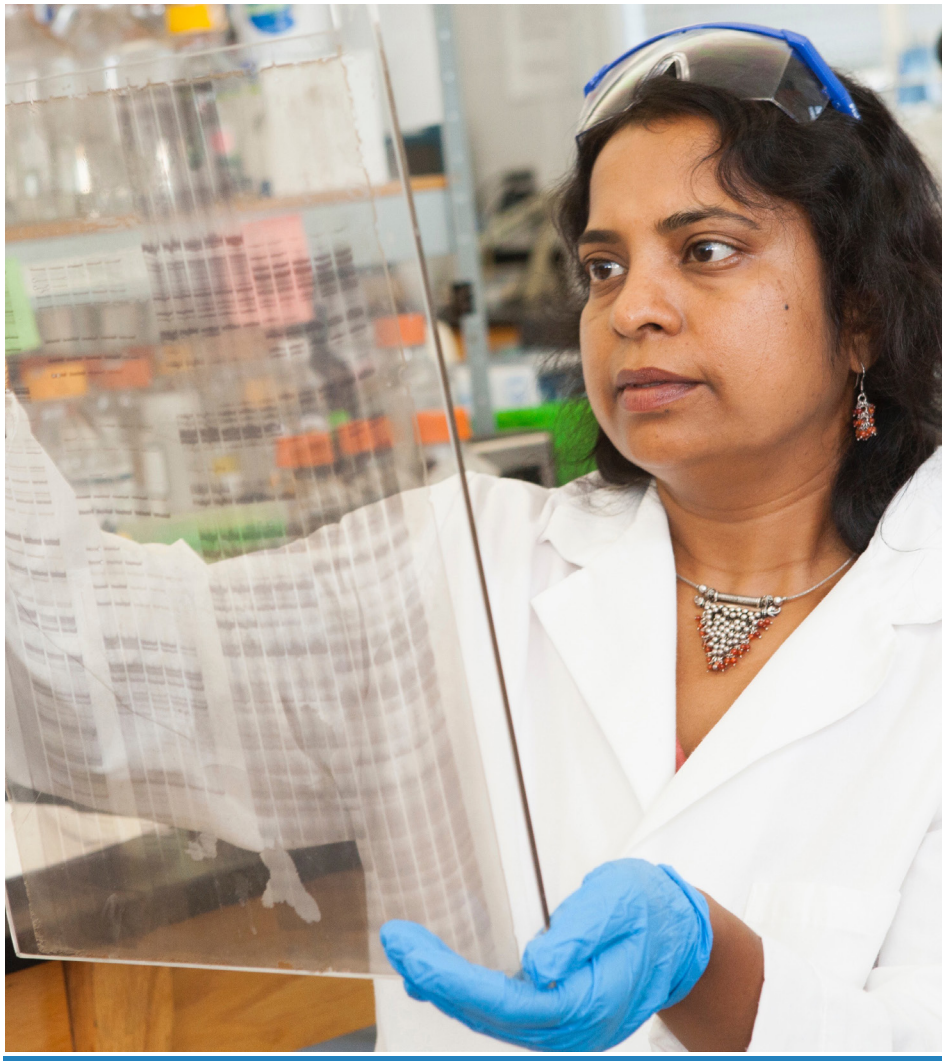
Delaware State University
SINCE 1891

College of Agriculture, Science and Technology

RESEARCH PROFILE



KALPALATHA MELMAIEE

Associate Professor

Kalpalatha (Latha) Melmaiee
Associate Professor
https://orcid.org/0000-0001-5310-9200
https://scholar.google.com/citations?user=syBnlwYAAAAJ&hl=en

College of Agriculture, Science & Technology
Delaware State University (Ph): (302) 857-6787
Dover, DE 19901 E-mail: kmelmaiee@desu.edu

Education

Ph.D. (Plant Science)	Oklahoma State University, Stillwater, OK
M.S. (Genetics and Plant Breeding)	Annamalai University, Chidambaram, India
B.S. (Agriculture)	APAU – Andhra Pradesh, India

