

Dr. Siddanna Savadi

Senior Scientist (Plant Biochemistry)

Ph.D. (Molecular Biology & Biotechnology)



Year of Birth	:	1983
Qualification	:	Ph.D. (Molecular Biology & Biotechnology)
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Brief Work Experience

My research has focused on biotechnology and genetic improvement of cashew and wheat over a period of 10 years. We accomplished the first de novo genome assembly of the Indian cashew cultivar Bhaskara using Nanopore and Illumina sequencing platforms, generating a 356 MB genome. This effort provided the first comprehensive genomic and molecular marker resources for cashew, including SSR and InDel markers. I contributed to the development and release of two jumbo nut cashew varieties, Nethra Ganga and Nethra Jumbo-1, and the first dwarf cultivar, Nethra Vaman. A rapid SSR-based method was established to assess the genetic purity of interspecific hybrids at the seedling stage. Our studies on ultra-density planting and phenological characterization using the BBCH scale have supported improved crop production and management in cashew. Several unique cashew germplasm lines were characterized and registered with the nodal agency, and different mapping populations for yield and nut traits have been developed.

In wheat rust research, we developed SSR and transcriptome-based markers for rust pathogens, explored gene expression in plant-pathogen interactions, and identified three new *Puccinia striiformis* pathotypes (111S68, 79S68, 79S4). These works have strengthened genomic research and varietal development in cashew and contributed to improved resistance and disease management strategies in wheat.

Current Areas of Interest

- Genetic dissection of QTLs controlling nut yield and cashew nut shell liquid (CNSL) content for advancing trait-based genomic selection and breeding.
- Molecular analysis of cashew-tea mosquito bug (TMB) interactions to elucidate host defense mechanisms and identify pathogen effectors for developing resistant varieties.
- Comprehensive biochemical profiling of cashew cultivars and germplasm to characterize valuable compounds and explore biofuel production from cashew biomass.
- Establishment of state-of-the-art facilities for speed breeding and omics resource development to enhance genetic improvement and accelerate cashew breeding programs.

Current Projects

In-house Projects

1. Genetic dissection of QTLs governing nut yield and cashew nut shell liquid (CNSL) content in cashew [06/2018–05/2025]
2. Deciphering the molecular basis of Cashew-TMB interactions to understand host response and TMB effectors
3. Profiling of important biochemicals in cashew cultivars and germplasm and exploration of biofuel production potential from cashew tree wastes (10/2025–09/2029)

External Projects

4. Establishment of state-of-the-art facilities for Speed Breeding and Omics resources for accelerating cashew breeding (10/2024–09/2026)

Publications

Category	Count
Research Papers	55
Short Communications	1
Books	2
Book Chapters	11
Popular Articles	6
Others	3

Representative Research Papers

5. Savadi, S., Manoj, K., Ashwitha, K., Muralidhara, B. M., Manjunatha, K., Eradasappa, E., and Adiga, J. D. (2025). Morpho-biochemical and molecular characterization of accessions with unique traits as potential genetic stocks for cashew improvement. *Genetic Resources and Crop Evolution*, 72(1), 1219–1238.
6. Savadi, S., Mohan, G., Manoj, K., Manuel, M., Muralidhara, B. M., Mog, B., & Adiga, J. D. (2025). Microsatellite markers development and molecular fingerprinting of cashew cultivars. *Molecular Biology Reports*, 52(1), 34.
7. Manjunatha, K., Savadi, S.*, Naik, R., Balasubramanian, D., Adiga, J. D., Muralidhara, B. M., and Anilkumar, C. (2024). Investigation on torsional forces and angles at the nut and pedicel junction (NPJ) revealed varying cashew apple (hypocarp) and nut separation efficiency at different developmental stages in cashew. *Industrial Crops and Products*, 222, 119951.
8. Savadi, S., Adiga, J. D., Muralidhara, B. M., Prasad, P., Manjunatha, K., Ashwitha, K., and Manoj, K. (2023). Discovery of genome-wide genetic variations and development of first set of InDel markers for genetics research in cashew. *Scientia Horticulturae*, 320, 112233.
9. Savadi, S., Muralidhara, B. M., Venkataravanappa, V., & Adiga, J. D. (2023). Genome-wide survey and characterization of microsatellites in cashew and design of a web-based microsatellite database: CMDDB. *Frontiers in Plant Science*, 14, 1242025.

Awards & Recognitions

- Best Paper Award (2025) – 7th International Conference on Bioenergy, Environmental and Sustainable Technologies held during 29–31 January 2025 at Arunai Engineering College, Thiruvannamalai, Tamil Nadu, India.
- Young Scientist Award (2024) – ICAAB 2024 organized by B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai, in association with the University of East London, UK, Tamil Nadu State Council for Science & Technology, NCSTC, DST, Government of India (30–31 July 2024).
- Young Scientist Award (2019): Society for Biotic and Environmental Research (SBER), Salem, Tamil Nadu.
- MJ Narasimhan Medal (2017) for Best Research Paper published in Indian Phytopathology.
- SADHNA Young Achiever Award (2017).
- Jawaharlal Nehru Award for P.G. Outstanding Doctoral Thesis Research in Agricultural and Allied Sciences (2016).
- IARI Merit Medal for Outstanding Academic Performance during Ph.D. (2016).
- Gold Medal for securing highest aggregate marks in Bachelor's degree programme (2005).
- Junior Research Fellowship, Department of Biotechnology, Government of India (2005–2007).
- Senior Research Fellowship (First Rank in ICAR-SRF examination), ICAR (2009–2012).
- Merit Scholarship, College of Agriculture, Bijapur, UAS Dharwad (2001–2005).