



Dr. N.G.P ARTS AND SCIENCE COLLEGE

An Autonomous Institution Affiliated to Bharathiar University

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DEPARTMENT OF

BIOCHEMISTRY

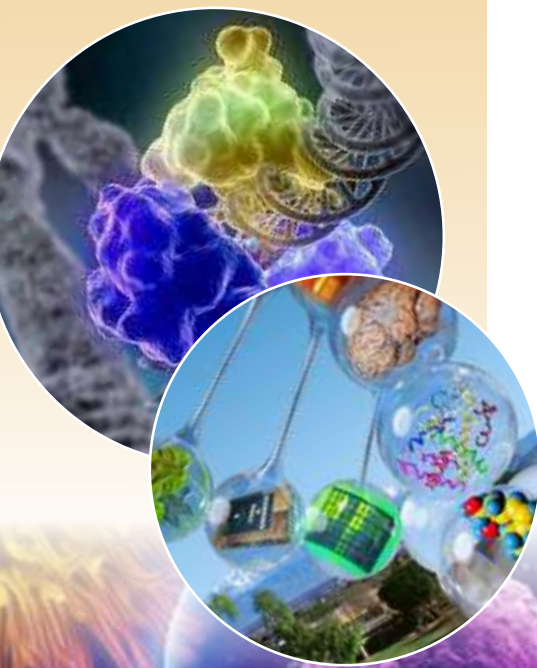
Pegasus Newsletter - 2015

EDITORIAL TALK

With an immense pleasure, I am penning a communiqué for the Biochemistry Department's annual newsletter "Pegasus 2015-2016". It is an etiquette that emblazons remarkable accomplishments of our departmental Faculty and Student members in all dominions of science and beyond. I appropriate this moment to assure you that the "Pegasus 2015-2016" is destined precisely to uphold the practice of impressing the whole of academic community with our respectable achievements. In the same breath, I applaud the contributions of this newsletter's editorial board and appreciate their active participation. Please contact us at biozenithngp@gmail.com for further conducive engagements.

ABOUT THE DEPARTMENT OF BIOCHEMISTRY

The Department of Biochemistry is a vibrant and an ambitious department with academic staff, Doctoral researchers and PG research students. With firm commitment to excellence both in teaching and in research, the department has become very successful in the college. The department adopts an integrated approach embracing the view that tomorrow's break-through are likely to occur at the interface of traditional biological sub-divisions. A degree in Biochemistry is the first step towards a variety of careers in pharmaceutical and food industries, in hospital services, and in basic and applied research of various biological and medical divisions. The Department of Biochemistry is committed to provide outstanding teaching in the accredited programmes of biochemical sciences and to conduct quality research of high repute. It is our mission to train



students as competent professional biochemists with adequate knowledge, skills and values required to address the need for a high-level manpower in our nation. The Department of Biochemistry strives to be one of the foremost research departments to be known for its excellence in teaching. Biochemists are contributing to advances in a wide variety of areas including health, agriculture, drug research, forensic sciences, etc. Aspirants who complete a basic degree in Biochemistry can seek out for occupation in public or private sector. Biochemists have unrevealing scope within India and overseas.

FACULTY ACHIEVEMENTS:

- ❖ Dr.C.Venkatesan, Associate Professor has got major Project entitled "Projection and Characterization and Application of Monoclonal Antibodies against Snake Venom Naja naja (cobra) as an alternate to Anti-Snake Venom" from Indian council of Medical Research (ICMR), 25,00,000/-
- ❖ Dr.C.Venkatesan, Associate Professor has been selected for Science Academics Refresher Course on Developmental Biology in National Institute for Research in Reproductive Health, Mumbai. And Sophia College for Women Mumbai on 16.11.2015 to 28.12.2015 (Indian academy of Science, Indian National Science Academy, The National Academy of Science, Indian Council of Medical Research sponsored)
- ❖ Dr.C.Venkatesan, Associate Professor organised Workshop in The Sahyadri Freshwater Biodiversity Conservation, Dr.N.G.P Arts and Science College, Coimbatore on 10.02.2016
- ❖ Dr.C.Venkatesan, Associate Professor has participated in a Lecturer workshop on "Emerging trends in Bioprespecting" in Hindusthan College of Arts and Science, Coimbatore on 19.03.2015 to 20.03.2015
- ❖ Dr.C.Venkatesan, Associate Professor has presented a paper in UGC-CPE Sponsored National Conference on 'Novell Approaches in Phytomedicine' organized by the Department of Biochemistry, Kongunadu Arts and Science College on 1st march 2016.
- ❖ Dr.C.Venkatesan, Associate Professor has participated in FDP on "Curriculum Enhancement in Higher Education" in Periyar University(IQUC sponsored, India), Salem on 28.03.2016 to 20.03.2016
- ❖ Dr.C.Venkatesan, Associate Professor has participated FDP on "Emotional Intelligence", ICT academy of Tamil Nadu , Chennai on 19.01.2016 to 20.01.2016.
- ❖ Dr.C.Venkatesan, Associate Professor has presented a paper in the National Seminar on "Emerging Trends in Biological Innovations" held during 22nd and 23rd January 2016 at Bharathidasan College of Arts and Science College, Erode.
- ❖ Dr.J.Karthikeyan, Associate Professor has organished a Workshop in The Sahyadri Freshwater Biodiversity Conservation, Dr.N.G.P. Arts and Science College, Coimbatore on 10.02.2016
- ❖ Mrs.K.Rajathi, Assistant Professor presented a paper in the International conference "Translational Cancer Research" in Avinashilingam University for Women, Coimbatore from 14th-16th Dec 2015
- ❖ Dr.S.Gowri, Mrs.P.A.Vasundra Devi and Mrs.K.Rajathi received incentives for their Publications in "Dr.Thavamani D Palaniswami Research Award 2015" on 16th Dec 2015
- ❖ Mrs.K.Rajathi, Assistant Professor has published a paper "Synthesis and Characterization Of Silver Nanoparticles Using Basella Rubra Linn And Their Invitro Cytotoxic Studies" in the International Journal of Chemistry and Pharmaceutical Science 2015, 3(4): 1431-1434. (IF-2.117: ICV:5.5).
- ❖ Dr.N.Kannikaparameswari, Associate Professor, Department of Biochemistry acted as a Resource Person in UGC Sponsored National Seminar on "Recent Developments in Cancer Biology" organized by the Department of Life Sciences, Pazhassiraja College, Wayanad, Kerala

- ❖ Mrs.Indhumathi.T, Mrs.Rajathi.K and DR.N.Kannikaparameswari have participated in a One day National Level Workshop on "Computer Aided Drug Designing" organized by Department of Biotechnology, S.N.R Sons College, Coimbatore on 20th Jan 2015.
- ❖ Mrs.Indhumathi.T, Mrs.Rajathi.K and DR.N.Kannikaparameswari have presented a paper in International Seminar on "Infection and Immunity" organized Department of Biotechnology, S.N.R Sons College, Coimbatore, on 18th Feb 2015.
- ❖ Mrs.Indhumathi.T, Assistant Professor has participated in the UGC-CPE Sponsored Faculty Development Programme organized by IQAC, Kongunadu Arts and Science College, Coimbatore on 24th March, 2016.
- ❖ Mrs.Indhumathi.T, Assistant Professor has presented a paper in UGC-CPE Sponsored National Conference on 'Novell Approaches in Phytomedicine' organized by Department of Biochemistry, Kongunadu Arts and Science College, Coimbatore on 1st March 2016.
- ❖ Mrs.Indhumathi.T and Mrs.K.Rajathi have presented a paper in the National Seminar on "Emerging Trends in Biological Innovations" held during 22nd and 23rd January 2016 at Bharathidasan College of Arts and Science College, Erode.
- ❖ Dr.S.Gowri, Professor has presented a paper in the National Seminar on "Emerging Trends in Biological Innovations" held during 22nd and 23rd January 2016 at Bharathidasan College of Arts and Science College, Erode
- ❖ Dr.S.Gowri, Professor has presented a paper in the National Conference on "Innovative Approaches in Biosciences" at Sree Narayana Guru College, Coimbatore on 26.01.2016.
- ❖ Dr.S.Gowri has presented a paper on "Biosynthesis of Copper Nanoparticles using Annona muricata leaf extract-Characterization and

their Antibacterial activity" in World Journal of Pharmaceutical Research, Volume 5, Issue 8, 2016, ISSN 2277-7105

