



Dr. Ramkumar T.R.

M.Sc. (Botany), Ph.D. (Biotechnology)
ARO-PDF (Israel), N-PDF (India), ENVIS Scholar (USA)
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RESEARCH INTEREST: Epigenetics, Epigenomics, RNA/ small RNA biology, Functional genomics, Genome editing, Genetic and Metabolic Engineering, Genome- and Transcriptome-wide Gene family analysis

TEACHING INTEREST: Angiosperm taxonomy, Biodiversity, Ecology, Plant genetic engineering, Molecular biology, Cell biology, Genetics, Epigenetics, Embryology

SPECIALIZATION: Plant transformation, Functional genomics-*in planta* & heterologous system, Epigenetics & *Trans*-generational epigenetics, and Organelle genotyping

ACADEMIC

ENVIS	University of Florida, Gainesville, Florida, USA	2018-2020
PI (N-PDF)	National-Postdoctoral Fellowship, DST-SERB, India	2017-2018
ARO- PDF	Agricultural Research Organization, Israel	2015-2016
Ph.D. Biotechnology	Madurai Kamaraj University	2009-2017
M.Sc. Botany	The American College, Madurai Kamaraj University	2006-2008
B.Sc. Botany	The Madura College, Madurai Kamaraj University	2003-2006

PUBLICATIONS

Ramkumar TR, Parameswari C, Sugapriya T, Veluthambi K (2015) Effect of orientation of transcription of a gene in an inverted transferred DNA repeat on gene silencing in rice transgenics – A case study. *Physiol Mol Biol Plants* 21:151–157. <https://doi.org/10.1007/s12298-014-0273-z>

Ramkumar TR, Kanchan M, Upadhyay SK, Sembhi JK (2018) Identification and characterization of *WUSCHEL*-related *homeobox* (*WOX*) gene family in economically important orchid species *Phalaenopsis equestris* and *Dendrobium catenatum*. *Plant Gene* 14:37–45. <https://doi.org/10.1016/j.plgene.2018.04.004>

Ramkumar TR, Lenka SK, Arya SS, Bansal KC (2020) A short history and perspectives on plant genetic transformation. In: Rustgi S, Luo H (Eds.), *Biostic DNA Delivery in Plants. Methods in Molecular Biology*, vol 2124. Humana, New York, NY pp 39-68. https://doi.org/10.1007/978-1-0716-0356-7_3

Himani, **Ramkumar TR**, Tyagi S, Sharma H, Upadhyay SK, Sembi JK (2019) Tracing the Footprints of ABCDE model of Flowering in *Phalaenopsis equestris* (Schauer) Rchb.f (Orchidaceae). *J Plant Biotechnol* 46:255–273. <https://doi.org/10.5010/JPB.2019.46.4.255>

Ramkumar TR, Kanchan M, Sembi JK (2020) Genome wide characterization of *WUSCHEL-related homeobox (WOX)* gene family in *Apostasia shenzhenica*, a primeval orchid. *Plant Science Today* 7: 164-171. <https://doi.org/10.14719/pst.2020.7.2.703>

Victorathisayam T, Kanchan M, Himani, Suriyanarayanan TR, Sembi JK, **Ramkumar TR** (2020) *In silico* identification, characterization and expression profile of *WUSCHEL-related homeobox (WOX)* gene family in *Vanilla planifolia*. *Plant Science Today* Vol 7: 206–213. <https://doi.org/10.14719/pst.2020.7.2.722>

Mahto BK, **Ramkumar TR**, Arya SS, Lenka SK, Sharpening gene editing toolbox in Arabidopsis for plants. *J Plant Biochem Biotech*. <https://link.springer.com/article/10.1007/s13562-020-00606-4>

RamkumarTR, Yarra R, ‘Base editing in rice: Current progress, advances, limitations and future perspectives’ (**Under Review – Rice Science**)

RamkumarTR, Kasirajan L, ‘Sugarcane: A Sweet Journey’ (**Under Review**)

Himani, Sharma A, **Ramkumar TR**, Sembi JK, ‘*In silico* identification and characterization of *MADS-box* gene family in *Vanilla planifolia*’ (**Under review**).

RamkumarTR, Karuppusamy S ‘Plant diversity and ethnobotanical knowledge of spices and condiments’ (**Under Review – Wiley book chapter**)

PUBLICATIONS UNDER PREPARATION

Majhi BB, **Ramkumar TR**, Anitha V, Bhosale R, Veluthambi K, ‘T-DNA tagging of *PHOSPHOLIPASE A₂* in rice reveals its essential role in pollen development’. (**Under communication**)

Parameswari C, **RamkumarTR**, Sridevi G, Sugapriya T, Veluthambi K, ‘A PTGS locus of an inverted T-DNA repeat in transgenic rice triggers TGS *in trans* over homologous promoter-driven transgenes’ (**Under preparation**)

PROJECTS UNDERTAKEN

DST-SERB Project: Extension of flower longevity in *Cymbidium pendulum* by down-regulation of *I-AMINOCYCLOPROPANE-1-CARBOXYLIC ACID OXIDASE (ACO)* gene and expression of mutated *ETHYLENE RESPONSE 1 (ETR1)* gene

