



Bishop Heber College (Autonomous)

(Nationally Re-accredited at the 'A++' by NAAC with a
CGPA of 3.69 out of 4)

(Recognized by UGC as "College of Excellence")

DST-FIST Sponsored & DBT Star College,

Trichirappalli – 620017,

Tamil Nadu, India



DEPARTMENT OF BIOTECHNOLOGY



THE BIOTECH CHRONICLE
VOLUME 1
EDITION 2



Student Reviewer

Zinofer Rosina,
III B.sc Biotechnology.

The Editorial Panel

Staff Reviewer

Dr. Chrisanne Freeman,
Assistant Professor



Student Reviewer

Keren Patricia
III B.sc Biotechnology



Highlights of this Issue

01.

Helix Association Endeavours

Includes Events, Competitions, Programs, Internships, Community outreach, Conferences and Training programs.

02.

Faculty Accolade

Includes Awards, Publications, Research grants, Conference presentations and Recognition for Teaching Excellence and Mentorship.

03.

Students' Accomplishments

Awards, Internships, Project presentations, Notable contributions to Extracurricular activities and Placement.

04.

Students' Creative Lounge

Includes Artistic endeavours, Original contributions in Academic and Extracurricular activities.

05.

Alumni Panel

Features former students sharing personal experience.



VISION

The Department seeks to bring about holistic development through teaching, research and extension activities with mutual love, social commitment and conscience.

MISSION

- In technical education and research by imparting knowledge and skills.
- To attain academic excellence and professional competence.
- To serve humanity with exemplary values and professional ethics.

Summer Internship

MICROALGAE BIOMASS PRODUCT



DEPARTMENT OF BIOTECHNOLOGY
BISHOP HEBER COLLEGE (AUTONOMOUS)
Tiruchirappalli- 620 017



Summer Internship on **MICROALGAE BIOMASS PRODUCTION**

Skills

- Media Preparation
- Isolation of Microalgae
- Purification of Microalgae
- Cultivation in 2L Photobioreactor



An internship was organized to impart fundamental knowledge about the cultivation of microalgae. Thirteen students participated in the program. The convener was Dr. Jasmine, Associate Professor, Head of the Department and the organizing secretary was Dr. Sriram, Assistant Professor.

As a result of the internship, forty-five microalgae belonging to five different genera were isolated from freshwater ponds located in and around Trichy.

ONLINE INTERNSHIPS

19.06.2024 – 25.06.2024



DEPARTMENT OF BIOTECHNOLOGY
BISHOP HEBER COLLEGE (AUTONOMOUS)
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DST-FIST Sponsored & DBT Star College, Tiruchirappalli-17

DEPARTMENT OF BIOTECHNOLOGY ORGANIZES

Online Internship on

Advancement and Innovation in Biotechnology

RESOURCE PERSON

APARAJITHA RAVIKUMAR
Junior Scientist
Lysine Biotech Pvt Ltd
Chennai, India.

PRESIDED BY

Dr. JASMINE JEMIMAH JEYANTHI.R
Associate professor & Head
Department of Biotechnology

DATE : 19.06.24 - 25.06.24

ADVANCEMENT AND INNOVATION IN BIOTECHNOLOGY

The Department of Biotechnology organized an internship for 1st-year undergraduates from June 19th to June 25th, 2024, focusing on advances and innovations in biotechnology. Topics covered included types of immune cells, spectroscopy, ELISA techniques, and fermentation processes. This comprehensive lecture series, convened by Dr. Sriram, Assistant Professor and led by Aparajitha Ravikumar, Junior Scientist, Lysine Biotech Pvt Ltd, Chennai, provided a balanced blend of theoretical knowledge and practical applications. The interactive format ensured an engaging learning environment, equipping students with a solid understanding of biotechnological advancements.

TECHNIQUES AND TRENDS IN BIOTECHNOLOGY

The Biotechnology department's internship from June 19-25, 2024, on "Techniques and Trends in Biotechnology" covered cancer immunotherapy, chromosomal aberrations, flow cytometry, and clinical trials, led by Dr. Sriram, Assistant Professor and Raja Rajeshwari SP, Junior Scientist, Lysine Biotech Pvt Ltd, Chennai. Engaging lectures enriched students' practical and theoretical knowledge.



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DEPARTMENT OF BIOTECHNOLOGY ORGANIZES

Online Internship on

Techniques and Trends in Biotechnology

RESOURCE PERSON

RAJA RAJESHWARI SP
Junior Scientist
Lysine Biotech Pvt Ltd
Chennai, India.

PRESIDED BY

Dr. JASMINE JEMIMAH JAYANTHI.R
Associate professor & Head
Department of Biotechnology

DATE : 19.06.24 - 25.06.24

STUDENT INDUCTION PROGRAMME 2024

PG & Research Department of Biotechnology
Bishop Heber College
(Autonomous)

(Nationally Re-accredited at the 'A++' by NMAC with a CIPA of 3.88 out of 4)
(Recognized by UGC as "College of Excellence")
DST-FIST Sponsored & DST Star College, Tiruchirappalli - 620017,
Tamil Nadu, India

Invites the
UG Freshers
to the

STUDENT INDUCTION PROGRAMME (SIP 2024)
(As per the Guidelines of UGC - Deeksharambh 2021)

WELCOME AND INTRODUCTION

1:30 PM June 19, 2024
Wednesday

Multipurpose Block
M 212

Dr. R. Jasmine Jemimah Jeyanthi
Associate Professor & Head, Department of Biotechnology,
Bishop Heber College



The Student Induction Program (SIP-2024) began with a reflective prayer by Dr. Cynthia, Associate Professor. Dr. Jasmine, Associate Professor and Head of the Department welcomed the new students, introducing the STAR values: Self-discipline, Truthfulness, Ambition, and Responsibility. The SIP-2024 laid a solid foundation, equipping UG and PG freshers with essential values, knowledge, and skills for their academic and personal development.

Dr. Dinesh Raja, Associate Professor and Mrs. Melba, Assistant Professor discussed self-awareness and the balance of Positivity and Negativity, conducting a SWOT analysis to aid personal growth.

Ms. Amrita Anandi, Assistant Professor emphasized Interpersonal Skills, Empathy, and Emotional Intelligence, essential for effective communication and teamwork.

Dr. Anita Margret, Associate Professor spoke about Self-Efficacy and Research skills, highlighting their importance in academic success.

Ms. Leelavathy, Assistant Professor highlighted Gender Sensitization, promoting an inclusive campus culture.

Mrs. Merlyn Diana, Assistant Professor concluded with a campus tour, familiarizing students with university facilities.

INAUGURATION OF RESEARCH CONSORTIUM



 **DEPARTMENT OF BIOTECHNOLOGY**
BISHOP HEBER COLLEGE
(AUTONOMOUS) 

Nationally Reaccredited at the A++ Grade by
NAAC with CGPA of 3.69 out of 4
Tiruchirappalli- 620 017

Invites All! 

INAUGURATION OF RESEARCH CONSORTIUM



INAUGURATED BY
DR. C. RAVIDHAS
Dean of Research & Development
Assistant Professor and Head,
PG & Research Department of Physics
12.45 PM June 28 2024 | Friday
Multipurpose Block - M 207





The Department of Biotechnology at Bishop Heber College inaugurated its Research Consortium on June 28, 2024, with Dr. C. Ravidhas, Vice Principal, Self Finance, emphasizing collaborative research. In the subsequent week, the Research Consortium hosted featured talks on new biology trends by Dr. William Raja, Assistant Professor and AI in biotechnology by Dr. Ganapathy Ganesan, Assistant Professor marking a significant academic milestone.

INTERNSHIP ON METAGENOMICS



The Department of Biotechnology held a one-week internship on "16S Metagenome Sequencing" from July 1 to July 6, 2024, led by Oneomics Private Limited. Esteemed experts Dr. Kesavan Markkandan, Ms. Sowmya Pulapet, and Ms. Sowmiya Kathir guided students through the importance of metagenomics, emphasizing its role in understanding microbial diversity. Students received hands-on training with essential tools like GitBash, Linux, FastQC, Anaconda, and QIIME2, mastering data handling, visualization, and sequencing data management. The program also included statistical analysis using R-studio. The internship concluded with a valediction ceremony, awarding certificates to participants. This event, organized by Dr. William Raja T, Assistant Professor significantly enhanced students' skills and knowledge in biotechnology.

PG & RESEARCH DEPARTMENT OF BIOTECHNOLOGY
BISHOP HEBER COLLEGE [AUTONOMOUS]
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BST-FIST Sponsored & DBT Star College, Tiruchirappalli - 620017.

