

Curriculum vitae

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Educational qualifications

- **Ph.D.** (Thesis and Pre-submission seminar completed) from Centre of Experimental Medicine and Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India under the supervision of **Dr. Vibhav Gautam**, Assistant Professor. Passed Ph.D. coursework with **73.50% (First division)**.
- **M.Sc.** in Applied Microbiology from Banaras Hindu University, Varanasi with **77.9%** in 2020 (**first division**).
- **B.Sc.** in Botany (Hons.) from Banaras Hindu University, Varanasi with **61.3%** in 2017 (**first division**).

Research articles:

1. **Verma A**, Singh S, Gupta P, Tiwari H, Bharty MK, Gautam V*. Bioactivity-Guided Fractionation, Characterization and Identification of a Bioactive Compound, Phytosphingosine from the Endophytic Fungus *Penicillium oxalicum* with Potential Anti-breast Cancer Activity. *Biomedical Materials* (2025; *Article in Press*); **Impact factor- 3.9**
2. Jaiswal S, Rai N, Chandra S, **Verma A**, Gautam V, Adhikari M, Singh S, Bharty MK. Design, Synthesis, and Structural Evaluation of Metal Complexes of Azepane-1-carbodithioate for Targeting Human Breast Cancer: Investigating Cytotoxic Activity against MDA-MB-231 Cell Line. *RSC: New Journal of Chemistry* (2024); <https://doi.org/10.1039/D4NJ01878H>, **Impact factor- 2.7**
3. Bhardwaj N, Gupta P, Tripathi N, Chakarbarty S, **Verma A**, Kumari S, Gautam V, Gudasalamani R, Jain SK. New Ring-A Modified Cycloartane Triterpenoids from *Dysoxylum malabaricum* Bark: Isolation, Structure elucidation and their cytotoxicity. *Steroids* (2024); 109390. <https://doi.org/10.1016/j.steroids.2024.109390>, **Impact factor- 2.1**
4. Gupta P, Singh S, Rai N, **Verma A**, Tiwari H, Kamble SC, Gautam H, Gautam V*. Unveiling the Cytotoxic and Anti-Proliferative Potential of Green-Synthesized Silver Nanoparticles Mediated by *Colletotrichum gloeosporioides*. *RSC Advances* (2024); 1-16. <https://doi.org/10.1039/d3ra06145k>, **Impact factor- 3.9**
5. **Verma A**, Rai N, Gupta P, Singh S, Tiwari H, Chauhan SB, Kailashiya V, Gautam V*. Exploration of *in vitro* anticancer activity and *in ovo* antiangiogenic activity of ethyl

- acetate extract of *Penicillium oxalicum*. *Environmental Toxicology* (2023); <https://doi.org/10.1002/tox.23889>, **Impact factor-4.5**
6. Rai N, Gupta P, **Verma A**, Singh SK, Gautam V*. Isolation and characterization of *N*-(2-Hydroxyethyl)hexadecanamide from *Colletotrichum gloeosporioides* with apoptosis-inducing potential in breast cancer cells. *BioFactors* (2023); <https://doi.org/10.1002/biof.1940>, **Impact factor- 6.0**
 7. Rai N, Gupta P, **Verma A**, Tiwari RK, Madhukar P, Kamble SC, Kumar A, Kumar R, Singh SK, Gautam V*. Ethyl acetate extract of *Colletotrichum gloeosporioides* promotes cytotoxicity and apoptosis in human breast cancer cells. *ACS Omega* (2023); <https://doi.org/10.1021/acsomega.2c05746>, **Impact factor- 4.1**
 8. Salvi P, Kumar G, Gandass N, Kajal, **Verma A**, Rajarammohan S, Rai N, Gautam V. Antimicrobial Potential of Essential Oils from Aromatic Plant *Ocimum* sp.; A Comparative Biochemical Profiling and In-Silico Analysis. *Agronomy* (2022); 12(3):627. <https://doi.org/10.3390/agronomy12030627>, **Impact factor-3.3**
 9. Gupta P, Rai N, **Verma A**, Saikia D, Singh SP, Kumar R, Singh SK, Kumar D, and Gautam V*. Green-based approach to synthesize silver nanoparticles using fungal endophyte *Penicillium oxalicum* and its antimicrobial, antioxidant and *in vitro* anticancer potential. *ACS Omega* (2022); <https://doi.org/10.1021/acsomega.2c05605>, **Impact factor- 4.1**
 10. Rai N, Keshri PK, Gupta P, **Verma A**, Kamble SC, Gautam V*. Bioprospecting of fungal endophytes from *Oroxylum indicum* (L.) Kurz with antioxidant and cytotoxic activity. *PLOS ONE* (2022); 17(3); <https://doi.org/10.1371/journal.pone.0264673>, **Impact factor 2.9**
 11. **Verma A**, Gupta P, Rai N, Tiwari RK, Kumar A, Salvi P, Kamble SC, Singh SK, Gautam V*. Assessment of Biological Activities of Fungal Endophytes Derived Bioactive Compounds Isolated from *Amoora rohituka*. *Journal of Fungi* (2022); 8(3):285; <https://doi.org/10.3390/jof8030285>, **Impact factor-4.7**

