Dr. Khushbu Sharma

Scientist

Food Protectants and Infestation Control (FPIC), CSIR – Central Food Technological Research Institute (CFTRI), Mysuru – 570 020, Karnataka, India

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ACADEMIC QUALIFICATIONS

- Ph.D. (2012): St. John's College, Dr. Bhimrao Ambedkar University, Agra (UP), India
- M.Sc. (2006): Organic Chemistry, St. John's College, Dr. Bhimrao Ambedkar University, Agra (UP), India
- B. Sc. (2004): St. John's College, Dr. Bhimrao Ambedkar University, Agra (UP), India

Ph. D. thesis entitled: "Adsorption–desorption and leaching of hexaconazole and captan in four different soils of Uttar Pradesh"

EXPERIENCE

Year	Organization
June 2016 – October 2023	Research Associate, AINP–PR, ICAR–Indian Agricultural Research Institute, New Delhi, India
Feb 2015 – June 2016	Senior Research Fellow, Division of Agric. Chem, ICAR–Indian Agricultural Research Institute, New Delhi, India
June 2014 – Jan 2015	Senior Analyst, AES Laboratories Pvt. Ltd. Noida, India
Feb 2009 – Mar 2014	Senior Research Fellow, Division of Agric. Chem, ICAR–Indian Agricultural Research Institute, New Delhi, India

Research Experience: ICAR–Indian Agricultural Research Institute:

Project 1: Worked as Research Associate with the ICAR–IARI Institute, New Delhi, India, under the DAC funded "*Monitoring of Pesticide residues at National Level (MPRNL)*" All India Coordinated Research Projects on pesticide residues (AINP–PR, NABL accredited lab) from June, 2016 to October, 2023

- Development of analytical protocols for multiclass pesticide residue analysis in different agricultural crops and commodities.
- Extraction and analysis of pesticide residues in different food commodities using QuEChERS method as per NABL (ISO/IEC 17025:2017) guidelines.
- Data generation for risk analysis and MRL fixation at national level.

- Preparations of all documents/reports and manuscripts.

Project 2: Worked as Senior Research Fellow under the ICAR funded "*Network project on phytoceuticals/high value compounds*" from February, 2015 to June 2016.

- Worked on extraction, purification and analysis (LC–MS/MS) of anthocyanins from red cabbage, purple corn, black carrot and black rice.

- Worked on extraction, purification and analysis of phytoceuticals from buckwheat (*Fagopyrum esculentum*) and black cumin (*Nigella sativa*).

- Well–versed in extraction, purification and analysis of carotenoids from tomato, orange carrot, and development of their micro/nano–formulations using food grade polymers.

- Worked on extraction and analysis of phenolics/phenolic acids from plants and food products.

Project 3: Worked as Senior Research Fellow under the World Bank funded, National Agriculture Innovative Project "*Nature of interactions among the Entomopathogenic Nematodes, their bacterial symbionts and the insect hosts*" from 5 February, 2009 to 31 March, 2014

- Worked on extraction, purification and analysis of secondary metabolites from Entomopathogenic nematodes (EPNs) *Xenorhabdus* and *Photorhabdus* bacterial strains.

- Worked on extraction and evaluation of essential oils for their antifungal, antioxidant activity and their chemical profiling through GC–MS.

Chromatographic Technique

- Column Chromatography, Thin Layer Chromatography and Flash Chromatography

Analytical Instrumentation Skills

- HPLC (Waters® & Schimadzu)

- LC–MS/MS (Agilent & SCIEX, Triple Quadrupole)

- GC–MS (Agilent & Schimadzu, Single Quadrupole)

- GC–MS (Schimadzu, Triple Quadrupole)

Professional Experience: AES Lab Pvt Ltd:

Worked as Senior Analyst, AES Laboratories Pvt. Ltd. Noida, June 2014–January 2015.

Responsibilities/ Documentation:

- Calibration, operation, and preventive maintenance of HPLC, LC–MS/MS, and GC–MS/MS.

- Method validation, standards and sample preparation for aflatoxins, veterinary drugs and pesticides residues.

