

Dr. M.C. Harish
Assistant Professor
Department of Biotechnology
Thiruvalluvar University
Serkkadu, Vellore -632115. India



M.C. Harish has received his doctoral degree from Bharathiar University, Coimbatore, India. He had worked in Defence Research and Developmental Organization (DRDO) from 2006 to 2011 as research fellow during his Ph.D for development of transgenic tomato with increased α -tocopherol content. With his research interest in molecular biology he took Plants as platform to work initially with biofortification of staple crops and Plant genetic engineering using transgenic and non-transgenic approaches. At present he is working to exploit multigene engineering of crops with enhanced key nutrients. Recently he has been awarded with UGC Start-Up Grant to take up his research in Thiruvalluvar University.

Name : **Dr. M.C. HARISH**

Designation : Assistant Professor

Specialization : Plant Genetic and Metabolic Engineering

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Academic Qualification's

- Ph.D (Biotechnology), Bharathiar University, Coimbatore, India, 2011
- M.Phil (Biotechnology), Bharathidasan University, Tiruchirapalli, India, 2005
- M.Sc (Biochemistry), Periyar University, Salem, India, 2002
- B.Sc (Microbiology), Madras University, India, 2000.

Awards

- **Junior Research Fellow (JRF)**, Defence Research & Development Organization, India (2006)
- **Senior Research Fellow (SRF)** Defence Research & Development Organization, India (2009)

Membership

- Life time member in "Society of Biological Chemists (India)

Professional Experience : Research: 10 Years & Teaching: 5.5 years

Professional Carrier Details :

Positions held	Name of the Institutions	Duration	
		From	To
Assistant Professor	Department of Biotechnology, Thiruvalluvar University, Serkkadu, Vellore -632115, India	28-02-2013	Till date
Guest Lecturer	Department of Nanoscience, Bharathiar University, Coimbatore, India	01-06-2011	31-03-2012
SRF	DRDO-CLS, Bharathiar University Campus, Coimbatore, India.	01-06-2009	31-03-2011
JRF	DRDO-CLS, Bharathiar University Campus, Coimbatore, India.	01-06-2006	31-03-2009
Lecturer	Merit- International Institute Of Technology, Ooty, Tamilnadu	06-06-2005	25-05-2006

Lecturer	Muthayammal College of Arts & Science, Rasipuram, Tamilnadu.	21-05-2004	02-05-2005
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Research Interest

- Molecular biochemistry
- Plant Genetic and Metabolic Engineering
- Molecular Farming and DNA Barcoding
- Biofortification of staple crops

Research Guidance/ Supervision:

Programmes of Study	Completed	Ongoing
Ph.D.	--	1
M.Phil.	1	3

Research projects

Project Sanctioned:

Title: Plant cell culture approach to synthesize natural form of α - tocopherol

Duration: 2013-2015

Funding Agency: UGC, Govt. of India

Amount Sanctioned: 6 lakhs

PUBLICATIONS

1. **M. C. Harish**, S. Rajeev Kumar, R. Sathishkumar (2010) Efficient in vitro Callus induction and regeneration of different tomato cultivars of India. **Asian Journal of Biotechnology**. 2 (3): 178-184.
2. **Harish Mani Chandra** and Sathishkumar Ramalingam (2011) Antioxidant potentials of skin, pulp and seed fractions of commercially important tomato cultivars. **The Food Science and Biotechnology**. 20 (1): 15-21 (IF 0.695)
3. **Harish, M.C**, Bala Murugan, S. Sathishkumar. R (2012) Influence of genotypic variations on antioxidant properties in different fractions of Tomato. **Journal of Food Science**. 77:1174 -1178 (IF 1.775).
4. **M.C.Harish**, P. Dachinamoorthy, S. Balamurghan, S.Bala Murghan and R. Sathishkumar (2013). Overexpression of Homogentisate Phytlyltransferase (HPT) and Tocopherol cyclase Enhances α -Tocopherol content in Double Transgenics Tobacco. **Biologia Plantarum** 57 (2): 395-400 (IF 1.849)

5. S. Bala Murugan, **M.C. Harish**, R. Sathishkumar (2013). Cadmium induced Physio-Biochemical and Molecular response in *Brassica juncea*. **International Journal of phytoremediation**. 15:3, 206-218 (IF 1.739)
6. **Mani Chandra Harish**, Palanisamy Dachinamoorthy, Srinivasan Balamurghan and Ramalingam Sathishkumar (2013). Enhancement of α -Tocopherol content through Transgenic and Cell Suspension Culture systems in Tobacco. **Acta Physiologiae Plantarum**. 35: 1121-1130 (IF 1.671)

