

Curriculum Vitae

Dr. Smrati Mishra
Assistant Professor
Botany Department
MBP Government P.G. College
Ashiyana, Lucknow
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Area of Specialization: Plant Tissue Culture and Medicinal Plants

Academic Qualification:

1. **CSIR + UGC joint NET JRF June 2003) Subject: Life Sciences**
2. **ARS NET(2010)Subject: Basic Plant Sciences**
3. **Ph.D(2010) in Botany** (Area Plant Biotechnology: Plant Tissue Culture,Transgenics)
4. **CSIR-National Botanical Research Institute, Lucknow and University of Lucknow, Lucknow**
5. Title of thesis: **“Studies on somatic embryogenesis in chickpea (*Cicer arietinum*L.) for genetic transformation and high-level expression of heterologous protein.”**
6. **Master of Science (2002) in Botany, First Division with 72.5% marks from PPN College, CSJM University, Kanpur**
7. **Bachelor of Science (2000) First Division with 66.15% marks from BBAM Mahavidyalya, Fatehpur, CSJM University, Kanpur. Major subjects: Botany, Zoology and Chemistry**
8. **Intermediate (Standard XII) (1997) First Division with 60.8% marks from U.P. Board of High School & Intermediate Education, Allahabad. Major subjects: Biology, Chemistry, Physics, Hindi and English**
9. **High School (Standard X) (1995) First Division (honors') with 75.17% marks from U.P. Board of High School & Intermediate Education, Allahabad. Major subjects: Biology, Science, Mathematics, Social Science, English and Hindi**

Experience:

1. **Assistant Professor** from 4th August 2021 to till date
Botany Department, MBP Government PG College Ashiana, Lucknow
2. **Guest faculty** from August 2019 to May 2020
Forestry Department, Chandrashekhar Azad University of Agriculture and technology, Kanpur
3. **Women Scientist** from 21th November 2014 to 20th November 20th 2017.
MSB Division, CSIR-Central Institute of Medicinal And Aromatic Plants, Lucknow
4. **Research Associate** from 5th October 2010 to 4th October 2013. MSB Division, CSIR-Central Institute of Medicinal And Aromatic Plants, Lucknow
5. **CSIR Senior & Junior Research Fellow** from 24th February 2004 to February 2009, MB & GE Division, CSIR-National Botanical Research Institute, Lucknow

Award

1. **CSIR-Junior Research Fellowship 2003**
2. **DBT- Women Scientist (Bio-CARe) 2014**

Research Project

Project Investigator under Biotechnology Career Advancement and Reorientation Programme (RGO scheme), Department of Biotechnology, Government of India in **CSIR-Central Institute of Medicinal And Aromatic Plants, Lucknow**

Project Title: Identification and validation of novel and conserved miRNAs targeted to withanolide biosynthetic pathway in *Withaniasomnifera*[BT/Bio-CARe/02/10159/2013-14].

Total Cost: 37,31,400 lakhs.

Duration: 3 Years (21st Nov 2014- 20th Nov 2017)

Name of Mentor: Dr. Neelam S. Sangwan (Senior Principal Scientist), CSIR-CIMAP, Lucknow

Publications

International Research publication in Peer-Reviewed Journals-	12
Book Chapters	03
Publications in seminars, Conferences, symposium etc.-	14

List of Research Publications:

