

## **Department of Life Sciences Yearly Report (Academic year 2022-23)**

### **Department Profile**

<b>Names</b>	<b>Designation</b>
Dr. Sree Nair	Assistant Professor, Head of Department
Dr. Tressa Jacob	Lecturer (Ad-hoc)
Ms. Kajal Sankhala	Lecturer (Ad-hoc)
Mr. Mayur Gaikwad	Lecturer (Ad-hoc)
Dr. Geetanjali Ganguli	Lecturer (Ad-hoc)

### **Courses offered (Add on)**

Add-on/ Certificate Course	Students enrolled
Bioinformatics Course	19
Introductory Course On Science Writing	No enrolment
Diploma in Nutrition, Diet & Fitness (Collaboration -Sophia Centre for Women's Studies & Development)	06

MSc Dissertation Projects

Project Title	Student	Mentor
Study on the ameliorative potential of Methyl cinnamate in Alzheimer's disease model of <i>Drosophila melanogaster</i>	Jaansi Bhansali , P21011	Kajal Sankhala & Mayur Gaikwad
Analysis of Limonene as oral therapeutic against Glioblastoma multiforme	Anusuya Nair, P21012	Geetanjali Ganguli
Azelaic acid as a therapeutic agent against Glioblastoma multiforme	Tannishtha Shetty,P21013	Geetanjali Ganguli
Effect of Caffeine on Induced Neuropathy in <i>Caenorhabditis elegans</i>	Nilofer Khatri,P21014	Sree Nair & Sukaina Abbas
Establishing a Novel Paradigm to Study Anxiety after Predatory Attack in Zebrafish	Navin Chawathe, P21015	Tressa Jacob
Neuronal Regeneration During Wound Healing In Zebrafish	Bushraa Nirban, P21016	Tressa Jacob
Effect of caffeine on <i>Hydra viridissima</i> regeneration	Asmita Mishra, P21019	Kajal Sankhala & Mayur Gaikwad
Therapeutic potential of Methyl Cinnamate on park13 mutants, A parkinson's disease model of <i>Drosophila melanogaster</i>	Chelsea Rumao, P21020	Kajal Sankhala & Mayur Gaikwad

### **Remedial teaching**

We conducted a remedial cum mentorship programme for our TY and SY students.

#### **Third Year BSc students**

Remedial Sessions for practicals were conducted for students (specifically dissection experiments and microbiology techniques). Theory sessions were given for genetics.

#### **Second Year BSc students**

Remedial Sessions for practicals were conducted for students

### **Peer Teaching workshops**

#### **1.“Science Education through Experiments & Demonstration ”**

### **A Star College Status (DBT) supported one day workshop**

The Department of Life Sciences conducted a one day workshop for students of Class VI & XII of Fazlani L'Academie Globale School on 30<sup>th</sup> August 2022. The workshop was supported by Star-College status (DBT). Dr. Sree Nair was the organizer and Mr Mayur Gaikwad was coordinator of the workshop.

Twenty nine students attended the workshop along with three teachers. They paid registration fees of Rs. 250 per student.

The organization of the workshop was done by TYBSc students of the department. The workshop started with a welcome speech and a brief introduction on cell & cell division. Presentations on Mitosis, Meiosis, DNA structure and function & Chick embryo development were given by TYBSc students. The students were then taken to the Life Science Laboratory. They performed experiments such as observation of mitosis from onion root tips, extraction of DNA from onion. They saw the various stages of Meiosis from permanent slides and chick embryo development stages. There was also a demonstration for them on development of a chick embryo developed by performing dissection of fertilized eggs and zebra fish culturing and maintenance. The Chemistry Department demonstrated a series of fun and informative experiments.

Students were then taken to Suman Tulsiani Research Centre and a brief introduction to the research facilities and various model organisms used for research were given by MSc students. All participants and TYBSc students were given lunch break. After lunch, Finally the session ended with Valedictory speech & Certificate distribution to all the participants and the TYBSc & MSc students.

The workshop was a great success. The participating students were very happy with the successful completion of their experiments and were very impressed by the Research facility and the work done by the Department. Hopefully they were able to take away a large amount of knowledge from the workshop and would utilize it in the future.



## **2. Workshop On Model Organisms**

### **Workshop on Culture Techniques and Maintenance of Model Systems in Biology**

The workshop was conducted by the Department of Zoology in collaboration with the Department of Lifesciences on 14th and 15th October 2022 at Sophia college(Autonomous).

