



CIIDRET



Hands-on Workshop on Basic Techniques of Microbiology

(17- 23 December 2022)

Jointly organized by

Department of Microbiology, Ram Lal Anand College;

**Centre for Innovation in Infectious Disease Research,
Education and Training (CIIDRET)**

&

**Delhi School for Skill Enhancement &
Entrepreneurship Development (DSSEED)**

University of Delhi

100 Days Training & Skill Enhancement Festival

The Department of Microbiology, Ram Lal Anand College organized a one-week Hands-on workshop on “Basic Techniques in Microbiology” from 17th December 2022-23rd December 2022 (10 am-5 pm) in association with Centre for Innovation in Infectious Disease Research, Education and training (CIIDRET) & Delhi School for Skill Enhancement & Entrepreneurship Development (IoE- DSSEED), University of Delhi. The workshop was also the first activity planned as part of the 100 Days Training and Skill Enhancement Festival organized to celebrate 100 Years of University of Delhi.

The workshop started with inaugural address by our principal Prof. R.K Gupta. The organisers of the workshop prof. Prof. V K Chaudhary, Director, DSEED, Prof. Amita Gupta, Director, CIIDRET motivated the students with their inspiring words. The other distinguished guests present for the inaugural event included Prof. Rajesh Giri (Principal, Rajdhani College); Prof. Urmi Bajpai, Professor, Acharya Narendra Dev College, DU; Dr Renu Baweja, Assistant Professor, Shivaji College, DU; Dr. Abhijeet Mishra, Assistant Professor, Shivaji College, DU; Ms. Shilpi Das, technical Officer, CIIDRET.

This workshop was designed to provide an extensive hands on training in basic techniques used in Microbiology such as media preparation, isolation of micro-organisms, handling and purification of microbial cultures, use of different kinds of media in a microbiology laboratory, various bacterial staining methods and differentiation of bacteria based on morphological and cultural characteristics to the undergraduate and post graduate students (at the University of Delhi and other Institutes) studying the biological sciences/ botany/ zoology/ biochemistry/ biotechnology courses. The expected outcome of the workshop was that the participants would be better equipped in handling and maintaining pure bacterial and fungal cultures for practical as well as research purposes.

The workshop included lectures as well hands on exercises on good laboratory practices, Biosafety levels, Sterilization, Principle and working of instruments used in a Microbiology lab (Autoclave, hot air oven, membrane filtration, incineration, Laminar flow, BSL 2 cabinet, incubators), Media preparation for bacterial and fungal growth, streak plate technique, spread plate technique growth, disk diffusion test for antibiotic sensitivity, staining and planning and responsible conduct of research.

We had 27 registered participants including B.Sc, M.Sc, B. tech and research scholars from Jamia Milia University, Noida International University, JNVU, Jodhpur and DTU and several colleges

affiliated to the University of Delhi. Certificates of successful completion were awarded to **26 participants** on the basis of the mandated compulsory attendance in all the six sessions

All the faculty members of Microbiology, Ram Lal Anand College were the resource persons for the workshop and part of the organizing team.

| S. No. | Member of the organizing team | Role |
|--------|-------------------------------|---------------------------------|
| 1 | Prof. Vandana Gupta, | (Coordinator & Resource Person) |
| 2 | Prof. Prerna Diwan | (Resource Person) |
| 3 | Dr. M Salome John | (Resource Person) |
| 4 | Dr. Nidhi S Chandra | (Resource Person) |
| 5 | Dr. Sunila | (Resource Person) |
| 6 | Dr. Shalini Swami | (Resource Person) |
| 7 | Dr. Lamabam Sophiya | (Resource Person) |

Student coordinators for the workshop were:

| S. No. | Name | Course |
|--------|-----------------|--------------------------------|
| 1 | Shelja Agarwal | B.Sc (H) Microbiology III Year |
| 2 | Antu Shrivastav | B.Sc (H) Microbiology III Year |
| 3 | Ananya Singh | B.Sc (H) Microbiology III Year |
| 4 | Bazil Mehdi | B.Sc (H) Microbiology III Year |
| 5 | Shagun Siwach | B.Sc (H) Microbiology III Year |
| 6 | Aditi Panwar | B.Sc (H) Microbiology III Year |
| 7 | Shreya Nayak | B.Sc (H) Microbiology III Year |
| 8 | Menal Jain | B.Sc (H) Microbiology III Year |
| 9 | Kanika Bhoj | B.Sc (H) Microbiology III Year |

All details about the workshop schedule and resource persons for sessions may be found in the following day-wise program schedule:

Day-wise Workshop Schedule and Resource Persons for each session

| | Morning (10 am-1pm) | Afternoon (2pm-5pm) |
|-------------------------------|--|--|
| Day 1 17 Dec 2022 | <ul style="list-style-type: none"> Inauguration Introduction of faculty & participants Introduction to the Microbiology Laboratory, good laboratory practices and biosafety <p>Resource person: Dr. Vandana Gupta, Dr. Prerna Diwan, Dr. Nidhi Chandra</p> | <ul style="list-style-type: none"> Principle and working of instruments used in a Microbiology lab. Practice Pipetting using Micropipette Sterilization <p>Resource person: Dr. Shalini Swami, Dr. Vandana Gupta, Dr. Sunila</p> |
| Day 2 19 Dec 2022 | <ul style="list-style-type: none"> Microbiological media (general purpose complex media, differential, selective, enriched, enrichment and minimal media). Solid, semi-solid and broth media ((VG) Liquid and solid Media preparation and sterilization(SS) Making slants and nutrient agar (PDA) plates <p>Resource person: Dr. Vandana Gupta, Dr. M Salome John, Dr. Shalini Swami</p> | <ul style="list-style-type: none"> Inoculations Broth inoculation (VG) Preparation of a dilution series (VG) Spread plating (SS) Streaking on nutrient agar plates (SS) Stab inoculation(SJ) Slant inoculation (SJ) Point inoculation of a mold culture onto a plate of potato dextrose agar (SJ) <p>Resource person: Dr. Prerna Diwan, Dr. Vandana Gupta, Dr. M Salome John, Dr. Shalini Swami</p> |
| Day 3 20 Dec 2022 | <ul style="list-style-type: none"> Morphological identification process where the microorganisms with the naked eye based on colony texture, shape, and size (SL). Observations of inoculations performed on the previous day (VG). Use of colony counter for the observation of results of spread plating (SL). <p>Resource person: Dr. Vandana Gupta, Dr. Sophiya Lamabum</p> | <ul style="list-style-type: none"> CFU count Simple staining of molds and microscopic algae to view their morphology and arrangement (SJ) <p>Resource person: Dr. Nidhi S Chandra, Dr Sunila, Dr. M Salome John</p> |
| Day 4 21 Dec 2022 | <ul style="list-style-type: none"> Simple staining of bacteria to view their shape, size and arrangement (SS) Bacterial motility using the hanging drop technique (VG) <p>Resource person: Dr. Vandana Gupta, Dr. Shalini Swami</p> | <ul style="list-style-type: none"> The Gram staining technique as an example of differential staining(Sunila) Disk Diffusion test for antibiotic sensitivity <p>Resource person: Dr. Sunila, Dr. M Salome John, Dr. Shalini Swami</p> |

| | | |
|--|---|---|
| Day 5 22 Dec 2022 | <ul style="list-style-type: none"> • Staining of bacterial endospores using the Schaeffer-Fulton method (NC) • Repetition of the experiment if any required by the participants. <p>Resource person: Dr. Nidhi S Chandra, Dr. Sunila</p> | <ul style="list-style-type: none"> • Demonstration of GasPak jar to create an oxygen-free atmosphere for culturing anaerobic bacteria (SJ) • Compilation of all lab work and the results. <p>Resource person: Dr. M Salome John, Dr. Shalini Swami</p> |
| Day 6 23 Dec 2022 | <p>Assessment and Reporting</p> <ul style="list-style-type: none"> • MCQ Questionnaire based on the workshop experiments. • Submission of the workshop report. <p>Resource person: Dr Vandana Gupta</p> | <ul style="list-style-type: none"> • Feedback from the participants and Valedictory session (SJ) <p>All the coordinators</p> |

Feedback: Oral feedback was given by the participants during the feedback session on the last day of the workshop. Most of the participants found the sessions very engaging, useful and informative. The participants were impressed with the number of state of the art instruments available in our laboratory. The students appreciated the lab staff and student coordinators who really were very helpful and supportive. They thanked the resource person for guiding them and encouraging them to perform each and every experiment with their own hands and giving their time in discussion of the results obtained. The feedback was also collected in the form of feedback form.



Prof. Vandana Gupta

(Coordinator)



100 DAYS TRAINING & SKILL ENHANCEMENT FESTIVAL

CIIDRET



Department of Microbiology, Ram Lal Anand College,
Centre for Innovation in Infectious Disease Research, Education and Training
(CIIDRET)

Delhi School for Skill Enhancement & Entrepreneurship Development
(IoE- DSSEED)

University of Delhi

Hands-on workshop on Basic Techniques in Microbiology

17th -23rd December 2022 (10 am-5 pm)

Venue: Microbiology Department, RLAC

100 Years of Delhi University 100 Days Training Festival

100 days for you to

***Become a part of One of the Most Successful National Hands-On
Training Eco-System***

Prof VK Chaudhary

Prof Amita Gupta

Prof Vandana Gupta

Prof Rakesh Kumar Gupta





