1. RNAi and homologous over-expression based functional approaches reveal triterpenoid synthase gene-cycloartenol synthase is involved in downstream withanolide biosynthesis in *Withania somnifera* (2016) 11(2): e0149691 (1-20). **PLOS One ISSN 1932-6203, Impact factor 2.740, Refereed, First Author (Smrati Mishra, Shilpi Bansal, Bhawana Mishra, Rajender Singh Sangwan, Asha, Jyoti Jadaun, Neelam S. Sangwan)** Published online: 26 Feb 2016. **NAAS Score 9.70**
2. Transgenic chickpea expressing a recombinant human $\alpha 1$ -proteinase inhibitor ($\alpha 1$ -PI) driven by a seed-specific promoters from the common bean *Phaseolus vulgaris* (L.) (2013) 115(1): 23-33. **Plant Cell Tissue And Organ Culture ISSN 0167-6857 Impact factor 2.196, Refereed, First Author (Smrati Mishra, Shweta Jha, Rani Singh, Sonam Chaudhary, Indraneel Sanyal, Devindra Vijay Amla)** Published online: 6 June 2013. **NAAS Score 9.00**
3. Efficient genetic transformation of *Withania coagulans* (Stocks) Dunal mediated by *Agrobacterium tumefaciens* from leaf explants of *in vitro* multiple shoot culture (2013) 250:451-458. **Protoplasma ISSN 0033-183X Impact factor 2.800, Refereed, First Author (Smrati Mishra, Rajender S. Sangwan, Shilpi Bansal, Neelam S. Sangwan)** Published online: 6 July 2012. **NAAS Score 8.90**
4. Changes in protein pattern during different developmental stages of somatic embryos in chickpea (*Cicer arietinum* L.) (2012) 56 (4): 613-619. **Biologia Plantarum ISSN 0006-3134 Impact factor 1.400, Refereed, First Author (Smrati Mishra, Indraneel Sanyal and D.V. Amla)** Published online: 17 April 2012. **NAAS Score 7.50**
5. Genotype independent and efficient *Agrobacterium*-mediated genetic transformation of the medicinal plant *Withania somnifera* Dunal. (2016) 25 (2) 191-198 **J. Plant Biochem. Biotechnol. ISSN: 0971-7811 Impact factor 0.773 Refereed, First Author (Smrati Mishra,**

Shilpi Bansal, Rajender Singh Sangwan, Neelam S. Sangwan) Published online: 23 August 2015. **NAAS Score 7.90**

6. Qualitative and quantitative variations in withanolides and expression of some pathway genes during different stages of morphogenesis in *Withania somnifera* Dunal (2013) 250:539–549 **Protoplasma** ISSN 0033-183X **Impact factor 2.800 Refereed, Co-author** (Farzana Sabir, **Smrati Mishra**, Rajender S. Sangwan, Jyoti S. Jadaun, Neelam S. Sangwan) Published online: 10 August 2012. **NAAS Score 8.90**
7. Effect of gibberellic acid and calliterpenone on plant growth attributes, trichomes, essential oil biosynthesis and pathway gene expression in differential manner in *Mentha arvensis* L. (2013) 66: 150-158 **Plant Physiology and Biochemistry** ISSN 0981-9428 **Impact factor 3720 Refereed, Co-author** (Subir K. Bose, Ritesh Kumar Yadav, **Smrati Mishra**, Rajender S. Sangwan, A.K. Singh, B. Mishra, A.K. Srivastava, Neelam S. Sangwan) Published online: 27 February 2013. **NAAS Score 12.50**
8. *In silico* motif diversity analysis of the glycon preferentiality of plant secondary metabolic Glycosyltransferases (2012) 5(3):200-210 **Plant Omics** ISSN 1836-0661 **Impact factor 1.00 Refereed, Co-author** (Ritesh Kumar, R.S. Sangwan, **Smrati Mishra**, Farzana Sabir, Neelam S. Sangwan) Published online: May 2012
9. Effect of cadmium stress on inductive enzymatic and nonenzymatic responses of ROS and sugar metabolism in multiple shoot cultures of Ashwagandha (*Withania somnifera* Dunal) (2014) 251: 1031–1045 **Protoplasma** ISSN 0033-183X **Impact factor 2.800 Refereed, Co-author** (Bhawana Mishra, Rajender S. Sangwan, **Smrati Mishra**, Jyoti S. Jadaun, Farzana Sabir, Neelam S. Sangwan) Published online: 9 February 2014 **NAAS Score 8.90**
10. Withanolides from *Withania somnifera* Dunal: Development of Cellular Technology and their Production (2014) 8(1): 25-35 **Recent Patents on Biotechnology** ISSN 2212-4012 **Impact factor 0.830 Refereed, Co-author** (Neelam S. Sangwan, Farzana Sabir, **Smrati Mishra**, Shilpi Bansal and Rajender S. Sangwan) Published online: 2013
11. WRKY1-mediated regulation of tryptophan decarboxylase in tryptamine generation for withanamide production in *Withania somnifera* (Ashwagandha) (2020) **Plant Cell Reports** ISSN 0721-7714 **Impact factor 3.825 Refereed, Co-author** (Jyoti Singh Jadaun, Amit Kumar Kushwaha, Neelam S. Sangwan, Lokesh Kumar Narnoliya, **Smrati Mishra**, Rajender Singh Sangwan) Published online: 12 August 2020. **NAAS Score 12.20**