Employment

2020- present	Associate Professor	Dept. of Agriculture & Natural Resources Delaware State University, Dover, DE
2016-2020	Assistant Professor	Dept. of Agriculture & Natural Resources Delaware State University, Dover, DE
2012- 2016	Research Scientist	Dept. of Agriculture & Natural Resources Delaware State University, Dover, DE
2008-2012	Post Doctoral Associate	Dept. of Agriculture & Natural Resources Delaware State University, Dover, DE
2007-2008	Post Doctoral Associate	Department of Agronomy Iowa State University
2006-2007	Post Doctoral Associate	Dept. of Biology University of Northern Iowa
2002-2006	Graduate Research Assistant	Dept. Plant & Soil Sciences, Oklahoma State University, Stillwater, OK
2000-2001	Agricultural Officer	Dept. of Agriculture, Soil Testing laboratory
1996-1999	Research Associate	Department of Agronomy International Crops Research Institute for Semi-Arid Tropics (ICRISAT)

Some of the active successful competitive grants

Developing an integrative approach to combat gray mold in strawberries-USDA-*NIFA* ***PI***-$ 600,000

Develop eco-friendly postharvest practices to extend the shelf life of small fruits-Use of volatiles-USDA-NIFA ***Co-PI*** -$500,00

Molecular Analysis of tolerance and sensitivity to soil pH in Blueberries-USDA ***PI*** $300,00

Development of genome-wide association markers for heat stress tolerance in blueberries ***PI***-USDA-NIFA- $500,000

Genetic Enhancement of Northern Highbush Blueberries for High Temperature Stress Tolerance ***PI***- USDA-NIFA- $150,000

Teaching

Graduate level
AGRI 511 Plant Breeding
AGRI 502 Advanced molecular breeding

Undergraduate level

AGRI 308 Plant Pathology
AGRI 450 Integrated Pest Management
AGRI 350 Special problems in Ag & NR-plant breeding

Publications

- Callwood, Jodi, **Kalpalatha Melmaiee**, Krishnanand P. Kulkarni, Amaranatha R. Vennapusa, Diarra Aicha, Michael Moore, Nicholi Vorsa, Purushothaman Natarajan, Umesh K. Reddy, and Sathya Elavarthi. "Differential Morpho-Physiological and Transcriptomic Responses to Heat Stress in Two Blueberry Species." *International Journal of Molecular Sciences* 22, no. 5 (2021): 2481.

- Kulkarni, Krishnanand P., Nicholi Vorsa, Purushothaman Natarajan, Sathya Elavarthi, Massimo Iorizzo, Umesh K. Reddy, and **Kalpalatha Melmaiee**. "Admixture Analysis Using Genotyping-by-Sequencing Reveals Genetic Relatedness and Parental Lineage Distribution in Highbush Blueberry Genotypes and Cross Derivatives." *International Journal of Molecular Sciences* 22, no. 1 (2021): 163.

- Anju Biswas, **Kalpalatha Melmaiee**, Sathya Elavarthi, Julian Jones and Umesh Reddy. "Characterization of Strawberry (*Fragaria* spp.) Accessions by Genotyping and Phenotyping by Leaf Antioxidant and Trichome Analysis. Scientia Horticulturae 2019.

- Hayford, Rita Kusi-Appiah, Ayalew Ligaba-Osena, Mayavan Subramani, Adrianne Brown, **Kalpalatha Melmaiee**, Khwaja Hossain, and Venu Kal Kalavacharla. "Characterization and Expression Analysis of Common Bean Histone Deacetylase 6 during Development and Cold Stress Response." International Journal of Genomics 2017.

- **Kalpalatha Melmaiee**, Michael Anderson, Sathya Elavarthi, Arron Guenzi, and Patricia Canaan. "Transcriptional Analysis of Resistance to Low Temperatures in Bermudagrass Crown Tissues."PloS one 10, no. 9 (2015): e0136433.

- **Kalpalatha Melmaiee**, Venu Kal Kalavacharla, Adrianne Brown, Antonette Todd, Yaqoob Thurston, and Sathya Elavarthi. "Quantification and Gene Expression Analysis of Histone Deacetylases in Common Bean during Rust Fungal Inoculation." International Journal of Genomics 2015

- **Kalpalatha Melmaiee**, Antonette Todd, Philip McClean, Rian Lee, Jessica Schlueter, Scott Jackson and Venu Kalavacharla. Identification of Molecular Markers Associated with the Deleted Region in Common Bean (*Phaseolus vulgaris* L.) ur-3 Mutants-Australian Journal of Crop Science-(http://www.cropj.com/kalavacharla_7_3_2013_354_360.pdf).