- ❖ Dr.S.Gowri has presented a paper on "Isolation and Partial Purification of Lectin from Seeds of Cucurbita pepo" in World Journal of Pharmaceutical Research Volume 5, Issue 7, 2016, ISSN 2277-7105.
- ❖ Dr.S.Gowri has presented a paper on "Antimutagenic Activity of Ethanolic Extract of Caralluma fimbriata" in World Journal of Pharmacy and Pharmaceutical Sciences, 5(2), 582-587.2015, ISSN 2278-4357.

STUDENTS ACHIEVEMENTS

- ❖ Miss. Fasla, and Miss. Sruthi of III B.Sc Biochemistry won I Prize in NGP Fest 2016 in Mehendi on 28.01.2016.
- ❖ Miss. Sruthi of III B.Sc Biochemistry won III Prize in NGP Fest 2016 in Solo Dance on 28.01.2016.
- ❖ Mr. Tarun Kumar Tiwari of III B.Sc Biochemistry won I and II Prizes in paper presentation organised by the Department of Food Science and Nutrition, Dr.N.G.P Arts and Science College on 29.09.2015.
- ❖ Mr. Deva Asirvatham of III B.Sc Biochemistry won I Prize in Food Splash organised by the Department of Food Science and Nutrition, Dr.N.G.P arts and Science College on 29.09.2015.
- ❖ Ms.K.Swathi and Ms.E.Prabha of II B.Sc Biochemistry won I Prize in Fireless Cooking organised by Department of Food Science and Nutrition, Dr.N.G.P arts and Science College on 29.09.2015.
- ❖ Mr.Sibi.M of III B.Sc Biochemistry won I and II Prize in paper presentation conducted by the Department of Biotechnology, Dr.N.G.P arts and Science College on 23.09.2015.
- ❖ Ms.Kalaimathi.K of III B.Sc Biochemistry won II Prize in poster presentation organised by the Department of Biotechnology, Dr.N.G.P arts and Science College on 23.09.2015.

HIGHLIGHTS OF THE DEPARTMENT

INSPIRE SCIENCE CAMP - 2015

The Department of Biochemistry has conducted the DST-Sponsored Inspire Science Camp for a period of five days from 24.08.15 to 28.08.15 for the school children in our college. Dr.Natarajan, Scientist-G, inaugurated the Science Camp. Eminent Resource persons Dr.T.J.Pandian, Visiting Professor, CAS in Marine Biology, Annamalai University, India, Dr.A.Subbiah Pandi, Head, Department of Physics, Presidency College, Chennai, Group Captain (Dr.) Rajeev Kumar Mehajan, IAF Programme Officer - Director "Atmospheric Observations Systems" & "Airborne Platforms" Division, Prithvi Bhawan, Ministry of Earth Sciences, New Delhi were invited for the camp.



DST Sponsored INSPIRE Science Camp 2015 was conducted by our Department of Biochemistry from 24th-28th August, 2015. Dr.Natarajan, Scientist-G, inaugurated the Science Camp.

NATIONAL CONFERENCE

The Department of Biochemistry conducted "Two days National Conference on "Role of Biopharmaceuticals in Achieving Health by 2020" sponsored by ICMR, DSIR, and DBT on 10.07.2015 and 11.07.2015.

