

# Curriculum Vitae

**Last Name:** Kaur

**First name:** Aashmeen

**Address:**

House no. 74, sector 10, Nanak Nagar,  
Jammu (Jammu & Kashmir), India

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**E-mail:** [aashmeen23@gmail.com](mailto:aashmeen23@gmail.com)

## 1. Personal Information:

**Date of Birth:** 23-05-1997

**Gender:** Female

**Nationality:** Indian

## 2. Objective:

To pursue a challenging career that gives significant exposure and an opportunity to learn, grow and prove my ability; where competence is valued and where I can make a meaningful contribution.

## 3. Post Graduate research (M.Sc. Dissertation) August 2020-May 2021

**Topic:** 'A comparative study of differentially expressed mRNAs in *Oryza sativa* and *Nicotiana benthamiana* upon viral infection'

**Supervisor:** Prof. Indranil Dasgupta

The main Objectives were:

1. Indirect analysis of previously characterized miRNAs by studying the change in expression of their respective mRNA targets upon RTBV infection in rice using RT-PCR.
2. Variation study to investigate the differential expression of selected genes in *N. benthamiana* upon SLCMV and ToLCNDV infection using RT-PCR.

## 4. Educational Qualifications:

S.No.	Degree	Course/year	University/Board	% or CGPA
1.	M.Sc.	Plant Molecular Biology and Biotechnology (2019-21)	Department of Plant Molecular Biology, University of Delhi South Campus, Benito Juarez Road, New Delhi-110021, India.	9.08
2.	B.Sc. (Hons.)	Plant Biotechnology (2015-19)	Sher-e-Kashmir University of Agricultural sciences and Technology, Jammu-180009, India.	8.61
3.	Senior secondary	(2015)	Central Board of Secondary Education	90.8%
4.	High school	(2013)	Central Board of Secondary Education	10

### **5.Workshop/Symposium/Conferences:**

- a) Participated at the “9th National Science Day Symposium” held at the University of Delhi (South Campus) on 27th & 28th Feb. 2020.
- b) Participated at the 32nd Annual Symposium held at Department of Plant Molecular Biology, University of Delhi (South Campus) on 12-13 Feb. 2020.
- c) Attended several TNQ distinguish lectures or TNQ life science across the globe seminar series.

### **6.Undergraduate internship:**

Lupin Ltd; ‘Detection of organic impurities in Linezolid drug substance using HPLC’, 2019.

### **7.Work experience:**

As a junior research fellow in Prof. Anil Grover’s Lab, Plant Molecular Biology laboratory, UDSC. Delhi.

### **8.Award/ Scholarships/Grants:**

Monsanto Post Graduate Scholarship 2019-2021

CSIR-UGC Lectureship/Assistant Professor (NET) qualified

ICAR-NET qualified

Gold medallist, M.Sc. Plant molecular biology and biotechnology, 2021.

### **9.Extra-curricular activities**

- a) Volunteered as a teacher in the Slum Ministry, teaching the underprivileged children /students since 2020 under Grace Education Society NGO (GRACE PASION MINISTRY) or Grace Cornerstone mission, New Delhi.
- b) Volunteered for 'Sikhs for all' to provide aid to the underprivileged during COVID-19.
- c) Volunteered as a teacher in Each One Teach One program.
- d) Worked for 'Clean India Campaign' under National service Scheme, 2016-2017.
- e) Participated in organizing departmental annual functions like Symposium, Annual sports day, Gandhi Jayanti day, etc. held at the Department of Plant Molecular Biology, University of Delhi.
- f) I like to read, paint, hike and listen to music in my free time.

### **10.Skills and Techniques:**

#### **MOLECULAR BIOLOGY:**

Genomic DNA (rice, tobacco, arabidopsis) and plasmid DNA isolation, RNA isolation, hands-on experience in competent-cell preparation (CaCl<sub>2</sub> and electroporation method), bacterial-transformation (electroporation, heat shock method, and freeze and thaw method), restriction digestion, ligation, gateway cloning, and golden gate assembly, restriction-based cloning, PCR, RT-PCR primer designing, overexpression studies, agarose gel electrophoresis, polyacrylamide gel electrophoresis, filter-lift assay, IPTG induction, Rice tissue culture, Arabidopsis tissue culture, protoplast isolation and fusions, plant-transformation (Agrobacterium-mediated transformation; agro-infiltration and co-cultivation method, agroinoculation) protein extraction, mitochondria isolation from plant tissue and GUS assay, plant handling for rice, Arabidopsis and *Nicotiana benthamiana*, VIGS.

#### **MICROBIOLOGY:**

Maintenance of bacterial cultures, isolation, and screening like colony PCR, auxotroph screening, blue-white screening, etc. streaking and plating, replica plating, and cell count.

#### **BIOCHEMISTRY:**

Chromatography, Spectrophotometry, Ultracentrifugation, and nanodrop measurement.

#### **MICROSCOPY:**

Light and fluorescence microscopy.

