Name Dr. Garvita Singh
Designation Assistant Professor
Department Botany
University Gargi College, University of Delhi
E-mail ID: garvitasingh15@gmail.com, garvita.singh@gargi.du.ac.in

EDUCATIONAL QUALIFICATION

Exam/Degree	Institution	Subjects	Year
Ph. D.	BHU	Botany	2013
M. Sc.	BHU	Botany	2009
B. Sc.	BHU	Botany(Hons.), Chemistry, Zoology	2007

Research Experience

Project title at PG level-Title of Project: Morphological and Molecular Characterization of *Frankia* Isolated from *Hippophae salicifolia* in Dept. Of Botany, BHU, Varanasi.

Worked as JRF in DST project (P-07-444), School of Biotechnology, BHU, Varanasi.

Thesis title- "Ultraviolet-B radiation-induced effects and defense mechanisms in *Anabaena* species: Synthesis of an efficient sunscreen agent employing ZnO nanoparticles".

Areas of Interest/Specialization-Cyanobacterial Biology, UV-B Protectants, Nanobiology and Nanotoxicology with respect to medicinal plants.

List of Publications

- Garvita Singh, PK Babele, RP Sinha, MB Tyagi and Ashok Kumar (2013) Enzymatic and non-enzymatic defense mechanisms against ultraviolet-B radiation in two *Anabaena* species. *Process Biochem* 48: 796–802.
- Garvita Singh, PK Babele, RP Sinha, MB Tyagi and Ashok Kumar (2014) Biosynthesis of ZnO nanoparticles using the cell extract of the cyanobacterium, *Anabaena* strain L31 and their conjugation with the mycosporine-like amino acid-shinorine. *J Photochem Photobiol B: Biol*.

- Garvita Singh, PK Babele, RP Sinha, MB Tyagi and Ashok Kumar (2014) Synthesis of silver nanoparticles using cell extract of a N_2-fixing cyanobacterium, *Anabaena doliolum* and screening of their biocidal effects. *J. Microbiol. Biotechnol*.
- Piyoosh K Babele*, Garvita Singh*, MB Tyagi and Ashok Kumar (2015) Induction and differential expression of certain novel proteins in *Anabaena* L31 under ultraviolet-B radiation. *Front. Microbiol.* 6:133.doi:10.3389/fmicb.2015.00133(equal contribution)
- PK Babele, Garvita Singh, MB Tyagi, RP Sinha and Ashok Kumar (2012) Biological effects of ultraviolet-B radiation. In: Proceedings of the seminar on "*Biotechnological Interventions for the Benefits of Mankind*" (Ed. B.D. Kaushik), Publisher AEC, Agra pp. 49-64.
- PK Babele, Garvita Singh, MB Tyagi, RP Sinha and Ashok Kumar (2012) Ultraviolet-B radiation effects on cyanobacteria and the role of sunscreen pigments in its protection. *Phykos* 42: 1-13.
- Richa, RP Rastogi, Sunita Kumari, KL Singh, VK Kannaujiya, Garvita Singh, Minu Kesheri and RP Sinha (2011) Biotechnological potential of mycosporine-like amino acids and phycobiliproteins of cyanobacterial origin. *Biotechnol Bioinf Bioeng* 1: 159-171.
- Richa, VK Kannaujiya, Minu Kesheri, Garvita Singh and RP Sinha (2011) Biotehnological potenials of phycobiliproteins. *Int J Pharma Bio Sci* 2: 446-454.
- UV-B radiation and temperature stress-induced alterations in metabolic events and defense mechanisms in a bloom-forming cyanobacterium *Microcystis aeruginosa* PK Babele, G Singh, A Singh, A Kumar, MB Tyagi, RP Sinha, Acta Physiologiae Plantarum 39 (11), 248, 2017
- Zabin, D., Shekher, A., Yadav, M., Soni, R., and **Singh**., (2022). Synthesis and Characterization of Silver Nanoparticles using Leaf Extracts of Medicinal plants and its Impact on *Anabaena doliolum*. Journal of Scientific Research (1) 66.
- 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*.
- Singh, G., Sahu, P., Sharma, A., Butool, B., Sarkar, R., Mishra, R., & Soni, R. (2022). Public awareness about the usage of medicinal herbs found in the kitchen and their potential against COVID-19 disease. *Plant Archives*, *22*(1), 288-296.
- Soni, R., Singh, N., Singh, G., and Raj, S. (2023). Significance of plants in Vedic Astrology, their Socio-Religious Beliefs, Conservational and Therapeutic Aspects; *Eco. Env. & Cons* 29(1)272-296;0971-765X