Audit Faced

- National Accreditation Board for Testing and Calibration Laboratories (NABL) and Export Inspection Council of India.

M. Sc. PROJECT

- *"Studies of Physicochemical Parameters of Potable Water of Agra"*

The project aimed at checking about the water quality of the potable water from different sites in Agra. Various different physicochemical properties *viz*. conductivity, pH, TDS, chloride, fluoride, potassium, sodium, hardness, alkalinity, dissolved oxygen etc. were analyzed.

PUBLICATIONS

Paper Published (International & National)

1. V Tripathy, S Devi, G Singh, R Yadav, **Khushbu Sharma**, R Gupta, K Tandekar, A Verma, S Kalra (2024). Development and validation of tandem mass spectrometry-based method for the analysis of residues of >400 pesticides in Honey, Journal of Food Composition and Analysis In press (Impact Factor=4.556).
2. V Tripathy, KK Sharma, R Gupta, R Yadav, S Devi, **Khushbu Sharma**, G Singh, S Kalra, A Aggarwal, K Tandekar, A Verma, S Walia (2023). Simultaneous monitoring and dietary risk assessment of 386 pesticides in market black tea samples. Food Chemistry 420 136103. (Impact Factor=9.231).
3. V Tripathy, KK Sharma, **Khushbu Sharma**, R Gupta, R Yadav, G Singh, A Aggarwal, and S Walia (2022). Monitoring and dietary risk assessment of pesticide residues in brinjal, capsicum, tomato, and cucurbits grown in Northern and Western regions of India, Journal of Food Composition and Analysis 110: 104543 (Impact Factor=4.556).
4. KK Sharma, V Tripathy, **Khushbu Sharma**, R Gupta, R Yadav, S Devi, S Walia (2022). Long–term monitoring of 155 multi–class pesticide residues in Indian vegetables and their risk assessment for consumer safety, Food Chemistry, 373: 131518, https://doi.org/10.1016/j.foodchem.2021.131518. (Impact Factor=9.231).
5. V Tripathy, KK Sharma, S Mohapatra, L Siddamallaiah, NY Matadhab, CS Patil, YS Saindane, B Deore, CS Rao, KD Parmar, NS Litoriya, PG Shah, **Khushbu Sharma** (2021). Persistence evaluation of fluopyram + tebuconazole residues on mango and pomegranate and their risk assessment Environmental Science and Pollution Research 29(22):33180-33190. https://doi.org/10.1007/s11356-021-17993-3 (Impact Factor=5.19).
6. KK Sharma, V Tripathy, T George, CS Patil, YS Saindane, S Mohapatra, L Siddamallaiah, ARK Pathan, AK Yadav, **Khushbu Sharma**, R Yadav, R Gupta, S Walia (2021). Dissipation kinetics and risk assessment of iprovalicarb + propineb fungicide in tomato under different agroclimates. Environmental Science and Pollution Research 10.1007/s11356-021-12919-5 (Impact Factor=5.19).
7. KK Sharma, V Tripathy, S Mohapatra, NY Matadha, ARK Pathan, BN Sharma, JK Dubey, S Katna, T George, A Tayade, **Khushbu Sharma**, R Gupta, S Walia (2021). Dissipation kinetics and consumer risk assessment of novaluron + lambda-cyhalothrin co-formulation in cabbage. Ecotoxicol Environ Safety 208: 111494 (Impact Factor=7.129).