Invites the
PG Teachers
to the

**ONE WEEK
INTERNSHIP ON METAGENOMICS**

RESOURCE PERSONS


Dr. Kesavan Markkandan
CEO & Co-Founder


Ms. Sowmya Pulapet
Team Lead - Bioinformatics


Ms. Sowmiya Kathir
Bioinformatician

HELIX ASSOCIATION INAUGURATION



On July 4th, 2024, the Department of Biotechnology at Bishop Heber College inaugurated the Helix Association for the academic year 2024-2025. The event was inaugurated by our beloved Principal Dr. Princy Merlin who emphasized leadership and resilience

Dr. P. Suresh Kumar, Professor and Head, Department of Biotechnology, Anna University, Trichy delivered an engaging talk on "Artificial Intelligence in Drug Discovery."



The ceremony concluded with the induction of new office bearers

A key highlight was the introduction of the "12 Bs" initiatives, focusing on mentorship, research, entrepreneurship, and student support.

This event sets a promising tone for the upcoming academic year, highlighting the department's relentless pursuit of innovation and student empowerment.

Prayer Cell Inauguration.


The inauguration of the 2024-2025 Prayer Cell was a noteworthy celebration of faith. Organized by Dr. Dinesh Raja, Associate Professor, the event featured evocative hymns, a profound Bible reading, and a compelling keynote by Rev. Benedict Immanuel, emphasizing the transformative power of prayer and dedicated worship spaces. The event also featured the induction of committed new leaders, all orchestrated to deepen students' spiritual journeys.



Department of Biotechnology
Bishop Heber College (Autonomous)
Tiruchirappalli-17

"Take delight in the LORD, and He will give you the desires of your heart"
- Psalms 37:4

Inauguration of Prayer Cell
Chief Guest



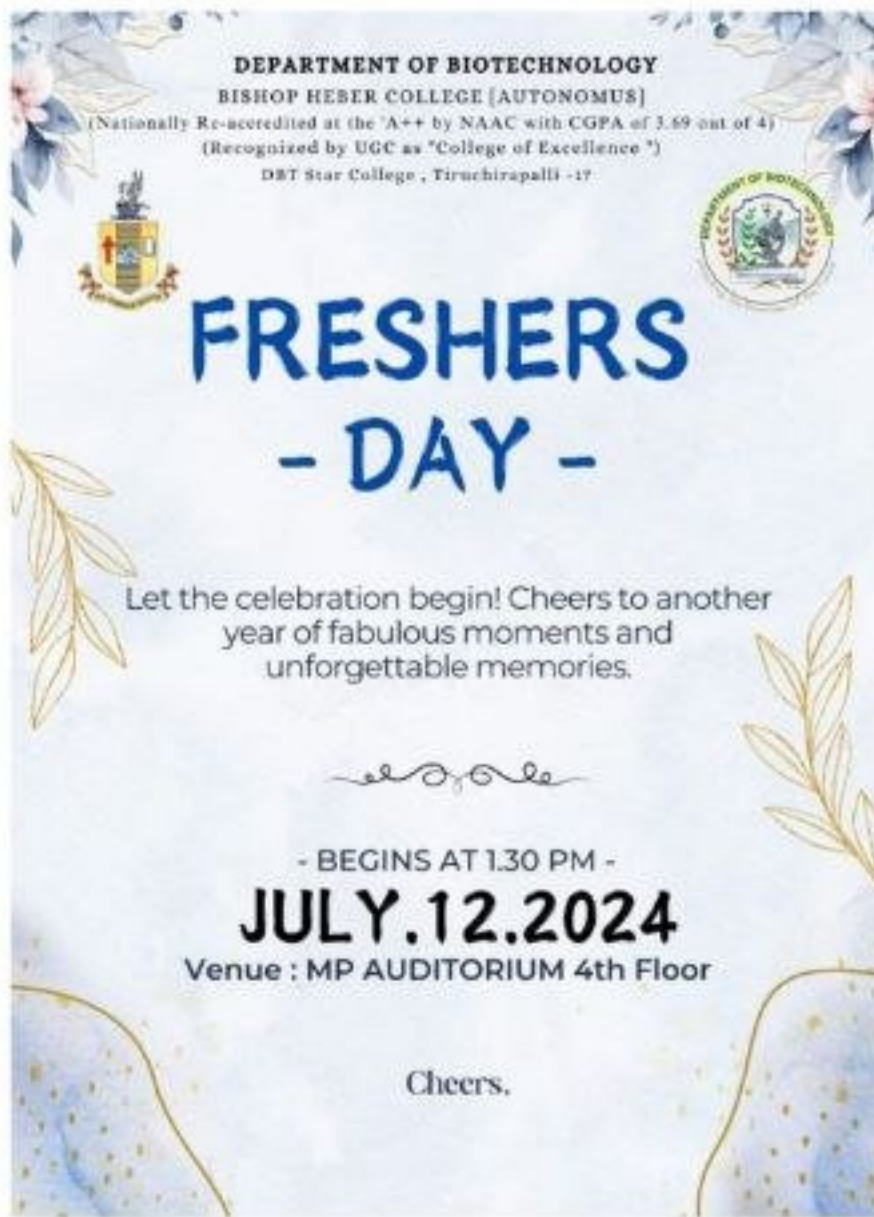
Rev. I. Benedict Immanuel
Presbyter
C.S.I All Saint's Church
Tiruchirappalli
Will deliver the word of God and Induction
of office bearers
Presided By
Dr.R. Jasmine
Head of the Department

FRIDAY 12 JULY AT 11:00 AM

Gallery Hall IV floor Multi Purpose Building

All are invited!





Fresher's day '24

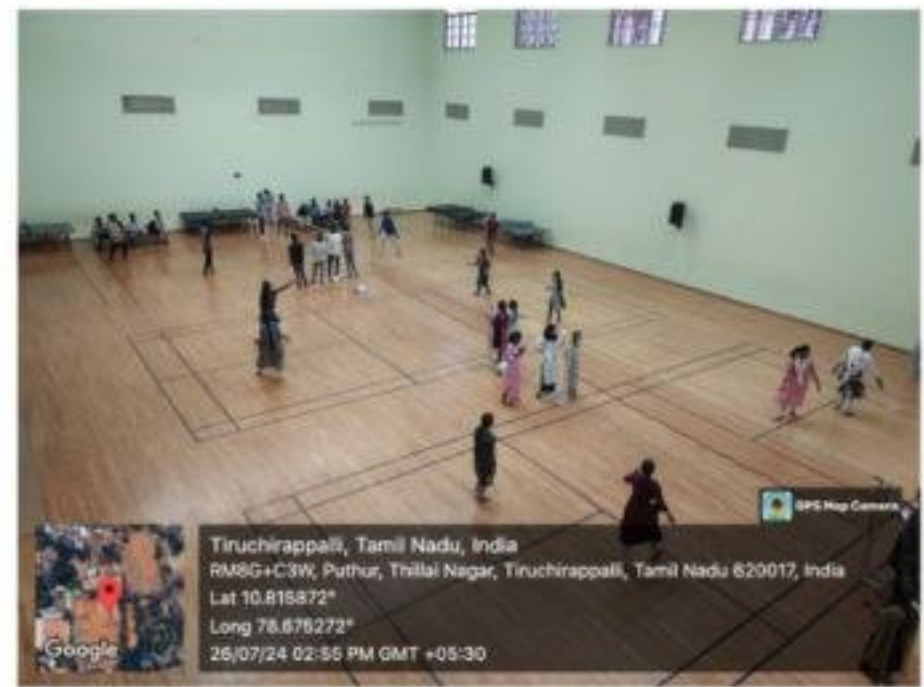
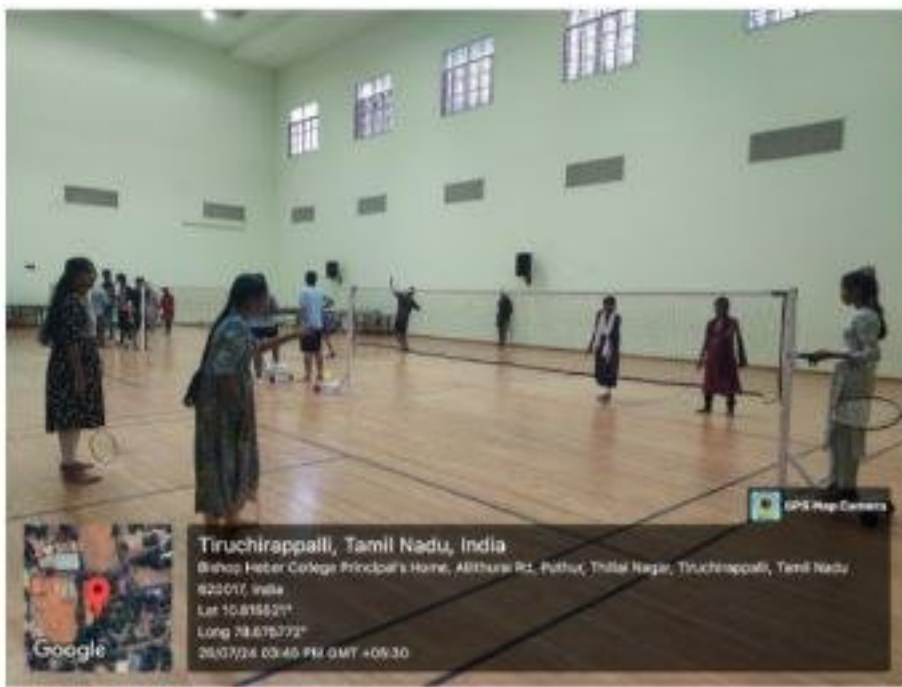


On July 12, 2024, our department hosted Fresher's Day. The event featured a prayer song, a welcome address, and an inspiring speech from our Head of Department. A cake-cutting ceremony symbolized the occasion. The program included musical performances, dance routines, and a video highlighting college life. Freshers showcased their talents, and the event concluded with a photo session and a vote of thanks. The day left everyone, especially the freshers, with cherished memories.




