

Research Interests

Plant Genetic Engineering, Microscopy
Functional Genomics, Botanical
authentication and Plant Virology

Research achievements

- 7 research papers published in peer reviewed journals. Among which one research article published in the PNAS and another one in eLife journal in 2023.
- One first author book published in collaboration with Central University of Tamilnadu, India.
- Geminiviral AC2/C2 NLS and chloroplast localization research is in progress.

Contact details

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Contact address

Dr. K. S. DINESH BABU

Assistant Professor,

Department of Botany and

Microbiology, HNB Garhwal University,

Chauras Campus, Tehri Garhwal -

249161, Uttarakhand.

Languages known to Read, Write and Speak

English – Fluent

Tamil – Fluent

Sourashtrium - Fluent

Dr. DINESH BABU K S



To obtain a challenging career and excel as a quality professional in a highly challenging and stimulating environment, where I can use my skills and expand my knowledge.

Teaching and Research Experience

From
15.07.2023
Onwards

Assistant Professor, Department of Botany and Microbiology, HNB Garhwal University, Uttarakhand.

- Teaching Plant sciences to UG and PG Botany students. My research interests includes functional investigation of Begomoviral Proteins and Host-Pathogen Interaction. Cellular localization of plant and plant viral proteins.

01.04.2023
31.05.2023

Guest Researcher, CSIR – CCMB, Hyderabad, India

- Functional investigation of DTD2 protein in plants

20.07.2021
to
31.03.2023

Senior Project Associate, CSIR – CCMB, Hyderabad, India.

- My significant achievements includes localization of DTD2 protein in chloroplast and mitochondria and confirmation of DTD1 protein in cell cytoplasm of *A. thaliana* and *N. benthamiana* via confocal microscopy using DTD2: GFP & DTD1: GFP plasmid constructs.
- Production and maintenance of transgenic *Arabidopsis* lines and confirmation through Southern and microscopy.
- Analysis of gene expression levels in different plant organs using quantitative PCR and microscopy.
- Protein expression, purification, crystallization, X-ray diffraction, data analysis using CCP4 software. Performing biochemical assays using purified DTD proteins.

01.07.2019
to
15.05.2020

Guest Faculty, Department of Life Sciences, Central University of Tamilnadu, Thiruvarur, Tamilnadu, India.

- Teaching various concepts of Plant Biology and Cell Biology to Integrated M. Sc Life sciences students.

02.01.2012
to
01.02.2019

Ph. D Scholar, Madurai Kamaraj University, TN, India

- Functional investigation of *Bhendi yellow vein mosaic virus* (BYVMV) proteins in plant pathogenesis.

01.07.2008
to
31.03.2011

Junior Research Fellow (JRF), SPKCES, Manonmaniam Sundaranar University, Tirunelveli, India

- Understanding tissue organization in the raw drugs of RET medicinal plants via microscopy.
- Analysing developmental process and tissue formation in fruits and seeds via microscopy using specific dyes.
- Standardizing tissue culture media composition for callus development and *In-vitro* multiplication.
- Doing Anatomical analysis and Histo-chemical localization in the raw drugs of RET medicinal plants and identifying key anatomical characters for botanical authentication.
- Establishing Ex-situ conservation area of selected RET plants.
- Producing detailed dossier on selected RET medicinal plants.

03.07.2007
to
29.02.2008

Adhoc Lecturer, Department of Botany, The Madura College, Madurai, India.

- Teaching Plant Sciences and Environmental Sciences to Undergraduate students.

Education

- Doctor of Philosophy (Ph. D)** - University - Madurai Kamaraj University (2012 to 2019)
Department – Plant Biotechnology, School of Biotechnology
Thesis title – Functional investigation of Bhendi yellow vein mosaic virus proteins in plant pathogenesis
- M. Sc (Botany)** - College – Saraswathi Narayanan College, Madurai, Tamilnadu.
Period – 2005 to 2007
Awards – Secured first rank at university level.
- B. Sc (Botany)** - College – Saraswathi Narayanan College, Madurai, Tamilnadu.
Period – 2002 to 2005
Awards – Secured first rank at college level.

