Selva Babu Selvamani

Mobile: +91 98437 98175

E - mail: selkash2016@gmail.com

www.linkedin.com/in/selva-babu-selvamani-386177148/

Education

Degree	Institute	Year	CGPA (10.00)
Master of Science (Agricultural) Bioinformatics	Tamil Nadu Agricultural University, Coimbatore	2020 - 2022	8.69
Bachelor of Technology (Bioinformatics)	Tamil Nadu Agricultural University, Coimbatore	2016 - 2020	8.15

Academic Projects

Title	Roles and Responsibilities
Characterization of different plant germplasm using Morphological descriptors and SSR-based DNA fingerprinting	• Developed the SSR marker and validated it in wet lab, to differentiate the newly released little millet from the existing accession to register in the seed bank.
Deciphering drought-responsive miRNAs in Indian rice cultivars using small RNA sequencing	• Identified the miRNA plays a role in abiotic stress mechanism in tolerant rice variety through bioinformatics analysis of small RNA sequencing data.
Profiling of colchicine and deciphering the key genes involved in colchicine biosynthesis in *Gloriosa superba* L.	• Performed profiling of colchicine in *Gloriosa superba* using HPLC and HPTLC techniques. Carried out RNA isolation and forwarded to transcriptome sequencing • Performed the Transcriptome analysis to identify the key genes, miRNAs, and Transcription Factors (TFs) and conducted docking and simulation studies to bring the medicinal properties of colchicine derivatives
Metagenome analysis of soil microbiome, agricultural formulations, and insect gut microbiome.	• Carried out the metagenomics analysis from quality trimming to identification of different microbial taxonomy and abundance estimation using bioinformatics pipelines and tools
Genome assembly, gene structure, and functional annotation of the eukaryotes and prokaryotes	• Assembled the genome of insects, and microbes (bacteria and fungus) using different assembly tools, annotated the genome, and identified the gene of interest for further wet-lab studies
Genome-wide identification and expression analysis of lncRNA response to disease infection.	• Performed the transcriptome analysis to identify the lncRNAs that are involved in the biotic stress tolerance mechanism in rice through different annotation methods and expression studies
Deciphering putative candidate gene underlies drought tolerance QTLs qDTY1.1, qEMF3, qDTY2.1, and qDTY3.1 in rice using pathway and trait ontology analysis.	• Carried out bioinformatics analysis to elucidate the genes localized in the QTL regions and validated their involvement in specific traits through RNA-Seq analysis; pathway and trait ontology analysis
QTL-Seq analysis of green gram parental and progeny lines for the identification of bruchid resistance QTLS	• Performed the QTL-Seq analysis using the GBS data of parental and progeny lines. Identified the QTL regions comprising the SNP/INDEL variation within the resistant genes by comparing the resistant and susceptible parents; and progenies.

Research Publications (Google Scholar)

1. Natesan, S., Venugopalan, G., **Selva Babu, Selvamani.,** & Angamuthu, N. (2020). Characterization of little millet (Panicum sumatrense) varieties using morphological descriptors and SSR based DNA fingerprinting. *J. Phytol*, *12*, 29-34.

