Curriculum vitae

PERSONAL DETAILS

Dr. SHILPI BANSAL

Date of Birth: 25th February 1987

Gender: Female

Nationality: Indian

E-mail ID: shilpi.success@gmail.com/ shilpib@srmist.edu.in

Mobile Number: 09452502239

PROFESSIONAL PROFILE

I am keen to find a progressive position with a reputed academic organization that can offer me the opportunity to work with a team which embodies passion towards the changing world of knowledge and technology along with the spirit of efforts contributing in overall performance of individuals and the group in whole. A highly motivated, flexible and hardworking persona with a good range of technical experience, knowledge of upcoming developments in society, successful at meeting deadlines and coping up with pressure.

EDUCATIONAL QUALIFICATION

Ph. D (**2012-2017)**	**Institute-**Metabolic and Structural Biology Department, CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow, India **Subject-** Biology **Title-**"Functional genomics studies on the key genes of terpenoids biosynthesis from selected medicinal plants: *Ocimum kilimandscharicum* and *Withania somnifera*"
Master of Science (2008-2010)	**University-** Banasthali University, Rajasthan **Subject-** Biotechnology **Division/Percentage**- I/76.0
Bachelor of Science (2005-2008)	**University-** Banasthali University, Rajasthan **Subject-** Biotechnology (Honors) **Division/Percentage**- I/76.3

RESEARCH EXPERIENCE

Research Associate (2020-2023)	Division of Plant Pathology, ICAR- Indian Agricultural Research Institute, New Delhi, India
Research Associate (2018-2020)	Vegetable Science Division, ICAR- Indian Agricultural Research Institute, New Delhi, India
CSIR-SRF (2014-2017)	CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow, India
Project Fellow (2010-2014)	CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow, India

TEACHING EXPERIENCE

Assistant Professor (2023- Till date)	Department of Biology, Faculty of Science and Humanities, SRM Institute of Science and Technology, Delhi NCR Campus, Modinagar, Ghaziabad, Uttar Pradesh

TRAINING DETAILS

On **"Tools and Techniques used in Bacteriology and Molecular Biology"** from National Bureau of Fish Genetic Resources as a part of one month summer training (1st June 2009-4th July 2009)

On **"Cloning, Expression and Purification of Peptidyl-tRNA Hydrolase from *Vibrio cholerae*"** from Central Drug Research Institute as a part of MSc. final year dissertation project (1st January 2010-31st June 2010)

ADMINISTRATIVE SKILLS

Class mentor session 2024-2025 (B.tech 1st Year)

Class mentor session 2023-2024 (B.tech 1st Year)

SPOC member of IQAC

PULBICATIONS

- Ambalavanan A, Mallikarjuna MG, **Bansal S**, Bashyal BM, Subramanian S, Kumar A, Prakash G (2024). Genome-wide characterization of the NBLRR gene family provides evolutionary and functional insights into blast resistance in pearl millet (*Cenchrus americanus* (L.) Morrone). Planta. 259(6):143. (IF- 4.2)
- Mishra B, **Bansal S**, Tripathi S, Mishra S, Yadav RK, Sangwan NS (2024). Differential regulation of key triterpene synthase gene under abiotic stress in *Withania somnifera* L. Dunal and its co-relation to sterols and withanolides. Plant Physiology and Biochemistry. Feb 9:108419. (IF-6.5)

