CURRICULUM VITAE

Dr. Dinakar Challabathula
Plant Molecular Stress Physiology Laboratory
Assistant Professor, Department of Biotechnology,
School of Life Sciences, Central University of Tamil Nadu,
Thiruvarur-610004, India
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ORCID ID: 0000-0002-7158-5902
Researcher ID: H-3491-2017
Vidwan ID: 59946
SCOPUS ID: 26531046700

RESEARCH INTERESTS:

Environmental Stress Physiology
Plant Growth Promoting Rhizobacteria
Desiccation tolerance

EDUCATION/ RESEARCH TRAINING:

Post Doctoral Fellow – 2010-2013 – IMBIO, University of Bonn, Germany
Research Associate – 2008-2009 – University of Hyderabad, India
Ph. D., (2009) University of Hyderabad, Hyderabad, Telangana
(Thesis: Importance of mitochondrial oxidative electron transport in optimizing photosynthesis under light, osmotic or temperature stress)
M. Sc., (2002) University of Hyderabad, Hyderabad, Telangana
B.Sc., (2000) Osmania University, Hyderabad, Telangana

RESEARCH EXPERIENCE:

2017-till date – Sr. Assistant Professor, Department of Biotechnology, Central University of Tamilnadu, India
2018 – Visiting Scientist, SLU, Sweden
2013-2017 – Assistant Professor, Department of Lifesciences, Central University of Tamilnadu, India
2017 – IPID4all-DAAD Fellow
2015 (Nov-Dec) – Visiting Scientist, IMBIO, Germany
2015 (May-July)– Visiting Scientist, IMBIO, Germany
2014 – Visiting Scientist, IMBIO, Germany
2010 – Research Associate, University of Hyderabad, India
2006 – SRF, CSIR, India
2003 – JRF, CSIR, India

PROFESSIONAL RECOGNITION, AWARDS, FELLOWSHIPS RECEIVED:

Visiting Scientist**,** Department of Plant Biology, Swedish University of Agricultural Sciences, May 2018
IPID4all (International promovieren in Deutschland – für alle) DAAD funding for travel to Germany 2017
INSA Bilateral Exchange Programme: Visiting Scientist, University of Bonn, 8th May to 5th August 2017
Outstanding Publication Award 2016- Central University of Tamil Nadu (CUTN) - India
Scientific Visit to Germany from 20th November to 6th December 2015
Scientific Visit to Germany from 21st May to 21st August 2015
Scientific Visit to Germany from 1st May to 30th June 2014
University of Bonn Postdoctoral Fellow (January 2010- August 2013)
Research Associateship ICAR-NAIP project (Oct 2008 –Dec 2009)
UPE UOH travel grant to Germany - 2006
Research Visit to University of Osnabruck, Germany from 29th April 2006.
SRF from Council for Scientific and Industrial Research (CSIR) India, Indian National Fellowship (2005-2007)
JRF from Council for Scientific and Industrial Research (CSIR) India, Indian National Fellowship (2003-2004)
Merit Scholarship (2001-2002, University Level Scholarship during Masters Degree)
Qualified GATE (2002) in Botany, Biotechnology and Chemistry (National Level Exam)

