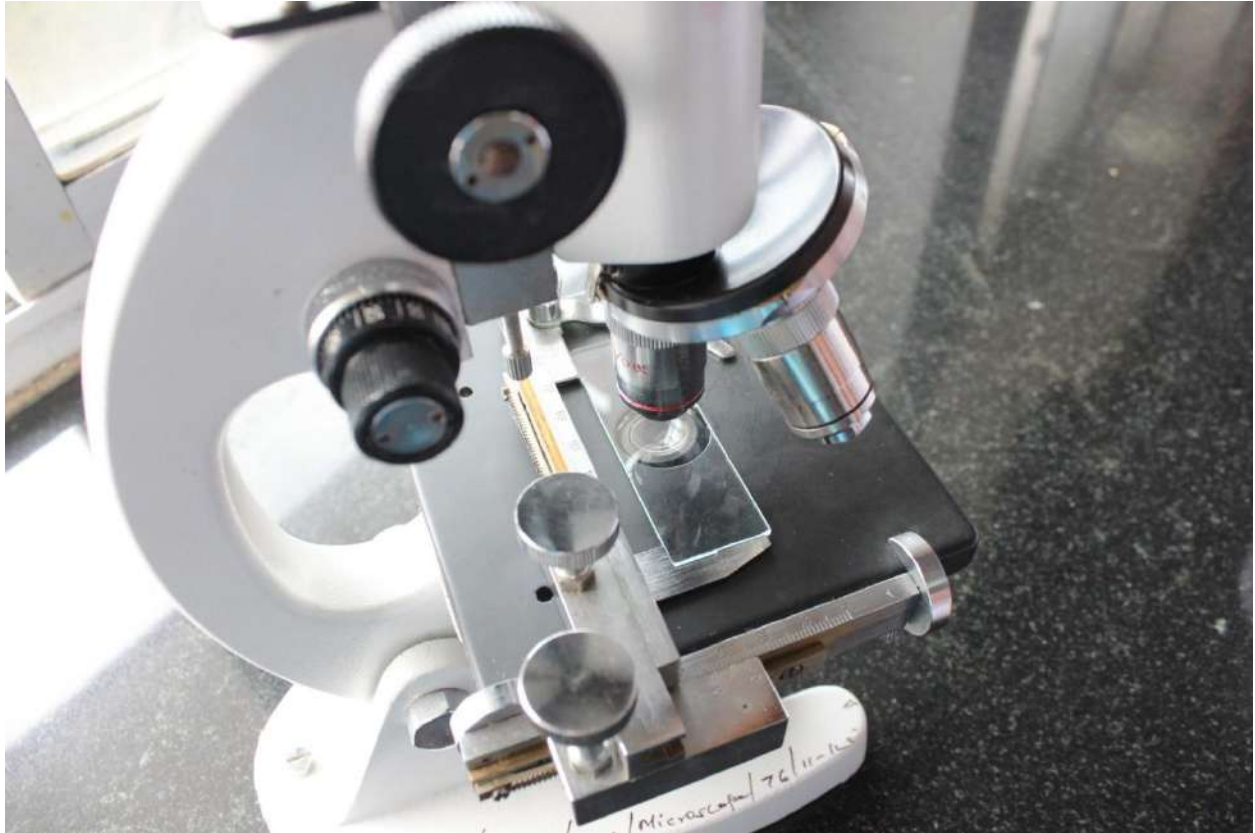


# ST. XAVIER'S COLLEGE

Mapusa - Goa

***Microscope*... see the unseen**



**Department of Microbiology**

**Newsletter**

**2019-2020**

**Volume 15**

**Issue 1**

## Extension Workshop for HSS Students



*Ms. Ruella demonstrating few microbiological techniques to the participants*



*A group photograph of all participants along with the Principal & Vice Principals*

**Microscope... see the unseen**  
**Department of Microbiology Newsletter**  
**2019-2020**  
**Volume 15 Issue 1**

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## ADMINISTRATOR's NOTE

The Department of Microbiology is one of the oldest departments of St Xavier's College. Over the years the Department has been instrumental in shaping the lives and future of numerous students. The faculty of the department leave no stone unturned to bring the best in their students.

