

Profile of Scientist



1. **Name of the Scientist:** **Dr. Sangeeta Srivastava**

2. **Personal Biodata:**

a) **Position/Designation:** Principal Scientist, Division of Crop Improvement

b) **Contact Details:**

- i. ICAR Email ID Sangeeta.Srivastava@icar.gov.in
- ii. Personal Email ID sangeeta_iisr@yahoo.co.in , sangeeta.iisr@gmail.com
- iii. Mobile No.: 9415001735

c) **Joining Date:**

- i. ICAR: 05th December, 1989
- ii. IISR: 10 November, 1990

d) **Discipline and Specialization:** Genetics and Cytogenetics

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

International:

- **DBT-CREST Award-** Visiting Scientist at Department of Biochemistry and Molecular Biology (BMB), Oklahoma State University, Stillwater, USA for six months in **2013**.
- Government of Germany sponsored **International Training Course on Development Oriented Biotechnology**, conducted by INWENT at Zschortau near Leipzig, Germany for two weeks in **2003**.
- Government of Germany sponsored Biotechnology Refresher Course and 4th IAPTC at Dhaka University, Dhaka, Bangladesh for 4 days in **2001**.
- **DSE (Deutsche Stiftung fur Internationale Entwicklung)** Scholarship, Govt. of Germany for long term Advance Professional Training in Biotechnology at DSE, Zschortau and University of Hannover in Germany for 4 months in **1997**.

National:

- Workshop on Competency Development of Human Resource Development Nodal Officers of ICAR at ICAR-NAARM, Hyderabad for 3 days, **2016**.
- Next Generation Sequencing Workshop at CSIR-CDRI, Lucknow for 4 days, **2015**.
- Pre RMP- MDP on leadership development at ICAR-NAARM, Hyderabad for 12 days, **2015**.
- Short Term Training on Fish Genomic and Proteomic Data Analysis with High Throughput Computing” at ICAR-NBFGR, Lucknow for one week, **2015**.
- Workshop on Application of RNAi in crop improvement at NRCPB, New Delhi for 1 day, **2015**.
- DST, Govt. of India Sponsored Programme on Project Management: Methodology & Evaluation for Women Scientists at ASCI, Hyderabad for one week, **2012**.

- Workshop cum Training on Computational Techniques in Discovery of Agronomically important Crop Genes organized by the National Agricultural Bioinformatics Grid (NABG-NAIP) at NBPGR, New Delhi for one week, **2012**.
- Biosafety Capacity Building Programme at CSA, Hyderabad for one week, **2011**.
- Database Management System & Internet Resources in Biotechnology at Biotech Park, Lucknow for 3 days, **2004**.
- Techniques in Plant Genetic Engineering and Molecular Breeding by NATP–Team of Excellence for human resource development at NRCPB, New Delhi for three weeks, **2003**.
- Molecular Markers: Tools for Genetic Variability analysis at NBFGR, Lucknow for two weeks, **2002**.
- Training programme on Vigilance Awareness at IISR, Lucknow for 4 days, **2002**.
- IPR and WTO Awareness training programme at IISR, Lucknow for 3 days, **2001**.

3. Contribution to the scientific advancement:

- Profiling and prediction of miRNA in chickpea and sugarcane
- Development of molecular diagnostic tools to detect incipient infection of red rot and smut diseases of sugarcane, and for detection of sugarcane grassy shoot (SCGS) phytoplasma in host plant sugarcane and its transmitting insect vector.
- Development of CoLk 07201(Ikshu-1), an early maturing, high yielding and red rot resistant sugarcane variety identified for release in north western zone
- Development of 25,382 EST libraries from different sugarcane tissues *viz.* root, stem, leaves and leaf whorls and 1069 EST libraries specific to red rot disease of sugarcane
- Development and application of molecular markers (SSCP, SSR, CISP, RGA) for DNA fingerprinting, molecular diversity, genetic fidelity, hybridity analysis and gene identification studies in sugarcane.
- Differentiation of fractions of species genomes in interspecific hybrids of sugarcane using Fluorescent *in situ* hybridization (FISH) technique.
- Established axioms of classical genome analysis in two sugar crops *i.e.* *Saccharum* and *Beta*, and two medicinal plants *viz.* *Hyoscyamus* and *Papaver*, through pattern of bound arm associations and, significance of chiasmate association pattern to help predict the prospective fertility of the derived tetraploids at the level of diploid progenitor itself.
- Established evolutionary direction in chromosome change in terms of chromosome number (*i.e.* ploidy elevation) *in vivo* through nuclear DNA content variation, heterochromatic C-band pattern and rDNA gene family; and *in vitro* through ploidal *vis-à-vis* hormonal dependence of chromosome variations in callus cultures over a passage of time and culture.
- Evaluation and characterization of sugarcane and sugar beet germplasm for economic attributes.
- Identification of species specific chromosome transmission in progeny populations

4. Future Planning of research (in bullets):

- Small RNA transcriptome analysis of sugarcane
- Identification of molecular markers/ resistant gene analogues against red rot disease of sugarcane
- Molecular cytogenetic studies in distant hybridization programmes: species/genus specific chromosome transmission in progeny population

5. Publications

Research Publications in refereed journals - 74

Impact of research publications	
Papers having NAAS factor > 8 = 07	Total Citations = 666
Papers having NAAS factor > 6 = 45	h-index = 15
Papers having NAAS factor > 5 = 06	i10 index = 19
Papers having NAAS factor < 5 = 16	

