

Invitation



SCIENCE ACADEMIES' LECTURE WORKSHOP ON ADVANCES IN PLANT AND ANIMAL BIOTECHNOLOGY

AUGUST 24th & 25th 2018

ORGANISED BY



DEPARTMENT OF BIOTECHNOLOGY
GOVERNMENT DEGREE COLLEGE (Men)
Srikakulam - Andhra Pradesh - 532001



CONVENER

Professor **PATURU KONDAIAH**, FNA
Department of Molecular Reproduction Development and Genetics
Indian Institute of Science (IISc), Bangalore



COORDINATOR

Sri. **M. PRADEEP**, HoD
Department of Biotechnology
Government Degree College (Men), Srikakulam



SCIENCE ACADEMIES' LECTURE WORKSHOP ON ADVANCES IN PLANT AND ANIMAL BIOTECHNOLOGY

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SPEAKERS FOR LECTURE WORKSHOP



Professor P. Kondaiah, FNA
Dept. of Molecular Reproduction
Development and Genetics
Indian Institute of Science
Bangalore



Professor D. N. Rao, FASc, FNA
Sir J.C. Bose Fellow
Dept. of Biochemistry
Indian Institute of Science
Bangalore



Professor S. Dayananda, FNA, FASc
School of Life Sciences
University of Hyderabad
Hyderabad



Professor P.B. Kavikishore, FNASc
Dept. of Genetics
Osmania University
Hyderabad



**DEPARTMENT OF BIOTECHNOLOGY
GOVERNMENT DEGREE COLLEGE (Men)
Srikakulam - Andhra Pradesh
532001**

**Final Report Submitted to
INDIAN ACADEMY OF SCIENCES, BANGALORE
For**

**SCIENCE ACADEMIES' LECTURE WORKSHOP ON
ADVANCES IN PLANT AND ANIMAL BIOTECHNOLOGY**

24-08-2018 & 25-08-2018

CONVENER

**Prof. Paturu Kondaiah, FNA,
Department of Molecular Reproduction Development and Genetics,
Indian Institute of Sciences (IISc), Bangalore.**

COORDINATOR

**M. Pradeep, HoD
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**Final Report Submitted to
INDIAN ACADEMY OF SCIENCES, BANGALORE For
“SCIENCE ACADEMIES’ LECTURE WORKSHOP ON
ADVANCES IN PLANT AND ANIMAL BIOTECHNOLOGY”**

1. Brief Report of the Lecture Workshop

From 2015-16 batch, A.P. State council of higher education (APSCHE) introduced CBCS (Choice Based Credits System) pattern in the UG Courses. Due to this several modifications took place in the syllabus and advanced biology topics introduced in curriculum. Most of the faculty members are not aware of these new biology topics so that they cannot teach the topics to the students efficiently. Moreover Srikakulam is a one of the backward districts of Andhra Pradesh and most of the students are not much aware of the latest advances in the biological sciences and its associated opportunities. Keeping all these things in mind, we would like to organize one lecture workshop on advanced biology topics in our college with the support of the Indian Academy of Sciences-Bangalore. Consequently, I requested to Professor P. Kondaiah, IISc Bangalore, who is one of the National Academy Fellow, then he agreed to be as a convener for the Lecture Workshop and chosen me as a coordinator. Later he also proposed three more academy fellows for the lecture workshop. Then we submitted a formal proposal to the Indian Academy of Sciences-Bangalore entitled “Advances in Plant & Animal Biotechnology”. Science Educational Panel of the Academy accepted our proposal and approved for required finance to organize the event. Then we conducted the Lecture workshop during 24th & 25th August 2018 and more than 150 students and faculty members from all over Srikakulam district came and enriched their knowledge on modern biology. The resource persons and their topics as shown below

Professor P. Kondaiah, FNA Department of Molecular Reproduction Development and Genetics, Indian Institute of Science (IISc), Bangalore	1]. Current trends in Genomics research 2]. Developments in Medical Biotechnology
Professor D. N. Rao, FASc, FNA Sir J.C. Bose Fellow, Department of Biochemistry, Indian Institute of Science (IISc), Bangalore	1]. Restriction Enzymes ushered in the Biotechnology Revolution 2]. Helicobacter pylori: a versatile survival artist
Professor S. Dayananda, FNA, FASc School of Life Sciences, University of Hyderabad, Hyderabad	1]. Protein drugs - Expression systems 2]. Protein drugs : Downstream processing
Professor P.B. Kavikishore, FNASc Department of Genetics, Osmania University Hyderabad	1]. Plant Tissue Culture and Its Biotechnological applications. 2]. Genetically Modified Plants for Crop Improvement.

