent No 452/del/2008, Patent Appl. Filed for US, PCT and India.
4. Fly ash supported bimetallic catalyst (Ni-Co): An efficient and recyclable solid acid catalyst for esterification reaction, Anita Sharma, Deepti Jain and **Ashu Rani**, Application No. 452/DEL/2008, Indian Application No. 3749/DEL/2011, Indian Patent (Filed).
5. Microwave irradiated phenyl benzylation using perlite based tungstophosphoric acid catalyst and a process for the preparation thereof, Sakshi Kabra, Stuti Katara, Renu Hada and **Ashu Rani**, Application no. 1523/DEL/2015.

6. A novel solid base catalyst for microwave assisted Knoevenagel condensation of benzaldehyde with malononitrile, Stuti Katara, Sakshi Kabra, Renu Hada and **Ashu Rani**, Application no. 738/DEL/2015.

Research Papers:

1. Wilk, Julie; Jonsson, Anna.; Rydhagen, Birgitta; Rani, Ashu; Kumar, Arun.; "The perspectives of the urban poor in climate vulnerability assessments - the case of Kota, India" accepted for publication in *Urban Climate (Elsevier)*(2017)
2. Priyanka Rajoriya and Ashu Rani, "Supported Imidazolium Based Ionic Liquid as a Green, Highly Effective and Reusable Catalyst for Microwave Assisted Knoevenagel Condensation" *Chem Sci Rev Lett* , 6(22), (2017) 772-778
3. Agarwal, Swarnima, and Ashu Rani. "Adsorption of resorcinol from aqueous solution onto CTAB/NaOH/flyash composites: Equilibrium, kinetics and thermodynamics." *Journal of Environmental Chemical Engineering* 5.1 (2017): 526-538.
4. Meena, Vimlesh Kumar, Yogpal Dhayal, Deepa Saxena, Ashu Rani, CP Singh Chandel, and K. S. Gupta. "The influence of diesel—truck exhaust particles on the kinetics of the atmospheric oxidation of dissolved sulfur dioxide by oxygen", *Environmental Science and Pollution Research* Vol 23, (2016): 1-13.
5. Meena, Manju, Bharat Singh Meena, Ultra Chandrawat, and Ashu Rani "Seasonal Variation of Selected Metals in Particulate Matter at an Industrial City Kota, India"; *Aerosol and Air Quality Research* 16.4 (2016): 990-999.
6. A. Kumar, A. K. Sharma, and **A. Rani**. "Transport of solutes under transient flow conditions—A case study—Yamuna river sub basin (Kosi Kalan to Agra)." *International Soil and Water Conservation Research* (2015). DOI:10.1016/j.iswcr.2015.06.004.
7. A.C. Jonsson, B. Rydhagen, J. Wilk, A.R. Feroz, **A. Rani**, A. Kumar. "Climate change adaptation in urban India: The inclusive formulation of local adaptation strategies." **Global NEST J.** 17 (1): (2015) 61-71.
8. N. Shringi, K. Srivastava, **A. Rani**. "Microwave Assisted Acid Activation of Fly Ash: A Green Process for Enhancing its Physico-Chemical Attributes for Esterification under Dielectric Heating" *Chemical Science Review and Letters*, 4(14): 2015 561-570.
9. K. Srivastava, N. Shringi, V. Devra, **A. Rani**. "A facile method for production of Amorphous Silica from Perlite under Microwave Irradiation." **Inter. J. IT, Eng. Appl. Sci. Res.** 4(1): (2015) 18-24.
10. A. Sharma, S. Kabra, S. Katara, **A. Rani**, "Variation of Surface Morphology and Physico-Chemical Properties of the Fly Ash through Mechanical and Thermal Activations" *Journal of Advanced Chemical Sciences* (2015).
11. S. Saxena, Anuj Kumar Garg, **A. Rani**, A. K. Gupta. "An Effect of Cation on Leaching of Fluoride From Saline Soils: A Kinetic Approach." **Inter. J. Inno. Res. Sci. Eng. Techno.** 3: (2014) 9302-9310.
12. S. Saxena, Anuj Kumar Garg, **A. Rani**, A. K. Gupta. "The Leaching Kinetics of Nitrate in Soil Using Glass Column Method." **Inter. J. Inno. Res. Sci. Eng. Techno.** 3: (2014) 12486-12495.
13. K. Srivastava, V. Devra, **A. Rani**. "Fly ash supported vanadia catalyst: An efficient catalyst for vapor phase partial oxidation of toluene in a micro-reactor." **Fuel Process. Techno.** 121: (2014) 1-8.
14. A. Sharma, V. Devra and **A. Rani**. "Fly ash supported perchloric acid (PAFA): A green, highly efficient and recyclable heterogeneous catalyst for series of esterification." **Inter. J. Inno. Res. Sci. Eng. Techno.** 3: (2014) 8607-8619.
15. K. Srivastava, N. Shringi, V. Devra, **A. Rani**. "Environmental benign route for the utilization of fly ash as heterogeneous acid catalyst for various organic transformations" **Int J. IT, Eng. Appl. Sci. Res.** 4(1): (2014) 18-24.