- Michael Anderson**, Kalapaltha Melmaiee**, Sathya Elivarthi and Arron Guenzi. Gene Expression in Cold Acclimating Bermudagrass Crown. Turfgrass and Environmental Research Online 11(1): 1-8.

- **Kalpalatha Melmaiee,** Adrianne Brown, Natalie Kendall and Venugopal Kalavacharla. Expression Profiling of WRKY Transcription Factors in Common Bean During Rust Fungal Infection. Bean Improvement Co -operative annual reports.

- Venu Kalavacharla, Zhanji Liu, Blake C. Meyers, Jyothi Thimmapuram, **Kalpalatha Melmaiee**. Identification and analysis of common bean (*Phaseolus vulgaris* L.) transcriptomes by massively parallel pyrosequencing. *BMC Plant Biology* doi:10.1186/1471-2229-11-135.

- **Kalpalatha Melmaiee** and Venu Kalavacharla. "ESTs and their Role in Functional Genomics" Principles and Practices of Plant Genomics; volume 3 Science Publishers, Inc., New Hampshire, Jersey, Plymouth

- Tilahun Abebe, **Kalpalatha Melmaiee**, Virginia Berg, and Roger P. Wise. Drought response in the spikes of barley: gene expression in the lemma, palea, awn, and seed, Functional & Integrative Genomics, 10: 191-205

- **Kalpalatha Melmaiee** and Ganesan Jagadheswar. Assessment of recombination potential in F_2 generation of Sesame (*Sesamum indicum* L.), Crop Research 16:337-339

Some of the Recent Presentations and Abstracts (selected from last two years)

- **Kalpalatha Melmaiee**, Krishnanand P. Kulkarni, Jodi Callwood, Nicholi Vorsa and Sathya Elavarthi. Blueberries: What we know about their heat stress tolerance. American association of Horticultural Society (ASHS) annual conference August 10-14, 2020, Virtual.
- **Kalpalatha Melmaiee**, Anju Biswas and Sathya Elavarthi. Dissecting genetic diversity and trichome density analysis in Strawberry. Plant and Animal Genomics conference, San Diego, CA. 2019
- Philip Bissiwu, Sathya Elavarthi and **Kalpalatha Melmaie**. Understanding gene expression, molecular and physiological responses in different cultivars of red maple (*Acer rubrum*) under drought stress. Plant and Animal Genomics conference, San Diego, CA 2019
- Rosalyn Battle and **Kalpalatha Melmaiee**. Characterization of Strawberry Growth and disease resistance under various fertilization methods. DSU Research Day. April 20, 2018.
- Jodi Callwood and **Kalpalatha Melmaiee**. Forward Genetic Analysis of Heat StressTolerance in Blueberries. DSU Research Day. April 20, 2018.
- Philip Bissiwu, Sathya Elavarthi and **Kalpalatha Melmaiee**. Understanding gene expression, molecular and physiological responses in red maple (*Acer rubrum*). DSU Research Day, 2018
- Anju Biswas, Benjamain Bougouneau, Julian Jones, Sathya Elavarthi and **Kalpalatha Melmaiee**. Genomic and biochemical characterization of strawberry (*Fragaria* × *ananassa*) genotypes using SSR markers. National association of Plant Breeders annual meeting, University of California, Davis, CA. August 7-10, 2017
- Julian Jones, Aicha Diarra, Anju Biswas, **Kalpalatha Melmaiee**. Investigation of Anthocyanin Content and Antioxidant Activity in Blueberry Genotypes. Annual Research Symposium, Delaware State University, Dover, DE-19901; July 27, 2017
- Diarra Aicha, Jullian Jones, Benjamain Bougouneau, **Kalpalatha Melmaiee**. Determination of Heat Stress: on Three Blueberry Genotypes. Annual Research Symposium, Delaware State University, Dover, DE-19901; July 27, 2017
- Benjamain Bougouneau, Julian Jones, Anju Biswas, Diarra Aicha, **Kalpalatha Melmaiee**. Nutritional content of Blueberries after High Temperature Treatment. Annual Research Symposium, Delaware State University, Dover, DE-19901; July 27, 2017
- Catrena Moore, Benjamain Bougouneau, **Kalpalatha Melmaiee**. Measurement of Chlorophyll Content and its Relation to Heat Tolerance in Blueberries. Annual Research Symposium, Delaware State University, Dover, DE-19901; July 27, 2017

Graduate and undergraduate Student Advisement, Research and Training

I have mentored more than 30 undergraduate students under my direct supervision and helped recruit or provide opportunities for around 200 students for research internships during my tenure at DSU.

