



KISHINCHAND CHELLARAM COLLEGE,

Vidyasagar Prin. K.M. Kundnani Chowk, Churchgate, Mumbai – 400 020

REPORT ON INDUSTRIAL VISITS/FIELD TRIPS CONDUCTED UNDER DBT STAR COLLEGE SCHEME FOR ACADEMIC YEAR 2018-19

DEPARTMENTS:
BIOTECHNOLOGY
CHEMISTRY
LIFESCIENCES
MICROBIOLOGY
STATISTICS





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Summary of Field Trips and Industrial Visits conducted under DBT Star Scheme

Academic year 2018-19

Sr No	Name of the Department	Number of field trips/industrial visits
1	Biotechnology	06
2	Chemistry	09
3	Life Sciences	06
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Total		28

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Department of Biotechnology

Department of Biotechnology

National Institute of Research in Reproductive Health (NIRRH)

Parel, Mumbai



Date: 03.10.18

Target audience: T.Y.BSc 33Students

Under the Star-DBT scheme, the Department of Biotechnology had organized an Industrial Visit to NIRRH, Parel. The students visited two research labs and the common microscopy facility. They were shown a demonstration on real time PCR, Confocal microscope, inverted microscope, fluorescence microscope and electron microscope. They were shown different samples of the on-going research being conducted in the institute. The students also learnt about the process to apply to NIRRH for summer training and PhD.

Feedback: Students clarified their concepts on the working of various instruments. They got to know the career prospects in the research institute.

Teacher In Charge : Ms Sufiya Ansari

Advanced Centre for Treatment, Research and Education in Cancer

Kharghar, Navi Mumbai



Date: 7.12. 2018

Target audience: T.Y.BSc 10Students

Under the Star-DBT scheme, the Department of Biotechnology had organized an Industrial Visit to ACTREC, Kharghar. The students were showcased with some of the facilities of ACTREC and the research programs in their 'Open Day'. The students were accompanied by the faculty from science, pharmacy, medical and allied colleges of Mumbai and Navi Mumbai. The ACTREC organized an 'Open Day' for the students. The students gained knowledge on cancer research, diagnosis, treatment and prevention through the posters. The students received insights on following topics: Cancer Research using Small Laboratory Animals, Comparative Oncology Program and Small Animal Imaging Facility, Raman Spectroscopy for Cancer Diagnosis, Principles and practical aspects of Transmission Electron Microscopy, Flow Cytometry, Protein Structure for Drug Discovery, Composite Lab and Radiation Oncology.

Feedback: The students gained knowledge on cancer research, diagnosis, treatment and prevention.

Teacher In Charge: Ms Richa Shah

WIC (Wine Information Centre) by Red Grapes

Nashik



Date:6.2. 2019. **Target audience:** F.Y.BSc 29 , S.Y.BSc 20, T.Y.BSc 27 Students

Under the Star-DBT scheme, the Department of Biotechnology had organized an Industrial Visit to WIC (Wine Information Centre) by Red Grapes, Nashik for F.Y.BSc, S.Y.BSc and T.Y.BSc Students. The students were enlightened on what is the wine and detailed wine making process as well as the health benefits of wine by Mr. Vikrant Holkar, Founder and CEO, Wine Educator. Following the tour, the students were made to stay at WIC.WIC by Red Grapes is concept to promote and educate wine. The students understood about the wine and the industrial manufacturing process and learnt to taste the wine with the help of 4 S's i.e. See, Swirl, Smell and Sip.

Feedback: WIC educates the students on wine that should be consumed for health, it is a farmer product and it is a casual product that could be enjoyed with friends and family.

Teacher In Charge: Dr.Sejal Rathod

Vintage Wines Pvt Ltd

Nashik



Date:6.2. 2019 **Target audience:** F.Y.BSc 29 , S.Y.BSc 20, T.Y.BSc 27 Students

Under the Star-DBT scheme, the Department of Biotechnology had organized an Industrial Visit to Vintage Wines Pvt Ltd winery. They were first taken for a tour around the winery and were introduced to the various procedures involved in wine making. Following the tour, the students were taken through a brief history of the winery by Mr. Yatin Patil. The students were made to understand the advent of the wine making process in India and how Vintage Wines Pvt Ltd was trying to make a difference by offering Italian touches to the wines prepared. . All the different varieties of wines made at the winery and the differences in each of them were made clear to the students.

Feedback: Students understood how the topology and climate of an area influences the process of wine making. They got insights into the process of wine making beginning from the plucking of grapes to the final ageing of the wines thereby prepared.

Teacher In Charge : Dr.Sejal Rathod

York Winery

Nashik



Date: 7.2. 2019.

Target audience: F.Y.BSc 29 , S.Y.BSc 20, T.Y.BSc 27 Students

Under the Star-DBT scheme, the Department of Biotechnology had organized an Industrial Visit to York Winery. The students were first taken for a tour around the winery and were introduced to the various procedures involved in wine making beginning from grape receiver, crushing, red winemaking, white wine making barrel cellar, bottling, and storage. Following the tour, the students explained the working of the machinery involved in the making of wine viz. sorters, crushers, fermenters, storage units etc. The students were shown the vineyards from a distance and the differences in the colour of grapes for each of the varieties grown at the estate. The students were shown the Plate and Frame filter used for the downstream processing of the fermented wine, thus allowing better understanding of the working principle of the filters. The actual processes of crushing, sorting and pumping of the juice into fermenters were shown to the students.