PRESENTATIONS

International

1. Rajeev Kumar Sarma, Anandhan Sivalingam, **Mani Chandra Harish**, Dhivya Selvaraj, Varghese Philipose Inchakalody, Zakwan Ahmed and Ramalingam Sathishkumar (2010). Isolation of cold responsive genes in carrot by Supression Subtractive Hybridisation. In 34th International Carrot Conference held during 26-28 July 2010 in Washington, USA
2. S.Balamurugan, P. Varghese, S. Rajeev Kumar, **M. C. Harish**, Sarika Mathure, K.V. Wakte, A. B. Nadaf and R. Sathishkumar (2009). Extraction and quantification of food flavouring compound 2-Acetyl-1-pyrroline from traditional land rice varieties of Kerala. In: “**International conference on Food Technology 2009**” held at Indian Institute of Crop Processing Technology, Thanjavur during August 28-39
3. **M. C. Harish**, N. Sowmiya Devi and R. Sathishkumar (2008). Enhancing the α -tocopherol (Vitamin E) content in high altitude tomato cell suspension culture. In first Congress of **Asia-Pacific Society for Mountain Medicine** at New Delhi from November 28- 30
4. **M. C. Harish** and Ramalingam Sathishkumar (2007). Tissue culture studies and quantification of the α -tocopherol in the high altitude tomato cultivars. In: **International Conference on New Horizons in Biotechnology**, held at National Institute for Interdisciplinary Science and Technology, **Trivandrum**, during November 26-29

National

1. **M.C. Harish** & R. Sathishkumar. Metabolic Engineering of Vitamin E through Transgenic approach. National seminar on “ Enzymes and biocatalysis, The versatile Actors: Current trends and future perspectives (NSEB 2012) held on 05 & 06 January 2012 at Department of Biochemistry, Periyar University, Salem. Tamilnadu.
2. **M. C. Harish**, P. Dachinamoorthy, S. Balamurghan, S. Rajeev, R. Sathishkumar. Manipulation of Vitamin E Biosynthetic Pathway- Double Transgenic and Cell Culture Approach in Tobacco. **80th Annual Meeting of the Society of Biological Chemists (SBC)** to be held during 12th to 15th November, 2011 in Lucknow, India
3. A. Sangilimuthu, L. Hakkim, S. Rajeev Kumar, **M. C. Harish** and R. Sathishkumar. Studies on *in vitro* Plant regeneration and Anti-Oxidant activity of *Withania somnifera*

- (L) In: "National Seminar on Frontiers in Biotechnology" at Bharathiar University, Coimbatore during July 22th -24th, 2009
4. Narmada J, Rajeev Kumar S, Varghese P. Inchakalody, **Harish M. C**, Dhivya S and Sathishkumar R. Biochemical and Physiological Studies on High Altitude and Temperate Tomato Varieties during Cold Stress. In: "National Seminar on Frontiers in Biotechnology" at Bharathiar University, Coimbatore during July 22th -24th, 2009
 5. Saravanan R, **Harish M.C.** and Sathishkumar R . Analysis of genes up regulated in *Brassica juncea* during exposure to cadmium. In: Seminar on "Frontiers in Biotechnology" held at Bharathiar University, Coimbatore during February 8th -9th, 2007
 6. M. Chitra Devi, **M.C. Harish** and R. Sathishkumar. Amelioration of salt stress using precursors in *in vitro* systems of tomato. In: Seminar on "Frontiers in Biotechnology" held at Bharathiar University, Coimbatore during February 8th -9th, 2007
 7. N. R. Natarajasivam, **M.C. Harish**, R. Sathishkumar and B. Nagarajan. Red Tamarind- the magnificence of India. In: Seminar on "Frontiers in Biotechnology" held at Bharathiar University, Coimbatore during February 8th -9th, 2007
 8. Silpi Banerjee, **M.C. Harish** and R. Sathishkumar. Effect of precursors on tocopherol production in *in vitro* systems of tomato. In: Seminar on "Frontiers in Biotechnology" held at Bharathiar University, Coimbatore during February 8th -9th, 2007
 9. **M.C. Harish**. Cutting edge: Depletion of CD25⁺ regulatory cells results in the suppression of melanoma growth and induction of autoreactivity. In: "National Seminar on Advances in immune diagnosis and therapy" at Dr.GRD college of science, Coimbatore during 3rd -4th March, 2006
 10. Eldo Jacob and **Harish M.C.** Anti-ulcer and antioxidant activity of *solanum nigrum* and *Aegle marmalous*. In: "National level biological congress on Biotechnology-A global perspective" at Muthayammal college of arts and science, Rasipuram during January 6th and 7th , 2006
 11. **Harish M.C.** Study on the inhibitory effects if zinc in different varieties of paddy. In: "International symposium on Recent advances in biological sciences" at KSR college of arts and science, Tiruchengode during October 11-12, 2001