Book chapters published

- Shachi Agrawal, Garvita Singh, Anjana Rustagi and Rup Narayan. 2016. Phytoremedial Potential of Dry Tropical Peri-urban Vegetation. In: Vandana (Ed.) Biomedical and Environment, Campus Books International, New Delhi pp. 180-202 (ISBN: 978-81-8030-479-8)
- Garvita Singh, Anjana Rustagi and Shachi Agrawal. 2016. Active Sun-screening Compounds in Cyanobacteria. In: Vandana (Ed.) Biomedical and Environment, Campus Books International, New Delhi pp.203-222 (ISBN: 978-81-8030-479-8)
- Anjana Rustagi, Shachi Agrawal and Garvita Singh. 2016. In-vitro Manipulation of Musa species (Bananas) for Sustainable Agriculture. In: Vandana (Ed.) Biomedical and Environment, Campus Books International, New Delhi pp.223 (ISBN: 978-81-8030-479-8).
- Anjana Rustagi, Garvita Singh, Shachi Agrawal and Prem Kumar Gupta. 2017. Proteomics studies revealing enigma of plant-pathogen interaction In: Singh, A. and Singh I.K. (Eds.) Molecular Aspects of Plant-Pathogen Interaction, Springer Nature
- Artificial and natural photoprotective compounds, G Singh, J Kumar Sunscreens: Source, Formulations, Efficacy and Recommendations NOVA Science Publishers, Inc., USA.Editors: Rajesh P. Rastogi(2018)

- Understanding role of photosynthetic and sunscreen pigments in cyanobacteria under UV-B stress Scope of phytochemically Unexplored medicinal plants" Enriched Publisher 978-1-63535-013-5(2017)
- Some Traditional spices with potential home remedies: G Singh, RenuSoni, Scope of phytochemically Unexplored medicinal plants" Enriched Publisher978-1-63535-013-5(2017)
- Agricultural Geographical Indications (GIs) of Northeast India, ISBN 978-81-949439-8-3 in Book IPR: Challenges and Oppurtunities.
- Pritam Kaur, Preeti Agarwal, Darakshan Zabin, Farheen Islam, Aadrita Das and Garvita Singh*(2022) Cyanobacteria as a Promising Bioresource for Applications in Sustainable Agriculture, Medicine, and Green Nanotechnology, in Cyanobacteria: Life History, Ecology and Impact on Human, ISBN: 979-8-88697-169-9 Newly Published Books, Nova, Science and Technology,https://doi.org/10.52305/STKS9486.
- Garvita Singh, Divya Singh, Jay Kumar and Ashok Kumar ;Use of Nano-Bio-Chemicals in Modern Agriculture to Accelerate Sustainable Growth, Handbook of Research on Green Technologies for Sustainable Management of Agricultural Resources, Copyright: © 2022 |Pages: 24DOI: 10.4018/978-1-7998-8434-7.ch003, Publisher IGI Global.
- Garvita Singh, Divya Singh, Jay Kumar and Ashok Kumar;Use of Ecofriendly Fertilizers and Crop Residues for Enhancing Crop Productivity and Sustainable Agriculture; Handbook of Research on Green Technologies for Sustainable Management of Agricultural Resources; Copyright: ©2022 |Pages: 24ISBN13: 9781799884347|ISBN10: 1799884341|EISBN13: 9781799884354 DOI: 10.4018/978-1-7998-8434-7.ch010, Publisher IGI Global.
- Singh, G., Ghosh, P., Singh, D., & Kumar, J. (2023). Cyanobacteria as Natural Biofactories. In *Microbial Products* (pp. 35-56). CRC Press.
- R. Mishra, P. Agarwal, R. Soni, G. Singh Abiotic stress responses of a tropical plant: Sugarcane (*Saccharum* species); Ecophysiology of Tropical Plants Recent Trends and Future Perspectives; ISBN 9781032370446, 2023 by CRC Press

Books Edited

- Pillai RK, Kumar S (2016).Modern Practical Biology Class XII: **Singh G** (Ed.), GRB publications, Arihant Press, ISBN 978-93-85924-14-9.
- Kaushik MP, Kaushik R (2017). A Textbook of Modern Botany: **Singh G** (Ed.), Prakash Chand Bathla, Aryan Press, ISBN 978-93-82314-85-1.

