Biodata

Dr. Mathish Nambiar-Veetil,Scientist G,
DBT-Young Scientist Associate (Montpellier), DAAD Fellow (Osnabrück), FNAPE (Fulbright-Nehru) Fellow (Madison)
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Education

Degree	Subject of specialization	Institution	Year	Percentage	Award
Ph.D., Forest Biotechnology	Genetic transformation	Institute of Forest Genetics and Tree Breeding, FRI University, Dehra Dun	2006	-	-
M. Sc., Biotechnology	DNA markers	CPMB, Tamil Nadu Agricultural University, Coimbatore	1996	91.0	DBT Fellowship holder
B. Sc., Agriculture	Agriculture	Annamalai University, Chidambaram	1993	80.8	-

Ph.D. Dissertation: Genetic transformation studies in *Casuarina equisetifolia*

M. Sc. Dissertation: Molecular analyses for Leaf folder (*Cnaphalocrocis medinalis* GUENEE.) resistance in Rice.

Awards/ Fellowship Received/ Foreign visits/ National Level Exams Qualified

- Awarded***Fulbright- Nehru Academic and Professional Excellence Fellowship*at the University of Wisconsin-Madison, USA and pursued research on "**Developing diagnostic methods and analyzing the incorporation of monolignol ferulates into FMT transgenic Poplars destined to improve pulping performance" (August 2016- January 2017).

- Awarded***DAAD* fellowship** and pursued a research programme on "Evaluation of dsRNA chitosan nanoparticles for enhancing RNAi in *Manducasexta"* from 13th February 2016 to 26th February 2016 at the University of Osnabruck, Germany.

- Awarded***DST***travel grants for presenting two papers in the International Union of Forestry Research Organization's (**IUFRO's**) **Tree Biotechnology** symposium on "From genomes to integration and delivery" at **Brazil**, held from 26th June – 2nd July 2011.

- Awarded ***DBT* associateship** for pursuing one-year Post doctoral research on "Development of post-transcriptional gene silencing approaches as a tool for the functional analysis of symbiotic genes in the tropical actinorhizal tree *Casuarina glauca"* at the**Institut de Recherche pour le Développement** (IRD)**, Montpellier, France** from 4th July 2007 to 3rd July 2008.

- Co- recipient of the "***ICFRE award for Excellence*** for the year 2001-2002.

- Participated in the international laboratory course on "Biopesticides: Application and mechanism of action at the "**International Centre for Genetic Engineering and Biotechnology**", **New Delhi** from 8th November to 19th November, 2010

- Qualified Graduates Aptitude Test in Engineering (GATE 1997) conducted by Indian Institute of Science (IISc), Bangalore with **96.7** percentile.

- Qualified the "National Eligibility Test" conducted by ICAR, and "State Level Education Testing" exam conducted by Bharathidasan University, Tiruchirapalli.

- Qualified for **DBT fellowship** for M. Sc. Biotechnology programme through National exam conducted by the Jawaharlal Nehru University, New Delhi.

Research interests:

Mission: To evolve genetic modification approaches for understanding gene function and incorporating desired traits in forestry species.
Traits of interest include salt tolerance,insect resistance and enhanced pulping efficiency in Eucalyptus and Casuarina using Transgenic, RNAi, and gene-editing approaches**.**

Ongoing Projects

- To generate Eucalyptus transgenics/ transgrafts with enhanced salt and insect tolerance for confined field trials. **CAMPA-AICRP component**.
- Evaluating genes of *Artemia* in *Eucalyptus* roots for enhancing salt tolerance. **SERB-DST**
- Development of a genome editing platform for functional characterization of genes. NFRP
- Evaluation of transgene-free genome engineering methods in *Eucalyptus.* **NFRP**
- Transcriptome analysis of the salt excluding roots of *Rhizophora mucronata.* **NFRP**

Completed Projects

- Incorporating resistance in *Eucalyptus* to*Leptocybe invasa fisher & La Salle (Hymenoptera: Eulophidae)* through expression of insect specific dsRNA.
- Developing diagnostic methods and analyzing the incorporation of monolignol ferulates into FMT transgenic Poplars destined to improve pulping performance. *Research carried out at Wisconsin Energy Institute, University of Wisconsin- Madison, USA.***USIEF**
- Development of methods for functional analysis of genes involved in salt tolerance in *Eucalyptus tereticornis*.
- Determination of target genes in *Leptocybe invasa* for engineering resistance in Eucalyptus through gene- silencing approaches.
- Web enabled database and analysis of gene sequences implicated in abiotic stress tolerance for screening gene homologues in salt tolerant tree species.
- Development of post-transcriptional gene silencing approaches as a tool for the functional analysis of symbiotic genes in the tropical actinorhizal tree *Casuarina glauca- Research carried out at IRD, France.* **DBT**
- Genetic transformation of Eucalyptus and Casuarina to enhance salinity tolerance.
- Identification of conserved motifs in genes conferring salt tolerance to develop strategies for gene isolation from salt tolerant tree species.