Book Chapter

1. S. Dhivya, S. Dhivya, S. Rajeev Kumar, **M.C. Harish**, S. Balamurugan and R. Sathishkumar (2012): Authentication of Herbal Products by DNA Barcoding Based PCR-RFLP Technique. In Parimelazhagan Thangaraj (Eds.) "Herbal Drug Research- Recent Trends and Progress" Lambert Academic Publishing (LAP), Germany.

PARTICIPATIONS (Workshops)

1. Indo-UK Joint Workshop on "Plant Molecular Farming II" to be held in Bharathiar University, Coimbatore-641046, Tamil Nadu .Date: 13th & 14th, March 2014

2. UKIERI sponsored joint workshop on “Plant Molecular Farming” organized by Plant Genetic Engineering Lab, Department of Biotechnology, Bharathiar University, Coimbatore on 7th and 8th April, 2011.
3. UKIERI sponsored “Autumn School in Biotechnology” for college teachers held at Plant Genetic Engineering lab, Department of Biotechnology, Bharathiar University, Coimbatore. September 26 to 30, 2011.
4. State level Bioinformatics workshop on Crystal structure determination of small molecules using X-ray crystallography, organized by Department of Biochemistry and Bioinformatics, Sri Ramakrishna College of Arts and Science for women, Coimbatore, on 27th & 28th January, 2006.

TRAINING

1. Had undergone ICMR sponsored training at Vector Control Research Centre, Pondicherry on “Isolation of protein from microbes and to check the lethal effects on mosquito larvae and pupae of filarial vectors” during 8-5-2001 to 29-6-2001.

RESOURCE PERSON

1. Two day Indo-UK workshop on “Plant Molecular Farming” , April 7 & 8, 2011
2. Five day workshop “Autumn school in biotechnology for college teachers”, September 26-30, 2011
3. Indo-UK Joint Workshop on "Plant Molecular Farming II" , 13th & 14th, March 2014

GENBANK (NCBI, USA) SUBMISSIONS

1. Sathishkumar, R., Dhivya, S., Rajeevkumar,S., **Harish,M.C.** and Varghese,I.P. (2009) *Adenium obesum* maturase K-like (matK) gene, partial sequence; plastid. Accession No.GQ220742.1
2. Sathishkumar, R., Dhivya, S., Rajeevkumar,S., **Harish,M.C.** and Varghese,I.P. (2009). *Carissa carandas* maturase K-like (matK) gene, partial sequence; plastid. Accession No. GQ220743.1
3. Sathishkumar, R., Dhivya, S., Rajeevkumar,S., **Harish,M.C** and Varghese,I.P. (2009). *Plumeria alba* maturase K-like (matK) gene, partial sequence; plastid. Accession No. FJ754255.1
4. Sathishkumar, R., Dhivya, S., Rajeevkumar,S., **Harish,M.C** and Varghese,I.P. (2009). *Rauvolfia tetraphylla* maturase K-like (matK) gene, partial sequence; plastid. Accession No. GQ220744.1
5. Sathishkumar, R., Dhivya, S., Rajeevkumar,S., **Harish,M.C** and Varghese,I.P. (2009). *Wrightia tinctoria* maturase K-like (matK) gene, partial sequence; plastid. Accession No.GQ220745.1
6. Sathishkumar, R., Dhivya, S., Rajeevkumar,S., **Harish,M.C,** Varghese,I.P. and Megala S. (2009). *Allamanda cathartica* RNA polymerase C-like (rpoC1) gene, partial sequence; plastid. Accession No. GQ220740.1