16. M. Meena, B. S. Meena, U. Chandrawat and **A. Rani**. "Characterization of wet and dry deposition at an industrial city of western India." **Inter. J. Inno. Res. Sci. Eng. Techno.** 3: (2014) 9050-9056.
17. M. Meena, B. S. Meena, U. Chandrawat and **A. Rani**. "Seasonal variations and sources of heavy metals in free fall dust at an industrial city of western India." **Iranica J. Energy & Environ.** (2014) **3(7)**: (2014) 14359-14367.
18. **A. Rani**, C. Khatri and R. Hada. "Fly ash supported scandium triflate as an active recyclable solid acid catalyst for Friedel–Crafts acylation reaction." **Fuel Process. Techno.** 116: (2013) 366–373.
19. D. Jain, R. Hada, **A. Rani**. "Surface modification of fly ash for active catalysis." **J. Catalysts.** 1-9 (2013).
20. B. Sharma and **A. Rani**. "Nitrate leaching from soils as influenced by rate and timing of Potassium nitrate application" **J. Ind. Society of Soil Sci.** 61 (2): (2013) 99-106.
21. A. Sharma, S. Katara, S. Kabra and **A. Rani**. "Acid activated fly ash, as a novel solid acid catalyst for esterification of acetic acid." **Ind. J. Appl. Res.** 3 (4): (2013) 37-39.
22. R. Hada, S. Kabra, S. Katara, **A. Rani**, V. Devra and S. S. Amritphale. "Synthesis of nanosized titania by sol gel route." **Ind. J. Appl. Res.** 3 (4): (2013) 49-50.
23. S. Kabra, A. Sharma, S. Katara, R. Hada and **A. Rani**. "DRIFT- Spectroscopic study of modification of surface morphology of perlite during thermal activation." **Ind. J. Appl. Res.** 3 (4): (2013) 40-42.
24. A. Kumar, B. Sharma and **A. Rani**. "Modeling of analysis of salt transport in the single cylindrical root with finite length." **Int. J. Biomath.** 6: (2013) 1-9.
25. B. Sharma and **A. Rani**. "Kinetics and leaching study of nitrate and nitrite on urea hydrolysis in alkaline soil." **Int. J. Plant & Soil Sci.** 2: (2013) 70-81.
26. R. Hada, **A. Rani**, V. Devra and S. S. Amritphale. "A novel synthesis process for making nickel oxide nanoparticles." **Int. Res. J. Pure & Appl. Chem.** 3: (2013) 111-117.
27. S. Saxena, S. Saxena, U. Chandrawat and **A. Rani**. "Removal of fluoride from contaminated water using lime stone slurry impregnated fly ash." **J. Indust. Pollut. Cont.** 29: (2013) 7-12.
28. S. Saxena, K. Srivastava, U. Chandrawat and **A. Rani**. "Defluoridation kinetics over lime stone slurry impregnated fly ash." **Int. J. Sci. Res.** 2 (3): (2013) 17-19.
29. B. Sharma and **A. Rani**. "Studies of inorganic anions at different depth of agriculture soil and its correlation with ground water pollution." **J. Appl. Chem.** 3 (5): (2013) 8-15.
30. K. Srivastava, N. Shringi, V. Devra and **A. Rani**. "Pure silica extraction from perlite: its characterization and affecting factors." **Int. J. Innovative Res. Sci. Eng. Techno.** 2(7): (2013) 2936-2942.
31. S. Katara, S. Kabra, A. Sharma, R. Hada and **A. Rani**. "Surface modification of fly ash by thermal activation: A DR/FTIR Study." **Int. Res. J. Pure & Appl. Chem.** 3(4): (2013) 299-307.
32. S. Kabra, S. Katara and **A. Rani**. "Characterization and study of Turkish Perlite." **Int. J. Innovative Res. Sci. Eng. Techno.** 2 (9): (2013) 4319-4326.
33. **M. B. Yadav**, V. Devra, **A. Rani**. "Oxidation and mechanism of Silver (I) catalysed oxidation of valine by cerium (IV) in acid perchlorate medium." **Oxidation Commu.** 35: (2012) 378-388.
34. D. Jain, M. Mishra and **A. Rani**. "Synthesis and characterization of novel aminopropylated flyash catalyst and its beneficial application in base catalyzed Knoevenagel condensation reaction." **Fuel Process. Techno.** 95: (2012) 119-126.
35. D. Jain and **A. Rani**. "MgO enriched coal fly ash as highly active heterogeneous base catalyst for Claisen-Schmidt condensation reaction." **J. Am. Chem. Sci.**1(2): (2011) 37-49.
36. D. Jain, C. Khatri and **A. Rani**. "Synthesis and characterization of novel solid base catalyst from fly ash." **Fuel.** 90: (2011) 2083–2088.

