

**Karpagam University**  
**Department of Biotechnology**  
**Science Academies Lecture Workshop on “Biodiversity and Bioremediation”**  
**01<sup>st</sup> & 02<sup>nd</sup> September, 2016**

**Report**

Indian Academy of Sciences (IAS), Bengaluru founded in 1934 by Sir C.V.Raman, aim at promoting the progress and upholding the cause of science in pure and applied branches. Its major activities include publication of scientific journals, special volumes and recognition of scientific talents. As part of the science education programmes, the Indian Academy of Science, Bangalore in association with Indian National Science Academy (INSA), New Delhi and Indian National Academy of Sciences (INAS), Allahabad organizes various programmes for the improvement of science education in the Universities and colleges throughout the country.

IASc-INSA-NASI, Joint Science Education Panel sponsored Science academies Lecture Workshop on “Biodiversity and Bioremediation” successfully conducted by the Department of Biotechnology, Karpagam University, Coimbatore, Tamilnadu, India on 1<sup>st</sup> & 2<sup>nd</sup> September, 2016 for UG, PG in Botany / Zoology / Microbiology / Biochemistry / Biotechnology / Bioinformatics degree students and research scholars from various institutions in and around Coimbatore.

**Day 1 (1<sup>st</sup> September, 2016)**

The delegates **Dr. R. R. Rao**, INSA Honorary Scientist, Bengaluru and Convener of this lecture workshop, **Prof. K. R. Shivanna**, INSA Honorary Scientist, Bengaluru, **Dr. D. J. Bagyaraj**, NASI Sr. Scientist & Chairman, CNBRCD, Bengaluru and **Dr. M. N. V. Prasad**, Professor, Department of Plant Science, University of Hyderabad, Hyderabad received by **Dr. S. Sudalaimuthu**, Vice-chancellor, Karpagam University welcomed by our students to the Lecture hall.



The Science Academies Lecture Workshop on “**Biodiversity and Bioremediation**” started with prayer song with the Blessings of Almighty God and financial support of IASc-INSA-NASI, Joint Science Education Panel and ever encouraging and support of our Chairman **Dr. R. Vasanthakumar**, Karpagam Educational Institutions. The programme initiated by lighting of lamp by programme Convener **Dr. R. R. Rao** followed by **Dr. S. Sudalaimuthu**, Vice-Chancellor, Karpagam University, Coimbatore.



The welcome address rendered by **Dr. V. K. Gopalakrishnan**, Head, Department of Biotechnology, Karpagam University, Coimbatore and inaugural address was delivered by our beloved Vice-Chancellor **Dr. S. Sudalaimuthu**, Karpagam University, Coimbatore followed the programme high lights and Science Academies’ various events for the improvements of the society in science especially for the students and faculty members elaborately given by the programme Convener **Dr. R. R. Rao**.



**Lecture 1: “Biological diversity & Bio-prospection: a priority agenda for sustainable utilization of bio-resources of India”** by **Dr. R. R. Rao**, Central Institute of Medicinal and Aromatic Plants, Bengaluru has explained various biodiversity hotspot regions like north eastern Himalayas and Western Ghats.



He stated that, the Eastern Himalayas regions holding numerous endemic plants includes ***R. campanulatum***, ***R. hodgsonii***, ***R. falconeri*** and ***R. glaucophyllum*** and he presented different varieties of flowering plants with beautiful flowers, very impressive among the participants and also he explained the values of biodiversity and their sustainable utilization in India. He was emphasis that, the utilization



of biodiversity making use of modern science and technologies through bio-prospection and product development will be improving the economic values of our nation.

**Lecture 2:** The topic of “**Soil Biodiversity**” delivered by **Dr. D. J. Bagyaraj** NASI Sr. Scientist & Chairman, CNBRCD, Bengaluru. He explained in detail about the soil nature and soil habituated microbes, flora and fauna. In his lecture, he stated that, flora and fauna of soil perform services in beneficial aspects to mankind and society with the following responsibilities like nutrient cycling, control of pests and diseases, degradation of wastes, harmful chemicals, Production of food and fuel, etc.



His lecture was very useful for the participants and has raised their queries, he has explained clearly.

**Lecture 3 :** “**Biodiversity as a tool box for Bioremediation –Economic, Environmental, and Societal benefits**” delivered by **Dr. M. N. V. Prasad**, Professor, Department of Plant Science, University of Hyderabad. He stated that, the Plant and microbial based system such as Phytochelatins, Plant Surfactants, Microbial Siderophores, Microbial Surfactants for remediating or restoring petroleum contaminant soil. Bio-hybrid device from silk cocoons is capable to act as converter and capacitor to generate electricity.