The workshop was conducted in batches for three hours on both the days for post graduate students and faculty of various college. Introductory lectures were given to clear the basics of Hydra, Drosophila, *C.elegans* and Paramecium. Demonstration on how to culture and maintain these organisms was done. Refreshments were provided.

The feedback was very positive from the students and the faculty members.



### 3. Departmental Peer Teaching

Peer teaching of MSc Students to the TyBSc students: Msc students taught the TyBSc students how to dissect the hen brain from fixed samples. MSc students learnt it from their senior.



The 1<sup>st</sup> year MSc-Life Science, Neurobiology students, Saida Sayyed and Irshikaa Sharma, took a peer session with the TyBSc students on model organisms used in research to study questions in genetics, developmental biology, neurobiology. It was a wonderful interactive session.



#### 4. Inter-departmental Peer Teaching



Students of SyBSC (Zoology) were demonstrated the dissection and mounting of different chick embryonic developmental stages. Different staining procedures were tried on the mounted slides.

5. Ms.Saida Sayyed (MSc part 1 ) student visited Vivekanand Education Society College and had a discussion about culturing of Model systems like Moina, Fruit fly and hydra. She had an interaction with the Junior college biology teacher of Teacher Enrichment Workshop and explained to them about Drosophila culturing and maintenance.

#### Guest Lectures organised by the department

1. Talk on Scientific Temper on 20/08/2022

On the occasion of Scientific temper day the Department of Life Science requested Dr Stayajit Rath (IISER -Pune) to deliver a seminar on this topic. The 1st year MSc under the supervision of Dr Tressa Jacob helped with organizing the seminar.

Duhita Jadhav (P20012) and Sonia Joshi (P22011) volunteered to take Geotag Photographs

Muqadas Wani (P22019) Delivered Introduction to Speaker

Deepanjali Ghadge (P22014) Vote of Thanks

Sonia Joshi volunteered to make the introduction slide and fill in slides

Saida Sayyed Volunteered for making poster and Google form and Hosted the session

There were around 111 registrations for the talk from different colleges and institutes at the Undergraduate, Postgraduate, Doctorate levels.

Dr Satyajit Rath started with an example of how farmers know when it's going to rain and no matter who says what the farmers will always sow seeds just before the onset of monsoon. Showing us how we use scientific temper in our daily lives this is not just used in research. But unfortunately the same farmer could be fooled to do something completely unscientific to solve a personal wish. Here he is being exploited but he cannot think scientifically due to the circumstances. He also talked about difference of faith and superstition and how scientific temper is not questioning faith. Scientific

approach is knowledge that rely on observed facts and not on pre-conceived theory. He also explained different aspect of science such social, political aspects.

The session was very interactive and had a lot of questions from students and faculty



## 2. Bird Song to study brain movements Date: 15.09.2022

The Department of Life Science, Sophia college had organized a very fascinating talk on ‘‘ Using birdsong to study how the brain initiates and produces complex movements’’. The talk was delivered by Dr Raghav Rajan from Indian Institute of Science of Science Education and Research on the 15<sup>th</sup> of Sept 2022. The talk was attended by around 60 students. The following students had volunteered for the event:

Naema Jauhari S20515- registration and feedback forms  
Mehreen Alvi S20514- prepared the flyer and vote of thanks  
Lalita Ghintala S20061- introduced the speaker

Raghav introduced to the students how sound is produced as a result of coordination between the vocal and the respiratory muscles, further he mentioned that birds also produce song when they are alone without any external stimulus. Thus song is an excellent example of a complex, natural behaviour (consisting of a sequence of movements) that is triggered by external or internal stimuli. He also explained the neural events that lead up to song initiation, the neural mechanisms that determine the order of sounds within a song, effect of thermal activity in the brain on the song, the interaction between neural and muscular aspect while producing songs, tutor and son relationship, and other aspects of bird songs in depth using his research models.

He explained the research interest of the lab and further showed and explained the data obtained by using a variety of research tools like electrophysiological recordings, pharmacological infusions and behavioural experiments in awake, singing birds to address these questions. He also showed visual and audio recordings of his work. It was interesting to know how implants were set into the model and how they distinguish between songs from their own family.

Overall, the talk was very informative and interactive with many key takeaways.





### 3. 'Glia, Neurons and the Synapse' Date: 22.07.2022

On 22nd July 2022, The talk on 'Glia, Neurons and the Synapse' was held in AV hall at Sophia College (Autonomous), Mumbai. Dr. Anuradha Ratnaparkhi is Scientist E Developmental Biology from Agharkar Research Institute, India was our guest speaker for the talk. The audience comprised undergraduate and postgraduate students from the science stream. A total of 45 participants were registered for the event. The speaker addressed the crowd starting with the basics of neurons, glia and synapse. She gave us insight about her work pertaining to these topics in relation with *Drosophila*. The feedback received from participants were positive. The talk was well received by the faculty and students alike.