37. D. Goyal and **A. Rani**. "Leaching Kinetics of Na in alkaline soil of Kota, Rajasthan under the influence of adsorption-desorption." **Int. J. Chem. Sci.** 9(1): (2011) 35-43.
38. S. Saxena, U. Chandrawat and **A. Rani**. "Leaching kinetics of fluoride in sodic saline soil." **J. Ind. Pollu. Con.** 27(2): (2011) 127-132.
39. M. Dakshene, **A. Rani** and P. D. Sharma. "Removal and kinetics of succinic acid from aqueous waste over NaOH treated power plant Fly-ash." **J. Indian Chem. Soc.**, 88(3) (2011) 381-386.
40. D. Jain, C. Khatri and **A. Rani**. "Fly ash supported calcium oxide as recyclable solid base catalyst for Knoevenagel condensation reaction." **Fuel Process. Techno.** 91: (2010) 1015-1021.
41. C. Khatri and **A. Rani**. "Synthesis and characterization of fly ash supported sulfated zirconia catalyst for benzoylation reaction." **Fuel Process. Techno.** 91(10): (2010) 1288-1295.
42. C. Khatri, D. Jain and **A. Rani**. "Fly ash-supported cerium triflate as an active recyclable solid acid catalyst for Friedel-Crafts acylation reaction." **Fuel** 89: (2010) 3853-3859.
43. M.B. Yadav, Vijay Devra and **A. Rani**. "Kinetics and mechanism of Silver (I) catalysed oxidation of valine by cerium (IV) in acid perchlorate medium." **Indian J. Chem.**, 49 A (2010.)
44. M. Vijay, B. Sharma, R. Swami and **A. Rani**. "Kinetics of phosphate leaching on undisturbed columns of alkaline soil of Kota, Rajasthan." **J. Ind. Soil Sc. Soc**, 58(2): (2010).
45. M.B. Yadav Vijay Dewra & **A. Rani**. "Mechanistic aspects of oxidation of alanine by Os (VIII) in aqueous alkaline medium." **J. Ind. Chem. Soc.** 87: (2010) 1-5.
46. M. B. Yadav, Vijay Devra and **A. Rani**. "Kinetics and mechanism of Silver (I) catalysed oxidation of L-lucine by cerium (IV) in acid perchlorate medium." **Physical Chemistry: An Indian Journal.** (2009)
47. M. B. Yadav, Vijay Devra and **A. Rani**. "Kinetics and mechanism of Silver (I) catalysed oxidation of Lysine by cerium (IV) in acid perchlorate medium." **J. Indian Chem. Soc.** 86, 600-604 (2009).
48. C. Khatri and **A. Rani**. "Synthesis of a nano-crystalline solid acid catalyst from fly ash and its catalytic performance." **Fuel**: 87, 2886(2008).
49. B. Sharma, S. Saxena, M. Dakshini, V. Devera and **A. Rani**. "Leaching mechanism of alkaline soil during phosphates application: A kinetic approach." **ESAIJ**, 4(5): (2009) 208-213.
50. S. Saxena, U. Chandravat and A. Rani. "Physico-chemical chatacteristic of potable water of eastern Rajasthan with special mention to fluoride." **Ind. J. Env. Protec.** 28 (9): (2008) 809-815.
51. A. Rani, B. Sharma and U. Chandrawat. "Ambient air levels of CO and meteorological conditions near coal based super thermal power station: A case study of Kota city." **J. Ind. Poll. Contl.** 22 (2): (2006) 245-251.
52. N. R. Tanwar, M. Vijay, U. Chandrawat and A. Rani. "Assessment of atmospheric release of carbon monoxide from automobiles. A case study of Kota city." **Poll. Res.**, 25 (1), 45-49 (2006).
53. T. Singh, V. Sharma, U. Chandrawat and **A. Rani**. "Studies on adsorption of Oxalic Acid on activated carbon, power plant, fly-ash and their mixed blends: A kinetic approach." **Ind. J. Environ. Protect.** 25(9): (2005) 839-847.
54. D. S. N. Prasad, R.C. Mehta, P. Parashar, P.V.S. Madnawat, **Ashu Rani**, V. Singh, S.V. Manoj, S.P. Bansal and K. S. Gupta. "Kinetics of surface catalysed autoxidation of aqueous sulfur dioxide in Cobalt (III) oxide suspensions." **J. Ind. Chem. Soc.** 8: (2003) 391-394.
55. V. Sharma, S. Gujral, M. Vijay and **A. Rani**. "Presence of Cu and Fe in various water sources, dust and soil in Kota land its suburban area." **Ind. J. Environ. Protec.** (2002) 800-807.
56. S.V. Manoj, C.D. Mishra, M. Singh, **A. Rani**, R. Jain, S.P. Bansal and K. S. Gupta. "Iron, Manganese and Copper Concentrations in west precipitation and kinetics of the oxidation of SO₂ in rain water at two urban sites Jaipur & Kota in Western India." **Atmos. Environ.** 34: (2000) 4479-4486.