Fostering International partnership

- Functioned as one of the four international partners for "**Transcriptome analysis of salt tolerance in Casuarina trees**" by the Joint Genome Institute, USA, along with the principal collaborator from Research Institute for Development, France, and partners including Université Chiekh Anta Diop, Dakar (UCAD), Senegal and University of New Hampshire, USA.
- Hosted and guided **two CV RamanPost Doctoral Researchers** from **Senegal**for six months**;Dr. Nathalie Diagne**, (July 2012- January 2013), **Dr. Issa Diedhiou** (Sept 2017 – February 2018)
- Facilitated PhD student, Mrs. Sowmiya Rani, for award of the **DAAD Sandwich Programme** at **Germany** (Dec 2014 to March 2016).
- As IFGTB's international student coordinator, assisted Director, IFGTB in the preparation of ICFRE guidelines for Externally funded Post Doctoral Fellows.

Selected publications

Sowmiya R Kottaipalayam-Somasundaram, John P Jacob, Balasubramanian Aiyar, Hans Merzendorfer, **Mathish Nambiar-Veetil**. 2022. Chitin metabolism as a potential target for RNAi-based control of the forestry pest *Hyblaea puera* Cramer (Lepidoptera: Hyblaeidae). Pest Management Science. 78: 296-303. https://doi.org/10.1002/ps.6634 Impact factor: 4.85

Selvakesavan, R. K., Dhanya, N. N., Thushara, P., Abraham, S. M., Jayaraj, R.S.C., Balasubramanian, A., Deeparaj, B., Sudha, S., Sowmiya Rani, K.S., Bachpai, V. K. W., Ganesh, C. D., Diagne, N., Laplaze, L., Gherbi, H., Svistoonoff, S., Hocher, V., Franche, C., Bogusz, D., **Nambiar-Veetil Mathish.** 2016. Intraspecies variation in sodium partitioning, potassium and proline accumulation under salt stress in *Casuarina equisetifolia* Forst. Symbiosis. **70**: 117–127 doi:10.1007/s13199-016-0424-9 Impact factor 2.268

Svistoonoff, S., Benabdoun, F.M., **Nambiar-Veetil Mathish,** Imanishi, L., Vaissayre, V., et al. 2013. The independent acquisition of plant root nitrogen-fixing symbiosis in Fabids recruited the same genetic pathway for nodule organogenesis. PLoS ONE, 8: e64515. doi:10.1371/journal.pone.0064515. Impact factor: 3.24

Zhong, C., Mansour, S., **Nambiar-Veetil Mathish,**Bogusz, D., and Franche, C. 2013. *Casuarina glauca*: A model tree for basic research in actinorhizal symbiosis. J Biosci, 38: 815-23. Impact factor: 1.65

Diagne, N., Arumugam, K., Ngom, M., **Nambiar-Veetil Mathish**, Franche, C., Narayanan, K.K., and Laplaze, L. 2013. Use of Frankia and actinorhizal plants for degraded lands reclamation. Biomed Res Int, 2013:948258. Epub Nov 11. Impact factor: 2.583

Balasubramanian, A., Venkatachalam, R., Selvakesavan R. K., Abraham, S. M., Gherbi, H., Svistoonoff, S., Franche, C., Bogusz, D., Krishna Kumar, N. and **Nambiar-Veetil Mathish** 2011. Optimisation of methods for *Agrobacterium rhizogenes* mediated generation of composite plants in *Eucalyptus camaldulensis*. BMC Proc, 5 (Suppl 7):O45.

Nambiar-Veetil Mathish,Sangeetha, M., Sowmiya Rani, K. S., Aravinthakumar, V., Selvakesavan, R. K., Balasubramanian, A., Venkatachalam, R., Abraham, S. M., Jacob, J. P. and Krishna Kumar, N. 2011. Identification of insect-specific target genes for development of RNAi

based control of the Eucalyptus gall pest *Leptocybe invasa* Fisher & La Salle (Hymenoptera: Eulophidae). BMC Proc, 5(Suppl 7):P98

Benabdoun, F.M., **Nambiar-Veetil Mathish,** Imanishi, L. Svistoonoff, S., Ykhlef, N., Gherbi, H. and Franche, C. 2011. Composite actinorhizal plants with transgenic roots for the study of symbiotic associations with *Frankia*. J Bot, Article ID 702947, 8 pages Impact Factor 2.841

Perrine-Walker, F., Gherbi, H., Imanishi, L., Hocher, V., Ghodhbane-Gtari, F., Lavenus, J, Benabdoun, M, **Nambiar-Veetil Mathish,** Svistoonoff, S., and Laplaze, L. 2011.Symbiotic signaling in actinorhizal symbioses. Curr Protein Pept Sci,12: 156-164. Impact Factor: 3.183