The Department under the guidance and leadership of the Head and Vice-Principal Ms. Ursula Barretto has excelled in academics as well as in co-curricular activities. The activities and efforts of the Department cited in this issue is an evidence of the efforts of the staff and students alike to achieve the goals.

I am happy that the Department is releasing its 15th issue of the newsletter "**MICROSCOPE**". My appreciation and thanks to the Editorial Board.

All your efforts will go a long way to improve the quality of life of people at large and enhance the quality of teaching in order to equip the students with the desired tools which will help them to stand on their feet and launch themselves in their lives

God bless all your efforts and through the intercession of our patron St. Francis Xavier may u continue to grow and excel.

God bless you all

A handwritten signature in black ink, appearing to read 'Fr. Zeferino D'Souza', written over a light-colored rectangular background.

*Fr. Zeferino D'Souza*

Administrator – St. Xavier's College, Mapusa

## **A MESSAGE FROM THE PRINCIPAL**

Department of Microbiology is releasing another issue of its newsletter, 'Microscope... see the unseen' during the academic year 2019-2020.

This newsletter highlights activities /programmes conducted by the department at the college as well as the student exchange programme and the field trip during the first half of the academic year. I am happy to say that this department is really a vibrant one in terms of learning as well as co-curricular activities. I owe the laurels achieved to the Grace of Almighty, hard work of the students, guidance of the teachers and support from parents and management.

I also take this opportunity to thank the department for their valuable services towards the institution.

I express my warm Greetings and Congratulations to the Editorial Team under the guidance of r. Siddhesh Menon for their efforts in giving us this creative and informative edition of the newsletter.

God Bless All Your Future Departmental Endeavours.

*Dr. (Mrs.) Blanche Mascarenhas*

PRINCIPAL

From the HODs Desk.....

The Academic year 2019 - 2020 began on an enthusiastic note. The College having gone through the 4<sup>th</sup> cycle of Accreditation, and awarded an 'A' Grade, was an impetus for all of us to strive to achieve even more. With due thanks to the Management and the Officiating Principal, the Department donned an upgraded look in the new academic year and the staff room was aesthetically and logistically upgraded to a spacious one, promoting a conducive environment for working and interaction of faculty members .

With a focus on all round development of our students, the plan for the academic year was drawn, so as to integrate a number of capacity building activities in the teaching learning process. Add On Courses, Extension Activities, Outstation Study Tours, Visits to Prominent Research Institutes, Seminars, Workshops and Student Exchange Programme were scheduled.

*Microscope* – *See the Unseen* documents the activities conducted. I appreciate the efforts put in by the Editor, Mr. Siddhesh Menon and the entire editorial team for putting together this edition of the newsletter which marks its release for the 15<sup>th</sup> year in succession.

I wish to congratulate our batch of 2018 -19 for their brilliant performance at the April 2019 University Examination. To our current students of FY, SY and TY, I extend my best wishes and exhort you to make the most of your time here at Xavier's.

On behalf of the entire "Micro family" I take this opportunity to welcome our new Principal Dr. (Mrs) Blanche Mascarenhas, and wish her the very best, as she continues to steer St. Xavier's to new heights.

Looking forward to an enriching year ahead!

-Ursula Barreto

## **EDITORIAL**

I am delighted to present before you the 15<sup>th</sup> volume of our departmental newsletter, Microscope – see the unseen. It provides a wonderful platform for our student writers to communicate valuable information with their fellow mates and all the avid readers of this newsletter. In this latest issue of the newsletter we highlight some of the activities conducted by the department during the first half of the academic year 2019-20, along with a couple of contributions by our students focusing on the recent developments in the field of science and also about the first hand experience of working in a research laboratory.

Our department conducted numerous activities for the students of all 3 years of B.Sc. laying emphasis on learning through participation in extracurricular events such as an intra class quiz competition called Petridish, Departmental seminar, and an activity in collaboration with the MSI Unit of our college.

Students of the TYBSc Microbiology took part in an exchange programme with St. Francis College for Women, Hyderabad and visited several research institutions in the city during their outstation fieldtrip. I can certainly say that this issue is truly worth a read.

