

CURRICULUM VITAE

Dr. Reema Mishra

Maiden Name: Dr. Reema Khurana

Assistant Professor
Department of Botany
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Educational Qualifications		
Degree	Institution	Year
Ph.D.	University of Delhi, DPMB, South campus	2011
M. Phil	University of Delhi, DPMB, South campus	2005
M.Sc. Botany	University of Delhi, Miranda House	2004
B.Sc. Botany (Hons)	University of Delhi, Miranda House	2002

Present Position

Associate Professor (Academic level 13A), Department of Botany, Gargi College, University of Delhi (December 2023-till date)

Past Experience

- Assistant Professor, Department of Botany, Maitreyi College, University of Delhi (September 2014- January 2015)
- D. S. Kothari Postdoctoral fellow, Department of Plant Molecular Biology, University of Delhi, South Campus (2013-2015)
- Research Associate, Department of Plant Molecular Biology, University of Delhi South Campus (2011-2013)

Awards & Honours

- Recipient of Panchanan Maheshwari medal for securing highest marks in M.Sc. Botany
- Recipient of Lakshmi Krishnaswami Award (For highest marks in B.Sc. (H) Botany I and II year), Miranda House, DU.

Research Projects Awarded

2020-2021: Faculty research program, IOE scheme, University of Delhi

2022 (Sanctioned) : BIOTECHNOLOGY RESEARCH AND DEVELOPMENT PROJECT

Project Title: Proposal for Workshop/Training in Bioinformatics

Project as Co-Principal Investigator, PI: Professor Aparajita Mohanty

Total funding: Rs 17,49,920/-

Funded by Department of Biotechnology, Ministry of Science and Technology, Govt. of India

Institutional Grant Awarded

Creation of Bioinformatics Infrastructure Facility (BIF) under the Biology Teaching through Bioinformatics Scheme of BTISnet, DBT

2019-2020: Co-PI

Funded by: Department of Biotechnology, Ministry of Science and Technology, Govt. of India

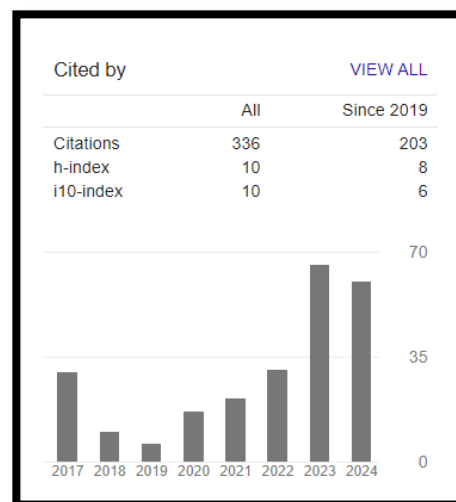
Research Interest

- Rice anther development
- *In silico* characterization of gene families of rice
- *In silico* analysis of cyclotide for their activities

Publications

Best Publications

1. Ranjan, R., & Mishra, R. (2024). Comprehensive Analysis of C48 Domain Containing Cysteine Protease Enzymes Revealed Their Role During Abiotic Stress and Reproductive Development in Rice. *Journal of Plant Growth Regulation*, 1-15. <https://doi.org/10.1007/s00344-024-11267-1> (IF- 3.9)
2. Mishra, R., Kaur, P., Soni, R., Madan, A., Agarwal, P., & Singh, G. (2024). Decoding the Photoprotection Strategies and Manipulating Cyanobacterial Photoprotective Metabolites, Mycosporine-like Amino Acids, for Next-Generation Sunscreens. *Plant Physiology and Biochemistry*, 212:108744. doi: 10.1016/j.plaphy.2024.108744 (IF- 6.5)
3. Grover, T., Mishra, R., Gulati, P.,....Mohanty, A. (2021). An insight into biological activities of native cyclotides for potential applications in agriculture and pharmaceutics. *Peptides*, 135, 170430. <https://doi.org/10.1016/j.peptides.2020.170430> (IF- 2.8)
4. Ranjan, R., Khurana, R., Malik, N., Badoni, S., Parida, S. K., Kapoor, S., & Tyagi, A. K. (2017). bHLH142 regulates various metabolic pathway-related genes to affect pollen development and anther dehiscence in rice. *Scientific Reports*, 7, 43397. <https://doi.org/10.1038/srep43397> (IF- 3.8)
5. Khurana, R., Kapoor, S., & Tyagi, A. K. (2012). Anthology of anther-specific promoters and transcription factors. *Critical Reviews in Plant Sciences*, 31(5), 359–390. <https://doi.org/10.1080/07352689.2012.664986> (IF- 6.9)
6. Gupta, V., Khurana, R., & Tyagi, A. K. (2007). Promoters of two anther-specific genes confer organ-specific gene expression in a stage-specific manner in transgenic systems. *Plant Cell Reports*, 26(11), 1919–1931. <https://doi.org/10.1007/s00299-007-0414-8> (IF- 5.3)