Date	Name of the Resource Person	Designation and Address	Topic
10.07.15	Prof. Cletuz D' Souza	Emeritus Professor Department of Studies in Biochemistry University of Mysore.	Medicine of the Future: Natural or Synthetic
10.07.15	Dr. Pulok Kumar Mukherjee	Director, School of Natural Product Studies, Department of Pharmaceutical Technology Jadavpur University, Kolkata India.	Paradigm Shift in Natural Product Research-way Forward
10.07.15	Dr. Chandrashekhar G. Joshi	Assistant Professor, Department of Biochemistry, Mangalore University.	Moderation of Tumor Micro environment by Small Functional Natural products

10.07.15	Dr. V. Gopal	Professor, HOD and Principal, College of Pharmacy, Mother Theresa Institute of Health Sciences, Puducherry.	Road Map for Achieving Health through Phytomedicine
10.07.15	Dr. E.A. Siril	Assistant Professor, Department of Botany University of Kerala, Trivandrum.	Plant Cell Culture Technology for the Production of Secondary Metabolites.
11.07.15	Dr. K. Gowthamarajan	Professor and Head, Department of Pharmaceutics, JSS College of Pharmacy, Ooty.	Future Direction of Pharmaceutical Technology.
11.07.15	Dr. M. Manickavasagam	Assistant Professor, Department of Biotechnology and Genetic Engineering, Bharathidasan University, Tiruchirapalli.	Genetically Modified Crops and its potentiality in Natural Product Discovery
11.07.15	Dr. T. Marimuthu	Joint Director, Noni Foundation, Chennai	The Noni, Morinda citrifolia L. and Healthy Security
11.07.15	Dr. K. Singaravadivel	Director, IICPT, Thanjavur.	Food processing for Nutraceuticals



National Conference "Role of Biopharmaceuticals in Achieving Health by 2020" Sponsored by ICMR, DSIR, and DBT on 10.07.2015 and 11.07.2015. Prof. Cletuz D Souza, Emeritus Professor, Department of Studies in Biochemistry, University of Mysore, released the Conference proceedings.

FIST LABORATORY INAUGURATION

DST Sponsored FIST Laboratory was inaugurated in our Department on 25.04.2015 by Dr.Vishwa Mohan Katoch, Director General of ICMR, New Delhi.



Dr. Vishwa Mohan Katoch, Director General of ICMR inaugurated our DST FIST Lab followed by Prof.T.Pradeep, DST Unit of Nanosciences, IIT, Madras and Dr. Krishnakumar, Deputy Director, Vision Research Foundation, Chennai on 25.04.2015

MoU's Signed

The Department of Biochemistry has signed MoU with KMCH Research Foundation, Coimbatore for Research Collaboration on 16th Dec, 2015.

ENDOWMENT GUEST LECTURE

The Department of Biochemistry conducted Endowment Guest Lecture on the topic "Floral and Cultural Diversity of Andaman and Nicobar Islands" by Dr.M.U.Sherif, Joint Director, AJC Bose Indian Botanical Garden, Howrah on 12.02.2016.



Endowment Guest Lecture on "Floral and Cultural Diversity of Andaman and Nicobar Islands" by Dr.M.U.Sherif, Joint Director, AJC Bose Indian Botanical Garden, Howrah on 12.02.2016

INVITED LECTURE

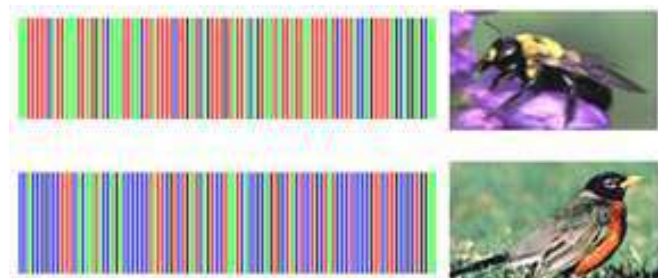
Topic	Resource Person	Date
Fluorescent Nanodots for Biological Applications	Dr.K.Kadirvelu Joint Director, DRDO-CLS Bharathiar University, Coimbatore	09.02.2016
Food Processing Applications for the Biopharmaceutical Industry	Dr.K.Singaravadivel Director, Indian Institute of Crop Processing Technology, Ministry of Food Processing Industries, Thanjavur .	11.2.2016

EXTENSION ACTIVITY

Nature of the Service/Topic	Beneficiary	Date
Blood Group Identification	For all the first year UG students	06.07.2015
Vaccination and Dewarming for Workers of Housekeeping and Canteen	Housekeeping and Canteen Workers	12.10.2015

STUDENT'S CORNER

DNA Bar-coding: In 2003, Paul Hebert, a researcher from the University of Guelph, Ontario, Canada proposed a way to identify species which he named it as "DNA Bar-coding". It uses a very short genetic sequence from a coding part of the genome which is analogous to scanner at a supermarket that distinguishes products using the black stripes of the Universal Product Code (UPC). To the untrained eye, two UPC stripes may look very similar but the barcodes are distinct in both cases.

