

DEPARTMENT OF ZOOLOGY
ST. XAVIER'S COLLEGE (AUTONOMOUS)
PALAYAMKOTTAI

Star College Programme (2014-2017)

Annual Report 2014-15

Sponsored by

Department of Biotechnology
Govt. of India, New Delhi

1. Name of the College : St. Xavier's College (Autonomous), Palayamkottai – 627 002, Tamil Nadu.
2. Name of Departments supported : **Zoology**
3. Number of regular faculty with Ph.D. : 10
4. List of courses run by the department : B.Sc., M.Sc., M.Phil and Ph.D

Programmes organized for the students by the Department

1. TRAINING PROGRAMMES

1. Hands on training on “SDS-PAGE”

We have organized a training programme on “SDS-PAGE” for our first year UG students and other participatory departments during 24 and 25th February, 2015. Forty seven students from Zoology Department and thirty students from other three participatory departments viz. Mathematics, Physics and Chemistry registered for participation. The programme started at 11. 30 am with a short inaugural function with a silent prayer followed by the formal welcome address by Dr. P. Selvaraj and Introduction of chief guests by Dr. B. Xavier Innocent, The Head, Department of Zoology.

The Chief Guests **Dr. U. Ramesh**, Assistant Professor, School of Biological Sciences, M.K. University Madurai and **Dr. C. Ravi**, Assistant Professor, Department of Zoology, Thiyagarajar College, Madurai gave a vivid lecture on the background of Protein technology and application of SDS-PAGE for isolation and quantification of polypeptides. Dr. K. Sahayaraj and Dr. P. Selvaraj demonstrated the SDS-PAGE instrumentation and experimental protocol. They also demonstrated the Gel-documentation using D-Gel software. Participants had elaborate discussions with the experts and involved in the training individually by several trials and observed the process of protein separation by SDS-PAGE.

2. Hands on training on “**Chromatographic techniques**”

Hands on training on “**Chromatographic techniques**” for the II year students of our department was conducted on 25th September, 2015. All the II UG students of our Department and thirty students from other three participatory departments viz. Maths, Physics and Chemistry underwent the training. The programme started at 11. 30 am with a short inaugural function in which Dr. P. Selvaraj welcomed the participants and Dr. B. Xavier Innocent, The Head, Department of Zoology introduced the expert **Mr. Saravana Perumal, Director**, ABBES Biotech, Chennai. The special invitee of the programme

Mr. Saravana Perumal gave an introductory lecture on the principles and types of chromatography and their application. He demonstrated ion exchange and size exclusion chromatography. He also demonstrated the immunoelectrophoresis. His presentation, demonstration of the practicals and the explanations related the troubleshooting in the experimentation was informative and his experience in the field inspired and motivated the students.

Programmes attended by our students in other participatory Departments

1. All our I UG students attended the special lecture on **Why Nano-bio-technology?** organized at the College level under the Star College Programme at XIBA Conference Hall on 12th December, 2014. **Dr. Badal Kumar Mandal**, was the Chief Guest. The lecture on this new science and technology was much useful and informative to the students and his talk motivated the students.
2. Our I UG students (30) attended workshop on “**SPSS Packages**” organized by the Department of Mathematics on 9th March, 2015. The students were well informed about the application of the statistical software in biological research and were give hands on training in the application of “SPSS Packages”.

3. Ten of our first UG students attended the workshop on “**Current status, key challenges and their solution in the constructive development of bio-fuel cells**” on 11th September, 2015. It was an informative session which gave an exposure and experience in the development of bio-fuel cells.

Programmes organized for the Staff by the Department

1. Workshop on UV-visible spectrophotometer and Potentiometer

A one day workshop was organized for the members of the staff of Botany, Chemistry, Maths, Physics, and Zoology on 13th December, 2014. **Dr. Badal Kumar Mandal**, Professor, Environmental and Analytical Chemistry Division, School of Advanced Sciences, VIT University, Vellore was the Chef guest. Totally 43 staff members were participated. Initially, **Dr. A. Lourdusamy**, Coordinator, Department of Mathematics proposed Welcome address and introduced the chief guest **Dr Badal Kumar Mandal**. The Overall Coordinator of the programme. **Dr. K. Sahayaraj** summarized the over all objective of the project. He emphasized that “Strengthening Biotechnology components in existing Life Science courses and practical Training, industry exposure to students at undergraduate level, up gradation of faculty skill by organizing training” is the ultimate aim of this programme. He proposed eight major activities to achieve the above goal. He also highlighted the availability of grants for various purposes. **Rev. Dr. V. Gilbert Camillus**, S.J., Principal and chairperson of the programme insisted the faculties to utilize the facility to upgrade and update their teaching and research skills. Then the resource person **Dr Badal Kumar Mandal**, Professor, Environmental and Analytical Chemistry Division, School of Advanced Sciences, VIT University, Vellore motivated the faculty and asked them to go for interdisciplinary research. He also nicely introduced the need of the workshop. **Mr. M. S. Selvakumar**, Member of the programme proposed vote of thanks.

Dr Badal Kumar Mandal briefly explained about the experiments one by one. Then divided the members of the staff in to five groups and each group will carry out the experiment and asked them to interchange the experiment. The experiments are: determination of iron content in the commercial vitamin tables, determine the dissociation constant of methyl red indicator, acid and base interaction, biogenesis of nonmaterial using plant extracts and preliminary characterization of biogenic nonmaterials. **Dr. G. Sahaya Antony Xavier, Dr. P. Johnson and Dr. P. Selvaraj** demonstrated and assisted other faculty members in the operation of UV-visible spectrophotometer. **Mr. M. S. Selvakumar** explained the working principle and operational procedure of the Potentiometer to the other faculties. All experiments were performed by the faculty interestingly.