### 4. 'Cerebral Evolution' -Talk by Dr Momna Hejmadi Date: 10.11.2022

A Talk on Cerebral Evolution-Cerebral evolution: The Ascent of Intelligence was given by Dr Momna Hejmadi on 10th November 2022 at the convention center. Professor Momna Hejmadi is the Associate Dean (Education) at the University of Bath, UK. The audience comprised undergraduate and postgraduate students from the science stream and also faculty members from other colleges as well. A total of 59 participants were registered for the event though actual participation was much more. The resource person talked about the evolution of intelligence among the animals. She also touched upon the current behavioral evolution among the younger generation on virtual reality. The feedback received from participants were positive. The talk was well received by the faculty and students alike.



## 5. Talk on Climate Change

The department of Life Sciences, Sophia College (Autonomous), Mumbai had organized a RUSA sponsored talk on Climate Change. The talk was delivered by Dr. M.R. Ramesh Kumar Chief Scientist (Retired), Physical Oceanography Division, National Institute of Oceanography, Dona Paula, Goa – 403004. It was held on January 20th, 2023 at AV Hall.

The talk revolved around various aspects of climate change. In recent years, with the growing recognition of the possibility of global climate change, an increasing emphasis on world food security in general and its regional impacts in particular have come to the forefront of the scientific community. Crop growth, development, water use and yield under normal conditions are largely determined by weather during the growing season. Even with minor deviations from the normal weather, the efficiency of extremely applied inputs and food production is seriously impaired. The carbon dioxide (CO<sub>2</sub>) concentration was in a steady state at 280 ppm till the pre industrial period (1850). It has been rising since then at the rate of 1.5 to 1.8 ppm per year. The concentration of CO<sub>2</sub> is likely to be doubled by the end of 21st century (Keeling et al., 1995).

The Indian economy is primarily dependent upon agriculture and hence spatial distribution of rainfall over the Indian subcontinent is a matter of grave concern. Also various aspects of climate change in the Arctic and Antarctica were discussed. The plight of polar bears, fauna and flora of these regions were also discussed in detail. Dr. Ramesh Kumar also elaborated on various scientific missions of the Indian Government in the Arctic and Antarctica. He kept the session alive by offering students chocolates, books and envelopes for any questions asked or answered by them.

After the talk he had an interactive session with the UG and PG students. He made them aware about various research, fellowships and internships opportunities.





## 6. Nobel Oration Talk

### Report for 21st Annual Sophia Nobel Oration

On 15th of February 2023, the 21st Annual Sophia Nobel Oration was held at the Convention Centre of Sophia College (Autonomous), Mumbai.

The Nobel Oration talks are organized to instigate interest in research in the minds of young students. People with expertise in the respective fields give the audience briefing about the research that got the Nobel Laureates the prize for that year. The audience receives the gist of the research simplified for their level. The talk was titled “Where did we come from? The story of Human Evolution”. We invited Dr. Supreet Saini who is a Professor, Chemical Engineering at IIT Bombay, Powai, Mumbai. The talk commenced at 11:00 A.M. Muqadas Wani was the master of ceremony. Dr. Sree Nair (Head of Department of Life sciences, Sophia College) addressed the audience and spoke about the legacy of Annual Sophia Nobel Oration. Following this Tania Shroff introduced our guest speaker Dr. Supreet Saini. Dr. Supreet Saini addressed the students about the work done by Dr. Svante Pääbo that fetched him the Nobel prize in Physiology/Medicine 2022. He started the talk by introducing the basic concepts of evolution. He built up on the basic concepts so as to make the laureate’s work easily understandable even by UG students. He took us through the journey of the award winning laureate and introduced us with the possible relation of SARS-COV2 and Neanderthal variant. The take home message was an overall idea of human evolution and correlating with SARS -COV2 and Neanderthal variant. After the talk, there was an intense Question and Answer discussion between the guest speaker and the students. The Head of Department Dr. Sree Nair felicitated and thanked Dr. Supreet Saini with a token of appreciation for the event. This was followed by a formal vote of thanks by Saida Sayyed.