Svistoonoff, S., Gherbi, H., **Nambiar-Veetil Mathish,** Zhong, C., Michalak, Z., Laplaze, L., Vayssaire, V., Auguy, F., Hocher, V., Doumas, P., Bonneau, J., Bogusz, D., and Franche, C. 2009. Contribution of transgenic *Casuarinaceae* to knowledge of the actinorhizal symbiosis. Symbiosis, 50: 3-11. Impact Factor : 2.268

Gherbi, H., **Nambiar-Veetil Mathish**, Zhong,C., Félix, J., Autran, D., Girardin, R., Vaissayre, V., Auguy, F., Bogusz, D and Franche, C. 2008. Post- transcriptional gene silencing in the root system of the actinorhizal tree *Allocasuarina verticillata*. Mol Plant Microbe In, 21: 518–524. Impact Factor: 3.80

Tripathi, S.B., **Nambiar-Veetil Mathish,** and Gurumurthi, K. 2006. Use of genetic markers in the management of micropropagated *Eucalyptus* germplasm. New Forest, 31:361-372. Impact Factor: 2.256

Nambiar-Veetil Mathish, Tripathi S.B., and Gurumurthi K. 2001. DNA- Fingerprint database management using Microsoft Access- a simple strategy to corroborate fingerprints of clones. PCBMB, 2: 119-124.Impact Factor: 0.38

Books and Book chapter

Chonglu Zhong, **Nambiar-Veetil Mathish**, Bogusz, D and Franche, C. 2018. Hairy roots as a tool for the functional analysis of plant genes, 275-294. In Hairy roots: an effective tool of plant Biotechnology, Srivastava V, Mehrotra S, Mishra S (eds.) Springer Nature Singapore Pvt. Ltd, Singapore.

Nambiar-Veetil Mathish, Balasubramanian A, Bogusz D and Franche C. 2018. Composite transgenic plants: an advantageous transgenic tool for elucidating gene function in difficult to transform trees. *South Asia Biosafety Program Newsletter*, 15(5): 2-3.

Nambiar-Veetil Mathish, and Krishnakumar, N (Eds). 2013.Twenty-five years of Biotechnology Research at IFGTB. Institute of Forest Genetics and Tree Breeding, Coimbatore 641002

Nambiar-Veetil Mathish,Selvaraj, P., George, B.S., Ganesan, M., Raghunath, T. P., and Krishnakumar N. 2015. Synchronous and rhythmic light display by a panoramic congregation of fireflies at Varagaliar, Anamalai Tiger Reserve,197-201: In Biodiversity Conservation-Challenges for Future, Laladhas, K.P., Oommen, O. V. and Sudhakaran, P.R. (Eds.), Bentham Science Publishers, Sharjah.

Newsletters

As founding "Executive Editor" of the institute'squarterly newsletter "IFGTB News" from April 2019, published 12 issues of IFGTB News.

Oral Presentations at International Conferences

Nambiar-Veetil, M., Rathish, P., Balasubramanian, A. and Jacob, J.P. 2017. An *in silico* strategy for rational design of insect specific hpRNAi construct to address biosafety concerns of off target effects in entomophilous trees. Abstracts of 5th South Asia Biosafety Conference- Sept 11-13, 2017, Bangalore, P43. http://ilsirf.org/wp-content/uploads/sites/5/2017/10/SABC2017_PlenaryV_MathishNambiar-Veetil.pdf

Balasubramanian, A., Venkatachalam, R., Selvakesavan R. K., Abraham, S. M., Gherbi, H., Svistoonoff, S., Franche, C., Bogusz, D., Krishna Kumar, N. and **Nambiar-Veetil Mathish.** 2011. Optimisation of methods for *Agrobacterium rhizogenes* mediated generation of composite plants in *Eucalyptus camaldulensis*. Tree Biotechnology Conference, 2011, Sau Paulo, Brazil.

Database developed and hosted

Web enabled database on gene sequences related to Abiotic stress tolerance is uploaded online for use by researchers working on abiotic stress tolerance www.igbaas-ifgtb.icfre.gov.in

NCBI sequence submissions

Thirty six partial sequences of genes from salt tolerant tree species and insects pest published in NCBI.

Students supervised for B.Tech/ M.Sc/ project dissertations

- CV Raman African Postdoctoral Fellows : 2 Completed
- PhD scholars : 4 Completed, 3 ongoing
- CSIR/DAAD scholars : 2
- B. Tech./ M.Sc./ short project dissertations : 11

Membership and activities in professional associations

- Functioned as a DBT, GoI, Nominee/ Expert for the Institutional Biosafety Committee of Bharathiar University, Coimbatore, Tamil Nadu Agricultural University (TNAU), Coimbatore, and Sugarcane Breeding Institute, Coimbatore
- Functioning as member secretary of the Institutional Biosafety Committee Meeting, IFGTB, and organized 21 IBSC meetings.
- Life member of the Indian Science Congress Association.
- Functioned as the Student Coordinator of the Institute of Forest Genetics and Tree Breeding, Coimbatore.