57. S. Gujral, V. Sharma and **A. Rani**. "Assessment of ambient and Meteorological conditions near Thermal Power Plant, Kota." **Ind. J. Environ. Protec.** 20 (3): (2000) 238-249.
58. S. Tiwari, **A. Rani**, S.K. Agrawal. "Systematic study of meteorological and quality assessment at the industrial city Kota." **Ind. J. Environ. Protec.** 15 (10): (1997) 776-785.
59. D. Saxena, M. Sharma, **A. Rani**, R. Singh and K. S. Gupta. "Autoxidation of SO₂ in aqueous fly ash, suspensions." **J. Environmental Sci. Health. A** 30 (6): (1995) 1191-1210.
60. U. Jain, M. Sharma, **A. Rani**, R. Singh and K. S. Gupta. "Kinetics and mechanism of Cu (II) Catalyzed autoxidation of aqueous sulphur dioxide in acetate buffer." **Ind. J. Chem.** 34 A: 971-975 (1995).
61. Deepa Saxena, M. Sharma, **A. Rani**, R. Singh and K. S. Gupta. "Kinetics of the oxidation of aqueous sulphur dioxide by PbO in aqueous suspensions." **Ind. J. Environ. Protec.** (1995) 575-579.
62. U. Jain, **A. Rani** and K. S. Gupta. "Kinetics and mechanism of Tetra-aminecopper (II) catalyzes autoxidation of aqueous sulphur (IV)." **Int. J. Chem. Kinet.** (1994).
63. K. S. Gupta, **A. Rani**. "Catalytic Activation of Dioxygen by Metal Complexes by Laszlo i. Simaudi (Klumar, Dordrecht) 1992." **Ind. J. Chem.** 33 A: (1994) 447-448.
64. D. S.N. Prasad, **A. Rani** and K. S. Gupta. "Rate of autoxidation of sulphur (IV) in aqueous suspensions of lime stone powder: Implications for scrubber chemistry." **Ind. J. Technol.** 1: (1993) 87-92.
65. P.V.S. Madnawat, **A. Rani**, M. Sharma, D. S. N. Prasad and K. S. Gupta. "Role of surface and leached metal I on catalysis lin autoxidation of sulphur (IV) in power plant fly ash suspension." **Atmos. Environ.** 27a: (1993) 1985-1991.
66. R. Bhargava, **A. Rani** and K. S. Gupta. "Oxidation of Aqueous SO₂ in suspensions of Magnesium Oxide: Removal of SO₂ from Flue Gases." **Ind. J. Chem.** (1993) 713-716.
67. R. Bhargava, **A. Rani** and K. S. Gupta. "Surface mediated autoxidation of aqueous SO₂ in ceramic powder suspensions." **Ind. J. Chem.** 31a: (1992) 683-687.
68. R. Bhargava, D. S. N. Prasad, **A. Rani** and K. S. Gupta. "Kinetics of autoxidation of aqueous sulphur dioxide in suspensions of Nickel (III) Oxide." **Trans. Met. Chem.** 17: (1992) 238-241.
69. D. S. N. Prasad, **A. Rani** and K. S. Gupta. "Surface catalysed autoxidation of sulphur (IV) in aqueous silica and copper (II) oxide suspensions." **Environ. Sci. Tech.** 23: (1992) 1368-1375.
70. **A. Rani**, P. V. S. Madnawat, D. S. N. Prasad and K. S. Gupta. "The role of free fall atmospheric dust in catalyzing autoxidation of aqueous sulphur dioxide." **Atmos. Environ.** 26a: (1992) 667-673.
71. **A. Rani**, P.V.S. Madnawat, D. S. N. Prasad, R. Bhargava and K. S. Gupta. "Dynamics of autoxidation of aqueous sulphur dioxide in aqueous suspensions of Cadmium." **Bull Chem. Soc. Jpn.** 64: (1991) 1955-1961.
72. D. S. N. Prasad, **A. Rani**, U. Jain and K. S. Gupta. "Kinetics of surface catalysed oxidation of sulphur (IV) by dioxygen in aqueous suspensions of Cobalt (II) oxide." **J. Mol. Cat.** 69 (1991) 393-405.
73. **A. Rani**, D. S. N. Prasad, U. Jain and K. S. Gupta. "Dynamics of multiphasic glass powder catalysed autoxidation of aqueous sulphur dioxide in bulk aqueous phase." **Ind. J. Chem.** 30 A: (1991) 756-764.
74. **A. Rani**, D. S. N. Prasad, P.V.S. Madnawat, L. Jha and K. S. Gupta. "Environmentally relevant thermal and photochemical surface catalysed autoxidation of sulphur dioxide in aqueous suspensions." **ISRAPS Bulletin.** (I): (1990) 4-7.
75. K. S. Gupta, **A. Rani**, D. S. N. Prasad, R. Bhargava, S. K. Bhargava. "Automobile exhaust emission: Social and legal remedial measures. Environmental Perceptions" **Department of Environment**, Government of Rajasthan Jaipur, PP 55-60 (1990).