- *Siddhesh Menon*

**Editor: Mr. Siddhesh Menon**

### **Editorial Team**

Ms. Ursula Barreto

Ms. Linette de Souza

Ms. Katelyn Gonsalves

Ms. Arina Frank

Ms. Ruella D'souza

Dr. Marielou Ferrao

Dr. Sheryanne Velho-Pereira

Dr. Valerie Gonsalves

Dr. Trelita de Sousa

Ms. Nadine D'souza

## THE RUSSIAN EXCEPTION

How far would you go to protect someone you love? This is a question that a young Russian couple had to ask themselves when faced with the fact that any child of theirs would be born homozygous for the 35delG mutation in their GJB2 gene, a mutation that would render the child deaf for life.

A century ago, the idea that man would be able to change the very fabric of human existence at a molecular level would have been ridiculed. The concept that we would one day be able to interfere with what is arguably the single most important macromolecule in existence, one that makes us breathe, eat and sleep would have been merely heresy and anyone speaking of the same might very well have had their tongues cut off. But as of 1973, humans finally did the impossible when Herbert Boyer and Stanley Cohen created the first genetically modified bacterium. This set the ball in motion and only a year later, foreign DNA was inserted into a mouse and finally in 1976, human proteins were created.

Genetic engineering has aided mankind in ways no one previously thought possible. Within the span of a few decades, it made its way into medicine (insulin), agriculture (FlavrSavr tomatoes) and industry (high yielding yeasts, bacteria); therefore solving problems of health and preservation and distribution of food.

However you didn't have to be a visionary to see where mankind would invariably reach with this kind of power, this invaluable piece of technology. It meant that anything was possible - you only had to imagine it. We could create generations, armies of superhumans, wage wars and destroy entire nations. Ancient diseases could be brought back and airdropped over entire cities, killing everyone. It would all boil down to which country had the best imagination and who would be willing to play God.

While this was easy to foresee, what was an issue then and is still an issue today, is where to draw the metaphorical line. How far was too far? How could we have this revolutionary technology and not use it? While war kills thousands, is it not equally criminal to let thousands die of starvation when the technology to potentially end it exists and works?

For this reason, genetic engineering was allowed to proliferate for decades since, but only under extremely strict regulation. We tried our very best to ensure that this technology would not be misused. The real problem however ironic, arises when DNA editing is used for a good cause. Because so long as the issue is as obvious as "Should we allow any one country to destroy



everything else?", the answer is easy. The grey areas lie in issues such as using gene manipulation to create human proteins from non human sources, which is already being done. It's all fine until you ask the question, "How many non-human proteins until someone ceases to be human?" Human genes are now being inserted into crops like tomato to make them grow faster, therefore making it possible for someone to be both vegetarian and a cannibal.

This all brings us back to our little anecdote of the Russian couple. When posed with the simple question, is it better for a baby to be born deaf or not deaf, the answer too, is simple and one that I completely agree with. But what could be considered 'scary' is the avenues that this could open up. Where does it stop? If it is okay to manipulate an unborn embryo so as to produce a healthy baby, why not create an athletic baby? Or a strong one? Or a baby resistant to tuberculosis? These in themselves seem harmless but what does it mean for mankind? Will we, in the next few decades, turn into entire populations of perfect people? Ethics aside, what would this kind of revolution do to our individuality? There would be no more Olympics, no more Asian Games because everyone would be a medalist. Art, literature and poetry would lose all value.

It would end the racial divide, and stop all discrimination. But so also, our world would see no more creativity, no more originality and eventually no more real people, just products of labs and science. Right now there are five Russian couples that will be pursuing the technique of CRISPR to create healthy babies. For their sake and the sake of the babies, I hope it works; but only so long as this remains the exception and not the rule.

**JERUSHA D'SOUZA**

**T.Y.B.Sc.**

## **STUDENT'S PERFORMANCE 2018-19**

**T.Y.B.Sc. University Exam**

Total Number of Students: 56

Distinction: 28

First class: 23

Second class: 05

Passing percentage: 100 %

## **IMMUNITY AND HOST DEFENCES – canvas on the floor**

On the 20<sup>th</sup> of August 2019, a Rangoli competition was organized by the Microbiologist Society of India – Students Unit for all the talented F.Y.B.Sc members of the MSI Student Unit, on the theme “*Immunity and Host Defences*” at 12:45 pm in the college lobby. The students were innovative and depicted different aspects of the human immune system in pictorial form using rangoli colour as a medium.