## 9. Science day

Quest-wider than the sky – THIRTEENTH UG, PG students & Faculty Research Meet

(supported by DBT Star College Scheme)

In celebration of the National Science day, the science departments held a conference “ QUEST – WIDER THAN THE SKY”. This was planned as meet of the UG,PG students and staff on 28th Feb 2022 (9 am – 3.30pm) at different venues. Research is increasingly entering the interdisciplinary mode. This meet was proposed to be a common platform for exchange and interaction among the students and faculties of all UG, PG departments of the Sophia College. The meet got a good response from students and staff. The posters were exhibited by the PG, UG students and staff of Life Science, Zoology, Microbiology, Physics and Chemistry.

The topics on which models were exhibited covered a wide range of subjects, from physics to environmental conservation. The posters were exhibited of research work done by the UG and PG students. Many curious undergraduates, junior college students and even the canteen staff visited the venue. The meet was convened by a joint collaboration with the department Life Sciences, Zoology and Microbiology represented by Dr. Sree R Nair, Dr. Roshan Dsouza, Dr. Rajbinder Kaur Dehiya and Mr. Mayur Gaikwad.

A talk was also organised to bring out the importance of the day. The talk was delivered by Dr. Subhojit Sen, DBT Ramalingaswami Fellow, UM-DAE Centre for Excellence in Basic Sciences (CEBS), Mumbai on “How the environment can shape us? Querying Lamarckian heresy through Cancer Epigenetics”. The venue was the Convention Centre and the timing was from 11.00 a.m. to 12:30 pm.



## Ananya Activity

The Ananya event (MILL-SCI-FEST'23) was a two day event (23<sup>rd</sup> January- 24<sup>th</sup> January) organised by Department of Life Science and was sponsored by RUSA. Various activities were chalked out for the two days.

The event MILL-SCI-FEST'23 focused on spreading awareness of millets, encouraging people to use millets in their diet.

The focus was because the year 2023 was announced as an International year of millet by the United Nations (UN).

Our undergraduate students participated in different events like poster competition, Scientific rangoli competition and they also had food stalls with food preparations made out of millets. The posters gave us an understanding of different topics like what are millets, its origin, the types, its spread across India and the world, its nutritional value, need for transgenic millets, they even had crosswords, puzzles and games all helping us identify and know the different millets we can use in our daily cuisine. There were a total of 61 students registered for the event. The event had students from different departments Microbiology, IT, Arts streams and BMM.

### **The poster presentation:**

The judge for the poster competition was Dr Ratnaraje Krishna Thar a nutritionist with more than 30 years of experience, she is currently involved with Hon. Police Nutritionist for Maharashtra Police at Police Hospital Nagpada and is also a Research Director at the Research center college of Home Science Nirmala Niketan Mumbai.

The posters that were displayed in this event were on

1. Origin of Millets
2. Types of Millet
3. Distribution of Millet in India
4. Distribution of Millet across the Globe
5. Nutritional Facts Regarding Millets
6. Need for Transgenic Millets
7. GDP and Economic contribution
8. Facts and Myths
9. Crossword
10. Puzzle

Millets Rangoli - Biofilm formation, endospore formation, lampbrush chromosomes, Cell organelles. The display was done using different kind of millets

Talk report

(MIL) LET'S DO IT - Talk by Dr Amrita Hazra (IISER-PUNE)

The year 2023 has been declared by the United Nations as the International Year of the Millet, following a proposal by India, and accepted by 69 countries. So to that the Life Science Department of Sophia College celebrated 'Mill-Sci-Fest' on 24th and 25th of January 2023 as a part OF ANAYA Activity sponsored by RUSA.

On 25th Jan 2023 (12:00PM) a talk by Dr. Amrita Hazra was conducted to put light on the importance of millets and was titled as (Mil)let's do it. DR Amrita is an assistant professor at IISER Pune and also was the co-founder of the Millet Project (2015) which was funded by the Berkeley Food University.

Dr. Amrita was welcomed by a round of applause. She started her talk by the most common question 'what are millets? Name some of them'. Some of the audience were able to answer those. The talk was then continued by the nutritional benefit of millets and how they are grown. According to the analysis done by Dr. Amrita millets are rich in protein, iron, calcium, etc. As compared to our normal grains. As for the growth factor she said millets do not need much water as they can survive in drought conditions with less amount of water. To support this

statement she showed the experiment (which was a part of millet project) where she planted 5 rows of millets of various types in a farm. The 1st row millets were just water for 2- 3 days after sowing them. The 2nd row was water for 2-3 times in a week. Whereas the 3rd, 4th and 5th rows were watered everyday. As a result the 3rd 4th and 5th row crops were spoiled and the 1st and 2nd row crops showed the Millet growing. The 1st row crops height were a bit smaller as compared to the 2nd row. She did the nutritional analysis for both of the Millet rows and found that there was not much (approx 0.1-0.3%) difference in both of them.