76. K. S. Gupta, R. Bhargava, **A. Rani** and D. S. N. Prasad. "Kinetics and mechanism of Thallium (III) - ligand electron transfer reasons. Oxidation of 2-Furoic Acid." **J. Ind. Chem. Soc.** 65: (1989) 619-627.
77. R. Bhargava, **A. Rani**, D. S. N. Prasad, P. Parashar and K. S. Gupta. "An inexpensive, under graduate pseudo first order kinetics experiment." **Bull. Soc. Kinet. India** 11: (1989) 1.
78. D. Kumar, **A. Rani**, D. S. N. Prasad and K. S. Gupta. "Kinetics & Mechanism of oxidation of 2-furfural by Thallium (III) in perchloric acid solution." **Ract. Kinet. Catal. Lett.** 43: (1989) 133-141.
79. D. Kumar, **A. Rani**, D. S. N. Prasad and K. S. Gupta. "Kinetics & Mechanism of oxidation of 2-furfural by Thallium (III) in perchloric acid solution." **Ract. Kinet. Catal. Lett.** 43,133-141 (1989).
80. K. S. Gupta, **A. Rani**, R. Bhargava and D. S. N. Prasad. "Acid rain dimensions and control strategies." Bullitien I.G. Centre Human Ecology, **Environment Population Studies.** 2 (1): (1989) 1.
81. **A. Rani**, K. S. Gupta. "Enviornmental Impact of Sugar Mill and a Distillary." Bullitien I.G. Centre Human Ecology, **Environment Population Studies.** 3 (11): (1988).

Contribution to Books:

82. K. S. Gupta, P.V.S. Madnawat, **Ashu Rani**, D.S.N. Prasad, Usha Jain, Pinky Bhargava and Deepa Saxena, Kinetics of Heterogeneous autoxidation of aqueous sulphur dioxide in Aerosol, Droplets and in Aqueous suspensions/environmental considerations. Chemical kinetics & Reaction mechanism. K.S.Gupta (Ed) **Topics Chemistry** series Vol.1 117-163, RBSA Publisher, Jaipur (1991).
83. K. S. Gupta, P.V.S. Madnawat, R. Bhargava, D. S. N. Prasad, M. Sharma and **Ashu Rani**, Autoxidation of Aqueous SO₂ suspension of minerals and rocks in precipitation scavenging land atmospheric surface exchange vol. 1 (Edited by S. E. Schwartz and W. G. N. Slim). Hemisphere, Washington, D.C. USA, pp 153-160 (1992).
84. **Ashu Rani**, Madhu Sharma, Deepa Saxena, R. Singh and K. S. Gupta, Acid precipitation: Causes, Impacts and Remedies in sustainable development. R. Sihna (Ed) Environmentalist, Jaipur (1994).
85. **Ashu Rani**, Madhu Sharma, Deepa Saxena, R. Singh and K.S.Gupta Transition Metal Oxide Catalysed Autoxidation of Aqueous SO₂ Application to atmospheric chemistry in Catalysis. Modern Trends. N. M. Gupta and D. K. Chakrabarty (Eds) 420-423 (1995).
86. Minakshi Vijay, S.C. Sharma, **Ashu Rani** and K.M. Hironi, Ground water quality of various villages near a fertilizer plant in Kota and Baran district in Geomorphology and Environmental Sustainability (S. C. Kalwar, M. L. Sharma, R. D. Gujar) Concept publishing Company, New Delhi 314-318 (2004).
87. Prof. Ashu Rani and Ankit Sharma " Reactio mechanism, pericyclic reactions organic photochem. and stereochemistry, Vardhman Mahaveer Open University, Kota (ISBN 81849-6543-5), 2015

Books:

1. B. Sc. Part-III Physical Chemistry. (Ramesh book depot).

Book Review:

2. K.S. Gupta, Ashu Rani, Catalytic Activation of Dioxygen by Metal Complexes by Laszlo i. Simaudi (Klumar, Dordecht) 1992 in Indian J. Chem. 33A, 447-448 (1994).

Peer reviewed conference contribution (Full Research Papers):

1. Sakshi Kabra, Stuti Katara, **Ashu Rani**, "Synthesis and application of perlite supported solid acid: an efficient, reusable and environment benign catalyst" Poster presented at **International**