Feedback: Students understood the differences in the procedure of wine making with respect to red wine making and white wine making.

Teacher In Charge: Dr. Sejal Rathod

National Horticultural Research and Development Federation (NHRDF)

Nashik



Date: 07.02.2019 **Target audience:** F.Y.BSc 29 , S.Y.BSc 20, T.Y.BSc 27 Students

Under the Star-DBT scheme, the Department of Biotechnology had organized an Industrial Visit to NHRDF, Nashik. The students were briefed about the major focus areas of research at NHRDF. The research was based on understanding pest control in onion and garlic plants. The students were then taken on a tour of the institute and the working of each of the laboratories was explained to them. The students were then taken to the fields and were explained the different experimental crops and parameters that were under study.

Feedback: The different methods of farming and the differences in the crop yield were made clear to the students. Also using flowering plants as a means for pest control was shown to the students. The students received insights into various issues related to onion and garlic farming.

Teacher In Charge: Dr.Sejal Rathod

Department of Chemistry

Supercomputer facility, Bhabha Atomic research Centre

Mumbai



Date : 23.1.2019

Target audience : F Y B Sc (110 students)

On Wednesday January 23, 2019 FYBSc students of Chemistry Department were taken for a visit to BARC, Mumbai. They visited the supercomputer facility, a key of connectivity in BARC.

BARC has its own intra net facility using a big super computer system. The students were taken to the computer facility and shown how information is collected by the super computer and how computer interprets the things and gives result. This computer is the base of inter-connectivity of various researchers in BARC.

Students were shown Asia's longest building (more than 1 km length) housing various laboratories in BARC.

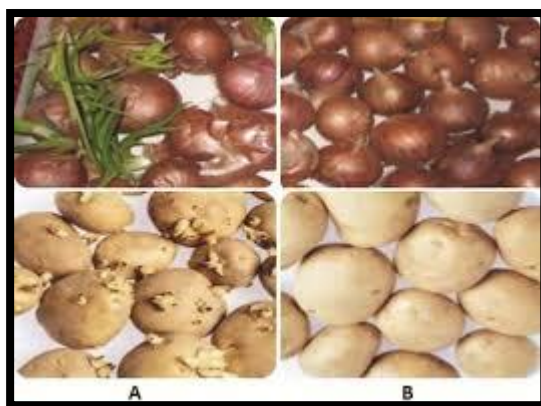
Feedback:

The students could actually see a supercomputer facility, which up to now they had only read about. It was indeed amazing to know the importance of such a facility for a research Institute

Teacher In Charge: Dr Rajesh Samant

Centre for Food preservation, Bhabha Atomic research Centre

Mumbai



Date : 23.1.2019

Target audience: F Y B Sc (110 students)

In food preservation section, the use of Gamma radiations in food preservation and development of better fruit quality was explained. The variety of irradiated and un-irradiated samples were shown to the students. Along with preservation the irradiation was used for development of seed for new and better quality crops were shown. Use of radiation in various aspects of food preservation was explained to the students. They were also explained about the safety of irradiated foods

Feedback:

Students learnt the use of radiations for preservation of food .They also understood the concept of safety of irradiated foods.

Teacher In Charge: Dr Charulata Chaturvedi

Reactor DHRUVA, Bhabha Atomic research Centre

Mumbai



Date : 23.1.2019

Target audience : F Y B Sc (110 students)

Students had the opportunity to visit the reactor DHRUVA located at BARC. Students were explained the actual working of the reactor. They were explained the various safety aspects of the reactor. A demonstration of checking residual radiations after exit from the reactor was done for the students. They were explained the construction and working of the reactor, process of loading the reactor etc. Treatment of waste water generated from the reactor was explained. Control room for monitoring the working and regulation of the reactor was shown.

Feedback:

The visit helped in correlating theory of Nuclear reactors with the actual structure. It was indeed a memorable experience as the students had an access to the reactor. They could see the parts of reactor which up to now was only theory for them.

Teacher In Charge: Ms Mridula Gupta

Ms Uzma Shaikh

Parle Products , Silvassa

Gujarat



Date : 31.8.2018

Target Audience: T Y B Sc 45 students

The students were shown documentary on development of Parle group and technology used in manufacturing various products. The documentary also had the introduction to GMP practices to be followed in food and pharma industries.

Students were then taken to manufacturing line of Parle- G . This was about 75 meters long manual intervention free – forming – baking – inspection and packing line. Working of each machine and its advantages were explained to the students . Use of sensors for controlling the manufacturing process was explained .

The other important thing which attracted the students was auto weighing and auto packing of the biscuits.

Feedback:

The students could understand the process of confectionery manufacture and the use of Chemistry in the entire process. Autopacking and autocontrol of the process was highlight of the visit .

