

ONLINE/OFFLINE FACULTY TRAINING

on

**Integrating Molecular and Bioinformatic Tools
for Advancing Agriculture & Allied Sciences**

October 26 – November 08, 2023

ONLINE/OFFLINE FACULTY TRAINING

on

Integrating Molecular and Bioinformatic Tools for Advancing Agriculture & Allied Sciences

October 26 – November 08, 2023

Inaugural Function

October 26, 2023 at 15.00 hrs



Prof. Slim Tounsi

General Director, CBS, Tunisia
Will be the Chief Guest



Dr. K. K. Singh

Hon'ble Vice-Chancellor
will Preside Over

Dr. Rekha Dixit

Course Director

Dr. Ravindra Kumar

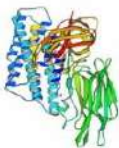
Dean, College of Biotechnology

Dr. Pankaj Kumar

Principal Coordinator, CoE & Course Director

Organized by:

Centre of Excellence in Agri Biotechnology, CST, UP &
DBT-Bioinformatics Infrastructure Facility, College of Biotechnology



Engineering of *Bacillus thuringiensis* and its cry genes

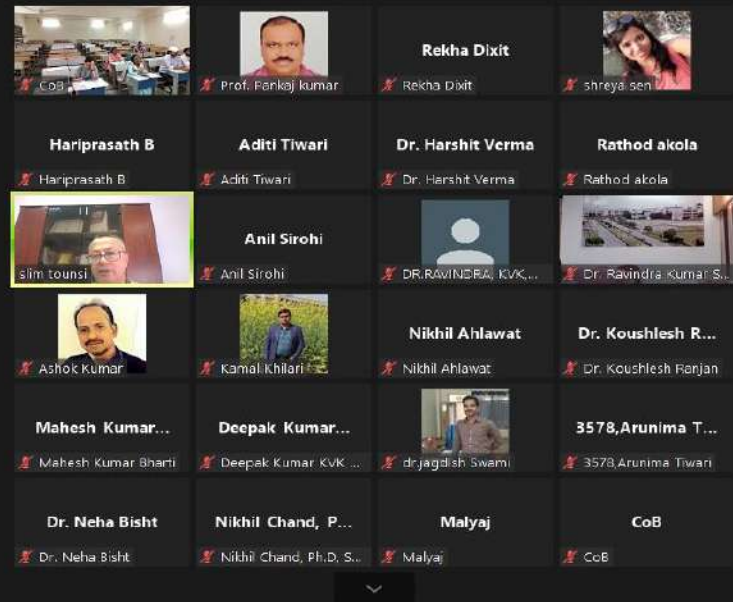
Presented by : Pr. Slim Tounsi,
General Director of the Centre of Biotechnology of Sfax
Slim.tounsi@cbs.rnrt.tn

Faculty Training
'Integrating Molecular and Bioinformatic Tools for Advancing Agriculture &
Allied Sciences'
(October 26 – November 08, 2023)



CBS Mission

- Develop all research and experimentation in the field of biotechnology, and insert the results obtained in the socio-economic world, within the framework of agreements established with ministries or institutions: national / international; public / private



SO, TO CONCLUDE...

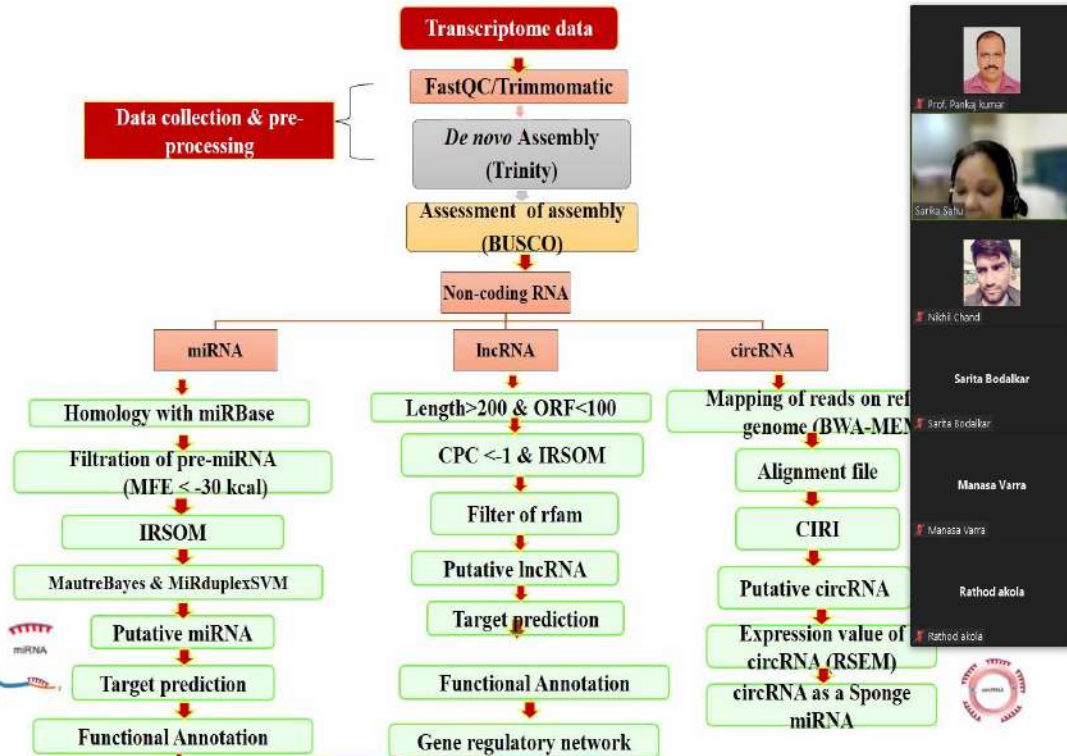
- GWAS use SNPs to find loci affecting phenotype.
 - Compare SNP allele frequencies in two populations with different phenotypes.
 - Finds chromosome locations where sequence differences affect the phenotype.
-
- GWAS finds SNP positions (loci)
 - These may be actual sequence differences responsible for the phenotypic difference, but more often they are just near the causal differences.

भारत कृषि विज्ञान केंद्रों के अनुसंधान संस्थान लाइब्रेरी एवेन्यू, पुसा, नई दिल्ली - 110012
 ICAR-Indian Agricultural Statistics Research Institute Library Avenue,
 Pusa, New Delhi - 110012

A Pioneer Institute of ICAR undertaking Research, Teaching and Extension in Agricultural Statistics, Computer Application and Bioinformatics

Sarika | ICAR-ASR

Work flow for ncRNA identification



Gene Pool Concept

The Gene Pool Concept – ease with which fertile, viable progeny can be obtained from crosses between different plants.

Genus
Species
Crop varieties
Other organisms

I II III IV

Genes P. in M.L. Chakrabarti and D.E. Sarda (2002) Plants: Genes a...

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**Valedictory
Function**

November 08, 2023

at 12.00 hrs.



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**Hon'ble Vice-Chancellor
will be the Chief Guest**

Dr. Rekha Dixit
Course Director

Dr. Ravindra Kumar
Dean, College of Biotechnology

Dr. Pankaj Kumar
Principal Coordinator, CoE & Course Director

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DBT-Bioinformatics Infrastructure Facility, College of Biotechnology**



Reetesh Pratap Singh



Ritu Chaudhary



Rathod aloka



Aakasha Menav



Recha Dixit



Pradeep Bada



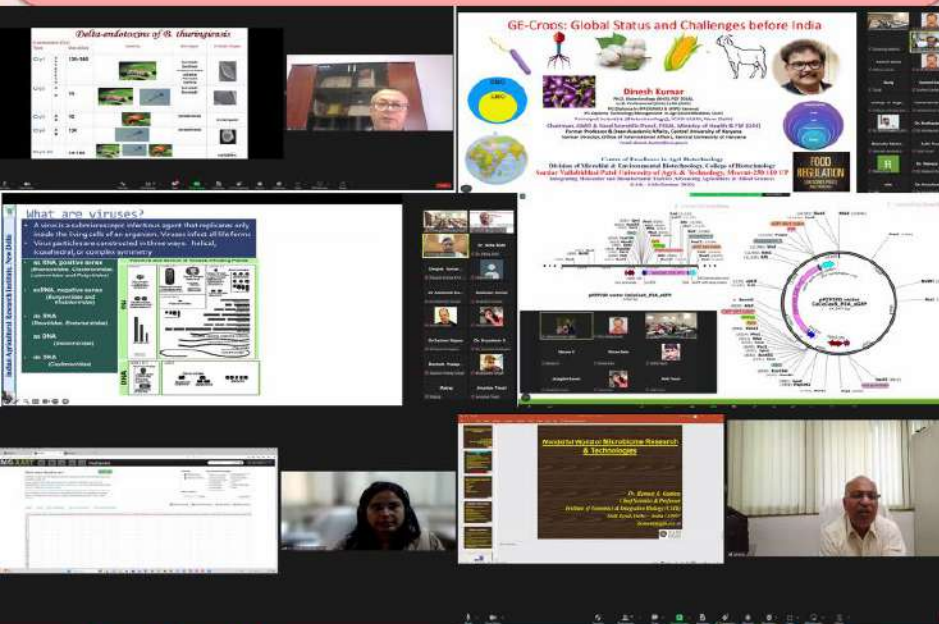
Dr. K.K. Singh, VC, SVPUA&T, Meerut



Practical Manual
FACULTY TRAINING
on

“Integrating Molecular and Bioinformatic Tools for Advancing Agriculture & Allied Sciences”

(October 26 – November 08, 2023)



Course Director
Dr. Rekha Dixit



Course Coordinator(s)
Dr. Sandeep Kumar
Dr. Harshit Verma
Dr. Rajendra Singh

Dr. Malyaj R Prajapati, RA, CoE in Ag. Biotech.