BIOGOLD : SPORTING EVENTS HOSTED BY THE DEPARTMENT'S SPORTS CLUB

Our department recently held an exhilarating series of sports events, meticulously organized by Dr. William Raja T, Assistant Professor, and Dr. Sherley Elgal, Associate Professor. The girls' throwball tournament was a standout, featuring impressive teamwork and strategic play. The boys' volleyball matches were equally enthralling, marked by fierce competition and powerful spikes. Additionally, the shuttle tournaments for both boys and girls showcased exceptional agility and precision.



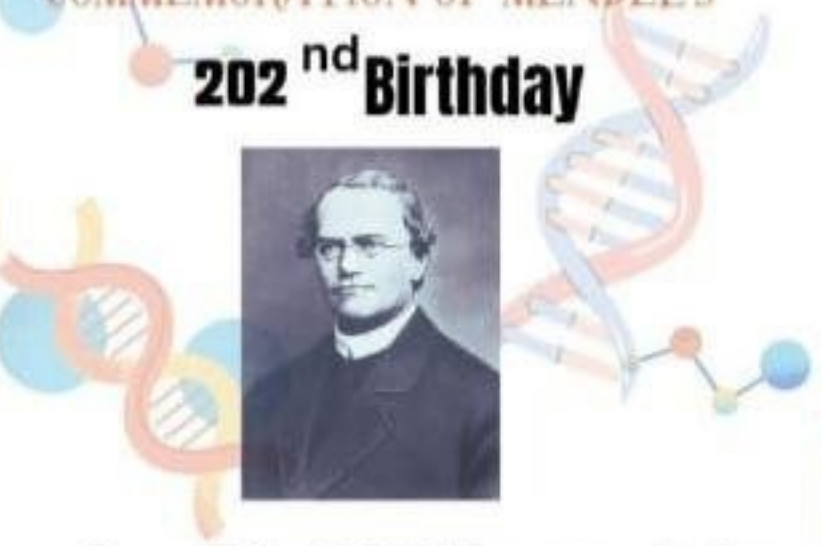

COMMEMORATION OF MENDEL'S

202nd BIRTHDAY

 **Bishop Heber College(Autonomous)**
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DST-FIST Sponsored & DBT Star College, Trichirappalli - 620017,
Tamil Nadu, India

Department of Biotechnology
2024-2025

CORDIALLY INVITES YOU
COMMEMORATION OF MENDEL'S
202nd Birthday



Venue : Gallery hall Multipurpose auditorium.
Date :19/07/2024
Time: 1:30 pm to 2:30pm



The Department of Biotechnology's celebration of Mendel's 202nd birthday was a captivating event. Speeches, an enlightening video, and engaging activities like Bio-Connection and Dumb Charades invigorated students' curiosity.


Dr. Jasmine Jemimah Jayanthi, Associate Professor and Head of the Department; Dr. Sharmila, Associate Professor and Dr. William Raja, Assistant Professor orchestrated this event, culminating with a heartfelt vote of thanks, celebrating Mendel's enduring legacy.



HEALTH AWARENESS

"Happy Life,
is Healthy
Life."

On July 26, 2024, Dr. T. Balasubramanian from K.A.P.V Medical College, hosted by Dr. Samuel, Assistant Professor delivered an enlightening session on "Happy Life is Healthy Life." He highlighted the criticality of early detection, a balanced diet, regular exercise, and mental health awareness for holistic well-being.

 **BISHOP HEBER COLLEGE (AUTONOMOUS)**
(NATIONALLY REACCREDITED WITH A++ GRADE BY NAAC WITH A CGPA OF 3.89 OUT OF 4)
RECOGNISED BY UGC AS "COLLEGE OF EXCELLENCE"
TIRUCHIRAPPALLI - 620017

DEPARTMENT OF BIOTECHNOLOGY

HEUX ASSOCIATION

HAPPY LIFE IS HEALTHY LIFE

(மகிழ்ச்சியான வாழ்க்கை - ஆரோக்கியமான வாழ்க்கை)



Resource Person



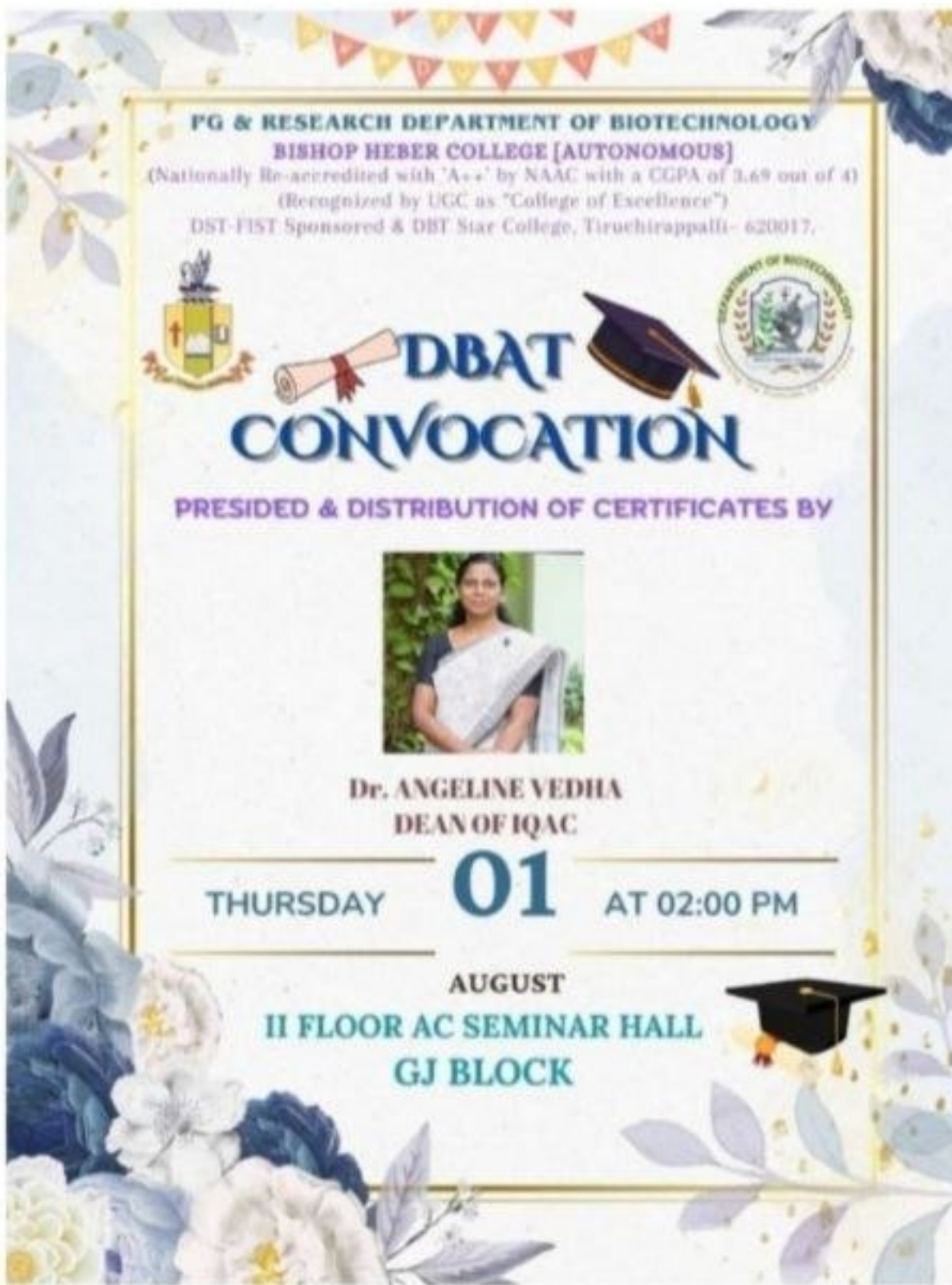
Dr. T. Balasubramanian
MD., DM (Cardio)
Prof of Cardiology - Retd
Govt. KAPV Medical College,
Trichy.



