

**DEPARTMENT OF MICROBIOLOGY**  
**ANNUAL REPORT**  
**JULY 2023-JUNE 2024**

*Ms.Sweta Mukhia*  
*Head of the Department*

The Department of Microbiology under the Self financed course is a professional course provided by St. Joseph's College, Darjeeling. In 2023, the Department of Microbiology celebrated its anniversary since its establishment. Over the years, the department has made significant progress in various areas such as teaching, learning, and infrastructure. The academic session of 2023 commenced on a positive note, with a noticeable improvement in the smooth functioning of activities compared to previous years. The transition to offline classes was well embraced by the students, resulting in a more seamless educational experience.

The odd semester resumed in August 2023, marking an increase in the enrollment ratio compared to previous sessions. The department successfully enrolled 40 students from diverse states across India, fostering a healthy and competitive learning environment for all. This session proved to be highly productive and eventful for the department, laying a strong foundation for the academic pursuits of the students.

### **Two-day induction programme**

During the two-day induction program held in the department, Dr. Dorjay Lama, a senior faculty member, extended a warm welcome to the students with an inspiring speech on the first day. Following this, Ms. Dibyashree Chhetri provided an overview of the department's history, along with the rules and regulations that govern the premises. She also briefed the students on the various departmental activities.

The second day saw the organization of a workshop in collaboration with the Microbiology Club and MBSI under the guidance of Ms. Dibyashree Chhetri, Dr. Abhijit Chhetri and Ms. Sweta Mukhia. During this workshop, senior students generously volunteered to impart their knowledge of basic

microbiology techniques used in the lab to the new batch of students.

### **Highlights of the Year 2023-2024**

#### **Inauguration Ceremony – Microbiologists Society of India (MBSI), Student Unit at St. Joseph's College**

Microbiologists Society India is a society that supports and invests in the microbiology community from around the nation. The aim of the society is to create awareness among the common people about the subject. The department organized an establishment of Students' Unit in collaboration with MBSI which is done every year where the students were welcomed by the College coordinator, MBSI, Ms. Sweta Mukhia. The event included a short interactive session about the importance and future prospects of Microbiology. Additionally, students from the fourth semester decorated the notice board with two topics: "The Science Behind Fermentation" and "Women in Science." A PowerPoint presentation was also given on the topic "Women in Science," highlighting the contributions of underrated female scientists.

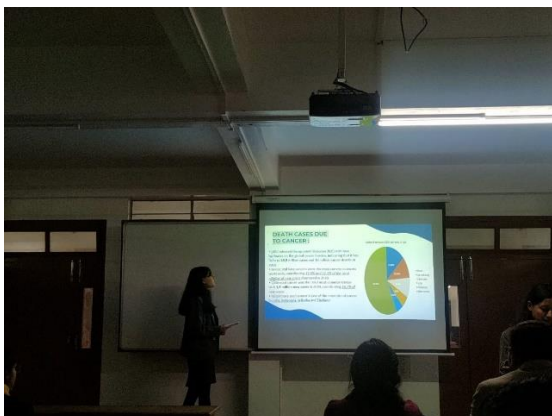
#### **The Best Student Award of Microbiologist Society India (MBSI)**

The prestigious Best Student Award from MBSI is presented annually to a student who demonstrates exceptional performance in both academic and extracurricular activities. This year, the award was bestowed upon Miss Chandrima Kar, a dedicated sixth-semester student who has displayed remarkable diligence and enthusiasm in various departmental and college activities. Her outstanding achievement serves as a source of inspiration for her peers, encouraging them to actively engage in diverse activities and strive for academic excellence. We extend our heartfelt congratulations to Miss Chandrima Kar for her well-deserved recognition.



### Student Exchange Programme

The college arranged an engaging student exchange program, welcoming students from various colleges to participate. As part of the program, students from different colleges had the chance to immerse themselves in practical training, gaining hands-on experience with a variety of microbiological techniques. Furthermore, the talented students from the microbiology department delivered a captivating presentation on the intricate field of **“Cancer biology”**, sharing their expertise and insights with their peers from other colleges.



### Internal Continuous Evaluation

As a part of continuous and comprehensive evaluation the Internal tests were held from 4<sup>th</sup> April to 9<sup>th</sup> April 2024 in the department itself following the code of conduct given by the University. The results were satisfactory for the majority of students.

### Performance at National Level Entrance Exams

Ms. Nisha Goyal cracked the CUET Examination conducted for admission in Post graduate courses in various Central Universities of India . She is currently pursuing her Masters Degree in Microbiology in Sikkim University. Ms. Upashna Thapa and Ms. Roji Tamang have achieved success by excelling in the IELTS exam. Their dedication and hard work have led to this remarkable achievement.