Course Director
Dr. Pankaj Kumar

Course Coordinator(s)
Dr. Mahesh Kr. Bharti
Dr. Kaushlesh Ranjan
Dr. Neelesh Kapoor

Organized by:

Centre of Excellence In Agri Biotechnology, CST, UP &
DBT-Bioinformatics Infrastructure Facility
College of Biotechnology

Sardar Vallabhbhai Patel

University of Agriculture & Technology Meerut-250110



'Integrating Molecular and Bioinformatic Tools for Advancing Agriculture & Allied Sciences'

(October 26 – November 08, 2023)



Organized by

Centre of Excellence in Agri Biotechnology funded by UPCST & Bioinformatics Infrastructure Facility
funded by DBT, New Delhi, College of Biotechnology
Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut-250110



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Organizing Committee

Chief Patron
Dr. K. K. Singh
Vice Chancellor, SVPUAT, Meerut

Patrons
Dr. Ramji Singh **Dr. Anil Sirohi**
Dean PGS & Registrar Director Research
Dr. R. Kumar **Dr. Rajeev Singh**
Dean, Biotechnology Dean, CoVAS

Course Directors

Dr. Pankaj Kumar
Principal Coordinator, CoE in Agri. Biotech.
Coordinator, BIF & Head, Bioinformatics

Dr. Rekha Dixit
Professor, (Biochem. & Physiol.)
Head, Basic Science, CoSST

Course Coordinators

Dr. Sandeep Kumar **Dr. Rajendra Singh**
Assoc. Prof. (Biochem. & Physiol.) Prof. (Entomology)
Dr. Neelesh Kapoor **Dr. Mahesh Kr. Bharti**
Asstt. Prof. (Finger Print.) Asstt. Prof. (Biochem. & Physiol.)
Dr. Harshit Verma **Dr. Koushlesh Ranjan**
Asstt. Prof. (Vet. Microbiol.) Asstt. Prof. (Biochem. & Physiol.)

ONLINE FACULTY TRAINING

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**“Molecular Biology and Bioinformatics
Tools and It's Application in Agriculture &
Allied Sciences”**

September 08 - 21, 2022

ONLINE FACULTY TRAINING

on

**“Molecular Biology and Bioinformatics Tools and It's
Application in Agriculture & Allied Sciences”**

September 08 - 21, 2022

**Inaugural Function
September 08, 2022
10:30 a.m.**



Dr. D. R. Singh
Hon'ble Vice-Chancellor
will Inaugurate

Dr. Rekha Dixit
Convener

Dr. Jitender Singh
Course Director & Coordinator, BIF

Dr. Pankaj Kumar
Principal Coordinator, CoE & Course Director

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DBT-Bioinformatics Infrastructure Facility, College of Biotechnology**



Plant Variety Protection Law in Indian Agriculture: Challenges and prospects



Prof Dinesh Kumar

Dean Academic
Central University of Haryana
Mahendergarh-123 031
dineshkumarbhu@gmail.com



On Line Faculty Training

On
Molecular & Bioinformatics tools and its applications in Agriculture and Allied Sciences
(8-21 Sep 2021)

Centre of Excellence in Agri. Biotechnology
Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut, UP



Prof Dinesh Kumar

Success of Indian Agriculture(1951-2021): Does Indian Agriculture needs IP laws?

- Food grains 5.4 times
- Horticultural crops 10.1 times,
- Fish by 15.2 times,
- Milk 9.7 times
- Eggs 48.1 times

Good but not good enough

<http://dare.nic.in/sites/default/files/AR-2019-20-English-Final.pdf>

DUS Testing

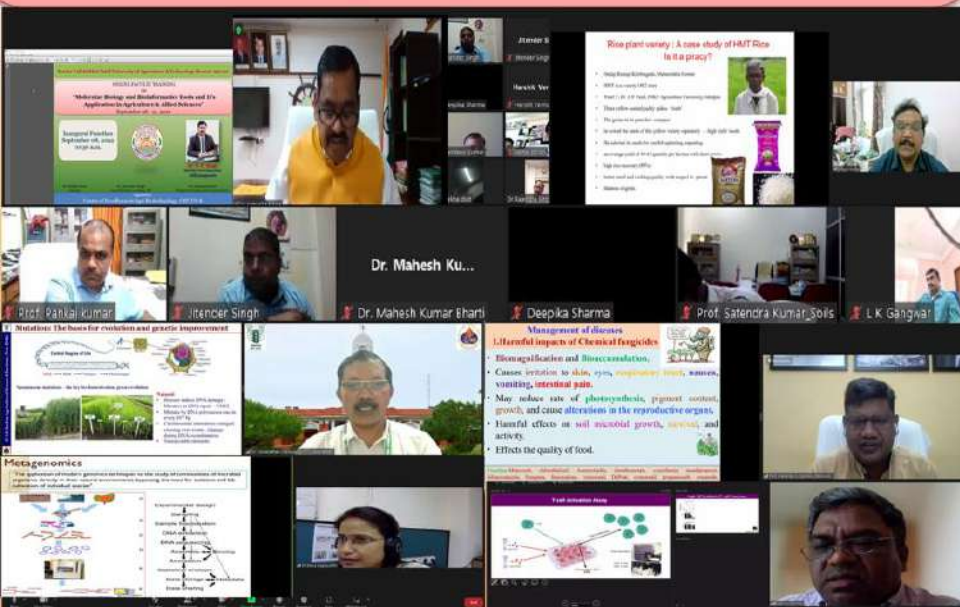
- **Distinctiveness** – Distinguishable by at least one essential characteristics from a variety which is a matter of common knowledge
- **Uniformity** – Sufficiently uniform in its essential characteristics
- **Stability**- Essential characteristics remain unchanged even after repeated propagation

How computational genomics can help?

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Course Director
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Sardar Vallabhbhai Patel

University of Agriculture & Technology Meerut-250110



On
'Molecular Biology and Bioinformatic Tools and It's Application in Agriculture & Allied Sciences'



(September 08 - 21, 2022)

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Vice Chancellor, SVPUAT, Meerut

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Dean, Biotechnology Director Research

Prof. Rajbir Singh
Dean, CoVAS

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Principal Coordinator, CoE in Agri. Biotech.

Dr. Jitender Singh
Associate Professor & Coordinator, BIF

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Dr. Neelesh Kapoor **Dr. Mahesh Kr. Bharti**
Asstt. Prof. (Finger Print.) Asstt. Prof. (Biochem. & Physiol.)

Convenor
Prof. Rekha Dixit
Professor, (Biochem. & Physiol.)

ONLINE FACULTY TRAINING

on

“Molecular Biology and Bioinformatics Tools and It's Application in Agriculture & Allied Sciences”

September 08 - 21, 2022

Valedictory Function
September 21, 2022
at 11.30 a.m.



Dr. D. R. Singh
Hon'ble Vice-Chancellor
will be the Chief Guest

Prof. Rekha Dixit
Convener

Dr. Jitender Singh
Course Director & Coordinator, BIF

Prof. Pankaj Kumar
Principal Coordinator, CoE & Course Director

Organized by:

**Centre of Excellence in Agri-Biotechnology, CST, UP &
DBT-Bioinformatics Infrastructure Facility, College of Biotechnology**

Please Join: **ZOOM** ID: 4180840723 Passcode: 21092022

ONLINE FACULTY TRAINING

on

**"Molecular Biology Tools and It's
Application in Agriculture & Allied
Sciences"**

December 01 - 14, 2021

Sardar Vallabhbhai Patel University of Agriculture & Technology Meerut-250110

ONLINE FACULTY TRAINING

on

"Molecular Biology Tools and It's Application in Agriculture & Allied Sciences"

December 01 - 14, 2021

**Inaugural Function
December 01, 2021
12:15 p.m.**



Dr. R. K. Mittal
Hon'ble Vice-Chancellor
Will Inaugurate

Dr. Rekha Dixit
Convener

Dr. Jitender Singh
Course Director & Coordinator, BIF

Dr. Pankaj Kumar
Principal Coordinator, CoE & Course Director

Organized by:

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Please Join: **ZOOM** ID: 999 967 3230 Passcode: 01122021



Dr Priya Dr Priya	Prof. Pankaj Kumar Prof. Pankaj Kumar	Dr Ranjit Singh Dr Ranjit Singh	Dr. Roja Veeragh... Dr. Roja Veeraghattapu	Dr. sunil kumar, BUAT, Banda Dr. sunil kumar, BUAT, Banda
Rani Chapara Rani Chapara	Dr Bindya Liz Abraham Dr Bindya Liz Abraham	Dr. Abhishek Ku... Dr. Abhishek Kumar	Ashish Ashish	Dr. Alok Kumar Singh, ANDUAT, AYODHYA Dr. Alok Kumar Singh, ANDUAT, AYODHYA
NARESH PRATAP SINGH NARESH PRATAP SINGH	Dr. Koushlesh Ranjan Dr. Koushlesh Ranjan	Dean COB, SVBUAT, Meerut Dean COB, SVBUAT, Meerut	Dr.Sunita Chauhan Dr.Sunita Chauhan	RK Mittal VC SVPUAT Meerut RK Mittal VC SVPUAT Meerut
Dr. Anu G krishnan Dr. Anu G krishnan	Tajwar Izhar Tajwar Izhar	Aditi Aditi	MALTI MALTI	Dr. KIRAN Dr. KIRAN
Archana Shukla Archana Shukla	RAJNI KUMARI RAJNI KUMARI	Darasing Rathod Darasing Rathod	Dr. Pritam Shinde Dr. Pritam Shinde	DR. SANJEEV DR. SANJEEV

Participant avatars and names: Prof. Pankaj Kumar, Navin Kumar Verma, Sanjula Sharma -PBG, Dr.Sunita Chauhan, RAJNI KUMARI, Dr. KIRAN

Participants (38)

Find a participant

- Prof. Pankaj Kumar (Host, me)
- Navin Kumar Verma
- Amrendra Pratap Bahadur Singh
- archana shukla
- Ashish
- BINI K
- Dr. APADMASRI
- Dr. Anu G krishnan
- Dr. Bindya Liz Abraham
- Dr. Karen P Pachchigar
- Dr. Priyadarshini s k
- Dr. Ranjit Singh
- DR Rathod PDKV Akola
- Dr. Abhishek Kumar
- Dr. KIRAN
- Dr. Roja Veeraghattapu
- Dr.Amit Kanawjia
- Dr. Leena Todkar-Shitole
- Dr.Sunita Chauhan
- Gaddipati Sushma
- Harsha

About Me

Assistant Professor of Immunology & Cell Biology **Senior Research Scientist**

LEE KONG CHIAN SCHOOL OF MEDICINE



Research Interests

- T-cell motility
- Antitumor T-cell response
- Adaptive immunity
- Cancer metastasis
- Skin wounds

Principal Investigator



Junior Principal Investigator



Practical Manual
ONLINE FACULTY TRAINING

ON

Molecular biology tools and its Application in Agriculture & Allied Sciences

December 01 -14, 2021



The Immune System

Protects against diseases

- Bacteria
- Viruses
- Fungus
- Parasites
- Toxins
- Cancer



Jitender Singh
Course Director

Pankaj Kumar
Course Director

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(December 01 - 14, 2021)

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Director Research

Prof. Samsher
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Principal Coordinator, CoE in Agri. Biotech.