A large number of students participated, showcasing their Rangoli skills and connecting with the microbiological world.

The judges for the same were our very own faculty members, Mr. Siddesh Menon, Ms. Katelyn Gonsalves and Dr. Valerie Gonsalves

They were judged on their artwork, colour scheme, neatness, relevance to the theme and overall presentation. The contestants displayed amazing skills and for this, the MSI awarded all the participants with certificates.

The first three place winners were:

**1<sup>st</sup> Place:** Kshamika Uday Gad and Shejal Satyavan Gadekar

**2<sup>nd</sup> Place:** Aaradhna A. Agarwadekar and Saidnya Sadguru Chodankar

**3<sup>rd</sup> Place:** Siddhija Lalbahadur Goltekar, Santoshi Dinanath Bhosle and Srushti S. Gadekar

The competition was a great opportunity for the onlookers to perceive the world of microbiology. The programme was coordinated by Dr. Sheryanne Velho Pereira.



*Students enthusiastically working on their art and designs*

## DEPARTMENTAL SEMINAR

On the 30<sup>th</sup> of August 2019 a departmental seminar was conducted by the Microbiology department. FYBSC students presented on the topic of bioremediation. They tackled several aspects of bioremediation of oil spills, sewage, soil and plastics. They discussed microbes capable of performing functions like crude oil absorption, degradation of plastic, replenishing soil and treating organic wastes along with case studies and examples. Eden D'Souza, Diandra Pinto, Natalie de Sousa, Sanjana Madkaikar and Rachel D'Souza were the presenters. Another group of FYBSC students including Divika Narvekar, Saloni Sukhi, Alysa D'Souza , Swizel D'Souza and Vineesha Saundatkar elucidated on Common diseases in Rainy Season. They spoke about the microbes causing these diseases, how to identify symptoms and tackle these diseases. The SYBSC students threw some light on the topic bioplastics. The speakers included Nigel Soares, Sweta Jha, Apoorva Sawant, Rasika Chavan and Shruti Thali. The contents of their presentation included comparison of bioplastics, procedures for extraction, types of raw materials with specific examples, elucidating on pros and cons of bioplastics. This was followed by a presentation by Dr Valerie Gonsalves on the current CBCS syllabus and the activities of the Microbiology Department. She informed the students about the scope of the syllabus etc. Then there was a session by Dr Trelita de Sousa on Career options in Microbiology. She discussed various courses and job opportunities in Microbiology and advised the students to consider their interests, skills and lifestyle while making their career choice. The activity was coordinated by Dr. Marielou Ferrao.



*Students tackling the questions raised by the audience*

### **“EXPLORE AND UNDERSTAND THE WORLD OF MICROBIOLOGY 3.0”**

As part of its extension activity, the Department of Microbiology invited students of XII Science of four neighboring higher secondary schools, to explore and understand the world of microbiology on the 14<sup>th</sup> of September 2019. Students from St. Francis Xavier’s Higher Secondary School, Siolim, , P.V.S S SM Kushe Higher Secondary School, Assagao, our Lady of the Rosary Higher Secondary School, Dona Paula and St. Xavier’s Higher Secondary School, Mapusa, participated in the programme which provided hands on experience in basic techniques in microbiology and molecular biology. The days programme began with a short prayer which was followed by a brief welcome to the workshop by the coordinator Ms Ruella D’souza. The Head of the Department Ms Ursula Barreto then addressed the gathering and welcomed the students to the laboratory. She also extended a warm welcome to the Principal, Dr. Mrs. Blanche Mascarenhas and Vice principals Dr. Fr Jeronimo D’silva and Mrs. Sandra Fernandes. Students of the Third Year then presented bookmarks to the guests as a welcome gesture. The Principal in her brief report encouraged the students to make the most of this opportunity presented. After a brief photo session the students then began the workshop.

The first session involved working through the steps of the gel electrophoresis technique and loading samples of DNA and RNA on a gel. The use of micropipettes was also demonstrated. The gel was then kept for its run and the students went on a short snack break. They then went on to session two with Ms. Ursula Barreto, which exposed them to role of antibiotics in medicine and diagnosis and their efficacy in the control and prevention of infections. The students understood the basic principle and technique of diffusion assays.