24th August 2018
Inauguration: 9.30AM – 10AM

The lecture workshop started with a formal inauguration session under headship of the Government Degree College for Men, Srikakulam College Principal Dr. M. Babu Rao. In this session Professor Paturu Kondaiah, Indian Institute of Science, Bangalore gave brief information about various activities of Science Education Panel of Academies. He also said that this type of events will promote the rural background students towards scientific research. The other dignitaries on the stand were Professor S. Dayananda, University of Hyderabad, Professor P.B. Kavi Kishore, Osmania University, Hyderabad, Dr. N.S.N. Swamy, IQAC Coordinator of the College and Sri M. Pradeep, HoD, Department of Biotechnology of the college and Coordinator of the event.



Professor Paturu Kondaiah, IISc-Bangalore giving awareness on various activities of Science Education Panel of Academies in Inaugural Session

Lectures by Prof. P. Kondaiah, IISc Bangalore

Professor P. Kondaiah gave his lectures on “Current trends in Genomic Research” & “Developments in Medical Biotechnology”. Both the lectures are very useful for the B. Sc Biotechnology Final year students as their final year syllabus comprises these topics. During his lectures he explained that DNA is the genetic material for all the living organisms and the total

DNA present in a haploid cell is called Genome. Gene is the functional part of the DNA and fundamental unit of inheritance. Study of the functional genes of an organism is called Genomics.



Participants from various UG colleges of the Srikakulam District to the Lecture Workshop

In this session he also dealt about Human genome project, how it is useful for science advancements?, Ethical issues related to genomics research, various genome analysis methods, Sequencing methods, Next generation sequencing and its applications. In this lecture he also dealt something about proteomics, its applications, tools for studying proteomics and metabolomics.



Professor Paturu Kondaiah, IISc-Bangalore giving Lecture on Genomics and its applications

In his second lecture he explained about Medical Biotechnology, how genome manipulation facilitates development of new therapeutics, Gene therapy etc. He also explained about pharmacogenomics and personalized medicine. At the end of the lecture, he spent 5 to 10 minutes to interact with participants and clarified the doubts. During interaction he also gave information about career opportunities in genomics, proteomics and metabolomics research. He also shared about his laboratory research experiences with the participants.

Lectures by Prof. D.N. Rao, IISc Bangalore

Professor D. Narasimha Rao delivered two lectures entitled “Restriction Enzymes ushered in the Biotechnology Revolution” & “Helicobacter pylori: a versatile survival artist”. Both the lectures are very useful for the B. Sc Biotechnology, Microbiology and Biology Final year and Second year students as their syllabus comprises these topics. During his lectures he explained that Restriction modification system is considered as the primitive immune system developed by the bacteria to combat against viral infections. Isolation of these restriction enzymes from bacteria is one of the revolutionary step for the Biotechnology development, in which recombinant DNA (rDNA) technology become reality. He also explained about different types and properties of the restriction enzymes, how they are helpful in the rDNA technology, how they are extracted from. In his second lecture he explained about human microbiome.



Professor D. N. Rao, IISc-Bangalore giving Lecture on Microbiome

During his lecture, he said that the human body contains microorganisms more than ten times of his own body cells and some of these microorganisms are helpful to the body and promotes the

metabolic processes called probiotics and some are harmful to the body by depressing the essential metabolic pathways called pathogens. Identification and characterization of these microorganisms creates new avenues for novel therapeutics and health research. Helicobacter pylori one such bacteria, a versatile artist that can live in the human stomach and causes peptic ulcers he explained. At the end of the lecture, he spent 5 to 10 minutes to interact with participants and clarified the doubts. During interaction he also gave information about career opportunities in microbiology based research. He also shared about his laboratory research experiences with the participants.

Lectures by Prof. S. Dayananda, University of Hyderabad

Professor S. Dayananda delivered two lectures entitled “Protein drugs - Expression systems & Protein drugs: Downstream processing. Both the lectures are very useful for the B. Sc Biotechnology, Microbiology and Biology students as their syllabus comprises these topics. During his lectures he explained that DNA is the genetic information molecule, which resides in the nucleus and controls all the biological processes with its auto and hetero catalytic functions. The auto catalytic function of the DNA is called Replication which is very essential for the secure transformation of genetic information among generations. Similarly the hetero catalytic function of DNA includes transcription and translation called gene expression. Careful study of these hetero catalytic events of living organisms facilitates the production of novel therapeutics very efficiently



Professor S. Dayananda, University of Hyderabad explaining about Gene Expression

He also explained about different strategies involved in expression of genes in eukaryotic systems and several types of protein drugs etc. At the end of the lecture, he spent 5 to 10 minutes to interact with participants and clarified the doubts. During interaction he also gave information about career opportunities in microbiology based research. He also shared about his laboratory research experiences with the participants.

Lectures by Prof. P. B. Kavi Kishore, Osmania University, Hyderabad

Professor P.B. Kavi Kishore, a renowned plant Biotechnologist of Osmania University, Hyderabad delivered two lectures entitled “Plant tissue culture and its Biotechnological applications” & “Genetically modified plants for crop improvement”. Both the lectures are very useful for the B. Sc Biotechnology & Botany Final year students as their syllabus comprises these topics. During his lectures he explained that Biotechnology is an applied science, which can be incorporated in to plant sciences and increase agriculture productivity. Recombinant DNA technology (rDNA) is one Biotechnology technique that can be useful for the crop improvement. During his lecture he explained various steps involved in the rDNA technology and how this technology helpful to address the societal problems using plant sciences. Later he also clearly explain about genetically modified crops, their advantages and disadvantages etc. He clearly discussed about Golden rice, BT Brinjal, BT Cotton etc.