Dr. Jitender Singh

Associate Professor & OIC Bioinformatics

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Asstt. Prof. (Biochem. & Physiol.)

Convener

Prof. Rekha Dixit

Professor, (Biochem. & Physiol.)

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"Molecular Biology Tools and It's Application in Agriculture & Allied Sciences"

December 01 - 14, 2021

Valedictory Function
December 14, 2021
at 16:15 hrs



Prof. Anil Sirohi
Director Research will
be the Chief Guest

Prof. Rekha Dixit
Convener

Dr. Jitender Singh
Course Director & Coordinator, BIF

Prof. Pankaj Kumar
Principal Coordinator, CoE & Course Director

Organized by:

Centre of Excellence in Agri-Biotechnology, CST, UP &
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Please Join: **ZOOM ID: 9999 673230** Passcode: 14122021

ONLINE FACULTY TRAINING
on

*‘Application of Molecular and Bioinformatic
Tools in Agriculture & Allied Sciences’*

July 07- July 20, 2021

Sardar Vallabhbhai Patel University of Agriculture & Technology Meerut-250110

ONLINE FACULTY TRAINING

on

'Application of Molecular and Bioinformatic Tools in Agriculture & Allied Sciences'

July 07- July 20, 2021

**Inaugural Function
July 07, 2021
10:30 a.m.**



Dr. R. K. Mittal
Hon'ble Vice-Chancellor
Will Inaugurate

Dr. Jitender Singh
Course Coordinator & Coordinator, BIF

Dr. Amit Kumar
Course Coordinator

Dr. Pankaj Kumar
Principal Coordinator, CoE & Course Director

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DBT-Bioinformatics Infrastructure Facility, College of Biotechnology**

Please Join: **ZOOM** ID: 999 967 3230 Passcode: 07072021



Pankaj Kumar



Anil Sirohi

Dr Shriya Rawat

Prof. Pankaj Ku...



Dr. Bharu Pratap



Vaibhav D Lhot...



01:27:59

RK Mittal VC SVP/AT Meerut



Pankaj Kumar's Zoom Meet
now
Meeting ID: 999 967 3230

Start

Dism

Unmute Stop Video

Participants 68 Chat 20 Share Screen Record Reactions



ONLINE Faculty Training

On

Application of Molecular & Bioinformatic Tools in Agriculture and Allied Sciences



(July 07-20, 2021)

Organized by

Centre of Excellence (COE) in Agri Biotechnology funded by UPCST and Bioinformatics Infrastructure Facility (BIF) funded by DBT, New Delhi, College of Biotechnology Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut-250110



सरदार वल्लभभाई पटेल कृषि एवं प्रौद्योगिक विश्वविद्यालय, मेरठ 250110
SARDAR VALLABHBHAI PATEL UNIVERSITY OF AGRI. & TECH., MEERUT 250110

डा० आर० के० मित्तल
कुलपति

Dr. R. K. Mittal

Vice Chancellor



Phone : 0121-2888522 (O)

0121-2888566 (R)

Fax : 0121-2888505 (O)

Web : svbpmeerut.ac.in

E-mail : vc2016svpuat@gmail.com

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Principal Coordinator, CoE in Agri. Biotech.

Course Coordinators

Dr. Jitender Singh

*Associate Professor (Immuno.) & Coordinator, BIF
jeets_80@rediffmail.com M: 7017785669, 7409040075*

Dr. Amit Kumar

*Associate Professor (Immuno.)
balvan74@gmail.com M: 9412120813, 7906148620*

Course Co- Coordinators

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Asstt. Prof. (Biochem. & Physiol.)

Foreword

Molecular Biology is the field of biology that studies the composition, structure and interactions of cellular molecules such as nucleic acids and proteins that carry out the biological processes essential for the cell's functions and maintenance. In the twentieth century, breeding became more sophisticated, as the traits that breeders select for include increased yield and nutrients, disease and pest resistance, drought resistance and enhance flavor. Biotechnology encompasses a number of tools and elements of conventional breeding techniques, bioinformatics, microbiology, molecular genetics, biochemistry, physiology and molecular biology.

Bioinformatics, as a new emerging discipline, combines mathematics, information science, and biology and helps answer biological questions. Bioinformatics is a science field that is similar to but distinct from biological computation, while it is often considered synonymous to computational biology. Bioinformatics is a sub discipline of biology and computer science concerned with the acquisition, storage, analysis, and dissemination of biological data, most often DNA and amino acid sequences. Molecular biology and bioinformatics tools enable improvements that are not possible with traditional crossing of related species alone.

It gives me immense pleasure to know that the Centre of Excellence in Agri Biotechnology established with the funding of CSTUP in collaboration with Bioinformatics Infrastructure Facility funded by DBT, New Delhi is organizing the second ONLINE and eighth faculty training programme entitled 'Application of Molecular and Bioinformatic Tools in Agriculture & Allied Sciences' from July 07, 2021 to July 20, 2021. Practical manual prepared for training course will be a very useful reference for the trainees. This practical manual contains experiments designed to accomplish the hands-on experience on these agricultural biotechnological techniques and has focused on the practicals of molecular biology, bioinformatics and its application in agriculture and allied sciences.

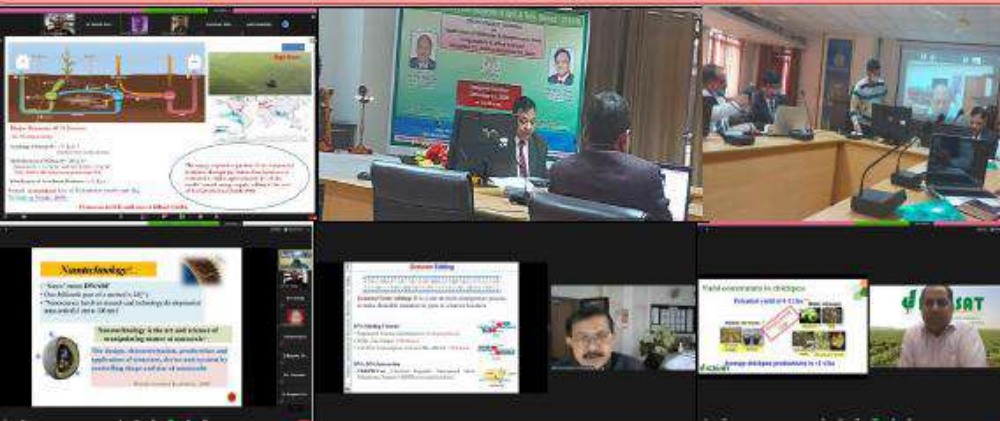
I appreciate and congratulate the sincere efforts made by the team of Centre of Excellence in Agriculture Biotechnology and Bioinformatics Infrastructure Facility by providing a platform for Two Weeks Training at College of Biotechnology during COVID-19 pandemic. I am sure that the training will be useful to the young researchers and faculty members across the country.

(R. K. Mittal)

Practical Manual
ONLINE FACULTY TRAINING

on
'Application of Molecular and Bioinformatics Tools in
Agriculture & Allied Sciences'

July 07 to July 20, 2021



Dr. Amit Kumar
Course Coordinator(s)

Dr. Jitender Singh

Dr. Pankaj Kumar
Course Director

Organized by:

Centre of Excellence In Agri Biotechnology, CST, UP &
DBT-Bioinformatics Infrastructure Facility
College of Biotechnology

Sardar Vallabhbhai Patel

University of Agriculture & Technology Meerut-250110

Practical Manual
on

Application of Molecular
and Bioinformatic
Tools in Agriculture
& Allied Sciences



Course Co- Coordinator(s)

Dr. Harshit Verma
Dr. R. A. Siddique
Dr. Mahesh Kr. Bharti
Dr. Kaushlesh Ranjan
Dr. Neelesh Kapoor
Dr. Naresh P. Singh

Course Director

Dr. Pankaj Kumar

Course Coordinator(s)

Dr. Jitender Singh
Dr. Amit Kumar

Organized by:

Centre of Excellence In Agri Biotechnology, CST, UP &
DBT-Bioinformatics Infrastructure Facility
College of Biotechnology
Sardar Vallabhbhai Patel

University of Agriculture & Technology Meerut-250110



Bhaw Ranjan Singh



Prof. Parikaj Kumar



Seema Rani malik



KISAN



Dr. Rani Jadhav

Nidhi Rajput

Dr.Rajendra Sing...