8. M Thakre, R Asrey, A Singh, M Ray, SK Jha, P Kumar, S Saha, **Khushbu Sharma**, A Awasthi, AK Goswami and A Nagaraja (2020). Genetic diversity study of guava (Psidium guajava) for pink pulp and soft seededness. Indian Journal of Agricultural Sciences 90 (6): 1149–54. (Impact Factor=NA).
9. KK Sharma, V Tripathy, R Gautam, R Gupta, A Tayade, **Khushbu Sharma**, et al. (2020). Monitoring of purity and stability of CRMs of multiclass pesticides during prolonged storage before and after expiration. Accredit Qual Assur. (Impact Factor=0.856).
10. S Saha, S Walia, **Khushbu Sharma**, and K Banerjee (2019). Suitability of stationary phase for LC analysis of biomolecules. Crit Rev Food Sci Nutr 17:1-18. (Impact Factor=11.176).
11. KK Sharma, V Tripathy, CS Rao, VS Bhushan, KN Reddy, G Jyot, SK Sahoo, B Singh, K Mandal, H Banerjee, T Banerjee, S Bhattacharya, T George, N Beevi, **Khushbu Sharma,** A Tayade, M Gopal, & S Walia (2019). Persistence, dissipation and risk assessment of a combination formulation of trifloxystrobin and tebuconazole fungicides in tomato. Regul Toxicol Pharmacol 108:104471. (Impact Factor=3.598).
12. V Tripathy, KK Sharma, R Yadav, S Devi, A Tayade, **Khushbu Sharma,** et al. (2019). Development, validation of QuEChERS–based method for simultaneous determination of multiclass pesticide residue in milk, and evaluation of the matrix effect. J Environ Sci Health B, 54(5):394–406. (Impact Factor=2.506).
13. P Kumari, DVS Raju, KP Singh, KV Prasad, S Saha, A Arora, F Hossain and **Khushbu Sharma**. (2017). Rose leaves, a Potential Nutraceutical: An Assessment of the Total Anthocyanin Content and Total Phenolic Content. Chem Sci Rev Lett, 6(22), 1333–1337. (Impact Factor=NA).
14. DK Yadav, **Khushbu Sharma,** A Dutta, A Kundu, A Awasthi, K Banerjee and S Saha. (2017). Purity Evaluation of Curcuminoids in the turmeric extracts obtained by Accelerated Solvent Extraction employing different solvents. Journal of AOAC International. 100(3):586–591. (Impact Factor=2.028).
15. J Singh, **Khushbu Sharma**, S Walia, S Saha (2017). Anthocyanin profiling method based on isocratic elution for comparable speed, reproducibility and quantitation with gradient elution. Food Analytical Methods 10(1): 118–128.DOI: 10.1007/s12161-016-0561-z. (Impact Factor=3.498).
16. S Saha, A Kundu, S Walia, **Khushbu Sharma**, et al. (2016). Compositional and functional difference in cumin (*Cuminum cyminum*) essential oil extracted by hydrodistillation and SCFE. Cogent Food & Agriculture. 2: 1143166. (Impact Factor=2.161).
17. **Khushbu Sharma,** S Walia and S Ganguli (2016). Analytical characterization of secondary metabolites from Indian *Xenorhabdus* species the symbiotic bacteria of Entomopatathogenic nematode (*Steinernema* spp.) as antifungal agent. National Academy Science Letters 39(3): 175–180. (Impact Factor=0.788).
18. **Khushbu Sharma**, RK Sharma, PE Joseph (2015). Effect of Fly Ash and Bagasse Charcoal on the Mobility of Atrazine in Sandy Loam Soil. Cogent Environmental Science 1: 108112. (Impact Factor=NA).
19. S Rakesh, DW Dhar, R Prasanna, AK Saxena, S Saha, M Shukla and **Khushbu Sharma** (2015). Cell disruption methods for improving lipid extraction efficiency in unicellular microalgae. Engineering in Life Sciences 15(4): 443–447. (Impact Factor=3.405).