Review articles:

1. Chattopadhyaya A, Kural S, **Verma A**, Gupta P, Tiwari H, Singh S, Thakur A, Kumar R, Sankhwar SN, Singh SK, Agarwal S, Mehrotra S, Kumar L*, Gautam V*. Urinary miRNAs in bladder cancer. *Clinica Chimica Acta* (2024); <https://doi.org/10.1016/j.cca.2024.120113>. **Impact factor- 3.2**
2. Tiwari H, Singh S, Sharma S, Gupta P, **Verma A**, Chattopadhyaya A, Kumar B, Agarwal S, Kumar R, Gupta SK, Gautam V*. Deciphering the Landscape of Triple Negative Breast Cancer from Microenvironment Dynamics and Molecular Insights to Biomarker Analysis and Therapeutic Modalities. *Medicinal Research Reviews* (2024); <https://doi.org/10.1002/med.22090>; **Impact factor- 10.9**
3. Singh S, Tiwari H, **Verma A**, Gupta P, Chattopadhyaya A, Singh A, Singh S, Kumar B, Mandal A, Kumar R, Yadav AK, Gautam HK, Gautam V*. Sustainable Synthesis of Novel Green-Based Nanoparticles for Therapeutic Interventions and Environmental Remediation. *ACS Synthetic Biology* (2024); <https://doi.org/10.1021/acssynbio.4c00206>, **Impact factor- 3.7**

4. Tiwari H, Gupta P, **Verma A**, Singh S, Kumar R, Gautam H, **Gautam V***. Advancing Era and Rising Concerns in Nanotechnology-Based Cancer Treatment. *ACS Chemical Health & Safety*. (2024); <https://doi.org/10.1021/acs.chas.3c00104>, **Impact factor- 2.9**
5. Singh S, Rai N, Tiwari H, Gupta P, **Verma A**, Kumar R, Kailashiya V, Salvi P, Gautam V*. Recent Advancements in the Formulation of Nanomaterials-Based Nanozymes, Their Catalytic Activity, and Biomedical Applications. *ACS Applied Bio Materials* (2023); <https://doi.org/10.1021/acsabm.3c00253>, **Impact factor- 4.6**
6. **Verma A**, Tiwari H, Singh S, Gupta P, Rai N, Singh SK Singh BP, Rao S, Gautam V*. Epigenetic manipulation for secondary metabolite activation in endophytic fungi: current progress and future directions. *Mycology* (2023); <https://doi.org/10.1080/21501203.2023.2241486>, **Impact factor- 4.2**
7. Tiwari H, Rai N, Singh S, Gupta P, **Verma A**, Singh AK, Kajal, Salvi P, Singh SK, Gautam V*. Recent advances in nanomaterials based targeted drug delivery for preclinical cancer diagnosis and therapeutics. *Bioengineering* (2023); <https://doi.org/10.3390/bioengineering10070760>, **Impact factor- 3.8**
8. Gupta P, Rai N, **Verma A**, Gautam V*. Microscopy based methods for characterisation, drug delivery and understanding the dynamics of nanoparticles. *Medicinal Research Reviews* (2023); <https://doi.org/10.1002/med.21981>, **Impact factor- 10.9**
9. Rai N, Gupta P, Keshri PK, **Verma A**, Mishra P, Kumar D, Kumar A, Singh SK, Gautam V*. Fungal Endophytes: an Accessible Source of Bioactive Compounds with Potential Anticancer Activity. *Applied Biochemistry and Biotechnology* (2022); <https://doi.org/10.1007/s12010-022-03872-1>, **Impact factor- 3.1**
10. Gupta P, **Verma A**, Rai N, Singh A, Singh SK, Kumar B, Kumar R, Gautam V*. Mass spectrometry-based technology and workflows for studying the chemistry of fungal endophyte derived bioactive compounds. *ACS Chemical Biology* (2021); <https://pubs.acs.org/doi/10.1021/acschembio.1c00581>, **Impact factor-3.5**
11. Keshri PK, Rai N, **Verma A**, Kamble SC, Barik S, Mishra P, Singh SK, Salvi P, Gautam V*. Biological potential of bioactive metabolites derived from fungal endophytes associated with medicinal plants. *Mycological Progress* (2021); <https://doi.org/10.1007/s11557-021-01695-8>, **Impact factor- 2.1**
12. Rai N, Keshri PK, **Verma A**, Kamble SC, Mishra P, Barik S, Singh S K, Gautam V*. Plant associated fungal endophytes as a source of natural bioactive compounds. *Mycology* (2021); <https://doi.org/10.1080/21501203.2020.1870579>, **Impact factor- 4.2**