Student Publications

1. Sharma, A., Butool, B., Sahu, P., Mishra, R., & Mohanty, A. (2024). In Silico Analysis of Natural Plant-Derived Cyclotides with Antifungal Activity against Pathogenic Fungi. *Protein and Peptide Letters*. DOI: 10.2174/0109298665295545240223114346 (IF- 1.6)
2. Srivastava, S., Mishra, A., Mishra, R., & Mohanty, A. (2022). Biopesticidal potential of cyclotides: An insight. *Phytochemistry Reviews*, 1–21. (IF- 7.3)

3. Agarwal, P., Soni, R., Kaur, P., Madan, A., **Mishra, R.**, Pandey, J., ... & Singh, G. (2022). Cyanobacteria as a promising alternative for sustainable environment: Synthesis of biofuel and biodegradable plastics. *Frontiers in Microbiology*, *13*, 939347. (IF- 4)
4. Mendiratta, A., Mendiratta, S., Sharma, A., Agarwal, P., **Mishra, R.**, Soni, R., (2023). Myths and Misinformation on Social Media: Insights int. *Journal of Scientific Research*, *67*(2).
5. Agrawal, H., Vashishtha, H., Debnath, I., Agarwal, P., Soni, R., & **Mishra, R.** (2022). Public perceptions and experiences with the on-going COVID-19 immunisation programme in India: A survey based study. *Journal of Scientific Temper*, *10*(3). <https://doi.org/10.56042/jst.v10i3.57765>

Other Publications

1. Soni, R., Prakash, G., Sharma, S., Sinha, D., & **Mishra, R.** (2023). Role of microbes in alleviating abiotic stress in plants. *Plant Science Today*. <https://doi.org/10.14719/pst.2215> (IF- 0.9)
2. Sinha, D., Datta, S., **Mishra, R.**, Agarwal, P., Kumari, T., Adeyemi, S. B., Kumar Maurya, A., Ganguly, S., Atique, U., Seal, S., Kumari Gupta, L., Chowdhury, S., & Chen, J. T. (2023). Negative impacts of arsenic on plants and mitigation strategies. *Plants*, *12*(9). <https://doi.org/10.3390/plants12091815> (IF- 4)
3. Kaula, B. C., **Mishra, R.**, Geeta, Kumar, S., & Mohanty, A. (2022). Phytoconstituents and ethnopharmacological activities of *Abrus precatorius* L. (Fabaceae): A review. *Vegetos*, *35*(4), 869–879. <https://doi.org/10.1007/s42535-022-00397-0> (IF- 0.042)
4. Soni, R., Gupta, R., Agarwal, P., & **Mishra, R.** (2022). Organic farming: A sustainable agricultural practice. *Vantage. Journal of Thematic Analysis*, *3*(1), 21–44.
5. **Khurana, R.**, Kapoor, S., & Tyagi, A. K. (2013). Spatial and temporal activity of upstream regulatory regions of rice anther-specific genes in transgenic rice and *Arabidopsis*. *Transgenic Research*, *22*(1), 31–46. <https://doi.org/10.1007/s11248-012-9621-3> (IF- 2.7)
6. **Khurana, R.**, Kathuria, H., Mukhopadhyay, A., Kapoor, S., & Tyagi, A. K. (2013). A 286 bp upstream regulatory region of a rice anther-specific gene, *OSIPP3*, confers pollen-specific expression in *Arabidopsis*. *Biotechnology Letters*, *35*(3), 455–462.. <https://doi.org/10.1007/s10529-012-1100-7> (IF- 2)
7. Swapna, L., **Khurana, R.**, Vijaya Kumar, S. V., Tyagi, A. K., & Rao, K. V. (2011). Pollen-specific expression of *Oryza sativa indica* pollen allergen gene (*OSIPA*) promoter in rice and *Arabidopsis* transgenic systems. *Molecular Biotechnology*, *48*(1), 49–59. (* equal contribution). <https://doi.org/10.1007/s12033-010-9347-5> (IF- 2.4)