INTERNATIONAL PEER REVIEWED PUBLICATIONS

1. Gondi R, Akila, Ravi YK, Kavitha S, Siham Y. Al-Qaradawi, **Challabathula D**, Kumar G, Banu JR (2023) Cost-effective bio-methanation via oxalic acid coupled sonication pretreatment of *Gracilaria Salicornia.* Biomass and Bioenergy175: 106876. **Impact factor: 6.0.**
2. Mohanan A, Gandhi S, Ain A NA, **Challabathula D** (2023) Intracellular trehalose modulates oxidative responses and dehydrin gene expression in *Arabidopsis thaliana* (L.) Heynh during dehydration. Brazilian Journal of Botany, https://doi.org/10.1007/s40415-023-00877-w **(Impact Factor: 1.6).**
3. Ganesh PS, Veena K, Senthil R, ISwamy K, Ponmalar EM, Mariappan V, Girija ASS, Vadivelu J, Nagarajan S, **Challabathula D,** Shankar EM (2022) Biofilm-associated Agr and Sar quorum sensing systems of Staphylococcus aureus are inhibited by 3-hydroxybenzoic acid deried from Illicum verum. ACS Omega. 7, 17, 14653–14665 https://doi.org/10.1021/acsomega.1c07178 **(Impact factor 4.132)**
4. Sen A, Puthur JT, **Challabathula D**, Brestic M (2022) Transgenerational effect of UV-B priming on photochemistry and associated metabolism in rice seedlings subjected to PEG-induced osmotic stress. Phytosynthetica, 60: 63-73. **(Impact factor 2.482)**
5. Vishnupradeep R, Benedict Bruno L, Taj Z, Karthik C, **Challabathula D**, Tripti, Freitas H, Rajkumar M (2022) Plant growth promoting bacteria improve growth and phytostabilization potential of Zea mays under chromium and drought stress by altering photosynthetic and antioxidant responses. Environmental Technology and Innovation. 25: 102154 **(Impact factor 7.1)**
6. **Challabathula D**, Analin B, Mohanan A, Bakka K (2022) Differential modulation of photosynthesis, ROS and antioxidant enzyme activities in stress-sensitive and -tolerant rice cultivars during salinity and drought upon restriction of COX and AOX pathways of mitochondrial oxidative electron transport. Journal of Plant Physiology 268:153583. **(Impact factor: 4.3).**
7. Xu X, Legay S, Sergeant K, Zorzan S, Leclercq CC, Charton S, Giarola V, Liu X, **Challabathula D**, Renaut J, Hausman JF, Bartels D, Guerriero G (2021) Molecular insights into plant desiccation tolerance: transcriptomics, proteomics and targeted metabolite profiling in *Craterostigma plantagineum*. *Plant Journal*, 107:377-398. **(Impact Factor: 7.091).**
8. Taj Z, **Challabathula D** (2021) Protection of photosynthesis by halotolerant *staphylococcus sciuri* et101 in tomato (*lycoperiscon esculentum*) and rice (*oryza sativa*) plants during salinity stress: possible interplay between carboxylation and oxygenation in stress mitigation. *Frontiers in Microbiology*, 11: 547750. **(Impact Factor: 5.2).**
9. Analin B, Mohanan A, Bakka K, **Challabathula D.** (2020) Cytochrome oxidase and alternative oxidase pathways of mitochondrial electron transport chain are important for the photosynthetic performance of pea plants under salinity stress conditions. *Plant Physiology and Biochemistry*, 154: 248-259. **(Impact Factor: 6.5).**
10. Dhanya Thomas TT, **Dinakar C**, Puthur JT. (2020) Effect of UV-B priming on the abiotic stress tolerance of stress-sensitive rice seedlings: Priming imprints and cross-tolerance. *Plant Physiology and Biochemistry*147:21-30. **(Impact Factor: 6.5).**
11. Thomas DTT, **Challabathula D,** Puthur JT. (2019) UV-B priming of *Oryza sativa* var. Kanchana seedlings augments its antioxidative potential and gene expression of stress-response proteins under various abiotic stresses. *3 Biotech* 10:375. **(Impact Factor: 2.893).**
12. Sen A, **Challabathula D**, Puthur (2021) UV-B Priming of *Oryza sativa* Seeds augments the innate tolerance potential in a tolerant variety more effectively toward NaCl and PEG stressors. *Journal of Plant Growth Regulation*. 40:3. **(Impact Factor: 4.169)**
13. Liu X, **Challabathula D**, Quan W, Bartels D. (2019) Transcriptional and metabolic changes in the desiccation tolerant plant *Craterostigma plantagineum* during recurrent exposures to dehydration. *Planta* 249: 1017-1035. **(Impact Factor – 4.540)**.
14. **Challabathula D,** Zhang Q, Bartels D (2018) Protection of photosynthesis in desiccation -tolerant resurrection plants. *Journal of Plant Physiology*, 227: 84-92. **(Impact Factor – 4.3).**
15. **Challabathula D**, Jos T. Puthur, Bartels D (2016) Surviving metabolic arrest: Photosynthesis during desiccation and rehydration in resurrection plants. *Annals of the New York Academy of Sciences*. 1365: 89-99. **(Impact Factor – 5.691).**
16. **Dinakar C,** Abhaypratap Vishwakarma, Agepati Raghavendra, Kollipara Padmasree (2016) Alternative oxidase pathway optimize photosynthesis during osmotic and temperature stress by regulating cellular ROS through redox couples of malate valve and antioxidative system. *Frontiers in Plant Science***.** 7: 1-17. **(Impact Factor – 5.753).**
17. Ataei S, Braun V, **Challabathula D,** Bartels D (2016) Differences in LEA-like 11-24 gene expression in desiccation tolerant and sensitive species of Linderniaceae are due to variations in gene promoter sequences. *Functional Plant Biology*, 43: 695-708. **(Impact Factor – 3.10).**