Professional memberships

1. Life member in the Society for Biological Chemists, India (SBCI).
2. Life member in Indian Biophysical Society (IBS).

Fellowships and honors

1. I have received **DST INSPIRE fellowship** during my Ph. D research for the period of 5 years from 2012 to 2016.
2. I have received **cash award for the second best oral presentation** in 49th Aqua-Terr Annual conference on Biological Sciences during 27-28 February 2018.
3. I have secured **University first rank in M. Sc Botany** degree course and received Prof. Punugu memorial cash award in 2008.
4. I have secured **college level first rank in B. Sc., Botany** degree course and received Dhurvas Silver medal.

Additional duties assigned other than teaching

1. In-Charge for the Departmental Library, Department of Botany, HNB Garhwal University, Chauras Campus, Tehri Garhwal – 249161, Uttarakhand.

Publications

1. Pradeep Kumar, Ankit Roy, JS Mukul, Avinash Kumar Singh, Dipesh Kumar Singh, Aswan Nalli, Pujaita Banerjee, **Kandhalu Sagadevan Dinesh Babu**, Bakthisaran Raman, Shoba K Kruparani, Imran Siddiqi, Rajan Sankaranarayanan, 2023, Archaeal origin translation proofreader imparts multialdehyde stress tolerance to land plants, *eLife*, <https://doi.org/10.7554/eLife.92827.1>
2. Pradeep kumar and **Kandhalu Sagadevan Dinesh Babu** *et al.*, 2023, Distinct localization of chiral proofreaders resolves organellar translation conflict in plants, published in **Proceedings of the National Academy of Sciences (PNAS)**, United States of America, Vol:120(24) e2219292120, ISSN: 1091-6490, <https://www.pnas.org/doi/10.1073/pnas.2219292120>.
3. **Kandhalu Sagadevan Dinesh Babu**, Vardhana Janakiraman, Harunipriya Palaniswamy, Lakshmi Kasirajan, Raju Gomathi, Thakku R. Ramkumar, 2022, A short review on sugarcane: Its domestication, molecular manipulations and future perspectives, Springer, *Genetic resources and crop evolution*, ISSN : 0925-9864, **DOI : 10.1007/s10722-022-01430-6**.
4. Ramkumar M, Thiagarajan sekar, Parthasarathy Ayothi, Govendhan Subhas, **Kandhalu Sagadevan Dinesh Babu**, Gopal Pandi, Babu Rajendra Prasad Venugopal, Kathiresan Shanmugam, 2022, Extending omega 3/6 fatty acid pathway in *Arabidopsis thaliana* using microalgal gene Δ6Des for Stearidonic acid and Dihomo-γ-linolenic acid production, Elsevier, *South African Journal of Botany*, ISSN : 0254-6299, DOI : <https://doi.org/10.1016/j.sajb.2021.12.035>.

5. **K S Dinesh Babu**, Latchoumicandane Calivardhan, 2022, Flora – A Compendium of Plant Biodiversity of the Central University of Tamilnadu (CUTN). Thiruvarur, Tamilnadu. Publisher – Department of Life Sciences, Central University of Tamilnadu. https://cutn.ac.in/wp-content/uploads/2022/02/FLORAL_final_22022022.pdf.
6. **Kandhalu Sagadevan Dinesh Babu**, Ashirbad Guria, Jeyalakshmi Karanthamalai, Nagesh Srikakulam, Kamlesh Kumari, Priyanka Sharma, Sam Aldrin Chandran, Anburaj Daniel Barnabas, Jebasingh Tennyson, and Gopal Pandi, 2018, DNA Methylation Suppression by Bhendi Yellow Vein Mosaic Virus, MDPI, *Epigenomes* 2, ISSN: 2075-4655, [DOI - 10.3390/epigenomes2020007](https://doi.org/10.3390/epigenomes2020007).
7. **Kandhalu Sagadevan Dinesh Babu**, Prabhu Manoharan, Gopal. P, 2018, Computational studies on Begomoviral AC2/C2 proteins, *Bioinformatics*, 14(6), ISSN: 0973-2063. [DOI - 10.6026/97320630014294](https://doi.org/10.6026/97320630014294).