Professor P. B. Kavi Kishore, Osmania University, Hyderabad explaining about Biotechnological Applications in crop improvement

At the end of the lecture, he spent 5 to 10 minutes to interact with participants and clarified the doubts. During interaction he also gave information about career opportunities in microbiology based research. He also shared about his laboratory research experiences with the participants.

Valedictory followed by Feedback



Prof. P. Kondaiah, IISc Bangalore (Convener) talking about the event in Valedictory session

The second day i.e. on 25th August 2018, evening by 5 pm, the event end up with an informal valedictory session. In that session all the resource persons gave their experiences in positive manner. Later students give their feedback on the event and the each and every individual lecture. One student named, Miss. Ippili Gayatri Ratnam from Govt. Degree College (Men), Srikakulam in her feedback said that “In my student life, this is the first event where I enjoyed a lot while learning and this may be a pathfinder for my future endeavors. She also conveyed her gratitude to all the resource persons and also to the Indian Academy of Sciences to sponsor the event. One more student named Miss. N. Shreya from Gayatri Degree College, Srikakulam said that all the lectures, its content and the way of lecturing by resource persons are awesome and incredible. The overall student feedback for all the lectures was excellent.

2. Time Table of the Lecture Workshop

S. No	Session	Name of the Resource Persons
Day-I: 24th August 2018		
*	9.30AM - 10AM	Inauguration & An overview of activities of Science Education Panel of Academies
1	10AM - 11.15AM	Current trends in Genomics research: Prof. P. Kondaiah, IISc-Bangalore
	11.15AM - 11.25AM	Question & Answer session

	11.25AM - 11.40AM	Tea break
2	11.40AM - 12.55PM	Protein drugs - Expression systems: Prof. S. Dayananda , University of Hyderabad
	12.55PM - 1.10PM	Question & Answer session
	1.10PM - 2.00PM	Lunch
3	2PM - 3.15PM	Plant Tissue Culture and Its Biotechnological Applications: Prof. P.B. Kavi Kishore , OU, Hyderabad
	3.15PM - 3.25PM	Question & Answer session
	3.25PM - 3.40PM	Tea Break
4	3.40PM - 4.55PM	Restriction Enzymes ushered in the Biotechnology Revolution - Prof. D.N. Rao , IISc-Bangalore
	4.55PM - 5.10PM	Question & Answer session
Day-II: 25th August 2018		
*	9.30AM - 10AM	Brief review of proceedings of previous day by Coordinator
5	10AM - 11.15AM	Developments in Medical Biotechnology: Prof. P. Kondaiah , IISc-Bangalore
	11.15AM - 11.25AM	Question & Answer session
	11.25AM - 11.40AM	Tea break
6	11.40AM - 12.55PM	Helicobacter pylori: a versatile survival artist: Prof. D.N. Rao , IISc-Bangalore
	12.55PM - 1.10PM	Question & Answer session
	1.10PM - 2.00PM	Lunch
7	2PM - 3.15PM	Protein drugs : Downstream processing: Prof. S. Dayananda , University of Hyderabad
	3.15PM - 3.25PM	Question & Answer session
	3.25PM - 3.40PM	Tea Break
8	3.40PM to 4.55pm	Genetically Modified Plants for Crop Improvement: Prof. P.B. Kavi Kishore , O U, Hyderabad
	4.55PM - 5.10PM	Question & Answer session
*	5.10PM - 5.30PM	Brief Valedictory

Details of the Participants

S. No	Name of the Institution	No. of Participants	Students	Lecturers
1	Govt. Degree College (Men), Srikakulam	30	24	06
2	Govt. Degree College (Women), Srikakulam	10	08	02
3	Gayatri Degree College, Srikakulam	25	22	03
4	MLR Naidu College, Narasannapeta, Srikakulam	20	18	02
5	Gnanajyoti Degree College, Narasannapeta, Srikakulam	15	12	03
6	Govt. Degree College, Narasannapeta, Srikakulam	18	16	02
7	Govt. Degree College, Tekkali, Srikakulam	10	09	01
8	Govt. Degree College, Palakonda, Srikakulam	10	07	03
9	Govt. Degree College, Rajam, Srikakulam	06	04	02
10	Govt. Degree College, Seetampeta, Srikakulam	10	07	03
11	Govt. Degree College, Baruva, Srikakulam	02	01	01
12	Govt. Degree College, Ichapuram, Srikakulam	02	00	02
13	SBSYM Degree College, Kasibugga, Srikakulam	03	02	01
Total		161	130	31