18. VanBuren R, Bryant D, Edger P P, Tang H, Burgess D, **Challabathula D**, Spittle K, Hall R, Gu J, Lyons E, Freeling M, Bartels D, Hallers BT, Hastie A, Michael TP, Mockler TC (2015) Single molecule sequencing of the desiccation tolerant grass *Oropetium thomaeum*. *Nature* 527; 508-511. **(Impact Factor – 45.819).**
19. Giarola V, **Challabathula D,** Bartels D (2015) Quantification of expression of dehydrin isoforms in the desiccation tolerant plant *Craterostigma plantagineum* using specifically designed reference genes. *Plant Science* 236: 103-115. **Equal first authors. (Impact Factor – 4.729).**
20. **Dinakar C,** Bartels D (2013) Desiccation tolerance in resurrection plants: new insights from transcriptome, proteome, and metabolome analysis. *Frontiers in Plant Science* 4: 1-14. **(Impact Factor-5.753).**
21. Bartels D, **Dinakar C** (2013) Balancing salinity stress responses in halophytes and non-halophytes: a comparison between *Thellungiella* and *Arabidopsis thaliana*. *Functional Plant Biology* 40: 819-831. **(Impact Factor -3.10).**
22. Gechev TS, **Dinakar C**, Benina M, Toneva V, Bartels D (2012) Molecular mechanisms of desiccation tolerance in resurrection plants. *Cellular and Molecular Life Sciences* 69: 3175-3186. **(Impact Factor – 9.261).**
23. **Dinakar C,** Bartels D (2012**)** Light response, oxidative stress management and nucleic acid stability in closely related Linderniaceae species differing in desiccation tolerance. *Planta* 236: 541-555. **(Impact Factor – 4.116).**
24. **Dinakar C,** Djilianov D, Bartels D (2012) Photosynthesis in desiccation tolerant plants: Energy metabolism and antioxidative stress defense. *Plant Science* 182: 29-41. **(Impact Factor – 4.729).**
25. **Dinakar C,** Raghavendra AS, Padmasree K (2010) Importance of AOX pathway in optimizing photosynthesis under high light stress: Role of pyruvate and malate in activating AOX. *Physiologia Plantarum* 139: 13-26. **(Impact Factor – 4.148).**
26. **Dinakar C,** Abhaypratap V, Yearla SR, Raghavendra AS, Padmasree K (2010) Importance of ROS and antioxidant system during the beneficial interactions of mitochondrial metabolism with photosynthetic carbon assimilation. *Planta* 231: 461-474. **(Impact Factor – 4.500)**
27. Strodtkötter I, Padmasree K, **Dinakar C**, Speth B, Wojtera J, Voss I, Do PT, Nunes-Nesi A, Fernie AR, Linke V, Raghavendra AS, Scheibe R (2009) Induction of the AOX1D isoform of alternative oxidase in *A. thaliana* T-DNA insertion lines lacking isoform AOX 1a is insufficient to optimize photosynthesis when treated with antimycin A. *Molecular Plant* 2: 284-297. **(Impact Factor – 13.164).**

BOOK CHAPTERS

1. Venugopalan V, **Challabathula D,** Bakka K (2023) Emerging Roles of Plant Growth Promoting Rhizobacteria in Salt Stress Alleviation: Applications in Sustainable Agriculture In Mathur, P., Kapoor, R., Roy, S. (eds) Rhizosphere Biology: Microbial Symbionts and Plant Health: Trends and Applications for Changing Climate Springer,Page Nos. 397-437
2. Bakka K, Gopika PV, Sreelakshmi H, **Challabathula D** (2022). Halotolerant Plant Growth Promoting Rhizobacteria: A Futuristic Direction to Salt Stress Tolerance. In: Roy, S., Mathur, P., Chakraborty, A.P., Saha, S.P. (eds) Plant Stress: Challenges and Management in the New Decade. Advances in Science, Technology & Innovation. Springer, Cham. 277-294 https://doi.org/10.1007/978-3-030-95365-2_17
3. Bakka K, **Challabathula D** (2020) Amelioraiton of salt stress tolerance in plants by plant growth promoting rhizobacteria: Insights from 'Omics'approaches. A. Varma et al. (eds.), Plant Microbe Symbiosis, Springer Nature. (Book Chapter).
4. Padmasree, K, **Dinakar C** (2014) Mitochondrial oxidative metabolism optimizes photosynthetic carbon assimilation through redox and ROS linked metabolite shuttles. In Photosynthesis: Overviews on Recent Progress & Future Perspective, Eds. Itoh, S., Mohanty, P. and Guruprasad, K.N. (I.K. International Publishers, New Delhi), 157-165. (Book Chapter).
5. Padmasree, K and **Dinakar C** (2011) Metabolic interactions between chloroplasts and mitochondria to optimize photosynthesis under high light. Plant Science in Post Genomic Era (A Special Bulletin of ICPSPGE) at, Orissa, India, February 2011, 113-118. (Book Chapter).