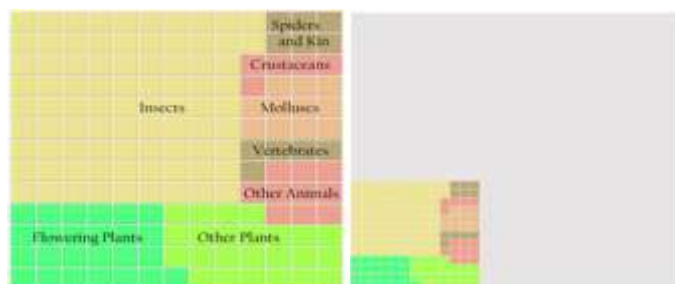


Until recently, the morphological features like the shape, size and color of body parts have identification codes for biological specimens. In some cases a trained technician could make routine identifications using morphological

"keys", but in most cases an experienced professional taxonomist is needed. If a specimen is damaged or is in an immature stage of development, even specialists may be unable to make identifications. Bar-coding solves these problems even non-specialists can obtain barcodes from tiny amounts of tissue. This is not to say that traditional taxonomy has become less important. Rather, DNA bar-coding can serve a dual purpose as a new tool in the taxonomist's toolbox supplementing their knowledge as well as being an innovative device for non-experts who need to make a quick identification.

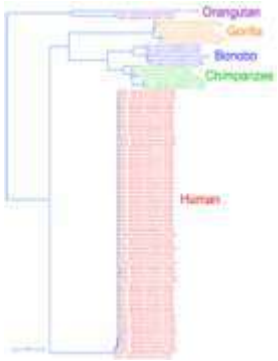
Known Biodiversity :
1.7 million

Estimated Biodiversity :
10 million



1 square: 10,000 species

The gene region that is being used as the standard barcode for almost all animal groups is a 648 base-pair region in the mitochondrial cytochrome-c oxidase-1 gene ("CO1"). CO1 is proving highly effective in identifying birds, butterflies, fish, flies and many other animal groups. CO1 is not an effective barcode region in plants because it evolves too slowly, but two gene regions in the chloroplast, *matK* and *rbcL*, have been approved as the barcode regions for plants.



Barcodes affirm the unity of the species *Homo sapiens*. Comparisons show we differ from one another by only 1 or 2 nucleotides out of 648, while we differ from chimpanzees at 60 locations and gorillas at 70 locations.

Bar-coding projects have four components :

The Specimens: Natural history museums, herbaria, zoos, aquaria, frozen tissue collections, seed banks, type culture collections and other repositories of biological materials are treasure troves of identified specimens.

The Laboratory Analysis: Laboratory protocol can be followed to obtain DNA barcode sequences from these

specimens. The best equipped molecular biology labs can produce a DNA barcode sequence in a few hours. The data are then placed in a database for subsequent analysis.

The Database: One of the most important components of the Barcode Initiative is the construction of a public reference library of species identifiers which could be used to assign unknown specimens to known species. There are currently two main barcode databases that fill this role:

1. The International Nucleotide Sequence Database Collaborative is a partnership among GenBank in the U.S., the Nucleotide Sequence Database of the European Molecular Biology Lab in Europe, and the DNA Data Bank of Japan. They have agreed to Consortium for the Barcode of Life (CBOL) data standards for barcode records.
2. Barcode of Life Database (BOLD) was created and is maintained by University of Guelph in Ontario. It offers researchers a way to collect, manage, and analyze DNA barcode data.

The Data Analysis: Specimens are identified by finding the closest matching reference record in the database. CBOL's Data Analysis Working Group has created the Barcode of Life Data Portal which offers researchers new and more flexible ways to store, manage, analyze and to display their barcode data.



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