

Profile of Scientist



1. **Name of the Scientist:** Dr Radha Jain

2. **Personal Biodata:**

a) **Position/Designation:** Head & Principal Scientist, Division of Plant Physiology and Biochemistry, IISR, Lucknow

b) **Contact Details:**

- i. **ICAR Email ID:** hdppb.iisr@icar.gov.in
- ii. **Personal Email ID:** radha_dinesh@yahoo.co.in
- iii. **Mobile No.:** 9451904106

c) **Joining date in:**

- i. **ICAR:** 25.7.1994
- ii. **IISR:** 25.7.1995

d) **Discipline and Specialization:** Plant Physiology/ Plant Nutrition/ Abiotic stress

e) **Training/advance exposure in the area of work:**

- Advances in Sugarcane Production Technology in May 2000 held at Indian Institute of Sugarcane Research, Lucknow
- Recent Advances in Plant Sciences (CRC-2003) in April 6-26, 2003, at Central Institute of Medicinal and Aromatic Plants, Lucknow

f) **Contribution to the scientific advancement:**

- Heavy metals content in factory effluents and their impact on sugarcane growth, metabolism and juice quality
- Biochemical basis of poor stubble bud sprouting in winter initiated ratoon and improving sprouting using essential nutrients
- Developed bud chip technology for rapid seed multiplication, seed saving and higher cane yield.
- Developed concepts for use of Ethephon in improving sprouting and early growth of sugarcane setts and bud chip seed stocks for better establishment
- Improving sucrose content in sugarcane by modulating SAI and SPS enzyme activity and gene expression using enzyme effectors
- Studied expression behavior of SOD, P5CS and ADH gene in response to drought and waterlogging
- Identified waterlogging tolerant sugarcane genotypes based on physiological traits
- Developed protocol to minimize bud chip viability for improving the shelf life
- Pelleting bud chip seed stocks with essential nutrient and PGR for early and higher rate of bud sprouting and rooting helps in better establishment of bud chip settlings
- Developed PGR based technology for improving Physiological efficiency of sugarcane
- Use of molecular markers for genetic fidelity testing of micro-propagated plantlets
- Identified cold induced proteins in sugarcane through SDS-PAGE and isozyme
- Sink controls the source: A new understanding in improving sucrose content in sugarcane
- Designed SAI specific primer pairs for better understanding sucrose synthesis and accumulation
- Submitted *three* gene sequences of SAI gene to GenBank, Bethesda, Maryland USA as co-author/submitter.
- Developed CISP markers and evaluated their polymorphic potential in sugarcane and related species

3. **Future Planning of research**

- Physio-biochemical characterization of waterlogging tolerant sugarcane genotypes

- Identification of PGR-Nutrient combination improving cane and sugar yield
- Chemical formulation for high sugar accumulation in sugarcane
- Identification of physiological traits for multiple abiotic tolerance in sugarcane

4. **Publications (best five):** 125 publications (Research papers, popular articles, Books, Conference Proceedings, Book chapters, papers presented in seminar/ symposium)

Five best publications

- Radha jain, Rashmi Verma, Anshu Singh, A Chandra and S. Solomon (2015). Influence of selenium on metallothionein gene expression and physiological characteristics of sugarcane plants. *Plant Growth Regulation* 77: 109-115
- Jain, Radha, A.K. Shrivastava, S. Solomon and R.L. Yadav (2007). Low temperature stress-induced biochemical changes affect stubble bud sprouting in sugarcane (*Saccharum* spp. Hybrid). *Plant Growth Regulation* 53:17-23
- Jain, Radha, Srivastava S., Solomon S., Shrivastava A.K. and A. Chandra (2010). Impact of excess zinc on growth parameters, cell division, nutrient accumulation, photosynthetic pigments and oxidative stress of sugarcane. *Acta Physiologiae Plantarum* 32: 979-986
- Jain, Radha, S. Solomon, A.K. Shrivastava and A Chandra (2011). Effect of ethephon and calcium chloride on growth and biochemical attributes of sugarcane bud chips. *Acta Physiologiae Plantarum* 33: 905-910
- Jain Radha and S. Solomon (2010). Growth stimulating effect of Ethephon on sprouting and early vigor of sugarcane bud chips. *International Sugar Journal* 28 (3) : 114-118.

5. Awards and Fellowships:

- Awarded CSIR JRF/SRF/NET
- Awarded Post doctoral Research Associate ship CSIR
- Fellow of Indian Society of Agricultural Biochemists (FISAB)
- Reviewer and Consulting Editor , Sugar Tech journal
- Awarded ICAR- Hariom Ashram Trust as a Associate member
- Life member, ISPP, ISAB, ASTI and member STAI and IAPSIT

6. Other relevant activities of Scientist:

- Project formulation, submission (extramural as well as institutional based) and their implementations.
- Reviewing research articles submitted to national and international journals
- Organizing Seminar/ winter schools and imparting training to UG/PG students, sugarcane farmers and factory personnel.
- Chairperson/ member Secretary/ member of different institute committees
- Monitoring of the Plant Physiology and Biochemistry Division as a HOD, reply of communication received from ICAR, compliance of ICAR assigned duty like member of IMC, ITMC and any other activities as assigned by the Director of the Institute.