Sequence publications in public nucleotide database:

1. Bisulfite Illumina sequencing data (Data arising from my Ph. D work) was submitted to NCBI SRA with Bio project number: [PRJNA428793 \(SRP128162\)](https://www.ncbi.nlm.nih.gov/sra/PRJNA428793). Genbank submission of DNA sequences from *Coffea* genome [JX127311.1](https://www.ncbi.nlm.nih.gov/genbank/JX127311.1), [JQ653024.1](https://www.ncbi.nlm.nih.gov/genbank/JQ653024.1), [JX310072.1](https://www.ncbi.nlm.nih.gov/genbank/JX310072.1), [JX127310.1](https://www.ncbi.nlm.nih.gov/genbank/JX127310.1), [JQ653023.1](https://www.ncbi.nlm.nih.gov/genbank/JQ653023.1), [JX310071.1](https://www.ncbi.nlm.nih.gov/genbank/JX310071.1), [JQ653022.1](https://www.ncbi.nlm.nih.gov/genbank/JQ653022.1), [JQ653021.1](https://www.ncbi.nlm.nih.gov/genbank/JQ653021.1), [MN513052.1](https://www.ncbi.nlm.nih.gov/genbank/MN513052.1).

Oral and poster presentations given at conferences and seminars

International Conferences

Oral presentation

K. S. Dinesh Babu, N. Anandha Dhanaselvan, V. Manimekhalai and P. Ravichandran, **International Conference on medicinal plants and herbal drugs : Challenges and opportunities in cultivation, sustainable utilization and conservation. (ICMPHD-2010)** 4-6, March 2010, Venue : Pachaiyappas College, Chennai. Oral presentation title : Histochemical and Pharmacognostic studies on *Holostemma ada-kodien* – an endangered medicinal plant from southern western ghats.

Poster presentation

1. K. S. Dinesh babu, Ashirbad Guria, R. Usha, P. Gopal, Investigation on transcriptional gene silencing suppression by bhendi yellow vein mosaic virus. **International conference on genomes: Mechanisms and Functions** and 82nd Annual meeting of society of Biological Chemists (India) held at University of Hyderabad, Hyderabad, India. (December 2-5, 2013). Poster title: Investigation on transcriptional gene silencing suppression by bhendi yellowvein mosaic virus.
2. K. S. Dinesh Babu, Ashirbad Guria, Kamlesh Kumari, P. Gopal, Poster title: Functional investigation of *Bhendi yellow vein mosaic virus* proteins in Plant Pathogenesis. Presented at **8th International Geminivirus Symposium & the 6th International ssDNA Comparative Virology Workshop” (IGS 2016) held at Jawaharlal Nehru University, New Delhi.** (7-10, November 2016). *Virus Disease*, (October–December 2016) 27(4):405–459. DOI 10.1007/s13337-016-0351-7. (Abstract Publication)
3. K. S. Dinesh Babu, Poster title: Geminiviruses: Past and Present perspectives. Presented at **International Conference on Recent Trends in Chemistry and Biosciences (ICRTCB - 2019)”** held at Madurai Kamaraj university, Madurai on 16 – 17 May 2019

National Level Conferences

Oral presentation

1. K. S. Dinesh Babu, P. Gopal, Oral presentation title - Viral DNA methylation suppression by bhendi yellow vein mosaic virus, presented in **National conference on recent trends in modern biology** and 47th Aqua-Terr annual conference held on 27-28 February 2016 at School of Biological Sciences, Madurai Kamaraj university, Madurai – 625021.
2. K. S. Dinesh Babu, Ashirbad Guria, Jayalakshmi. K, Kamlesh Kumari, Priyanka Sharma, Nagesh. S, Gopal. P, Poster title: Functional investigation of *Bhendi Yellow Vein Mosaic Virus (BYVMV)* proteins in plant pathogenesis. Poster presented at **National Science day and 49th Aqua-Terr Annual conference on Biological Sciences**, February

27-28, Conducted by Aqua-Terr society for Biological Sciences, School of Biological Sciences, Madurai Kamaraj University, Madurai-21.

