

2023-24

**SHRI LAL BAHADUR SHASTRI DEGREE COLLEGE
GONDA**

Department of Zoology



5 Days Workshop
Organized by
Department of Zoology
in Collaboration with
Centre for Genetic Disorders,
Banaras Hindu University, Varanasi
On
"Techniques in Genetic Analysis"
(April 12-16, 2024)

[WORKSHOP REPORT]

5 Days Workshop on "Techniques in Genetic Analysis".

Workshop on "TECHNIQUES IN GENETIC ANALYSIS"

Resource Persons



DR. AKHTAR ALI

Coordinator, Centre for
Genetic Disorder, BHU,
Varanasi, UP



PROF. R.K. PANDEY

Principal, SLBS Degree
College, Gonda.



SHISHIR TRIPATHI

Head, Deptt. of Zoology,
SLBS Degree College, Gonda.



**DR. PUSHYAMITRA
MISHRA**

Head, Deptt. of Chemistry,
SLBS Degree College, Gonda.

DATES & VENUE: April 12 to 16, 2024, Deptt. of Zoology, SLBSDC, Gonda
@ 11:00 am

Inaugural Lecture

By

Prof. R.K. Pandey

(11.00 am to 11.30 am)

High Tea

(11.30 am to 11.45 am)

Keynote Speakers

Lecture 1 (11.30 am to 12.45 pm)	Lecture 2 (12.45 pm to 1.30 pm)	Lunch Break (1.30 pm To 02.00 pm)	Lecture 3 (2.00 pm to 02.45 pm)	Lecture 4 (2.45 pm to 03.30pm)
Dr. Akhtar Ali Centre for Genetic Disorders Banaras Hindu University Varanasi	Prof. R. K. Pandey Dept. of Botany SLBSDC, Gonda		Shishir Tripathi HOD, Zoology SLBSDC Gonda	Dr. Pushyamitra Mishra Dept. of Chemistry SLBSDC Gonda

I am pleased to present a detailed report on the successful completion of the workshop on "Techniques in Genetic Analysis," which was organized by the Department of Zoology, Shri Lal Bahadur Shastri Degree College, Gonda, in collaboration with the Centre for Genetic Disorder, Institute of Science, BHU, Varanasi. The workshop was conducted from April 12, 2024, to April 16, 2024, with the aim of providing M.Sc. Zoology students with comprehensive insights into various genetic analysis techniques.

1. Workshop Overview:

- Title: Techniques in Genetic Analysis
- Duration: April 12, 2024, to April 16, 2024
- Venue: Shri Lal Bahadur Shastri Degree College, Gonda
- Organizers: Department of Zoology, Shri Lal Bahadur Shastri Degree College, Gonda
- Collaborator: Centre for Genetic Disorder, Institute of Science, BHU, Varanasi
- Target Audience: M.Sc. Zoology students

2. Resource Persons:

- Dr. Akhtar Ali, Coordinator, Centre for Genetic Disorder, Institute of Science, BHU, Varanasi
- Professor R. K. Pandey, Principal, Shri Lal Bahadur Shastri Degree College, Gonda
- Shishir Tripathi, Head, Department of Zoology, Shri Lal Bahadur Shastri Degree College, Gonda
- Dr. Pushyamitra Mishra, Head, Department of Chemistry, Shri Lal Bahadur Shastri Degree College, Gonda

3. Workshop Sessions:

Day 1: April 12, 2024

Technical Session 1: Introduction to Genetic Analysis Techniques

- Dr. Akhtar Ali provided an insightful overview of various genetic analysis techniques, including PCR, gel electrophoresis, DNA sequencing, and microarray analysis.
- Participants gained a foundational understanding of the principles and applications of these techniques in genetics research.
- Dr. Ali elucidated key concepts, such as DNA amplification, fragment separation, and mutation detection, through engaging examples and case studies.

Technical Session 2: Basics of Molecular Biology in Genetic Analysis

- Shishir Tripathi delved into the fundamental principles of molecular biology and their relevance to genetic analysis.

- Participants learned about DNA structure, replication, transcription, and translation, laying the groundwork for understanding advanced genetic analysis techniques.
- The session included hands-on demonstrations and interactive discussions to reinforce theoretical concepts and enhance learning outcomes.

Day 2: April 13, 2024

Technical Session 3: Advanced Genetic Analysis Techniques

- Dr. Akhtar Ali explored advanced genetic analysis techniques, such as next-generation sequencing (NGS), CRISPR-Cas9 genome editing, and RNA interference (RNAi).
- Participants gained insights into the latest advancements in genetic analysis technology and their applications in genome-wide studies, functional genomics, and gene editing.
- Dr. Ali elucidated the workflow, advantages, and limitations of each technique, empowering participants to make informed decisions in their research endeavors.

Technical Session 4: Chemical Methods in Genetic Analysis

- Dr. Pushyamitra Mishra provided an overview of chemical methods employed in genetic analysis, including chemical mutagenesis, DNA labeling, and nucleic acid hybridization.
- Participants learned about the chemical agents and protocols used to induce mutations, label DNA probes, and detect specific nucleic acid sequences.
- The session highlighted the importance of chemical methods in genetic research and their implications for understanding genotype-phenotype relationships and genetic disorders.

Day 3: April 14, 2024

Technical Session 5: Practical Applications of Genetic Analysis Techniques

- Dr. Akhtar Ali demonstrated practical applications of genetic analysis techniques in various fields, including medicine, agriculture, and forensic science.
- Participants gained hands-on experience in designing experiments, analyzing data, and interpreting results using genetic analysis tools.
- Dr. Ali shared real-world examples and case studies to illustrate the impact of genetic analysis on solving practical problems and advancing scientific knowledge.