Dr.Mukesh Saini



Dr. Anil Gattani



Anil Sirohi Director Research



N37T12 Shivani D



Dean COB SVBUAT Meerut



Dr. Lokesh Kumar Gangwar

Dr. Prema GU

Malarvizhi



Satya Prakash



Dr. Yogendra Singh



Dr. Navdeep S. Jamwal-PAU



yellari Amaravathi



Subaran Singh



Amit Kumar



Dr Ram Kumar singh



M K Sidhu



Dr. Rishendra Kumar



Dr. Santosh K. Upadhyay

Sardar Vallabhbhai Patel University of Agriculture & Technology

ONLINE FACULTY TRAINING

on

Application of Molecular and Bioinformatic Tools in Agriculture & Allied Sciences
July 07 – July 20, 2021

Valedictory Function
JULY 20, 2021
at 16:00 hrs



Dr. R. K. Mittal
Hon'ble Vice-Chancellor

Dr. Jitender Singh
Course Coordinator & Coordinator, BIF

Dr. Amit Kumar
Course Coordinator

Dr. Pankaj Kumar
Principal Coordinator, CoE & Course Director

Organized by:

Centre of Excellence in Agri-Biotechnology, CST, UP &
DBT-Bioinformatics Infrastructure Facility, College of Biotechnology

Please Join: **ZOOM ID: 9999 673230** Passcode: 20072021

ONLINE Faculty Training on
" Application of Molecular and Bioinformatics
Tools in Agriculture and Allied Sciences"

December 11, 2020 – December 24, 2020

ONLINE FACULTY TRAINING

on

'Application of Molecular and Bioinformatic Tools in Agriculture & Allied Sciences'

December 11, 2020 to December 24, 2020



Chief Guest
Dr. P. K. Agrawal
Hon'ble Vice Chancellor
OUAT, Bhubaneswar



Inaugural Function
December 11, 2020
at 10.30 a.m.



Dr. R. K. Mittal
Hon'ble Vice-Chancellor
SVPUAT, Meerut

Dr. Jitender Singh
Course Coordinator & Coordinator, BIF
jeets_80@rediffmail.com, 7017785669, 7409040075

Dr. Amit Kumar
Course Coordinator
balyan74@gmail.com, 9412120813, 7906148620

Dr. Pankaj Kumar
Principal Coordinator, CoE & Course Director
coordinator_coe@yahoo.com, 9412363596, 9068289380

Organized by:

**Centre of Excellence In Agri Biotechnology, CST, UP &
DBT-Bioinformatics Infrastructure Facility, College of Biotechnology**



K. J. SOMAIYA
INSTITUTE OF MANAGEMENT
STUDIES & RESEARCH

K. J. Somaiya Institute of Management Studies & Research
ONLINE FACULTY TRAINING
on
Application of Molecular & Biotechnology
in Agriculture & Allied Sciences
December 11, 2020 to December 18, 2020

Slide content (partially visible):
- Green arrow icon
- Text: "Application of Molecular & Biotechnology in Agriculture & Allied Sciences"

Uttarakhand State University of Agr. & Tech. Meerut - 250110

ONLINE FACULTY TRAINING
on
**'Application of Molecular & Bioinformatic Tools
In Agriculture & Allied Sciences'**
December 11, 2020 to December 24, 2020



Dr. P.K. Agrawal
Head of the Centre
for Molecular Biology
& Biotechnology



Dr. R.K. Vimal
Head of the Centre
for Molecular Biology
& Biotechnology



Inaugural Function
December 11, 2020
at 10.30 a.m.

Dr. Jitender Singh
Head of the Centre
for Molecular Biology
& Biotechnology

Dr. Arjun Kumar
Head of the Centre
for Molecular Biology
& Biotechnology

Centre for
DBT-Bioinformatics

Please Join at 10.30 a.m. on 11/12/2020





Sardar Vallabhbhai Patel University of Agriculture & Technology

ONLINE FACULTY TRAINING

on

Application of Molecular and Bioinformatic Tools in Agriculture & Allied Sciences
December 11, 2020 to December 24, 2020



Dr. Abhijit Mitra
Director, ICAR-CIRC, Meerut
Chief Guest



Valedictory Function
December 24, 2020
at 12:00 noon



Dr. R. K. Mittal
Hon'ble Vice-Chancellor
SVPUAT, Meerut

Dr. Jitender Singh
Course Coordinator & Coordinator, BIF

Dr. Amit Kumar
Course Coordinator



Dr. Pankaj Kumar
Principal Coordinator, CoE & Course Director

Organized by:

**Centre of Excellence in Agri-Biotechnology, CST, UP &
DBT-Bioinformatics Infrastructure Facility, College of Biotechnology**

Please Join: **ZOOM** ID: 418 084 0723 Passcode: 241220

Valedictory Function on 24.12.2020

 <p>Prof. Pankaj kumar</p>	 <p>Dev Vart, CCS H...</p>	 <p>Dr Anupama Singh</p>	 <p>Dr.Rajendra Sin...</p>	 <p>Prof. Pankaj kumar</p>
 <p>Dr. Abhijit Mitra</p>	 <p>RK Mittal VC SVPUA...</p>	 <p>DR. Subhradal N...</p>	 <p>DR. Upendra Bal...</p>	 <p>aastha chaudhary</p>
 <p>Darasing Rathod...</p>	 <p>Neelesh Kapoor</p>	 <p>Dr Naresh Chan...</p>	 <p>Priti Sonkamble</p>	 <p>SVPUA&T, Meer...</p>
 <p>Khyati</p>	 <p>Vishakha</p>	 <p>Amit kumar horti</p>	 <p>sanju mandal</p>	 <p>Vandana Sharma</p>
 <p>Rekha dixit svpu...</p>	 <p>Dr.Kalpana N. D...</p>	 <p>Anshuman Mish...</p>	 <p>Jitender Singh</p>	 <p>Harshit Verma_I...</p>

Faculty Training

on

**“APPLICATION OF MOLECULAR AND
BIOINFORMATICS TOOLS IN AGRICULTURE & ALLIED
SCIENCES”**

February 12 to February 25, 2020



Centre of Excellence in Agriculture Biotechnology & Bioinformatics Infrastructure Facility Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut (UP)

College of Biotechnology

“Application of Molecular and Bioinformatic Tools in Agriculture & Allied Sciences”

February 12, 2020 to February 25, 2020



Left to Right,

Sitting on chairs : Dr. Jitender Singh (Course Co-ordinator), Dr. Pankaj Kumar (Course Director), Dr. Rajveer Singh, Dr. Anil Sirohi, Prof (Dr.) R K.Mittal,Vice Chancellor, Dr. N.S. Rana, Dr. Bijendra Singh, Dr. Ramesh Singh, Dr. Amit Kumar (Course Co-ordinator),

Standing Ist Row: Dr. Nitika Verma, Ms. Heena, Dr. Neelam Panwar, Dr.Malti, Dr. Anuradha Singh, Dr. Ashima Kathuria, Dr. Garima Pundir, Dr. Pragati Rastogi, Dr. Nisha Manish, Ms. Anamika Bhardia, Dr. Harshit Verma,

Standing IIrd Row: Dr. Naresh Pratap Singh, Dr. Sandeep Kumar, Dr. Gulab Chandra, Dr. Davendra Kumar, Dr. Akshay Garg, Dr. Kaushlesh Ranjan, Mr. Amardeep Singh, Ms. Gyanika Shukla,Dr. Mahesh Bharti, Dr. V.P. Singh, Dr. Amit Kumar Verma,

Standing IIIrd Row: Dr. R.A. Siddique, Dr. Prem Kumar Maurya, Dr. Rajesh Mandil, Dr. Sudhir Kumar Dhama, Dr. Neelesh Kapoor, Dr. Asad Amir, Mr. Surendra Uphadhyay

Release of Training Manual by Dr. R. K. Mittal, Hon'ble V.C. on February 12, 2020



Inauguration of Faculty Training by Dr. R. K. Mittal, Hon'ble V.C. on February 12, 2020



Welcome of Dr. P. K. Gupta, Professor, Emeritus (Chief Guest) by Dr. R. K. Mittal, Hon'ble Vice Chancellor during Valedictory Function on February 25, 2020



Distribution of Certificates by Dr. P. K. Gupta, Professor, Emeritus (Chief Guest) & Dr. R. K. Mittal, Hon'ble Vice Chancellor during Valedictory Function on February 25, 2020



Hon'ble Vice Chancellor Prof. R. K. Mittal along with Dr. P. K. Gupta, Chief Guest, Dean & faculty members blessed the trainees



Sitting L to R: Dr. Prem Sagar Maurya, Dr. R. A. Siddique, Dr. Jitender Singh (Course Coordinator), Dr. Pankaj Kumar (Course Director), Prof. Samsher, Dr. R. K. Mittal, Hon'ble Vice Chancellor, Dr. P. K. Gupta, Professor Emeritus & Chief Guest, Dr. R. Kumar, Dean (Biotech.), Dr. N. S. Rana, Dr. S. K. Dhama, Dr. Amit Kumar (Course Coordinator), Dr. Harshit Verma

Standing 1st Row: Ms. Anamika Bhordia, Ms. Akansha Manav, Dr. Neelaum Panwar, Dr. Malti, Ms. Nitika, Dr. Anuradha Singh, Dr. Ashima Kathuria, Dr. Pragati Rastogi, Dr. Garima Pundir, Ms. Gyanika Shukla, Dr. Nisha Manish

Standing 2nd Row: Dr. Naresh Pratap Singh, Dr. Sandeep Kumar, Dr. Mahesh Kumar Bharti, Dr. Devendra Kumar, Mr. Rahul Kumar, Dr. Asad Amir, Dr. Akshay Garg, Mr. Malayaj R. Prajapati, Mr. Surendra Upadhyay, Mr. Amardeep Singh

Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut



One month "Hands on training on conventional, molecular and bioinformatics tools"

Organized by

Department of Immunology & Defense Mechanism, College of Biotechnology,
in collaboration with Centre of Excellence Agri. Biotechnology, CST, UP & Bioinformatics Facility, DBT
17.06.2019- 16.07.2019