Then she came to the point of how we can consume these millets frequently in our day to day life. She talked about making Dosa, Iddli, Poha, Bhakris, Nachni, cakes, etc with various types of millets. There was a question raised that the food made with millets doesn't taste good once it cooled down. To which Dr. Amrita answered that they are trying to get a recipe where they can come over this. They have also collaborated with a chef who is helping them with the following. Further she talked about the Millet Project which they started in 2015 and types of activities they did under that. And with that she ended her talk and was open to questions from the audience. The audience asked her a few questions related to the growth factor, nutritional aspect and will millets be the future of the world. To which she answered each question with some acceptable answers.

The most important giveaway of this talk for the students and staff was to know the importance of millets as well as start using millets in their day to day life as they provide us various nutrients and has health benefit which will help us and our surroundings in a positive way.



## **Field visits**

### **Annual Khandala Retreat**

The Department of Life Science and Biochemistry had planned their annual educational visit to Kune Mission at Khandala on 29th and 30th of July 2022. The objective of this visit was to introduce the TYBSc and MSc I students to the research projects conducted by MSc II students. Dr Bhupendra Shravage, Ramalingaswami Fellow Agharkar Research Institute, Pune and Ms Divya, Research Scholar at Clinical Pharmacology Lab ACTREC were the resource persons who gave valuable inputs to the students and facilitated the presentations. Additionally, the students got exposure to the research work carried out by the respective invited speakers.

The trip also included a Nature trail. A night walk in the dense vegetation was arranged post dinner and was headed by a nature expert Mr. Sachin Rane. The students experienced the silence of the forest

and the insect biodiversity under the moon light. The morning next day began with a pleasant nature walk wherein the students explored and studied the flora of the area around.

A total of **36 students** lead by 5 faculty members participated in the event. The trip was just not limited to academics and Science, it was indeed beyond. The trip was fun filled and a memorable one.



## Industrial Visits (for TY BSc)

Visit to Food and Clothing Manufacturing Industries in Silvassa, Daman

6th -7th January 2023

Silvassa Report 2022

The Department of Life sciences along with the Department of Chemistry organised a 2 day industrial visit to Silvassa, Daman on 6th and 7th January 2023. It was an informative educational trip with different recreational activities. The industrial visit was arranged for the TY and MSc students.

Following were the industries that were visited during the trip

1. Man foods Pvt Ltd: This was a food industry. It is an outsourced company of Parle-G. Students were shown presentation explaining the process of making Melody, Kachcha Mango bite, Parle Marie, Poppins, Kiss me, Full toss and Parle-G. The students saw the process of producing Parle-G biscuits. The students discussed about the waste water management system.
2. Linen industry Pvt Ltd: This was a clothing industry. Students got an exposure on how yarn is weaved into cloth. Additionally, the students observed the working of machinery and learned about different types of dyes, chemical used. The students discussed the waste management system.

The trip was made fun filing as the students visited Dadra and Nagar Haveli wildlife sanctuary, Vasona Lion safari, and Butterfly garden post the industrial visit. The students were taken for safari rides.

14 students joined the trip and 2 faculty members accompanied the students from the department to the trip.





T.Y.B.Sc students were taken to Maharashtra Nature Park

### Field Trip report: Maharashtra Nature Park

Date: 11<sup>th</sup> January, 2023

On 11<sup>th</sup> January 2023, the TYBSc Life Sciences students along with the Head of Department Dr Sree Nair reported at Maharashtra Nature Park at 9am. We had Mr. Dahiwat as our guide during the course. Starting with an introductory video showing the history and vast collection

of the Park, the trail started, identifying and knowing about each flora and fauna in the park.

The main OBJECTIVES of this trip were as follows:

To learn about the different species present in the park, by going on a nature trail, and sighting fauna and flora

To learn about the sustainable practices that take place in the park, and how they limit the use of resources, instead, substituting it for natural methods.

Maharashtra Nature Park, also known as Mahim Nature Park (MNP), was created by the MMRDA (Government Organization) with assistance from the World Wildlife Fund (WWF) and an ornithologist and naturalist named "Salim Ali," and it was officially opened on April 22, 1994, in the Dharavi neighbourhood of Mumbai (Earth Day). This nature park is situated directly across from the Dharavi slums on the Bandra Sion link road (not far from Mahim). It was the biggest dumping yard before 1982. Dr Salim proposed developing a park for educational purposes. It took 10-12 years to be complete and has 5m length of garbage underneath. It covers 37 acres of land.