- Workshop on Green Initiatives in Energy, Environment & Health, New Delhi. 2-3 Dec, 2013.**
2. Khushboo Srivastava, Niharika Shringi, Vijay Devra, **Ashu Rani**, “Environmental Benign Route for the Utilization of Fly Ash as Heterogeneous Acid Catalyst for Various Organic Transformations” presented oral presentation at **International Conference on Advance Trends in Engineering and Technology (ICATET)**, Jaipur (Rajasthan), 19-20 Dec. 2013.
 3. Sakshi Kabra, Stuti Katara, **Ashu Rani**, “Development of perlite supported solid acid: an efficient, recyclable and environment benign catalyst” **National Conference on Frontiers in Physical, Chemical and Biological Sciences (FPCBS-2013)**, Pune (Maharashtra), 4-6 Oct. 2013.
 4. Anita Sharma, **Ashu Rani**, “Nitric acid treated fly ash catalyst: green, efficient and recyclable solid acid catalyst for synthesis of salol” **An international conference on emerging trends in chemistry**, Jaipur (Rajasthan), 2013.
 5. Stuti Katara, Sakshi Kabra, **Ashu Rani**, “Adsorption of heavy metals from industrial waste water by low-cost silicates” **International Conference on Advance Trends in Engineering and Technology (ICATET)**, Presented Oral presentation, Jaipur (Rajasthan), 19-20 Dec. 2013.
 6. Sakshi Kabra, Stuti Katara, **Ashu Rani**, “Development of activation techniques of utilization of fly ash and volcanic ash in adsorption of environmental hazardous dyes and heavy metals” Presented Paper in **International Conference on Waste Wealth and Health (ICWWH-2013)**, Bhopal (M.P.), 2013.
 7. Niharika Shringi, Khushboo Srivastava, Priyanka Rajoria, **Ashu Rani**. “A facile and environmentally benign synthesis of acid activated fly ash as solid acid catalyst and its catalytic activity in green synthesis” Presented poster in **National Seminar on Chemistry for Economic Growth and Human Comforts Department of Chemistry Jaipur, Rajasthan August 31, 2013.**
 8. Anita Sharma, Stuti Katara, and **Ashu Rani**, “Environmental benign route for the synthesis of fly ash supported base catalyst” **National symposium on Recent advances in chemical sciences (NSRACS-2011)**, Kota (Rajasthan) 7-8 Jan. 2011.
 9. **Ashu Rani**, “Exploration of Fly ash as a Catalyst Support” accepted as invited talk at National Conference on Fly ash at ITC Kakatiya, Hyderabad.
 10. A novel way of utilization of solid waste fly ash as an ecofriendly base catalyst, Deepti Jain and **Ashu Rani**. Paper accepted for oral presentation at **World of Coal Ash International Symposium (WOCA)**, held on May 9-12, Denver, CO, USA 2011.
 11. Environmental benign route for the synthesis of sulphuric acid treated fly ash catalyst: highly active and selective for esterification reaction. Deepti Jain, Anita Sharma and **Ashu Rani**, Paper presented at **National symposium on “New strategies for RCEW, Jaipur. 20-21 Aug 2010.**
 12. Sakshi Kabra, Stuti Katara, **Ashu Rani**, “Development of activation techniques of fly ash and volcanic ash for adsorption of environmental hazardous dyes and heavy metals” **A National Conference on Emerging Views in Advance Chemistry (EVIAC-2010)**, Bhilwara (Rajasthan), 2010.
 13. Condensation of Benzaldehyde to Cyclohexanone Using Fly Ash as Solid Base Catalyst. Deepti Jain, Chitrlekha Khatri and **Ashu Rani**. Paper accepted for oral presentation at **World of Coal Ash International Symposium (WOCA)**, held on May 4-7, in Covington, University of Kentucky, Kentucky, USA, 2009.
 14. Fly ash supported calcium oxide as recyclable solid base catalyst for knoevenagel condensation reaction. Deepti Jain, Chitrlekha Khatri and **Ashu Rani**, Paper presented at **Bhartiya Vigyan Sannam, DAU, Indore, 1-5 Dec 2009.**
 15. Utilization of fly ash an environmental hazardous material as an efficient catalytic material. Deepti Jain and **Ashu Rani**, Paper presented at **National Conference on Environmental Health Hazards, Dept. of Zoology, JDB Girls College, Kota. 17-19 Dec 2009.**

16. Acylation of 2-methoxynaphthalene over fly ash supported cerium triflate catalyst. Chitralakha Khatri and **Ashu Rani**. Paper accepted for Poster presentation at **5th International Conference on Environmental Catalysis, Belfast**, 31st Aug – 3rd Sept **2008**.
17. Power plant fly ash as potential solid acid catalyst for acylation of anisole. Paper accepted for oral presentation at **World of Coal Ash International Symposium (WOCA)**, held on May 7-10, **2007** in Covington, University of Kentucky, Kentucky, USA (2007).
18. Synthesis and characterization of nano-crystalline solid acid catalyst from Power Plant fly ash and its application in acylation reactions. Paper accepted for oral presentation at **Material of the Millenium, Mat Con 2007**, March 1-3, **2007** in Department of Applied Chemistry, **Cochin University of Science & Technology**, Kochi, India.
19. Preeti Gupta, Shewta Saxena, Ultra Chandrawat & **Ashu Rani** “Studies on Assessment of Ground water Quality with special mention to fluoride”. **A case study in proceedings of National Conference on Environmental Pollution and Industrial Control 2006**.
20. **Ashu Rani** , Bhartiya Sharma , Monika Dakshne and Shewta Saxena 'Salt Transport in Saline Soil' Method of estimating Chloride Leaching during Water percolation in proceedings of All India seminar on Reclamation of water logged Saline soils through Drainage The Institute of Engineers, Kota 164-182 (**2005**).

