# Dr. Balasubramanian Aiyar

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Major area of Research	Genetic transformation of trees for Functional analysis of genes involved
	in abiotic and biotic stresses

Achievements A rapid method for *Agrobacterium rhizogenes* based generation of Eucalyptus composite plants using GFP based vector has been developed. The composite transgenics in combination with RNA*i* was used for functional analysis of a Na<sup>+</sup> transporter gene and demonstrated enhanced salt tolerance.

### **Educational History**

Name of the institution		Degree	Subject of specialization	Period
Bharathiyar	University,	Doctorate in Philosophy	Biotechnology	2009-2017
Coimbatore			(Functional genomics)	
St. Joseph's	College	Master of Sciences	Biotechnology	2004-2006
(Autonomous) Tiruchirapalli				
Srimad Andavan	Arts and	Bachelor of Sciences	Biochemistry	2004-2001
Science College, Tiruchirapalli				

Ph.D. Dissertation: Genetic transformation of Eucalyptus for the functional analysis of HKT1 Gene.

*M.Sc. Dissertation:* Oryza Sativa Superoxide Dismutases: An *in silico* Comparative Analysis of Proteins Structures and Sequences.

S.No.	Position	Name of the Institution	From	То	-
1	Scientist B	Institute of Forest Genetics and Tree Breeding, Coimbatore, TN	3 October 2023	Till date	_
2	Research Officer-I	Institute of Forest Genetics and Tree Breeding, Coimbatore, TN	4 August 2020	2 October 2023	

#### Professional position held

3	Research Officer-II	Institute of Forest Genetics and Tree Breeding, Coimbatore, TN	26 November 2016	3 August 2020
4	Research Assistant-I	Institute of Forest Genetics and Tree Breeding, Coimbatore, TN	13 October 2008	25 November 2016
5	Research Associate - II (Molecular Biologist)	Navya Biologicals Private Limited, UAS, Dharward, Karnataka	14 April 2008	10 October 2008
6	Project Fellow	Central Agricultural Research Institute, Port Blair, A&N Islands	12 December 2006	31 December 2007

### Award received

• Received ICFRE Outstanding Employees Award for the year 2019 in recognition of the achievement / contribution done in accomplishment of the research activities by Institute of Forest Genetics and Tree Breeding, Coimbatore on 26 January, 2020.

### **Technology Developed**

 Nambiar-Veetil, M., Balasubramanian, A. and Franche, C. 2011. Process for development of *Eucalyptus* composite transgenics for functional analysis of roort specific genes. Forestry in Service of Nation: ICFRE technologies, 2011, Chapter 4.6.7: 223p.

## **Selected Publications**

- Ghosh Dasgupta, M., Senthilkumar, S., Muthulakshmi, E. and **Balasubramanian, A.** 2023. The draft genome reveals early duplication event in *Pterocarpus santalinus*: an endemic timber species. *Planta*, 258, 27 (2023). (Impact Factor 4.3).
- Madhuvanthi, C.K., Muthulakshmi, E., Karthick, T., **Balasubramanian**, **A** and Ghosh Dasgupta, M. 2023. Assessment of seed and seedling related traits in *Santalum album* (Indian Sandalwood) reveals high adaptive potential of the species. *Journal of Biosciences*, 48 (2023). (Impact Factor 2.9).
- Sindhu, A., Maheswari, P., Aghila, S., Balasubramanian, A., Aiswarya, M., Nithishkumar, K., Vijayakumar, A., Rekha, R.W. and Yasodha, R. 2022. De novo transcriptome assembly and development of EST-SSR markers for *Pterocarpus santalinus L.f. (Red sanders)*, a threatened and endemic timber tree of India. *Genetic Resources and Crop Evolution*. DOI: 10.21203/rs.3.rs-1129482/v1. (Impact factor 1.524)
- Muthulakshmi Eswaran, Karthick Thangaraj, **Balasubramanian Aiyar**, Suma Arun Dev, Swathi Balakrishnan and Modhumita Ghosh Dasgupta. 2022. Development of a sensitive and single step PCR based assay for detection of sandal spike phytoplasma. *Current Science*, (Impact factor 1.102)
- Sowmiya, R.K.S., John P Jacob., **Balasubramanian, A.,** Merzendorfer, H., Nambiar-Veetil, M. (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. (Impact factor: 4.85)

- B. Nagarajan, M. Utchimahali, **A. Balasubramanian**, D. Jesubalan. 2019. Population Studies On Two Species Of Bruguiera Of Rhizhophoraceae In Selected Areas Of Kerala And Tamilnadu. *Journal of Advances in Biological Science*, (6) 1; 23-26.
- Nambiar-Veetil, M., **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.
- 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, M. 2016. Intraspecies variation in sodium partitioning, potassium and proline accumulation under salt stress in *Casuarina equisetifolia Forst. Symbiosis.* 69:3-14. (Impact Factor 2.9).
- Selvakesavan, R.K., Thushara, P., Abraham, S.M., Balasubramanian, A., Sowmiya Rani, K.S., Ganesh, D. and Nambiar-Veetil, M. 2014. Identification of sodium hydrogen antiporter gene homologues from salt tolerant tree species. *International Journal of current Trends Research*, 3(2): 90-95.
- Saravanan, S., Ravichandran, K., **Balasubramanian, A.** and Paneerselvam, K. 2013. Structure and Floristic Composition of Tree Diversity in Andaman Tropical Evergreen Forest of Middle Andaman, India. Indian Journal of Forestry. 36(2);167-171.
- Balasubramanian. A., Sonali Das., Anjana Bora., Susmita Sarangi and Asit B. Mandal. 2012. Comparative analysis of structure and sequences of *Oryza sativa* super oxide dismutases. *American Journal of Plant Science*. 3:9.
- **Balasubramanian, A.,** Venkatachalam, R., Selvakesavan, R., Sanu Mary, A., Gherbi, H., Svistoonoff, S., Franche, C., Bogusz, D., Krishna Kumar, N. and Nambiar-Veetil, M. 2011. Optimisation of methods for *Agrobacterium rhizogenes* mediated generation of composite plants in *Eucalyptus camaldulensis*. *BMC proceedings*. 5(7): O45.
- Mathish Nambiar-Veetil, Sangeetha,M., Sowmiya Rani, K.S., Aravinthakumar, V., Selvakesavan, R.K., Balasubramanian, A., Venkatachalam, R., Sanu Mary, A., John Prasanth Jacob. 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 proceedings*. 5(7): P98.
- Damodaran, T., Singh, D.R., Kapil, D.G., **Balasubramanian**, **A**., Kavino, M. and Medhi, R.P. 2009. Genetic Diversity analysis among the open pollinated clones of mango in Andaman and Nicobar Islands using RAPD markers. *Indian Journal of Horticulture*. 66: 1.

## **NCBI nucleotide submissions**

Thirty five partial sequences of genes from salt tolerant tree species and insects pest published in NCBI with accession numbers: JF786711, JN157810.1, JN157814.1, JX840854, JN157813.1, JN629033, JX840853, JQ837965, JN157811.1, JX840860, JQ837963, JN157812.1, JX218027.1, JX840855, JX840859, JN629034, JX679724, JX679717, JX679718, JX679719, JX679720, JX679721, JX679722, JX840856, JX840857, JX840858, JX679723, JQ837964, JF772551.1, JF772552.1, JN381022.1, JN673812.1, JQ319890. 1, JF774409.1, JX101956.1

## Membership and activities in professional associations

• Life member of The Indian Science Congress Association, India.