Tinu Thomas

PhD Scholar

CONTACT

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Skills (Experimental)

- Nucleic acids isolation
- PCR, qRT-PCR
- Cloning
- Microbiological techniques
- Tissue culture
- LC-MS/MS
- Phenotyping and Hydroponic screening for abiotic stresses

Skills (Computational)

- MS office - Proficient
- Python and R (Basics) - Proficient
- Bioinformatics Databases - Proficient
- RNA seq analysis and other basic bioinformatics analysis

Soft Skills

- Communication
- Leadership
- Teamwork
- Problem solving

Languages

- English - Fluent
- Malayalam- Fluent
- Hindi, Tamil, Kannada - Intermediate

PROFILE

I am a skilled plant biologist with a strong focus on molecular biology and physiology. My research experience encompasses crop physiology, stress biology, production physiology, and plant growth and development. I am proficient in utilizing advanced techniques such as transcriptome analysis, qRT-PCR, functional validation of genes using VIGS, and LC-MS/MS analysis. Furthermore, I have utilized Python and R for transcriptome analysis, allowing me to handle basic programming tasks and effectively extract valuable insights from large biological datasets. With my expertise in utilizing advanced techniques and data management skills, I am well-prepared to contribute to various plant biology or molecular genetics-related projects and drive meaningful advancements within the scientific community.

EDUCATION

2018-Present , Expected November 2023

PhD (Crop Physiology), Pursuing

UNIVERSITY OF AGRICULTURAL SCIENCES, BANGALORE

Research area: Identification and characterization of genes contributing for rapid foliage growth in Indian mulberry (*Morus alba* L.)

2016 - 2018

M.Sc. (Agri.) Crop Physiology (CGPA - 9.2)

UNIVERSITY OF AGRICULTURAL SCIENCES, DHARWAD

Research area: Physiological and biological quality of Lettuce (*Lactuca sativa* L.) cultivars grown in different growing systems under protected condition

2012 - 2016

B.Sc. Agriculture (CGPA - 9.07)

TAMIL NADU AGRICULTURAL UNIVERSITY

Research area: Screening of rice genotypes/lines for multiple stress tolerance

RECOGNISITION

- Selected as top 1% topper All India level CBSE Higher secondary Examination and got eligible for Scholarship for Higher education (SHE) by DST
- University of Agricultural Sciences Dharwad (UAS) Gold medal for Post Graduate study
- INSPIRE Fellowship for PhD research by Department of Science and Technology, Govt of India

TRAINING AND PUBLICATION

- Training on 'Genome editing of Crops: Methods and Applications'
- Experiential learning (Hands on Training) during undergradute degree
  1. Commercial tissue culture
  2. Commercial mushroom production
- 5 publication in peer reviewed journal (details in annexure)

Annexure (Tinu Thomas Profile)

1. Summary of PhD Research Project

Thesis title: Identification and characterization of genes contributing for rapid foliage growth in Indian mulberry (*Morus alba* L.)

My PhD project has focused on investigating the molecular mechanisms underlying bud break and foliage growth in mulberry trees, which are crucial for the sustainability of the sericulture industry. Timely foliage production is essential as mulberry leaves serve as the primary feed for silkworms. To effectively manipulate foliage production, I aimed to understand the molecular mechanisms regulating bud break. Throughout my research, I characterized the bud break process into different stages based on morphological changes. I performed transcriptome analysis to study the bud break process and utilized Linux command line tools, R and Python for data analysis. This analysis allowed me to identify key genes and pathways associated with growth induction and bud break. To complement the transcriptome analysis, I conducted anatomical studies using scanning electron microscopy and performed phytohormone analysis using LC-MS/MS in different stages, aligning the findings with the events highlighted in the transcriptome analysis. I also attempted to validate the transcriptome data through qRT-PCR. To further investigate the functional roles of specific genes in bud break, I conducted functional characterization experiments in *Nicotiana benthamiana* using VIGS (Virus-Induced Gene Silencing). Furthermore, I performed chemical-based gene functional validation in the native system, mulberry single node cuttings. Overall, my research has provided valuable insights into the molecular mechanisms regulating bud break and foliage growth in mulberry trees. These findings have important implications for the sustainability and optimization of the sericulture industry.

2. Publications

- Thomas, T., Purushothaman, J., Janarthanan, R., Anusuya, N., Medisetti, P.G., Karthick, J., Nadaradjan, S. and Thirumeni, S., 2020. Identification of rice genotypes for seedling stage multiple abiotic stress tolerance. *Plant Physiology Reports*, *25*(4), pp.697-706.

