

CURRICULUM VITAE

SURYA KRISHNA SAKTHIVEL

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Summary

Plant genetics researcher interested in advancing crop improvement through computational and experimental genetics, with research experience in cotton, sugarcane, and strawberry. Focused on analyzing complex plant genomes by integrating bioinformatics and quantitative genetics.

Education

Ph.D. Complex Biosystems	Ongoing
University of Nebraska-Lincoln, Lincoln, NE	
M.Sc. Genetics and Plant Breeding College, University	2021
Tamil Nadu Agricultural University, Coimbatore, TN, India	
B.Sc. Agriculture	2019
Tamil Nadu Agricultural University, Coimbatore, TN, India	

Professional Experience

University of Nebraska-Lincoln, Lincoln, NE	
Graduate Research Assistant	01/2026-
University of Nebraska-Lincoln, Lincoln, NE	
Graduate Teaching Assistant	08/2025-12/2025
• Course: LIFE 120L Fundamentals of Biology Lab Responsible for lab instruction and assessment, including teaching weekly lab sessions and grading student assignments, quizzes, and reports	
Delaware State University, Dover, DE	
Graduate Research Assistant	08/2023 - 05/2025
• CRISPR/Cas construct development, strawberry tissue culture, and Agrobacterium mediated transformation.	
• Screening strawberry germplasms for fruit rot resistance and hemp lines for high temperature stress tolerance.	
• Gene expression studies in strawberry under gray mold infection and potassium silicate application.	
• Analyzing complex cheminformatics dataset from different plant species to study the chemical signatures associated with plant domestication.	

Graduate Teaching Assistant 08/2024-12/2024

- Course: NTRS321_Biometrics
Student support, grading assignments, providing feedback, proctoring exams and technical support for lab sessions.

ICAR- Sugarcane Breeding Institute, Coimbatore, TN, India

Junior Research Fellow 09/2022-07/2023

- CRISPR/cas9 mediated genome editing in sugarcane for virus resistance.
- Molecular and phenotypic evaluation of sugarcane transgenic events for abiotic stress tolerance.

Research Intern 01/2022-04/2022

- Molecular markers and marker-assisted selection in sugarcane.

Honors and awards

Cooper Sharpless Fellowship 2025
Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln

Encompass scholar 2024
ASA-CSSA-SSSA and Bayer Crop Science

Merit cum Means Fellowship 2017
NIA Educational Institutions, TN, India

Publications

Sakthivel, S. K., Vennapusa, A. R., & Melmaiee, K. (2025). Enhancing quality and climate resilient traits in vegetatively propagated polyploids: transgenic and genome editing advancements, challenges and future directions. *Frontiers in Genetics*. 16:1599242. <https://doi.org/10.3389/fgene.2025.1599242>

Chinnaswamy, A., **Sakthivel, S. K.**, Channappa, M., Ramanathan, V., Shivalingamurthy, S. G., Peter, S. C., ... & Muthukrishnan, A. (2024). Overexpression of an NF-YB gene family member, *EaNF-YB2*, enhances drought tolerance in sugarcane (*Saccharum* Spp. Hybrid). *BMC Plant Biology*, 24(1), 1246. <https://doi.org/10.1186/s12870-024-05932-6>

Appunu, C., Hemaprabha, G., Sreenivasa, V., Anna Durai, A., **Surya Krishna, S.**, Arun Kumar, R., Chikkappa G. Karjagi., Bakshi Ram. (2024). Evaluation of Sugarcane Genotypes (*Saccharum* sp. hybrid) for Multi-trait Stability Analysis Across Diverse Environments. *Industrial Crops and Products*, 219, 118993. <https://doi.org/10.1016/j.indcrop.2024.118993>

Harish Chandar, S. R., Subramanian, M., **Surya Krishna, S.**, Swathi, T., Girija Sangari, M., Viswanathan, C., ... & Appunu, C. (2024). Isolation, Characterization and Genome-Wide Identification of Cys-2/His-2 Type Zinc Finger Nuclease, a Transcription Activator in *Saccharum* Complex Under Abiotic Stress Conditions. *Sugar Tech*, 1-14. <https://doi.org/10.1007/s12355-024-01397-x>