Book chapters

1. **Mishra, R.**, Agarwal, P., Soni, R., Singh, G., Abiotic stress response of a tropical plant: Sugarcane (*Saccharum* species) (2023). In: Tripathi, S., Bhadouria, R., Srivastava, P., Singh, R., & Sanayaima Devi, R. (Eds.), *Ecophysiology of Tropical Plants: Recent Trends and Future Perspectives (1st ed.)*. CRC Press. <https://doi.org/10.1201/9781003335054>
2. **Mishra, R.**, Soni, R., Singh, G., Kaur, P., Agarwal, P. (2023). Plant Invasion in an Aquatic Ecosystem: A New Frontier Under Climate Change. In: Tripathi, S., Bhadouria, R., Srivastava, P., Singh, R., Batish, D.R. (Eds.), *Plant Invasions and Global Climate Change*. Springer, Singapore. https://doi.org/10.1007/978-981-99-5910-5_9
3. **Mishra, R.**, Agarwal, P., & Mohanty, A. (2023). Applications of Genome Editing Techniques for the Improvement of Medicinal Plants. In: Swamy, M.K., Kumar, A. (Eds.), *Phytochemical Genomics*, pp. 545-569). Springer, Singapore. ISBN: 978-981-19-5778-9. https://doi.org/10.1007/978-981-19-5779-6_22.
4. **Mishra, R.**, Soni, R., Agarwal, P. & Mohanty, A. (2022). Utility of Probiotics in Aquaculture. In: M. Singh, G. P. Singh & S. Tyagi, (Eds.), *Microbial Products*, (pp149). CRC press. ISBN: 9781003306931. <https://doi.org/10.1201/9781003306931>

5. Mittal, M., Agarwal, P., Mohanty, A., & **Mishra, R.** (2022). Potential Immunity Boosting Plant Candidates Effective against SARS-CoV-2. In: A. Sharma, G. Malik & S. Kumar, (Eds.), *Medicinal Plants: Ethnomedicine, Pharmacognosy and Therapeutic Values* (pp. 43) ANU BOOKS ISBN: 978-93-90879-31-1
6. **Mishra, R.**, Grover, T., Gulati, P., & Mohanty, A. (2021). Rhizosphere Engineering: An Effective Approach for Sustainable Modern Agriculture. In: Verma A, Saini JK, Hesham AL, Singh HB (Eds.), *Phytomicrobiome Interactions and Sustainable Agriculture*, (pp. 91-117, Wiley-Blackwell Publications, ISBN-9781119644620
7. Chugh, S., Geeta, Agarwal, P., & **Mishra, R.** (2021). Common Indian Medicinal Plants with Antidiabetic Potential. In: D. Sinha (Ed.), *Handbook of Agriculture and Plant Sciences*, pp258-283, ABS publishers, ISBN 978-93-91002-25-1.
8. Agarwal, P., **Mishra, R.**, Chugh, S., & Geeta. (2021). Plant Nutraceuticals: An Emerging Approach for Better Health Management. In: D. Sinha (Ed.), *Handbook of Agriculture and Plant Sciences*, pp 92-117, ABS publishers, ISBN 978-93-91002-25-1.
9. Kawatra, A., **Mishra, R.**, Mohanty, A., & Gulati, P. (2021). Plants as Antiviral Agents. In: D. Sinha (Ed.), *Handbook of Agriculture and Plant Sciences*, pp171-186, ABS publishers, ISBN 978-93-91002-25-1.
10. Mallik, G., **Mishra, R.**, Prakash, G., & Agarwal, P. (2021). Genomics, Physiology And Molecular Breeding Approaches For Improving Crop Productivity Under Salt Stress: Progress And Prospects. In: P. K. Srivastava, J. Kumar, & S. M. Prasad (Eds.), *Salt Stress Responses in Plants: Perception, Signaling, Omics and Tolerance Mechanisms*, pp179, Nova Science Publishers. ISBN: 978-1-53619-889-8.
11. Prakash, G., Soni, R., Mishra, R., Sharma, S. (2019). Role of plant-microbe interaction in phytoremediation. In Kumar M (Ed.), *In vitro plant breeding towards novel agronomic traits* (pp. 83–118) Springer,. ISBN: 978-981-32-9826-2
12. Geeta, & **Mishra, R.** (2018). Fungal and bacterial biotrophy and necrotrophy. In: A. Singh & I. K. Singh (Eds.), *Molecular aspects of plant–pathogen interaction*, (pp. 21-42) Springer nature, ISBN: 978-981-10-7370-0
13. Kapoor, S., **Khurana, R.**, Baranwal, V., Agarwal, P., Ray, S., & Tyagi. (2011). A Genome-wide strategies for genetic enhancement of rice. In: K. Muralidharan & E. A. Siddiq (Eds.), *Genomics and crop improvement: Relevance and reservations* (pp. 11–25).
14. Tyagi, A. K., Khurana, J. P., Khurana, P., Kapoor, S., Singh, V. P., Singh, A. K., Thakur, J. K., Gupta, V., Anand, S., Vij, S., Jain, M., Ray, S., Agarwal, P., Arora, R., Sharma, P., Mukherjee, S., Nijhawan, A., Giri, J., & **Khurana, R.** (2007). Expression and functional analysis of rice genes involved in reproductive development and stress response. *Rice genetics*, 301–334. IRRI. https://doi.org/10.1142/9789812708816_0021