Teacher In Charge: Dr Sunetra Chaudhari

Dr Rajesh Samant

Universal healthcare ,Silvassa

Gujarat



Date : 1.9.2018

Target Audience: T Y B Sc 45 students

Universal is a group involved in manufacturing some cosmetic and house hold healthcare products. Here students were taken to testing laboratory, where the students were shown the testing charts and quality standards.

Students were made aware of the process of quality testing of various household products like floor cleaners and disinfectants. They could see the production unit and quality control unit

Feedback:

It was indeed a good exposure for the students to get to know the actual career applications of the subject that they have been studying. They could for themselves see the working of a pharmaceutical industry .

Teacher In Charge: Dr Sunetra Chaudhari

Dr Rajesh Samant

Universal cosmetics ,Silvassa

Gujarat



Date : 31.8.2018

Target Audience: T Y B Sc 45 students

Students were explained the role of chemistry in manufacture and quality control of cosmetics . They were shown manufacturing sunscreen cream.They got to know the chemical composition of different cosmetics and the function of each component of the cosmetic. The working of a quality control laboratory was described with special stress on the instruments used for the same.

The Technical Director shared his experience with the students and answered the queries. The major questions were on the quality of product and its legal responsibility of customer care and satisfaction.

Feedback:

Various aspects of production of cosmetics and its quality parameters were understood by the students

Teacher In Charge: Dr Sunetra Chaudhari

Dr Rajesh Samant

Adivasi Parichay Kendra , Silvassa

Gujarat



Date : 31.8.2018

Target Audience: T Y B Sc 45 students

It is a museum cum exhibition of tribal material and handcraft material. It had several ancient metallic vessels, some manufacturing process displays, some antique articles etc. The students were shown around the facility and could get to know the life and time of tribals which are an important part of the Indian Society. The fact that the tribals had altered their lifestyle to live in harmony with the environment and cause minimum or no damage was appreciated by the students.

Feedback

The Adivaasi Parichay Kendra made the students realize that illiterate people used science in their everyday life unknowingly to successfully create fabrics, utensils and other articles that were intact for a long period of time. It was an eye opener for them to understand the fact that our tribals knew of things that we study in books without getting formal training in the same.

Teacher In Charge: Dr Sunetra Chaudhari

Dr Rajesh Samant

DAE, Bhabha Atomic Research Centre Mumbai

International Year of Periodic Table 2019



Date :16.2.19

Target audience: TYBSc 35 students

BARC had organized a programme to commemorate the International Year of Periodic table. The programme consisted of a series of lectures centered around the elements of the periodic table. The lectures were designed to reach the Target audience ie Undergraduate students. Speakers were eminent scientists of international repute from different parts of India.

A session was conducted to talk and highlight the significance of periodic table. A talk by Prof Jemmis was conducted to highlight the reactions and uses of transition metals.

Applications of lanthanides and actinides were discussed in detail specifically with reference to its research applications. Big bang theory and its relevance to recent research was explained in details. Applications of radioelements in medical field mostly diagnostics and therapy was discussed. Chemical bonding and new paradigms in same were highlighted. Over all it was a very informative session .

Feedback

Visit to BARC itself was a great experience for students as well as teaching staff. The Students were introduced to a possible further career prospect. The lectures on periodic table were informative and interesting for all the students.They got to know the novel applications of elements and had an insight in to how the elements were formed. All in all it was a appropriately tailored series of informative lectures.

Teacher In Charge: Dr Sunetra Chaudhari, Mr Karun Sodah

*DrYogita Shinde

Lucky Dyeing Industry, Saki Naka

Mumbai



Date :20.12.2018

Target Audience: T.Y.B.Sc,40 Students

Department of Chemistry had organized a visit to dyeing industry for TYBSc students. The Industry specialized in dyeing clothes on commercial scale. The Students were shown commercial dyeing process. They could see dyeing equipments like boilers, Centrifuge machines and dryers. They were also shown the method of making different patterns.

Feedback

Students got the knowledge of cloth dyeing on industrial scale. They got to understand use of different equipments used in dyeing.

Teacher In Charge Dr Sunetra Chaudhari,

Dr Rajesh Samant

Dr Charulata Chaturvedi

Department of Life Sciences

Chavan Agrofarms, Karjat



Date: 8.8.2019

Target audience: S.Y B.Sc Life Sciences, T.Y.B.Sc Life Sciences

Under the aegis of DBT Star College Scheme, Department of Life Sciences organized an excursion for students of S.Y.B.Sc and T.Y.B.Sc., on 8th August 2018 to Chavan Agro Farms, Karjat. Chavan Agro Farm is expanded in an area of 10 acres of land located near Karjat station. It is inhabited with various indigenous species of plants and associated minor fauna.

