

# Dr. Shweta Sharma

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## ACADEMIC QUALIFICATIONS

- Ph.D** University of Delhi South Campus 2012  
Department of Plant Molecular Biology  
Supervisor: Dr. Indranil Dasgupta  
Professor and Ex-head  
Thesis title: Engineering tungro resistance, sequence analysis and fine mapping of negative promoter element of *Rice tungro bacilliform virus*.
- M.Sc** University of Delhi 2005  
Department of Botany  
Subject: Botany (78.4%)
- B.Sc (Hons)** University of Delhi 2003  
Department of Botany, Maitreyi College  
Subject: Botany (75.3%)

## TEACHING EXPERIENCE

- Assistant Professor (Ad hoc)** July 2014-September 2014  
Gargi College,  
University of Delhi South Campus  
New Delhi  
Subjects Taught: Genetics and Genomics, Introduction to Biology,  
Environmental Science, Plant Resource Utilization
- Guest Lecturer** January 2015-April 2015  
Gargi College  
University of Delhi South Campus  
New Delhi  
Subjects Taught: Plant Biotechnology, Plant metabolism &  
Biochemistry, Biology II
- Assistant Professor (Ad hoc)** August 2015-Till date  
Gargi College,  
University of Delhi South Campus  
New Delhi  
Subjects Taught: Biomolecules & Cell biology, Plant Resource  
Utilization, Environmental Science, Ecology &

## RESEARCH EXPERIENCE

Senior Research Fellow

September 2011-April 2012

Department of Plant Molecular Biology,  
University of Delhi South Campus, New Delhi  
Advisor: Prof. Indranil Dasgupta  
Project title: Functional analysis of gene regulatory networks during flower and seed development in rice

Senior Research Fellow

September 2008- September 2011

Department of Plant Molecular Biology,  
UDSC, New Delhi  
Advisor: Prof. Indranil Dasgupta  
Project title: Development of virus resistance in rice based on RNA interference.

Post-graduate Student Researcher

September 2005-June 2006

Department of Botany,  
University of Delhi, New Delhi  
Advisor: Dr. Vishnu Bhat  
Project title: Standardization of regeneration protocol of *Pennisetum pedicellatum* through somatic embryogenesis and direct shoot organogenesis.

## AREA OF SPECIALIZATION

Plant Molecular Biology, Biotechnology, Molecular Virology, Transgenic resistance against plant viruses.

## PUBLICATIONS

### Peer reviewed research:

1. Borah, B. K., Sharma, S., Kant, R., Johnson, A. M. A., Saigopal, D. V. R., and Dasgupta, I (2013) Bacilliform DNA-containing plant viruses in the tropics: commonalities within a genetically diverse group. *Molecular Plant Pathology* 14(8):759-771 [Published by Wiley, Impact factor: 4.485]
2. Sharma, S., and Dasgupta, I. (2012) Development of SYBR Green I based Real-time PCR assays for quantitative detection of *Rice tungro bacilliform virus* and *Rice tungro spherical virus*. *Journal of Virological Methods* 181(1):86-92. [Published by Elsevier, Impact factor: 1.883]
3. Tyagi, H., Sharma, S., and Dasgupta, I. (2012) Interactions between rice tungro viruses and rice: using RNA-interference to achieve viral resistance. *Science and Culture* 78(5-6):211-216 [Published by Indian Science News Association, Taylor & Francis]
4. Verma, V., Sharma S., Vimla Devi, S., Rajasubramaniam, S., and Dasgupta I. (2012) Delay in virus accumulation and low virus transmission from transgenic rice plants expressing *Rice*

- tungro spherical virus* RNA. *Virus Genes* 45(2):350-359. [Published by Springer, Impact factor: 1.837]
5. **Sharma, S., Kelkar, V., Zareen, F., Sharma, A., and Dasgupta, I.** Delineation of the negative promoter element of *Rice tungro bacilliform virus*. (Manuscript under preparation)
  6. **Sharma, S., Rabindran, R., Robin, S., and Dasgupta, I.** (2011) Analysis of the complete DNA sequence of *Rice tungro bacilliform virus* from southern India indicates it to be a product of recombination. *Archives of Virology* 156:2257–2262. [Published by Springer, Impact factor: 2.282]
  7. Purkayastha, A., Mathur, S., Verma, V., **Sharma S., and Dasgupta I.** (2010) Virus induced Gene Silencing in rice using a vector derived from a DNA virus. *Planta* 232 (6):1531-40. [Published by Springer, Impact factor: 3.376]
  8. Purkayastha, A., **Sharma S., and Dasgupta I.** (2010) A negative element in the downstream region of the *Rice tungro bacilliform virus* promoter is orientation- and position-independent and is active with heterologous promoters. *Virus Research* 153 (1):166-71. [Published by Elsevier, Impact factor: 2.827]