The students then graduated to the third and final session of the day which was handled by Dr. Valerie Gonsalves and her group of student volunteers. Here the students learnt the use of nichrome loop, petridish, oil immersion objective, preparation of various agar media and the principle and observed differently shaped bacteria. The students also viewed specimens through a trinocular microscope. The participants then observed the various bands on the agarose gel using a UV transilluminator and entered their observations in their worksheets, before settling down for the certificate distribution programme. After a brief feedback of the session from the participants, the Vice Principal, Mrs. Sandra Fernandes distributed the certificates and the days workshop came to a close.

## STUDY TRIP TO CFTRI, HYDERABAD



*Demonstration of the proto-types of various equipments used in food processing*



*Interacting with Dr. T. Jyotirmayi, Senior Principal Scientist at CFTRI Resource Centre*

**STUDENT EXCHANGE PROGRAMME - AT ST. FRANCIS COLLEGE FOR WOMEN  
(AUTONOMOUS), BEGUMPET, HYDERABAD – Phase I**



*Sealing the 'Exchange programme' between the two colleges*



*Symbiotic association: St. Francis college, Hyderabad and St. Xavier's college, Goa*



*Hands-on practical sessions at St. Francis College, Hyderabad*



*Feather in the cap: winning team of the surprise Quiz*

*Glimpses of Cultural Diversity of Hyderabad*



*Golconda Fort - every fort has a story to tell*



*Charminar – standing tall since 1591AD*



*Chowmahalla Palace – Architectural masterpiece*



*Ramoji Film city – Bahubali Spoofs*



## **“PETRIDISH” 2019**

The 5<sup>th</sup> edition of the intra class quiz, ‘Petridish’ was organized by the Department of Microbiology for students of First, Second and Third year Microbiology. The aim of the quiz is to motivate students to begin their semester end exam preparations in advance and students paired up as teams of two to participate in the preliminary written rounds. The top three teams from FY, SY and TY respectively were selected for the final audio-visual round held on the 4<sup>th</sup> of October 2019 in the Seminar Hall. There were questions put forth for the audience as well.

The quiz master for the event was Mr. Siddhesh Menon. The first place winners from Team B Mr. Selvin Solis, Ms. Jerusha D’souza, Ms. Sanjana Morajkar, Ms. Darshana Shetty, Ms. Arzoo Mulla and Ms. Swizel D’souza were awarded Trophies and Merit Certificates. Certificate of Merit was also awarded to 2<sup>nd</sup> and 3<sup>rd</sup> place winners. The departmental newsletter ‘Microscope – see the unseen’ was released during this time by Fr. Zeferino D’souza, Administrator of St. Xavier’s college along with Ms. Ursula Barreto, HOD Microbiology and Ms. Ruella D’souza, editor of the newsletter. The Administrator commended the department on this endeavor and encouraged the students to make the best of such opportunities. The Vote of Thanks was proposed by Ms. Ruella D’souza at the end. The quiz was truly a success and it made the study of microbiology a novel experience for students. The Quiz was coordinated by Mr. Siddhesh Menon.



*Winners of Petridish 2019 along with administrator and faculty*



*Participants actively involved in the quiz*

## **My internship experience at the National Institute of Oceanography, Goa**

To gain experience of working in a research laboratory, I applied and subsequently got selected to be an intern at National Institute of Oceanography, Dona Paula-Goa. The internship was for duration of one month from 1 November 2019 to 30 November 2019. I was privileged to work under the guidance of Dr. Maria Judith Gonsalves, Principal Scientist, Biological Oceanography Department, NIO Goa.

I understood how people function in a research lab, individually performing all their tasks from the very basic such as washing of the glassware to preparing own chemical solutions and media to performing major experiments and operating instruments.

I was given a deep sea sediment sample from which I had to isolate bacteria, purify them and check their enzyme activity. A total of 15 bacterial cultures were used for the experiment. We checked the activity of 4 enzymes by using different media. I prepared media of different chemical compositions and used them for enzyme testing.

During the period of internship I gained access to various instruments and learnt several new techniques. Laminar air flow, autoclave, mechanical pipettes, syringe filters etc were some of the equipments I could handle in this lab. I was also briefed about the sophisticated instruments available in the lab.