Graduate (Masters) level student advisees		**Current affiliation**
Student name	**Time period**	**Current address**
Venkata H. Limmada	2021	Delaware State University
Diarra Aicha	2019	Delaware State University
Byron Manzanero	2019	Delaware State University
Lungowe Mulozi	2019	Delaware State University
Philip Bissiwu	2017-2019	Delaware State University
Jodi Callwood	2017-2019	Delaware State University
Rosalyn Battle	2017	Delaware State University
Anju Biswas	2016-2018	University of Florida

Graduate Students Research committee member/chair from 2016

Venkata H. Limmada-MS
Philippe Nziza -MS
Diarra Aicha-MS
Byron Manzanero-MS
Lungowe Mulozi-MS
Rosalyn Battle-MS
Joshua Paterson-Ph.D.
Latoya Irvin-MS
Philip Bissiwu -graduated
Jodi Callwood-graduated
Anju Biswas-graduated
Petrina Mckenzie-graduated
Dylan Lynch-graduated

Some of undergraduate student mentees are listed below (not included are internship students)

Student name	**Time period**	**Current address**
Wayne Piper	2019-2020	Delaware State University
Aditi Anand Muppavaram	2019-present	Delaware State University
Carl Michael James	2018-2019	Delaware State University
Diarra Aicha	2016-2019	Delaware State University
Julian Jones	2016-2018	Tuskegee University
Catrena Moore	2016-2018	Delaware State University
Jhahim Samuel	207-2018	
Tara K. Jones	2015-2017	Texas A&M University

Krystal Martindale	2016-2016	
Kierra Johnson	2015-2016	Tuskegee University
Lajune Harris	2013- 2014	Perdue Farms Inc.,
Isaac Fisher	2013-2015	
Jesse Gray	2013	
Jason de Young	2011-2013	
Priscilla Rodriguez	2011	
Natalie Kendall	2011	
Elizabeth Fiedler	2010	
Adrianne Brown	2010	
Nicholas Bradley	2010	
Megan Wilkerson	2009	
Alexia Russo	2008-2009	

Awards and Scholarships

2007: Travel Award by OSU Plant Bio-Net, for research presentation at Plant and Animal Genome XV conference), San Diego, California.

2006: Outstanding PhD Student awarded by the Department of Plant and Soil Sciences for excellent contributions to Plant and Soil Sciences programs.

2006: Second Best Presenter Award, for paper presentation in the 17th Annual Research Symposium, Biological Sciences Section, Oklahoma State University.

2005: Best Poster Presenter Award**,** American Association for the Advancement of Science (**AAAS**) Cells and Molecules section, 2005 annual meeting, Washington, D. C.

2005: Top Poster Presenter Award**,** 16th Annual Research Symposium, Biological Sciences Section, Oklahoma State University.

2005: H.F. "Pat" Murphy Memorial Scholarship**,** Department of Plant and Soil Sciences, for excellent academic record and involvement in student activities at OSU.

2004: Travel Award, **OSU Plant BioNet,** for research presentation at Crop Science Society of America annual meetings, Seattle, WA.

2004: Oliver H. "Buck" and Bessie Brensing Centennial Scholarship**,** Department of Plant and Soil Sciences, Oklahoma State University 2003-2004, for academic excellence and involvement in student activities.

2003: Graduate Research Mentor Scholarship*,* Howard Hughes Medical Institute (HHMI) through CTBS (Critical Thinking in Biological Sciences) program from January 2004 to May 2005.

1997: NET (National Eligibility Test) for Lectureship or Asst. Professorship by Agricultural Scientists Recruitment Board (ASRB), India- is a nationwide competitive award.

Academic/ Professional Services

State Representative for the State of Delaware in National Plant Breeding Coordinating Committee (PBCC). The PBCC is a forum for leadership, regarding issues, problems, and opportunities of long-term strategic importance to the contribution of plant breeding to national goals.

Professional Affiliations

(1) American Society for Horticultural Science (ASHS)
(2) National Plant Breeders Association (NAPB)
(3) Crop Science Society of America (CSSA)
(4) American Association for Advancement of Science (AAAS)