2. Training programme on “Virtual dissection”

We organized one day training programme on “**Virtual dissection**” for the faculty of Zoology on 16th December, 2014. In order to expand the horizon of knowledge, invitations were extended to nearby institutions. Ten Professors from six different colleges (Sri Parasakthi College, St. Johns College, St. Mary's College, Kamaraj College, Sadakkathullah Appa College and MDT Hindu College) registered for participation along with eleven of our department staff.

The Chief Guest **Dr. L. Isaiarasu**, Associate Professor, Dept. of Zoology, Iyyanadar Janaki Ammal College, Sivakasi gave a vivid lecture on the background of the introduction of Virtual dissection in Zoology laboratory practical, its merits and demerits, Govt. policy and guidelines with Power Point Presentation. Later he demonstrated animal dissection using “Virtual dissection software” especially related to Frog anatomy and physiology. Participants had elaborate discussions and shared their views, experience and expertise on the possibility of implementation of alternative strategies in Zoology practical and conducting tests etc.

3. Training programme on “Advanced techniques in Biotechnology”

We organized one day training programme on “Advanced techniques in Biotechnology” for the faculty of all the five participatory departments of Star College programme in our College on 23rd September, 2015. All the faculty members of our department (Eleven) and three from the Department of Botany, two from the department of Chemistry and one from the department of Physics attended programme. The special invitee of the programme **Mr. Saravana Perumal, Director**, ABBES Biotech, Chennai, gave an introductory lecture on principles Isolation of DNA from *E. coli*, PCR, Immunoelectrophoresis, column chromatography and Blotting techniques and their applications the field of biological research and diagnosis of diseases. He also demonstrated the above said techniques. Participants practiced all the techniques with much enthusiasm on their own and interacted with the expert during trouble shooting and understood how to overcome the difficulty. They observed the results and became well versed with the techniques.

Programmes attended by our faculty in other participatory Departments

1. Dr. A. Jeyaseeli, Mrs. Babila Jasmine, Dr. Y. Ananth Kumar and Miss. Mabel Parimala attended the one day training programme on “**Computing with R**” organized by the Dept. of Mathematics on 25th July 2015.
2. Dr. K. Sahayaraj, Dr. A. Jeyaseeli, Dr. P. Selvaraj, Mrs. Babila Jasmine, Dr. T. Pushpanathan, Dr. Y. Ananth Kumar and Miss. Mabel Parimala attended the one day training programme on “**Agrobacterium mediated gene transfer**” organized by the Dept. of Botany on 10th September, 2015.
3. Miss. Mabel Parimala attended the one day training programme on “**Design and Development of electrode architechure and its modifications for the application of microbial fuel cell and electrochemical sensors**” organized by the Dept. of Chemistry on 12th September, 2015.

Programmes attended by our faculty in other Institutions

1. **Dr. K. Sahayaraj & Dr. P. Selvaraj** – attended a three day training programme on “Animal cell culture” at UGC-NRCBS Programme, School of Biological Sciences, M.K. University, Madurai during 12 to 14th Nov. 2014.
2. **Dr. T. Pushpanathan** attended three days bioinformatics training at Bharathidasan University, Tiruchirapalli from 10th to 12th June 2014.

2. INDUSTRIAL / FIELD VISITS

Industrial and field visit - Rajan Aquafarm (ornamental fish farm), Deva & Co Pvt. Ltd (Sea food Processing plant); Fisheries College and CMFRI, Tuticorin and Field : Hare Island Tuticorin seashore on 18th February, 2015. Hare Island Tuticorin seashore was a wonderful opportunity for the students to have a field exposure and observe the popular biodiversity of this region and study the rare species of this unique habitat. The expert in the field of biodiversity and the Head of the Department DR. B. Xavier Innocent explained about the importance of conservation of the ecosystem and its inhabitants.

3. SPECIAL LECTURES

1. Special lecture on “Biotechnology Applications”

The department organized a special lecture on “Biotechnology Applications” for the II year UG students on 25th August, 2015. The chief guest and special invitees **Mr. S. Shanmuga Sundaram**, Director, and **Mr. Syed Ebrahim**, Anur Biotech, Ambasamudram, Tirunelveli gave enlightening talk on “**Biotechnology Applications**” highlighting industrial biotechnology and the career opportunities within India and other countries. Students had elaborate discussions on various aspects and interacted with resource persons with much enthusiasm.

4. OTHER INITIATIVES UNDER STAR COLLEGE PROGRAMME

As a part of E-content generation we have made a video documentation on Cockroach dissection (Digestive system and Nervous system) in the month of March, 2015 in collaboration with Rev. Dr. Xavier Antony, Prof. Babu and Miss. Amutheswari of III UG Vis-Com.

**WORKSHOP ON UV-VISIBLE SPECTROPHOTOMETER AND
POTENTIOMETER- ON 13TH DECEMBER 2014.**



**TRAINING PROGRAMME ON “VIRTUAL DISSECTION”
ON 16TH DECEMBER, 2014**



INDUSTRIAL CUM FIELD VISIT – RAJAN AQUA FARM

ON 18TH FEBRUARY, 2015