20. S Saha, S Walia, A Kundu, **Khushbu Sharma,** RK Paul (2015). Optimal extraction and fingerprinting of carotenoids by accelerated solvent extraction and liquid chromatography with tandem mass spectrometry. Food Chemistry 177: 369–375. (Impact Factor=9.231).
21. J Singh, RK Shukla, S Walia, A Shukla, **Khushbu Sharma**, et al. (2014). Chemical Characterization, Total Phenolics and Biological Activity of *Syzygium cumini* Essential Oil. Annals of Agri Bio Research 19(4): 680–682. (Impact Factor=NA).
22. **Khushbu Sharma**, RK Sharma, PE Joseph, S Saha and S Walia (2013). Sorption and mobility of hexaconazole in four different soils. Toxicol Environ Chem. 95(7): 1090–1098. (Impact Factor=1.565).
23. **Khushbu Sharma**, PE Joseph, J Singh, RK Shukla (2013). Comparative Evaluation of Various Extraction Techniques for Analysis of Hexaconazole Residues in Soils. Environment Conservation Journal 14 (1&2): 51–54. (Impact Factor=NA).
24. AK Maurya, **Khushbu Sharma**, PE Joseph (2013). DDT and HCH Residue Load in Animal's and Mother's Milk. IJSES 2(6): 516–523. (Impact Factor=NA)
25. AK Maurya, A Kumar, **Khushbu Sharma,** PE Joseph (2013). Organochlorine pesticides concentration in the ground water from regions of extensive agriculture in Lakhimpur kheeri, Uttar Pradesh–India. GJEDT. 2(3): 24–30. (Impact Factor=NA).
26. S Gupta, S Gupta, Md. Anis, H Kulshrashtha, **Khushbu Sharma** (2012)**.** Potential Application of Microwave Irradiations in Synthesis of Novel Thiosemicarbazone. Asian J Res Chem. 5(7): 899–900. (Impact Factor=NA).
27. S Gupta, S Gupta, Md. Anis, H Kulshrashtha, **Khushbu Sharma** (2012). Green Chemical Route towards Synthesis of Novel Acid Hydrazones. IJGHC1(2): 140–144. (Impact Factor=NA).

Book Chapter

1. **Khushbu Sharma**, Amol Tayade, Jashbir Singh and Suresh Walia (2019). Bioavailability of Nutrients and Safety Measurements. In: Egbuna C., Dable Tupas G. (eds) Functional Foods and Nutraceuticals pp 543-593. Springer, Cham. https://doi.org/10.1007/978-3-030-42319-3_25
2. Suresh Walia, **Khushbu Sharma** and Sudarshan Ganguli (2011). Book chapter on "Entomopathogenic Nematode–Bacterium Complex derived Novel Antibiotics and their Pest Control Properties'', In proceedings of short term National Training Course entitled "Advanced Techniques for Exploiting the ENBI Complexes (Entomopathogenic Nematodes–bacterial symbionts and the Insect hosts) for Biomanagement of Insect Pests of Crops", Under NAIP sub project code (70:13), IARI, New Delhi, February 10–19, 2011.

Paper Published in Conference Proceedings

KK Sharma, Vandana Tripathy, **Khushbu Sharma**, and Suresh Walia (2017). Generation of quality data for risk assessment of pesticides. In proceedings: National Conference on "GLP and ISO/IEC 17025 – Emphasis on Regulatory Affairs and Application in Academic Research" from 15–16 December, 2017. IIBAT, Padappai, Chennai, Tamil Nadu, India (ISBN–978-93-5288-428-5).

Article Published in Hindi Magzine

Birendra Kumar, **Khushbu Sharma**, and Aditi Kundu (2012). "Pyaz mei paudh sanrakshan" article published in magazine "Kheti" (in Hindi language)

Abstract/Poster in Conference/ Symposium (National/International)