Books/ Compendium – 07

Book Chapters – 22

Sequences registered in Gene Bank – 86

EST libraries submitted to Gene bank – (i) 25,382 Tissue specific ESTs
(ii) 1069 Red Rot specific ESTs

Best five publications:

1. **Srivastava S.**, Y. Zheng, H. Kudapa, G. Jagadeeswaran, V. Hivrale, R. Varshneya, R. Sunkar (2015) Highthroughput sequencing of small RNA component of leaves and inflorescence revealed conserved and novel miRNAs as well as phasiRNA loci in chickpea. **Plant Science** <http://dx.doi.org/10.1016/j.plantsci.2015.03.002> **NAAS rating (2016) 9.61**
2. Gupta V., Raghuvanshi S., Gupta A. , Saini N., Gaur A. , Khan M. S., Gupta R. S., Singh J., Duttamajumder S. K., **Srivastava S.**, Suman A., Khurana J. P., Kapur R. and Tyagi A. K. (2010) The water-deficit stress- and red-rot-related genes in sugarcane. **Functional Integrative Genomics** 10 (2): 207-214. **NAAS rating (2016) 8.48**
3. **Srivastava S.**, Singh V., Gupta P.S., Sinha O.K. and Baitha A. (2006) Nested-PCR assay for detection of sugarcane grassy shoot phytoplasma in the leafhopper vector *Deltocephalus vulgaris* Dash & Viraktamath: a first report. **Plant Pathology** (U.K.) 55: 25-28. **NAAS rating (2016) 8.12**
4. **Srivastava Sangeeta**, Lavania U.C. and Sybenga J. (1992). Genetic variation in meiotic behaviour and fertility in tetraploid *Hyoscyamus muticus*: correlation with diploid meiosis. **Heredity** (England) 68: 231-239. **NAAS rating (2016) 9.81**
5. Lavania U.C. and **Srivastava Sangeeta** (1990). Evolutionary genomic change paralleled by differential response of 2x and 4x calli cultures. **Cellular and Molecular Life Sciences** (Experientia) 46: 322-423. **NAAS rating (2016) 11.81**

6. Awards and Fellowship:

Awards/ Honours:

- **ICAR Young Scientist Award** for biennium 1997-98 in Crop Improvement, **1999**.
- **ISCA Platinum Jubilee Lecture Award** in Plant Sciences Section, 100th Science Congress, **2013**.

- **DBT-CREST Award** of the Department of Biotechnology, Govt. of India, **2012**.
- **NABS-Best Woman Scientist Award** of National Academy of Biological Sciences, **2015**.
- **Professor UmaKant Sinha Memorial Lecture Award** of Indian Botanical Society, **2014**
- **SAB Award of Excellence in Plant Genomics** of Society for Applied Biotechnology, **2014**.
- **Certificate of Recognition** at the 4th World Congress of Biotechnology, Raleigh, NC, USA, **2013**.
- **Woman Botanist Award and Gold Medal** by the Indian Botanical Society, **2011**.
- **Professor Y. S. Murty Award and Gold Medal** of Indian Botanical Society, **2003**.
- **Member, National Academy of Sciences (MNASc)** since **2015**.
- **Member of Board of Studies (Bioinformatics)** at GKRG P.G. College, Gwalior, **2016-17**.
- **Course Director of ICAR sponsored 21 days' Winter School** from Sept.09 to 29, **2014**.
- **Best Poster Award** in the Symposium on Bioenergy - at SBI, Coimbatore, **2014**
- **First Prize for best paper** presentation by the Indian Phytopathological Society, **2003**.
- **Certificate of Merit & cash Prize for best paper** by Indian Botanical Society, **1990**.
- **Member, Research Board of Advisors**, The American Biographical Institute, NC, USA, **2000**.
- **Member, ICAR Delegation** to the 3rd Crop Science Congress, Hamburg, Germany, **2000**.

Fellowships:

- **Fellow, UPAAS (Uttar Pradesh Academy of Agricultural Sciences)** in Crop Sciences, **2015**.
- **Fellow, NABS (National Academy of Biological Sciences)**, **2015**.
- **Fellow, SSRP (Society for Sugar Research and Promotion)**, **2014**.
- **Fellow, SAB (Society for Applied Biotechnology)**, **2014**.
- **Fellow, ISGPB (Indian Society of Genetics and Plant Breeding)**, **2012**.
- **Fellow, Indian Botanical Society (FBS)**, **2010**.

7. Other relevant activities of Scientist

- **Nodal Officer –HRD**
- **Chairperson**, Human Resource Development Committee
- **Internal Expert, IBSC (Institutional Bio-safety Committee)**
- **Member**, Purchase Advisory Committee
- **Member**, XIIth Plan EFC Memo Committee
- **Co-guide** of Ph.D. and M.Sc. thesis
- **Project/Dissertation supervisor** of U.G./P.G. students
- **Member, International Board of Editors** of **SugarTech** Journal (NAAS ID S 068).

- **Editorial Board member of J. Env. Biology** (NAAS ID J 162).
- **Editorial board member of Indian Journal of Fundamental and Applied Life Sciences.** (Open access Online journal **ISSN: 2231– 6345**)
- **Reviewer** of research papers for National/ International journals of repute
- **Life member of** ASTI, IBS, ISCA, ISGPB, IMS, NABS, PMB&B, SAB, SSRP, SSRD, UPAAS and Crop Improvement Society of India
- **Member of** IAPSIT and NASI (National Academy of Sciences)