### Academic referees

Details	Referee 1	Referee 2	Referee 3
<b>Name</b>	Prof. Indranil Dasgupta	Prof. Anil Grover	Prof. Surekha Katiyar-Agarwal
<b>Addresses</b>	Department of Plant Molecular Biology, University of Delhi South Campus, Benito Juarez Road, New Delhi-110021, INDIA	Department of Plant Molecular Biology, University of Delhi South Campus, Benito Juarez Road, New Delhi-110021, INDIA	Department of Plant Molecular Biology, University of Delhi South Campus, Benito Juarez Road, New Delhi-110021, INDIA
<b>Email</b>	indranil58@yahoo.co.in	anil.anilgrover@gmail.com	katiyarsurekha@gmail.com
<b>Phone</b>	+91-11-24111693 (Mob: 9910334110)	9871618167	91-11-24113915, 91-9971963915

### DECLARATION

I hereby declare that the above-mentioned information is correct up to my knowledge and I bear the responsibility for the correctness of the above-mentioned particulars.

**Dated:** 17.03.2022

AASHMEEN KAUR

**A comparative study of differentially expressed  
mRNAs in *Oryza sativa* and *Nicotiana benthamiana*  
upon viral infection**

Thesis Submitted to the University of Delhi  
in the Partial fulfilment for the Degree of  
**Master of Science**  
in  
**Plant Molecular Biology and Biotechnology**  
**2021**



**Department of Plant Molecular Biology**  
University of Delhi South Campus  
New Delhi 110021, India

# Abstract

Plant viruses are responsible for loss of agricultural produce throughout the world. This has created a need for development of economical and uniform antiviral strategies. Along with the involvement of resistance genes, small RNA mediated antiviral defence has gained enormous attention in the past decade. The extent of viral infection and plant response are consequences of contributions by both endogenous small RNAs and virus derived small RNAs. In addition, viruses employ suppressors to interfere with the small RNA mediated silencing. Whether or not the host plants devise an effective and timely counter strategy, determines their survivability. However, the basic underlying cause of infection during plant-virus interactions, is transcriptional programming of a specific set of genes.

This study aimed at further validating the hypothesis that there are evident commonalities between the differentially expressed genes in plants upon viral infection due to conservation in defence related pathways. The major objective was to derive a correlation between the expression levels of 17 previously known miRNA-targets (table 4.3.1) upon infection by rice tungro virus complex (RTBV+RTSV) (Zarreen *et al.*, 2018), and infection by RTBV alone in rice. This would have demonstrated the similarities as well as the differences in transcriptional regulation during RTBV+RTSV and RTBV infection. In addition, indirect analysis of previously characterized miRNAs could be achieved by analyzing the change in expression of their target genes.

This study also aimed at investigating whether a similar pattern of transcriptional reprogramming takes place by related geminiviruses (SLCMV and ToLCNDV) with respect to the results obtained by Wu *et al.* (2019), in *N. benthamiana* upon TYLCV infection.

It was observed that there is evident existence of a similar pattern of transcriptional reprogramming in host plants upon virus infections. Despite the taxonomical differences in viruses as well as the host plants, the differentially expressed genes can be classified into a common set due to the conserved nature of plant defence-related pathways. Further analysis of the commonalities in differentially expressed genes in diverse plants due to infection by diverse viruses can lead to formulation of a uniform and comprehensive antiviral strategies.



**NATIONAL TESTING AGENCY**

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E-certificate No.: JUN20C04193

**University Grants Commission**  
  
विश्वविद्यालय आयोग  
**JOINT CSIR-UGC TEST**



**NATIONAL ELIGIBILITY TEST FOR ASSISTANT PROFESSOR**

NTA Ref. No: 201610061267

Roll No: JK02600580



Certified that **AASHMEEN KAUR**

Son/Daughter of **KAMALJEET KAUR**

and **JAGMOHAN SINGH**

has qualified

the Joint CSIR-UGC Test for eligibility for Assistant Professor held on **21.11.2020** in the subject

**Life Sciences**

*As per information provided by the candidate, he/she had completed/appeared or was pursuing his/her Master's degree or equivalent examination in the concerned/related subject at the time of applying for Joint CSIR-UGC Test.*

*The date of eligibility for Assistant Professor is the date of declaration of Joint CSIR-UGC Test result, i.e., **04.02.2021**, or the date of completion of Master's degree or equivalent examination with required percentage of marks within two years from the date of declaration of Joint CSIR-UGC Test result, i.e. by **03.02.2023**, whichever is later.*

*This is an electronic certificate only, its authenticity and category in which the candidate had appeared should be verified from National Testing Agency (NTA) by the institution/appointing authority. This electronic certificate can also be verified by scanning the QR Code.*

*The validity of this electronic certificate is forever.*

Date of issue: **01.04.2021**

*J. Saravanan*  
Senior Director, NTA

**Note:** NTA has issued the electronic certificate on the basis of information provided by the candidate in his/her online Application Form. The appointing authority should verify the original records/certificates of the candidate while considering him/her for appointment, as the NTA will not be liable for any false information provided by the candidate. The NTA is only responsible for the result which can be verified from the repository available in the website of NTA ([csirnet.nta.nic.in](http://csirnet.nta.nic.in)). The candidate must fulfil the minimum eligibility conditions as laid down in the notification for Joint CSIR-UGC Test.

*Tashi*