Row 1 (Left to Right) : Dr. Shailja Katoch, Ms. An My Dinh, Dr(s) Jitender Singh, Amit Kumar, Anil Sirohi, Ashok Ahluwalia, Prof. Gaya Prasad, Ravinder Kumar, Rajbir Singh, Pankaj Kumar, Veer Pal Singh, Ms.Truong Ngoc Thao, Ms. Shailja Panwar
Row 2 : Dr. Akshay Garg, Ms. Riya Kukreti, Ankita, Nishi Tyagi, Manisha Kaushik, Karishma Kaushik, Lovely, Yanshi, Chhavi Kansal, Simpi Maurya, Mansi Singhal, Akansha Kaushik, Anamika, Akansha Manav, Vedika Dhiman, Pooja
Row 2 : Dr(s) Amit K. Verma, Mahesh Bharti, Rajesh Mandil, Mr(s) Ajay K. Mishra, Narayan Chaudhary, Tejas Rana, Himanshu Kumar, Varun, Yashvardhan, Malyaj R Prajapati, Dr(s) Neelesh Kapoor, Prabhaker, Kaushlesh Ranjan

Distribution of Certificates by Dr. R. K. Mittal, Hon'ble Vice Chancellor
during Valedictory Function of One month Students Training on July 16, 2019



DBT Sponsored Training cum Workshop

“Bioinformatic Tools and Techniques in Agriculture”

Bioinformatics Infrastructure Facility & COE in Ag. Biotechnology

Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut-250110

March 25-27, 2019





Centre of Excellence in Agriculture Biotechnology & Bioinformatics Infrastructure Facility
Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut (UP)

“Application of Molecular Biology Tools and Bioinformatics in Agriculture”

August 19 to September 08, 2016



Left to Right

Sitting On Chairs : Dr. Pankaj Kumar (Course Coordinator), Dr. R. Kumar, Dr. Anil Sirohi (Course Director), Dr. S.K. Bhatnagar (Dean Biotech)
Prof. Gaya Prasad (Vice Chancellor), Dr. G.K. Garg (Chief Guest), Dr. Ashok Kumar (DES), Dr. Raghuvir Singh (DE), Dr. Pooran Chand
Standing 1st Row: Dr. Jitender Singh (Course Coordinator), Dr. Anu Kalia, Dr. Anshu Dhaka, Dr. Nupur Prasad, Dr. Anuradha Singh,
Dr. K.G.Yadav, Dr. Mukesh Kumar, Dr. Veena Chaudhary, Dr. Shiyani Saha, Mrs. Anju Tyagi, Dr. Vineeta Verma
Standing 2nd Row: Dr. Sat Pal Sharma, Dr. Neeraj Hada, Dr. Sidhartha Deshmukh, Dr. V.K. Singh, Dr. Gurtej Singh Uppal, Dr. Rajendra Singh,
Dr. Prashant Mishra, Mr. Kirankumar Suthar, Dr. Ramesh Narayaurao Dhawale, Dr. Neelesh Chauhan, Dr. Naresh Pratap Singh,
Standing 3rd Row: Dr. Punjab Singh Malik, Mr. Deepak Sisodia, Dr. Hariom Katiyar, Dr. S.K. Lodhi, Dr. S.K. Tripathi



Centre of Excellence in Agriculture Biotechnology & Bioinformatics Infrastructure Facility
Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut (UP)

"Application of Molecular Biology Tools and Bioinformatics in Agriculture"

August 19 to September 08, 2016



Hon'ble Vice Chancellor Prof. Gaya Prasad along with Chief Guest Dr. M.B. Chetti, ADG (HRD) ICAR, Deans, Director & Faculty Members blessed the Trainees on the occasion of Valedictory Function



CENTRE OF EXCELLENCE IN AGRI-BIOTECHNOLOGY & BIOINFORMATICS INFRASTRUCTURE FACILITY

Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut - 250110

"Application of Biotechnological Tools and Bioinformatics in Agriculture"

4 to 24 February 2015



Sitting Left to Right: Dr. Puran Chand, Er. G.R. Singh, Prof. Samsher, Dr. Y.P Singh, Prof. H.S Gaur (Vice Chancellor), Dr. R.P. Sharma (Former Project Director, ICAR- NRCPB), Dr. Raghuvir Singh, Dr. Ashok Kumar, Dr. Pankaj Kumar (Course Coordinator), Dr. Ravindra Kumar.

Standing First Row : Dr. Nupur Prasad, Dr. Anuradha Singh, Dr. Shiv Kumari, Dr. Koushlesh Ranjan, Dr. Gulab Chandra, Dr. D. V. Singh, Dr. P. K. Singh, Dr. Shoraj Singh, Dr. S. L. Pal, Dr. Manu Kumar H.R., Dr. Vaishali, Dr. Jinu Manoj, Dr. Veena Chaudhary.

Standing First Row : Dr Subhash Chander Kashyap, Dr. Jitender Singh (Course Coordinator), Shri Murari Lal, Dr. Ifan Ahmad Mir, Dr. Pankaj Chauhan, Dr. Sarvesh Kumar Lodhi, Dr. R. Karthik Raja, Dr. Sunayan Kumar Ramdas Patel, Dr. Mohan Kumar S, Dr. Yogendra Singh, Dr. Rajinder Kumar Dhali



CENTRE OF EXCELLENCE IN AGRI-BIOTECHNOLOGY & BIOINFORMATICS INFRASTRUCTURE FACILITY

Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut - 250110

"Application of Biotechnological Tools and Bioinformatics in Agriculture"

4 to 24 February 2015



Hon'ble Vice Chancellor, Chief Guest & Faculty Members Blessed The Participants

Distribution of Certificate to the Trainees by Prof. H. S. Gaur,
Hon'ble Vice Chancellor & Dr. M. K. J. Siddiqui, Director &
Secretary, CST, UP on August 02, 2014



Inauguration of Faculty Training by Prof. H. S. Gaur, Hon'ble V.C. on February 05, 2014



CENTRE OF EXCELLENCE IN AGRI- BIOTECHNOLOGY & BIOINFORMATICS INFRASTRUCTURE FACILITY

Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut-250110

"Application of Molecular Biology Tools and Bioinformatics in Agriculture"

(February 05 to February 25, 2014)

COLLEGE OF BIOTECHNOLOGY



Sitting Left to Right : Ms.Swati Chaudhary, Dr.Jitender Singh, Dr.Raghuvir Singh, Prof.H.S.Gaur, Dr.Anil Sirohi, Dr.Pankaj Kumar, Ms.Everest Shrivasth
First Row Standing : Sh.Rajanna B., Dr.Sobhash Chandra, Dr.Sudhir Kumar Dhama, Sh.Priyank Bharati, Dr.Shoraj Singh, Dr.Rajendra Singh, Dr.Orn Bir Singh, Dr.Riyaz Ahmed Siddique, Dr.Usha T.N., Dr.R.K. Karimoochi
Second Row Standing: Dr. Anir Gulabrao Deshmukh, Dr. Vikram Bapurao Patil, Dr. Vinay Parwar, Dr. Vipin Kumar, Sh. Ashok Kumar, Dr. Awitish, Dr. Mukesh Kumar, Sh.M.Paripara Rao, Dr.Neelsh Chaudhari, Dr.P.Selvan

Dr. K.C. Bansal, Director of NBPGR & Chief Guest and Prof. H. S. Gaur, Hon'ble Vice Chancellor during Valedictory Function on February 24, 2014



Distribution of Certificates by, Hon'ble Vice Chancellor during
Valedictory Function
of 21 days Faculty Training on February 24, 2014



Hon'ble Vice Chancellor Prof. A. K. Bakhshi blessed the Trainees on December 23, 2012

Centre of Excellence In Agriculture Biotechnology & Bioinformatics Infrastructure Facility
College of Biotechnology
Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut – 250110
'Application of Biotechnological Tools and Bioinformatics in Agriculture'
(December 19, 2012 to January 08, 2013)



Sitting (L to R) – Dr. Jitender Singh, Course Coordinator; Dr. Devi Singh, Director Research; Dr. Anil Sirohi, Dean Biotechnology; Prof. A. K. Bakhshi, Hon'ble Vice Chancellor; Dr. Rajbir Singh, Dean Veterinary; Dr. Babu Ram, Director Extension; Dr. Pankaj Kumar, Course Director.
Standing 1st Row (L to R) – Mr. Bhagwan Bux Patel, Dr. G. Girish, Dr. Surendra Kumar Yadav, Dr. Adesh Kumar, Ms. Ramya Nair, Ms. Neba Go
Ms. Rosy Rani, Ms. Nidhi Gupta, Mrs. Shashi Bernice Bailey, Dr. (Mrs.) Alice Turkey, Dr. (Mrs.) Sushma
Standing 2nd Row (L to R) – Mr. Rakesh Gaur, Dr. Mohd. Amin Mir, Dr. Satnam Singh, Dr. Sandeep Kumar, Dr. Mukesh Kumar, Dr. Abhishek Sharma,
Dr. Gowhar Ali, Dr. Deepak Kumar, Dr. Surendra Kumar, Mr. Amit Kumar Singh, Dr. D. N. Harit

Distribution of Certificates by Sh. Vikram Chandra Goyal, Hon'ble Vice Chancellor during Valedictory Function of 21 days Faculty Training on January 08, 2013



Centre of Excellence In Agriculture Biotechnology & Bioinformatics Infrastructure Facility

College of Biotechnology

Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut – 250110

'Application of Biotechnological Tools and Bioinformatics in Agriculture'

(December 19, 2012 to January 08, 2013)



Hon'ble Vice Chancellor Sh. Vikram Chandra Goyal, (Rtd) IPS alongwith Deans, Directors, Registrar & Faculty members blessed the Trainees on Jan. 8, 2013

Release of Training Manual by Deans & Directors of the University during Inauguration of 21 days Faculty Training on January 19, 2012



CENTRE OF EXCELLENCE IN AGRI-BIOTECHNOLOGY & BIOINFORMATICS INFRASTRUCTURE FACILITY

College of Biotechnology

Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut-250110

"Hands on Training on Molecular Biology Tools and Their Application in Agriculture"

(January 18 - February 07, 2012)



