

Profile of Dr. R. Elanchezhian

Name : Dr. R. ELANCHEZHIAN
Designation : Principal Scientist (Plant Physiology)
Date of Birth : 10.04.1971
Education : Ph.D. in Plant Physiology



Major research areas : Abiotic stress tolerance; Crop productivity enhancement; Impact, adaptation studies on climate change; Nutrient use efficiency of crops

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Professional experience : **From 1998 to 2006:** I worked at Central Agricultural Research Institute, Port Blair on abiotic/biotic stress tolerance in rice, solanaceous vegetables with emphasize on salinity, drought and insect resistance. I have generated promising somaclones of brinjal and tomato with improved agro-morphological traits besides having moderate tolerance towards bacterial wilt and insect borer. I was involved with NATP project entitled “Sustainable management of Plant biodiversity” and successfully completed the same. I have successfully completed a Department of Biotechnology funded project entitled “Collection, characterization, conservation and enhancement of ecologically and economically important plant species of Bay islands”. I was involved with an AP-Cess fund project entitled “Molecular tagging of genes for excess salt tolerance in rice and its significance in marker aided selection”. I have done work on agro-morphological, biochemical and molecular characterization of rice genetic resources indigenous to Bay Islands. I have got registered five indigenous germplasms of rice. Besides I have conducted Salinity and Alkalinity Tolerance Variety Trial (DRR) and National and Saline Alkaline Screening Nursery (DRR) during kharif 1999, 2000, 2001, 2002, 2003 and 2004 and International Rice Soil Stress Tolerance Observational Nursery (IRRSTON, IRRI, Philippines) during 2000, 2003 and 2004 at Andaman and

Nicobar Islands. I have also conducted four Advanced Varietal Trial (DVR) and advanced shuttle breeding programme of IRRI-ICAR collaborative program on rice during kharif 2000 and 2001. I have also engaged in conducting All India Coordinated Varietal trials of maize and oilseeds specially sesamum. I had been a working member of Institute Biosafety Committee of CARI, Port Blair, which is a basic committee responsible for the development and evaluation of the transgenic crops at the institute level.

From 2006 to 2012: I worked at ICAR Research Complex for Eastern Region, Patna and continued the work on biotechnological and physiological management of abiotic stress tolerance with special reference to submergence and drought. Four drought tolerant rice lines with yield potential of 3.2 to 3.5 tons/ha have been identified for drought prone areas of eastern region of India. Besides three promising rice lines suitable for aerobic conditions were also identified. I was associated with a National Centre of Organic Farming funded project “Setting up of model Organic farm” at ICAR Research Complex for Eastern Region, Patna. I have been associated with an ICAR network project on climate change and worked on modeling plant growth of major agricultural crops viz rice, wheat, maize and chickpea with respect to climate change in eastern region of India. I have undergone an international training on marker assisted selection at Clemson University, USA, wherein the genome of bitter melon has been mapped for the first time using AFLP and SSR markers. Besides the isolation and sequence characterization of anti-HIV (Map30) and anti-diabetic (Insulin) gene from bitter melon have also been done.

From 2012 onwards: Presently working at IISS Bhopal wherein I have initiated an in-house project on Nanoparticle delivery and internalization in plant systems for improving nutrient use efficiency of agricultural crops. I have been associated with the modeling and adaptation studies with respect to climate change project of the institute. Besides I have been conducting a contract research project entitled “Evaluation of plant nutrition product for improving nutrient use efficiency of cereals” sponsored by Nagarjuna Fertilizers and chemicals ltd, Hyderabad.

Awards : • Awarded **ICAR Junior Research Fellowship** (1993-1995) for M.Sc.

(Plant Physiology).

- Awarded **ICAR Senior Research Fellowship (1995-1996) and CSIR Senior Research Fellowship (1996-1998)** for Ph.D. Plant Physiology.
- Awarded **Dr. GS Sirohi Award** by the Indian Society for Plant Physiology at 2nd International Congress of Plant Physiology, New Delhi, in 2003.
- Awarded **Dr. RD Asana Award for Young Scientist** by the Indian Society for Plant Physiology in 2005.
- Honored as **Coordinator** of FAO sponsored Project “**Establishment of Information-Sharing Mechanism on the Implementation and Monitoring of the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture**” for Andaman and Nicobar Islands.
- Awarded **Fellow of Indian Society for Plant Physiology** for contribution in the field of Plant Physiology and Cognate sciences in the year 2008.
- Awarded **Best Poster** by the Indian Society for Plant Physiology in 2009.
- Awarded **Best Poster** by the Indian Society for Plant Physiology in 2010.
- Awarded NAIP traineeship and undergone an international training on **Marker assisted selection** at Department of Genetics and Biochemistry, Clemson University, USA during January 21, 2011 to April 20, 2011.

Publications in numbers : Research papers - 39; Presented papers – 63; Popular articles – 7; Research bulletins – 8; Books/Book chapters – 9; Databases created- 7.

Ten best publications : 1. **Elanchezhian R** and Panwar JDS (1997) Effect of 2,4-D and *Azospirillum brasilense* on nitrogen fixation, photosynthesis and grain yield in wheat. *Journal of Agronomy and Crop Science* **178**: 129-133.

2. **Elanchezhian R** and Srivastava GC (2001). Physiological responses of chrysanthemum petals during senescence. *Biologia Plantarum*, **44** (3): 411-415.

3. Mandal AB, Maiti A, Chowdhury B and **Elanchezhian R** (2001). Isozyme markers in varietal identification of banana. *In vitro Cellular and Developmental Biology – Plant* **37**(5): 599-604.
4. **Elanchezhian R** and Mandal AB (2007) Growth analysis of somaclones generated from a salt tolerant traditional ‘Pokkali’ rice (*Oryza sativa*). *Indian Journal of Agricultural Sciences* **77** (3): 184-187.
5. **Elanchezhian R**, Senthil Kumar R, Beena SJ and Suryanarayana MA (2007) Ethnobotany of Shompens – a primitive tribe of Great Nicobar Island. *Indian Journal of Traditional Knowledge*, **6** (2): 345-351.
6. Mandal AB, Thomas VA and **Elanchezhian R** (2007) RAPD pattern of *Costus speciosus*, a medicinal plant species endemic to Andaman and Nicobar islands. *Current Science*, **93**, No. 3: 369-373.
7. **Elanchezhian R**, Rajalakshmi S and Jayakumar V (2009) Salt tolerant characteristics of *Rhizobium* sp associated with *Vigna marina*, a wild legume of Andaman Islands. *Indian Journal of Agricultural Sciences* **79** (12): 980-985.
8. **Elanchezhian R**, A.A. Haris, S. Biswas and V. Chhabra (2012). Simulation of yield and its component traits of rice (*oryza sativa* L.) varieties grown in indo-gangetic plains of Bihar under projected climate change. *Indian Journal of Plant Physiology*. **17** (3 & 4): 195-202.
9. Haris AA, Biswas S, Chhabra V, **Elanchezhian R** and Bhatt BP (2013) Impact of climate change on wheat and winter maize over a sub humid climatic environment. *Current Science* **104** (2), 206-214.
10. **Elanchezhian R**, Santosh Kumar, S. S. Singh, Dwivedi SK, Shivani and B. P. Bhatt (2013). Plant survival, growth and yield attributing traits of rice (*Oryza sativa* L.) genotypes under submergence stress in rainfed lowland ecosystem. *Indian Journal of Plant Physiology* **18** (4): 326-332.