Poster presentation

1. K. S. Dinesh Babu, Ashirbad Guria, R. Usha, P. Gopal. Poster title: Investigation on Bhendi Yellow vein mosaic virus proteins in host epigenetic modulation, Poster presented in **National Science day and 44th Aqua-Terr annual conference on Biological Sciences**, 28th February, 2013 held at School of Biological Sciences, Madurai Kamaraj University, Madurai – 21.

2. K. S. Dinesh Babu, Ashirbad Guria, Kamlesh Kumari, R. Usha, P. Gopal, Poster title: Studies on host DNA methylation suppression by Bhendi Yellow vein mosaic virus. Poster presented at **83rd Annual meeting of Society of Biological Chemists (India)** held at KIIT University, Bhubaneswar, Orissa. (17-21 December 2014).

List of Seminar, Symposia & Workshops participated

1. DST SERB sponsored National level workshop on Plant Genome Editing using CRISPR-Cas9, on Nov. 30 to Dec. 02, 2023, organised by Sharda University, New delhi.
2. International symposium on Plant Biotechnology (ISPB – 2022), organized by Department of Plant Biotechnology, Madurai Kamaraj University, Madurai.
3. National level workshop on *Aedes* borne diseases and their control, on 5-6th, 2020, organized by Central University of Tamilnadu (CUTN), Thiruvavur, India. [ISBN: 978-93-87360-58-7](#).
4. International conference on recent trends in chemistry and biology (ICRTCB-2019), on 16-17, May 2019 organized by Madurai Kamaraj University, India.
5. Science Academies Lecture workshop on “Human Genomics and Genetic Diseases” on 05 & 06 October 2018 at Saiva Bhanu Kshatriya College, Aruppukottai, Tamilnadu, India. Organised by P.G. Department of Botany SPK College, Aruppukottai.
6. National seminar on “Industrial aspect of antibody production – Ig Techno 11” held at Department of Biotechnology, Manonmaniam Sundaranar University, Alwarkurichi, Tamilnadu, India on 23, 24th February 2011.
7. Two month ‘Mushroom technology training course’ conducted from 09.07.2003 to 09.09.2003 at Research center in Botany, Saraswathi Narayanan College, Perungudi, Madurai.
8. One day “Haldane memorial symposium on Evolutionary Biology” on 17.12.2014 held at bhubneswar, Odisha.
9. One day seminar on “The Journey of Man” organized by the Department of History, Yadava College, Madurai – 14 on 26.09.2003.
10. Seminar on “Structural Bioinformatics and its Application” organized by Center for Excellence in Bioinformatics, School of Biotechnology held on 7th September 2011 at School of Biotechnology, Madurai Kamaraj University, Madurai.
11. Joint Science Academies lecture workshop on “Structure function and design of biomolecules – SFDB – 2010” held on January 28 & 29, 2010 at Department of Bioinformatics, School of Life Sciences, Bharathiyar University, Coimbatore. Organised by Structural biology Lab, Department of Bioinformatics, Bharathiyar University.
12. One day consultative workshop on “River Flows: Present, Past & Future” on 22nd March 2009 at Sri Paramakalyani center for Environmental Sciences, Alwarkurichi. Organised by SPKCES, M. S. University, Alwarkurichi and Center for Arts, Science and Technology, Tuticorin.
13. DST-PURSE sponsored “One day workshop on materials characterization techniques: AFM and XRD” on 19th November 2014 held at School of Physics, Madurai Kamaraj University.
14. One day seminar on “Immunotherapeutics and diagnostics” on 5th October 2015 held at SBT, MKU. Organized by Department of Molecular Microbiology, School of biotechnology, Madurai Kamaraj University, Madurai.
15. Seminar on “People and the Forest” on 5th March 2009, at the Department of Botany, Sri Parashakthi college for women, Courtallam. Organised by Botany Department, Sri Parashakthi College.
16. National Environmental Awareness campaign – 2002-03 held on 28.03.2003 at Saraswathi Narayanan College, Perungudi, Madurai.
17. National Environmental Awareness campaign – 2004 held on 30.07.2004 at Saraswathi Narayanan College, Perungudi, Madurai.