Book chapters:

1. Bhaskar P, Tripathi R, Singh S, Chattopadhyaya A, **Verma A**, and **Gautam V*** (2024). Navigating the Nanoscale Frontier: An In-Depth Introduction to the World of Nanomedicine. In: V. Gautam et al. (eds.), *Nanomedicine, Nanotechnology in the Life Sciences*, Springer Nature Switzerland; https://doi.org/10.1007/978-3-031-72467-1_1.
2. Saini P, **Verma A**, Tiwari H, Mishra V, **Gautam V*** (2024). Omics-Based Approaches in Studying Fungal Endophytes and Their Associated Secondary Metabolites. In: Singh, B.P., Abdel-Azeem, A.M., Gautam, V., Singh, G., Singh, S.K. (eds) *Endophytic Fungi. Fungal Biology*, Springer, Cham; https://doi.org/10.1007/978-3-031-49112-2_10.

3. Rai N, Gupta P, **Verma A**, Singh S, Tiwari H, Kumar R, Singh SK, **Gautam V*** (2024). Fungal Endophyte-Mediated Green Synthesis of Silver Nanoparticles as Potential Anticancer Agent: Current Perspective and Challenges. R. C. Sobti et al. (eds.), Handbook of Oncobiology: From Basic to Clinical Sciences, https://doi.org/10.1007/978-981-99-2196-6_70-1.
4. **Verma A**, Rai N, Kamble SC, Mishra P, Barik S, Kumar R, Singh SK, Salvi P, Gautam V* (2023). Beyond the Synthetic Drugs: Fungal Endophytes Derived Bioactive Compounds in the Management of Neurodegenerative Disorders. In: Singh, S.P. (ed), Traditional Medicine in Neural Health. Bentham Science Publishers, Singapore; <https://doi.org/10.2174/9789815040197123010007>.

Academic Achievements (Ph.D.)