PROJECTS WORKED

ARO Project (Israel): Ectopic expression of *Pinus halepensis SUPEROXIDE DISMUTASE 1 (PhSOD1)* and *ASCORBATE PEROXIDISE 2 (PhAPX2)* genes in *Arabidopsis thaliana*

DBT Project: Mechanisms underlying the trigger and spread of ‘*trans*-silencing’ in transgenic plants; Suppression of transgene silencing by *Mungbean yellow mosaic virus AC2*

HONOURS AND FELLOWSHIPS AWARDED

Research Scholar, SEVIS/ UF-IFAS (Govt. of USA): Research Scholar, Student and Exchange Visitor Program (SEVIS), University of Florida - Institute of Food and Agricultural Sciences (UF-IFAS), Agronomy Department

DST-SERB, N-PDF (Govt. of India): Project Investigator, Department of Science and Technology (DST), Science and Engineering Research Board (SERB) funded National-PostDoctoral Fellowship (N-PDF)

ARO-PDF (Govt. of Israel): Planning and Budgeting Committee (PBC) funded Agricultural Research Organization (ARO) - Postdoctoral Research Fellowship

ACADEMIC ACHIEVEMENTS - National Level Competitive Exams

CSIR-UGC NET (Jun, 2011) Life Sciences All India Rank – 22

CSIR-UGC NET (Dec, 2007) Life Sciences

ICAR-ASRB NET (2018) Agricultural Biotechnology

CBSE-UGC NET (Jul, 2018) Environmental Sciences

GATE (2008) Life Sciences 95 Percentile

ABSTRACT PRESENTED

Ramkumar TR, Majhi B B, et al. Veluthambi K, “T-DNA tagging of *PHOSPHOLIPASE A2 α* in rice reveals its essential role in pollen development”. Presented at National Seminar on “Challenges and Innovative Approaches in Crop Improvement”, Organised by Indian Society of Plant breeders, held at Agricultural College and Research Institute, Madurai – **ORAL**

Ramkumar TR, Parameswari C, Sugapriya T, Veluthambi K, “Effect of orientation of transcription of a gene in an inverted transferred DNA repeat on gene silencing in rice transgenics – A case study”. Presented at International Conference on Modern Progress in Biotechnology, held at Anna University & Bharathidasan Institute of Technology, Tiruchirappalli – **ORAL**

Ramkumar TR, Parameswari C, Sugapriya T, Veluthambi K, “Convergent Orientation of transcription of a gene in an inverted transferred repeat causes transcriptional gene silencing in rice”. Presented at National Seminar on Emerging Trends in Biological research, held at Lady Doak College, Madurai – **ORAL**

Ramkumar TR, Kaur JS, “Transcriptome-wide identification and *in silico* characterization of *DEAD-box* helicase family in the model orchid *Phalaenopsis equestris*”. Presented at National Academy of Sciences (NASI), India 87th annual meeting, held at Savitribai Phule Pune University, Pune – **ORAL**

Ramkumar TR, Kaur JS, “*Phospholipase C (PLC)* gene family in three orchid species, *Phalaenopsis equestris*, *Dendrobium catenatum*, and *Apostasia shenzhenica*”. Presented at 49th Aqua-Terr Annual Conference on Biological Sciences, held at School of Biological Sciences, Madurai Kamaraj University, Madurai – **ORAL**

Ramkumar TR, Kaur J, “Omic-characterization of DEAD-box helicase family in the model orchid *Phalaenopsis equestris*”. Presented at Har Gobind Khorana Memorial Symposium on “Genes,

Genomes and Membrane Biology” at National Agri-Food Biotechnology Institute (NABI), Mohali –
POSTER

Ramkumar TR, Kaur JS, “Identification and characterization of *WUSCHEL*-related *homeobox* (*WOX*) gene family in economically important orchid species”. Presented at CHASCON - 2018, 12th Chandigarh Science Congress, held at Panjab University, Chandigarh – **POSTER**

Ramkumar TR, Yunjun Zhao Y, Baskaran K, Liu CJ, Altpeter F, “Altering Lignin Polymerization in Sugarcane Biomass by Expression of an Engineered Monolignol 4-O-Methyltransferase”. Presented at SIVB - 2019 In Vitro Biology Meeting, held at Tampa, Florida, USA – **POSTER**

ACADEMIC TRAININGS/SHORT TERM COURSES

Science Academies’ Refresher Course on Molecular Biology of Cell

Dept. of Biochemistry, University of Kashmir, Srinagar, India (**Two weeks**)

Science Academies’ Refresher Course on Biotechnology Techniques in Biodiversity Conservation

Dept. of Botany, Bharathiar University, Coimbatore, India (**Two weeks**)

Genomics and Metabolomics of Wild Medicinal Plants

JNTBGRI, Thiruvananthapuram, India (**Three weeks**)

Industrial training in Bioinformatics

Sai Bioresources Research Institute, Chennai, India (**Two weeks**)

***Ex-situ* Conservation & Utilization of Medicinal Plants thro’ Biotechnological Interventions**

JNTBGRI, Thiruvananthapuram, India (**Two weeks**)

Mapping of Gene Expression

Dept. of Biotechnology, Manonmaniam Sundaranar University, Tirunelveli, India (**One week**)

Application of Bioinformatics Tools in Molecular Taxonomic Studies

Dept. of Biotechnology, Lady Doak College, Madurai, India (**One week**)