Gallery Hall

26/JULY/2024 (Friday)





DBAT

CONVOCATION



On August 1, 2024, the Departments of Biotechnology and Bioinformatics celebrated the Bioinformatics graduates, who completed their Diplomas in Bioanalytical Techniques (DBAT). Dr. Jasmine's welcome was followed by an inspiring speech by Chief Guest Dr. Angeline Vedha, Dean of IQAC which highlighted the graduates' transformation of abilities into valuable skills. Dr. William Raja, Assistant Professor concluded with a gracious vote of thanks..



COMMEMORATION OF SIR ALEXANDER FLEMING'S 143RD BIRTHDAY



**BISHOP HEBER COLLEGE
(AUTONOMOUS)
TIRUCHIRAPALLI-17**

Department of Biotechnology
cordially invite you to the
*Commemoration of 143 years of birth of
The Great Scientist*
Sir Alexander Fleming
(THE MAN WHO DISCOVERED PENICILLIN
AND NOBEL LAUREATE IN 1945)

**Presided By
Dr.R.Jasmine
Associate Professor & Head**

AUGUST 05, 2024 | 12:30 PM


VENUE:GALLERY HALL,4TH FLOOR, MULTIPURPO
BUILDING

ALL ARE INVITED !




On August 5, the Department of Biotechnology celebrated Sir Alexander Fleming's 143rd birthday. Organized by Dr. Dinesh Raja, Associate Professor and Dr. William Raja, Assistant Professor, the event featured lectures by Ms. Leelavathy, Assistant Professor, on "The World with Penicillin" and Ms. Amrita Anandi, Assistant Professor on "The World without Penicillin." An AI video by students and a prize distribution ceremony concluded the event, honoring competition winners and celebrating Fleming's legacy.

FACULTY ACCOLADE




BISHOP HEBER COLLEGE
(AUTONOMOUS)
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NAAC with a CGPA of 3.69 out of 4
Tiruchirappalli



Dr. SHARMILA, ASST.PROF
Dept. of Biotechnology
has been honored by the
Central Institute of Indian Languages
(CIL) MoE, Government of India, by
publishing her book, "Stem Cell Oru
Uyirmeetpu Cell" by **Dharatvani** of the
Ministry of education.
CONGRATULATIONS TO HER !

Honored by the Central Institute of Indian Languages (CIL), Ministry of Education, Government of India, for publishing the book "Stem Cell Oru Uyirmeetpu Cell" through Bharatavani.



GENDER SENSITIZATION CLUB
BISHOP HEBER COLLEGE (AUTONOMOUS)
TIRUCHIRAPPALLI

You are cordially invited to the Sensitization Programme on
"Equality has No Gender"
July 30 11:30 AM
2024
VENUE: PG Block 3rd floor MSW Hall

PRESIDENTIAL ADDRESS
Dr. M. Gabriel
ASSOCIATE PROFESSOR & US COORDINATOR
PG & RESEARCH DEPARTMENT OF SOCIAL WORK, BHC

RESOURCE PERSON
Dr. Sharmila
ASSISTANT PROFESSOR
DEPARTMENT OF BIOTECHNOLOGY, BHC

ORGANIZED BY
DR. JANIS WILIAM
MS. SULTAN NISA PRINIA, V
PRESIDENT OF GENDER SENSITIZATION CLUB
ASSISTANT PROFESSOR, DEPARTMENT OF SOCIAL WORK, BHC

Served as a resource person and gave a talk on "Equality Has No Gender," organized by the Gender Sensitisation Club of Bishop Heber College on 30/07/2024

DR. SHARMILA ASSOCIATE PROFESSOR



DR. JASMINE JEMIMAH JEYANTHI R ASSOCIATE PROFESSOR

Book Chapter: Systems Biology and Human Diseases

May 2024

DOI:10.1007/978-981-99-9462-5_2

In book: Systems Biology Approaches: Prevention, Diagnosis, and Understanding Mechanisms of Complex Diseases (pp.27-54)

*Jasmine Jeyanthi, Sowmiya. So, Arokiaraj Sherlin Rosita, H. Deena Priscilla

*




JAMAL MOHAMED COLLEGE
(AUTONOMOUS)
Nationally Accredited with A++ Grade by NAAC (Type) with CGPA Approval of 4.0
(A/Board to Disaffiliation University)
N.ULRACE CROSS ROAD, MADANAPURAM, TIRUCHIRAPPALLI - 620016
TAMIL NADU, INDIA

Website: www.jmc.edu Email: principal@jmc.edu / jmc.edu@gmail.com

07/06/2024

Attendance Certificate

This is to certify that Dr. H. Jasmine Jemimah Jeyanthi, Head and Associate Professor, Dept. of Biotechnology, Bishop Heber College (Autonomous), Tiruchirappalli has served as a Resource Person for the "Faculty Development Programme" and delivered a talk on "The Revolution of Metagenomics and Artificial Intelligence in Deciphering the diet modulated Gut microbiota", jointly organized by the Department of Zoology and Internal Quality Assurance Cell of Jamal Mohamed College, Tiruchirappalli, on 7th June 2024.



PRINCIPAL

Served as a resource person for the Faculty Development Programme and delivered a talk on "The Revolution of Metagenomics and Artificial Intelligence in Deciphering Diet-Modulated Gut Microbiota," organized by the Department of Zoology and Internal Quality Assurance Cell of Jamal Mohamed College, Trichy.

Chapter 16 - Analyzing the interaction of synthetic inhibitors with phospholipases through in silico methods

Prisilla Arackiasamy ^a, Sriram Srinivasan ^a,
Madhanraj Akilandeswari Pugalendhi ^a,
Savariyar Josephinol ^b,
Kumar Kalavathi Murugan ^c



DR. SRIRAM S
ASSISTANT PROFESSOR

Chapter 17 - Regulation of cancer cell survival and invasion through phospholipase D

Sriram Srinivasan, Prisilla Arackiasamy,
Madhanraj Akilandeswari Pugalendhi,
Ragul Gunasekaran,
Kency Jose Vincent David Paul



MS. LEELAVATHY S
ASSISTANT PROFESSOR

NATURALISTA CAMPANO
ISSN: 1027-7160
Volume 28 Issue 1, 2024

In Vitro Antidiabetic and Anti- Inflammatory Analysis of Rhizome Extract of *Hedychium Flavescens*

Arushi A. A.^{1*}, Leelavathy S.², Marjany J.³, Gibson V. A.⁴

¹Department of Botany, Bishop Heber College (Affiliated to Bharathidasan University), Tiruchy- 17, Tamilnadu

²Department of Biotechnology, Bishop Heber College (Affiliated to Bharathidasan University), Tiruchy- 17,

Tamilnadu

*Corresponding author ORCID: 0000-0002-2448-0748

Abstract

The principle of this study was to assess the potential anti-inflammatory and anti-diabetic properties of *Hedychium flavescens*. The anti-diabetic activity was determined using the α -amylase inhibitory assay with the DNSA method, while the anti-inflammatory activity was evaluated using a modified version of the method developed by Mircinska et al. In the examination of the antidiabetic effects, the acetone extract of *Hedychium flavescens* rhizome demonstrated an IC₅₀ value of 50.25 μ g/ml, indicating higher activity compared to the standard Acarbose. However, the acetone rhizome extract exhibited relatively lower inhibition in terms of anti-inflammatory activity, with an IC₅₀ value of 82.26 μ g/ml compared to the standard.

Key-Words: *Hedychium flavescens*, Antidiabetic, Anti-inflammatory, Zingiberaceae, Medicinal plant.

1. Introduction

The metabolic disease called diabetes mellitus is characterized by low or faulty insulin action, which raises blood sugar levels. It affects approximately 25% of the global population, particularly in industrialized and developing countries^[1]. Diabetes is associated with some of the primary factors contributing to mortality on a global scale. In India, the number of diabetic patients has doubled in the past two decades, and it is projected that by 2025, around 89.9 million people will have diabetes. The economic burden of diabetes-related deaths in India is estimated to be around \$210 billion annually. According to the World Health Organization, it is projected that this figure will increase to \$535 billion in the next decade^[2].

The treatment of diabetes is complex, and the available drugs have various adverse effects, including weight gain, disruption of intestinal function, acidity of the intestine, liver damage, drug resistance, and toxicity^[3]. Other side effects include hypoglycemia, gastrointestinal upset^[4], increased risk of urinary tract infections^[5], and higher susceptibility to upper respiratory tract infections^[6]. The existing treatments for diabetes offer noticed advantages and are accompanied by consistent expenses and potential risks. The disease is not cured by these; instead, they suppress the symptoms, which can have long-term negative effects on overall health. Traditional treatments will remain the cornerstone of diabetes care, however, alternative and emerging therapies promise the capacity to supplement or potentially supplant current treatments, thereby facilitating optimal diabetes management^[7].

A typical sign of many chronic illnesses is inflammation. It is an innate reaction to tissue damage brought on by hazardous substances, micro-biological pathogens, or physical trauma. Its goal is to remove damaging stimuli and start the damaged tissue's healing process^[8]. The inflammation is caused by the denaturation of proteins, and the denaturation can be inhibited by anti-inflammatory drugs. Nevertheless, these medications can lead to gastrointestinal ulcers, which can further result in complications such as ulcer bleeding, perforation, and obstruction. They might also be involved in major cardiovascular events such as acute renal failure, hypertension development, myocardial infarction, and the worsening of established heart failure^[9].