Nature trail was conducted on the farmland with the help of teachers. Variety of plants observed included *Colocasia* (alu), *Amorphophalus* (sooran), *Sapendus* (Reetha), *Mangifera* species, *Oryza sativa*, *Artocarpus*, maiden hair fern, *Riccia*, wild *Curcuma Dioscoria*, *Ancardium occidentale* etc. They also showed various grafts of Mangoes ready for planting in appropriate season. Under the wonders of animal kingdom there were observation of animal architects like Harvester ant's nest, Tailor bird's nest and Weaver bird nest. Nesting behavior of Frog was also observed. Elephant dung beetle, grasshopper, desert locust, giant spider's web and various other insects were also observed. For the irrigation purpose, the supply of water was created on the concept of "Paani Adva Paani Jirva". They had also created an artificial water fall wherein the students enjoyed a lot.

Feedback:

Students found the visit very informative and useful. The ancestral land can be conceptualized in agrofarm was one big take away message for students. Interaction of animals and plants was closely observed when they came across animal habitats. Also the importance of traditional ways of conservation of water was well understood.

Teacher in Charge: Dr Tejashree Shanbhag

**Visit to Banganga for Algae Collection
Mumbai**



Date: 24.8.2019

Target audience: F.Y B.Sc Botany

Department of Botany organized a visit to Banganga Tank for the students of F.Y.B.Sc Div- B as their annual academic excursion. The main motive behind this excursion was to study different types of algae collected by students on their own.

Prior to the visit, students were oriented about sampling vessels appropriate for algal sampling. Later, the students assembled at the banks of the Banganga Tank on Malabar hill where they were explained about the Historical & Cultural background of the lake by the teachers. They were explained about common sampling techniques employed in freshwater algal collection, followed by collection of samples in sample bottles. After a productive hour of collection students packed their bottles and in the following day, those water samples were used to identify algal diversity and to compare water collected from different parts of the tank.

Feedback

The excursion was very fruitful and students got an insight for fresh water algae collection and identifying the algae species. This visit has also helped students to understand the historical significance of 'Banganga'. It is an Ancient Water Tank which is part of 'WALKESHWAR TEMPLE'. It is a complex in Malabar hill area of Mumbai in India. This tank was built in 1127 A.D by 'Lakshman Prabhu' a minister in the court of Silhara dynasty kings of Thane.

Teacher in Charge: Dr Archana Thite

Visit To 58th Fruit, Vegetable & Flower Show

Mumbai



Date: 9.2.2019

Target audience: F.Y B.Sc Botany

Students of F.Y.B.Sc. Botany class accompanied by Dr. Sagarika Damle, Dr. Archana Thite, Dr.Suvarna Sharma, Mr. Atul Kotian, and Mr. Gaurav Bingi visited the 47th Fruit flower and Vegetable show, organized by Friends of Trees, an NGO. According to Francis Bacon, travelling is a part of education. An excursion is not just a pleasure trip; it enhances the knowledge of the students beyond the four walls of the classroom. To provide such an enriching experience to students, Department of Life Sciences, organises excursions to famous places wherever possible.

Students of Botany develop love for nature and therefore they were excited to get an opportunity to visit the “FRIENDS OF TREES” exhibition. They were amazed after entering the venue and seeing the greenery and colourful display of plants. There were many different plant species which they saw for the first time. The displays had various categories of plants such as medicinal garden, foliar display, Bonsai and flowering plants. The walk commenced with visiting stalls of flowers like Roses, Pansy, Gerberas, Jasmine, Lily and Sunflower. This was followed by colourful displays of Mock verbena, Star Phlox, Snapdragon, Daisy, *Lupinus*, Candytuft, *Gazania*, Sweet Alyssum, Soapwort and many more. The students saw different vegetables grown in pots, and put on display, such as Sweet potato, different gourds, Okra, Potato, Broccoli, Turnip, Beet root, Cabbage and Cauliflower.

The centre of attraction was the ‘Bonsai exhibition’. Bonsai is an ancient Japanese art form using specialized techniques to grow small trees in containers that mimic the shape of full size trees for aesthetic purposes. Students saw species like *Ficus*, *Premna*, *Dorstenia*, mini blue Braya, *Wrightia* landscape, small cacti, etc used in innovative ways to create beautiful

displays. Different plants were displayed for foliage, by the Central Railways and Western Railways which included a plethora of plants like *Alocasias*, *Aglaonema*, *Anthurium*, *Asparagus*, etc. Different cacti and succulents like *Seneclopendulus*, *Weberocereustunilla*, *Lephophoraziegliri*, *Espustoalanata*, *Mammillaria candida* showed rich biodiversity of xerophytes. They saw many different medicinal plants like Vekhand, *Salvaofficinalis*, Marva, *Origanumvulgare*, Lemon grass, Vasanti, Kadipatta, Titpati, Lasunvel, Kapurtulsi, Madhunashini, All spice plant, Odomas, Shetul, Damavel, etc. There were even flowering creepers like *Thunbergiafragans*, *Pyrostegiavenusta*, Japanese hat, *Holmskioldiasangunea*, etc. There were displays by different colleges from their Botany department showcasing the special specimens such as largest capsule and largest seed in angiosperm, various allergies causing plants and Herbarium samples that preserve dry specimen of plant species

Feedback

Since there were more than hundred different varieties of plant species in the exhibition, the students could learn many interesting and novel things about these plants which they didn't know before and such visits are helpful in understanding the importance of plant world in human life. Students were fascinated by displays of herbarium, dried specimens of marine algae, largest plant seed etc. After learning so much about different plant groups under one roof, students were enthused to plan for their next outing.