National/ International Seminar/Symposium attended and paper contributed:

1. Delivered invited talk in National Conference on Green Techniques: A ray of hope in Environmental Protection (NCGT-2014) Department of Chemistry, Mewar University, Chittorgarh, (Rajasthan) (11-12 July 2014).
2. National Conference “New Innovatory Steps of Chemical Sciences” in Khalsa College, Indore (M.P.) 14-16 Mar. 2014.
3. National seminar on pure & applied chemistry- current trends and future prospects in Jai Narayan Vyas University, Jodhpur, Rajasthan 10-11 Jan. 2014.
4. International Workshop on Green Initiatives in Energy, Environment & Health, New Delhi. 2-3 Dec, 2013.
5. International Conference on Advance Trends in Engineering and Technology (ICATET), Jaipur (Rajasthan) 19-20 Dec. 2013.
6. National Conference on Frontiers in Physical, Chemical and Biological Sciences (FPCBS-2013), Pune (Maharashtra) 4-6 Oct. 2013.
7. An international conference on emerging trends in chemistry, Jaipur (Rajasthan) 2013.
8. International Conference on Waste Wealth and Health (ICWWH-2013), Bhopal (M.P.) 2013.
9. National Conference in IMMT, Bhuvneshwar, Odisha (2013).
10. National Conference in Holkar Science College, Indore (M.P.) (2012).
11. National Conference on Flyash at ITC Kakatiya, Hyderabad (2011).
12. DST sponsored National Symposium on Recent Advances in Chemical Sciences, university of Kota, Kota, Rajasthan. 2011.
13. World of Coal Ash International Symposium (WOCA), Denver, CO, USA 2011.
14. National Conference on Emerging Views in Advanced Chemistry, Bhilwara, Rajasthan 2010.
15. National symposium on “New strategies forCarbon Foot Prints”, RCEW, Jaipur, Rajasthan. 20-21 Aug 2010.
16. World of Coal Ash International Symposium (WOCA), Covington, University of Kentucky, Kentucky, USA, 2009.
17. National conference on Recent Trends in Chemical Sciences, Lohia College, Churu, 2009
18. Bhartiya Vigyan Sammelan, DAU, Indore, 2009.
19. National Conference on Environmental Health Hazards, Dept. of Zoology, JDB Girls College, Kota. 17-19 Dec 2009.
20. National Conference on Environmental Health Hazards, Kota. 17-19 Dec 2009.

21. NRDC sponsored Regional Seminar on Intellectual Property and Innovation Management in Knowledge Era, University of Kota, Kota, 2008.
22. 5th International Conference on Environmental Catalysis, Belfast, 2008.
23. World of Coal Ash International Symposium (WOCA), Covington, University of Kentucky, Kentucky, USA (2007).
24. Material of the Millenium, Mat Con 2007, Cochin University of Science & Technology, Kochi, India.
25. UGC Sponsored National Seminar on Chemical Aspects of Environmental Challenges and Their Management, Jaipur, 2007.
26. National Conference on Environmental Pollution and its Control, Engineering College, Koa, 2006.
27. National Seminar on Recent Advances in the field of Applied Chemistry, Kota, 2006.
28. National Conference on Environmental Pollution and *Industrial Control*. (2006).
29. All India seminar on Reclamation of water logged Saline soils through Drainage. The Institute of Engineers, Kota (2005).
30. National Symposium on Recent Advances in Chemical Research, University of Rajasthan, 2005
31. UGC sponsored National Symposium on Chemistry: some newer dimensions at Govt. college, Kota, 2003
32. Rajasthan State DST sponsored 6th Seminar , Government College, Kota, Kota, 2002
33. UGC sponsored National seminar on Chemical Aspects of Challenges for Environment in the New Millennium, Government College, Kota, 2001
34. 32nd Annual Convention of Chemists, University of Rajasthan, Jaipur, 1995
35. Symposium of Chemical Dynamics and Reaction Mechanism JNV, Jodhpur, 1994
36. Indo-British Symposium on Global Climate Change, New Delhi, Jan. 15-17, 1992.
37. Seventy Ninth Session of the Indian Science Congress Association, Baroda, Jan. 3-8, 1992.
38. National Seminar on Applications of Sulphur Compounds, Government College, Ajmer, March, 1992.
39. Two – day workshop for preparing Environmental Literature, Department of Environments, Govt. Of Rajasthan, March 17-18, 1991.
40. Invited lecture in National Seminar on Automobile Pollution, Sponsored by Department of Environment, Govt. of Rajasthan, Govt. College, Kota, Feb. 1991.
41. 28th Annual Convention of chemists, Jadavpur University. Calcutta, Dec. 17-21, 1991.
42. National Seminar on Automobile Pollution, Kota, Rajasthan, Feb. 17-19, 1991.
43. Invited lecture in 28th annual convention of chemists, Jadavpur University, Calcutta, Dec. 17-21, 1991.
44. Invited lecture in 27th Annual Convention of Chemists, Magadh University, Bodhgaya, Bihar, Dec. 26-30, 1990.
45. 77th Indian Science congress, Cochin, Jan. 1990.
46. Invited lecture in ISRAPS National Seminar on Radiation and Photochemical Processes of the Environment, Saha Institute of Nuclear Physics, Calcutta, Jan. 15-17, 1990.
47. Invited lecture in U.G.C. National Symposium on Metal Ions in Biological Systems,
48. Twenty Seventh Annual conventions of chemists, Dec. 26-30, 1990.
49. XIX Informal conference on Photochemistry, Ann. Arbor, Michigan, 24-29, June, 1990.
50. ISRAPS National Seminar on Radiation and Photochemical Processes of the Environment, Saha Institute of Nuclear Physics, Jan. 15-18, 1990.
51. U.G.C. National Symposium on Metal Ions in Biological systems, University of Jodhpur, Oct. 25-27, 1989.
52. National conference on Coordination chemistry, Calcutta University Calcutta, Jan. 15-18, 1989.
53. National Symposium on Dynamics and Reaction Mechanism, Univ. of Rajasthan, Jaipur, March 16-19, 1989.