7. Sathishkumar, R., Dhivya, S., Rajeevkumar,S., **Harish,M.C**, Varghese,I.P. and Megala S. (2009). *Plumeria rubra* RNA polymerase C (rpoC1) gene, partial cds; plastid. Accession No. GQ220746.1
8. Sathishkumar, R., Dhivya, S., Rajeevkumar,S., **Harish,M.C**, Varghese,I.P. and Megala S. 2009. *Alstonia scholaris* RNA polymerase C-like (rpoC1) gene, partial sequence; plastid. Accession No. GQ220739.1
9. Sathishkumar, R., Dhivya, S., Rajeevkumar,S., **Harish,M.C**, Varghese,I.P. and Megala S. (2009). *Rauvolfia tetraphylla* RNA polymerase C-like (rpoC1) gene, partial sequence; plastid. Accession No. GQ220738.1
10. Sathishkumar, R., Dhivya, S., Rajeevkumar,S., **Harish,M.C**,Varghese,I.P. and Megala S. (2009). *Thevetia peruviana* RNA polymerase C-like (rpoC1) gene, partial sequence; plastid.Accession No. GQ220741.1
11. Sathishkumar, R., Dhivya, S., Kayalvizhli,M., Ramachandran,V., **Harish, M.C.**, Rajeevkumar,S. and Varghese,I.P. (2009). *Tribulus lanuginosus* AtpB-like (atpB) gene, partial sequence; chloroplast. Accession No. FJ972140.1
12. Sathishkumar, R., Dhivya, S., Rajeevkumar,S., **Harish, M.C.**, Varghese,I.P., Kayalvizhi and Ramachandran,V.S. *Tribulus subramanyamii* ATP synthase beta subunit-like (atpB) gene, partial sequence; plastid. Accession No. GQ220748.1
13. Sathishkumar, R., Dhivya, S., Kayalvizhli,M., Ramachandran,V., **Harish, M.C.**, Rajeevkumar,S. and Varghese,I.P. (2009). *Tribulus lanuginosus* AtpB-like (atpB) gene, partial sequence; chloroplast. **Accession No. FJ972140.1**
14. Sathishkumar, R., Dhivya, S., Rajeevkumar,S., **Harish, M.C.**, Varghese,I.P., Kayalvizhi and Ramachandran,V.S. (2009) *Tribulus subramanyamii* ATP synthase beta subunit-like (atpB) gene, partial sequence; plastid. **Accession No. GQ220748.1**
15. Sathishkumar, R., Dhivya, S., Kayalvizhli,M. and Ramachandran,V. (2009) *Tribulus terrestris* ATP synthase beta subunit-like (atpB) gene, partial sequence; plastid **Accession No. GQ220747.1**
16. Sathishkumar, R., Dhivya, S., Dhivya, S., Rajeevkumar,S., **Harish, M.C.**, Varghese, P.I., Balamurugan,S. and Kayalvizhi,M. (2010) *Phyllanthus emblica* 18S ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence. Acession No. **HM236855**
17. Sathishkumar, R., Dhivya, S., Dhivya, S., Rajeevkumar,S., **Harish, M.C.**, Varghese, P.I., Balamurugan,S. and Kayalvizhi,M. (2010) *Terminalia bellirica* 18S ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence. Acession No. **HM236856**
18. Sathishkumar, R., Dhivya, S., Dhivya, S., Rajeevkumar,S., **Harish, M.C.**, Varghese, P.I., Balamurugan,S. and Kayalvizhi,M. (2010) *Terminalia chebula* 18S ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence. Acession No. **HM23685**
19. Sathishkumar, R., Dhivya, S., Dhivya, S., Rajeevkumar,S., **Harish, M.C.**, Varghese, P.I., Balamurugan,S. and Kayalvizhi,M. (2010) *Tribulus subramanyamii* 18S ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial

- sequence. Accession No. **HM23685**
20. Sathishkumar, R., Dhivya, S., Dhivya, S., Rajeevkumar,S., **Harish, M.C.**, Varghese, P.I., Balamurugan,S. and Kayalvizhi,M. (2010) *Tribulus terrestris* 18S ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence. Accession No. **HM236859**
 21. Sathishkumar, R., Dhivya, S., Dhivya, S., Rajeevkumar,S., **Harish, M.C.**, Varghese, P.I., Balamurugan,S. and Kayalvizhi,M. (2010). *Tribulus lanuginosus* 18S ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence. Accession No. **HM236860**
 22. Sathishkumar, R., Dhivya, S., Dhivya, S., Rajeevkumar,S., **Harish, M.C.**, Varghese, P.I., Balamurugan,S. (2010). *Tribulus subramanyamii*, *psbA-trnH* intergenic spacer, plastid partial sequence. Accession No. **HQ407398**
 23. Sathishkumar, R., Dhivya, S., Dhivya, S., Rajeevkumar,S., **Harish, M.C.**, Varghese, P.I., Balamurugan, S. (2010). *Boerhavia erecta*, *psbA-trnH* intergenic spacer, plastid partial sequence. Accession No. **HQ407399**
