



UGC Autonomous Funded



## 3<sup>rd</sup> NATIONAL WORKSHOP CUM HANDS ON TRAINING ON “DNA BARCODING – A MOLECULAR TOOL FOR IDENTIFICATION OF SPECIES – FROM THEORY TO PRACTICE”

(7 – 10 January 2019)

### A REPORT

#### **Background**

It has been estimated that 10 -100 million species of organisms exist on the Earth but it is pitiable to note that only 1.7 million species have been systematically studied and documented in world records. Presently the biodiversity crisis is accompanied by dwindling number of taxonomists throughout the scientists' community resulting in the neglect of many highly diverse group of organisms. These bottlenecks have severely limited our understanding of biodiversity and signal the need for a new approach to taxon recognition. In changing regime of time, the traditional taxonomy has lagged behind considerably. In this scenario, DNA barcoding is emerged as a powerful tool to unify taxonomy, globally. Unfortunately, in India considerable efforts have not been paved the way for popularization of DNA barcoding.

Therefore, Islamiah College undertook the planning for a DNA Barcoding workshop scheduled for the beginning of 2019 to provide information on the most recent advancements on the method and to allow potential users of DNA barcoding to be trained on tools for data analysis that can critically influence the outcomes of DNA barcoding for species identification.

The Department of Biotechnology organised this programmed in collaboration with the Xetra Biosolution, Coimbatore.

#### **Inauguration**

Inauguration of this workshop was presided over by **Dr. Anwarullah Hajee M.B.B.S** on 7<sup>th</sup> January 2019 at 10:30 am in Seminar Hall. This function started with Qirath recitation by **Mr. Naveez Ahmed**, M.Sc., followed by welcome address. **Dr. A. Mubarak Ali**, Associate Professor welcomed all the gatherings and the Chief Guest and Resource Persons were honoured by presenting bouquet.





**Dr. H. Abdul Jaffar Ali, Organizing Secretary** introduced about the Workshop and Hands on Training in a brief manner.

**Dr. Anwarullah Hajee** *Secretary and Correspondent* in his presidential address highlighted various applications of DNA barcoding in medical field and other field of life sciences.

**Dr T. Mohamed Ilyas**, *Principal* felicitated the function and requested the Dept of Biotechnology to organize various workshops and Hands on training on different molecular techniques and tools available in the Department.

**Dr. S. Raja Mohamed Kamil**, Vice-Principal and Co-ordinator, IQAC recalled the findings of Hebert Paul and other noble laureates and motivated the participants to pursue the research in interdisciplinary subjects.



Workshop was inaugurated by **Dr. S. Ajmal Khan**, Emeritus Professor, Centre for Advanced Study in Marine Biology, Annamalai University, Parangipettai and released Souvenir of the workshop.



**Dr. Ajmal Khan** delivered Keynote address on the title "**"Imperative of DNA Barcoding"**" and specifies the importance and need of DNA barcoding for biotechnologists as well as other molecular biologists. His talk was very imperative and interactive.

In the afternoon session, **Dr. R. Rajaram**, Assistant Professor, Department of Marine Science, Bharathian University, Tiruchirappalli, explained about basics of DNA barcoding with its Applications and Challenges in identifying the species. He explained the complete protocol for developing DNA barcoding of fishes.



**Valedictory function** of the workshop was held at 4.00 pm in the presence of **Dr. T. Mohamed Ilyas**, Principal, **Dr. S. Raja Mohd Kamil**, Vice Principal and Resource Persons.

**Dr. H. Jaffar Ali** welcomed the gathering. Participants gave very positive and appreciable feedback. The Chief Guests **Dr. Ajmal Khan** and **Dr. R. Rajaram** distributed the Certificates for the participants.



**Dr. Mahaboob Ali**, Asst. Prof. of Biotechnology delivered a formal vote of thanks and finally the first day of the program was ended with National Anthem.



On the Second day onwards, a marathon of hands on training was started.