12. Differential regulation of key triterpene synthase gene under abiotic stress in *Withania somnifera* L. Dunal and its co-relation to sterols and withanolides, (2024) 208: 108419 **Plant Physiology and Biochemistry**, ISSN 0981-9428 Impact factor 6.1 Refereed, Co-author (Bhawana Mishra, Shilpi Bansal, Sandhya Tripathi, **Smrati Mishra**, Ritesh K. Yadav, Neelam S. Sangwan). Published online: March 2024. **NAAS Score 12.50**

Book Chapters Published

Smrati Mishra (2022) Current status, Advances in plant Tissue Culture Techniques and its implications in *Withania somnifera*, an important Indian medicinal plant. Role of Medicinal Plants in Health Care, Edited by Dr. Ozair Aziz, pp 76-89 ; R.P. Publication, New Delhi ISBN 978-93-91580-24-7

Smrati Mishra (2023) Rising Steps of Self-Reliant India towards Renewable Energy Sources. “Aatmnirbhar Bharat: Self Reliant India” Edited by Dr. Shweta Mishra and Dr. Sanobar Haider, pp 58-64; Swati Enterprises, Lucknow ISBN-978-81-960488-8-4

Smrati Mishra (2024) Recent update on Assessment of Medicinal and Aromatic Plants as Phytoremediators. “Sustainable Green Chemical Technologies: Challenges & Opportunities” Edited by Dr. S.V.A.R.Sastry Dr. Shravan Kumar Dr. G.L. Devnani, pp 155-159; Bharti Publications New Delhi- 110002 (INDIA) First Published, 2024 ISBN: 978-81-19757-00-8

Paper Presented/Published in Conferences/symposia:

1. Sugandha Srivastava, **Smrati Mishra**, Indraneel Sanyal and D.V. Amla (2004) *Agrobacterium* -mediated transformation and efficient management of chimera and *in vitro* culture duration in developing transgenic plants of tomato. **SBC 73rd Annual Meeting**, G.B Pant University of Agriculture & Technology Pantnagar –263145 (Uttaranchal), 21-24 November
2. Meenakshi Mehrotra, **Smrati Mishra**, Aditya kumar Singh, Indraneel Sanyal and D.V. Amla (2005) .High frequency protocol for regeneration and plantlet formation in Chickpea (*Cicer arietinum* L.) through Somatic embryogenesis. NSPB –2005 **National Symposium on plant Biotechnology: New Frontier, 2005**. Central Institute of Medicinal and aromatic plants (Council of Scientific & Industrial Research) Lucknow –226015, 18-20 November