Research Guidance

Research Associate

Topic: Analysis of diversity of cyclotides and their bioactivities, 2019-2020

M.Sc. Dissertation

2019: Title: *In silico* analysis and subsequent screening of cyclotides for their putative role as biopesticides

Candidate: Ms Rajitha, Amity University

2020: Title: Bioinformatics analysis of cyclic miniproteins: cyclotides and knottins in Fabaceae

Candidate: Sunanda Gautam, Amity University

2020: Title: Genome-wide identification of *Asparaginyl Endopeptidases (Vacuolar Processing Enzymes)* genes in *Oryza sativa*, *Sorghum bicolor* and *Zea mays*

Candidate: Viola Raina, Amity University

Number of Short term student research projects: 12

M.Sc. Summer project

In silico Analysis of Gibberellin-2-beta-dioxygenase genes in Rice, May 2019-July 2019

Contributions as resource person/invited speaker

- Resource person in the workshop for development of audio/video resource in Biology and Chemistry at Higher Secondary stage, organized by Department of Education in Science and Mathematics, NIE, NCERT, on 21.09.2021.
- Resource person in the workshop for development of Learning outcome based resources in Biology Higher Secondary stage, organized by Department of Education in Science and Mathematics, NIE, NCERT, on 15.09.2021, 04.10.2021 and 06.10.2021.
- Resource person in the workshop for the project ' Development of Learning Outcomes based resources under Road Map in Biology, Biochemistry at Higher Secondary Stage organized by Department of Education in Science and Mathematics, NIE, NCERT, from 17.01.2022 to 19.01.2022.
- Resource person in the workshop to review infographics developed based on Learning Outcomes in Biology at the Higher Secondary stage to be held in DESM, NCERT from February 21-25, 2022.
- Resource person in the workshop to review infographics developed based on Learning Outcomes in Biology at the Higher Secondary stage to be held in DESM, NCERT from March 15-17, 2022.
- Resource person in the workshop for development of audio video resource on experiments of Biology at Higher Secondary stage, organized by Department of Education in Science and Mathematics NCERT, from March 22, 2021 to March 26, 2021.
- Delivered a talk in three days National seminar by Commission of Scientific and Technical Terminology (CSTT), MHRD, Govt. of India entitled "Use of scientific & technical terminologies in sustainable environment development, its challenges, computational analysis and opportunities" held on 14-16 March, 2019 at Gargi College, University of Delhi
- Delivered an invited lecture in the Departmental Colloquium organized by Department of Botany, Miranda House held on August 9, 2018.
- Delivered an invited lecture entitled 'Basics of Microsoft Excel' in the Workshop on "Basic Skills in Computer Applications" held on 7th and 8th June, 2018 at Department of Botany, Gargi College, University of Delhi.
- Resource person in the workshop titled 'Mapping of QR Codes in Textbook of Biology Class XII with e-Content' organized by department of Education in Science and mathematics, NIE, NCERT, Delhi.
- Resource person in Inter College Skill Enrichment Course on "Research Methodology" organized by Department of Botany, Gargi College, University of Delhi for the session 2023-2024.

