Brief report on the Lecture Workshop

With the Blessings of Almighty God and ever encouraging and support of Science Academies viz. Indian Academy of Sciences (IASc) Bengaluru, National Academy of Sciences (NASI) India and Indian National Science Academy (INSA), New Delhi, the three day lecture workshop on “Bioprospecting and Bioresources (BIBIO ’16) was organized by the department of Botany, School of Biological Sciences, St. Joseph’s College, Trichy, Tamil Nadu. The event scheduled from 10th to 12th of Feb. 2016 was the second successive effort put up by the organizers. The enormous response was well recognized through the registration of around 200 participants (27 participants were Faculty from Universities and Government Colleges, 20 were Research Scholars and rest of them were PG and UG students of various Colleges).

Arrival of Resource Persons to the College

Welcoming our Resource persons by Rev. Fr. Principal
The workshop started off with the inaugural ceremony and Chairman of this Lecture workshop Dr. R. Jeyachandran, the Head of the Department of Botany, St.Joseph’s College welcomed the gathering. Followed lighting the lamp by our Resource persons. Dr. R.Rao, INSA senior Scientist, Former Director of CMAP, Bangalore and Convener of this lecture workshop delivered his inaugural and introductory address. In his address, he insisted the role of Colleges for the development of society through the science and technology and he also elaborated the activities of the all the three Science Academies for the spreading of scientific knowledge in India. In addition, he appreciated the Botany of Department of St.Joseph’s College for getting maximum financial support from the Science Academies. And he wished the college to success in the course of time by conducting similar programmes in future, and he insisted to conduct another mega programme of a National level Two Weeks Refresher course for College teachers. During the Inaugural session, three of our resource persons namely Dr. Bagyaraj, NASI senior Scientist, Bengaluru, Dr. Ramachandra Scientist from Indian Institute of Science, Bengaluru and Dr. Shivanna, Former Professor of Delhi University and also our faculty members were present along with the participants from various colleges, research institutions and Universities in the southern regions of Tamil nadu. Finally vote of thanks was proposed by Dr. Justin Koil Pillai, Assistant Professor of our Department.

Welcome address by Dr.R.Jeyachandran
Session 1: Third Generation biofuel: Prospects and Challenges

The technical session was started immediately at 10.35 am and Dr. T.V. Ramachandra Scientist from Indian Institute of Science, Bengaluru delivered his energetic talk on ‘Third Generation biofuel: Prospects and Challenges’. He started his lecture with “Clean India and make in India” and made the session alive. He Emphasized Energy consumption, potentials of solar and wind energy in the country. He also spoke about the biofuel based on microalgae are emerging as one of the most promising sources because of algae’s high photosynthetic efficiency and faster replication as compared to other energy crops. The session was very interactive and many of our participants were actively interacted with the resource person. He insisted the participants to summarize his lecture for every 15 minutes. It was ever memorable for many of our participants. This session came to an end at 12.00 p.m.

Dr. T.V.Ramachandra delivered his first lecture
Session 2: Microorganisms and Human Welfare

The second session was chaired by Dr. D.J. Bagyaraj, NASI Senior Scientist & Chairman, Centre for Natural Biological Resources and Community Development (CNBRC), Bengaluru on the title of “Microorganisms and Human Welfare” He emphasized the role of microbial inoculants on sustainable agriculture by using organic inputs which serve as bio-fertilizers supplying major plant nutrients Nitrogen (N), Phosphorus (P), Potassium (K). They also serve as bio-control agents suppressing root pathogens. Constrains in biofertilizer technology like physical, chemical and biological barriers to incorporate microbial inoculants into the field was discussed in detail. The session was very informative and many of our participants were actively interacted with Dr. D.J. Bagyaraj

Dr. D.J. Bagyaraj’s lecture

Participant’s interaction with Dr. D.J. Bagyaraj
Session 3: Land use dynamics and Bioresources

In Post lunch session, the first talk was given by Dr. T.V. Ramachandra, Scientist from Indian Institute of Science, Bengaluru who captivated the audience with his talk on “Land use dynamics and Bioresources”. The speaker acquainted the audience about the importance of Energy in the development of a region. He also focused i) the analysis of energy situation in India, ii) sector and source-wise energy demand with the scope for energy conservation, iii) prospects of renewable energy with smart grids to meet the distributed energy demand while optimizing harvest of local energy sources.