2. Nallusamy, S., **Selva Babu Selvamani.,** & Muthurajan, R. (2022). Genome-Wide Identification and expression Profiling of Noncoding RNAs in Response to Abiotic Stresses in Small Millets. In Omics of Climate Resilient Small Millets (pp. 87-102). Springer, Singapore. (Book chapter)
3. **Selva Babu, Selvamani.,** Kiruthika, A., Ragapriya, V., Monika, M. I., Anandhi, V., & Saranya, N. (2022). Review on Applications of R programming in Biological Data Analysis. Madras Agricultural Journal, 109 (june (4-6)),1. https://doi.org/10.29321/MAJ.10.000684 (NAAS: 4.52)
4. Pirithiraj, U., Murugan, M., Jayakanthan, M., Boopathi, N. M., Balasubramani, V., Premalatha, N., ... & **Babu, S. S.** (2023). Genome wide identification and evolutionary analysis of vat-like NBS-LRR genes potentially associated with resistance to aphids in cotton. Genetica, 151(2), 119-131. (IF: 1.3)
5. GeethaThanuja, K., Karthikeyan, S., **Selva Babu, Selvamani.,** Balachandar, D., & Murugan, M. (2022). Rice Rhizosphere Metagenome in Association with Application of Biochar under Continuous Exposure to Elevated Carbon Dioxide. ACS Agricultural Science & Technology. (IF: 2.9)
6. Yang, H., Huebner, K., Hampel, C., Erlenbach-Wuensch, K., **Selvamani, S. B.,** Shukla, V., ... & Schneider-Stock, R. (2023). ATF2 loss promotes 5-FU resistance in colon cancer cells via activation of the ATR-Chk1 damage response pathway. BMC cancer, 23(1), 1-15. (IF: 3.4)
7. Selvakumar, Divya*, **Selva Babu Selvamani*,** and Jayakanthan Mannu. (2024) "Overview of the Bioinformatics Databases and Tools for Genome Research and Crop improvement." In Genomics Data Analysis for Crop Improvement, Springer Nature Singapore.
8. Mohan, M., Augustine, N., **Selva Babu Selvamani.,** PJ, A., Selvapandian, U., Pathak, J., ... & SN, S. (2024). The miniature genome of broad mite, *Polyphagotarsonemus latus* (Tarsonemidae: Acari). Scientific Data, 11(1), 748. (IF: 5.8)
9. Negi, N., **Selva Babu Selvamani.,** Ramasamy, G. G., Reddy, K. N., Pathak, J., Thiruvengadam, V., ... & Sushil, S. N. (2024). Identification and expression dynamics of CYPome across different developmental stages of *Maconellicoccus hirsutus* (green). Comparative Biochemistry and Physiology Part D: Genomics and Proteomics, 101305. (IF: 2.4)
10. Singamshetty, S., Selvapandiyan, U., **Selva Babu Selvamani.,** Suman, T. C., Pathak, J., ... & Sushil, S. N. (2024). Transcriptome mining and expression analysis of ABC transporter genes in a monophagous herbivore, *Leucinodes orbonalis* (Crambidae: Lepidoptera). Comparative Biochemistry and Physiology Part D: Genomics and Proteomics, 101305. (IF: 2.4)
11. Reddy, K. N., Gracy, G. R., **Selva Babu Selvamani.,** Pathak, J., Negi, N., Thiruvengadam, V., ... & Rana, D. K. (2024). Gene expression changes in *Maconellicoccus hirsutus* in response to sublethal dose of Buprofezin. Chemosphere, 143523.
12. **Selva Babu Selvamani.,** Nallusamy, S., Kamalanathan, V., Ravichandran, A., Singaravelu, R., Selvapandian, U., ... & Natesan, S. (2025). Understanding the mechanisms of long noncoding RNAs in response to bacterial blight in rice. Physiological and Molecular Plant Pathology, 135, 102486. (IF: 3.3)
13. Jyoti Pathak., **Selva Babu Selvamani.,** Subhi Srivastava., Ashwitha Gopal., Suman T C., … & Sushil S N. International Journal of Biological Macromolecules. (2025). miR-92a-3p regulates egg fertilization through ribogenesis in the invasive fall armyworm *Spodoptera frugiperda*. (IF: 8.5)
14. **Selva Babu, Selvamani.,** Selvapandiyan, U., Kaviyapriya, M., … & Saranya, N. Epigenetics: RNA-Seq, ChiP-Seq, MedIP-Seq and ATAC-Seq. Taylor & Francis – Book Chapter. (https://doi.org/10.1201/9781003354062)
15. Ravichandran, A., Nallusamy, S., **Selva Babu, Selvamani**., & Sowdhamini, R. (2025). Uncovering the transcription factors and metabolic pathways unique to proso millet and foxtail millet under salt stress through a comparative transcriptome approach. Discover Plants, 2(1), 159.
16. Karan, R., Prasannakumar, M. K., Harish, J., Patil, S. S., Pallavi, K. N., Venkateshbabu, G., **Selva Babu, Selvamani.,** ..& Kagale, S. (2025). Genomics and Transcriptomics of Candidatus Phytoplasma Asteris Induced Sesame Phyllody Modulating Hormonal and Defense Alterations. Journal of Basic Microbiology, e70080. (IF: 2.7)
17. Nallusamy, S., **Selva Babu, Selvamani.,** Sathyaseelan, C., Selvakumar, D., & Panigrahi, R. (2025). Targeting PINK1 using phytochemicals: Exploring molecular insights into Parkinson's disease therapeutics. Biochemistry and Cell Biology. (IF: 2.4)
18. Channappa, M., Thiruvengadam, V., Shivakumar, N., Thammayya, S.K., Nayyar, N., Muthugounder, M., Ramasamy, G.G., Syamala, R.R., Kukreti, A., Karthik, C.M. **Selva Babu, Selvamani.,** …. & S.N.Sushil (2025). Recombinase polymerase amplification assay for sensitive and rapid detection of invasive fall armyworm, Spodoptera frugiperda. Scientific Reports, 15(1), p.18026.(IF: 3.9)
19. Gandhi Gracy Ramasamy, Reddy, K. V. N., Negi, N., Selvamani, S. B., Suman, T. C., Thiruvengadam, V., Samuel, D. K., & Sushil, S. N. (2025). The first report of Hibiscus latent Fort Pierce virus (HLFPV) from India and its first-ever insect association with the mealybug Maconellicoccus hirsutus (Green) (Hemiptera: Pseudococcidae). Physiological and Molecular Plant Pathology, 102854. https://doi.org/10.1016/j.pmpp.2025.102854 (IF: 3.3)
20. Jenifer Sheeba J., Selva Babu, Selvamani., & Venkatesan Thiruvengadam. (2025). Gut Microbiota Profiling of