1. Ruchi Gupta, **Khushbu Sharma**, Shobhita Kalra, Ankita Verma, K.K. Sharma and Vandana Tripathy (2023). Monitoring and Risk Assessment of Pesticide Residues in Grapes. Book of abstracts, proceedings of 15th IUPAC International Congress of Crop Protection Chemistry on "Futuristic Approaches towards Seed to Market Strategies" March 14-17, 2023, New Delhi.
2. K.K. Sharma, Suresh Walia, **Khushbu Sharma** and Vandana Tripathy (2023). Risk Assessment of Pesticide Residues for Consumer Safety Book of abstracts, proceedings of 15th IUPAC International Congress of Crop Protection Chemistry on "Futuristic Approaches towards Seed to Market Strategies" March 14-17, 2023, New Delhi.
3. **Khushbu Sharma**, Suneeta Devi, Rajbir Yadav, Gitansh Singh, Akanksha Aggarwal, Ankita Verma and Vandana Tripathy (2023). Simultaneous Analysis of >400 Multi-Class Pesticides in Honey by the GC/LC and Tandem Mass Spectrometry Book of abstracts, proceedings of 15th IUPAC International Congress of Crop Protection Chemistry on "Futuristic Approaches towards Seed to Market Strategies" March 14-17, 2023, New Delhi.
4. V Tripathy, P Shukla, S Devi, **Khushbu Sharma**, S Kalra, KK Sharma (2020). Estimation of tricyclazole residues in harvested rice grain and effect of processing (polishing and cooking) for the abatement of residues. Book of abstracts, proceedings of 4th IUPAC International Conference on Agrochemicals protecting crops, health and natural environment: Discovery and development of synthetic and natural products for health and pest management, organized by IPFT, ICAR-IARI, Dept. of Chemicals & Petrochemicals, and Society for the Promotion of Sustainable Agriculture, New Delhi from 07-10 January 2020. Pg. 114.
5. **Khushbu Sharma** and Suresh Walia (2019). Seabuckthorn (*Hippophae rhamnoides*): A source of natural anti–oxidant with medicinal and nutraceutical potential. Book of abstracts, proceedings of International Seminar on Recent Advances in Environmental Protection (RAEP 2019), in Golden Jubilee Celebration of CHEMSO organized by St John's College, Agra from 1–2 November 2019. Pg.
6. V Tripathy, R Yadav, **Khushbu Sharma**, S Devi, R Gupta, P Shukla, A Tayade, R Gautam, G Singh, S Kalra, M Parmar, V Anoosha, A Aggarwal, S Walia, and KK Sharma (2019). Residue Behaviour and Risk Assessment of Iprovalicarb 5.5% + Propineb 61.25% in the Tomato. Book of abstracts, proceedings of 1st National Agrochemicals Congress Country's status on Various Fronts of Agrochemicals, organized by Society of Pesticide Science India, New Delhi from 13-16 November 2019. Pg. 158.
7. S Saha, DK Yadav, **Khushbu Sharma,** A Awasti (2016). Purity profiling of curcuminoids obtained by accelerated solvent extraction. Book of abstracts, proceedings of 3rd International IUPAC Conference on Agrochemicals protecting crops, health and natural environment: New chemistries for phytomedicines and crop protection chemicals, organized by ICAR-IARI, New Delhi from 6-9 April 2016.
8. J Singh, S Walia, S Saha, B Kumar, **Khushbu Sharma,** C Kaur and P Kalia (2013). Aam thatha amrood pey padartho ki auxikarak pratirodhi shamta badhane mei kali gajar anthocyanin pigment ka mahatav. Book of abstracts, proceedings of "3rd National

Conference on Innovation in Indian Science, Engineering and Technology" National Science Congress in Indian Languages organized by Swadeshi Science Movement of India (25–27 February, 2013), National Physical Laboratory, Delhi. Pg.247.

9. **Khushbu Sharma,** RK Sharma, AK Maurya and PE Joseph (2011). Sorption & mobility of hexaconazole and captan fungicide in two different soils of India. Proceedings of abstract book of International conference on Global challenges–The role of chemistry in giving them solutions held at **Bangkok (Thailand)** from 11–15 June 2011. Pg.150.

10. S Ganguly, S Walia, S Kumar, D Sanyal, KS Rathour and **Khushbu Sharma** (2011). Ecological characterization of native Entomopthogenic Nematode and their bacterial symbionts in *Steinernema–Xenorhabdus* complex. In: 3rd NEMASYM Meeting "Proteomes and Genomes for the study of Eukaryote–Prokaryote symbioses" held at **Corvallis, Oregon, United States** from 16–17 July, 2011. Pg. 22–23.

11. **Khushbu Sharma,** R Kumar, PE Joseph, B Kumar and S Walia (2010). "Hexaconazole ka U.P. rajya ki do parkar ki mradao mei shoshadan evam gatisheelata" Book of abstracts, proceedings of "1st National Conference on Innovation in Indian Science, Engineering and Technology" National Science Congress in Indian Languages organized by Swadeshi Science Movement of India (22–23 November, 2010), National Physical Laboratory, Delhi. Pg. 118.