Teacher in Charge: Dr Sagarika Damle

**Alibaug Excursion
Raigad**



Date: 14.1.2019

Target audience: F.Y B.Sc Botany

Alibaug is a beautiful sandy beach on the coastline of Maharashtra. It is known for its breathtaking views and diverse flora and fauna. It is a suitable site for all nature lovers and students for studying its rich diversity in organisms. This site includes a fort having rocky shores that surround it harboring rich diversity of flora and fauna. The famous fort is known as the 'Alibaug Fort' or its name 'Kolaba fort'. Tourists come from all over to admire its beauty and structure. The rocky shores surrounding the fort are home to many terrestrial and marine creatures. The excursion to Alibaug began from the famous Gateway of India jetty to the scenic port of Mandwa. The waters of Gateway of India are a part of the Arabian Sea. The catamaran ride became rather interesting when a squabble of seagulls started flying around the boat. Students could observe flying characteristics and could also feed some birds who readily accepted hand-feeding. A bus ride from Mandwa port to Alibaug completed the final leg of the journey. On reaching Alibaug the students dashed their way towards the beach. On reaching the beach they started walking on the foreshore, a feature which remains submerged at high

tide but can be accessed on foot on low tide, where they saw a plethora of molluscs and other invertebrates. They were taught to identify different molluscs by the hard covering (shells) and soft bodies. The waters were filled with different varieties of discarded mollusc shells, hermit crabs, bivalves etc. Students collected beautiful specimens in reusable bags and bottles and filled them with sea water. Later they headed to the fort where they saw many beautiful organisms in their natural habitats. The teachers helped in identifying a wide variety of flora and fauna. The Botany and Zoology students got a chance to learn beyond boundaries and barriers of their respective subjects. The marshy lands had various pneumatophores (an aerial root specialized for gaseous exchange, a typical feature of mangroves) of *Avicenna*. The botanical samples that were collected were *Ulva* also known as sea lettuce is an edible green alga in the family Ulvaceae and *Sargassum*, a brown alga belonging to family Sargassaceae.

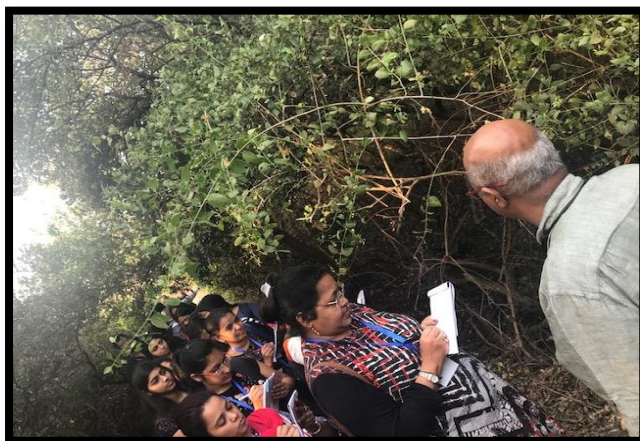
The zoological samples in comparison were more, they included planaria, nereis, snails and various molluscs, patella, barnacles, pila and other lower organisms. Students identified the sponge colony through presence of osculum and ostia. It was very inspirational to see these organisms are their natural habitats rather than the text books, increasing the love for the animal world. They headed back at around 1.20pm. The journey back was rather challenging due to the increase in the tide. Students returned to Gateway of India jetty by around 6.30

Feedback

An informative and exciting excursion planned by our Life Sciences Department during which we saw a number of marine organisms and plants. It was planned accurately by our teachers' in charge.

Teacher in Charge: Dr Aashu Vajpai

Mangrove Walk –Nature Trail Under the Biodiversity Conclave MY Earth 2050 – A Habitat for Sustainable Coexistence



Date: 6.2.2019

Target audience: T.Y B.ScLifesciences

A total of 100 plus participants comprising of faculty, undergraduate and post graduate students along with some industry and NGO representative registered for the Two Day National Level Biodiversity Conclave BCME 2050, jointly organized by Department of Life Sciences and Godrej and Boyce Mfg. Co. Ltd.

Day 2 of BCME 2050, began at the Mangrove Park, Godrej and participant enjoyed an early morning walk through the estuarine marine ecosystem that acts as a pollution barrier for an urban ecosystem. The mangrove flora of Pirojshanagar is well diversified. There are 16 species of mangroves and mangrove associates. The faunal composition in the area is also equally diverse. Apart from 206 species of birds, 30 species of reptiles, 13 species of crabs, 7 species of prawns and 20 species of fish have been identified so far in the area. Mammals like jackals and mongoose also were sited many a times This wetland acts as an important stopover for over hundred species of migratory birds including magnificent flamingos, gulls, terns, avocets & curlews. The participants sighted common species of mangroves such as *Avicennia marina*, *Rhizophora mucronata* and *Sonneratia apetala*, that were surrounded by pneumatophores or breathing roosts. They also observed many water birds, Butcher bird, egrets and other species of moths, butterflies and insects.