Towards the end of the internship period, I presented the report of my work in the presence of my guide Dr. Maria Judith Gonsalves, an external scientist Dr.Smita Mitbavkar, the fellow research workers and the HRM members.

Certainly it was an amazing experience for me and I am glad I chose to make the best use of my vacation.

**SHRUTI THALI**  
**S.Y.B.Sc.**

## Visit to ‘The City of Pearls’ - Memories of a Life time!

The Department of Microbiology organised an educational tour to Hyderabad from 25<sup>th</sup> November to 1<sup>st</sup> December, 2019. Thirty final year students and four faculty members participated in the tour. Upon arrival at Hyderabad on 26<sup>th</sup> November, we proceeded to Jeevan Jyothi Guest house near Chikoti Gardens, Begumpet. For some of us, who had travelled out of home for the first time, Jeevan Jyothi was an experience of hostel life. The environment was very peaceful and relaxing. The nuns running the guest house were very hospitable. Every morning at 8am we were served breakfast after which we would proceed for the days schedule. While most of our meals were usually out at the place we were visiting, we had the opportunity to savour the much talked about Hyderabadi biryani at the well known Paradise restaurant very near to the guest house.



**On 26<sup>th</sup> and 27<sup>th</sup> November 2019**, we participated in a two day Student Exchange Programme with Department of Microbiology of St. Francis College for Women, Hyderabad. We were graciously greeted by our hosts at St. Francis College, who had planned a very enriching programme for us.

The days following the ‘Exchange-Programme’ were a mix of intellectual learning and fun activities. Below is a compilation of experiences shared by the students.

**On 28th November 2019**

“We visited the Central Food Technological Research Institute (CFTRI). Later, we visited the Chowmalla Palace, which houses four palaces. We were mesmerized by the grandeur, the architecture, and the beauty of the four palaces. The display of antiques, armour and ammunition used in those days, vintage cars, the courtyard laden with beds of colourful flowers and fountains, and the numerous chandeliers were breath-taking. The palace was the seat of the Asaf Jahi dynasty and the official residence of the Nizams of Hyderabad during their rule. We were engrossed in admiring each and every corner of the palace while capturing innumerable photographs. It was a wonderful place worth visiting.”

... *Ms. Riya Bagli*

“We spent the evening spent shopping along the famous streets of Charminar. On one side of the street is the majestic Mecca Masjid – which has got its name because it is made from bricks of soil brought from Mecca. On the other side is the Lad Bazaar, which known for its jewellery, especially the bangles, and the Pathar Gatti which is known for its pearls. In its heyday, the Charminar market houses about 14,000 shops. It’s a very crowded place. Although, it was a hot sunny day, the heat didn’t dampen our shopping spirit. Some of the most common items that attracted our attention were bangles, clothes, shoes, keychains, and ‘*ittar*’.

... *Ms. Ruchi Govekkar*

**On 29<sup>th</sup> November 2019**

“We visited the Nehru Zoological Park. It was exciting to see animals that are normally only seen in pictures, such as hyena, giraffe, rhino, white peacock and white tiger. We have always known that the giraffe is tall, but it amazed us that the animal is 6-7 times taller than our height. The most exciting was the safari ride. What impressed us was the cleanliness of the park and the system of evading plastic disposal in the park. We were thrilled that we got a chance to visit India’s second best zoological park. After lunch, we visited the Centre for Cellular and Molecular Biology (CCMB).”

... *Ms. Deepa Koliwad*

“After the visit to CCMB, we headed to the much spoken Lumbini Park adjacent to Hussain Sagar Lake that houses the Statue of Buddha. Since it was late, we couldn't explore the beautiful park. However, we were fortunate to be able to experience the spectacular Laser show. The place was packed to the brim with eager faces waiting to capture everything! The show started to the tune 'Jai Ho' of the legendary maestro, A.R. Rahman, followed by a colourful display of laser work that portrayed stories, historical and cultural aspects of India, and enthralled everyone present.”