Session 4: Arbuscular Mycorrhizal Fungi

Dr. D.J. Bagyaraj, delivered his second lecture in second post lunch session of the first day on the topic of ‘Arbuscular Mycorrhizal Fungi’. He explained the importance Association of Arbuscular mycorrhizal fungi (AMF) in agricultural crops, shrub, tropical tree species and some aquatic plant species with examples. He also highlighted the genera of AM fungi like Glomus, Gigaspora, Scutellospora, Acaulospora Entrophospora and their beneficial effects such as role in the biological control of root pathogens, biological nitrogen fixation, hormone production and greater ability to withstand water stress were presented along with their molecular mechanism. It was highly interactive and many participants has interaction with the resource person.
**Session 5: Biological Diversity and Bioprospection Indian Context**

The second day of the lecture workshop started with the first talk by our programme convenor Dr. R. Rao, INSA senior Scientist, Former Director of CMAP, Bangalore. He delivered his talk on “Biological Diversity and Bioprospection Indian Context”. The participants were highly impressed by the knowledge of the resource person and had a good interaction with him.

**Mind blowing lecture by Dr. R. Rao**

**Active Audience**
Session 6: Conservation of our plant resources: Need for base-line data on their reproductive ecology

We had a break for tea for 15 min. Continued by Dr. K.R.Shivanna INSA Senior Scientist Professor (Rtd.), Delhi University ATREE, Bangalore on the topic of “Conservation of our plant resources: Need for base-line data on their reproductive ecology. He emphasized the importance of Biodiversity and it has become a buzz word during the last few decades, Human activities in recent decades have seriously threatened the sustainability of our biodiversity. They have precipitated mass extinction crisis: “sixth mass extinction” Two-thirds of the existing terrestrial species are likely to become extinct by the end of this century Management of our biodiversity has become a major challenge in the coming decades, which triggered for many questions by the participants

Triggering Lecture on reproductive ecology by Dr.K.R Shivanna

Active interaction with resource person
Session 7: Medicinal plant resources of India, diversity, conservation

After the lunch break Dr. R. R. Rao has delivered his second lecture on the topic of “Medicinal plant resources of India, diversity, conservation”. He explained the importance of Ethnobotany in promoting medicinal plant research in India. He highlighted several plant species offers an immense scope for Bioprospection, particularly chemo-prospecting. Some short listed species like Acronychia pedunculata, Chloroxylon swietenia, Cymbopogon flexuosus, Blumea lanceolaria, Artemisia nilagirica var. nilagirica, Ocimum gratissimum, Curcuma pseudomontana, Clausena dentata and Limonia acidissima have already shown prospects for their development and popularization in the region. He also emphasised the role of Ethno botany in all kinds of Medicinal plant researches.

Impressive Lecture on medicinal plant Diversity

by Dr.R.Rao
Session 8: Pollination: A critical eco-service needed for species stability and crop productivity

Dr. K.R.Shivanna delivered his second lecture on the topic of “Pollination: A critical eco-service needed for species stability and crop productivity”. In his Lecture, he highlighted the following points. Flower is the venue of sexual reproduction. Pollen grains are the male partners and ovules are the female partners. Pollen grains develop in the anther and ovules are located in the pistil. Bringing the male and female partners together is termed pollination (transfer of pollen grains from the anther to the stigma). This is the first and the most critical step to initiate fertilization and subsequent post-fertilization events in seed plants and key points were highlighted. It was highly interactive and participants enjoyed his lecture.

Lecture on Pollination by Dr. K.R.Shivanna

Participant’s Interaction with Resource Parsons
Session 9: Floristic diversity of India an over view

The third day started with the session on “Floristic Diversity in India: An over view” by Dr. M. Sanjappa, CSIR Emeritus Scientist, GKV, Bengaluru. He has given an elaborate lecture on above topic and the points he mentioned are Plants are one of Earth’s greatest resources. They are sources of food, medicines and materials with vast economic and cultural importance. They stabilize ecosystems and form the habitats that sustain the planet’s animal and microbial life. They are also threatened by climate change, the environmental factors and human interaction. There are an estimated 400,000 species of vascular plants on Earth, with some 10 percent more yet to be discovered. These plants, both known and unknown may hold answers to some of the world’s health, social and economic problems. A full inventory of plant life is vital if their full potential is to be realized before many of these species, and the possibilities they offer, become extinct.