Sitting L - R : Dr. Sandeep Kumar, Dr. (Ms.) Suneet Pandher, Dr. (Ms.) Aneesha Singh, Dr. Jitender Singh, Dr. Pankaj Kumar, Dr. Anil Sirohi, Dr. V. K. Barnwal, Dr. (Ms.) Shalini Gupta, Ms. Amrinder Kaur, Dr. (Ms.) Reshu Singh

Standing L - R : Mr. Amit Kumar Singh, Dr. Mohd. Anwar Khan, Dr. Mehi Lal, Dr. (Ms.) Harminder Kaur Deosi, Dr. Sharda Choudhary, Mr. Dilbag Singh, Dr. Salesh Kumar Jindal, Dr. (Ms.) Reena, Dr. Vijai Kishor Gupta, Dr. Raj Narayan Kewat, Dr. Dharmendra Kumar, Mr. Rajesh Kumar, Ms. Anchal, Ms. Rosy

Distribution of Certificates by Deans & Directors of the University during Valedictory Function of 21 days Faculty Training on February 07, 2012



Release of Souvenir & Compendium of Abstract by the Chief Guest Dr. Arvind Kumar, Hon'ble Dy. Director General (Education) during Inauguration of National Symposium on September 14, 2011



Dignitaries on Dias during Valedictory Function of National Symposium on September 16, 2011



Release of Training Manual by Deans & Directors of the University during Inauguration of One month training on June 15, 2011



Interaction of Hon'ble Vice Chancellor Prof. Arvind Kumar Bakhshi with trainees during Students Training June 15, 2011 to July 14, 2011



Welcome of Shri Rajneesh Gupta, Hon'ble Director General, CST UP & Chief Guest during Valedictory Function of Training on July 13, 2011



Sh. Rajneesh Gupta, IAS, Director General, Council of Science & Technology Visited Centre on July 13, 2011



Distribution of Certificates by Shri Rajneesh Gupta, Hon'ble Director General, CST UP & Chief Guest during Valedictory Function of Training on July 13, 2011



Hon'ble Vice Chancellor Prof. Arvind Kumar Bakhshi along with Dean & faculty members blessed the trainees June 15, 2011 to July 14, 2011



Centre of Excellence in Agriculture Biotechnology

College of Biotechnology, SVPUA & T, Meerut

Project / Training, January- May 2011



Hon'ble Vice Chancellor Prof. A. K. Bakhshi
alongwith

Deans of various colleges & faculty members blessed the trainees of CoE

Release of Souvenir & Compendium of Abstract by the Chief Guest Dr. H. P. Singh, Hon'ble Dy. Director General (Horticulture) during Inauguration of Zonal Seminar on September 17, 2010



Sardar Vallabhbhai Patel University of Agri. & Tech., Meerut
Zonal Seminar
on
"PHYSIOLOGICAL AND MOLECULAR
INTERVENTIONS FOR YIELD AND
QUALITY IMPROVEMENT IN CROP PLANTS"
17 September, 2010

Sardar Vallabhbhai Patel University of Agri. & Tech., Meerut
Zonal Seminar
on
"PHYSIOLOGICAL AND MOLECULAR
INTERVENTIONS FOR YIELD AND
QUALITY IMPROVEMENT IN CROP PLANTS"
17 September, 2010

Dr. P. S. Deshmukh

Smt. Urmila Devi

Dr. H. P. Singh

Prof. A. K. Bakhshi



Distribution of Certificates by the Chief Guest Dr. C. Devakumar, Hon'ble Asstt. Director General (EPD) during Valedictory Function of Zonal Seminar on September 18, 2010



“Application of Molecular tools and Advance Biochemical Techniques in Agriculture.” June 21 – July 03, 2010



Release of CoE Brochure by Shri Bhuwanesh Kumar Hon'ble Commissioner, Meerut Mandal, Meerut during Kisan Mela



Inspection of Physical Facilities of the Centre by Dr. M. K. J. Siddiqui, Director & Secretary along with Advisory Committee Members on September 17, 2010



Visit of minister & interaction with trainees in Centre of Excellence in Agri Biotechnology, During Faculty training



Visit of Former DG, ICAR & Secretary DARE, GOI & Former DDG (Edu),
ICAR along with Hon'ble Vice Chancellor, SVPUAT



State Minister of Agri. Edu & Research Sh. Manoj Kumar Pandey
visited in Centre
Of Excellence along with Hon'ble Vice Chancellor, SVPDAT



Padm Bhusan Prof. R. B. Singh, Member Planning Commission along with Dr. Robert Zeigler, DG, IRRI Philippines visited centre on January 03, 2011



Visit of USAID, AIP officials at Centre of Excellence



Shri Mritunjay Kumar Narayan, Hon'ble Commissioner, Meerut Mandal,
Visited Centre on June 26, 2011



First ADVISORY COMMITTEE MEETING on September 17, 2010



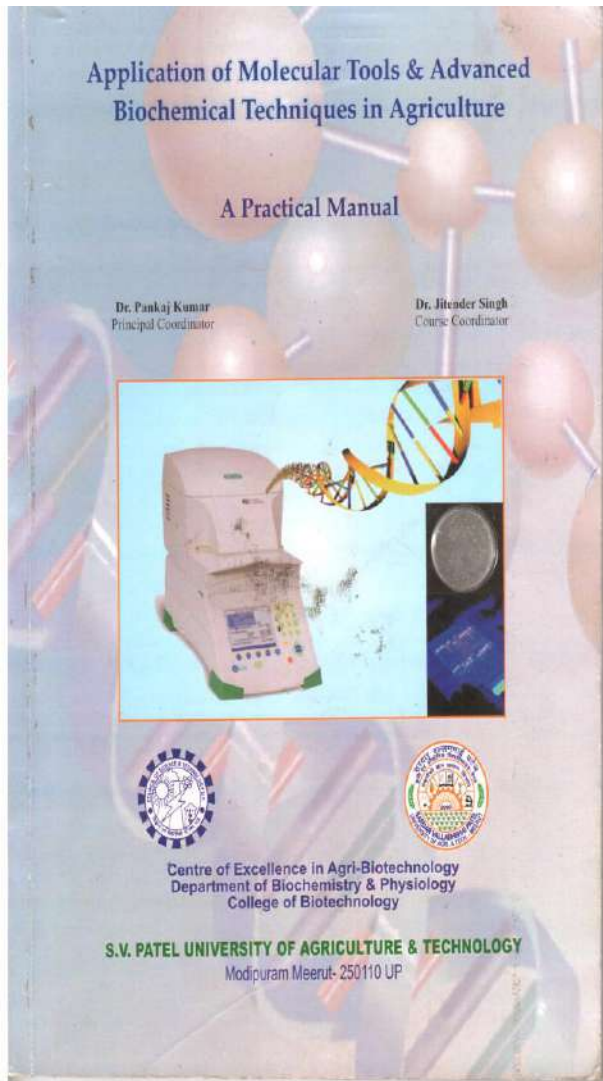
Second ADVISORY COMMITTEE MEETING on March 21, 2012



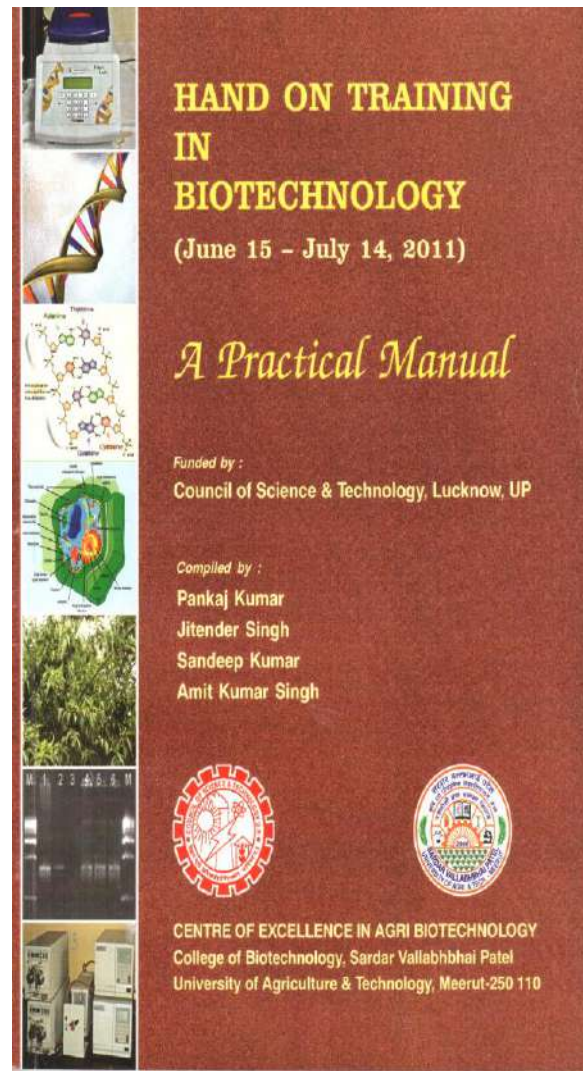
Third ADVISORY COMMITTEE MEETING on August 02, 2014