Safe and more effective alternatives can be observed in medicinal plants that have traditionally been used to treat diabetes and inflammation. India is home to a plentiful number of medicinal plants. The beneficial effects



DR. SAMUEL P ASSISTANT PROFESSOR

Dr. P. Samuel's ACHIEVEMENTS

Books

1. Authored a book entitled **"Hands-on Microbiology: Essential Lab Practices and Procedures"** Techniques, Protocols and Trouble shooting, Lambert Academic Publishing, Germany. ISBN: 6207473183
2. Authored a book entitled **"Stem Cells: From cells to cures"**, Lambert Academic Publishing, Germany. ISBN: 6207484649

Book chapters

1. Authored a book chapter entitled **"A deep dive in to biomarkers, types, role in the diagnosis of diseases and impact of sample kind on selection of biomarker"**, IIP Series, Volume 3, Book 12, Part 3, Chapter 1, Futuristic Trends in Biotechnology. eISBN: 978-93-6252-490-4 (<https://www.iipseries.org/viewpaper.php?pid=4167&pt=a-deep-dive-in-to-biomarkers-types-role-in-the-diagnosis-of-diseases-and-impact-of-sample-kind-on-selection-of-biomarker>)
2. Authored a book chapter entitled **"Vaccine production"**, Advances in Industrial Microbiology, First Edition, MATJENI Publications, Sivakasi, Virudhunagar (Dt.), Tamilnadu, India. ISBN: 9788196517489.
3. Authored a book chapter entitled **"Intellectual Property Rights (IPR)"**, Advances in Industrial Microbiology, First Edition, MATJENI Publications, Sivakasi, Virudhunagar (Dt.), Tamilnadu, India. ISBN: 9788196517489.

Invited lecture

1. Invited by the Department of BBA, Ayya Nadar Janaki Ammal College (Autonomous), Sivakasi, Tamilnadu to deliver a lecture entitled **"SMART: Simplifying Modern Academic Resources with Technology"**, dated on 15.07.2024.
2. Invited by BI - PLAN (Birds - PLants ANimals) care and conservation club of Ayya Nadar Janaki Ammal College (Autonomous), Sivakasi, Tamilnadu to deliver a lecture entitled **"PLANET: Protecting Land, Air, and Nature through Environmental Technology"**, dated on 15.07.2024.

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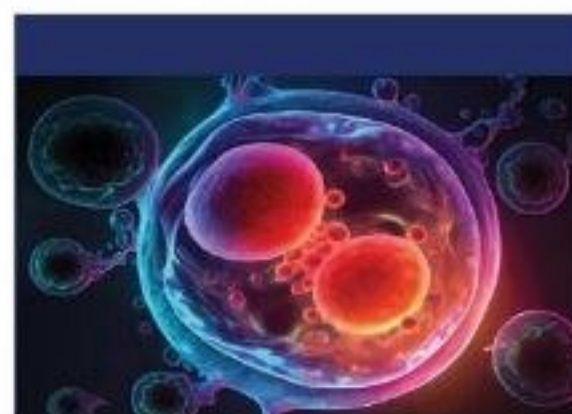
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Stem Cells

8 April 2024

ISBN-13: 978-6207484645 ISBN-10: 6207484649



P. Samuel
M. Gronraj
D. N. P. Subramani

Stem Cells

From Cells to Cures





DR. WILLIAM RAJA T
ASSISTANT PROFESSOR

Training/Workshop for Biology teachers

TAMILNADU MODEL SCHOOL SOCIETY
DEPARTMENT OF SCHOOL EDUCATION AND
ADI DRAVIDAR AND TRIBAL WELFARE DEPARTMENT
TAMILNADU ASTRONOMY AND SCIENCE SOCIETY

Empowering Science Teachers: New Trends And Techniques in Biology

SPEAKER

DR. WILLIAM RAJA.T
Assistant Professor
Department of Biotechnology
Bishop Heber College, Trichy

01 JULY TO 03 JULY, 2024
YERCAUD, SALEM

Tamil Nadu Model Schools

R.C.No. 1184/ C2/ MS/ 2024 Date: 04/ 07/ 2024

Attendance Certificate

This is to certify Dr. T. William Raja, Assistant professor, Department of Biotechnology, Bishop Heber College, Tiruchirappalli - 1 has been active and given his valuable contribution as a resource person during the conduct of Training on Professional Development of Post Graduate Teachers on 03-07-2024 at Yercaud.

P. Coobalath
Training Coordinator
Tamilnadu Model Schools

Served as a resource person and gave a talk on "Empowering Science Teachers: New Trends and Techniques in Biology" during a professional development training for postgraduate teachers on 03/07/2024 at Yercaud.



MRS MELBA PRIYADARSHINI A
ASSISTANT PROFESSOR

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The assessments of floristic diversity and their host butterfly Nectar Plants of Pachamalai Hills of Eastern Ghats towards biodiversity conservation

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Abstract
In this paper, no present research investigation has been carried out to examine the butterfly diversity greatly depends on the availability of host plants. The study has been carried from January 2023 – October 2023 in Pachamalai hills of Eastern Ghats in Tamilnadu, in the ecological site that has been observed in the native plant species of the Eastern Ghats especially in Vicia, Leguminosae, Erioseba glaberrima, Pennantia grandifolia and Pennantia indica as well as observed in Pterocarya jacobsonii, an invasive plant species. This study reveals that some of the native nectar host plants play a vital role in attracting butterflies and assessing the diversity of butterflies. Vicia grandifolia, which acts as a primary nectar host plant for a variety of species is studied in detail.

Keywords: Nectar plants, Pachamalai Hills, butterfly

Introduction
Butterflies are a crucial component of the food chain and are prey for birds, lizards, and other insectivorous animals. Butterflies serve as indicators of a healthy ecology and habitat. They show a huge variety among other invertebrates. More than 15,000 butterfly species have been reported from all over the world. India has 1,300 species of butterflies and India hosts one of the richest and most diverse butterfly faunas in the world (Gilchrist, 2006). The diversity of butterflies depends on different factors. One of the most important factors is the plant diversity of the area. The diversity of plants and butterflies are inversely correlated (Eggs and Spence, 1982). Thus, a shift in butterfly diversity might result from a change in vegetation structure. The study of larval host plants of Indian butterflies was well discussed by E.R. Ford (1936-1977). The study of butterflies and their host plants in the districts of Barak and Patkai is available in the present years. Some available study has been carried out in these two districts of West Bengal. A new larval host plant of Papilio cithaon (Fabricius) was reported by Mukherjee and Ghosh (2018). Red Hairy Papilio belone (Linnaeus) was reported for the first time from Barak district by Mukherjee (2015). A checklist of 117 butterfly species was established by Mukherjee and Mandal (2020) and new larval host plants for three butterflies were reported by Mukherjee (2023). Recently, new larval host plants of Mnethia saccaea (Fabricius) and Janina arifolia (Linnaeus) were reported by Mukherjee (2024). Two new larval host plants of Lepidoptera were Papilio and Euphaea species (Mukherjee) were reported by Mukherjee (2022b) and three new larval host plants were newly reported by Dasgupta et al. (2023) from Barak district. On the other side, a preliminary checklist of butterflies of Jharkhand in Patkai was reported by Samanta et al. (2017). In addition, some exclusive species, including Arundina venosa Chlorea agestis K. Swinhoe, were reported from Patkai for the first time by Samanta et al. (2018). Blackvein grass Arctia raga (Bawa) was reported from Jharkhand by Mukherjee (2021). Color segment Arctia raga (Bawa) was reported from Patkai by Mahanta et al. (2022). The first photographic documentation of Large spotted satyria Arctia raga (Bawa) (Bhattacharya) from Patkai was provided by Hany et al. (2022), and Variable-Median Arctia raga (Bawa) was reported from Patkai district by Samanta et al. (2022).

Study area
The present study was undertaken in the Pachamalai Hills, located between the districts of Tiruchirappalli and Pudukottai and Salem, Tamil Nadu, India. The hill is situated 1300 to 2000 feet above mean sea level and lies between 11° 25' N latitude and 78° 31' E longitude with an area covered with 10,122 sq. km. The mean annual rainfall ranges between 1100-1300 mm, and maximum amount of rainfall was received during northeast monsoon. Pachamalai Hill is a part of Eastern Ghats.