Feedback

Participants liked the Nature Trail at Mangrove Park, organized on Godrej land. The species observed during the trail were discussed and each group commented on the importance of conserving such natural estuarine ecosystem nearby urban areas.

Teacher in Charge: Dr Sagarika Damle

Exhibition on Plastic Ban NSCI Ground, Worli , Mumbai



Date: 23.6.2018 **Target audience:** S.Y.B.Sc Life Sciences and T.Y.B.Sc Environmental Sciences Students

Under DBT Star College Scheme, Department of Life Sciences had organized a visit to exhibition on Plastic Ban and Alternatives to Plastic organized by the MCGM (BMC) at NSCI, Worli on 23rd June 2018 for S.Y.B.Sc Life Sciences and T.Y.B.Sc Environment Sciences students. At the exhibition, there were stalls that offered creative and scientific alternatives to plastic-the foe of Mumbai's drains, stray animals and sea life. Students interacted with the different vendors at a number of stalls to get details about the processing, availability, durability, cost and handling conditions of products such as the biodegradable garbage bags made of polylactic acid and corn starch, the edible spoons, plates and bowls made of areca nut leaves, washable sanitary napkins, recycled flower pots, cloth bags, etc. Many stalls had plastic recycling methods being used to create new consumer goods. At the stall of Reboot, wherein

they showed how a plastic-crushing machine could crush packaged water bottles and use it to make T-shirts! There was a bench that was made entirely from 250kgs of recycled & repurposed plastic. There were baggase and corn starch polymer plates and bowls. There was also a stall where there were carry bags made from a water-resistant fabric. So, the whole issue of cloth/paper bags being useless the monsoon gets resolved now. Many of them, like the Mahila Bachat gats and Strawng, among others had involved women, generating a source of employment. Thus, the plastic manufacturing units would be easy to shut down without the on surge of unemployment since employment ‘alternatives’ are now present in the form of the startups and micro-businesses that plastic ban has influenced.

Feedback

After interacting with the manufacturer’s it came to our notice that these alternative products were designed with the only thought that plastic as a problem and not as a rescue material. Although there are many advantages of the alternative materials, there are certain downfalls as well. One of them being that liquid food materials like soups, curries, etc which cannot be packed in the alternative cardboard, aluminium or corn starch polymer cases since they’re not sturdy. Students perused upon the feasibility of using these alternatives. Lastly, the alternatives are approx. 4 times more expensive than plastic. However, irrespective of the disadvantages it’s a high time that plastic be eliminated from our lives owing to the hazards that this man made polymer invites. After visiting this exhibition, it came to realization, that we can eliminate plastic from our lives only if we could think with a different perspective and of course, with more creativity. All these alternatives come from our day-to-day life. The clues to them can be found around us at every moment.

Teacher in Charge: Dr Tejashree Shanbhag

Department of Microbiology

National Center of Cell Sciences NCCS Research Institute

Pune



Date: 11.1.2019

Target audience: S.Y.B.Sc and T.Y.B.Sc

On 11th January, a visit to the National Center of Cell Sciences (NCCS), Pune, Maharashtra was organised by the Department of Microbiology of K.C. College for the students of microbiology of class SYBSc and TYBSc.

The visit started with the tour of 3 major labs in the building wherein in the Proteomics lab many instruments like Matrix-assisted Laser Desorption Ionization Time-of-flight mass spectrometry (MALDI-TOF), Mass Spectrometry, High-performance thin-layer chromatography (HP-TLC) and Column Chromatography were shown and their working was explained to the students. The need and accuracy of these instruments in the field of research

was discussed. Also in yet another laboratory Fluorescence-activated cell Sorter and analyzer was shown, and it's working and advantages were explained to the students. Students were also shown a confocal microscope and its specific application in cancer cell analysis was depicted. This was followed by a tour to the storage room and the tissue culture lab and instruments within them, like the Liquid Nitrogen equipment was shown.

Feedback:

Overall, it was a great and amazing day for students and gave them a glimpse of the current research areas, work environments and increased their curiosity in research

Teacher in Charge: Ms Rajitha Satish

**Science Exhibition on Theme “Water Uses, Conservation and Future” to
Indian Women Scientists Association (IWSA).Navi Mumbai**



Date: 23.2.2019

Target audience: S.Y.B.Sc students

Under Star-DBT scheme, the Department of Microbiology had organized a visit to Indian women scientists association (IWSA) science exhibition, Vashi, Navi Mumbai, Maharashtra on the theme of “Water Uses, Conservation and Future”. Department of Atomic Energy (DAE) displayed posters and models on various technologies developed at the various establishments of DAE. The working and the advantages of the model Gamma Chamber 5000 and various other types of gamma chambers was explained to the students. A brief overview and working of the model Blood Irradiator 200 used for irradiation of blood and its components by gamma rays was discussed with the students. A model of Bhabha scanner was also explained with the help of a poster wherein the cancer cell detection was highlighted as an application of the scanner. To depict how heavy water can be useful in generation of power especially in areas where there is scarcity of water, the model of pressurized heavy water reactor was displayed and its working was explained stepwise.