12. **Khushbu Sharma**, J Singh, B Kumar, S Walia, D Sanyal, S Kumar and S Ganguli (2010). "Sootrakrmi sehjiwi jeewado *xenorhabdus* sp. SGas1 utpadit padartho ke nichod guno ka vishleshna evam fafundinashak shamta ka moolyankan" Book of abstracts, proceedings of "1st National Conference on Innovation in Indian Science, Engineering and Technology" National Science Congress in Indian Languages organized by Swadeshi Science Movement of India (22–23 November, 2010), National Physical Laboratory, Delhi. Pg.137.

13. **Khushbu Sharma**, S Walia, D Sanyal, S Kumar and S Ganguli (2009). "Fungicidal properties of secondary metabolites produced by Entomopathogenic nematode (EPN) Symbiotic Bacterium Xenorhabdus sp. Assam–isolate" book of abstracts, proceedings of International conference on Recent Advances in Environment Protection organized by Department of Chemistry, St. John's College, Agra, Dec. 2009.

14. **Khushbu Sharma**, RK Sharma, AK Maurya and PE Joseph (2008). "Adsorption–Desorption behavior of Hexaconazole in two soils of U.P. Book of abstracts, proceedings of Indian Council of Chemists 27th Annual Conference (26–28 December, 2008), Gurukul Kangari Vishwavidhalaya, Haridwar. Pg.263.

15. AK Maurya, RK Sharma, **Khushbu Sharma** and PE Joseph (2008). "Adsorption–Desorption and Leaching behavior of Chlorpyrifos in different soils of U.P (India)". Book of abstracts, proceedings of Indian Council of Chemists 27th Annual Conference (26–28 December, 2008), Gurukul Kangari Vishwavidhalaya, Haridwar. Pg.236.

16. RK Sharma, AK Maurya, **Khushbu Sharma** and PE Joseph (2008). "Effect of fly ash and bagasse charcoal on the mobility of Atrazine in Sandy Loam soil" Book of abstracts, proceedings of Indian Council of Chemists 27th Annual Conference (26–28 December, 2008), Gurukul Kangari Vishwavidhalaya, Haridwar. Pg.237.

AWARDS:

- Awarded first prize for invited speaker for talk on "Seabuckthorn (*Hippophae rhamnoides*): A source of natural anti–oxidant with medicinal and nutraceutical potential" in International Seminar on Recent Advances in Environmental Protection (RAEP 2019), in Golden Jubilee Celebration of CHEMSO organized by St John's College, Agra from 1–2 November 2019.

- Received "**Aryabhatta Samman"** by Vigyan Bharti (Swadeshi Science Movement of India), New Delhi in the year 2013 conferred during Feb 25–27, 2013

- Awarded as best active member of "Chemical Society" Department of Chemistry, St. Johns College, Agra in 2003–04.

- Awarded as best active member of "Chemical Society" Department of Chemistry, St. Johns College, Agra during 2002–03.

TRAINING/ WORKSHOP

- Associated with the Network Coordinator in organization of training programme on 'Estimation of Pesticide Residue in Food Commodities' organized by Project Coordinating Cell, Pesticide Residue Laboratory, IARI, New Delhi from 19–23 November, 2019

- Participated in National Annual Workshop on "All India Network Project (AINP) on Pesticide Residues" by ICAR, New Delhi on 3 August, 2019 Thiruvananthapuram, Kerala

- Participated in National Annual Workshop on "Monitoring of Pesticide residues at National Level (MPRNL)" by Department of Agriculture Cooperation & Farmers Welfare (DAC&FW), Ministry of Agriculture & Farmers Welfare sponsored central sector scheme on 2 August, 2019 Thiruvananthapuram, Kerala

- Associated with the Network Coordinator in organization of refresher training programme on 'Pesticide Residue Analysis' organized by Project Coordinating Cell, Pesticide Residue Laboratory, IARI, New Delhi from 6–10 November, 2017

- Associated with the Network Coordinator in organization of refresher training programme on 'Pesticide Residue Analysis' organized by Project Coordinating Cell, Pesticide Residue Laboratory, IARI, New Delhi from 3–7 December, 2017