**Dr. H. Abdul Jaffar Ali**, the Organizing Secretary briefed about the components of DNA Barcoding to all the 31 participants. The first session comprised of Isolation of whole genomic DNA from the ascidian tissue samples. The whole participants were grouped in to five with 6 each. This session was handled by **Mr. S. Ashfaq Ahmed**, Executive – Lab Biotechnologists- CSR, KCT Group Trust, Nellore. Initially lecture on the Isolation of whole genomic DNA from different samples was given as ppt presentation which was followed by practical session in the research lab. At the end of the session, the whole genomic DNA was isolated.



In the afternoon session **Dr. M. A. Farook** Asst Prof of Biotechnology gave a ppt presentation about the quantification of DNA using various spectrophotometric methods including Nanodrop method. Finally the isolated DNA was quantified in UV-VIS spectrophotometer.

On third day (9<sup>th</sup> January 2019) in the forenoon session, **Dr. S. Vimal**, Scientist, Aquatic Animal Health Management, C. Abdul Hakeem College, Melvisharam delivered a lecture on “**Introduction to PCR Amplification ant its applications**”. Later he gave a demo of preparation of Master Mix for PCR and then each group was trained to amplify the CO1 gene in Thermocycler.

In the next session, **Mr. I. Aadil Ahmed** Asst Prof of Biotechnology delivered a lecture on “Agarose Gel Electrophoresis” and later gave demo to gel casting and running of AGE. All participants run the amplified products in Agarose Gel Electrophoresis and the PCR bands were visualized in Gel Doc system.



In the afternoon session, **Mr. A. Soban Akram**, Quality Control , The Waterbase Limited, Ramatheertham, Nellore trained the participants to use bioinformatics tools to check, align, edit and calculation of Genetic Distance and NJ tree. This session was held in the Computer lab for science students.



On fourth day (10<sup>th</sup> January 2019) in the forenoon session, **Mr. B. Kaleemullah Khan**, QC Manager, BHAT Biotech, Bangalore gave a ppt presentation on ELISA. He trained the participants to detect HBs Ag in Human Sera using Plate Reader.



## Valedictory function

Valedictory function was presided over by **Dr. T. Mohamed Ilyas** on 10<sup>th</sup> January 2019 at 4.30 PM in Multimedia room. **Dr. H. S. Muthu Mohamed** Head, Dept. of Biotechnology welcomed the gathering.

**Dr. D. Kumar**, Assistant professor, Dept. of Zoology, V.H.N.S.N. College, Virudhunagar, Ms. Smita L Joshi, Ms. Akshata B Shriyan and Mr. Hareesh Babu VI – Pharma – D, T. John College of Pharmacy, Bangalore, MS. Mahamuda Begum, III B.Sc. Biotechnology, MK. Jain College, Vaniyambadi, Ms. L.K. Praba, Ph.D. Research scholar, Dept. of Biotechnology, Islamiah College, (Autonomous), Vaniyambadi gave their feedbacks.

Chief Guest, **Dr. Anwarullah Hajee**, Secretary and Correspondent Islamiah College (Autonomous), Vaniyambadi gave his valedictory address. He issued the certificates to all the participants. **Dr. H. Abdul Jaffar Ali**, Organizing Secretary delivered the Vote of thanks. The valedictory function was ended with National Anthem.





#### Feedback from the participants:

Based on the feedbacks received from the participants, it could be concluded that all the participants are very much satisfied with the workshop. Our Department received high appreciation from the participants in conducting this training programme and majority of them requested to organize this kind of workshop twice a year.

#### The principal recommendations from the workshop are (in priority order):

Programs should be developed to attract, retain and train innovative individuals in the areas of Molecular Biology, Biotechnology, Computational Biology and Nanobiotechnology, who have an interest in working in the life sciences. A coordinated and well-managed high-performance computing infrastructure that is targeted for life sciences should be supported.



Thanking You

**Dr. H. Abdul Jaffar Ali**

Organizing Secretary