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DA 285236

**MEMORANDUM OF UNDERSTANDING FOR ACADEMIC  
AND SCIENTIFIC COOPERATION**

BETWEEN

**THE DEPARTMENT OF ENVIRONMENTAL SCIENCE  
ST. JOHNS COLLEGE, ANCHAL**

&

**THE DEPARTMENT OF MICROBIOLOGY &  
BIOCHEMISTRY  
ST. BERCHMANS COLLEGE (AUTONOMOUS),  
CHANGANACHERRY**

No. 279/3-12.100/- PRINCIPAL ST. BERCHMANS  
COLLEGE CHANGANACHERRY.  
21-12-2021

CHANGANACHERRY  
VENDOR  
V.P. MARKOSE



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This Memorandum of Understanding (MoU) is entered into as of December, 27<sup>th</sup>, 2021 by and between the Department of Environmental Science, St. John's College, Anchal and the Department of Microbiology & Biochemistry, St. Berchmans College, Changanacherry.

The St. John's College Anchal, Kollam at its various arts and science departments is charged with capability of training and technical manpower in various front-line areas of technology, applied research and consultancy. The Industry Institute Interaction Cell of the St. John's College Anchal serves as the liaising body which handles corporate relations and other related activities.

The Department of Environmental Science was established in 2001 with the M.Sc. Environmental Science Degree Programme. The Department is in the footstep of a Research Centre of the University of Kerala under the faculty of applied sciences.

The Department of Microbiology & Biochemistry, St. Berchmans College Changanacherry, affiliated to the Mahatma Gandhi University, has been engaged in the design, research, development and consultancy in the field of microbiology and related areas.

Hence, both the parties seek to promote cooperation and advancement in spreading awareness in the area of Environment & Microbiology considering the common interest in promoting their mutual cooperation, both parties therefore wish to expand the basis for friendly and cooperative exchange of technical expertise, knowledge and academic collaboration and have set forth the following MoU. Nothing in this agreement shall be construed as creating a legal relationship between parties except as specifically provided in this MoU.

#### **Article I (Purpose)**

The purpose of the MoU is to develop academic and educational cooperation and to promote relations and mutual understanding between both the parties. All the actions taken on behalf of this MoU may be done with the proper understanding and knowledge of both the Principals (Principal, St. John's College, Anchal and Principal, St. Berchmans College, Changanacherry).

#### **Article II (Scope of Activities)**

Both the parties undertake to promote and develop co-operation in the following ways:

1. Encourage academic exchange (faculty & student), expertise and cooperation
2. Joint research activities in the areas of mutual interest

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3. Inviting officials and experts for academic visit and exchange
  4. Exchange of publications and other informative materials
  5. Co-sponsoring seminars, workshops, and other academic meetings on matter of mutual interest. The institution organizing the academic programs will be responsible for ensuing financial expenses.
  6. Training and exchange of experiences and knowledge generated through the campaign
  7. Sharing of new methodologies and innovative ideas

#### **Article III (Activities and Financial Arrangements)**

1. Both parties agree that all specific arrangements and plans of activities are to be negotiated and are dependent on the availability of the funds and resources for each such activity.
2. Research co-operation shall be conducted and specific subjects of research cooperation shall be determined through mutual consultation.

#### **Article IV (Intellectual Property Rights and Publications)**

1. The Department of Environmental Science, St. John's College Anchal and the Department of Microbiology & Biochemistry, St. Berchmans College Changanacherry (Autonomous) shall share all the data and research findings related to this MoU and ownership of any patent rights, copyrights, and the intellectual property rights to any inventions and/or product resulting from this MoU.
2. Both parties must give written approval for the utilization and publication of any data and research findings resulting from a joint activity relating to this MoU.

#### **Article V (Settlement of Differences)**

Any differing viewpoint or interpretation of this MoU shall be settled by arbitration.

#### **Article VI (Miscellaneous)**

1. This MoU can be amended in writing by mutual consent of both the parties.
2. This MoU shall be in effect from the date of its signing and be valid for the duration of four years from that date.
3. This MoU may be terminated by either party by written notice at least six months in advance.

IN WITNESS WHEREOF PARTIES HERE TO HAVE ENTERED INTO THIS AGREEMENT EFFECTIVE AS ON THE DATE AND YEAR FIRST WRITTEN ABOVE:

FOR THE DEPARTMENT OF ENVIRONMENTAL SCIENCE, ST. JOHN'S COLLEGE ANCHAL



**WITNESS**

1. Dr. Brilliant Rajan  
Assistant Professor & Head  
Dept of Environmental Science  
St. John's College, Anchal
2. Dr. Anila George  
Assistant Professor  
Dept of Environmental Science  
St. John's College, Anchal