- Balamurugan A, Mallikarjuna MG, **Bansal S**, Nayaka SC, Rajashekara H, Chellapilla TS, Prakash G (2024). Genome-wide identification and characterization of NBLRR genes in finger millet (*Eleusine coracana* L.) and their expression in response to *Magnaporthe grisea* infection. BMC Plant Biology. 24(1):75. (IF-5.3)
- **Bansal S**, Mallikarjuna MG, Reddy B, Balamurugan A, Achary VMM, Reddy MK, Kumar A, Prakash G (2023) Characterization and validation of hypothetical virulence factors in recently sequenced genomes of *Magnaporthe* species. Physiol. Mol. Plant Pathol https://doi.org/10.1016/j.pmpp.2023.101969 (IF-2.71)
- **Bansal S**, Mallikarjuna MG, Balamurugan A, Nayaka SC, Prakash G (2022) Composition and Codon Usage Pattern Results in Divergence of the *Zinc Binuclear Cluster* (*$Zn(II)_2Cys_6$*) Sequences among Ascomycetes Plant Pathogenic Fungi. J. Fungi, 8, 1134. https://doi.org/10.3390/jof8111134 (IF-4.7)
- Narnoliya LK, Sangwan N, Jadaun JS, **Bansal S**, Sangwan RS (2021) Defining the role of a caffeic acid 3-O-methyltransferase from *Azadirachta indica* fruits in the biosynthesis of ferulic acid through heterologous over-expression in *Ocimum* species and *Withania somnifera*. Planta. 253(1):1-3. (IF-4.3)
- Kalia P, Aminedi R, Golz J, Russell D, Choudhary P, Rawat S, **Bansal S**, Tenazas F, Singh A, Panwar A, Kalia V. Development of diamondback moth resistant transgenic cabbage and cauliflower by stacking Cry1B and Cry1C Bt genes. InXXX International Horticultural Congress IHC2018: II International Symposium on Plant Breeding in Horticulture 1282 2018 Aug 12 (pp. 237-246).
- Maurya S, Chandra M, Yadav RK, Sangwan RS, **Bansal S**, Sandhu P, Singh U, Kumar D, Sangwan NS (2019) Interspecies comparative features of trichomes in *Ocimum* reveal insights for biosynthesis of specialized essential oil metabolites. Protoplasma 256 (4):893-907, Springer Link Publishers (IF-2.9)
- **Bansal S,** Narnoliya LK, Mishra B, Chandra M, Yadav RK, Sangwan NS (2018) HMG-CoA reductase from camphor tulsi (*Ocimum kilimandscharicum*) regulated MVA dependent biosynthesis of diverse terpenoids in homologous and heterologous plant systems. Scientific Reports 23, 8(1):3547, Nature Publishing Groups (IF-4.6)
- Mishra S*, **Bansal S***, Mishra B, Sangwan RS, Asha , Jadaun JS, Sangwan NS (2016) RNAi and homologous over-expression based functional approaches reveal triterpenoid synthase gene-cycloartenol synthase is involved in downstream withanolide biosynthesis in *Withania somnifera*. PLoS ONE 11(2): e0149691. doi:10.1371/journal. pone.0149691 (***equal contribution of authors**) PLOS publishers (IF-3.4)
- Jadaun JS, Sangwan NS, Narnoliya LK, Singh N, **Bansal S**, Mishra B, Sangwan RS (2017) Over-expression of DXS gene enhances terpenoidal secondary metabolite accumulation in geranium and *Withania somnifera*: Active involvement of plastid isoprenogenic pathway

in their biosynthesis. Physiologia Plantarum 159(4): 381-400, Wiley Online Library (IF-5.081)

- Mishra S, **Bansal S**, Sangwan RS, Sangwan NS (2016) Genotype independent and efficient *Agrobacterium* mediated transformation of the medicinal plant *Withania somnifera* Dunal. J Plant Biochem Biotechnol. 25(2): 191-198, Springer Link Publishers (IF-1.9)
- Mishra S, Sangwan RS, **Bansal S**, Sangwan NS (2013) Efficient genetic transformation of *Withania coagulans* (Stocks) Dunal mediated by *Agrobacterium tumefaciens* from leaf explants of *in vitro* multiple shoot culture. Protoplasma 250: 451-458, Springer Link Publishers (IF-2.9)
- Sangwan NS, Sabir F, Mishra S, **Bansal S**, Sangwan RS (2014) Withanolides from *Withania somnifera* Dunal: Development of Cellular Technology and their Production. Recent Patents on Biotechnology 8: 25-35 **(Citations-12)**

Book Chapter-

- **Bansal S**, Balamurugan A, Mallikarjuna MG, Singh SP, Nayaka SC, Prakash G (2024). The Major Diseases of Pearl Millet in the Indian Sub-continent: Current Scenarios in Resistance and Management Strategies. InPearl Millet in the 21st Century: Food-Nutrition-Climate resilience-Improved livelihoods (pp. 305-330). Singapore: Springer Nature Singapore.
- Jadaun JS, Yadav R, Yadav N, **Bansal S**, Sangwan NS (2023) Influence of Genetics on the Secondary Metabolites of Plants. In Natural Secondary Metabolites: From Nature, Through Science, to Industry (pp. 403-433). Cham: Springer International Publishing.
- **Bansal S**, Balamurugan A, Achary V, Kumar A, Reddy MK, Prakash G (2022) Editing plant genome with CRISPR/Cas: a sustainable strategy for disease management. InNext-generation plant breeding approaches for stress resilience in cereal crops (pp. 369-396). Springer, Singapore.
- **Bansal S**, Jadaun JS, Singh SP (2021) Resource Recovery from the Abundant Agri-biomass. Bioprospecting of Plant Biodiversity for Industrial Molecules.Wiley Publications:131-52.
- **Bansal S**, Narnoliya LK, Sonthalia A (2020) Potential Raw Materials and Production Technologies for Biorefineries. Biorefinery Production Technologies for Chemicals and Energy. Wiley Publications, 261-288
- Singh SP, **Bansal S**, Pandey A (2018) Basics and Roots of Synthetic Biology. in SP Singh, A Pandey, G Du, S Kumar (Eds.), Current Developments in Biotechnology and Bioengineering: Synthetic Biology, Cell Engineering and Bioprocessing Technologies, Elsevier Publications, 3-22