The students were also taken for a tour of the campus where they were shown a biogas plant; they were also shown the water conservation methods employed by IWSA wherein the concept

of grey water was introduced and students were explained the importance of water conservation. The tour also consisted of making students aware of various species of plants like tranquil gardens, sensory gardens, indoor air purifiers, aromatic plants and their uses.

Feedback:

The overall exhibition was very informative and stimulated a lot of interest to learn new things. The exhibition helped open door towards various solutions that can be used for the betterment of the sectors deprived of water facilities

Teacher in Charge: Dr Sejal Rathod



Karnala Fort and Bird Sanctuary Raigad

Date: 7.9.2018

Target audience: S.Y.B.Sc and T.Y.B.Sc students

A one day trek to the Karnala Fort and Bird sanctuary in Panvel, Raigad district, Maharashtra was organized by the Department of Microbiology, K. C. College, on Friday 7th September 2018, for the students of SYBSc and TYBSc. The students were accompanied by all the teachers of the Department.

It was a one day trek up to the fort where the students got to see a variety of species of birds and different flowers. The students also collected water and soil samples from there to set up Winogradsky's column which gave results giving an insight into minute details and beauty of nature. The activity allowed the students to practically set up an ecosystem in the laboratory similar to one at Karnala pond. Over a time period different nutrient gradients were formed in the Winogradsky's columns. These gradients affected the different microbes which grew within the columns. Students could study the various zones which were formed in the column and different types of organisms that grew like green sulfur photosynthetic anaerobic bacteria, purple sulphur anaerobic bacteria, purple anaerobic non-sulfur bacteria and at the top layer of cyanobacteria and algae.

Feedback: The trip was a refreshing and rejuvenating experience amidst nature and the students returned with a bag full of memories to cherish. The experiment helped them to observe the diverse types of microorganisms found in the natural habitat.

Teacher in Charge: Dr Sejal Rathod

Glenmark Pharmaceutical, R and D Center, Mahape.



Date: 7.9.2018

Target audience: S.Y.B.Sc and TYBSc students

Under Star-DBT scheme, the Department of Microbiology had organized industrial visit to Glenmark Pharmaceutical, R and D Center, Mahape, Navi Mumbai, Maharashtra for T.Y.B.Sc. students.

The visit started with a lecture delivered by Dr Sachin Chaudary, General Manager, Glenmark Pharmaceutical where he explained the different steps involved in discovery, production and marketing of New Chemical Entity (NCE) and New Biological Entity (NBE) including the three most important techniques that leads to the identification of potential drug candidates. He also covered topics like production of Monoclonal Antibody and its application and made the students aware about the ongoing research in different R&D centers of Glenmark pharmaceuticals across the world. He also discussed the career opportunities under different Departments/sectors during the process of drug discovery. Students were also made aware of the regulatory body governing different laboratories and animal houses and we were also shown the world class facilities offered to animals in animal houses. This was followed by facility tour to New Chemical Entity labs, Tissue culture lab, Toxicology lab, Pharmacokinetics lab, Production center, Animal House and also Library across the R&D center.

Feedback: It was highly enriching experience to understand the laborious task and procedures involved in discovery of potential drug candidates.

Teacher in Charge: Ms Rajitha Satish

Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), Navi Mumbai



Date: 7.12.2018

Target audience: TYBSc students

Under Star-DBT scheme, the Department of Microbiology had organized a visit to The Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), Navi Mumbai, Maharashtra. ACTREC had organised an annual Open Day event in their campus wherein students from different colleges were invited in order to demonstrate the various facilities and instruments along with the basis of oncology and research conducted. The students were introduced to various posters signifying the work conducted at ACTREC and the fundamentals of oncology and the researchers enlightened the students with the history of the institution, its development and its current research and facilities.

This was followed by a tour to Departments like Laboratory animal Facility, Small animal Imaging, Raman Spectroscopy, Flow Cytometry, Electron Microscopy, X ray Crystallography, Composite Laboratory & Radiation Oncology. Within these laboratories various instruments like Flow cytometer, Electron microscope was shown and their working was explained. In the animal facility, students were shown different types of model organisms, also the Radiation Oncology was introduced and the technique such as radiolabelling and its application to detect cancer was explained. The lab protocols were also explained wherein the students were shown how radiation exposure to the workers in the Department is constantly monitored and the stringent rules that follow.

Feedback:

The visit to such a prestigious institute was a wonderful experience for the students and concepts about oncology were revised and cleared for them. It helped the students gain resourceful knowledge and enhanced their interests in sciences.

Teacher in Charge: Ms Rajitha Satish

Rhythm Winery Pune



Date: 11.1.2019

Target audience: TYBSc and SYBSc students

The Microbiology Department of K.C College organised an industrial visit to Rhythm winery in Pune on the 11th January 2019 for the students of SYBSc and TYBSc. All the teachers of the microbiology Department accompanied the students.