54. Annual Session of Indian Council of Chemists, Tirupati, Dec. 1988.
55. National Symposium on Modern Trends in Teaching and Research Methodology in Chemistry, Allahabad University, Allahabad, Nov. 1988.
56. Seminar on Environmental Protection, Present Status, Overall Strategy and Public Awareness, Rajasthan State Pollution control Board, Jaipur, June, 1988.
57. Workshop on Water and Alternative Energy Resources Management, Organized by Consultancy Development Centre, Govt. of India at Secretariat, Jaipur, April, 1988.
58. National Seminar on Environmental Law and Public Participation, Sponsored by Department of Environment, IG Centre of HEEPS, Feb. 1988.
59. UGC National Symposium on Kinetics and Mechanism and Role of Trace Metal Ions, University of Rajasthan, Feb. 1988.
60. Workshop on Low Cost Teaching Instruments in Chemistry, Jaipur, 1988

Some Invited Lectures at various occasions in last five years.

1. Niharika Shringi, Kiran Parashar and Ashu Rani in **National Seminar on Recent Advancements in Protection of Environment and its Management Issues (NSRAPEM-2015)** at Maharshi Arvind College of Engineering and Technology, Ranpur, Kota, Rajasthan held on 27th to 28th Feb. 2015.
2. Priyanka Rajoriya, Kiran Parashar and Ashu Rani in **International Conference on Advances in Power Generation from Renewable Energy Sources (APGRES 2015)** Rajasthan Technical University Kota held on 15th & 16th June 2015.
3. Delivered invited talk in National Conference on Green Techniques : A ray of hope in Environmental Protection (NCGT-2014) Department of Chemistry, Mewar University, Chittorgarh, (Rajasthan) (11-12 July 2014).
4. Delivered invited talk in National Conference “New Innovatory Steps of Chemical Sciences” in Khalsa College, Indore (M.P.) (14-16 Mar. 2014).
5. Delivered invited talk in National seminar “National seminar on pure & applied chemistry-current trends and future prospects” in Jai Narayan Vyas University, Jodhpur, Rajasthan (10-11 Jan. 2014).
6. Delivered invited talk in National Conference in IMM T, Bhuvneshwar, Odisha (2013).
7. Delivered invited talk in National Conference in Holkar Science College, Indore (M.P.) (2012).
8. Delivered invited talk in J P institute of Technology, Noida, (U.P.).
9. Delivered invited talk in National Conference in J P institute of Technology, Noida, (U.P.).
10. Delivered invited talk in Agresen College, Varanasi, (U.P.).
11. Delivered invited talk in National Conference in MLSU, Udaipur, Rajasthan (2007).
12. Resource person XI Refresher course in Chemistry at ASC, University of Rajasthan, Jaipur, Rajasthan (delivered 2 lectures).
13. Delivered invited talk in National Conference on Carbon footprint at Rajasthan College of Engineering for Women, Jaipur, Rajasthan.
14. Resource person in 77th Orientation course at ASC, University of Rajasthan, Jaipur, Rajasthan (delivered 2 lectures).
15. Resource person in 78th Orientation course at ASC, University of Rajasthan, Jaipur, Rajasthan (delivered 2 lectures).
16. Delivered invited talk in National Conference on Emerging views on Advanced Chemistry, at Govt. College, Bhilwara, Rajasthan (Dec 17-19, 2010).
17. Resource person in 79th Orientation course at ASC, University of Rajasthan, Jaipur, Rajasthan (delivered 2 lectures).
18. Delivered invited talk as Mentor at Science Camp under INSPIRE Internship program of DST at Banasthali Vidyapeeth, Rajasthan.
19. Delivered a series of lecture on Environmental Pollution at IMTI, Kota in different years.

Reviewer / Editor

1. International Journal of Hydrogen Energy (Elsevier)
2. Applied Bio-chemistry and Biotechnology (Springer)
3. American Chemical Science Journal (Science Domain)
4. International Research Journal of Pure & Applied Chemistry (Science Domain)
5. African Journal of Pure & Applied Chemistry
6. Industrial & Engineering Chemistry Research
7. International Journal of Physical Science

Memberships:

1. American Chemical Society
2. Life member Indian Chemical Society
3. Member Indian Soil Science Society
4. Affiliate member of IUPAC
5. Indian Council of Chemist

Prof. Ashu Rani