WORK PRESENTED AT NATIONAL/INTERNATIONAL CONFERENCES

1. **Dinakar C**. (2016) Surviving metabolic arrest: understanding the molecular mechanisms of desiccation tolerance in the resurrection plant *Craterostigma plantagineum*. National Conference on Emerging Trends in Plant Science-March 10th and 11th, Bharathidasan University, Trichy **(Best Oral Presentation Award)**.

2. Zarin Taj, **Z, Dinakar C,** Rajkumar M (2016) Phytoremediation of hydrocarbons by Leucaena leucocephala inoculated with plant growth promoting rhizobacteria. National Conferene on Emerging Trends in Plant Science- March 10th and 11th, Bharathidasan University, Trichy.
3. **Dinakar C.** (2015) Molecular mechanisms of desiccation tolerance in the resurrection plant *Craterostigma plantagineum*. 3rd International Plant Physiology Congress on Challenges and Strategies in Plant Biology Research at JNU, New Delhi India from 11-14th December 2015.
4. Zarin Taj, **Dinakar C**, Rajkumar M (2015) Isolation, characterization of salt tolerant endophytic plant growth-promoting bacteria and their potential role in conferring salinity tolerance in tomato plants. International Symposium on Biodiversity, Agriculture, Environment and Forestry organized by Association for the Advancement of Biodiversity Science from 11-12th December 2015 at Ooty.
5. **Dinakar C.** (2014) Towards identifying the molecular mechanisms of desiccation tolerance in the resurrection plant *Craterostigma plantagineum*. Oral presentation in National Conference on Emerging Challenges and Opportunities in Biotic and Abiotic Stress Management held during December 13-14 at Directorate of Rice Research, Rajendranagar, Hyderabad.
6. **Dinakar C** (2015) Desiccation tolerance and oxidative stress management in *Lindernia brevidens* plants. National Seminar on Recent Trends and Future Advances in Life Sciences, 26th and 27th February 2015 at CUTN, Thiruvarur.
7. Adarsh Kumar Mohapatra and **Dinakar C** (2015) Comparative gene expression analysis between *Arabidopsis thaliana* (glycophyte) and *Thellungiella halophila* reveals mechanisms responsible for salt tolerance. National Seminar on Recent Trends and Future Advances in Life Sciences, 26th and 27th February 2015 at CUTN, Thiruvarur.
8. Abhay Pratap Vishwakarma, **C. Dinakar** and K. Padmasree (2009) *Significance of ROS in mediating beneficial interactions between chloroplasts and mitochondria in light.* National Symposium on "Frontiers in Photobiology" Bhabha Atomic Research Centre (BARC), Mumbai, 24 - 26 August.
9. **C. Dinakar** and K. Padmasree (2008) *Importance and relative contribution of COX and AOX pathways in optimizing photosynthesis during light, osmotic or temperature stress.* International Conference on Photosynthesis in the Global Perspective, School of Life Sciences, DAVV, Indore, 27-29 November **(Best Poster Award, Published in 2009, Vol. 100: 49-55 Photosynthesis Research Journal)**.
10. **C. Dinakar** and K. Padmasree (2008) *Importance of COX and AOX pathways in optimizing photosynthesis under light, osmotic or temperature stress.* International Conference on Photosynthesis in the Global Perspective, School of Life Sciences, DAVV, Indore, 27-29 November (Oral presentation).
11. **C. Dinakar** and K. Padmasree (2008) *Importance of COX and AOX pathways in optimizing photosynthesis under light, osmotic or temperature stress: Role of ROS and antioxidants.* First International AOX Symposium in Evora, Portugal, 23 – 27 October.
12. **C. Dinakar** and K. Padmasree (2008) *Relative importance of AOX pathway over COX pathway in optimizing photosynthesis under light, osmotic or temperature stress.* First International AOX Symposium in Evora, Portugal, 23-27 October.
13. **C. Dinakar,** V.Linke, K. Padmasree and R. Scheibe (2007) *Functional analysis of AOX 1a in protecting photosynthesis against photoinhibition in A. thaliana*. International symposium on Light and Life, University of Hyderabad, Hyderabad, 29-31 August.
14. **C. Dinakar** and K. Padmasree (2007) *Importance of mitochondrial oxidative electron transport in protecting photosynthesis against photoinhibition in mesophyll protoplasts of pea* (*Pisum sativum*). National Seminar on Recent Advances in Plant Science, Acharya Nagarjuna University, Guntur, 1 -2 March (Oral presentation).
15. **C. Dinakar** and K. Padmasree (2006) *Importance of mitochondrial oxidative metabolism in protecting photosynthesis against photoinhibition under light, osmotic and temperature stress:* Roles of alternative pathway and malate valve. 3rd International symposium "signals, sensing and plant primary metabolism", Potsdam, Germany, 26-29 April.
16. **C. Dinakar**, L. Padmavathi and K. Padmasree (2005) *Importance of cyanide resistant alternative pathway and cyanide sensitive cytochrome pathway in protecting photosynthesis against photoinhibition in mesophyll protoplasts of pea.* XVII National symposium on Photosciences for the millennium, Sambalpur University, Orissa, 19-21 February.
17. **C. Dinakar**, L. Padmavathi and K. Padmasree (2004) *Activity and engagement of cyanide resistant alternative oxidase pathway under light, osmotic and temperature stress in mesophyll protoplasts of Pisum sativum L.* National Seminar on Plant Physiology (Physiological basis of Improving Agricultural, Horticultural and Medicinal Plants Productivity), University of Pune, Pune, 27-29 December.
18. **C. Dinakar**, E.R. Prasad and K. Padmasree (2004) *Significance of alternative and cytochrome pathways of mitochondrial oxidative electron transport in benefiting photosynthesis during light, osmotic and*