*Hemidesmus indicus* phytoextraction contain potential to reduce the lead from industrially contaminated soils. He explained clearly, our biodiversity to act as biological tool to reduce the contaminants in the soil through bioremediation process to improve the Economic value, Clean Environment and benefited the Society. Most of the participants were observed his lecture because of numerous researchers most of the researchers concentrating on bioremediation and environmental protection in this scenario.

**Lecture 4:** “**Evolution of Darwin’s Theory on ‘evolution’ by means of natural selection**” by **Prof. K. R. Shivanna**, Ashoka Trust for Research in Ecology and the Environment (ATREE), Bengaluru deliver a lecture and explained clearly about the Darwin’s concepts about the origin of plants and animals and evolutionary changes of species in respect to their natural environment. Further he explained in detail of Darwin’s observations about the unusual species (*Armadillo*) in the nature. The lecture was very useful to the participants.



## Day 2 (2<sup>nd</sup> September, 2016)

**Lecture 5: “Conservation of plant diversity in India, why we do not have much success?”** lecture delivered by **Prof. K. R. Shivanna**, (2<sup>nd</sup> lecture) Ashoka Trust for Research in Ecology and the Environment (ATREE), Bengaluru. In his lecture he explained various useful aspects of the plants to the human, especially from wounded stem of *Commiphora wightii* excrete the gum named as guggul and it used as anti-arthritis and reduced the level of cholesterol and lipids in human and also it has marketed throughout the world. He has clearly explained about the pre-dispersal of seeds and their productive losses to the society. His lecture was informative and he provided the tips to conserve the plants.



**Lecture 6: “Aquatic plants for bioremediation”** lecture delivered by **Dr. M. N. V. Prasad**, Professor, Department of Plant Science, University of Hyderabad (2<sup>nd</sup> lecture). In his lecture he has explained very well about the difficulties facing in sewage water treatment, methods and reduction of suspended pollutants to overcome these difficulties with aquatic plants (phytoplanktons). Further he elaborately described about the heavy metal reduction, dye reduction, fluoride reduction in the sewage water using aquatic plants like *Pistia stratiotes*, *Canna indica*, *Pistia* sp., *Cyperus* sp., *Typha* sp., *Salvinia* sp., *Hydrocotyl* sp., *Eichhornia* sp.,. Finally he gave numerous suggestion regarding cleaning the polluted pond with phytoplanktons. His lecture was useful for the student’s community.

### Lecture 7:

**Dr. R. R. Rao**, delivered his 2<sup>nd</sup> lecture on 2<sup>nd</sup> day “**Changing trends in Taxonomy: Orthodox vs. Modern**”. He presented the importance of taxonomy for identifying the flora, our Indian biodiversity hotspots holding numerous plants yet to be identified due to shortage of taxonomists to deal with the vast tropical flora and also India has facing the taxonomists crises.

**Lecture 8: “Arbuscular Mycorrhizal Fungi for Sustainable Agriculture, Horticulture and Forestry”** lecture delivered by **Dr. D. J. Bagyaraj**, NASI Sr. Scientist & Chairman, Director, CNBRCD, Bengaluru. He described the sustainable utilization of *Arbuscular mycorrhizal* Fungus agriculture, horticulture and forestry.



Followed the tea break of 7<sup>th</sup> lecture session, the Coordinator displayed the Science academies' published journals to the participants after announcements for review and reference.

Totally 165 participants (147 students, research scholars and 18 teachers) were participated in two days Science Academies' Lecture Workshop on **"Biodiversity and Bioremediation"** from various institutions like Vellalar College for Women, Erode, Poompukar College, Poombukar, Sri GVG Arts and Science College, Udumalpet, MET's School of Engineering Collge, Trissur, Kerala, Shree Vasavi College, Selam, LRG Govt. Arts College, Tirupur, Dr.NGP Arts and Science College, Coimbatore, Nirmala College for women, Coimbatore, Kongunadu Arts and Science College, Coimbatore, PSG College of Arts and Science, Coimbatore, Vivekanada College, Tiruchengode, Sri Krishna Arts and Science College, Coimbatore, Govt. Arts College, Coimbatore and Karpagam University, Coimbatore.

The two days lecture workshop was concluded about the all sessions and remarkable activities were constrained by the programme Convener **Dr. R. R. Rao**. He also advised the students to make the best use of the opportunities available in the Science Academies' and appreciated the efforts of the organizers for the successful conduct of the workshop followed **Dr. A. Sangilimuthu**, Assistant Professor and Coordinator of this Lecture Workshop has expressed thanks to 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 for prompt and immediate response to sanction the budget for organizing the lecture workshop on "Biodiversity and Bioremediation". He also thanks the university Management for their encouragement and support for organizing the above lecture workshop. He thanked all the resource persons for coming over to Karpagam University, Coimbatore and delivering the lectures in the workshop. All the participants from in and around University were acknowledged for their active participation in the Science Academies' lecture workshop.

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