Maharashtra Nature Park, which was once a garbage dump but has been transformed into a lush forest, has beautiful woodland with 14,000 trees, 300 different plant species, 12 species of spiders, 80 species of butterflies, 32 species of fishes, 9 species of snake, 2 venomous spectacle cobra, Russel viper, rock python and different migratory bird species.

Its biggest project is rainwater harvesting and provides water to the whole park.

Butterfly garden

This area of the park was filled with flowers which attract butterflies. *Signature spider:* Glows in the dark.

Astral garden/ Nakshatravan: 27 trees symbolise the 27 zodiac signs. Each tree has a spiritual, medicinal or economic importance.

Vermicompost: A sandwich made with layering sand-cow dung-sand-dry/wet matter (leaves)-water. They are allowed to decompose. The excreta from the earthworm is used as a vermicompost. The whole process takes around 1 or 1 and a half month.

The guide had described various types of butterflies, about its host plants and its life cycle also. The trail covered the entire park. The students got to know about a man made perennial lake which supplies water to the park. Detailed information was also given to students about various plants, trees, creepers and animals that are found in the park. Various examples of plant-plant and animal interactions were also shown. This was followed by a talk on the different sustainable practices followed in the park, that ensure that the park thrives, even when resources may fall short. The guide gave a historical relevance of Mithi River and highlighted its present plight. The trip concluded by 2:30pm.



## Research and Development

Students mentored by Dr. Sree Nair, Ms Kajal Sankhala and Mr. Mayur Gaikwad presented their research work in 18th Research Scholar Meet, ACTREC Mumbai.

Students mentored by Ms Kajal Sankhala and Mr Mayur Gaikwad presented their research work in IAN, Shillong.

MSc Student, Ms. Ruchi Modgekar mentored by Dr Hema Subramaniam presented her research work in Indian Neurobehavior Conference at Manipal, 22nd December 2022.

Students mentored by Dr. Tressa Jacob were selected in Avishkar Zonal level

Students mentored by Dr. Geetanjali Ganguli presented their research work in 16th ICSR Annual Conference, Delhi.

Students mentored by Dr Sree Nair and Dr Geetanjali Ganguli presented their research work in G20 Summit on Sustainable Development organized by Mumbai University, 21st April 2023. Ms. Sukaina Abbas won the first prize in paper best category.

## Consultancies

Ms. Lakshmi Pillai , a Ph.D students from The Maharaja Sayajirao University (MSU),Baroda was trained in Hydra culturing and maintenance.She was trained in the Suman tulsiani Research lab,Sophia College(Autonomous),Mumbai by the faculty and students.

Lab Facility/ Organisms	College/Institute
<i>Hydra viridissima</i>	<ul style="list-style-type: none"> <li>• Dept of Zoology,Birla college.</li> <li>• Dept of Biotechnology,Elphinstone College,Mumbai.</li> <li>• The Maharaja Sayajirao University (MSU),Baroda</li> </ul>
<i>C.elegans and E.coli</i> OP50	<ul style="list-style-type: none"> <li>• Dept of Zoology,Vaze College,Mumbai</li> <li>• Dept of Zoology,Ruia College,Mumbai.</li> </ul>
<i>Drosophila melanogaster</i>	<ul style="list-style-type: none"> <li>• Dept of Biotechnology,Ruia College,Mumbai.</li> </ul>

### **Dr. Sree Nair**

Member of the following College Committees

Post Graduate Examination Committee

Admission Committee – Senior College Science

Staff member in-charge of Suman Tulsiani Research Centre

Time-Table Committee

Learning Enhancement Programme Committee

Education to Excellence in Science Programme

Committee to plan and update programmes for laboratory staff

Coordinator of

Workshop On Model Organisms Workshop on Culture Techniques and Maintenance of Model Systems in Biology

Quest-wider than the sky – THIRTEENTH UG, PG students & Faculty Research Meet

Talk on Climate Change

Cerebral evolution: The Ascent of Intelligence

### Conference Attended

Integrating educational outcomes in the curriculum, 14<sup>th</sup> June 22

- Academia and contemporary research: roots and routes, 16<sup>th</sup> Sept 2023

- Navigating the national education policy: curriculum, courses and credits, 4<sup>th</sup> Feb 2023

Attended and presented research work in G20 Summit on Sustainable Development organized by Mumbai University, 21st April 2023.