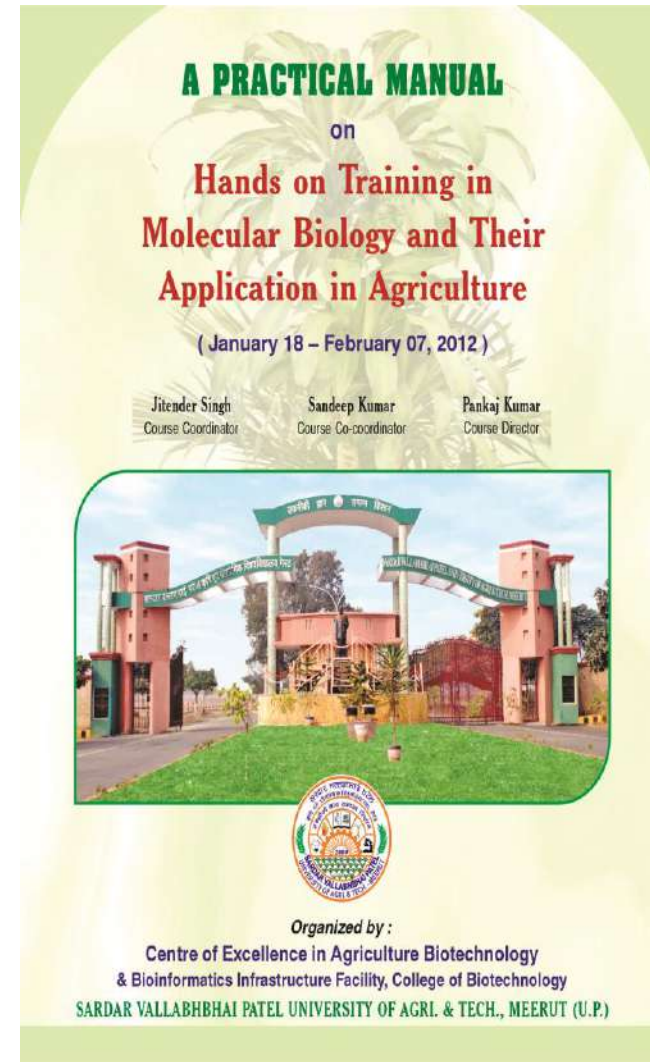
TRAINING MANUALS



Training Manual 2010



Training Manual 2011




Training Manual 2012

TRAINING MANUALS



Practical Manual

Application of Biotechnological tools and Bioinformatics in Agriculture
December 19, 2012 – January 08, 2013



Jitender Singh
Course Coordinator

Pankaj Kumar
Course Director

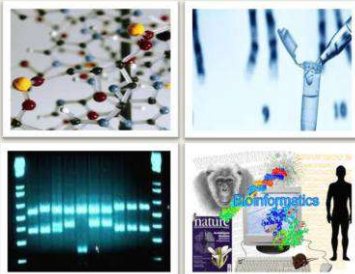
Centre of Excellence in Agriculture Biotechnology & Bioinformatics Infrastructure Facility
College of Biotechnology, Sardar Vallabhbhai Patel
University of Agriculture & Technology, Meerut-250 110

Training Manual 2013

TRAINING COURSE
ON


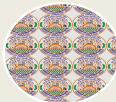

APPLICATION OF MOLECULAR BIOLOGY TOOLS AND BIOINFORMATICS IN AGRICULTURE
(February 05, 2014 to February 25, 2014)

A Practical Manual



Jitender Singh
Coordinator, BIF & Course Coordinator

Pankaj Kumar
Principal Coordinator, CoE & Course Coordinator

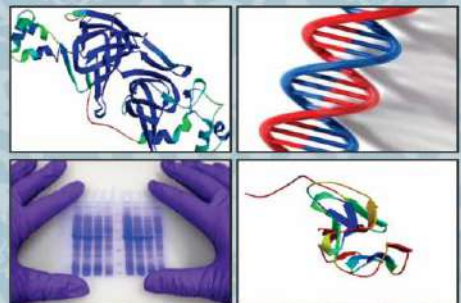




Centre of Excellence in Agri Biotechnology & Bioinformatics Infrastructure Facility
COLLEGE OF BIOTECHNOLOGY, SARDAR VALLABHBHAI PATEL
UNIVERSITY OF AGRICULTURE & TECHNOLOGY, MEERUT-250 110

Training Manual 2014




TRAINING COURSE
ON

APPLICATION OF BIOTECHNOLOGICAL TOOLS AND BIOINFORMATICS IN AGRICULTURE
(February 04, 2015 to February 24, 2015)



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Course Coordinators
Pankaj Kumar Jitender Singh

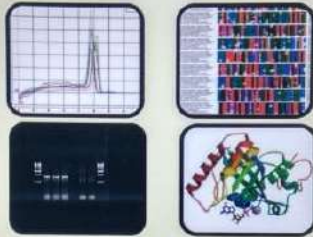
Centre of Excellence in Agri Biotechnology & Bioinformatics Infrastructure Facility
COLLEGE OF BIOTECHNOLOGY, SARDAR VALLABHBHAI PATEL
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Training Manual 2015

TRAINING MANUALS

TRAINING COURSE
ON
APPLICATION OF MOLECULAR BIOLOGY TOOLS AND
BIOINFORMATICS IN AGRICULTURE
(August 19, 2016 to September 08, 2016)

A Practical Manual



Pankaj Kumar
Principal Coordinator, COE

Course Coordinators

Jitender Singh
Coordinator, BIF



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TRAINING COURSE
ON

APPLICATION OF MOLECULAR AND
BIOINFORMATIC TOOLS IN AGRICULTURE & ALLIED
(February 12, 2020 to February 25, 2020)

A Practical Manual



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Practical Manual
ONLINE FACULTY TRAINING
ON

'Application of Molecular and Bioinformatics Tools in
Agriculture & Allied Sciences'
December 11, 2020 to December 24, 2020



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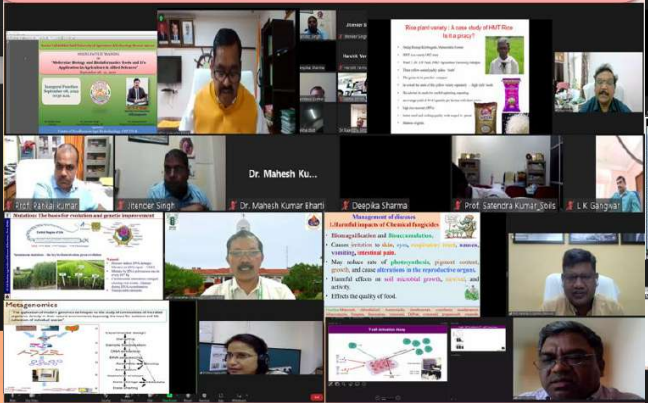



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Tools and It's Application in Agriculture &
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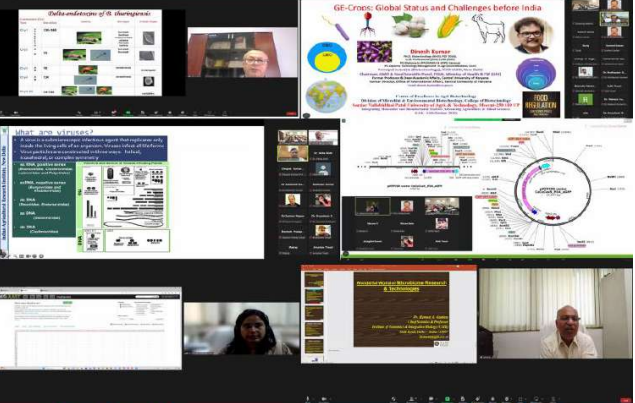


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**“Integrating Molecular and Bioinformatic Tools
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Practical Manual on 'Integrating Molecular and Bioinformatic Tools for Advancing Agriculture & Allied Sciences'

Prof. Pankaj Kumar, Prof. Jitender Singh, Dr. Malvi R Prajapati

PRACTICAL MANUAL ON INTEGRATING MOLECULAR AND BIOINFORMATIC TOOLS FOR ADVANCING AGRICULTURE & ALLIED SCIENCES

PANKAJ KUMAR
JITENDER SINGH
MALVI R PRAJAPATI

Plant Biochemistry and Biotechnology: Unlocking the Green Goldmine

Plant Biochemistry and Biotechnology: Unlocking the Green Goldmine

"Plant Biochemistry and Biotechnology: Unlocking the Green Goldmine" is an illuminating tome that navigates the intricate landscapes of plant science, probing the depths of biochemistry and biotechnology. Authored by experts in the field, the book serves as a comprehensive guide, offering a panoramic view of the diverse facets of plant life and its exploitation for innovative applications.

The book commences with an exploration of fundamental plant biochemistry, delving into the molecular mechanisms governing plant growth, development, and metabolism. It elucidates the intricate biochemical pathways that dictate plant responses to various stimuli, shedding light on the complexities underlying their physiological processes.

Moving beyond the realms of basic science, the text seamlessly transitions into the realm of biotechnology, showcasing the vast potential of plants as a wellspring of valuable resources. It discusses the applications of biotechnological tools in manipulating plant genetics, elucidating how genetic engineering and molecular breeding techniques can enhance crop traits, bolstering their resistance to pests, diseases, or environmental stressors.

Throughout its chapters, "Plant Biochemistry and Biotechnology: Unlocking the Green Goldmine" presents a balanced amalgamation of theoretical knowledge and practical insights. It serves as an invaluable resource for students, researchers, and professionals seeking a comprehensive understanding of plant biochemistry, biotechnology, and the myriad opportunities they offer for sustainable innovation and growth.



Dr. Malyaj R. Prajapati, Research Assistant, Centre of Excellence, Agricultural Biotechnology, College of Biotechnology, Sardar Vallabhbhai Patel University of Education and Technology, Meerut, India. Dr. Prajapati is a highly motivated and dedicated professional with a strong academic background in plant biochemistry and biotechnology. He has been actively engaged in research, development, and innovation in the field of plant biotechnology, contributing to the advancement of agricultural biotechnology. Dr. Prajapati is currently pursuing his Ph.D. in Agricultural Biotechnology from Sardar Vallabhbhai Patel University of Education and Technology, Meerut, India. He has published several research papers in international journals and has been actively involved in various academic and professional activities.

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Prof. Pankaj Kumar, Professor, Department of Biotechnology and Process Food of Biotechnology, Sardar Vallabhbhai Patel University of Education and Technology, Meerut, India. Dr. Kumar is a highly qualified and experienced professional with a strong academic background in plant biochemistry and biotechnology. He has been actively engaged in research, development, and innovation in the field of plant biotechnology, contributing to the advancement of agricultural biotechnology. Dr. Kumar is currently pursuing his Ph.D. in Agricultural Biotechnology from Sardar Vallabhbhai Patel University of Education and Technology, Meerut, India. He has published several research papers in international journals and has been actively involved in various academic and professional activities.