### Papers in Conference proceedings:

1. **Sharma, S., Tyagi, H., Verma, V., Vimla Devi, S., and Dasgupta, I.** (2011) Genetic Engineering of Rice for Resistance to Rice Tungro Disease. In: *Genomics and Crop Improvement: Relevance and Reservations*. Muralidharan K and Siddiq EA (Eds). Institute of Biotechnology, Acharya NG Ranga Agricultural University, Rajendranagar, Hyderabad, pp 230-236. [Published by Acharya NG Ranga Agricultural University, Rajendranagar, Hyderabad]
2. **Sharma, S., Banerjee, A., Roy, S., Tarafdar, J., Rabindran, R., and Dasgupta, I.** (2010) Cloning and sequence analysis of two complete genomic sequences of *Rice tungro bacilliform virus* from India. In: *Abstracts of the Papers Presented in the XIX National Conference of Indian Virological Society, "Recent Trends in Viral Disease Problems and Management"*, on 18–20 March, 2010, at S.V. University, Tirupati, Andhra Pradesh. *Virus Disease* 21, 1-58. [Published by Springer, Impact factor: 0.364]

### Book Chapters:

1. Kant, R., Sharma S., and Dasgupta I. (2015) Virus Induced Gene Silencing (VIGS) for Functional genomics in Rice using Rice tungro bacilliform virus (RTBV) as a vector. In Kirankumar S Mysore and Muthappa Senthil-Kumar (ed.), *Plant Gene silencing, Methods in Molecular Biology*, vol-1287; 201-17 Humana press. [Published by Springer] doi: 10.1007/978-4939-2453-0\_15 ISSN: 1064-3745, ISBN: 978-1-4939-2452-3 (Print), ISBN: 978-1-4939-2453-0 (online)
2. Purkayastha, A., **Sharma S., and Dasgupta I.** (2013) Virus Induced Gene Silencing for rice using agroinoculation. In Annette Becker (ed.), *Virus-Induced Gene Silencing: Methods and Protocols*, *Methods in Molecular Biology*, vol. 975, 33-45, Humana press. [Published by Springer]

3. Dasgupta I., and Sharma S. (2014) Site directed in-vitro mutagenesis and protein engineering. In "Gene and its Engineering" ed. H. K. Das, 470-476. [Published by Wiley India Pvt. Ltd.] ISBN: 978-81-265-4928-3
4. Sharma S., and Dasgupta I. (2014) General strategies for expression of introduced genes in a foreign host. In "Gene and its Engineering" ed. H. K. Das, 304-310. [Published by Wiley India Pvt. Ltd.] ISBN: 978-81-265-4928-3
5. Sharma S., and Dasgupta I. (2014) Techniques for the study of regulation of a cloned gene. In "Gene and its Engineering" ed. H. K. Das, 480-486. [Published by Wiley India Pvt. Ltd.] ISBN: 978-81-265-4928-3

## AWARDS

### Academics:

Awarded with best poster prize in poster presentation Competition at National conference on ' <b>Recent trends in viral disease problems and management</b> ' organized by Sri Venkateshwara University, Tirupati, India.	March 2010
Awarded with Senior Research Fellowship from Council of Scientific and Industrial research, Government of India.	2008-2011
Awarded with Junior Research Fellowship from Council of Scientific and Industrial research, Government of India	2006-2008
Qualified National eligibility test conducted by CSIR-UGC for Lecturership in life sciences.	June 2005
Qualified National eligibility test conducted by CSIR-UGC for Junior Research fellowship and Lecturership in life sciences.	December 2005
Awarded with certificate of merit from Maitreyi College, UDSC for standing first in the Undergraduate course in botany during the academic session 2002-2003.	2003
Awarded with certificate of merit from Maitreyi College, UDSC for standing first in college & third in UDSC in the Undergraduate course in botany during the academic session 2001-2002.	2002
Awarded with certificate of merit from Maitreyi College, UDSC for standing first in the Undergraduate course in botany during the academic session 2000-2001.	2001
Awarded with certificate of merit from CBSE for being among the top 0.1% of successful candidate of All India Senior School Certificate Examination 1998 in Hindi core.	July 1998

### Extra-curricular activities:

Awarded first prize in Inter-college Bio-dumb Charades competition organized by Taru Mitra-The Botanical Society of Acharya Narendra Dev College, University of Delhi.	December 2002
Awarded second prize in Inter-college Botanical Quiz competition organized by Medini-The Botanical Society of Kirori Mal College, University of Delhi.	December 2002
Awarded second prize in Inter-college Botanical Quiz competition organized by Taru Mitra-The Botanical Society of Acharya Narendra Dev College, University of Delhi.	December 2002
Awarded first prize in Intra-college Botanical Quiz competition organized by the Botanical Society of Maitreyi College, University of Delhi.	November 2002
Participated in poster competition in Nature Fest organized by Maitreyi College, University of Delhi.	November 2002
Awarded second prize in Inter-college Botanical Quiz competition organized by Medini-The Botanical Society of Kirori Mal College, University of Delhi.	December 2001
Awarded first prize in Botanical Quiz competition in the 'Environment Awareness Campaign' organized by Prakriti-Society for conservation of nature and the Botanical Society of Maitreyi College, University of Delhi.	November 2001

## PRESENTATIONS

### Research Posters:

“Transgenic rice against rice tungro disease: designing, construction and testing of transgenic rice lines for resistance against rice tungro viruses”