Review Papers-

- Jadaun JS*, **Bansal S***, Sonthalia A, Rai AK, Singh SP. (2022) Biodegradation of plastics for sustainable environment. Bioresource Technology. 2022 Jan 11:126697. (***equal contribution of authors**) (IF-11.4)

- Chattopadhyay A, Purohit J, Mehta S, Parmar H, Karippadakam S, Rashid A, Balamurugan A, **Bansal S**, Prakash G, Achary VM, Reddy MK (2022) Precision Genome Editing Toolbox: Applications and Approaches for Improving Rice's Genetic Resistance to Pathogens. Agronomy. 12(3):565. (IF-3.752)

PRESENTATIONS, SEMINARS & FDP

1) FDP

"Revolutionizing Agriculture: Novel Perspectives on Technological Innovation" organized by Department of Botany, Hansraj College, University of Delhi on 01- 06th April 2024

"Research & Innovation: Proposed Writing Tools, Techniques and Funding" organized by SRM Institute of Science and Technology Delhi-NCR Campus on11th – 16th March 2024

"Intellectual property rights for sustainable and technological development" organized by Galgotias University, Greater Noida, India on 06-10th 2024

"NEP 2020 Orientation & Sensitization Programme" organized by Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram, Chennai on 20-30th November 2023

2) Oral Presentation

- **Bansal S,** G. Prakash, Balamurugan A, Kumar A, Reddy B, Achary VMM and Reddy MK (2022) **"Identification and characterization of putative virulence factors of *Magnaporthe* species inciting blast disease in rice and pearl millet".** Oral presentation in in International Conference (Hybrid Mode) on Plant Pathology: Retrospect and Prospects held at SKNAU, Jobner-Jaipur, Rajasthan on 23-26th March 2022

- **Bansal S** and Sangwan NS (2014) **Hairy root induction via *Agrobacterium rhizogenes* in *W. somnifera.*** Oral presentation in Jigyasa symposium held at CSIR-CIMAP, Lucknow on 13-14th December 2014

- Mishra S, **Bansal S** and Sangwan NS (2011) **Genetic transformation studies on *Ocimum* species-an update.** Oral presentation in *Ocimum* symposium held at CSIR-CIMAP, Lucknow on 27-28th July 2011

3) Poster Presentation

- **Bansal S** and Sangwan NS (2017) "**An insight into structural and functional characteristics of 3-hydoxy 3-methyl glutaryl-CoA reductase from *Ocimum* species**" Presented as poster in NextGen Genomics, Biology, Bioinformatics and Technologies

(NGBT) Conference held at Mayfair Convention Centre, Bhubneshwar on 2-4 October 2017

- **Bansal S**, Mishra S and Sangwan NS (2015) **Genetic transformation in *Withania somnifera* and its implications on synthesis and stability of withanolides**. Presented as poster in International Conference on 'Medicinal Plants: Resource for Affordable New Generation Healthcare' (ICOMP 2015) on 20-22nd March 2015
- **Bansal S**, Mishra S and Sangwan NS (2013) **Increased withanolide production by *Agrobacterium:* a soil bacterium mediated transformation**" Presented as poster in national conference on "Microbes Promoting crop health, productivity and sustainability" conducted by CSIR-CIMAP, Lucknow and CSIR-NBRI, Lucknow on 26-27th October 2013

4) <u>Seminars Attended</u>

- 96th Indian Science Congress held at North-Eastern Hill University on 3-7th January 2009
- International Conference on Molecular Biology and Biotechnology organized by Banasthali University, Rajasthan on 19-21st October 2008
- Indo-Japan International Symposium on "Facilitating Interdisciplinary Biotech for Future Entrepreneurship" organized by Biyani Girls College, Jaipur on 11-12th August 2008

FELLOWSHIPS and AWARDS

- ❖ Qualified CSIR-SRF in General Biology in 2014
- ❖ Qualified CSIR-NET(LS) in Life Sciences in 2011
- ❖ Qualified GATE exam in Biotechnology in 2010
- ❖ Best Oral Presentation in International Conference on Plant Pathology: Retrospect and Prospects held at SKNAU, Jobner-Jaipur, Rajasthan on 23-26th March 2022
- ❖ Best Oral Presentation in Jigyasa symposium held at CSIR-CIMAP on 13-14th December 2014

I hereby declare that the above information furnished is true to the best of my knowledge.

Dr. Shilpi Bansal November 2024