- Thomas, T., Biradar, M.S., Chimmad, V.P. and Janagoudar, B.S., 2021. Growth and physiology of lettuce (*Lactuca sativa* L.) cultivars under different growing systems. *Plant Physiology Reports*, *26*(3), pp.526-534.
- Thomas, T and Nataraja N, K., 2022. Characterization of Bud Break Process in Mulberry *(Morus alba L.). Mysore Journal Agricultrel Sciences, 56 (1), pp. 358-366*
- Thomas, T., Anusuya, N., Purushothaman, J., Janarthanan, R., Karthick, J., Nadaradjan, S., and Thirumeni, S. (2022). Trait based assessment in seedling stage of rice for salinity tolerance. *Journal of Cereal Research*, 14 (Spl-1), pp. 157-162.
- Bangari, M.P.S., Meena, H.S., Dhanyalakshmi, K.H., Patil, S.S., Chaitra, H.V., Thomas, T., Jacob, J. and Nataraja, K.N., 2022. Overexpression of mulberry gene MaUSP1-like in tobacco reduces photosynthetic limitations and enhances biomass. *Journal of Plant Biochemistry and Biotechnology,* pp.1-5.
- Thomas, T., Patil, S. S., Shridhar, S and Nataraja, K.N., Gibberellic Acid's Role in Bud Break Dynamics Among Mulberry Genotypes with Distinct Growth Patterns, 12 September 2023, PREPRINT (Version 1) available at Research Square [https://doi.org/10.21203/rs.3.rs-3307003/v1]

3. Trainings and experience

2021	Presented poster during National Conference of Plant Physiology, held at NIASM, Pune on ““Antagonistic regulation of bud break in Mulberry by the phytohormones ABA and GA”
2020	“Basics to advanced genome annotation at Ensembl and REST Application Programming Interfaces (APIs)" by Nextgenhelper and Ensembl staff
2019	Participated in the workshop on Principles and applications of genome editing for crop improvement under the ICAR-CAAST program, University of Agricultural Sciences, GKVK, Bengaluru
2019	Participated in hands on-session on NGS-Oxford Nano pore (minion), under the ICAR-CAAST program, University of Agricultural Sciences, GKVK, Bengaluru

2019 Presented poster during National Conference of Plant Physiology, held at KAU, Thrissur, Kerala on "Hydroponic growing system for urban horticulture- Evaluation of lettuce cultivars for its growth and yield under different systems"

2018 Presented poster during PG poster presentation in University of Agricultural Sciences, Dharwad on "Growth, yield and quality of lettuce cultivars under different protected growing systems"

2016 Rural Agricultural Work Experience (RAWE)

Village stay and agricultural extension activities for 3 months in Thondamanatham village, Pondicherry District, Puducherry

4. Awards and Recognitions

2021 Best oral presentation in PG Science Week organized by University of Agricultural Sciences, Bangalore, 'Characterization of bud break in mulberry'

2019 2nd Rank, ICAR AIEEA for Ph.D. with Senior Research fellowship

2019 Best Oral presentation in National seminar on sustainable agriculture held at Kerala, 'Hydroponics for enhanced growth and yield – Evaluation of lettuce cultivars under different growing systems'

2017 Qualified CSIR-UGC Lectureship December 2017

2016 Recipient of Merit scholarship from University of Agricultural Sciences, Dharwad

2016 Qualified in ICAR AIEEA for PG (rank-21) and got eligible for National Talent Scholarship

5. Soft Skills

Leadership and Management:

- As a senior PhD in the lab, I have managed the procurement and dispersal of chemicals and other laboratory materials, overseeing a team of lab workers and ensuring their compliance with safety protocols.

Mentoring and Training:

- As a mentor for an MSc student, I provided guidance and support for his thesis project, including experimental design, data analysis, and presentation skills.
- I have also trained junior graduate students in basic laboratory techniques, including safety procedures and instrument operation.

Teaching and Education:

- As a teacher for practical classes for undergraduate students, I have developed lesson plans and led hands-on laboratory exercises to help students understand and apply concepts in molecular biology.
- I participated in an outreach program for school teacher training with my supervisor, where I provided practical sessions on the basics of molecular biology.

Communication:

- As the organizer committee member for ConSept-21 amd ConSept-22, an annual symposium in department of Crop Physiology, UAS Banglore, I helped in the planning and organization of the event, which included inviting keynote speakers and managing the logistics of the conference. I also communicated with sponsors, faculty, and students to ensure a successful event.

Overall, my experience in leadership, mentoring, teaching, and communication has equipped me with valuable soft skills.

6. References

Dr. Nataraja Karaba N
(PhD Supervisor)
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