Malyaj R. Prajapati, M. K. Bhardi & Pankaj Kumar

Malyaj R. Prajapati
Mahesh Kumar Bhardi
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Plant Science Snapshots: Instant Notes and Techniques

Malyaj R Prajapati
Mahesh Kumar Bharti & Pankaj Kumar

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Welcome to a captivating journey into the heart of plant science. "Plant Science Snapshots: Instant Notes and Techniques" is your passport to the intricate and awe-inspiring realm of plants, where biochemistry meets biotechnology. In this indispensable guide, you'll explore the secrets behind plant growth, development, and their remarkable responses to the environment.

Key Features:

Essential Knowledge at Your Fingertips: Dive into the fundamental principles of plant biochemistry and biotechnology, presented in concise and easy-to-understand language.

Practical Techniques Unveiled: Master the art of plant research with step-by-step instructions and real-world applications, from genetic engineering to tissue culture.

Instant Reference: Need quick answers? Find instant notes and summaries for easy recall and on-the-spot learning.

Global Impact: Discover how plant science plays a pivotal role in addressing pressing global challenges, including food security, sustainability, and environmental conservation.

Why This Book Matters:

As our world faces ever-increasing environmental and agricultural challenges, understanding plant science is more critical than ever. Whether you're a student, educator, researcher, or simply curious about the green world around you, "Plant Science Snapshots" equips you with the knowledge and tools to contribute to a brighter, more sustainable future.

Join the Green Revolution: Cultivate your curiosity, nurture your passion for plant science, and become a steward of our planet's green legacy. "Plant Science Snapshots" is your gateway to green knowledge and a brighter, greener tomorrow.



Mr. Malyaj R Prajapati presently working as Research Assistant, Centre of Excellence in Agriculture Biotechnology, College of Biotechnology, Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut. Malyaj R Prajapati is a dedicated scholar who has made significant strides in the fields of Molecular Biology, Biotechnology and Bioinformatics. His academic journey has been marked by prestigious international fellowships, highlighting his commitment to advancing scientific knowledge. Malyaj R Prajapati was awarded the BiSains Student Fellowship by BiSains, Spain. Additionally, he received the ICCEB Fellowship from the International Centre for Genetic Engineering and Biotechnology (ICGEB) in Trieste, Italy. His contributions to scientific literature are noteworthy, with over 10 published papers that have enriched the understanding of Molecular Biology, Biotechnology, and Bioinformatics. Malyaj R Prajapati's dedication to research and academic excellence continues to shape these disciplines and inspire fellow scholars.

Dr. Mahesh Kumar Bharti presently working as Senior Assistant Professor, College of Veterinary and Animal Sciences, Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut. Dr. Mahesh is a Biochemist and molecular biologist with over 12 years of experience in teaching, research and extension. He is recipient of Junior and Senior research Fellowship from UGC, New Delhi during his doctoral research (OBPUAT Patnaagar). He has also qualified the CSIR-NET. He has worked as a post-doctoral research fellow at national dairy research institute, Karnal, Haryana, where he worked on various aspects of Intellectual Property Rights (IPR) and Nanotechnology.

Prof. Pankaj Kumar holds the position of Professor, Biochemistry and Physiology and serves as Head of Bioinformatics, College of Biotechnology, Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut. With over 20 years of experience in teaching, research and extension, Prof. Pankaj Kumar is a distinguished Biochemist and molecular biologist. His influence in the field of biochemistry and physiology extends to his editorial roles, as he serves as a Guest Editor for the Genes journal published by MDPI. He actively contributes his expertise to the peer review process and plays a pivotal role in shaping the discourse in various areas of life sciences, including diagnostics, genetics, fermentation, ecologies, plants, and microbes etc.



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Dr. Mahesh Kumar Bharti, presently working as Senior Assistant Professor, College of Veterinary and Animal Sciences, Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut-250110. Dr. Mahesh is a Biochemist and molecular biologist with over 11 years of experience in teaching research and extension. He is a recipient of Junior and Senior Research Fellowship from UGC, New Delhi during his doctoral research (GEP/UA&T Pantnagar). He has also qualified the CSIR-NET/JRF. He has worked as a post-doctoral research fellow at National Dairy Research Institute, Karnal, Haryana, where he worked on Nanotechnology approaches.



Prof. Pankaj Kumar, Head (Biochemistry & Physiology), Principal Coordinator, Centre of Excellence in Ag-Biotechnology, College of Biotechnology, Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut, UP-250 110. Prof. Kumar is a Plant Physiologist & Biochemistry Scientist with over twenty years of experience in teaching research and extension. He is recipient of Junior and senior research fellowships from ICAR, New Delhi for master's degree (IAS, Dharwad) and doctorate degrees (IARI, New Delhi) respectively. He has worked as Junior Scientist (Plant Physiology) at Hill Campus, G. B. Pant University of Agriculture & Technology, Pantnagar where he worked on physiology of hill crops viz. amaranth, buckwheat etc. and also on chilling tolerance studies on forest spp. of socio-economic importance. After joining at Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut as Associate Professor (Biochemistry & Physiology) he has established Centre of Excellence in Agriculture Biotechnology which is actively involved in research nutritional enrichment in pulses through molecular biology approaches and also on stress physiology in pulses. The centre has also been involved in human resource development where more than three hundred faculties and students have been trained in the field of molecular biology and bioinformatics. He has guided more than twenty-three master's and doctorate degree students. He had been elected Vice President (2012) and Zonal Secretary (North) 2013-14, Indian Society for Plant Physiology, New Delhi.



Dr. Sandeep Kumar is working as Assistant Professor in the department of Biochemistry & Physiology, College of Biotechnology, Sardar Vallabhbhai Patel university of Agriculture and Technology, Meerut. He did his master's degree and Doctorate from Banaras Hindu University, Varanasi, (UP) India. Dr. Kumar has qualified CSIR-UGC/JRF + NET and was awarded JRF & SRP during his doctoral research. Dr. Kumar worked on the biochemical aspects of Urease enzyme during his PhD. Dr. Kumar is presently working on various enzymes and has published more than ten research papers and review articles in national and international journals. He has guided about six M.Tech/ M.Sc students for their thesis research as main supervisor and was also associated with the research work of several other M.Tech/ M.Sc students as committee member of research advisory committee. Dr. Kumar has participated/ attended several nation /international seminars/ conferences/symposia and presented his research work. He is having the membership of several scientific professional societies and also reviewed several research papers for many national and international journals.

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Laboratory Manual for Practical Biochemistry

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Pankaj Kumar
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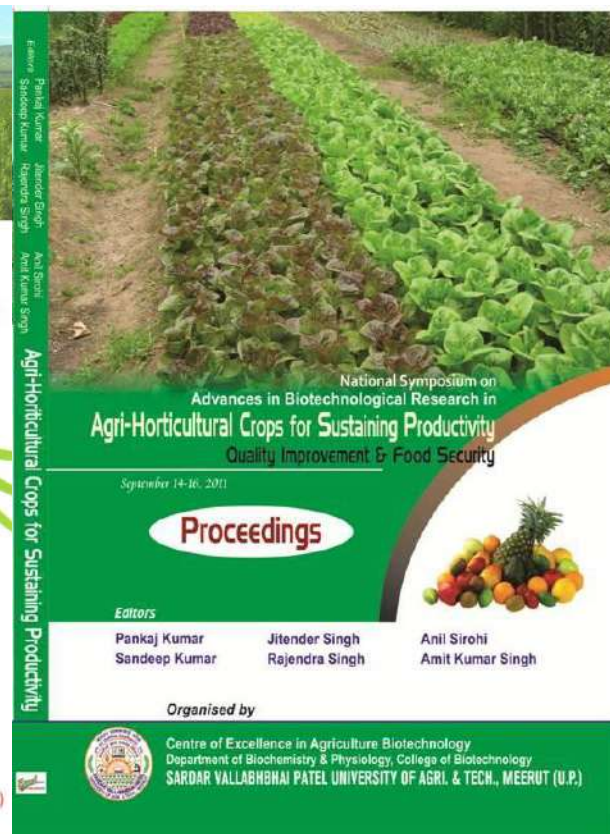
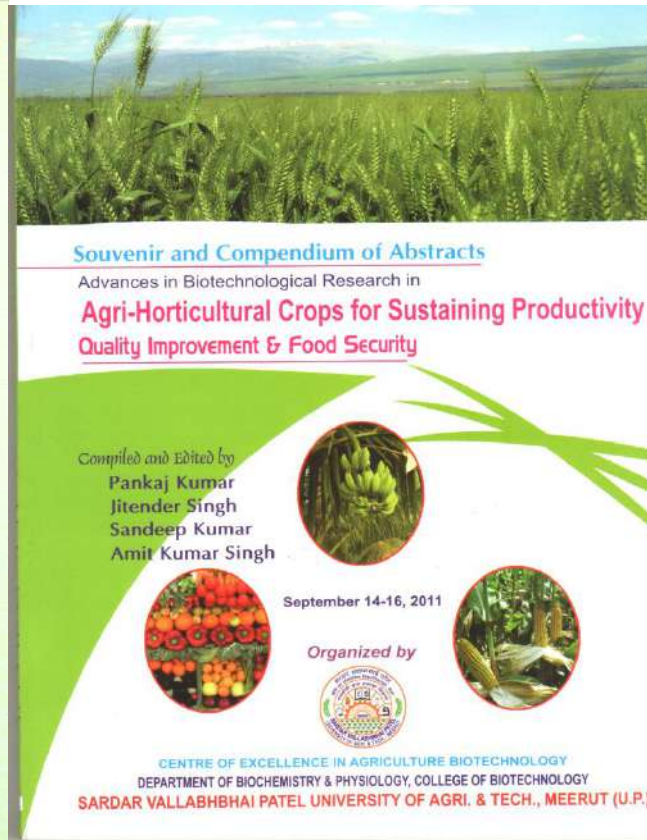
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BOOKS/PROCEEDINGS



Zonal Seminar 2010

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