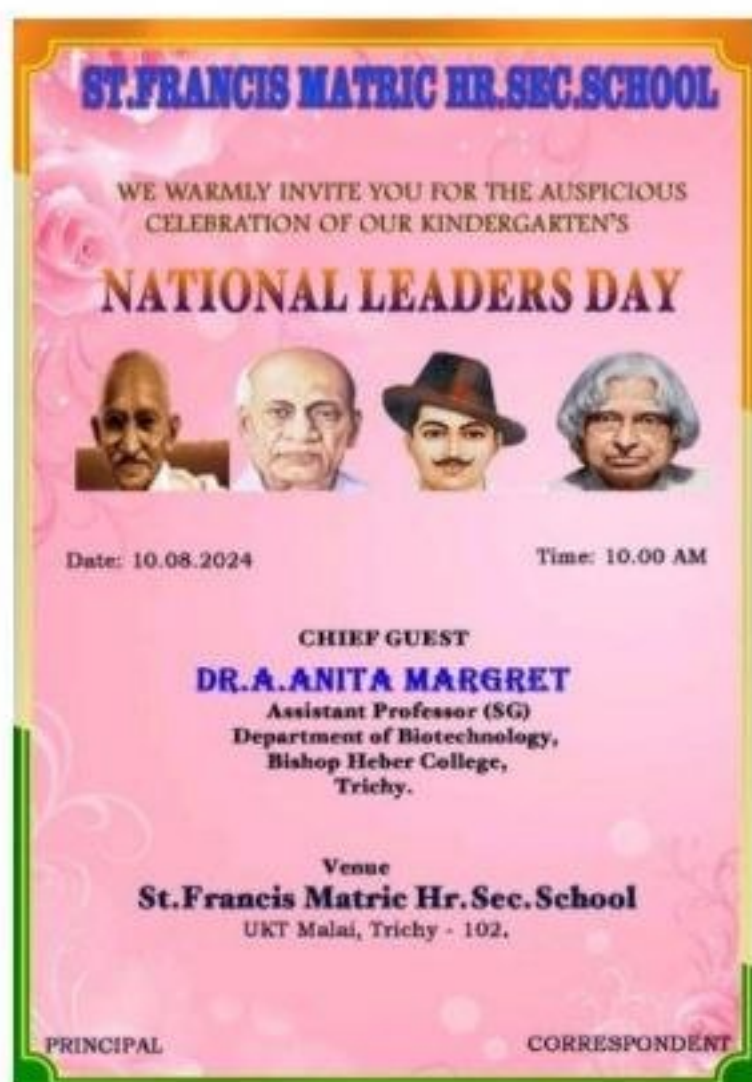
Materials and methods
A random sampling was carried out with special reference to the nectar host plants. The butterflies were observed during sunny day hours (08:00-16:00 hr). In addition several field trips were carried out from January 2023 – October 2023 in the study area. The species of butterflies were identified by referring with the help of the book of Indian Butterflies, Butterflies of Peninsular India and checklist (Srivastava et al., 2014). New common species were continuously monitored for the feeding behavior on Vicia grandifolia. Numbers of visits of each species at various stages was recorded and mean values were taken.



DR. ANITA MARGRET
ASSOCIATE PROFESSOR



Served as a resource person at State - Level Conclave organised by Kunthavai Naachiyar Government Arts College, Thanjavur on 20/02/2024 and National Leaders Day Celebration organised by St. Francis Matric School, Trichy on 10/08/2024.



Prakash Piruthivraj, B.R. Maha Swetha, A. Anita Margret, A. Sherlin Rosita, Parthasarathi Rengasamy, Rajapandiyar Krishnamoorthy, Mansour K. Gatasheh, Khalid Elfaki Ibrahim, Sekhu Ansari, Natesan Vijayakumar, In vitro and in silico evaluation of anti-quorum sensing activity of marine red seaweeds- *Portieria hornemannii* and *Halymenia dilatata*, Journal of King Saud University - Science, Volume 36, Issue 6, 2024, 103188, <https://doi.org/10.1016/j.jksus.2024.103188>.



DR. CHRISANNE FREEMAN
ASSISTANT PROFESSOR

Unraveling the Intricacies of OPG/RANKL/RANK Biology and Its Implications in Neurological Disorders—A Comprehensive Literature Review

Chrisanne Freeman¹, Merlyn Diana A. S^{1,2}, Priscilla A. S¹

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Abstract

The OPG/RANKL/RANK framework, along with its specific receptors, plays a crucial role in bone remodeling and the functioning of the central nervous system (CNS) and associated disorders. Recent research and investigations provide evidence that the components of osteoprotegerin (OPG), receptor activator of NF- κ B ligand (RANKL), and receptor activator of NF- κ B (RANK) are expressed in the CNS. The CNS structure encompasses cells involved in neuroinflammation, including local macrophages, inflammatory cells, and microglia that cross the blood–brain barrier. The OPG/RANKL/RANK triomodulates the neuroinflammatory response based on the molecular context. The levels of OPG/RANKL/RANK components can serve as biomarkers in the blood and cerebrospinal fluid. They act as neuroprotectants following brain injuries and also participate in the regulation of body weight, internal body temperature, brain ischemia, autoimmune encephalopathy, and energy metabolism. Although the OPG/RANKL/RANK system is primarily known for its role in bone remodeling, further exploring deeper into its multifunctional nature can uncover new functions and novel drug targets for diseases not previously associated with OPG/RANKL/RANK signaling.

Keywords: OPG/RANKL/RANK, Autoimmune response, Osteoimmunology, Inflammation, Microglia, CNS



MRS. MERLYN DIANA A S
ASSISTANT PROFESSOR



DR. PRISILLA A
ASSISTANT PROFESSOR

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Nanjesh Bommar
Nanjesh Bommar
Director, InSc

**Phospholipases in Physiology
and Pathology**
Volume 3, 2023, Pages 281-290

**Chapter 17 -
Regulation of cancer
cell survival and
invasion through
phospholipase D**

Sriram Srinivasan, Prisilla Arockiasamy,
Madhanraj Akilandeswari Pugalendhi,
Ragul Gunasekaran,
Kency Jose Vincent David Paul



Investigating the Phytochemical Analysis and Antioxidant Activity of *Hedychium flavescens*

Anand A A^{1*}, Vithana A¹, Jasmine K¹, Gideon V A²

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ABSTRACT

For ages, medicinal plants have served as a valuable reservoir of healing substances, with their efficacy often attributed to the presence of phytochemicals and antioxidants. The purpose of this research paper is to investigate the chemical composition and antioxidant capabilities of extracts derived from both the leaves and rhizomes of *Hedychium flavescens*, a traditional medicinal plant found in the Western Ghats and Eastern Himalayan range in India. Preliminary phytochemical screening of rhizome extracts of the plant showed better results than the leaf extracts. On comparing the extracts, acetone and methanol extracts of plant parts- rhizome and leaf showed notable activity. Antioxidant potential was analyzed using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging and hydrogen peroxide scavenging methods. Antioxidant tests suggest promising results especially shown by the acetone extract of the rhizome, indicating the potential of *Hedychium flavescens* as a natural reservoir of antioxidants.

Keywords: Phytochemical analysis, Antioxidant activity, *Hedychium flavescens*, Zingiberaceae, Medicinal plants



**MS. AMRITA ANANDI
 ASSISTANT PROFESSOR**

In Vitro Antidiabetic and Anti- Inflammatory Analysis of Rhizome Extract of *Hedychium Flavescens*

Anand A. A.^{1*}, Vithana S.¹, Marjany J., Gideon V. A.²

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Abstract

The objective of this study was to assess the potential anti-inflammatory and anti-diabetic properties of *Hedychium flavescens*. The anti-diabetic activity was determined using a *in vitro* laboratory assay with the DNSA method, while the anti-inflammatory activity was evaluated using a modified version of the method developed by Marudasa et al. In the examination of the anti-diabetic effect, the acetone extract of *Hedychium flavescens* rhizome demonstrated an IC50 value of 30.25 µg/ml, indicating higher activity compared to the standard Acarbose. However, the acetone rhizome extract exhibited relatively lower inhibition in terms of anti-inflammatory activity, with an IC50 value of 42.35 µg/ml compared to the standard.

Key Words: *Hedychium flavescens*, Antidiabetic, Anti-inflammatory, Zingiberaceae, Medicinal plant

1. Introduction

The metabolic disease called diabetes mellitus is characterized by low or faulty insulin action, which raises blood sugar levels. It affects approximately 17% of the global population, particularly in industrialized and developing countries^[1]. Diabetes is associated with some of the primary factors contributing to mortality on a global scale. In India, the number of diabetic patients has doubled in the past two decades, and it is projected that by 2025, around 99.9 million people will have diabetes. The economic burden of diabetes-related deaths in India is estimated to be around \$219 billion annually. According to the World Health Organization, it is projected that this figure will increase to \$351 billion in the next decade^[2].

The treatment of diabetes is complex, and the available drugs have various adverse effects, including weight gain, disruption of normal function, acidosis of the liver, liver damage, drug resistance, and toxicity^[3]. Other side effects include hypoglycemia, gastrointestinal upset^[4], increased risk of urinary tract infections^[5], and higher susceptibility to upper respiratory tract infections^[6]. The existing treatments for diabetes offer medical advantages and are accompanied by metabolic exposure and potential risks. The disease is not cured by these, instead, they suppress the symptoms, which can have long-term negative effects on overall health. Traditional treatments will remain the cornerstone of diabetes care; however, alternative and emerging therapies possess the capacity to supplement or potentially replace current treatments, thereby facilitating optimal diabetes management^[7].