3. **Smrati Mishra**, Indraneel Sanyal and D.V. Amla (2007). Tissue-specific expression of *uidA* gene driven by regulatory sequences of seed protein genes arcelin and phaseolin. NLS 2007, **National Symposium on Legumes for Ecological Sustainability: Emerging challenges and Opportunities**, Indian Institute of Pulses Research, Kanpur
4. **Smrati Mishra**, Shilpi Bansal and N. S. Sangwan (2011). In-vitro regeneration and transformation studies on *Ocimum* species-An update. **Ocimum 2011, Ancient Heritage to Modern Enigma**, Central Institute of Aromatic and Medicinal plants, Lucknow-226015, 28 -29 July
5. Shilpi Bansal, **Smrati Mishra**, Neelam S. Sangwan (2013) Increased withanolide production by *Agrobacterium*: a soil bacterium mediated transformation. **National conference on microbes promoting crop health, productivity and sustainability** CSIR- Central Institute of Medicinal and Aromatic Plants Lucknow & CSIR-National Botanical Research Institute, Lucknow, 26-27 October
6. Shilpi Bansal, **Smrati Mishra**, Neelam S. Sangwan (2015) Genetic transformation in *Withania somnifera* and its implications on synthesis and stability of withanolides. **International conference on medicinal plants resources for affordable new generation health care**. CSIR- Central Institute of Medicinal and Aromatic Plants, Lucknow 20-22 March
7. Smrati Mishra (2020) “**Herbal and Medicinal Plants as Preventive Health Measures and Boosting Immunity During Covid -19 Crisis.**” **NATIONAL WEBCON**. CSA University of Agriculture & Technology, Kanpur, during 6-8 May 2020.
8. Smrati Mishra (2021) Herbal medicines: An effective approach towards Human Health National Seminar on Transforming India@ 75 organized by Netaji Subhash Chandra Bose Government P.G. College Aliganj, Lucknow held on 17-18 December 2021
9. Smrati Mishra (2022) **Current status, Advances in plant Tissue Culture Techniques and its implications in *Withania somnifera*, an important Indian medicinal plant.** National Seminar on “Role of Medicinal Plants in HealthCare” organized by Department of Botany, Ram Sahai Government College, Shivrajpur, Kanpur held on 30th March 2022
10. Smrati Mishra (2023) **Role of Indian Diaspora in Indian healthcare system. International Seminar** on "Global Connections: Unveiling the Indian Diaspora's Transnational Impact" organized by Maharaja Bijli Pasi Government P.G. College, Ashiyana, Lucknow, Uttar Pradesh held on 9th November 2023

11. Smrati Mishra, Santosh Kumar (2023) **Aspects of Traditional Indian Knowledge System In Reference to Nature and Environment Conservation. International seminar** on “Aazadi ka Amritkaal: Global Welfare Through Indian Knowledge System” organized by Km. Mayawati Government Girls P.G. College, Badalpur, GB Nagar, U.P. held on 7th October 2023
12. Smrati Mishra (2024) **Sustainable Science: Biotechnology Innovations for Environmental Resilience. National Seminar** on “A Sustainable Approach To Combat Emerging Environmental Issues.” Organized by Department of Botany Indira Gandhi Government P.G. College Bangarmau, Unnao - 209868, Uttar Pradesh, India held on 22-23 March, 2024
13. Smrati Mishra (2024) **Preserving Nature: Insights from Indian Traditions for Environmental Conservation. Three-day International Conference** on “An Overview of Indian Knowledge Systems: From Glorious Past to Contemporary Contexts” organized by Netaji Subhash Chandra Bose Govt. Girls P. G. College Aliganj, Lucknow In collaboration with Global Sanskrit Forum held on 16-18 March 2024
14. Smrati Mishra (2024) **Recent update on Assessment of Medicinal and Aromatic plants as Phytoremediators International Conference** CHEM-TECHNOVA 2024 “Sustainable Green Chemical Technologies: Challenges & Opportunities” organized by IICHe Student Chapter & Department of Chemical Engineering, Department of Biochemical Engineering; School of Chemical Technology, Harcourt Butler Technical University Kanpur Uttar Pradesh-208002 held on 21 - 23 March , 2024

Symposium/ Conferences/Workshops attended:

1. **SBC 73rd Annual Meeting**, G.B Pant University of Agriculture & Technology ,Pantnagar - 263145 (Uttaranchal), India.**21-24 Nov, 2004**
2. **NSPB-2005 National Symposium on plant biotechnology: New Frontier, SOUVENIER** Central Institute Of Medicinal And Aromatic Plants [Council of Scientific & Industrial Research]Lucknow– 226015. **18-20 Nov 2005**
3. **NLS 2007, National Symposium on Legumes for Ecological Sustainability: Emerging challenges and Opportunities**, Indian Institute of Pulses Research, Kanpur – 208025. **3-5 Nov 2007**