Appunu, C., **Krishna, S. S.**, Chandar, S. H., Valarmathi, R., Suresha, G. S., Sreenivasa, V., ... & Hemaprabha, G. (2024). Overexpression of *EaALDH7*, an aldehyde dehydrogenase gene from *Erianthus arundinaceus* enhances salinity tolerance in transgenic sugarcane (*Saccharum* spp. Hybrid). *Plant Science*, 112206. <https://doi.org/10.1016/j.plantsci.2024.112206>

Swathik Clarancia, P., Naveenarani, M., Ashwin Narayan, J., **Krishna, S. S.**, Thirugnanasambandam, P. P., Valarmathi, R., ... & Appunu, C. (2023). Genome-Wide Identification, Characterization and Expression Analysis of Plant Nuclear Factor (NF-Y) Gene Family Transcription Factors in *Saccharum* spp. *Genes*, 14(6), 1147. <https://doi.org/10.3390/genes14061147>

Surya Krishna, S., Harish Chandar, S. R., Ravi, M., Valarmathi, R., Lakshmi, K., Prathima, P. T., ... & Appunu, C. (2023). Transgene-Free Genome Editing for Biotic and Abiotic Stress Resistance in Sugarcane: Prospects and Challenges. *Agronomy*, 13(4), 1000. <https://doi.org/10.3390/agronomy13041000>

Surya Krishna, S., Viswanathan, R., Valarmathi, R., Lakshmi, K., & Appunu, C. (2023). CRISPR/Cas-Mediated Genome Editing Approach for Improving Virus Resistance in Sugarcane. *Sugar Tech*, 25, 735-750. <https://doi.org/10.1007/s12355-023-01252-5>

Krishna, S. S., Kumar, M., Premalatha, N., Senguttuvan, K., & Mahalingam, L. (2021). Studies on the inheritance of okra leaf shape and genetic parameters for morpho-yield related traits in two F2 populations of cotton (*Gossypium hirsutum* L.). *Electronic Journal of Plant Breeding*, 12(3), 637-642. <https://doi.org/10.37992/2021.1203.08>

Symposium, seminars, conferences, and workshops

Symposium on Next Generation Crop Improvement
University of Nebraska-Lincoln, Lincoln, NE

Oct 9-10, 2025

MANRRS 39th Annual Training Conference and Career Expo
Memphis, TN

Apr 2-6, 2025

USDA Hemp Germplasm Laboratory Stakeholder Meeting
USDA ARS PGRU in Geneva, NY

Sep 11, 2024

Cornell Grain and Fiber Hemp Field Day
Cornell AgriTech, Geneva, NY

Sep 12, 2024

Association of 1890 Research Directors Biennial Research Symposium
Nashville, TN

Apr 6-9, 2024,

- Oral presentation: Functional validation of putative candidate genes for gray mold resistance through CRISPR/Cas9 genome editing in strawberries.

Genome Editing 360 workshop

Mar 5-7, 2024

ChristianaCare Gene Editing Institute in Newark, DE

PITCH90

Nov 14, 2023

Delaware Environmental Institute, University of Delaware, DE, USA

- Presented a 90-second talk on the potential of genome editing for developing biotic stress-resistant strawberry.

Black Farmers Conference 2023

Nov 8-9, 2023

Delaware at Delaware State University, DE, USA

Symposium on Tending Mendel's Garden for a Perpetual and Bountiful Harvest

Jul 19-21, 2022

ICAR-Indian Agricultural Research Institute, New Delhi, India

- Poster Presentation: Inheritance of Okra Leaf Shape and Its Association with Leaf Area in Cotton (*Gossypium hirsutum* L.).

Agomics: A Global Conference on “Agricultural Genomics: Progress and Prospects

Oct 21-23, 2021

Tamil Nadu Agricultural University, Tamil Nadu, India