TY Field trip-T.Y.B.Sc students were taken to Maharashtra Nature Park

### Guided following TY AC Projects

Sr No	Group	Topic
1	S 20073 Sarah Sayed S20513 Sanika More S20083 Meghna P R	Toxicity testing of different face washes on Moina sp.
2	S20074 Saishree Thatikonda S20076 Safana Ansari S20054 Farheena Shaikh	Effect of salt stress on plants
3	S20081 Aditi Dsouza S20085 Anfal Khan S20601 Unnati Badgotri	Recycling paper using natural dyes
4	S20056 Nidhi Shirali S20058 Arabia Syed S20068 Shriya Chaubal	Bioremediation of Organic Dyes using Aquatic Plants
5	S20061 Lalita Ghintala S20069 Sharanyaa Dutta	Vermicompost
6	S20514 Mehreen Alvi  S20515 Naeema Jauhari S16139 Michelle Pereira	Swimming Behaviour of Paramecium Under Different Conditions

### Guided following SY Projects

1	S18093 Mehvish Khan S21073 Ayesha Sorathiya S21094 Ayesha Moosa S21110 Gulnaz Ansari S21102 Samiya Khan	Vasomotor Rhinitis: The Common Non-Allergic Rhinitis

2	S21104 Maryam Malkani S21108 Ritu Rajpurohit S21069 Zainab Rehman S21115 Shriya Sharma	Surveillance on daily consumption of Paracetamol
3	S21082 Shraddha Yadav S2118 Shalini Shinde S21099 Rohini Nair	Knee Pain Analysis
4	S21078 Firdos Khan S21093 Sarah Gonsalvez S21081 Tania Shroff S21061 Umaima Ansari	Understanding the Environmental Impact of Menstrual Hygiene Products
5	S21065 Yeshashvi Marolikar S21502 Deeann Cerejo S21062 Zeel Lopes	Demographic Study On Covid – 19 Vaccine

**Dr Geetanjali Ganguli was involved in the following activities**

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1. Guided two students of MSc II (Ms. Tannishtha Shetty and Ms. Anusuya Nair) to carry out their MSc project works on plausible effects of phytochemicals in the glioma cells. The students presented the research work at
  - i. 16<sup>th</sup> Annual Conference of Indian Society of Clinical Research “Demystifying Innovations in Clinical Research”, 24<sup>th</sup>- 25<sup>th</sup> February 2023, New Delhi
  - ii. One Day G20 Summit on Environment Sustainability and Bioenzymes (International Conference) organized by Department of Biotechnology, Mumbai University on 21<sup>st</sup> April 2023



2. Mentored SY student Ms. Tania Shroff, for her EXSP second component. She wrote a literature review on “Antimicrobial Resistance: Mechanisms and Clinical Significance of an Emerging Crisis.”

3. As the part of the curriculum, students carried out interesting open-ended projects. Following are the details

Sr. No.	Title of Project	Name(s) of the student
1.	Growth curve of E coli (DH5 alpha) and preparation of competent cells for transformation experiment.	Farheena Shaikh, Safana Ansari, Mehreen Alvi
2.	Agarose Gel Electrophoresis of extracted DNA sample with and without molecular ladder	Unnati Badgotri, Arabia Syed
3.	Home Wine Production using black grapes and its alcohol estimation	Nidhi Shirali, Aditi D’souza, Shriya Chaubal
4.	Extraction of DNA using household materials such as liquid soap	Sharanyaa Dutta, Lalita Ghintala, Anfal Khan
5.	Tissue dissociation by trypsinization technique and to estimate the viability of cells in physiological saline and minimal essential medium	Sarah Sayed, Sanika More, Meghna P.R
6.	Culturing and Biomass estimation of spirulina in home grown setup	Naeema Jauhari, Saishree Thatikonda, Michelle Pereira

#### Seminars attended

- Integrating educational outcomes in the curriculum, 14<sup>th</sup> June 22
- Academia and contemporary research: roots and routes, 16<sup>th</sup> Sept 2023
- Navigating the national education policy: curriculum, courses and credits, 4<sup>th</sup> Feb 2023

**Name: Dr Tressa Jacob, Department of Life Sciences**

Guided two students of MSc II (Ms. Bushraa Nirbhan and Mr Navin Chavathe) to carry out their MSc project works on Neuronal regeneration and anxiety using zebrafish as a model organism. The students presented the research work at the Indian Zebrafish Principal Investigators meet, held in IISER-Pune and presented the research work in Avishkar. Mr Navin Chavathe won the zonal round and moved to the final round in the competition.

Organized the following departmental activities

-Scientific temper talk by Dr Satyjit Rath

-Bird song talk 'Using Birdsong to study how the brain initiates and produces complex movement' Dr Raghav Rajan

-Mil(let's) Do it'' talk by Dr Amrita Hazra

Coordinated - Ananya activity 'Mill-Scifest 23'' for the department of Life Science

Committees we have been a part of:

- Attendance committee
- NAAC criteria 3 subcommittee
- Helped in the convocation registration
- Coordinated science day activities

College activity- Participation in the carol singing activity.