Student Projects

Mentored student of life science on the topic "Effect of Zinc oxide nanoparticles on growth and biochemical content of Trigonella foenum-graecum" for star college project.

Mentored students of Botany (H) for Pathfinder award 2017 on topic Understanding the role of photosynthetic and sunscreen pigments in Anabaena sp. under UV-B stress.

CONFERENCES AND SEMINARS

1. Participated in International symposium on Phycological research at Department of Botany, Banaras Hindu University, India.
2. Poster presentation in the Annual conference of Association of Microbiologists of India (AMI), "International Conference on Microbial Biotechnology for Sustainable Development, Punjab University, Chandigarh.
3. Poster presentation in National symposium on "Current Status and New Horizons of Ecological Sciences and Environmental Biotechnology (ESEB-13), Department of Botany, Banaras Hindu University, India.

4. Participated in International conference on “Microorganisms in Environmental Management and Biotechnology, organized by department of Biotechnology and Bioinfomatics centre, Barkatullah University, Bhopal.
5. Abstract entitled “Mycosporine-like amino acids (MAAs) synthesis and protein turnover during UV-B radiation exposure in *Anabaena* species” presented in International conference on microorganisms in environmental management and Biotechnology (ICMEB-2011), organized by Barkatullah University, Bhopal, India.
6. Abstract entitled “Induction of mycosporine-like amino acids (MAAs) and protein turnover in *Anabaena* sp. under UV-B stress” accepted in 52nd annual conference of association of microbiologist of India (AMI-2011) organized by Punjab University, Chandigarh.
7. Abstract entitled “Biological effects of Ultraviolet-B radiations” accepted in National seminar on Biotechnological Interventions for the Benefits of Mankind, organized by Anand Engineering College, Agra, India.
8. Abstract entitled “Alterations in antioxidative enzymes activity and proteome of the cyanobacterium, *Anabaena doliolum* under UV-B stress" presented in 53rd annual conference of association of microbiologist of India (AMI-2012) organized by KIIT university, Bhubaneswar, India.
9. Abstract entitled “Proteomics analysis of *Anabaena* BT2 after UV-B stress” accepted in lost pines conference 2012 organized by The University of Texas, Smithville, Texas, USA.
10. Abstract entitled “Synthesis of Ag nanoparticles from *Anabaena* L31 and its bactericidal effect on multidrug resistant bacteria” accepted and poster presented in 82nd annual session and national symposium on “nano-science and technology for mankind” organized by NASI and BHU, India.
11. Abstract entitled “Enzymatic and non-enzymatic defense mechanisms against ultraviolet-B radiation in two *Anabaena* species” in national symposium on current status and new horizons of ecological sciences and environmental biotechnology (ESEB -13) by Banaras Hindu University, Varanasi, India.
12. Poster presentation in “National conference on pharmacognosy scope of phytochemically unexplored medicinal plants” January 12, 2017, organized by Department of Botany, Zakir Husain Delhi College (University of Delhi).
13. Participated in “Workshop on Creating awareness on Intellectual Property” on 4th September 2019, Ramjas College
14. Participated in National conference on “Combating industrial pollution for sustainable environment- A fusion of industrial and scientific efforts (CIPSE- 2016)”, September 22-23 2016, organized by Department of Chemistry, Gargi college, University of Delhi.
15. Certificate Of Participation, BHASKARACHARYA COLLEGE OF APPLIED SCIENCES, UNIVERSITY OF DELHI, UNDER THE AEGIS OF IQAC, has attended the workshop, Sensory gardens: Plants that engage with our senses,organized on February 5, 2022 via MS Teams.
16. Certificate for attending the NIPAM event organized by Ramjas College on 19th January 2022.
17. Participated in International Webinar on The Importance of Historical Ecology for InterPreting Processes of Evolution in plants of Oceanic Islands, 11 September 2020, Organised by the Department of life sciences, Mansarovar Global University.