1. Oral presentation in the Rencontres du Vietnam: **The Second International Symposium on Nano Life Science: Nano Biotechnology, Biophysics, Computation (NanoBioCoM-2024)**, held from September 25th-27th, 2024, at ICISE, Quy Nhon, Vietnam, and for receiving the prestigious IUPAB award.
2. Poster presentation in the **International Conference on Traditional Medicine & Phytopharmaceuticals (ICTMP) & 11th International Congress of Society for Ethnopharmacology (SFEC 2024)** held at CSIR-Indian Institute of Integrative Medicine, Jammu, India on February 16th-18th 2024.
3. Poster presentation in the 92nd annual meeting of ‘**Society of Biological Chemist (SBC-2023)**’ held at BITS Pilani, KK Birla Institute, Goa, India on December 18th-20th 2023.
4. **Best oral presentation award** in the 2nd International Conference on **Advances and Innovation in Biotechnology for Sustainable Bioresources and Bioeconomy (AI-BSBB 2023)** 22nd-25th November 2023, organized by Department of Biotechnology, AKS University, Satna, M.P., India.
5. Poster presentation in the International Conference on ‘**Current Trends and Future Prospects of Plant Biology**’ February 23rd-25th, 2023’ organized by Department of Plant Sciences, School of Life Sciences, University of Hyderabad, Hyderabad, Telangana, India.
6. Poster presentation in the International Conference on ‘**Exploring New Horizons in Biotechnology (ENB-2023)**’ held at School of Biotechnology, Institute of Sciences, Banaras Hindu University, Varanasi, India on 10th-12th February 2023.
7. **Second prize** for poster presentation in the International Conference on ‘**1st Paramedicon**’ held at Rajiv Gandhi South Campus Banaras Hindu University on 7th & 8th April 2022.
8. Poster presentation in the International Seminar on ‘**Ecosystem functioning in Anthropocene-ISEFA 2022**’ held at Department of Botany, Institute of Sciences, Banaras Hindu University, Varanasi, India on 23th-25th February 2023.

Technical expertise

PhD: Currently I am pursuing Ph.D. at Centre of Experimental Medicine and Surgery, Institute of Medical Sciences, BHU. In my Ph.D., My research work is based on isolation and identification of fungal endophytes associated with the medicinal plants. I have selected a medicinal plant *Amoora rohituka* for the isolation of fungal endophytes from the leaf tissue. Fungal endophytes are well known to produce various classes of secondary metabolites including phenolics, flavonoids, polyketides, terpenoids, which have great pharmacological

significance in the field of management of human health diseases. Using culture dependent approach, we isolated a total of eight fungal endophytes from the leaf of medicinal plant *A. rohituka*. The isolated fungal endophytes have been further identified by morphological and molecular identification and further used for the bulk production of the bioactive compound/s associated with them. Further, testing of antioxidant potential using *in vitro* antioxidant assays has been done. Moreover, we have estimated the total phenolic and flavonoid content present in mycelial extract of each fungal strains and High-Performance Thin Layer Chromatography (HPTLC) for the fingerprinting of different components present in crude extract. Thereafter, we have selected the most potential strains in terms of antioxidant activity, highest phenolic and flavonoid content in their crude extract. The potential strain exhibited host dependent activity in terms of antioxidant activity as well as highest content of total phenolic and flavonoid contents. Bioactive compounds isolated from potential fungal strain exhibits significant cytotoxic activity against breast cancer cell lines. Furthermore, upregulation of apoptosis related genes in breast cancer cells have been exhibited by the exposure with bioactive compounds produced by potential fungal strain. Alongwith these, we have showed antiangiogenic activity of potential fungal crude extract by performing *in ovo* chorioallantoic membrane assay. Considering the apoptosis inducing potential of ethyl acetate extract of *P. oxalicum*, using spectroscopic techniques such as HPLC, HRMS, LC-MS, FT-IR, TOF-MS, and NMR, we will try to identify the lead bioactive compound produced from fungal endophyte *P. oxalicum* responsible for cytotoxic activity.

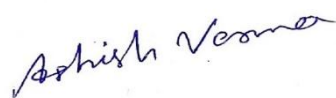
M.Sc.: During my Masters, I joined the Laboratory of Herbal Pesticides (Incharge-Prof. Nawal Kishor Dubey) Department of Botany, Institute of Sciences, Banaras Hindu University, to complete my dissertation. The topic of my dissertation thesis was “**Nanoencapsulation of *Pimenta dioica* essential oil into chitosan matrix to enhance their efficacy & stability against fungal aflatoxin and Lipid peroxidation**”.

Scholarships and Awards

1. CSIR NET JRF June 2020 (AIR 122)
2. GATE - Qualified in February 2020
3. CSIR NET LS December 2018 (AIR 63)
4. CUCET 2018 (qualified for all the participating central universities)
5. JNU CEEB 2018 (628 AIR)
6. IIT JAM 2018 (BL- 819 AIR)

Personal details:

Father's name	-	Jiyalal Seth
Mother's name	-	Sangita Devi
Date of Birth	-	05.11.1995
Language known	-	English and Hindi
Hobbies	-	Playing cricket, chess, badminton, and football


Ashish Verma