Invited to chair a session in the Indian Zebrafish Principal Investigator meeting held from 21<sup>st</sup> - 23<sup>rd</sup> Sept 23.

### **Seminars attended**

- Integrating educational outcomes in the curriculum, 14<sup>th</sup> June 22
- National conference on academia and contemporary research: roots and routes, 16<sup>th</sup> Sept 2023
- Indian Zebrafish Principal Investigator meeting held from 21<sup>st</sup> - 23<sup>rd</sup> Sept 23.
- Navigating the national education policy: curriculum, courses and credits, 4<sup>th</sup> Feb 2023

**Name : Mayur Gaikwad**

1.Guided M.Sc Students;

- Jaansi Bhansali on the topic Study on the ameliorative potential of Methyl cinnamate in Alzheimer's disease model of *Drosophila melanogaster*
- Chelsea Rumao on the topic of Therapeutic potential of Methyl Cinnamate on park13 mutants, A parkinson's disease model of *Drosophila melanogaster*
- Asmita Mishra on the topic of Effect of caffeine on *Hydra viridissima* regeneration

2 As the part of the curriculum, TY students carried out interesting open-ended projects. Following are the details.

- Guided Saishree Thatikonda, Michelle Pereira, Sharanyaa Dutta, Lalita Ghintala on the topic of To Study the effect of salt stress on seed germination
- Guided Sarah Sayed, Sanika More, Meghna P.R on the topic of Hypoxia induced reproductive plasticity in *Moina* sp.
- Guided Nidhi Shirali, A, Shriya Chaubal, Arabia Syed on the topic of Biodegradation of Compostable Plastic using microbes
- Guided Farheena Shaikh, Safana Ansari, Mehreen Alvi and Naeema Jauhari on the topic of Isolation and identification of Nematodes from different parts of India

3. As the part of the curriculum, FY students carried out interesting open-ended projects. Following are the details.

- Organized SEED, one day workshop for students of Class VI & XII of Fazlani L'Academie Globale School on 30th August 2022.
- Was a resource person for “Workshop on culture techniques and maintenance of Model systems (*Hydra* and *Drosophila*) in Biology”, Sophia College (Autonomous), Mumbai. conducted on 14th and 15th October 2022.
- Organised Science Day talk , delivered by Dr. Subhojit Sen, DBT Ramalingaswami Fellow, UM-DAE Centre for Excellence in Basic Sciences (CEBS), Mumbai on “How the environment can shape us? Querying Lamarckian heresy through Cancer Epigenetics" on 25th February 2023.

#### Seminars

- Integrating educational outcomes in the curriculum, 14th June 22
- Academia and contemporary research: roots and routes, 16th Sept 2023
- Navigating the national education policy: curriculum, courses and credits, 4th Feb 2023

Name :Kajal Sankhala

#### 1.Guided M.Sc Students;

- Jaansi Bhansali on the topic Study on the ameliorative potential of Methyl cinnamate in Alzheimer's disease model of *Drosophila melanogaster*
- Chelsea Rumao on the topic of Therapeutic potential of Methyl Cinnamate on park13 mutants, A parkinson's disease model of *Drosophila melanogaster*
- Asmita Mishra on the topic of Effect of caffeine on *Hydra viridissima* regeneration

WORKSHOP :

- Coordinated the 21st Sophia Nobel Oration series : “Where did we come from?The story of Human Evolution a talk” by Dr.Supreet Saini organized by the Department of Lifesciences on 15th February 2023.
- Attended and completed the training in NIUS ALAP workshop at Homi Bhabha Centre for Science Education, Mumbai from 21st-24th February 2023.The workshop was about two model organisms Hydra and Drosophila,where we learned the culturing of hydra and drosophila.
- Presented about the techniques for culturing and maintenance of hydra and drosophila to various faculties of different colleges.
- Was a resource person for “Workshop on culture techniques and maintenance of Model systems (Hydra and Drosophila) in Biology”, Sophia College (Autonomous), Mumbai. conducted on 14th and 15th October 2022.

#### Seminars attended

- Integrating educational outcomes in the curriculum, 14<sup>th</sup> June 22
- Academia and contemporary research: roots and routes, 16<sup>th</sup> Sept 2023
- Navigating the national education policy: curriculum, courses and credits, 4<sup>th</sup> Feb 2023