Conference/FDP/Workshop attended

- Attended One-Week Online Faculty Development Programme on "Intellectual Property Rights" held on 23.08.2021 to 28.08.2021, organized by E&ICT Academy IIT Guwahati in joint association with B. N. College, Dhubri and support from Techvictus.
- Attended 5-Day International Online FDP on "Research Tools & Methodologies", held from 27th September - 01st October 2021, organized by Department of Mechanical Engineering, Lendi Institute of Engineering & Technology.
- Attended 2nd undergraduate teacher's online workshop on 'Understanding Public health from an Interdisciplinary Perspective' held from October 7, 2021 to October 12, 2021 organized by Delhi Effective Education and Pedagogy Cluster (DEEP-C)-DRIIV.

- Attended workshop on “Designing Classroom Pedagogy with Digital Tools, Part 2” held held between 19th October - 21st October 2021, organized by Delhi Effective Education & Pedagogy Cluster (DEEP-C)-DRIIV.
- Attended five day International Faculty Development Programme on "Yoga and Meditation for Human Excellence" from 14.02.2022 to 18.02.2022, organized by Sree Vidyanikethan Institute of Management, Tirupati.
- Attended 2-Weeks Faculty Development Programme on “RESEARCH METHODOLOGY” from 1.10.2020 to 15.10.2020, organized by Teaching Learning Centre, Ramanujan College University of Delhi under the aegis of Ministry Of Human Resource Development Pandit Madan Mohan Malaviya National Mission On Teachers And Teaching.
- Attended 1 Week Faculty Development Programme on “Development and Implementation of MOOCs” from 21.10.2020 to 27.10.2020, organized by Teaching Learning Centre, Ramanujan College University of Delhi under the aegis of Ministry Of Human Resource Development Pandit Madan Mohan Malaviya National Mission On Teachers And Teaching.
- Attended 2 weeks Refresher course on “Research Methodology: Tools and Techniques” from 30.01.2021 to 14.02.2021, organized by Teaching Learning Centre, Ramanujan College University of Delhi under the aegis of Ministry Of Human Resource Development Pandit Madan Mohan Malaviya National Mission On Teachers And Teaching.
- Completed Refresher Course in Life Sciences (SRC) from 28th June, 2019 to 11th July, 2019, conducted by Centre for Professional Development in Higher Education (CPDHE), University of Delhi in collaboration with department of Botany, Delhi University.

Events organized

- Organized Tree Plantation Drive under Grow a Tree for Life, an Environmental Action Programme held on July 26, 2024, organised by Department of Botany, Gargi College, University of Delhi in collaboration with NASI and MBSI.
- Coordinator of Two-Day Virtual Summer Workshop on BIOINFORMATICS FOR BEGINNERS’ requisite held on July 15-16, 2024, organized by Department of Botany, Gargi College, University of Delhi.
- Coordinator of International conference on Bioinformatics in Biology: From Pre-requisite to Post-requisite held on March 2-3, 2024, organized by Department of Botany, Gargi College, University of Delhi.
- Convener of Inter College Skill Enrichment Course on “ Research Methodology” organized by Department of Botany, Gargi College, University of Delhi for the session 2023-2024.
- Convener of Alumni Lecture series organized by Department of Botany, Gargi College, University of Delhi for the session 2023-2024.
- Convener cum resource person of an Inter-college add on course entitled “Advances in Plant Sciences” organized by Department of Botany, Gargi College, University of Delhi for the session 2022-2023.
- Member of organizing committee, Alumni Interaction 2023 held on February 02, 2023 organized by Department of Botany, Gargi College, University of Delhi.
- Organized a webinar on May 18, 2022; Topic: Diversity, Perception and Awareness in Plants on the occasion of fascination of Plants day by Dr. Sudhir K Sopory, organized by Department of Botany Gargi College, University of Delhi association with FoPD society.
- Convener of the Alumni lecture series organized by Department of Botany, Gargi College, University of Delhi.
- Organized a webinar on 28th January 2022; Topic: Modulation of Innate Immunity Through Host-sensing Pathogen by Dr. Ayub Qadri, National Institute of Immunology, under the aegis of Science Setu program (an initiative by Department of Biotechnology, Ministry of Science and Technology).