A typical sign of many chronic diseases is inflammation. It is an innate reaction to tissue damage brought on by harmful substances, microbiological pathogens, or physical trauma. Its goal is to restore damaged stimuli and start the damaged tissue's healing process^[8]. The inflammation is caused by the destruction of proteins, and the destruction can be inhibited by anti-inflammatory drugs. Nevertheless, these medications can lead to gastrointestinal issues, which can further result in complications such as ulcer bleeding, perforation, and obstruction. They might also be involved in major cardiovascular events such as acute renal failure, hypertension development, myocardial infarction, and the worsening of established heart failure^[9].

Natural and more effective alternatives can be observed in medicinal plants that have traditionally been used to treat diabetes and inflammation. India is home to a plentiful number of medicinal plants. The beneficial effects

**DR. GANAPATHY GANESAN
 ASSISTANT PROFESSOR**

Sharda University hosted a webinar on "AI in Biotechnology" on July 12, 2024, with Dr. G. Ganapathy. He discussed AI's transformative potential in healthcare, agriculture, and environmental monitoring, highlighting machine learning, IoT devices, and real-world applications like cancer diagnosis and crop disease detection.



Consolation prize- JJ college of arts and Science
National conference on "Global opportunities and latest developments in biotechnology"
Dept of Biotechnology -DBT, CSIR
Ministry of Science and technology , Government of India.

Keren Patricia R
B.Sc Biotechnology
Bishop Heber College

Paper Publication

Govarathanan M
Jaisri R T
Janavi T
Joel Giftson G
Kanika K
Kamini K
Jasmine R
M.Sc Biotechnology
Bishop Heber College

Runners' - Festotle'24
Department of Zoology
Holy Cross College



Asian Journal of Advances in Research

Volume 6, Issue 1, Page 184-191, 2023; Article no.AJDAIR.2486

Utilization of Waste Peels for Enhanced Production of Bioplastics by *Enterococcus fecium* - A Green Initiative

M. Govarathanan^a, R. T. Jaisri^a, T. Janavi^a, J. Joel Giftson^a, K. Kanika^a, K. Kamini^a and R. Jasmine^{a*}

^a Department of Biotechnology & Bioinformatics, Bishop Heber College, Trichy, India.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Original Research Article

ABSTRACT

From ancient times, plastics have become a part and parcel of human life. Though it has become indispensable, yet disposal has created a problem and has become an environmental concern. The introduction of bioplastics is thought to be a solution to address the problem. However, isolation and characterization of microbes with bioplastic production potential are being investigated. Several sources were sought after to screen for PHB producing bacteria and in such attempt, we have initiated to isolate bacteria producing PHB from curd sample. Such bacteria was cultured and identified through 16S:rRNA sequencing. To replace expensive conventional media, peels of banana and beet roots were used to culture the bacterium without any chemical supplementation. This has been reported for the first time. The PHB produced by the bacterium was extracted following standard protocol and was confirmed by GC-MS analysis. The bioplastic film was prepared using PHB powder extracted and biodegradation and solubility study was conducted. Hence, utilization of waste vegetable and fruit peels serve as carbon source enhancing the bacterial growth, leading to the production of PHB in nitrogen deficient condition. In future, the waste peels could be utilized as medium for PHB production, which also addresses the problem of pollution.


Keywords: *Enterococcus fecium*; biopolymer; PHB; Sudan black; GC-MS.

Maheshwarar S
Yogapriya T M
Jayashree M
Kaviya Karthi
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Jessica B
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B.Sc Biotechnology
Bishop Heber College

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Department of Biotechnology

PRAYER CELL
Cordially Wishes



Ms. A. SHERLIN DIKSHITHA
 II MSC Biotechnology "B"
 For being elected as
PRAYER CELL SECRETARY OF BHC STUDENT COUNCIL

Those who seek the lord shall not lack any good thing
 Psalm 34 : 10

Sherlin Dikshita A
II M.Sc Biotechnology
Secretary
Prayer Cell
BHC Student Council



Parkavi I
III B.Sc Biotechnology
Placed in Tata Consultancy
Services (TCSion)



BISHOP HEBER COLLEGE (AUTONOMOUS)
Deanery of Training & Placement

Congratulations to our UG Students for being selected by TCS (BPS) 2024 YOP

Role : Process Associate
Sincere Thanks to Our Esteemed Recruiter

Dr. Anita Priya Raja
 TPO, T & P: BHC

Dr. J. Princy Merlin
 Principal, BHC

Dr. Suresh Frederick
 Dean, T&P: BHC

**Runners - Xtronica'24
RDB College
Papanasam**



**Maheshwarar S
Swetha
Rithishiya
Adhi
Seshan K**

**Winners - Cali (H)eber
Short Film Making**



**Joshua Daniel J
Edwin Jernet D
Santhana Krishna
Naveen
Santhosh
Archana**

**Runners - Tiger Day Celebration
Quiz Competition
Department of Zoology
Bishop Heber College**



**Seimaan Mohammad
Haja Sherif
Jai Ganesh
Vishal
Archana
Joesna**



Nisha V received Rs 5000/- and 3rd Prize (Oratory) in District Level Kalaignar Nootraandu Vizha, Trichy

Nisha.V won 2nd place (ORATORY) and received Rs. 1,500/- for நவீன தமிழகத்தின் சிற்பி கலைஞர் 100 Organized by the Dep of Tamil.



Archana of B.Sc Biotechnology participated in the state level competition on the commemoration of Aringar Anna's Birthday and secured the 13th place in top 25



Yuvasri B
1st Prize - Bio-De-Fiesta'24
Department of Biotechnology
St. Joseph's College
Event : Photography



Chandhini Begum M
1st Prize - Bioinnova Club
Department of Biotechnology
Bishop Heber College
Event : Model Presentation



Zinofer Rosina M
1st Prize - Poem Writing
Department of Food
and Nutrition
Bishop Heber College

STUDENT - WRITTEN ARTICLE

BIOTECHNOLOGY'S SUCCESS STORIES

Biotechnology has achieved remarkable milestones, significantly impacting healthcare and agriculture. One of the most notable achievements is the development of targeted therapies and biologic drugs, such as monoclonal antibodies and gene therapies. These advancements have transformed the treatment landscape for complex conditions like cancer, cystic fibrosis, and various genetic disorders, offering hope where traditional methods often fall short. Additionally, the success of mRNA technology in creating COVID-19 vaccines showcases biotechnology's potential to rapidly respond to emerging global health threats, setting a new precedent for vaccine development.

In agriculture, biotechnology has led to the creation of genetically modified crops that have enhanced nutritional profiles, increased resistance to pests and diseases, and improved environmental adaptability. For instance, Bt corn, which produces a protein toxic to specific insects, has significantly reduced the need for chemical pesticides. Furthermore, biotechnology-driven advancements in crop breeding techniques, such as CRISPR-based gene editing, promise to accelerate the development of crops that can thrive in changing climates and meet the growing global food demand. These achievements underscore biotechnology's pivotal role in advancing human health and sustainable agriculture.



BY MARC ROSHAN

BIOTECHNOLOGY: A REWARDING CAREER WITH ENDLESS POSSIBILITIES

K.MADHUMITHA

Biotechnology is an astounding field with the potential to transform the planet. It blends biology and technology to develop new products and solve problems in a wide range of sectors. Biotechnology is a field that requires determination and effort because it can be difficult and complex. For people who are enthusiastic about biotechnology, it can be more than just a job or a topic of study. It may be a hobby, a means to experiment with new ideas and push the limits of what is possible. Biotechnology admirers can experiment with new techniques and technologies, learn about the most recent advancements in the area, and connect with others who share their interest.



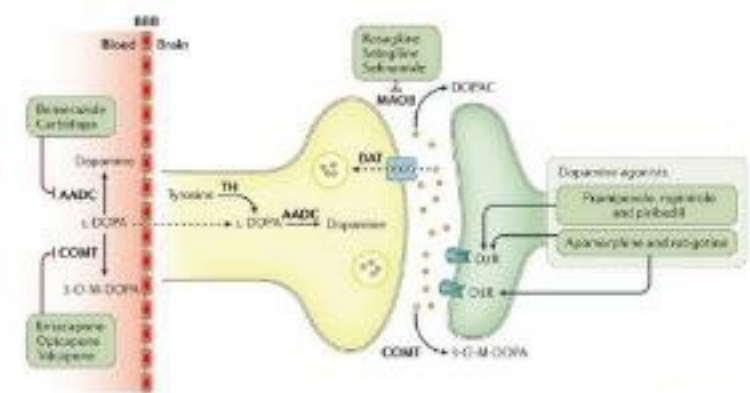
The subject of biotechnology is expanding and has a great need for qualified workers from a variety of backgrounds, including environmental science, medicine, and agriculture. Professionals can work on cutting-edge projects in this rapidly changing field, increasing human health, sustainability, and quality of life in the process. There are many different professional pathways in biotechnology, including quality control and assurance, regulatory affairs, commercial development, research and development (where scientists and engineers create new products, technologies, and processes), and teaching and training. These professionals traverse regulatory frameworks, find development and cooperation opportunities, assure the quality and safety of biotechnology goods, and instruct and train the next generation of biotechnology workers.