Apis cerana indica Across Biodiversity Hotspots in the Western Ghats, India. Molecular Biology Reports. (Under Review)

21. Jyoti Pathak., Suman, T.C. Selva Babu, Selvamani., …. & Venkatesan Thiruvengadam. (2025). Deciphering the chemosensory gene repertoire: Molecular and functional characterization of pheromone-binding proteins in *Leucinodes orbonalis* Guenee (Lepidoptera: Crambidae). International Journal of Biological Macromolecules (Under Review)
22. **Selva Babu, Selvamani**., Gnanam, R., Karthikeyan, A., Jayakanthan, M., Senthil, N., … & Saranya, N. Comparative transcriptome analyses of cultivated and wild Gloriosa superba L. tubers decoding the putative colchicine biosynthetic pathway genes. Plant Molecular Biology Reporter. (Under Review)

Professional Experience

Position	Institute	Period / Duration	Roles and Responsibilities
Research Intern	**Genomics Lab, ICAR - National Institute for Plant Biotechnology, New elhi, India**	**Sept 2019 - Dec 2019**	Deciphering drought-responsive miRNAs in Indian rice cultivars using small RNA sequencing ● Carried out small RNA data analysis for the identification of novel and known miRNAs involved in drought stress mechanism in rice ● Performed the expression studies of identified known and novel miRNAs between susceptible and resistant rice genotypes ● Identified the target genes of significantly expressed miRNAs for elucidation of their role in stress tolerance
Senior Research Fellow	**Division of Genomic Resources, ICAR - National Bureau of Agricultural Insect Resources, India**	**Mar 2023 - Present**	● NGS data analysis (Genome and Transcriptome) for the exploration of rapid speciation and adaptation in agricultural pests ● Omics data analysis for the identification of genes to design dsRNA for RNAi and to identify the insecticidal resistance genes.

Technical Skills

Skills	Particulars
Wet lab techniques	Nucleic acid extraction, PCR, Gel electrophoresis, Real-Time qPCR, Insect haldling and culture maintenance, HPLC, HPTLC
Bioinformatics analysis	● NGS Data analysis: Genomics (Assembly, annotation Variant calling, and evolutionary genomics), RNA-Seq (Transcriptomics: mRNA, lncRNA, and small RNA), Metagenomics. ● Molecular Docking and Molecular dynamics simulation. ● Sequence Analysis, BLAST, STRING, TMPred, Phyre, SWISS-MODEL, JPred, Galaxy, MEGA, DARwin, TASSEL, QTL Cartographer, SPSS, EMBOSS.
Programming skills	C, C++, Python, R, and Shell scripting
Operating system	Linux (Ubuntu, CentOS), Windows, MacOSX
Tools and pipelines	MaSurca, CANU, Velvet, Spades, AUGUSTUS, MAKER pipeline, HiFi asm, Trinity, rnaSpades, Interproscan, KAAS mapper, Repeat modeler, OthoMcl, Genomescope, Tuxedo pipeline, Kallisto, Salmon, GATK, BlobToolKit, QIIME2, KRAKEN2, eggNOG, METAspades, R packages
Technology	Snakmake, Git, Nextflow, Conda (Package Management)
Soft skills	Critical thinking, problem-solving, technical writing, team work

Hobbies

- Reading Novels

Referees

Referee	Position	E-mail & Mobile
Dr. Gnanam Ramasamy	Professor, Department of Plant Molecular Biology and Bioinformatics, Tamil Nadu Agricultural University, Coimbatore, India	gnanam.r@tnau.ac.in +91 94438 21177
Dr. M. Mohan	Principal Scientist, ICAR - National Bureau of Agricultural Resources, Bangalore, India	Mohan.M@icar.gov.in +91 96867 85470
Dr. M. Jayakanthan	Assistant Professor, Department of Plant Molecular Biology and Bioinformatics, Tamil Nadu Agricultural University, Coimbatore, India	jayakanthan.m@tnau.ac.in +91 98436 96114
Dr. N. Saranya	Assistant Professor, Department of Plant Molecular Biology and Bioinformatics, Tamil Nadu Agricultural University, Coimbatore, India	saranya.n@tnau.ac.in +91 94886 29085