RAMAIAH College of Arts, Science & Commerce

Azadi Ka Amrit Mahotsav

DEPARTMENT OF BIOTECHNOLOGY
MINISTRY OF SCIENCE & TECHNOLOGY, GOVERNMENT OF INDIA

DEPARTMENT OF MICROBIOLOGY under DBT Star College Scheme

Report on

Additional Practical's Introduced to S.Y. BSc students.

Objectives of the Additional Practical's Introduced:

- To enhance the quality of the learning and teaching process to stimulate original thinking through '***hands–on***' exposure to experimental work and participation in summer schools.
- To increase capabilities of core instrumentation resources by procuring new equipment and upgrading existing facilities
- To provide access and exposure to students to research laboratories and industries in the country.
- To help in devising standard curricula and Standard Operating Procedures (SOP's) / kits for practical.

The Star College Scheme was initiated by DBT in 2008 to support colleges and universities offering undergraduate education to improve science teaching across the country. The program is organized for improving critical thinking and encouraging 'hands on' experimental science at undergraduate level in basic science subjects. This program provides support for developing infrastructure for academics and laboratory activities. This support is in turn expected to invigorate teaching and provide unique exposure of students to experimental science. The Star College Scheme acts as a gateway and provides exposure to students. The scheme also acts as a catalyst in igniting young minds (faculty and students) to engage in networking, exposure visits to research institutes and industries and apply for research grants in order to prepare them for future challenges after the successful completion of their undergraduate courses.

The total strength of BSc II year, IIIrd semester students was 191. All the students were encouraged and engaged during these additional practical sessions.

Following experiments were conducted during their IV semester.

1. **Streak Plate method**
2. **Serial dilution and Pour plate technique**
3. **Different types of microbial media preparation**

These practical were conducted during the day-to-day practical sessions during the month of November to February 2023.

The first experiment conducted was streak plate method which is one of the most basic microbiological techniques for isolation of micro-organisms. Though it's a basic technique but it is significant one to isolate the microbes from various sample. Various patterns such as quadrant pattern, radial patterns and continues patterns was taught. Students were given hands on knowledge to perform Agarose Gel Electrophoresis effectively.

The second experiment was different types of microbial media preparations. As the paper deals with microbiology and it is a basic prerequisite that they should be exposed to various microbial media preparations. Various media such as Nutrient agar, Potato dextrose agar, Martin's rose Bengal agar, MacConkey Agar, Eosin methylene blue Agar were prepared. The prepared medias were effectively used for isolation of micro-organisms from various sample as prescribed by the semester syllabus. Students got Hands on experience in preparing the media and their significance.

The third experiment was serial dilution and heading with Pour plate technique. It is a basic technique to isolate the micro-organisms from soil and water sample. Entire technique was done aseptically either in laminar air flow or in between burners. Students got experience of both the techniques.

Out Come of the Program:

- Engaging students in pre-preparation of the experiments to increase their knowledge for preparation of chemicals and reagents.
- Increase in the number of practical's being conducted individually by the students.
- Introduction of "hands on training" to enhance conceptual clarity for topics taught previously by theoretical approach.