Awards & Achievements

- Qualified GATE
- Qualified UGC-NET

- Awarded with UGC-Post Doctoral Fellowship (School of Biotechnology, BHU)
- Pathfinder Award, Gargi College University of Delhi.
- Participated, presented and was awarded IInd Prize poster in "Interdisciplinary national conference on Intellectual Property Rights (IPR): Challenges and Prospects".
- Participated, Presented and was awarded Ist prize in "One day Seminar on Intellectual Property Rights organized by Shivaji College
- Certificate of merit, for securing 2nd position in the Technical Session IIIB of the national conference on "Realms of Plant Diversity: Explorations with Novel Perspective", organized in virtual mode by the Department of Botany, Maitreyi College, on August 24, 2021.
- Consolation prize for oral presentation in 2nd International Conference on Recent Advances in Biotechnology & Nanobiotechnology (Int-BIONANO-2022), Amity University.

ADMINISTRATIVE ROLE

Part of College Committee (B.Sc. Programme association Physical sciences **2015-16**
Part of College Committee (Health and hygiene committee)
Part of College Committee (Prize committee for golden jubilee year)
Part of College Committee (Member of Physical science association)
Part of College Committee (Prize Committee)
Part of College Committee (Garden and Eco Club)
Departmental Admission committee and NAAC committee
Faculty Advisor (convenor) for Gargi College Botanical Society GCBS-TARU(2021-22)

Events organized oral and Resource Person 2022-2023

- Convenor, Intercollege Add-on course on the topic- "Advances in Plant Sciences", B.Sc. (Hons) Botany and B.Sc (P) Life Science students (intercollege) for the academic session (2022-2023).
- Dr. Garvita singh, Deptt. Of Botany, Gargi College, University of Delhi, delivered a lecture in the International Workshop on "Recent Trends in Modeling & its Applications-2022 (IWRTMIA 2022)" organized by Department of Mathematics, Post Graduate College, Ghazipur, UP 233001, India during September 04-08, 2022 in virtual mode.
- Gave Oral presentation in two day National e-Conference on Plant Science Research, Funding, Challenges and Opportunities, organized by Hansraj College in Collaboration with Mahatma Hansraj Faculty Development Centre Hansraj college, University of Delhi, on 16-17 January 2021

Other Training and Experiences/ organization of Seminars etc.

1. Participated in Summer School on "Development and Characterization of Advanced Materials" under UGC Networking Programme held from Feb. 22, 2013 to March 14, 2013 at Department of Physics, Banaras Hindu University, India

2. Worked as resource person in the hands-on training in “Techniques in Biology” organized at Dept. of Botany, MMV, BHU under star College Scheme of DBT in **2011**
3. Worked as resource person in the hands-on training in “Techniques in Biology” organized at Dept. of Botany, MMV, BHU under star College Scheme of DBT in **2012**
4. Actively participated in UKIERI study India Program 2015, Foreign student Gargi College 2015-16
5. Participated in Demonstration of Discovery studio 3.0 at Centre for Bioinformatics, School of Biotechnology, Banaras Hindu University on 20th April 2011 for supporting research activity in ProteinModelling and Simulation for Biological Research.
6. Organzed Workshop on laboratory methods and techniques, December 10, 2019, under BIF (DBT) Gargi College in association with IQAC, Gargi College.
7. Organized National Webinar on virtual classes tools: Google classroom, Googlemeet, and youtube, May, 11, 2020, Gargi College.
8. DR GARVITA SINGH, GARGI COLLEGE, DELHI UNIVERSITY has successfully completed One-Week Online National Faculty Development Program jointly organized by Guru Angad Dev Teaching Learning Centre, SGTB Khalsa College, University of Delhi under the Pandit Madan Mohan Malaviya National Mission onTeachers and Teaching (PMMMNMTT) of the Ministry of Education and Indian Cancer Society, Delhi on *Cancer Awareness*. FACULTY DEVELOPMENT PROGRAM (INTER-DISCIPLINARY),05th July to 11th July 2022

9. DR GARVITA SINGH, Department of Botany, Gargi College, University of Delhi has successfully completed ONLINE TWO - WEEK INTERDISCIPLINARY REFRESHER COURSE in “ADVANCED RESEARCH METHODOLOGY” from *22 July – 05 August, 2022,* Teaching Learning Centre, Ramanujan College, University of Delhi under the aegis of ,MINISTRY OF EDUCATION,PANDIT MADAN MOHAN MALAVIYA NATIONAL MISSION ON TEACHERS AND TEACHING.

GARVITA SINGH
(Signature)