In summary, biotechnology presents a fulfilling career path with countless opportunities for experts to have a significant influence. A career in biotechnology offers stable employment, variety, and promising advancement prospects with a solid grounding in technological advancement and scientific knowledge. This makes it a desirable sector for individuals who are driven to improve lives and contribute to a better tomorrow.

Marc Roshan
III UG

Biotechnology and Parkinson's Disease : Pioneering New Treatments



Nature Reviews | Disease Primers

Parkinson's disease (PD) is a progressive neurological disorder affecting millions worldwide, characterized by the degeneration of dopamine-producing neurons, leading to motor symptoms like tremors and rigidity, and non-motor symptoms such as cognitive impairment. Current treatments, including Levodopa and deep brain stimulation, offer symptomatic relief but have limitations and side effects. Biotechnology is emerging as a promising field for PD treatment. Gene therapy, which introduces or alters genetic material within cells, is being explored to increase dopamine production or protect neurons. Notably, viral vectors delivering the GDNF gene show potential in promoting neuronal survival. Stem cell therapy, using induced pluripotent stem cells to generate dopamine-producing neurons, offers another avenue, reducing immune rejection risks. Additionally, biotechnology aids in developing biomarkers for early diagnosis and monitoring disease progression, enabling personalized treatments.

A breakthrough in gene therapy was achieved using an adeno-associated virus vector to deliver the AADC gene to patients with advanced PD, resulting in significant improvements in motor function and quality of life. Despite these advancements, challenges remain, including ensuring long-term safety, addressing ethical concerns, and making treatments accessible.

The integration of biotechnology in Parkinson's disease treatment represents a paradigm shift, bringing us closer to effective therapies and, potentially, a cure. Continued investment in research and collaboration among scientists, clinicians, and policymakers will be essential to turn these innovative approaches into tangible benefits for patients worldwide.

Zinofer Rosina

Zinofer Rosina
III UG

Madhumitha K
III UG

STUDENT – WRITTEN ARTICLE

Alzheimer's blood tests are getting better, but still have a ways to go

The blood tests will not replace other diagnostic evaluations

Alzheimer's disease is hard to diagnose. But proteins in the blood might provide clarity.

A series of recent findings, presented at the annual Alzheimer's Association International Conference in Philadelphia and in research papers, raise the possibility of a simple blood draw to help doctors figure out if a person's cognitive problems are caused by Alzheimer's — or something else.

Decades ago, the only definitive way to get a diagnosis was an autopsy. Since then, scientists have figured out how to see the disease in living people. Spinal taps reveal levels of key proteins associated with the disease. And brain scans can illuminate the characteristic plaques and tangles that mar the brain in a person with Alzheimer's disease.

ARTICLE ON GLOBAL WARMING:

Global warming of 1.1°C above pre-industrial levels has been caused by over a century of burning fossil fuels and unequal, unsustainable energy and land use. This has led to an increase in the frequency and intensity of extreme weather events, which have caused dangerous impacts on nature and people worldwide.

Each increment of warming results in rapidly escalating hazards, such as more intense heatwaves, heavier rainfall, and other weather extremes that increase risks for human health and ecosystems. Climate-driven food and water insecurity is expected to increase with increased warming. When these risks combine with other adverse events, such as pandemics or conflicts, they become even more difficult to manage.

To close the gap between existing adaptation and what is needed, accelerated action to adapt to climate change is essential in this decade. Keeping warming to 1.5°C above pre-industrial levels requires deep, rapid, and sustained greenhouse gas emissions reductions in all sectors. Emissions should be decreasing by now and will need to be cut by almost half by 2030 if warming is to be limited to 1.5°C

In October 2018 the IPCC issued on the impacts of global warming of 1.5°C, finding that limiting global warming to 1.5°C would require rapid, far-reaching and unprecedented changes in all aspects of society. With clear benefits to people and natural ecosystems, the report found that limiting global warming to 1.5°C compared to 2°C could go hand in hand with ensuring a more sustainable and equitable society. While previous estimates focused on estimating the damage if average temperatures were to rise by 2°C, this report shows that many of the adverse impacts of climate change will come at the 1.5°C mark.

The report also highlights a number of climate change impacts that could be avoided by limiting global warming to 1.5°C compared to 2°C, or more. For instance, by 2100, global sea level rise would be 10 cm lower with global warming of 1.5°C compared with 2°C. The likelihood of an Arctic Ocean free of sea ice in summer would be once per century with global warming of 1.5°C, compared with at least once per decade with 2°C. Coral reefs would decline by 70-90 percent with global warming of 1.5°C, whereas virtually all (> 99 percent) would be lost with 2°C.

The report finds that limiting global warming to 1.5°C would require "rapid and far-reaching" transitions in land, energy, industry, buildings, transport, and cities. Global net human-caused emissions of carbon dioxide (CO₂) would need to fall by about 45 percent from 2010 levels by 2030, reaching 'net zero' around 2050. This means that any remaining emissions would need to be balanced by removing CO₂ from the air.

The concentration of carbon dioxide in our atmosphere is the highest it has been in 3 million years. The last four years were the hottest years on record and in many parts of the world, we are already seeing the consequences of global warming with

Kumaraguru
III UG

ARTICLE ON THE TOPIC: CLIMATE CHANGE

The greatest trouble the people face today is natural disaster and the difficulty in managing the environmental problem. Many scientists and environmentalist hugely concerns about our environment and expressing their deep concerns about the climate change all over the world. There is needy that, common people should understand where we are talking this world. On discussing about this climate trigonometrical hazards, its actually pioneered in the era of 1938 by calendar talked about the temperature fluctuation and varying in rising of huge heat in earth and its all because of the Co₂ emissions from industry were responsible, on that time its largely ignored by people and they believed that humans were impossible to cause the mass impact in environment and climate.

We know the people from the field of physics and technologist were indulging in the great importance in advancement in tech world and these were the people also a reason for the modern innovations and tech development in todays era. But do you believe they were the actual mile stone for my todays article yes , here is the reason In 1820 French mathematician and physicist Joseph fourier proposed that energy reaches the planet as sunlight must be balanced by energy returning to space through any of way or else there will be radiation causes to earth and results in rising warm. Our earth thin layer always acts like a glass. Comparitively in moist air and dry air, in moist air heating effect of sun will be higher.

Hear the quote of Arrehenius wrote once in 1890, " By the influence of increasing percentage of carbonic acid Co₂ in the atmosphere, we may hope to enjoy the ages with more equable and better climates, especially as regards the colder regions of the earth".

In 1940-1970 in between people believed that pollution acutally causes cooling the earth and they experienced during this period, in fact the idea is that sunlight-blocking pollutants could cool the earth caught on in the media in 1974 time magazine titled Another ICE AGE?

Its 1988, a critical turning point, many environmentalist points that's summer of 1988 was the hottest on record there was widespread drought although the countries and wild fires with in the United states. This the era environmentalist sounding the alarm they were 99% sure its global warming was upon us.

Kirubalini K
III UG

Kirubalini K
III UG

Class of 2024

ALUMNI PANEL



Dear Brothers and Sisters, in my opinion, our department is excellent and boasts an admirable ecosystem. We have a well-equipped laboratory that stands out compared to other institutions. Our friendly staff consistently provide insightful guidance and support. It is an ideal environment for academic learning and enjoyment. Best regards, Shyam.

Our teachers inspire us to explore new concepts and work diligently for our skill development. They guide us in completing projects and encourage us to participate in paper and poster presentations at other colleges. Most importantly, they help us choose our careers, often through orientation classes like "WHAT NEXT" that focus on our future. Their dedication and friendly demeanor have enabled us to excel in our passions. Best wishes, Devi.

Hi everyone, I hope you are all doing well. Bishop Heber holds a special place in my heart, particularly the Department of Biotechnology. My batchmates, the staff, friends, seniors, and juniors are all very dear to me. I cannot adequately describe the love and care they have given me. I truly miss you all. Stay happy and all the best. Cheers!
Ananth..

This department is full of possibilities. Work hard, ask questions, and you'll achieve great things. The environment here is both inspiring and supportive. Take advantage of every opportunity and never stop learning.
Kaviya



PRAYER CELL EXHIBIT

"Blessed shall you be when you come in, and blessed shall you be when you go out."

(Deuteronomy 28:6)



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Head of the Department
Dr. Jasmine Jemimah Jeyanthi R
Editor
Dr. Chrisanne Freeman