temperature stress. National Symposium on Recent Trends in Plant Sciences and XXVII All India Botanical Conference, Sri Krishnadevaraya University, Anantapur, 29-31 October.

Participation in Conferences (National/International)

1. Satellite Symposium on Molecular Aspects of Cellular Signaling held at University of Hyderabad India, during December 3-4 2003
2. Plant Sciences Colloquium 2008 held at University of Hyderabad during 19th and 20th January 2008.
3. European Union Sponsored NanoBioSaccharides Dissemination Conference held during September 18-19 2008 at University of Hyderabad, Hyderabad.
4. Plant Sciences Colloquium held at University of Hyderabad on 20th of March 2009
5. In vivo Research Facility Seminars: Harlan Symposium held on June 8th 2015 in Cologne, Germany
6. Bonner Wissenschafts Nacht (Science Night) on 23rd May 2014 at University of Bonn, Bonn, Germany.
7. Deliberations of the Seminar on Sustainable Environment at CUTN, Thiruvarur on 26th April 2015

Ongoing Research Projects:

S.No.	Title of the Project	Project Director / Investigator	Amount Sanctioned	Funding Agency	Period	Status
1	Regulation of mtAOX (mitochondrial alternative oxidase) genes and their involvement in redox signaling during salinity stress in plants	Dr. Dinakar Challabathula	51,44007	SERB	15-12-2021 to 14-12-2024	Ongoing
2.	Regulation of photosynthesis and dissipation of excess redox in PGPR *Staphylococcus sciuri* ETI01 inoculated rice plants under salinity stress	Dr. Dinakar Challabathula	52,10832	SERB	10-03-2022 to 09-03-2025	Ongoing

Completed Research Projects:

SERB sponsored project (June 2014-May 2017). Total amount Sanctioned: Rs. 42, 72000/-

Students guided (Research):

Postdoctoral Fellow: 01 (SERB Sponsored National Postdoctoral Fellow, SERB-NPDF; Current)
Ph.D students: Two (Completed); Currently 3
Master Students: 10
Bachelor Students : 3 (Germany)

Service to Departmental Committees

Departmental Research Committee (Member)
Departmental Project Committee (Member)

Academic Responsibilities

Member Board of Studies, Life Sciences, Central University of Tamil Nadu
Member, Board of Studies, Department of Hindi, Central University of Tamil Nadu
Editor in Chief- Departmental News Letter (Life Sciences)