- Associated with the Network Coordinator in organization of refresher training programme on 'Pesticide Residue Analysis' organized by Project Coordinating Cell, Pesticide Residue Laboratory, IARI, New Delhi from 28 August–1 September, 2017

- Participated in National Annual Workshop on "All India Network Project (AINP) on Pesticide Residues" by ICAR, New Delhi on 14 August, 2017 Srinagar, J&K

- Attended training programme on 'Fundamentals of GC–MS with GC–MS Solution Workstation' organized by Shimadzu Analytical (India) Pvt. Ltd. (SAIP) at New Delhi from 14–15 September, 2017

- Attended refresher training programme on 'Pesticide Residue Analysis' organized by Project Coordinating Cell, Pesticide Residue Laboratory, IARI, New Delhi from 14–18 February, 2017

- Attended refresher training programme on GC & GC–MS by Shimadzu Analytical (India) Pvt. Ltd. at Project Coordinating Cell, Pesticide Residue Laboratory, IARI, New Delhi from 23–24 September, 2016

- Attended refresher training programme on 'Pesticide Residue Analysis' organized by Project Coordinating Cell, Pesticide Residue Laboratory, IARI, New Delhi from 22–26 November, 2016

- Attended refresher training programme on 'Pesticide Residue Analysis' organized by Project Coordinating Cell, Pesticide Residue Laboratory, IARI, New Delhi from 20–24 September, 2016

- Attended one day workshop on "Chemical Material" "EPIQ–Extraction, Purification, Identification & Quantification'' organized by Waters® India Pvt. Ltd. at New Delhi on 19 April, 2016

- Associated with the CPI in organization of National training on "Naturally occurring nutraceuticals, crop protectants and other biomolecules for application in human and crop health" in Division of Agricultural Chemicals, IARI, New Delhi from 23 January–2 February, 2012

- Associated with the CPI in organization of workshop on "Innovative solutions to production of nutraceuticals and functional foods" in Division of Agricultural Chemicals, IARI, New Delhi from 22–26 March, 2011.

- Associated with the CPI in organization of workshop on "Health benefitting phytoceuticals from vegetables, fruits and non–food crops" in Division of Agricultural Chemicals, IARI, New Delhi from 21–23 March, 2012

- Associated with the CPI in organization of workshop on **"**Extraction and analysis of nutraceuticals from vegetables, fruits and nonfood crops" in Division of Agricultural Chemicals, IARI, New Delhi from 22–24 November, 2012

- Demonstrated HPLC (Waters®) training to M. Sc (Chemistry) students from the year 2010–2012 in the Department of Chemistry, St. John's College, Agra

- Participated in "National Seminar on Environmental Crisis and its Solution" February, 2009 organized by Govt. P.G. College, Morena (M.P)

- Participated in "National Symposium/ Workshop on New Trends of Biosensor Technology" from 17–19 January, 2009 organized by Hindustan College of Sci. and Tech. Farah, Mathura (U.P)

- Participated in National Workshop on "Recent Trends in Chemistry" (UGC, SAP sponsored) February, 2008. Department of Chemistry, Faculty of Sci. Dayalbagh Edu. Institute, Dayalbagh, Agra

- Attended the International Conference (January 2008) on "Agrochemicals Protecting Crop, Health and Natural Environment" in IARI, New Delhi

- Done training on Atomic Spectrometer, UV–Vis Spectrometer and Flame Photometer from 27 January–1 February, 2006 at Department of Chemistry, St. John's College, Dr. Bhimrao Ambedkar University, Agra, India

- Done 'Vocational training' at Central Laboratory, National Fertilizers Ltd, Panipat (Haryana) from 5–15 December, 2003

MEMBERSHIP IN SCIENTIFIC BODIES

Life Member - Association of Food Scientists & Technologists (India) AFSTI. CSIR-CFTRI Campus, Mysuru - 570020, Karnataka, India

Reviewer in Journals

Food Analytical Methods – Springer
Polymers – MDPI
Molecules – MDPI
Agronomy – MDPI
Foods – MDPI
Applied Sciences – MDPI
Separations – MDPI
Soil and Sediment Contamination: An International Journal – Taylor & Francis
Biomedical Chromatography – Wiley