Shweta Sharma and Indranil Dasgupta

Presented at 'The International Dialogue on Designer Rice for Future: Perceptions & Prospect' held on July 2012 at ICRISAT, Hyderabad, India. (*Presenting author*)

“Cloning and sequence analysis of two complete genomic sequences of *Rice tungro bacilliform virus* from India”

Shweta Sharma, Amrita Banerjee, Somnath Roy, J. Tarafdar, R. Rabindran and Indranil Dasgupta

Presented at the National conference on 'Recent trends in viral disease problems and management' held on March 2010 at Sri Venkateshwara University, Tirupati, India. (*Presenting author, Awarded best poster prize*)

“Silencing genes in rice using modified viral vectors”

Arunima Purkayastha, Shweta Sharma and Indranil Dasgupta

Presented at the International Symposium on 'A Journey from Plant Physiology to Plant Biology' held on November 2008 at Bose Institute, Kolkata, India.

**“Characterization of a negative element in the promoter of *Rice tungro bacilliform virus*”**

Arunima Purkayastha, Shweta Sharma, Saloni Mathur and Indranil Dasgupta

Presented at the International Symposium on ‘A Journey from Plant Physiology to Plant Biology’ held on November 2008 at Bose Institute, Kolkata, India. (Presenting author)

**“Development of virus-induced gene silencing system for rice”**

Arunima Purkayastha, Saloni Mathur, Vidhu Verma, Shweta Sharma and Indranil Dasgupta

Presented at Indo-French conference on ‘RNAi in Genome Control’ held on November 2007 at CCMB, Hyderabad, India.

**“Development and evaluation of an infectious molecule derived from *Rice tungro bacilliform virus* for gene silencing in rice”**

Shweta Sharma, Arunima Purkayastha, Saloni Mathur, Vidhu Verma and Indranil Dasgupta

Presented poster titled at the International conference on ‘Emerging and Re-emerging viral diseases of the Tropics and Sub-tropics’ held on December 2007, IARI, New Delhi, India. (Presenting author)

**“In vitro plant regeneration through somatic embryogenesis in *Cenchrus ciliaris*”**

Presented at the ‘National conference on Biodiversity related International conventions: role of Indian Scientific community’ held on March 2006 at INSA, New Delhi, India.

**CONFERENCES ATTENDED - HIGHLIGHTS**

1. The International Dialogue on Designer Rice For Future: Perceptions & Prospects  
Directorate of Rice Research  
Hyderabad, India  
July 2012
2. UGC-SAP workshop on ‘Challenges in Molecular Biology and Biotechnology’  
Department of Plant Molecular Biology,  
University of Delhi South Campus, New Delhi, India  
March 2012
3. UGC-SAP workshop on ‘Advances in Molecular Biology and Biotechnology’  
Department of Plant Molecular Biology,  
University of Delhi South Campus, New Delhi, India  
March 2011
4. Conference on ‘Whitefly and thrips transmitted viruses’  
University of Delhi South Campus, New Delhi, India  
August 2010
5. UGC-SAP workshop on ‘Molecular biology and Biotechnology-Current Trends’  
Department of Plant Molecular Biology,  
University of Delhi South Campus, New Delhi, India  
March 2010
6. National conference on ‘Recent trends in viral disease problems and management’  
Sri Venkateshwara University, Tirupati, India  
March 2010

7. **UGC-SAP workshop on 'Advances in Molecular Biology and Biotechnology'**  
Department of Plant Molecular Biology,  
University of Delhi South Campus, New Delhi, India  
March 2009
8. **International Symposium on 'A Journey from Plant Physiology to Plant Biology'**  
Bose Institute, Kolkata, India  
November 2008
9. **UGC-SAP workshop on 'Trends in Molecular Biology and Biotechnology'**  
Department of Plant Molecular Biology,  
University of Delhi South Campus, New Delhi, India  
March 2008
10. **International conference on 'Emerging and Re-emerging viral diseases of the Tropics and Sub-tropics'**  
IARI, New Delhi, India.  
December 2007
11. **International seminar on 'Breeding rice: Progress and strategies for the future'**  
University of Delhi South Campus, New Delhi, India  
July 2007
12. **UGC-SAP workshop on 'Advances in Molecular Biology and Biotechnology'**  
Department of Plant Molecular Biology,  
University of Delhi South Campus, New Delhi, India  
April 2007
13. **International meeting on 'Biotic and Abiotic Stress Responses in plants'**  
ICGEB, New Delhi, India  
December 2006
14. **National conference on 'Biodiversity related International Conventions: Role of Indian Scientific community'**  
Delhi University Botanical Society (DUBS),  
University of Delhi, New Delhi, India  
March 2006
15. **International conference on 'Applied Phycology: Algae in Biotechnology and Environment'**  
Department of Botany,  
University of Delhi, New Delhi, India  
February 2006
16. **National seminar on 'Relevance of botany in the conservation and improvement of plants'**  
Delhi University Botanical Society (DUBS),  
University of Delhi, New Delhi, India  
February 2006