4. **Ocimum 2011 Ancient Heritage to Modern Enigma**, Central Institute of Aromatic and Medicinal plants, Lucknow-226015. **28-29 Jul 2011**
5. **International Workshop on microRNAs: Novel tools for Diagnostics**, SouthAsianUniversity, Akbar Bhawan, Chanakyapuri, New Delhi **15-16 Oct, 2015**
6. **India International science Festival 2018**: Indira Gandhi Pratishthan, Lucknow, **05-08th October, 2018**
7. **International conference on medicinal plants resources for affordable new generation health care 2015**. CSIR- Central Institute of Medicinal and Aromatic Plants, Lucknow 20-22 March
8. **NATIONAL WEBCON 2020**. CSA University of Agriculture & Technology, Kanpur, during 6-8 May 2020.
9. National web Conference “**Management of Resources for Improvement of Productivity, Biodiversity and Livelihood Security**” 2020. UP-Chapter soil Conservation Society, New Delhi and Dept. of Soil Conservation and Water Management/ Forestry, Chandra Shekhar Azad University of Agriculture and Technology Kanpur held on 29-30th July 2020
10. National Seminar on **Transforming India@ 75** organized by Netaji subhash Chandra Bose Government P.G. College Aliganj, Lucknow held on 17-18 december 2021
11. National Seminar on “**Role of Medicinal Plants in HealthCare**” organized by Department of Botany, Ram Sahai Government College, Shivrajpur, Kanpur held on 30th March 2022
12. International Webinar On ”**Environmental Degradation : A Threat To Flora & Fauna**” Organized By Deptt. Of Zoology Paliwal Pg College Shikohabad, Firozabad Up India, Iast Agra & Noble Peace Foundation Dehradun held on 5th & 6th June 2022

TEACHING, LEARNING AND EVALUATION RELATED ACTIVITIES

1. **4-Week Induction/ Orientation/ Programme** For “Faculties in Universities/Colleges/ Institutes of Higher Education” from June 26 – July 24, 2020 with grade A+ Teaching Learning Centre, Ramanujan College University of Delhi under the aegis of MINISTRY OF HRD PMMM National Mission on Teachers and Teaching (PMMMNMSTT)
2. **2-Week Faculty Development Programme** on "MANAGING ONLINE CLASSES AND CO-CREATING MOOCS 3.0" from July 25 - August 10, 2020 and with grade A+ Teaching Learning Centre, Ramanujan College University of Delhi under the aegis of MINISTRY OF HRD PMMM National Mission on Teachers and Teaching (PMMMNMSTT)
3. **4-Week Induction/ Orientation/ Programme** For “Faculties in Universities/Colleges/ Institutes of Higher Education” from 20 February – 21 March, 2023 with grade A+ Teaching Learning Centre, Ramanujan College University of Delhi under the aegis of

MINISTRY OF HRD PMMM National Mission on Teachers and Teaching
(PMMMNMTT)

4. **Digital Marketing A-Z course (part time)** 24th June -28th conducted by Prof. Seema Gupta professor, Marketing at IIM Bangalore

Role Either As Convener Or Member In Various Committees Formulated In College

(Maharaja Bijli Pasi Government P.G. College, Ashiyana, Lucknow)

- Convener of **Equality cell** (2023-24)
- Member of **Admission Committee B.Sc I** year (2021-22), (2022-23), (2023-24)
- Member of **Admission Committee B.Sc II and III year** (2023-24)
- Member of **Admission Committee M.Sc I and II year** (2021-22), (2022-23), (2023-24)
- Member of **Online lecture/ Seminar and Workshop Organizing Committee** (2021-22), (2022-23)
- Member of **Scholarship committee General category** (2021-22), (2022-23), (2023-24)
- Member of **Sports committee** (2021-22), (2022-23), (2023-24)
- Member of **Research and Development Cell** 2023-24
- Member of **NIRF committee** 2023-24
- Member of **Environment/ Eco-restoration Committee** 2022-23



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