

Dr. Asawari T. Gorane



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Area of specialization

Plant molecular virology, molecular biology and biotechnology.

Education

- M.Sc Botany, Dr. Babasaheb Ambedkar University, Aurangabad (Ch. Sambhajinagar)
- Ph.D in Botany (Molecular Plant Virology), Savitribai Phule Pune University, Pune & IARI Regional Station Pune, India (Gold medal for best thesis)

Awards

- Qualified Maharashtra State Eligibility Test (MH-SET) for Assistant Professor accredited by UGC.
- Gold medal awarded for the best Ph.D thesis, Savitribai Phule Pune University, Pune (Late D.B. Chaughule (Burlikar) Suvarna Padak).

Professional Experience

- Genome Editing Lab (TCL), Mahyco Private Ltd., Jalna, Maharashtra, India.
- Project Assistant, for demonstration of HPLC and GC-MS at Savitribai Phule Pune University, Pune, MH, India.
- Research Associate, Protein Resource Lab & Plant Virus Interactions Lab, Mahyco Private Ltd., Jalna, Maharashtra, India.

Research Work

Ph.D ‘Molecular characterization and genetic analysis of *Papaya ringspot virus* genome’

Transcriptome, Proteome and Metabolome analysis of PRSV-P susceptible and resistant Papaya cultivar in response to *Papaya ringspot virus* (PRSV-P) infection was studied. Putative genes were identified. PRSV CP protein from various geographic regions were sequenced, and analyzed for diversity. PRSV-P complete genome was sequenced and analyzed for phylogenetic relationship, recombination and selection pressure. Standardized qRT-PCR for studying PRSV responsive genes expression study.

Technical Expertise

- **Molecular Biology:** Genomic DNA and total RNA isolation, diagnosis of plant viruses (RNA and DNA), PCR, RT-PCR, qRT-PCR, Gene cloning, *E. coli* transformation, Agro-mobilization, colony PCR, Restriction digestion and sequence analysis of plant viruses (*Begomoviruses*, *Mastrevirus* and *Potyvirus*) infecting Tomato, Okra, Chickpea, Capsicum and Papaya). qRT-PCR for PRSV responsive gene expression study and data analysis. Cloning in PVX vector.
- Protein expression, extraction, purification and western blot analysis for plant proteins expressed in *E.coli*.
- **Plant viruses worked on:** Potyvirus (PRSV, ZYMV ChiVMV), *Cucumber mosaic virus*,

Begomoviruses (OYVMV/OELCuV, ChiLCuV), *Chikpea yellow dwarf virus*(CpYDV), *Chikpea chlorotic dwarf virus* (CpCDV), *Groundnut bud necrosis virus* (GBNV).

- **Virus inoculation:** Mechanical sap inoculation of GBNV, CMV, PRSV, PepVA, ZYMV.
- **Bioinformatics:** Primer designing, genome/ gene sequences analysis, virus selection pressure analysis (SNAP), Sequence demarcation tool, Recombination detection of viruses (RDP) and phylogenetic analysis (MEGA X), Bioedit etc. , Sequences submission to GenBank.
- **Transgenic plant development:** Agrobacterium mediated transformation in tobacco and tomato for developing resistance against pathogen.
- **Microbiology techniques:** Bacterial wilt causing *Ralstonia solanacearum* pure culture isolation and identification, endophytic bacteria isolation, culturing and storage, Fungus culturing and identification using molecular tools.
- **Analytical techniques:** Hands on High Performance Liquid Chromatography (HPLC), Gas Chromatography (GC), Liquid chromatography (LCMS/MS) and Atomic absorption spectroscopy (AAS), demonstrated sample preparation, run and data analysis to research students at Department of Botany, Savitribai Phule Pune University Pune.

Publications

Gorane Asawari., Verma Raj., Naik Archana., Nikam Tukaram., Ade Avinash & Tripathi S. (2021). Genetic variability and recombination analysis of papaya infecting isolates of Papaya ringspot virus based on CP gene from Western India. Archives of Phytopathology and Plant Protection. <https://doi.org/10.1080/03235408.2021.1975463>. Impact factor 1.0

Chandrashekar K., Rao A., **Gorane A.**, Verma R & Tripathi S. (2020). Aleurothrixus trachoides (Back) can transmit begomovirus from Duranta to potato, tomato and bell pepper. Journal of Biosciences. <https://doi.org/10.1007/s12038-020-0012-2>. Impact factor 2.9

Verma R., Tripathi S., **Gorane A. T.**, Naik A. A., Nikam T. D., Ade A. A & Mahapatro G. K. (2019). First Report of Zucchini yellow mosaic virus in Bell Pepper, *Capsicum annum* L., in India. Plant Disease, <https://doi.org/10.1094/PDIS-04-19-0740-PDN>. Impact factor 4.6

Gorane A., Verma R., Naik A., Nikam T., Ade, A., Mahapatro G & Tripathi S. (2019). Characterization of a severe isolate of *Papaya ringspot virus* from papaya in western India. Journal of Plant Pathology. <https://doi.org/10.1007/s42161-019-00340-4>. Impact factor 2.2

Gorane A., Naik, A., Nikam T., Tripathi, T & Ade, A. (2018). GCMS analysis of phytocomponents of *C. papaya* variety red lady. Journal of Pharmacognosy and Phytochemistry, 7(2), 553-555. IF 0.45

Virus sequences submitted to NCBI (GenBank)

- *Papaya ring spot virus* (PRSV-P) full genome from India – Acc. No. MH311882
- PRSV-P coat protein gene (CP) – Acc. No. MG977140, MG977142, MG977139, MG977141, MG977143, MH311882, MG977150, MG977147, MG977149, MG977151, MG977146, MG977145, MG977144, MG977148
- *Duranta leaf curl virus* – Acc. No. MN166094

Poster Presentations

- 2019** Natural Products in the Era of Drug Resistance, Swami Ramanand Teerth Marathwada University, Nanded, Maharashtra, India.
- 2017** National Seminar on Advances in Plant Sciences, Department of Botany, Savitribai Phule Pune University, Pune, Maharashtra, India.
- 2016** The 8th International Geminivirus Symposium and the 6th International ssDNA Comparative Virology, New Delhi, India.

References

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