**Rev. Fr. Johnson G**  
PRINCIPAL

st. John's College  
Anchal - 1975

FOR THE DEPARTMENT OF MICROBIOLOGY & BIOCHEMISTRY, ST. BERCHMANS COLLEGE (AUTONOMOUS), CHANGANACHERRY

**Rev. Fr. Regi P. Kurian**  
PRINCIPAL

**WITNESS**

1. Dr. Jiji Jacob  
Assistant Professor & Head  
Dept of Microbiology & Biochemistry  
St. Berchmans College, Changanacherry
2. Dr. Vincy Mary Varghese  
Assistant Professor  
Dept of Microbiology & Biochemistry  
St. Berchmans College, Changanacherry

PRINCIPAL  
ST. BERCHMANS COLLEGE  
CHANGANASSERY- 1  
KOTTAYAM, KERALA



# ST. JOHN'S COLLEGE, ANCHAL

DEPARTMENT OF ENVIRONMENTAL SCIENCES

## LECTURE ON GENETIC MUTATIONS

**TUESDAY**  
**10 JANUARY** | **TIME**  
**2023**      **9:30 AM**

### SPEAKER

**DR. VINCY MARY VARGHESE**  
ASSISTANT PROFESSOR  
DEPT OF MICROBIOLOGY & BIOCHEMISTRY  
ST. BERCHMANS COLLEGE  
CHANGANACHERRY



**DR. BRILLIANT RAJAN**  
PROGRAMME COORDINATOR

**DR. CHERIAN JOHN**  
PRINCIPAL

20.12.2022

### Duty Certificate

This is to certify that Dr. Brilliant Rajan, Assistant Professor & HOD, Department of Environmental Science, St. John's College, Anchal delivered a lecture on Disaster Management in the Department of Microbiology & Biochemistry of this college held on 20.12.2022.



Principal  
PRINCIPAL

ST. BERCHMANS COLLEGE  
CHANGANASSERY- 1  
KOTTAYAM, KERALA



### **Session I (10.30 am)**

Venue: **Msgr.Kallarackal Hall**

#### **Talk 1:**

#### **Curiosity: the secret of inspiring science**

**Dr. Felix Bast**

(Professor and Head  
Department of Botany  
Central University of Punjab)

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### **Session II (2 pm)**

Venue: **Cardinal Padiyara Hall**

#### **Talk 2:**

#### **The art and science of e-content development**

**Dr. Felix Bast**

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**Dr. Felix Bast**

(Professor and Head, Department of Botany  
Central University of Punjab)

#### **About the speaker...**

Prof. Felix Bast is an award-winning Indian science communicator and a public educator working as a Full Professor at the Central University of Punjab, India. He is an expert panellist of the Paris-based International Science Council, an elected fellow of the Linnean Society of London, and a member of IUCN, Geneva. He holds PhD in Marine Biology from MEXT, Japan (alumnus of Monbukagakusho: MEXT Japanese Govt. International Doctoral Fellowship), and served as an expedition scientist in Indian Antarctic Mission. Dr. Bast discovered seven new species of marine algae and moss from India and Antarctica. He is an alumnus of IIT Bombay, University of Washington-US, Marine Biological Association of UK-Plymouth, UK, and Leibniz Institute of Tropical Marine Research, Bremen- Germany. Dr. Bast served as an in-residence intern with the President of India at Rashtrapati Bhawan, New Delhi and received "President's Inspired Teacher" recognition (2015). He also won the Teaching Innovator Award from the Ministry of Education, Govt. of India (2019). Dr. Bast is also involved with SWAYAM, a flagship online education program of the Ministry of Education, Government of India as a Course Coordinator. A TEDx speaker, Dr Bast's works have been featured in numerous media, including All India Radio, Rajya Sabha TV, BBC, The Independent, The Hindu, Indian Express and Times of India.

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## *Chapter 3*

# **Analysis of Physico-chemical Characteristics of Groundwater Samples of Pallikal Grama Panchayat, Thiruvananthapuram, Kerala**

*Jasmeya Beevi<sup>1</sup>, M.V. Vincy<sup>2</sup> and Brilliant Rajan<sup>3</sup>*

<sup>1,3</sup>*Department of Environmental Science, St. John's College, Anchal, Kerala*

<sup>2</sup>*St. Berchmans College, Changanassery, Kerala*

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Water is a key component in the quality of our lives, but society continues to contaminate this precious resource. Safe drinking water is essential to humans and other life forms. Historically, groundwater was considered to be safe to drink. However, majority of underground aquifers are now becoming contaminated with hazardous substances from various sources. The present study is carried out to estimate the groundwater quality of Pallikal Grama Panchayat. All parameters were analyzed in the laboratory by using the procedures of APHA (1995). The inhabitation of the study area consumes groundwater from open wells and bore wells for their existence. Thus, the present study is very significant to analyze the physico-chemical characteristics of groundwater especially from health point of view. It was found that the groundwater in the study area is contaminated with iron.

### **Introduction**

Water is essential resource for life and good health and is necessary for livelihood of people; it provides media for complex metabolic activities of organisms and also a precious national asset (Rao *et al.*, 2007). Water is the principal need of life on earth. Groundwater is stored under the surface of the ground in the tiny pore spaces of geological formations. Groundwater is estimated to be 20% of the world's