... *Ms. Ismenia Fernandes*

### **On 30th November 2019**

“We visited the Ramoji Film City. Spread over 166 acres of land, it has been certified by the Guinness World Record as the largest film city complex in the world. Since the film city is spread over a large area, we had to board a bus from the entrance to the prime location of the film city called the "EUREKA". As soon as we got down from the bus we couldn't take our eyes off the rides. The Frisbee Coaster ride gave us a high adrenaline rush. After the rides, the students attended the Stunt show which was action-packed, with some fake albeit threatening gun-shots flying all over. We then calmed ourselves by strolling down Meena bazar and some eye-popping streets. Lunch was followed by a tour, aboard a gorgeous Vintage Red Bus, to the various Film Sets. The tour guide enlightened us with some filmy knowledge. Some of the sets were that of Mahabharat, Central Jail, streets of London, Japanese garden and Hawa Mahal. Later on, we were taken to the Magnificent set of Bahubali where we could spot the dummy of Kattappa and an iconic chariot from the movie. This was followed by a visit to the Butterfly Park. After the exit from the Garden, we had to board the bus again which dropped us finally to “Eureka” which marked the end of the Ramoji film city tour and it was time to bid Goodbye to the Land of a million dreams.”

... *Ms. Lekshmi Nair*

“After the exciting day at Ramoji, we were surprised by our teachers with a ride on the Metro. Although this was not part of the itinerary, the teachers obliged to the requests of the students. The Hyderabad Metro system is the second longest operational metro network in India after the Delhi Metro. Although, most of us were very tired, we still wanted to do this. We were lucky

enough to have gotten a chance to ride the metro, for many it was a new experience. We got into a spacious compartment and enjoyed the beautiful silhouette of the city which was illuminated and a marvellous visual treat. We ended the day with the taste of the unique tandoor matka chai.”

... *Ms. Shreya Palyekar*

### **On 1<sup>st</sup> December 2019**

“After participating in the Holy Eucharist at the Infant Jesus Church nearby, we took off to see the Golconda fort. The tour guide enlightened us about the history and architectural details of the place. We were informed that the Fort derived its name from ‘Golla Konda’ a telegu word for Shepherd’s hill. The architectural plan of the fort was amazing and included the water system and the defense wall at the entrance. The architecture at one point on the Fort was such that a clap at the entrance could be used as a distress signal to alert others at another point up the fort. From atop, we could see the three tombs of the Qutub Shahi kings. We were informed that communal harmony was evident in those days, as the Muslim rulers permitted the existence of the Hindu temple - Kala Mandir. There were about 300 steps leading to the temple. Our tour guide informed us that the famous “Bonam” festival is celebrated every year in this temple during which the women carry brass earthen pots and cook food within the fort. The 45 minute walk, to reach the highest point of the fort, was worth the mesmerizing scenic view.”

... *Ms. Elaine Pereira*

On our way back, we visited the famous Karachi Bakery. We checked out from Jeevan Jyothi on 1<sup>st</sup> December to return back to Goa.

Our visit to Hyderabad was an intellectually enriching experience for both the students and faculty and opened new avenues for further study, research, and future collaborations.

**DR. VALERIE GONSALVES**  
**Asst. Prof., Dept. Of Microbiology**

## **VISIT TO CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE (CFTRI) & CENTRE FOR CELLULAR AND MOLECULAR BIOLOGY (CCMB), HYDERABAD**

After an interactive talk on ‘Opportunities in food processing industries and CFTRI technologies’ by Dr. T. Jyotirmayi, Senior Principal Scientist at CFTRI Resource Centre, the students were given a short tour of the Microbiology Laboratory and different prototype instruments like Autoclave, Can sealer Machine, Hot air oven, and Tomato pulp extractor. The Scientist working at CFTRI briefly explained the working of the instruments including HPLC, Gas Chromatography, and Viscometer.



*Study trip to Central Food Technology Research Institute*

After lunch, we visited the Centre for Cellular and Molecular Biology (CCMB), which is an Indian Biotechnology Research Centre. We were welcomed by the Public Relations Officer of CCMB, Mr. Rakesh Mishra who introduced us to the expansive world of CCMB to us. An informative talk on ‘Science: An art of thinking Novel’ was given by Dr. G.S.N. Reddy, through which he explained about the origin of life, human microbiome, significance of microbiology, and the current research technologies at CCMB. Mr. Ghosh, who is a research scientist at CCMB, showed us the different laboratories and explained about the fluorescence microscopy, PCR, DNA finger-printing, HPLC and about the culturing of *Drosophila melanogaster*.