Technical Session 6: Bioinformatics in Genetic Analysis

- Shishir Tripathi introduced participants to the field of bioinformatics and its role in genetic analysis.
- Participants learned about bioinformatics databases, tools, and algorithms used for sequence alignment, genome annotation, and phylogenetic analysis.

- The session included practical exercises to familiarize participants with bioinformatics software and databases, enabling them to integrate computational approaches into their genetic analysis workflows.

Day 4: April 15, 2024

Technical Session 7: Current Trends in Genetic Analysis

- Dr. Akhtar Ali discussed current trends and emerging technologies in genetic analysis, such as single-cell sequencing, spatial transcriptomics, and epigenetics.
- Participants gained insights into cutting-edge research areas and potential future directions in genetic analysis.
- Dr. Ali emphasized the importance of staying updated with the latest advancements in the field to remain competitive and innovative in research endeavors.

Technical Session 8: Ethical Considerations in Genetic Analysis Research

- Professor R. K. Pandey led a thought-provoking discussion on ethical considerations in genetic analysis research, including informed consent, privacy protection, and equitable access to genetic information.
- Participants engaged in ethical dilemmas and case studies to explore the ethical implications of genetic research and its societal impact.
- The session underscored the importance of adhering to ethical principles and guidelines in conducting genetic analysis research and maintaining public trust and confidence.

Day 5: April 16, 2024

Technical Session 9: Case Studies and Practical Demonstrations in Genetic Analysis

- Shishir Tripathi presented case studies and practical demonstrations showcasing the application of genetic analysis techniques in solving real-world problems.
- Participants observed hands-on demonstrations of experimental techniques, data analysis methods, and result interpretation strategies.
- The session provided participants with valuable insights into the practical implementation of genetic analysis techniques and their potential impact on scientific research and innovation.

4. Workshop Outcomes:

- Participants gained insights into various genetic analysis techniques, including molecular biology, bioinformatics, and chemical methods.
- Interactive sessions facilitated knowledge exchange and lively discussions among participants and resource persons.
- Participants appreciated the relevance and applicability of the workshop content in their academic and research pursuits.

5. Feedback:

- Feedback from participants was overwhelmingly positive, with many expressing gratitude for the opportunity to enhance their understanding of genetic analysis techniques.
- Participants highlighted the quality of the sessions and the expertise of the resource persons.

6. Conclusion:

- The workshop concluded successfully, achieving its objectives of providing participants with comprehensive knowledge and practical skills in genetic analysis techniques.
- The collaboration between the Department of Zoology, Shri Lal Bahadur Shastri Degree College, Gonda, and the Centre for Genetic Disorder, Institute of Science, BHU, Varanasi, was instrumental in the success of the workshop.



List of Participants (M.Sc. Zoology)

S.NO.	ROLL NO.	STUDENT NAME	FATHER NAME
1	22040200111201	MUKESH KUMAR YADAV	NARENDRA BAHADUR
2	22040200111202	SALEEM SHAHJADE	SHAHID ALI
3	22040200111203	SHIVAM	AYODHYA PRASAD
4	22040200111204	SIDDHARTHA SINGH	ARUN KUMAR SINGH
5	22040200111205	AKANSHA SINGH	PRADEEP SINGH
6	22040200111206	ANSHU MAURYA	CHINTA RAM MAURYA
7	22040200111207	FATMA KHATUN	SHAHJAHAN AHMAD
8	22040200111208	GUDIYA DEVI	RAJ KARAN
9	22040200111209	KM AKANKSHA VERMA	VIVEKANAND VERMA
10	22040200111210	KM ROSHANI DEVI	RAM KRIPAL
11	22040200111211	KM SAUMYA DEVI	DEVENDRA KUMAR TIWARI
12	22040200111212	KM SONAL CHATURVEDI	SRI INDRA KUMAR CHATURVEDI
13	22040200111214	LUCKY TIWARI	ASHOK KUMAR TIWARI
14	22040200111215	MADHU	HEERA LAL
15	22040200111216	MANSI PANDEY	SHANTANU KUMAR PANDEY
16	22040200111217	MEENAKSHI CHATURVEDI	CHANDRA PRAKASH
17	22040200111218	NIDA KHATOON	JAMAL AHMAD
18	22040200111219	PAMMY KANOJIYA	VANSHRAJ KANOJIYA
19	22040200111220	PRAGYA SINGH	RAM NARAYAN SINGH
20	22040200111221	PREETI PATHAK	AVADHESH KUMAR PATHAK
21	22040200111222	PRIYA SINGH	PAPPU SINGH
22	22040200111223	REETA VISHWAKARMA	BALAKRAM VISHWAKARMA
23	22040200111224	RIDA KHAN	IZHARUL HUDA KHAN
24	22040200111225	SAKEENA	BADRUDDUJA
25	22040200111226	SANIYA BEGAM	LAIQ KHAN
26	22040200111227	SAPANA JAISWAL	MAHESH JAISWAL
27	22040200111228	SHAHNAJ BANO	MOHD MOBEEN
28	22040200111229	SHAYESTA RAHMAN	ABDUR RAHMAN
29	22040200111230	SONAM SAHU	DEEPAK KUMAR SAHU
30	22040200111231	SUGAM SINGH	SURYA BAKASH SINGH
31	22040200111232	SUGANDHA RAJ SRIVASTAVA	RAJESH KUMAR SRIVASTAV
32	22040200111233	TABASSUM BANO	ABDUL HALEEM
33	22040200111234	VAISHNAVI SINGH	VEER PRATAP SINGH
34	22040200111235	VANDANA TIWARI	MAHESH DUTT TIWARI
35	22040200111236	VERSAH GOND	ANIL KUMAR GOND
36	22040200111237	VIDUSHI SRIVASTAVA	KUNWAR RAKESH CHANDRA