- Convener cum resource person of the E-student Enrichment Program on “Mathematics for Biologists” from 09.07.2021 to 19.07.2021, organized by Department of Botany Gargi College, University of Delhi.
- Member of organizing committee for the national webinar on “User Education Program on How to Navigate Online Services” held on 13.08.2021 organized by Library Committee, Gargi College, University of Delhi.
- Member of organizing committee for Botany Alumni meet 2021 held on 14.08.2021 organized by Department of Botany Gargi College, University of Delhi.
- Member of organizing committee for the workshop on “Academic E-resources” held from 09.02.2021 to 15.02.2021, organized by Library Committee, Gargi College, University of Delhi.
- Convener cum resource person of the E-student Enrichment Program on “Multidisciplinary Facets of Science” from 08.07.2020 to 29.07.2020, organized by Department of Botany Gargi College, University of Delhi.
- Organized online National Webinar on “Virtual Classes Tools: Google Classroom, Google Meet and YouTube on 11.05.2020.
- Organized Workshop on “Basic Skills in Computer Applications” held on June 7th and 8th, 2018 at Department of Botany, Gargi College, University of Delhi.
- Co-Convenor of the Lecture cum Demonstration Workshop on ‘Adulteration in Food and Preparation of Herbal Cosmetics’ held on January 09, 2019 at Gargi college, University of Delhi.
- Co-Convenor and Resource person in the Lecture cum Demonstration Intercollege Workshop for lab staff on ‘Laboratory Methods and Techniques’ on 10.12.2019, held at Department of Botany, Gargi College, University of Delhi.
- Organized Skill Enhancement Workshop on “Why to Grow and How to Multiply Plants” held on September 26, 2017 at Department of Botany, Gargi College, University of Delhi.
- Organized Workshop on “Analytical Techniques in Biochemistry” held on August 30 and 31, 2017 at Department of Botany, Gargi College, University of Delhi.
- Organized Golden Jubilee Lecture series (2016-2017), Gargi College, Department of Botany, University of Delhi
- Every year Organize visit to Yakult Factory, for B.Sc.(Hons) Botany III year students.

Total Posters presented: 06

Paper presentation

Targeting Covid-19 with medicinal plant based compounds. National conference on Realms of plant diversity: explorations with novel perspective. Organized by Maitreyi College, University of Delhi College, University of Delhi on August 24, 2021.

Administrative Responsibilities

Teacher in charge: Department of Botany (2023-till date)

Governing body teacher representative (2023-till date)

Convener-NIRF committee (2022-till date)

Co-convenor- Library committee (2021-2023)

NAAC steering committee: Coordinator Criterion III (2020-2022)

Departmental coordinator- DBT Star College Scheme (2018-2019)

Faculty Advisor, Gargi College Botanical Society (2016-2017)

Institutional Responsibilities

Library committee member (2015-2023)

Pathfinder committee member (2015-till date)

Botany admission committee member

Academic and Cultural Exchange committee member (Arts, Science and Commerce) Committee (2015-2016)

Health and Hygiene committee member (2015-2016)

Social Responsibilities

- Was a part of the Botany department's Food Donation Drive. Well-made food packages were distributed to the Children in partnership with the Delhi-based NGO "Sewa Bharti".
- Resource Person in Academic Outreach Program 'EXPLORATION IN BIOLOGICAL SCIENCES: INCULCATING SCIENTIFIC APTITUDE' organized by Department of Botany. Gargi College in collaboration with in collaboration with in collaboration with in collaboration with in collaboration IQAC, Pettigrew College, Manipur University, held on July 8-10, 2024

Invited as Subject Expert

- ICAR Workshop, 2021
- Central Research Institute for Homoeopathy, Noida

Academic Collaborations

- **Prof Sanjay Kapoor**
Department of Plant Molecular Biology
University of Delhi, South Campus
- **Dr. Rajeev Ranjan**
Department of Horticulture and Landscape Architecture, Purdue University,
West Lafayette, Indiana, USA

Date: August 11, 2024

Place: Delhi



Dr. Reema Mishra