At the winery the entire process of wine making consisting of 5 basic parts such as harvesting, crushing, fermentation, clarification, aging and bottling was explained. The Rhythm winery is known for making fruit wines using grapes as the base and then using other fruits like strawberry, kiwi, peach, pineapple, etc. for flavouring. The different chambers used for wine making, the microorganism used for fermentation, the temperature required for each process was explained to the students including about the 5's of wine tasting: see-swirl-sniff-sip-savour.

Feedback: The visit to rhythm winery was fun as well as very informative and the students got a background of the working of a fermentation industry

Teacher in Charge: Dr Sejal Rathod

Department of Statistics

Visit to Dr. Balasaheb Sawant Konkan KrishiVidyapeeth, Dapoli, Maharashtra



Date: 20.1.2019 to 22.1.2019 **Target audience:** TYBSc and SYBSc students

“The Only Source of Knowledge is Experience” – Albert Einstein

The Statistics Department of K.C College under the Star DBT scheme had organized an educational visit for T.Y B.Sc. and S.Y. B.Sc. students to Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli from 20th January to 22nd January 2019. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, formerly Konkan Krishi Vidyapeeth, is an agricultural university at Dapoli in Ratnagiri District. Apart from providing formal education in different fields of agriculture, Dapoli Krishi Vidyapeeth is also known

1. To standardize technologies for crop production, protection, harvesting, marketing, post harvest utilization and also for livestock, poultry and fisheries for improving the standard of living of the farmers, farm workers and women of Konkan in general and rural women in particular.
2. To provide necessary production support of nucleus breeders and foundation seed of important crops of the region and also generate revenue through large farms for sustainable growth of the University.

It has come up with different sustainable and high yielding varieties of Mango like :Ratna, Sindhuetc; Cashew: Vengurla and other varieties of vegetable and Rice. All these field experiments are very well planned and use statistical techniques like Designs of Experiments and Statistical inference at its highest level to verify their results.

Students of Statistics at their graduation level have course content on these topics. This visit was planned to explore the actual use of these statistical tools on field for the purpose of betterment of the people. Students during their visit were taken to the field where the research was conducted by Department of Soil and Science Agril. Chemistry of KonkanKrishiVidyapeeth to know the effect of seaweed extract on yield, quality, nutrient uptake, soil properties and growth performance of chili (*Capsicum annum L.*). This experiment was conducted using Randomized Block Design (RBD). As the soil fertility on different regions of the land was different, the land was divided into three parts (blocks) with homogenous soil fertility. Then each block was divided into 16 parts because there were 16 treatments to be used. The treatments were randomly used in all three blocks. Each treatment was replicated three times so in each block a treatment can be used only once. Then the average result of the effect of the treatment on the basis of the soil fertility is calculated and the conclusion is made.

Department of agronomy is conducting research with following titles

- 1) To study the effect of different levels of irrigation and fertilizers through drip irrigation coupled with different types of mulches on growth, yield and quality of groundnut under Konkan region.
- 2) To study the nutrient management in Kharif Rice (*Oryzasativa L.*) established by different methods and its residual effect on Rabi field bean (*Lablab purpureus L.*) grown under different tillage systems.

Students during this visit visited different fields which were using different designs and understand them by observing actual experimentation site like: Completely Randomized Design (CRD), Randomized Block Design (RBD), Latin Square Design (LSD), Spilt Plot Design, Strip Plot design etc.

Students also visited the Agrometrological Department. This Department was located near the agricultural fields. Dr. BalasahebSawantKonkanKrishiVidyapeeth has one of the oldest metrological Department and has been proving weather information to Indian

Metrological Department for the past 40 years. It has multiple instruments ranging from manual ones like Rain Gauge to Automated instruments like Automatic Weather Station (AWS). These instruments were:

Open Evaporate Meter, Ordinary Rain gauge, Self-recording Rain gauge, Single Stevenson Screen, Wind Vane and Anemometer, Campbell Stoke Sunshine Recorder and Automatic Weather System which is a self-recording system that ISRO has installed in every block of the nation so has to automatically record the weather and send details to Indian Metrological Department.

Students interacted with eminent researchers and professors on field to understand the way different weather instruments being used by the institute, their working, merits and demerits.

They also explained students, how this data is sent to Indian Meteorological Department. This enabled student to realize the importance of efficiently recording of data and it's transmission to data base of weather Department in both manual and automatic weather recording instruments.

At the end of the field visit Dr. Dekhale, Professor in Statistics, Department of Agronomy, conducted a session on data analysis using SAS. It was quite informative session. He delivered his talk on different important aspects of analysis of data.

Feedback:

This field trip provided a practical angle to the methods we had learned. Until now we had only seen textbook examples but now, we know how these methods are applied in real life and what measures we had to take for them. The IV trip was both educating and maturing in nature. New friendships were built, and older bonds got tighter. Not only we learned but also enjoyed a lot. The trip in our opinion was a major success and inspires me to further gain knowledge on these topics.

Teacher in Charge: Dr Shailaja Rane

Dr Muley

Mr Shubham N