Dr. M. Sanjappa delivering his Lecture

Enthusiastic partipant interacting with Dr. Sanjappa
Session 10: Orchid Biology, the Science of orchids

On the third day, pre lunch session was delivered by Prof. C. Sathishkumar, Senior Scientist, JNTBRI, and Thiruvananthapuram on “Orchid Biology – The Science of Orchids”. He highlighted the number of orchid species equals about four times the number of mammal species, or more than twice the number of bird species. It also encompasses about 6–11% of all seed plants. He has shown VIP Orchid Garden of Singapore and the strategy they follow in the VIP garden through his power point presentation. He had also shown many orchids like Bee orchid, Dove Orchid, Ghost orchid, Mosquito Orchid, Frog Orchid, Donkey Orchid, Man Orchid, Monkey Orchid Tiger Orchid to the participants. He made both sessions with live colourful flowers of orchids.

Orchidologist Prof. Sathishkumar’s lively Lecture

Active participation of our participants
Session 11: **Conservation of some threatened plants Western Ghats**

Then for the post lunch session, **Dr. M. Sanjappa** delivered one more lecture on the topic of ‘**Conservation of some threatened plants Western Ghats**’. He focused the following points. The Western Ghats harbours around 4,000 species of higher plants of which 450 species are threatened. Currently, the number of species added to the red list category in this region is increasing, and the valuable genetic resources are being lost at a rapid rate. He gave the maximum data about the endangered plants. He also emphasised utilizing the biotechnological approach to complement ex situ conservation and Propagating biotechnology tools in plant conservation program is a prerequisite to succeed in sustainable use and to complement the existing ex situ measures. The participants were highly impressed by the knowledge of resource person and had interaction with him.

**Dr. M. Sanjappa delivering his second Lecture**
Session 12: Biology of Carnivorous Plants

Prof. C. Sathishkumar has delivered his second lecture as a last session on the third day on ‘Biology of Carnivores Plants”. He gave the lecture with live carnivores’ plants. He explained the mechanism of capturing the insects, small animals by these plants and how it was digested. Participants were active, interested and enjoyed this session. He went to the place of where participants were sat, and he had also shown some live plants and made a interactive session.

An another impressive Lecture by Prof. Sathishkumar

Active Lecture and Display of Carnivorous Plant
The three day lecture workshop was concluded with a valedictory function and it was started with prayer song. **Dr. J. John**, Associate Professor of host department has welcomed the gatherings. A brief report on the proceedings of the lecture workshop conducted was presented by **Dr. T. Francis Xavier, Coordinator of Lecture Workshop**. This was followed by the Feedback Session, where the students and staff from other college expressed their views about the Lecture Workshop. They expressed their gratitude for making excellent arrangements for food and hospitality. Many participants requested that similar Lecture Workshops. Some teachers who participated in the Workshop also showed their interest in applying for and organizing similar Lecture Workshops in their colleges. After that **Rev. Fr. S. Sebastian, Secretary of our College** appreciated the coordinator for conducting such intellectual programme for the benefit of young faculty, scholars and students and also congratulated the participants.

In the valedictory session **Dr. R. Rao, Convenor of this workshop** gave concluding remarks about all the sessions of the Workshop. He also advised the students to make the best use of the opportunities available in the present days and appreciated the efforts of the organizers for the successful conduct of the workshop. This was followed by **Dr. T. Francis Xavier, the Coordinator of the Science Academies’ lecture workshop** has thanked the three Science Academies for their financial support and encouragement for organizing the above lecture workshop. He gratefully acknowledged **Dr. T.D. Mahabaleswar**, Coordinator, Science Education Panel, Indian Academy of Sciences, Bangalore and other two academies for their prompt and immediate response to sanction the budget for organizing the lecture workshop. He also thanked, the college Management for their encouragement and support for organizing the above lecture workshop. He thanked all the resource persons for coming over to St. Joseph’s College, Trichy and delivering the lectures in the workshop. All the participants from in and around Colleges were acknowledged for their active participation in the Science Academies’ lecture workshop. The participants were given certificates for attending the Science Academies’ lecture workshop.