### Participation in national seminar(FAIE) 2024

The St. Xavier’s College, Department of Microbiology, in collaboration with MBSI, recently organized a national seminar on "Frontiers of Sustainable Microbiology Research in Food, Agriculture, Industrial, and Environmental Management." Our department participated in the poster session, and our students excelled by securing the second position with their presentation on **"Exploring the fermented culinary traditions of Darjeeling: A study on the microbiological aspects of fermented foods,"** surpassing 14 other posters from different colleges. The event provided a valuable opportunity for our students to engage with distinguished speakers from various renowned institutions and interact with Prof. Dr. Aiyagari Ramesh from IIT Guwahati, benefiting both the students and the faculty.



Students from St. Joseph’s College Excel at National Seminar

## Powerpoint presentation competition

During the sixth semester, the Department organized a PowerPoint competition for students to present topics assigned by their teachers. The aim was to boost their confidence, help them overcome their fear of public speaking, and enable them to work effectively under pressure. The students delivered their assigned topics with impressive articulation and confidence. It is hoped that this experience has provided them with valuable learning opportunities and will prove beneficial for their future endeavors.



## Establishment of a Medicinal plant garden

A garden of medicinal plants was meticulously established by the dedicated students of the second semester, under the expert guidance of Fr. Dr. James A. Poovathumkal and Dr. Abhijit Chhetri. Samplings of 34 different medicinal plants were meticulously collected from various regions including Darjeeling, Kalimpong, different districts of West Bengal, and Arunachal Pradesh. These samplings were then carefully potted in the department. The students showed great enthusiasm and dedication in planting and nurturing these medicinal plants. Presently, the plants are thriving healthily, and there are plans for future experiments involving the extraction of polyphenols from these plants.



## Analysis of water from Local Areas of Darjeeling

Miss Ambika Chettri, a dedicated sixth-semester student, was deeply passionate about the water quality of her local water sources. Through collaboration with the Eastern Himalayan Foundation, she conducted initial tests on two water samples collected from her area. She obtained permission to utilize the microbiology lab to examine her water samples, which was granted by our Principal, Fr. Dr. Donatus Kujur. She carried out the preliminary water, confirmatory test, completed tests where she found that the samples from both the streams showed the presence of coliforms indicating that it is contaminated with faecal matter. Samples from one of the streams showed much higher number of coliforms indicating higher degree of contamination. This indicates that the water samples are not potable. She is currently drafting the results of her findings.

**The department expresses deep appreciation to our Principal for consistently providing exceptional opportunities for our students and offering unwavering support and guidance. We extend our heartfelt congratulations to Ms. Ambika Chhetri for demonstrating remarkable enthusiasm, passion, and a strong sense of social responsibility toward the well-being of the entire school community. I hope this inspires our other students to take charge and become a conscious**

**human serving the society.**



### Research Publications and seminars attended

#### Dr. Abhijit Chhetri

1. Assembly of Rhodanine with Torus-Shaped Cyclodextrins and Their Innovative Applications by Physicochemical Contrivance Simultaneously Optimized by Computational Study: *ChemistrySelect*, 2023  
**doi: <https://doi.org/10.1002/slct.202300417>**

2. Exploring the Inclusion Complex of an Anticancer Drug with  $\beta$ -Cyclodextrin for Reducing Cytotoxicity Toward the Normal Human Cell Line by an Experimental and Computational Approach: *ACS Omega* 2023, 8, 29388-29400  
**<https://pubs.acs.org/doi/10.1021/acsomega.3c02783>**

3. Sharma, S., Subba, A., Pradhan, G., Chhetri, A., (2024) A Photographic Evidence of Incidental Sightings of the Vulnerable Asian small-clawed otter (*Aonyx cinereus* ILLIGER, 1815) in the mixed forest of Darjeeling and Kalimpong as part of Central Himalaya : *IUCN Otter Spec. Group Bull.* 41(3)

4. Participated in a two-day workshop on Saffron Cultivation in Sikkim organized by Sikkim University Govt. of Sikkim, Govt. of Kashmir, 2023

#### Ms. Dibyashree Chhetri

Chhetri, D., Munuswamy, G. M. R., Kumar R. C. S., Baskaran R., Palaniyandi, K., and Dhanavathy, G., (2024). *Epigenetic signaling: regulation of cancer stem cells in colorectal cancer. In, Cancer Stem cells and signalling Pathways*(pp.395-408). Academic Press.

Participated in a two-day – seminar on “Frontiers of Sustainable Microbiology Research in Food, Agriculture, Industrial and Environmental Management (FAIE 2024)

#### Ms. Sweta Mukhia

1. Participated in a two-day – seminar on “Frontiers of Sustainable Microbiology Research in Food, Agriculture, Industrial and Environmental Management (FAIE 2024)