**STUDENT EXCHANGE PROGRAMME - PHASE I**  
**AT ST. FRANCIS COLLEGE FOR WOMEN (AUTONOMOUS),**  
**BEGUMPET, HYDERABAD**



The Department of Microbiology of St. Xavier's College, Mapusa Goa, initiated a Student Exchange Programme, with the Department of Microbiology of St. Francis College for Women, Hyderabad. In the first phase, the programme was held over two days 26<sup>th</sup> and 27<sup>th</sup> November 2019, at St. Francis College for Women, Hyderabad. 30 students of our College participated in the programme and they were accompanied by three faculty members, Ms Ursula Barreto, Dr. Valerie Gonsalves and Dr. Trelita de Sousa.

Upon arrival, the Xavier's team was accorded a warm welcome by the Principal, Sr. Sandra Horta, the Head of the Dept of Microbiology Dr. Shailaja Raj and all the faculty members of the UG and PG Department of Microbiology of St. Francis College, Hyderabad.

After a brief introduction, the participants were led to the lecture hall for the technical sessions. First was a talk on 'Medical Molecular Diagnosis' by Dr. Annapurna, Faculty, St. Francis College for Women. The talk covered recent protocols and techniques used in diagnostics. The session



was supported by a short practical component composed of various biochemical and antibiotic sensitivity tests.

After the lecture, the participants were given a tour of the College, the life science laboratories and the well-stocked college library. The participants were impressed with the infrastructural facilities and the well maintained laboratories at St. Francis College.

During the second half of the day, the participants attended a lecture on 'Leptospirosis and Tuberculosis' by Dr. Manjula Sritharan, Professor, University of Hyderabad. The session included information on the transmission, pathogenesis, symptoms and diagnosis of these diseases. Leptospirosis, being a lesser known disease, yet fairly prevalent in tropical environments, and Tuberculosis, being very common in India, are significant diseases about which much still remains unknown. The session by Dr. Manjula marked the end of Day one of the programme.

Day two began with laboratory work including demonstration of the working of PCR thermocycler and ELISA, visit to the plant tissue culture laboratory and greenhouse which harboured the culturing of banana saplings.

After a short tea break, Dr. Shailaja Raj, delivered a talk on 'The Applications of Nanotechnology in medicine and pollution monitoring'. It was interesting to learn of the research work conducted by the Department on the application of nanotechnology in developing toothpaste and face creams. The next session was a demonstration on 'Synthesis ZnO, Fe and TiO<sub>2</sub> nanoparticles'. Post lunch, Dr. Usha Dutta, Scientist, Diagnostics Division, Centre for DNA Fingerprinting and Diagnostics delivered a very intriguing talk, 'Introduction to Human Genetics', through which she enlightened the audience on the inheritance of various genetic disorders like Thalassemia, Duchenne Muscular Dystrophy, Articular Hypertrichosis citing suitable case studies. She delved deeper into the various modern diagnostic methods like FISH and SKY.

At the end of the day, the students of both the colleges participated in a quiz competition. One of the Xavier's team were declared winners and were awarded a cash prize. This was followed by a spectacular fashion show on "Microbiology" performed by the students of the host college.

During the short valedictory programme the participants were presented with certificates of participation at the hands of the Principal, Sr. Horta. The participants, both faculty and students, shared their feedback and expressed their gratitude for the new learning experience through the Exchange Programme and for the warm hospitality offered by the management, staff and students of St. Francis College. To wind up, the students of both the Institutions had a little song and dance session which served as a means of display of cultures.

All in all, the programme was a fruitful one. The participants experienced learning at an autonomous set up, in an all women's college. The work ethics of the place was particularly striking. The infrastructural facilities available and the equipment in the laboratories was a good exposure to. Interaction with invited Resource Persons and Scientists helped to widen horizons and initiate collaborations.

The programme was coordinated by Ms Ursula Barreto.

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**DR. TRELITA DE SOUSA**  
*Assistant Professor*

## HIGHLIGHTS OF ACTIVITIES & CONSULTANCY SERVICES OF THE DEPARTMENT



*Blood grouping*



*Composting*



*Wine making*



*Water analysis*

